The Trump Nuclear Posture Review; Towards a Changed Nuclear Strategy for the U.S?

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Preface

This project sprung out of an excellent class on the nuclear weapons and strategy in the fall 2017, taught by Målfrid Braut-Hegghammer at the University of Oslo. This class engaged something in me I have not found since the beginning of my master’s program, hence the turn in subject in my master thesis. The release of the Nuclear Posture Review February 2018 gave an excellent opportunity to investigate a highly relevant topic; the nuclear strategy of the United States. I was lucky to get Målfrid as my supervisor, and I want to give her my thanks for guiding and helping me through this process, which seemed impossible at the time. I cannot express my thanks enough. This project would not be possible without her help, and the help of family, friends, and my boyfriend. Therefore, I would like to thank my parents, for putting the right amount of pressure for me to finish this project. To my colleagues, who enabled me to spend hours at the library in our busiest times. To Frida and baby Amalie, who came with lunch, coffee and comfort when most needed. And finally, to the man I live with, for enduring all the ups and downs. I promise to return to my cheerful self again. I hope this project gives insight to the current debate on nuclear weapons, their role in the nuclear age we now live in, and how U.S. nuclear strategy affects the international security environment.

Abstract

There is a current debate about the impact and content of the Trump Nuclear Posture Review, which presents the indented nuclear strategy of the United States. This document is controversial because it opens for nuclear testing and development of new nuclear capabilities. This thesis unpacks this document to examine if the Trump nuclear posture review suggests a changed approach to U.S. strategy. By comparing the review to the previous nuclear posture review of Obama in 2010, the thesis argues there are more differences than similarities between the two documents. These proposed changes are not directly transferable to actual policies due to the declaratory nature of these documents. Consequently, the Trump nuclear posture review does suggest a change in the approach to nuclear strategy, but these changes can only be interoperated as signals send to the world and not as actual policies. The objective of the thesis is to shed new light on the potential changes, especially concerning the approach to deterrence and main differences in nuclear strategy compared to previous strategies.
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1.1 Introduction

This thesis will examine current developments in U.S. nuclear policy under the Donald J Trump administration. More precisely I examine the following question: does the Trump nuclear posture review suggest that the U.S. is changing its approach to nuclear strategy? A nuclear posture review is a policy document, which presents the intended nuclear strategy. A nuclear posture review describes the security environment and challenges to U.S. security. Based on this, the document presents how nuclear weapons can be used to meet these challenges.

This is of importance for several reasons, as the U.S. nuclear policy affects how the U.S. manages its relationship between allies and adversaries (especially Russia). It can also affect how the U.S. maintains deterrence, and which strategies the U.S. is likely to adopt in order to deal with the challenge of emerging nuclear states like North Korea and potentially Iran. It has implications for the international security environment because the U.S. nuclear policy is watched around the world, and shapes the decisions of other states. The U.S. nuclear posture can also affect the non-proliferation regime, efforts to prevent nuclear terrorism, arms control and crisis stability. In addition, it is important for the economy as modernization of nuclear capabilities are expensive. A nuclear policy with modernization ambitions can also affect the international stability. And most importantly, nuclear strategy is important because nuclear war would be catastrophic (Gavin 2018). All these elements makes the U.S. nuclear strategy a timely and important subject of analysis.

Analyzing the 2018 Nuclear Posture Review (NPR) can shed new light on the potential changes, especially concerning the approach to deterrence and main differences in nuclear strategy compared to previous strategies. Unpacking the 2018 NRP and comparing it to the 2010 NPR enables analysis of the changes in the U.S. nuclear strategy, and what signals it sends out. The discussion will not focus on the impact as there are several other elements that determines the actual acted out politics (et.al), but the documents as political signals to other states. The reason for this is the nature of this policy document, as it is not programmatic but a declaration of intentions for the intended nuclear strategy and posture for the U.S. now, and in the future.
Addressing the question of change in strategy, versus other kinds of changes or effects, requires a systematic review of the 2018 NPR, and a comparison with the the 2010 NPR to see if there is a changed approach to nuclear strategy. In this thesis, I provide a systematic comparison broken up into five sections. First, chapter 1 presents literature on the concepts of nuclear posture, deterrence, strategy and doctrine, followed by literature review on the 2018 nuclear posture review (NPR). Chapter 2 elaborates on the nature of the nuclear posture review as a policy document. Chapter 3 presents the content of the 2018 NPR and the 2010 NPR, divided into the following categories: the security environment, the role of nuclear weapons, the objective of the NPR, and the presented strategies in the documents. Based on this, chapter 4 will discuss the similarities and differences and elaborate on what the 2018 NPR can tell us about the U.S. nuclear strategy. Chapter 5 concludes the main findings of the thesis, arguing that the Trump nuclear posture review is changing the approach to nuclear strategy by sending out signals of a renewed focus on nuclear weapons in U.S. security matters. This includes flexible capabilities, opening for nuclear testing and development of new nuclear capabilities. The presented nuclear strategy in the NPR cannot be directly translated into actual policies, but as a declaration of intentions about the role and use of nuclear weapons in achieving U.S. policy interest. Using a mixed method, content analysis, comparing two policy documents in terms of language, political signals in the text, what they include and exclude will enable us to assess whether there is a change in nuclear strategy.

1.2 What is nuclear strategy?

In broad terms, nuclear strategy boils down to how, when, and why states may use nuclear weapons. These fundamental questions remain matters for inference and conjecture (Freeman 1989:221). There has been no constant and generally accepted definition of strategy, but one definition of strategy can be “the art of distributing and applying military means to fulfill ends of policy” (et.al:284). In other words, nuclear strategy presents the means to fulfill different policy objectives. The term strategy is debated as much as nuclear strategy itself, and the question on nuclear strategy has been: “in which ways nuclear weapons can be sufficiently deliberate and controlled in order to meet political objectives” (et.al). During the Cold War, the U.S. and the Soviet Union invested efforts and thought into how and whether nuclear posture affected the strategic balance (Narang 2014:5). The vocabulary on the nuclear strategy included phrases like “assured destruction”, “flexible response”, “massive retaliation”, 
“countervailing strategy and “damage limitation” (et.al). These different postures in a nuclear strategy would affect the American ability to deter the Soviet Union, but we do still not know what size and type of nuclear arsenal is sufficient to deter (et.al). Figuring out how to use nuclear weapons to achieve policy objectives is the heart of a nuclear strategy, and a nuclear strategy can therefore be defined as a state’s views and plans on how nuclear weapons can achieve policy objectives.

1.3 Literature review on deterrence, nuclear strategy, posture and doctrine

As Lawrence Freedman notes in his book “The evolution of Nuclear Strategy”: there is no general accepted definition of strategy. This is also true for the concept of deterrence and “that concept was put forward almost at once at the beginning of the nuclear age that is still the dominant concept of nuclear strategy- deterrence” (Brodie 1978:65). Nuclear deterrence became a concept when “secure second strike capabilities” were a fact, which marked the nuclear revolution by rendering defense impossible and force was the final arbiter of disputes among states (Powell 1990:1). The previous tactics of threaten to use force to achieve objectives depended on a state’s own defense capabilities, but the nuclear revolution undercut this way of achieving one’s goals as defending against a nuclear attack is fundamentally different than defending a conventional military attack (et.al). Then, how can a state reach its objectives with use, or threats of using force when defense is problematic? This is a central question of deterrence theory, and as nuclear strategy always include the concept of deterrence policymakers must ask themselves the following questions: What are the physical requirements of successful deterrence? What kinds of wars does nuclear weapons really deter? What is the role for tactical nuclear weapons? If deterrence fails, how is a nuclear war fought and for what objectives? (Brodie 1978:68). Analyzing the NPR will give us insights on the U.S. views on deterrence and how policy objectives can be achieved through the use of nuclear weapons.

In short, the main purpose of deterrence is to prevent aggression, and nuclear deterrence is how nuclear weapons can be applied in order to achieve this objective. Nuclear weapons are challenging as they are not meant to be used as the consequences can be catastrophic, but at the same time they are designed do be used in order for them to be a credible deterrence of
aggression. The uncertainties in what makes a credible deterrence is a continued challenge in the making of nuclear strategy, but since there has not been a nuclear attack since 1945 the nuclear deterrent can be seen as a viable policy, even though it might not be credible. The reason for the lack of credibility is the nature of nuclear weapons. Their destructive powers retains any leader from using them, but at the same time for a deterrent to be credible, a nuclear strategy must convince adversaries that there is an actual possibility that the nuclear weapons will be used. Knowing all possible consequences of a nuclear attack is impossible, but the fear of a process getting out of control is the strongest source of caution there is. States seek to deter via nuclear weapons in many different ways (Freedman 1989):

1. Exploit the destructive power to make war seem greater folly than before
2. Searching for a way to deny enemies this destructive power by engaging in defense or first strike that can eliminate the enemy’s ability to retaliate
3. To deny the essence of nuclear weapons and develop tactics for their use which minimizes their destructive power (small-yield weapons). In order for it to work, there must be clear rules for meticulous control and self-restraint. It is doubtful that there is success in breaking the association between any form of nuclear use and utter catastrophe

The concept of nuclear deterrence can be seen as either; the capabilities which enables a flexible response to potential aggression, or mutual vulnerability where the fear of a situation escalating to unbearable consequences creates deterrence. Which of these concepts are viewed as the best option to prevent aggression lays the foundation for the chosen nuclear strategy.

There are many ways a country can arrange the nuclear strategy. One approach can be to reduce the dependence on nuclear weapons and rely on conventional force, but this is costly and risky. The U.S. has searched for a formula that will provide advantage, and this has been sought in the superiority of the weapons themselves (Freedman 1989). But, as long as other countries has nuclear weapons and delivery systems any chosen strategy is vulnerable to a response which could result in unendurable destruction. This is the essence of the difficulties in making a nuclear strategy, to attach rationality to the initiation of a chain of events that would end in destruction of the U.S. society (et.al). Consequently, all strategies which
includes threats of first use, and also threats of retaliation, suffers from incredibility. Therefore, the strategy of having a flexible response will require the adversary to believe the U.S. will actually use nuclear weapons in response to aggression.

Another difficulty in constructing a nuclear strategy is the amount of uncertainties, which can only be approached through speculation and conjecture as strategy is about influencing the thought process of political leaders in horrific circumstances. There is no knowing how a president will react to a nuclear attack, or how the opponent leaders would respond to a nuclear attack (et.al). Hence, evaluating nuclear strategy is a difficult task, and the answers we get must be used with caution.

What can we make out of nuclear strategies? Even the most appealing set of scenarios could result in full-scale nuclear war, and strategies are often revolved around maintaining good relationships and mechanisms of arms control (Freedman 1989). In the 70s and 80s there international system has been only marginally affected by the variations in nuclear policies (et.al). Consequently governments have accepted high costs to resolve the contradictions in deterrence strategies as deterrence has become a function of the condition created by the stocks of weapons, deployment, character of the command and control arrangements, links to conventional forces, and underlying conflicts of interest. Hence, deterrence works less through threats and more through a sense of whole unacceptable risks (et.al).

This was the situation by the end of the Cold War, but from then and until 2014 nuclear weapons receded into the background and were viewed as nothing more than Cold War relics in the West. Today nuclear weapons and nuclear strategy are returning to the center of politics among nations (Kroenig 2018:140). For example, in 2009 it was debated whether nuclear abolition was an actual possibility, but such de-emphasis on nuclear weapons has been overshadowed by the fact that nuclear weapons remain the ultimate instrument of military force. This fact makes nuclear weapons essential tools of great power political competition (et.al). The 1990s and 2000s were a time where the U.S. were he world’s unipolar power, but today we see a return of power political competition and therefore also the salience of nuclear weapons (et.al). Therefore the question from the Cold-War emerges, what strategy and
posture does the U.S. need to protect itself and its allies? (et.al). According to the conventional wisdom the answer is a secure, second-strike capability; a nuclear force capable of absorbing an enemy attack and the force to retaliate with a devastating nuclear counterattack (et.al). As long as this capability is available, no sane leader would launch a nuclear attack and deterrence will hold (et.al). This argument has an important puzzle as the U.S. has maintained a nuclear posture more robust than mere second-strike capability and recurring interest in military nuclear advantage over rivals (et.al). Scholars argue that the capabilities beyond second-strike does not matter, but the policy-makers behave as if they do (et.al). According to Matthew Kroenig, the logic of having capabilities beyond second-strike capabilities does contribute to national security goals (et.al). “This is primarily because a robust nuclear force reduces a state’s expected costs of nuclear war, increasing its resolve in high-stakes crisis, providing it with coercive bargaining leverage, and enhancing nuclear deterrence” (et.al 184). For Kroenig’s theory to make sense, the argument that there has been a change in nuclear strategy must be true. If this is the case, Kroenig’s theory can be used to explain the choice of strategy, which shown by Freedman is a difficult task.

There are contradicting views on nuclear posture, and that deterrence can be achieved at more minimal nuclear posture than what was the case during the cold war (Narang 2014:6). This brings us to the concept of nuclear posture, which can be defined as: “states selects nuclear postures in a way that optimizes their force structure for their external security environment and their internal threats and constraints (et.al 2014:27). A state’s nuclear posture is made up by careful calculations on which strategy to choose in order to deter adversaries, and what a state is organizationally and financially capable of doing. Based on this, a state have optimized their choice of posture in response. Choosing this posture is regulated by variables to produce a specific posture, and it is the power position that determine what a state must deter with its nuclear forces (et.al). An operationalized definition of nuclear posture can be “the operational capabilities of a nuclear force, with defined employment doctrine, and an understanding of how a state authorizes the command and control of raid nuclear weapons” (Mauroni 2018). This makes the nuclear posture different from a nuclear statement of the nuclear doctrine and tactics, which offers the rationale for peacetime procedures of developing and maintaining nuclear weapons. Hence, nuclear doctrines like the NPR gives insight in how nuclear weapons might be used in times of crisis (et.al).
The U.S. nuclear doctrine is part of the nuclear strategy. A state military doctrine, and nuclear doctrine, is a guide to action for the armed forces, and defense industry. Also, it defines the probability of potential wars and conflicts, as well as aims and objectives operations, training and equipment. By explaining under what circumstances military action will be a possibility, it sends out signals to both adversaries and allies. Defining ways to deter adversaries has been a top priority of the military doctrine agenda (Arbatov, Dcorkin & Oznbishchev 2010:8). The NPR can be seen as a doctrine as it lays out strategies of how to deal with the possibility of aggression and how to deter adversaries and protect its allies. When the 2018 NPR was released, newspapers addressed it as the “U.S. nuclear doctrine”. Hence, the NPR might not be directly translated to actual policies, but it does send out signals to allies and adversaries about the intended nuclear strategy.

The NPR is a policy document conducted by the Office of the Secretary of Defense, which was released February 2018. There has been three NPRs prior to the 2018 posture review. The document reviews the U.S. nuclear posture with the objective to “ensure a safe, secure and effective nuclear deterrent that protects the homeland, assures allies and above all, deters adversaries” (NPR 2018:I). The document presents how the U.S. views the security environment, what role the U.S. places on nuclear weapons, what the policy objectives are, and based on this which strategy to use.

As shown here, there is no agreement on why a certain strategy is chosen by particular individuals or states, and what nuclear posture is the most effective to achieve the goal of deterrence. Also, as noted by Kroenig, the U.S. nuclear posture is more robust than necessary, which indicates there is additional benefits to nuclear weapons than deterrence. As Vippin Narang writes in his book “Nuclear Strategy in the modern era”, deterrence can be achieved with a smaller nuclear posture because one nuclear weapon is potentially enough to deter aggression (Narang 2014). Therefore, it makes sense to unpack the U.S. nuclear strategy to see what is the chosen strategy is to achieve its policy objectives, and what signals this sends out to others states.
1.4 Literature review on the 2018 Nuclear Posture Review

After the release of this document, several scholars conducted a policy roundtable to review the NPR (Acton 2018). In this roundtable nine scholars review the NPR with each own take on the document. There is little agreement about the impact, changes, and content of the Trump NPR (Gavin 2018). The following literature review will elaborate on the discourse on this document, which is a controversial discussion because there is little consensus on the impact of the document, nor on the content. The 2018 NPR is controversial in many ways. First, this doctrine opens up for testing nuclear weapons, and if necessary develop new weapons. This is a departure from previous doctrines, and hence subject to investigation. Also, the document describes nuclear weapons as irreplaceable, contradicting Obama’s view on taking concrete steps to eliminate them. The 2018 NPR describes Russia as a potential adversary and uses direct language in portraying the Russian strategy as a threat to U.S. security and interests. It places a great role on nuclear weapons, and opens up for both limited nuclear use and nuclear response to non-nuclear attacks. Like Obama, this NPR seeks to modernize the nuclear arsenal, but not for the objective to get rid of non-deployed stockpiles. Rather, the Trump nuclear strategy seeks to modernize the nuclear arsenal and infrastructure in order to threaten its adversaries more credibly. This is an ongoing policy debate, which will evolve over time. This is a review of a “live” debate currently happening among scholars.

One of the most debated themes, and one which is subject of this thesis, is how different the Trump nuclear posture review is from the previous Obama NPR? At first glance the rhetoric of the Trump administration might indicate a radical departure from the previous posture review, but when the document is unpacked there might be more in common than not (Mauroni 2018). Yet, in terms of using threats of nuclear weapons the 2018 NPR departure from previous U.S. declaratory policy. The document states that the U.S. can use nuclear weapons to respond to non-nuclear attacks on the command and control, or warning and attack assessment capabilities (Acton 2018). This is of importance because such a response is asymmetrical and affects the credibility the threat which is meant to deter. Hence, deterrence is not achieved. Other argue that there might be differences in strategy, but the objectives are similar because there is continuity in the U.S. nuclear policy which is unlikely to be challenged by such policy documents (Nolan & Radzinksy 2018).
The similarities between the two documents are the commitment to the nuclear triad, maintaining strategic stability, support NATO nuclear capability, fight nuclear terrorism, commitment to the Nuclear Proliferation Treaty (NPT), modernize the nuclear arsenal, and continue the right to “first-use policy”. The differences are on the use of nuclear weapons, where the 2010 narrows the range of contingencies in which the nuclear weapons can play a role in deterrence. Yet, both documents use the term “catastrophic destruction” as a measure for when a nuclear response to a non-nuclear attack is warranted (Mauroni 2018). This conflicts with the views of Action, who argues that nuclear weapons in the 2018 NPR can be used in an increased amount of scenarios than the 2010 states. Mauroni then argues how Obama does not rule out the possibility that nuclear weapons might be required to defend vital interests, but the Trump NPR is more direct in its language. This language echoes Cold War strategies, when it opens up for use of nuclear weapons on non-nuclear attacks. Yet, the desire for the 2018 NPR to include more low-yield options in order to make nuclear weapons more usable should be as controversial as many argues (among them Narang 2018). Nuclear weapons are designed to be used, which is the fundamental point of deterrence. If they are not useable, the credibility of deterrence is gone. Hence, nuclear weapons cannot be made more usable (Mauroni 2018). Also, there is an argument that low-yield options makes it more tempting to use nuclear weapons for a President. This argument is invalid as the U.S. had thousands of low-yield nuclear weapons up until 1991, and there were several crisis where they could be employed. This never happened, because presidents understood the consequences of using them (et.al).

The description of the security environment is also an important element of the nuclear posture reviews. In the Trump nuclear posture review, the basis for the strategy is that there is a return to a great power competition, and this combined with challenges posed by regional actors like Iran and North Korea requires the U.S. to pursue a different nuclear agenda than 2010 (Long 2018). Scholars debate whether or not the characterization of Russia is correct or not. Long agrees with the NPR on how Russian modernization marks an asymmetrical response to the 2010 efforts to reduce the role of nuclear weapons. In turn, this legitimizes the 2018 NPR plans to modernize the nuclear arsenal in order to “keep up” with the Russian modernization. What is a mischaracterization is how the NPR portrait Russia as willing, even eager, to seek coercive advantage from the threat of actual first use (et.al). Putin has shown little appetite for invoking in the use of nuclear weapons other than to protect Russian
interests. It is crucial to get the characterization of Russia right, in order to prevent misperceptions and overreactions (et.al). Hence, the signals sent out by the NPR are important because it affects other state’s behavior and choices.

Extended deterrence and reassurance of allies are also an important aspect of the nuclear strategy. This has been a U.S. commitment in all nuclear posture reviews, but should be unpacked regardless (et.al). Extended deterrence needs to be credible, which means that the U.S. must respond to aggression towards any ally or partner. If an adversary reliably can strike an ally or partner, the extended nuclear deterrence credibility becomes questionable (et.al). The reason is that the response is stated to be limited nuclear response if deterrence fails, and to limit damage with offensive and defensive capabilities (et.al). Can limited nuclear response re-establish deterrence? Also, limiting damage with offensive and defensive capabilities can worsen the security dilemma and make crisis and arms race more intense (et.al). Consequently, the nuclear strategy affects the international security environment because the response to aggression towards allies and partners will have consequences for stability. In addition, there is an unlimited appetite for assurance among allies and partners, but why is this important for U.S. national security? It would be naïve to answer this question with “to be a good friend”. Assurance can be seen as a friendlier cousin of deterrence because it is about making allies take certain decisions and refraining from others (et.al). The goal of assuring allies can therefore be seen as a way to shape allied behavior.

Finally, the strategies chosen to maintain deterrence and other U.S. objective would be an important part of an analysis of the NPR as this is what (supposedly) will be operationalized and acted out by the U.S. The U.S policy tries to do way more with nuclear weapons than prevent invention (Gavin 2018). This is consistent with Koenig’s argument that the U.S. has chosen a more robust nuclear strategy than necessary to deter adversaries. As seen, there are much debate about the 2018 NPR, and this thesis seeks to shed new light on the changes in strategy, point out what actually can be read out of this type of document, and focus on which signals the U.S. nuclear strategy sends out to the international environment.
2.1 Nuclear Posture Review as a policy document

“There is always a debate over how much written strategy documents reflect the actual policies and plans of government” (Gavin 2018). Despite the search for this answer, scholars do not agree on the impact of security strategies, which NPR can be said to be. The years Donald Trump has been president there has been a gap between reality and rhetoric, which the NPR is a reflection of (et.al). The 2018 nuclear posture review is the fourth of its kind, and according to Francis J. Gavin there is less connections between these documents, and what actually matters in making policy (et.al). One reason for this is the nature of the U.S. political system, where the President has great independent authority when it comes to the use of nuclear weapons. Gaining insight in what presidents thinks about the potential use of nuclear weapons is an almost impossible task, which makes analyzing nuclear policies somewhat speculative (et.al). Yet, there is good reason to speculate and review the U.S. nuclear policies and the nuclear posture review, but it is important to recognize that the answers we get are in fact speculations and not proven rules (et.al). This must be kept in mind when reading this thesis, but unpacking the NPRs can reveal the intentions and views of the current and past administrations on deterrence strategy, the international security environment, the role of nuclear weapons, and their overall goals regarding the U.S. nuclear posture. A comparison between the two documents will contrast the approach each administration has to the use of nuclear weapons, how they maintain a modern, safe, secure, and credible nuclear deterrent strategy (Mauroni 2018).

Janne E Nolan and Brian Radzinsky describes the nuclear posture review as party platforms: “containing well intended aspirations as well as many inherent contradictions” (Nolan & Radzinsky 2018). Therefore the differences in the nuclear debate reflect different world views and strategic beliefs, and not fundamental differences in core values or priorities (et.al). Consequently, we are stumbling in the dark making sense of the nuclear posture review because it is misleading to read the NPR as a straight forward statement of U.S: nuclear doctrine” (et.al). The purpose of this document is to communicate the views of political leaders, rather than establish operational requirements. The actual procedures for the employment of nuclear weapons are the military planners within U.S. Strategic Command, and these planners are challenged to translate abstract political goals into real-world plans (et.al). This is in contrast to political leaders who focus on nuclear issues intermittently.
Consequently, these documents do not directly translate into changes in the operational posture (et.al). In comparing the two documents, what should the focus be? Nolan and Radzinsky presents two fundamental questions:

1. To what extent does deterrence depend on demonstrating how the U.S. would use nuclear weapons to prevail against any adversary at all levels of conflict?
2. To what extent does “what the U.S. says” about the value and utility of its nuclear weapons affect the behavior of others?

Studying the NPRs can provide insight in these questions and how different approaches are prioritized. It can be argued that policymakers overlook shared assumptions and conceptual blind spots, as well as overstating the ability to influence the behavior of allies, adversaries, and future proliferations through the dilatory policy (et.al). Hence, the nature of the nuclear posture review is declaratory and not programmatic.

This NPR is a post-Cold War phenomenon, born out of the Clinton administration’s desire to conduct a “bottom-up review” of the force structure in light of the new international environment and congressional pressure on defense budgets (et.al). The previous NPRs (Clinton, Bush and Obama) has not transformed the American nuclear posture, and failed to bring out major changes in the operational nuclear posture (et.al). The reason for this is the continuity in nuclear strategy which mitigates dramatic changes in the nuclear posture. The question we need to ask is therefore; what does changes in NPRs tell us? The answers lies in the signals sent out to the world from the documents because other countries might not share the view of continuity, and therefore the content of the NPRs does have an impact, despite it is hard to measure, on the international community (et.al).

3.1 Comparing the 2018 and 2010 Nuclear Posture Reviews

Many sees Obama and Trump administrations as diametrically opposed, also in the nuclear realms. The content analysis is structured as followed, before diving deeper into the different aspects in the discussion section. First, a description of the document’s view of the security environment. Second, what role should nuclear weapons have in the U.S. nuclear strategy, and third, what are the objectives these documents try to achieve? Finally, the specific
strategies are presented in three sub-categories; deterrence strategy, capabilities and infrastructure, and strategies for non-proliferation and nuclear terrorism.

3.2 Thematically unpacking the content of the NPRs

1.2.1.0. The international security environment

How the writers of the nuclear posture review view the international security environment is important to the choice of strategy. Comparing how the two documents looks at the security environment is essential to understanding the goals of the NPR, and the selected strategies.

3.2.1.1 2018 NPR on international security environment

In the NPR this chapter is called “an evolving and uncertain international security environment” (NPR2018:5). The chapter starts with the following quote:

“For the first time in 25 years, the United States is facing a return to great power competition. Russia and China both have advanced their military capabilities to act as global powers... others have now pursued advanced technology, including military technology that were once the exclusive province of great powers- this trend will only continue” (et.al).

The chapter continues by stating that the international security environment shapes the U.S. policy, strategy, and posture. Because the threat environment has changed, so must the thinking when formulating the nuclear strategy (et.al:6). This is the first sign in the document that suggest a changed strategy. The reason for thinking in a new way about nuclear strategy is the “return to a great power competition” because China and Russia seeks to revise the post-Cold War international order and norms of behavior by pursuing asymmetrical ways and means to counter U.S. conventional capacities. This includes Russia’s actions in Crimea
trying to alter the map of Europe, and their threats of limited first use. The latter is of importance because Russia gives nuclear weapons a larger role than strategic deterrence by relying on threats of limited nuclear first use in coercing the U.S., assuming that the U.S. will not respond to use of tactical nuclear weapons with strategic nuclear weapons. China is taking military initiatives in the South China Sea, and lacks transparency in their nuclear program. Consequently, this behavior increases the risk of miscalculation and military confrontation with the U.S. This characterization of two rivals of the U.S. lays the foundation for creating a different nuclear strategy than previously, and the document calls for flexible, adaptable, and resilient nuclear capabilities in order to protect the U.S., allies and partners. The words flexible and adaptable indicates an increased emphasis on more “usable” nuclear weapons.

The 2018 NPR states that the 2010 NPR was based on two expectations, first the potential for military confrontation with Russia would decline. Second, other states would follow the U.S. lead on reducing the role and numbers of nuclear weapons. Neither has been realized, and other states has expanded and modernized their nuclear arsenal (NPR 2018:7). By including how the 2010 has not been correct, the 2018 NPR indicates how it is appropriate to change the nuclear strategy. After having stated that the environment has changed, the 2018 NPR describes in detail how each adversary poses a threat to the U.S, starting with Russia.

“Russia considers the U.S. and NATO to be the principal threats to its contemporary geopolitical ambitions” (NPR 2018:8). The Russian strategy emphasizes on potential coercive military use of nuclear weapons that will serve to de-escalate a conflict favorable to Russia. The 2018 NPR points out that this is a mistake which increases the prospects for miscalculations. Russia has implemented this strategy by modernizing their arsenal and upgrading new warheads. The nuclear ambition in the U.S. and Russia over the last 20 years have evolved in opposite directions. Reducing the role of nuclear weapons in U.S. security strategy is a U.S. objective, while Russia is pursuing new concepts and capabilities for expanding the role of nuclear weapons in its security strategy”. This indicates that Russia has rebuffed repeated U.S. efforts to reduce the salience, role, and number of nuclear weapons. This characterization of Russia is debated, and the NPR focus on Russia’s stated strategy, but does not include how little thirst Putin has shown of actually using nuclear weapons. The
above description of the Russian threat might be a necessary element for the NPR to enable the proposed changes in nuclear strategy.

China has a policy that claims that China’s military will be “fully transformed into a first tier force by 2050”. The main problem with China is the lack of transparency regarding the scope and scale of their nuclear modernization, because it raises questions about their intentions. Like the characterization of Russia, presenting China as a threat to U.S. interest further strengthens the suggested modernization plans of the nuclear arsenal.

Further proliferation of nuclear weapons has posed threats and thereby worsened the security environment. North Korea has threatened to use nuclear weapons on the U.S. and allies in the region. It is an urgent threat to the U.S. and must be eliminated resulting in a Korean Peninsula free of nuclear weapons. The North Korean threat is the most immediate and dire proliferation threat to international security and stability. Iran poses proliferation threats, and their leader has stated that America is the number one enemy of our nation. The JCPOA agreement is fragile because the restrictions on the Iranian nuclear program ends by 2031. Also, they have the capability to develop nuclear weapons within a year if they decide to do so. The fear is that if Iran pursue nuclear weapons, the pressure on other countries to do the same increases. This is a familiar security issue, and it lays the foundations for the proposed deterrence strategies for these two countries.

After this description of how each adversary poses a threat to the U.S., the document defines future uncertainties which must be hedged against in the nuclear strategy: geopolitical uncertainty and technological uncertainty. The first includes potential shifts in how other states view the U.S., alignments among other states, and the relative power shifts in the international system. The second includes the potential for unanticipated technological breakthroughs on existing technology, or new technology, that will change the nature of the threats the U.S. is facing, thereby changing the capabilities required to address them effectively (NPR 2018:14). This is a clear indication towards a changed strategy, as it uses unknown future threats to legitimize changes in capabilities. The document presents it as necessary to change the nuclear capabilities, if not, the U.S. will not be able to hedge against
the presented challenges. The NPR claims it is certain that unanticipated developments will arise, and therefore the nuclear capabilities must be flexible, and attribute necessary to respond to the possible shocks of a changing threat environment. Again, repeating the world “flexible” points towards a change in the nuclear capabilities.

3.2.1.2 2010 NPR on the security environment

The chapter describing the security environment in this NPR is called “the changed- and changing- nuclear security environment” (NPR 2010:3). It states that it has changed dramatically since the Cold War, “the threat of global war has become remote, but the risk of nuclear attack has increased” (et.al). This is very different than the 2018 NPR, and in contrast the Obama NPR states that the most immediate and extreme threat today is nuclear terrorism as Al Qaeda are seeking nuclear weapons, which is assumed to be used if acquired. The risk is terrorist getting hold of what they need to build nuclear weapons. Hence, more work has to be done in achieving a global “lock down” for nuclear weapons, materials and technology. The capabilities to detect, interdict, and defeat such efforts are insufficient (et.al). The description of what is the most pressing urge in nuclear strategy is fundamentally different from the 2018, which does not mention this challenge in the description of the security environment.

The second pressing threat is nuclear proliferation, especially if countries at odds with the U.S. acquire nuclear weapons. Both Iran and North-Korea has violated non-proliferation obligations and pursued missile delivery systems. Their illicit supply of arms and sensitive material and technology raises the risk of global proliferation and regional tension. Consequently, the non-proliferation treaty will be weakened, with adverse security implications for the U.S. (et.al). The focus of on the NPT cannot be found in the 2018 NPR until the end of the document, where the 2010 NPR regularly includes the importance of non-proliferation efforts.

These two challenges are places at the top of the nuclear agenda. In addition, the document presents the challenge of regional aggression as it presents difficulties in assuring allies and partners that the U.S. will extend their deterrence for the proliferation threat. It underlines the
potential consequences if the U.S. fails to reassure allies and partners, which might be proliferation as these countries might seek their own nuclear capabilities (et.al:4). In turn, this will weaken the Non Proliferation Treaty (NPT). Assurance of allies is part of the 2018 NPR, but not described in the chapter on international security as a challenge pressing to U.S. security. The 2010 NPR again focuses on the NPT, which can be a pointer to what is of importance to this document.

Ensuring strategic stability with other nuclear powers is a familiar challenge, most notably Russia and China. The NPT notes that the nature of the U.S.-Russia relationship has changed since the Cold War, but there are still fundamentally differences in their nuclear policies where Russia continues to modernize their nuclear forces. Nevertheless, the two countries’ cooperation in shared interests (non-proliferation and prevention of nuclear terror) has increased, and the prospects of military confrontation has declined dramatically. This is what the 2018 NPR states to have changed, and hence the focus of describing the Russian threat. The 2010 NPR also states that both countries have more nuclear weapons than necessary to maintain strategic deterrence, and the new START agreement is important to maintain the bilateral balance and avoiding nuclear competition. This is a key U.S. objective (et.al:5). The chapter on relations to Russia in this NPR focus on arms-reduction treaty instead of the threats Russia poses on the U.S. These are important differences as they are the foundation of the chosen strategies. On the same note, the description of the relations with China is also different from the 2018 NPR as the U.S. welcomes a strong, prosperous, and successful China that plays a greater global role in supporting international norms. The countries are interdependent and has shared responsibility to respond to the threats of nuclear terrorism and proliferation. At the same time, China’s neighbors are concerned about the military modernization, also in the nuclear area. The size of their arsenal is considerable smaller than the U.S.’ but the lack of transparency in their programs regarding pace and scope, as well as their strategy and doctrine raises questions about China’s strategic intentions (et.al). The latter element of the description is rather similar to the 2018 NPR.

The challenges in the security environment are proliferation, terrorism and regional aggression, as well as maintaining strategic stability with Russia and China, and based on this the NPR calls for an end to the “Cold War Thinking”. This can indicate that the 2018 NPR
description of the environment calls for a renewal of the Cold War thinking, as it states there is a return to great power competition. This would mean a renewed emphasis on nuclear weapons in the security environment. According to the 2010 NPR, the environment has changed in fundamental ways since the end of the Cold War, and the shift in landscape brings valuable opportunity to reflect upon how U.S. nuclear strategy shape the international dynamics (et.al:8). The 2018 NPR does not make any comments on how the U.S. nuclear strategy could shape the international order, other than the purpose to deter potential aggression from adversaries.

3.2.2.0 The Role of Nuclear Weapons

What purpose nuclear weapons serve in the U.S. nuclear strategy sends signals about the importance of nuclear weapons and clarifies the potential use of these weapons.

3.2.2.1 2018 NPR on the roles of nuclear weapons

There is an own chapter (4) dedicated to describing what nuclear weapons contributes to, which are: deterrence, assurance of allies and partners, achieve U.S. objectives if deterrence fails, and hedge against an uncertain future. The document states that despite deterrence is the highest priority, it is not the only purpose of nuclear weapons (NPR 2018:20).

1. Deterrence of nuclear and non-nuclear attacks

“The highest U.S. nuclear policy and strategy is to deter potential adversaries from nuclear attack of any scale” (et.al:20). The nature of deterrence is about “decisively influencing an adversary’s decision calculus to prevent attack or the escalation of conflict” (et.al). Deterrence is achieved by making sure expected lack of success and prospective costs outweigh any gains. This document focus on communication, how the nuclear capabilities serves to frighten others from attacking the U.S. To achieve effective deterrence, nuclear-armed adversaries must understand how their threats of nuclear escalation does not give them freedom to pursue non-nuclear attacks (et.al:21). This means that the U.S. nuclear weapons should have a deterrent effect on non-nuclear attacks as well as nuclear attacks. The U.S. will hold them
accountable, defeat non-nuclear strategic attacks, and nuclear escalation will result in unacceptable consequences. The deterrence approach is therefore to maintain a full range of capabilities in order to prevent adversaries from achieving their objectives. These capabilities will include non-nuclear and nuclear military planning and operations (et.al). Again, to deter others “having nuclear weapons” in general is not enough. In order to achieve deterrence, this document signals that it is necessary to use all available capabilities.

The declaratory policy on the potential use of nuclear weapons are important to maintain effective deterrence:

“The United States would only consider the employment of nuclear weapons in extreme circumstances to defend the vital interests of the United States, its allies, and partners. Extreme circumstances could include significant non-nuclear strategic attacks. Significant non-nuclear strategic attacks include, but are not limited to, attacks on the 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.

The United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations.

Given the potential of significant non-nuclear strategic attacks, the United States reserves 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.” (NPR 2018:21).

This paragraph in the document describes nuclear weapons use, but the NPR does not specify it any further leaving the role of nuclear weapons somewhat unclear. In the above declaratory policy, there are room for interpretation when it says “but are not limited to” and “reserves the right to make any adjustments”. The document does not say anything about trying to deduce the role of nuclear weapons.
The U.S. has never adopted a “no first use” policy, and such policy cannot be justified in today’s security environment. The U.S. retains ambiguity regarding in which precise circumstances leads to a U.S. nuclear response (et.al). Deterrence require the nuclear forces to be on alert on a day-to-day basis to launch these forces promptly if necessary, which in itself has a deterrent effect on adversaries who might believe they can destroy the U.S. capabilities in a surprise first strike (et.al). This policy correspond with previous policy, but places additional emphasis on how the day-to-day alert has a deterrent effect.

2. Assurance of Allies and Partners

“Extended deterrence is based on assurance and collaboration with partners. No country should doubt the strength of the U.S. extended deterrence commitments. In order for effectively assuring allies, they must have confidence of the U.S. ability to deter (et.al:22). This means including allies and partners in the U.S. nuclear strategy, and making sure they know the U.S. capacities are sufficient to deter and if necessary defeat any nuclear or non-nuclear attack on allies and partners. This is a role conventional weapons cannot replace according to the document, and thereby increasing the value of nuclear weapons to the U.S. nuclear strategy.

3. Achieve U.S. Objectives should Deterrence Fail

Deterrence is only credible if U.S. is prepared to respond effectively, if deterrence were to fail. A U.S. respond would be flexible and limited trying to reestablish deterrence. To limit damage, there must be a plan to defeat and defense an attack, including missile defense and capabilities that locates, tracks and targets mobile systems (et.al:23). The non-nuclear capabilities can complement, but not replace the role of nuclear weapons for the purpose of limiting damage if deterrence fails, and to achieve U.S. objectives. Again, nuclear weapons has a unique role in U.S. strategy, which makes disarmament a difficult task.
4. Hedge Against and Uncertain Future

Nuclear weapons play a necessary, unique and irreplaceable contribution in hedging against future uncertainties. Due to the risks posed by Russia, China, Iran and North Korea, it is important to quickly modify the U.S. nuclear forces. This provides nuclear weapons with a greater role than strategic deterrence as they are meant to not only deter current threats, but the uncertainties regarding the relationship with adversaries. There are no mentioning of meeting these risks at other means.

In addition to these pillars, preventing proliferation and denying terrorist access to finishing weapons, materials or expertise are also important considerations in the U.S. nuclear policy (et.al:20). This is the first time in the document where these challenges are presented, which can be a signal towards a changed focus in the nuclear strategy.

3.2.2.2 2010 NPR on the roles of nuclear weapons

This NPR does not have a separate chapter describing what nuclear weapons contribute to, but in the chapter on the security environment it writes that “as long as nuclear weapons exist… the nuclear forces will continue to play an essential role in deterring potential adversaries, reassuring allies and partners around the world, and promoting stability globally and in key regions” (NPR 2010:6). This is equal to the 2018 NPR, and a continued U.S. nuclear strategy. The chapter which can be compared to the 2018 NPR is the chapter “reducing the role of U.S. nuclear weapons” (et.al:15). Because of the developments in the international security environment (Russia not being an enemy, and partner’s conventional capabilities), the U.S will continue to reduce the role of nuclear weapons in deterring non-nuclear attacks (et.al). This focus is not in the 2018 NPR, where the role of nuclear weapons are increased.

The 2010 NPR places importance on strengthening the “negative security assurance” which declares that: “the U.S. will not threaten to use nuclear weapons against non-nuclear weapon states that are party to the Nuclear Non-Proliferation Treaty (NPT) and in compliance with their nuclear non-proliferation obligations. This statement was also in the 2018 NPR, but this NPR underscores the security benefits of complying with the NPT, and persuade non-nuclear
weapon states party to the NPT to adopt measures to strengthen the non-proliferation regime (et.al). Again, where the 2018 NPR focuses on diverse sets of capabilities and increased role of nuclear weapons, the 2010 NPR brings up the importance of the NPT. Yet, on the actual use of nuclear weapons the content of the two documents are rather similar as the 2010 NPR notes how the negative security assurance does not cover attacks where chemical or biological weapons (CBW) are used, but it does specify that these attacks will be defeated with devastating conventional military response. It clearly specifies the type of response. The individuals responsible for this attack will be held responsible, which the 2018 NPR also states. What is similar in the two is when the 2010 NPR notes how development in the biotechnology gives the U.S. the right to make adjustments in the assurance and the capacities to counter such threats (et.al:16).

For countries who are not covered by this assurance, there are a narrow range of contingencies where the U.S. nuclear weapons may play a role in deterring conventional or CBW attacks. There is a difference in language between the two documents as 2010 uses “may”, and 2018 uses “will”. The 2010 uses this as an excuse to why a policy where the sole purpose of nuclear weapons is to deter nuclear attacks cannot be applied (et.al). But it notes the U.S. will work to establish conditions to adapt such policy safely. This is not included in the 2018 NPR. The 2010 also places importance how such an approach to nuclear weapons does not increase the willingness to use nuclear weapons, and only in “extreme circumstances” will the U.S. consider use of nuclear weapons (et.al).

In addition, the 2010 NPR are aware how the U.S. has sent mixed signals about the importance on nuclear weapons in the national security. This chapter in the NPR has the purpose of clarify the specific role nuclear weapons should have in the U.S. security strategy (et.al:6). Reducing the role and numbers of nuclear weapons also demonstrate how the U.S. meets the NPT Article VI obligation to make progress towards nuclear disarmament. This also enables the U.S. to persuade the NPT partners to join the measures needed to reinvigorate the non-proliferation regime (et.al:7). Reducing the salience of nuclear weapons in international affairs and taking steps to eliminate them, there is a chance of reversing the growing expectation that we are designed to live in a world with many nuclear armed states (et.al:8). It also reduces the likelihood of nuclear weapons use. This characterization of the
role of nuclear weapons are different than the 2018 NPR, and indicates a shift in focus on the role nuclear weapons should have in U.S. nuclear strategy.

3.2.3.0 The NPR Objectives

What does the document want to achieve with the proposed nuclear posture review? Answering this question gives implications on what the focus of nuclear strategy should be.

3.2.3.1 2018 NPR Objectives

The goal of the NPR is stated in the “Secretary’s Preface”: conduct a new Nuclear Posture Review to ensure a safe, secure, and effective nuclear deterrent that protects the homeland, assures allies and above all, deter adversaries” (NPR 2018:1). The NPR reflects the current assessment of the threats to the security environment, and the NPR 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” (et.al:2). The goal is to convince adversaries they have nothing to gain and everything to lose from using nuclear weapons (et.al). In short, the goal of the 2018 NPR is to conduct a strategy which enables the president with more options to deter adversaries. There is nothing about objectives to achieve the goal of a nuclear free world, preventing proliferation or trying to achieve deterrence with a reduced role of nuclear weapons. The content of the 2010 NPR on the goals of the nuclear posture review is in contrast to the 2018 NPR.

3.2.3.2 2010 NPR Objectives

The goals of the 2010 NPR are clearly stated in the introduction, where five key objectives of the nuclear weapons policy and structure are (NPR 2010:2)

1. Preventing nuclear proliferation and nuclear terrorism
2. Reducing the role of U.S. nuclear weapons in U.S. national security strategy
3. Maintaining strategic deterrence and stability at lower force levels
4. Strengthening nuclear deterrence and reassuring U.S. allies and partners
5. Sustaining a safe, secure, and effective nuclear arsenal
In addition, there is an objective of the NPR to consider a path ahead for U.S. nuclear strategy and posture over the coming years and decades, towards a nuclear free world.

The long-term goal of U.S. policy is the complete elimination of nuclear weapons, but at this point there is not clear when this goal can be achieved, but following the NPR recommendations will bring the world steps closer to the vision of a world without nuclear weapons (et.al:48). The conditions that would permit for this vision without risking international stability are very demanding. For example, regional disputes can motivate rival states to acquire nuclear weapons. Therefore, to halt proliferation and gaining transparency into programs and capabilities of key countries are important. This is in contrast to the 2018 NPR where the capabilities are in focus in order to deter adversaries. The 2010 NPR seeks to “move towards the ultimate goal of eliminating nuclear weapons world wide, but also reinvigorate the global nuclear non-proliferation regime, erect higher barriers to the acquisition of nuclear weapons and nuclear materials by terrorist groups, and strengthen the U.S. and international security” (et.al:49). Where the 2018 NPR does include the goals of non-proliferation and preventing nuclear terrorism, it is not states as priority goals. On the other hand, the objective of having diverse sets of capabilities does in turn contribute (according to the NPR) to meet the challenges of nuclear proliferation by extending deterrence.

**3.2.4.0 U.S. Nuclear Strategy**

Comparing the different strategies will enable us to identify specific changes in the two documents, and in can tell us if the Trump Administration nuclear posture review has taken another direction than the Obama nuclear posture review. These strategies include deterrence strategies, how to manage the nuclear capabilities and infrastructure, and the strategies to prevent nuclear terror and proliferation.

**3.2.4.1.0 Deterrence and strategic stability**

States pursue different deterrent approaches in their nuclear strategy. How to achieve deterrence affects other state’s behavior as they adjust to the deterrence strategy of the U.S. If
the strategy is offensive, there might be an increased chance of nuclear crisis. A defensive approach might reduce credibility of the deterrence. This section presents how these two documents manages the task of achieving deterrence.

### 3.2.4.1.1 2018 NPR on deterrence and stability

Chapter 5 describes why the chosen deterrence strategy is a tailored strategy:

“The challenges that each situation may present, such as time, place and circumstance, are distinct. Therefore, flexibility and adaptiveness are essential in a defense planning process that can never be informed reliably about the future contexts for action and requirements” (NPR 2018:25).

The tailored deterrence strategies are important because there is “no size fits all” for deterrence. By having specific strategies deterrence will work across a spectrum of adversaries, threats and contexts. Deterrence cannot be limited to strategic deterrence as the 2010 suggests, therefore the 2010 adopts another deterrence strategy where the objective is to communicate the costs of aggression to potential adversaries. “Communicating the costs” are mild words for threats of nuclear use. This form of deterrence calls for diverse range and mix of U.S. deterrence options to ensure stability, but if this form for deterrence enables stability is another question. When the U.S. communicates potential use of nuclear weapons if adversaries try to use aggression to the U.S., which strategy is chosen in response to this posture? If the U.S. uses a wide range of deterrence options, other states are likely to pursue the same path. Hence, strategic deterrence will not be the sole purpose of nuclear weapons around the world. This questions the argument that the wide range of deterrence options strengthens stability. The U.S. strategy analyzes how the potential adversaries define unacceptable damage, and how to communicate this to them. Adjusting the deterrence strategy accordingly is tailored deterrence (et.al). Tailored deterrence is in contrast to 2010 deterrence, which focus on strategic deterrence. Hence, there seems to be a change in deterrence strategy in the two documents. Chapter six presents the deterrence strategy for each challenge and threat the U.S. faces in today’s security environment.
The concerns about Russia were described in the environment chapter, and are the basis for the U.S. strategy. As said, Russia has national security policies, strategies and doctrine that emphasis on the threat of limited nuclear escalation, and are developing diverse nuclear capabilities. Moscow is mistakenly assuming this will benefit them by paralyzing the U.S. Hence, the strategy towards this is making it clear to the Russian leadership that this is a mistaken assumption, and limited use will fail to achieve their objectives. The U.S. must ensure Russia that any use of nuclear weapons is unacceptable. In short, correcting any Russian misperception on the benefits of nuclear or non-nuclear aggression towards the U.S. In order to do so, the President must have a range of limited and graduated options which is a variety of delivery system and explosive yields that are flexible and ready to target the Russian risk (et.al:30).

Threats from China includes their military modernization. This is a challenge to U.S. interests in Asia because China has adopted an assertive posture in dispute with its neighbors, who are allies and partners of the U.S. China’s goal of countering U.S. power projection operation in the region and denying the freedom to protect allies and partners is a pressing concern. Tailored strategy for China is therefore to prevent Beijing from concluding that it can secure their advantage with limited use of nuclear capabilities. Having capabilities to credible threaten China is therefore important, as it influences Chinese leaders when they calculate costs and benefits. A range of graduated nuclear response possibilities is necessary to strengthen the credibility of deterrence. In addition, the U.S. will seek dialogue with China to pursue peaceful security and stable relations (et.al: 31).

A complete and irreversible nuclear-free Korean peninsula is a longstanding U.S. objective, but the Kim regime is mistakenly believing that nuclear weapons will grant them freedom to engage in provocations (et.al:33). The tailored strategy for North- Korea is therefore to clearly state how any nuclear attack on the U.S. or its allies and partners will result in the end of their regime. Conventional and nuclear capabilities will enable this strategy as it ensures the Kim regime that the U.S. has the capacity to impose intolerable costs on the regime (et.al:33).
Iran’s goal of being the regional power is in their view threatened by the U.S. and their objective is to counter the U.S. influence in the region. This goal is a threat to the U.S. as Iran attempts to create exploitable military advantages. Despite the JCPOA agreement, Iran continues to invest in missile programs. When the agreement expires in 2031 there is a change of Iran threaten or deliver nuclear weapons if they acquire them. Also, the Iranian development of non-nuclear capabilities and potential investments in chemical and biological weapons is a challenge. A nuclear armed Iran would potentially pressure other countries in the region to pursue nuclear capabilities. The U.S. strategy for Iran is therefore to ensure the Iranian leadership that any non-nuclear strategic attack will be defeated, and any thinkable benefits of such an attack will be outweighed by the costs posed upon them by the U.S. Fulfilling this strategy includes defense and offensive systems capable of precluding of degrading the Tehran’s missile threats (et.al:34).

The characterization of these deterrence strategies tailored are questioned, as they are based on the same deterrence approach. The 2018 approach to achieve deterrence is to have flexible options ready to respond to any potential aggression, and there should be no doubt that the U.S. will respond to threats or use of nuclear weapons from these adversaries.

Similar to deterrence, there is “no size fits all” to assurance, and the changed environment has affected the U.S. ability to assure allies and partners. Being able to assure therefore means the ability to adapt to these changes in the security environment. In general, effective deterrence is the foundation for effective assurance. It must be clear to U.S. allies and partners that the U.S. is committed to the extended deterrence provided under the U.S. nuclear umbrella. This is done by developing the necessary infrastructure, capabilities and political arrangements, but assurance also flows from a shared view of the security environment. Hence, communication and consultation on policy is essential for assurance (et.al:34). Assuring allies and partners is a way for the U.S. to make sure they do not pursue their own nuclear path, and the extended deterrence must therefore be credible. This is similar in the 2010 NPR, where strengthening regional deterrence is an important objective.
Preserving peace, preventing coercion and deterring aggression is the fundamental purpose of NATO's nuclear capabilities. Russia’s policies has reduced stability in Europe, and the strategy is therefore to make clear how NATO will not tolerate any use of Nuclear Weapons. The NATO defense posture, including nuclear forces, remain capable of addressing potential adversary’s capabilities. Cooperation with NATO allies to ensure readiness, improve capabilities, burden sharing, replacing aircrafts, exercise programs, modernization and effective nuclear operations is important to improve the capability’s survivability, resilience and flexibility (et.al: 35). The cooperation with NATO is found in the 2010 NPR as well.

Cooperation arrangements in the Asia-Pacific region is different than in Europe as the U.S. relies exclusively on strategic nuclear capabilities for deterrence and assurance. Maintaining integrated, flexible, and adaptable U.S. capacities are the strategy for deterrence in Asia. Investments in missile defense against North-Kora must be done, combined with military exercises. A shared understanding of the nuclear dangers and corresponding deterrence requirements must be improved to strengthen deterrence in the region (et.al:36).

There exists potential risks and threats which must be hedged against when developing the nuclear posture. The embarking of nuclear force sustainment and replacement program is therefore just in time to tackle these potential risks (et.al:36).

- Geopolitical, new adversaries, expansion of adversaries nuclear forces, changes in strategy and doctrine
- Technological risk, breakdown of key U.S. elements or adversaries technological breakthroughs.
- Operational risks; operational shortfalls that reduces the effectiveness of nuclear forces
- Programmatic risk: There is no further margin for delaying U.S. sustainment and replacement programs for the existing nuclear capabilities and nuclear weapon infrastructure.

In order to hedge against these risks the U.S. has developed two strategies. First, preventing the likelihood that challenges will emerge in these categories. Doing so includes early detections of potential programs by conducting nuclear surveillance and experimental programs to identify the issues. Risks can also be reduced through diplomacy, such as treaties
and agreements, but they must be verifiable. A last way to prevent the potential risks is to demonstrate U.S. capacity and the will to meet any challenge. Second, to hedge against these risk the U.S. must reduce the harm if the measures above fail. This includes a nuclear production infrastructure to produce new weapons and having non-deployed inventory of weapons. The latter is called “hedge weapons” which can be uploaded to any existing delivery platform. This element of the NPR marks a clear change in strategy as the 2010 NPR states that the U.S. will not develop new nuclear weapons. The 2018 NPR uses potential risks as a way to legitimize the development of new nuclear weapons. In addition, it argues how these weapons reduces arms competition as it communicates to potential adversaries how the U.S. will deny them advantage through their arms racing (et.al:37). This is questionable. If the U.S. (who has been projecting a policy of reducing the role of nuclear weapons) starts to develop new weapons, why should not other states pursue the same path in order to match U.S. capacities? The answer lies in the future, but this strategy of “hedging” against unexpected challenges by producing new nuclear weapons is a departure from previous strategy.

3.2.4.2.1 2010 NPR on deterrence and strategic stability

There must be done more to enhance regional security and reassure allies to the U.S. security commitments to them (NPR 2010: 5). Also, the U.S. must continue to “maintain stable strategic relationships with Russia and China, counter threats posed by any emerging nuclear-armed states” (et.al:6). Here, the NPR states that strategic relationships are important to counter threats of new nuclear states. As the 2018 NPR leaves the strategic deterrence strategy, the 2010 NPR adds such strategy additional benefits. Maintaining credible nuclear deterrence and reinforce regional architectures with missile defenses and other conventional military capabilities will reassure allies to the U.S. security commitments, which confirms they do not need to acquire own nuclear weapons (et.al:7). This element of deterrence is equal in both documents. The 2010 NPR adds a different element to deterrence; it can be achieved at a “significantly lower nuclear force levels and with reduced reliance on nuclear weapons” (et.al). In contrast, the 2018 NPR want to achieve deterrence through more flexible capabilities and increased reliance on nuclear weapons to hedge for unexpected risks.
The strategies to reinforce strategic stability are the following: “pursue high-level, bilateral dialogues with Russia and China aimed at promoting more stable, resilient, and transparent strategic relationships” (et.al:28). Such strategy cannot be found in the 2018 NPR. The 2010 NPR states that this approach to strategic stability enables the U.S. to explain their missile defenses and other nuclear systems which are created to address the new threats (proliferation and terrorism), and how these are not intended to affect the strategic balance with Russia. Such dialogues also give Russia an opportunity to explain its modernization program to discuss steps it can take to ally concerns in the West about their non-strategic nuclear arsenal. On the same note, dialogues with China provides a venue and mechanisms to communicate their views on strategies, polices and programs on nuclear weapons and other strategic capabilities (et.al:29).

As the 2018 NPR, the 2010 NPR has different strategies for extended deterrence. For deterrence in Europe, the presence of nuclear weapons, combined with NATO agreements, contributes to the Alliance cohesion and provide reassurance to allies who feel exposed to regional threats(et.al:32). In Asia and the Middle East, extended deterrence is done through bilateral alliances and security relationships, and the forward military presence and security guarantees. The deterrence in this region is based on strategic forces, and the possibility to redeploy non-strategic nuclear systems in East Asia if needed in times of crisis (et.al).

To further enhance regional deterrence and at the same time reduce the role and number of nuclear weapons is done by enhancing regional security architectures:

- Effective missile defense
- Counter-WMD capabilities
- Conventional power-projection capabilities
- Integrated command and control
- Political commitment

These sets of capabilities ensure attacks on allies and partners will be blunted and the aims of such an attack denied. States who considers attacks should understand this reality, and therefore are deterred from threatening or undertake such attack on U.S. allies and partners (et.al:33). But, to take further steps towards moving towards a nuclear free world is it is important to strengthen the non-nuclear element of the above mentioned security architecture.
Enabling this the U.S. has capabilities across all domains to deter a wide range of attacks or forms of coercion, and a credible deterrence depends on land, air, and naval forces prepared to respond to the full range of challenges posed by state and non-state group (et.al:33).

In short, extended nuclear deterrence is a combination of nuclear deterrent and conventional and ballistic missile defense capabilities. And, the U.S. nuclear posture states that “any attack on the United States, their allies and partners, will be defeated, and any use of nuclear weapons will be met with a response that would be effective and overwhelming” (et.al). The President determines the actual nature of the response, but states who pursue nuclear weapons must understand that they have raised the stakes of any conflict significantly (et.al).

Despite the language in the 2018 being more direct, the objective of extended deterrence is the same. What does differ is the approach to deter Russia and China, where the 2018 turns away from strategic deterrence, to tailored deterrence for these adversaries. Consequently, the nature of the relationship between these states might change due to the shift in deterrence approach.

3.2.4.2.0 Capabilities and infrastructure

The nuclear capabilities and infrastructure is the basis to achieve the goals of each NPR. This section elaborates on the different ways the two documents plan to manage the nuclear capabilities.

3.2.4.2.1 2018 NPR on capabilities and infrastructure

There are three chapters in the 2018 NPR that falls into this category: chapter 5, 7 and 8. This element of the document is given the most space, where chapter 7 in the 2018 NPR describes the current and future nuclear capabilities. This chapter is the longest chapter in the document, 17 pages dedicated to describing the function of the current nuclear capabilities, what is problematic about them, how they should be replaced and modernized. This includes strategical and non-strategical nuclear weapons. In addition, this chapter also includes
strategies to modernize the nuclear command, control and communication system (NC3). Chapter 8 describes the function and importance of the nuclear infrastructure, and how it must be modernized in order to deal with contemporary threats.

Chapter 5 describes the importance of the U.S. nuclear capabilities, specifically to have the appropriate range and mix nuclear and other capabilities required to tailor deterrence strategies, and fulfill the role nuclear weapons have in U.S. national security strategy (NPR 2018:26). This is more important now than ever, and run contrary to a rigid, continuing policy of “no new nuclear capabilities”. This is because the potential adversaries does not stand still, but seek to identify and exploit weakness in U.S. capabilities and strategy. Here, the changed environment is used as a way to justify creating new capabilities. Thus, the force requirements for deterrence cannot be considered fixed and must develop and deploy new capabilities if necessary to deter, assure, achieve U.S. objectives if deterrence fail, and hedge against uncertainty (et.al). This marks a shift in the strategy for nuclear capabilities. In the absence of nuclear deterrence, the consequences are a vulnerable U.S., and as long as the world political order remains, the nuclear weapons are necessary to prevent war and safeguard the Nation. This is why there is no mentioning of reduction in the role and numbers of nuclear weapons in the 2018 NPR.

**Current and future nuclear capabilities:**

Today’s nuclear triad consists of (et.al:42)

- Nuclear ballistic missile submarines (SSBNs) armed with SLBMs
- Land-based ICBBMs
- Strategic bombers carrying gravity bombs and air-launched cruise missiles (ALCMs)

Combined with NC3 and the non-strategic nuclear forces this provides the diversity and flexibility to tailor strategies for deterring, assuring, achieving objectives should deterrence fail, and hedging for uncertain future risks (et.al). The triad must be viewed as a whole, where none of the legs can be removed as they have overlapping attributes which ensures the
survivability of the deterrence capabilities, and to hold a range of adversary targets at risk. This is the conclusion in the 2010 too, but it suggests reduction in each leg to reduce the number of nuclear weapons. In the 2018 NPR the nuclear triad provides key force attributes required to maintain sufficient diversity and flexibility (et.al:43), and together with effective NC3, these forces provide capabilities needed to support the four essential functions (et.al:44):

- Provide survivable, responsive capabilities to ensure adversaries do no attempt a disarming first strike
- Demonstrate resolve through the positioning of forces, messaging, and flexible response options
- Ensure the U.S. can respond to a broad range of contingencies with tailored options
- Mitigate the risk of a technological failure or adversary breakthrough while providing adaptability to changes in the security environment

In order to summarize the documents modernization plans and views on the nuclear capabilities, table 1 presents the three legs of the triad, their function, challenge, and modernization plans.
<table>
<thead>
<tr>
<th>Current triad</th>
<th>What</th>
<th>Function</th>
<th>Problem</th>
<th>Replacement program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea-based Deterrent force – strategic</td>
<td>OHIO-class SSBNs with Trident II (D5) SLBMs</td>
<td>Most survivable Undetectable Intercontinental range and constant readiness Accurate, high-yield warheads (hold many types of target at risk) Can upload additional warheads Highly mobile to demonstrate nuclear presence</td>
<td>Must hedge against possible advances in submarine warfare. SSBN designed for 30 years, has been extended to run until 2042. Cannot be extended further. Advances in adversary capabilities can challenge the effectiveness</td>
<td>12SSBN to replace current OHIO fleet, 2031. Must stay on schedule! Replacement of DSSBM, as they are in the early stages of life extension. Navy will begin studies on this.</td>
</tr>
<tr>
<td>Land-Based Deterrent Force – strategic</td>
<td>ICMB, 400 single-war headed Minuteman III ICBMs deployed in 450 underground silos across several states</td>
<td>Most responsive because of constant readiness, which preclude potential destabilizing rush to alert in a crisis. Highly survivable, only Russia a threat. Without the ICBS, the other nuclear triad is threatened. Capability to launch promptly = adversary cannot be sure to destroy them. Deters nuclear first strike attack High-yield, accurate and intercontinental range, holds out risk throughout Eurasia Reach target in 30 minutes. ICBM forces can be uploaded – contributes to hedging capacity.</td>
<td>1970, with a 10 year service life. Extension programs have kept them viable, but are coming to an end of sustainability. Oldest deployed strategic ballistic missile in the world. Service life cannot be extended further, as it also has increasing difficulty penetrating future adversary defenses</td>
<td>GBSD will be replaced on time in 2029. Modernize 450 ICBM launch facilities to support fielding 400 ICBMs to replace the retiring Minuteman III after six decades of service. Will provide the ICBM system effective for decades into the future</td>
</tr>
<tr>
<td>Air-Based deterrent Force-Strategic</td>
<td>46 nuclear capable B-52H and 20 nuclear capable B-2A “stealth” strategic bombers supported by a fleet of Air Force refueling aircraft</td>
<td>Most flexible Can be alerted and dispersed-improving pre-launch survivability. Can be forward deployed to help deter regional aggression Require hours to reach their targets. Flights abroad display U.S. capabilities and resolve, signaling deterrence and assurance. Can be refueled in flight, unlimited range and endurance Can carry a variety of nuclear weapons with diverse attributes that contribute to flexibility Multiple yield options Hold at risk a variety of protected targets Critical role in hedging strategy, can upload additional weapons and hedge against programmatic risks</td>
<td>The only long-range, nuclear capable U.S. aircraft to penetrate advanced air defenses. The ALCM is more than 25 years past its designed life. Life extension programs are underway to ensure ALCM until its replacement becomes available</td>
<td>Modernize the B-52H and B-2A. A program to develop and deploy the next-generation bomber, the B-21 Raider. First supplement, then replace, beginning in the mid-2020s. Replacement of ALCM is the LRSO, a modern air-launched cruise missile. Holding targets at risk everywhere on Earth. Arming the force of strategic bombers with LRSO is critical to ensure effectiveness. LRSO will enable the B-52 to remain an effective part of the nuclear-capable bomber force and key in hedging against unforeseen technical and geopolitical challenges. B-21 can deliver gravity bombs and the LRSO. Incorporating nuclear capability onto the F-35, as a replacement of the aging DCA.</td>
</tr>
</tbody>
</table>

Table 1 (NPR 2018:44-52)
The increasing need for this diversity and flexibility is one of the primary reasons why sustaining and replacing the nuclear triad and non-strategic nuclear capabilities is necessary to maintain a significant margin of flexibility (et.al: 49). The approach to deterrence lies the foundation of the modernization program. There is a two-pronged approach to sustain the legacy nuclear system to the extent practicable, and to begin the replacement of retiring, legacy systems by the mid-2020s. This approach is because of the emerging threats, and in support of a strong and credible nuclear deterrent, the U.S. must:

1. Maintain a nuclear force with diverse flexible range of nuclear yield and delivery models that are ready, capable, and credible
2. Afford the highest priority to the modernization of the nuclear triad, dual-capable aircraft, and related command and control elements.

The planned changes are listed in the table. If this planned triad replacement program experience delays, fielded systems will age out before replacements are available and the U.S. will face potentially significant gaps in its diverse and flexible capabilities needed to deter, assure, and achieve objectives if deterrence fails and hedge against future uncertainty. Therefore, more funding is necessary to achieve flexible and secure nuclear capabilities. The 2018 NPR uses a bigger portion of the NPR to describe the problems with the current nuclear capabilities, and has plans to replace the complete nuclear arsenal. Because the U.S. has relied on extension programs, there is no longer a schedule margin between the necessary retirement of the legacy nuclear systems and the fielding of planned replacement systems. Consequently, the U.S. will move these forward immediately. The 2018 NPR describes these changes as urgent to the security of the U.S.

**Non-strategic nuclear capabilities:**

This chapter also includes the document’s view on non-strategic nuclear weapons. There exists a nuclear force replacement program, but the elements predate the dramatic deterioration of the strategic environment. Hence, the U.S. must pursue select supplements to this program to enhance flexibility and responsiveness, if the nuclear forces are to meet the emerging requirements of this strategy. The selected supplements will enhance deterrence by denying adversaries any confidence that limited nuclear use will result in advantage.
The Russian belief that limited first use is based on their perception that they have the greatest number and variety of non-strategic nuclear systems providing them with coercive advantage in crisis and at lower levels of conflict. This misperception is important to correct. In addition, the North-Korean development of strategic and non-strategic nuclear systems poses a great threat on the U.S. based on this; the U.S must enhance the flexibility and range of its tailored deterrence options. It is not necessary to match Russia’s expansive arsenal. But: “the U.S. will maintain a spectrum of capabilities sized and postured to meet U.S. needs, and particularly to ensure that no adversary under any circumstance can perceive and advantage through limited nuclear escalation or other strategic attack” (et.al: 54). Based on the characterization of Russia and approach to deterrence the 2018 NPR is expanding the flexible nuclear options to include low yield options. This option is a new element of the NPR, and described as necessary to preserve credible deterrence against regional aggression. This is not intended as “nuclear war fighting”, nor will it lower the nuclear threshold. Rather, the tailored response rises the nuclear threshold by ensuring adversaries there is no possible advantage in limited nuclear escalation, making nuclear weapon employment less likely (et.al). This element of the NPR is currently debated, but as noted in the literature review: non-strategic nuclear weapons has been part of U.S. capabilities many years. But, inclusion of this type of weapon is a change from the 2010 NPR.

*Table 2 (2018 NPR: 54-55)*

<table>
<thead>
<tr>
<th>Current triad</th>
<th>What</th>
<th>Function</th>
<th>Problem</th>
<th>Replacement program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-strategic Nuclear Weapons</td>
<td>B61 gravity bombs (will be replaced with B61-12) carried by F-15E DCA, supported by responsive air refueling aircraft.</td>
<td>Are forward deployed in Europe, presence contributes to deterrence and assurance- U.S. can respond to escalation.</td>
<td>Russian and North Korean threat, and the need for more nuclear options in order to tackle these threats</td>
<td>Forward deploy nuclear bombers and DCA around the world. Upgrading DCA with nuclear capable F-35 aircraft. Modify a small number of existing SLBM warheads to provide low-yield options. Long term: pursue a modern nuclear-armed sea-launched cruise missile (SLCM) Nuclear-armed SLCM for non-strategic regional presence. Restore the previous nuclear-armed SLCM by initiating a capability study to develop a modern SLCM</td>
</tr>
</tbody>
</table>
Consequences might be incentives for Russia to negotiate reduction of its non-strategical nuclear weapons. Changing the non-strategic nuclear weapon capacity must be done in order to enhance flexibility and diversity of the nuclear capabilities, which addresses emerging deterrence requirements. They will provide the U.S. with more diverse set of characterizes which enhances the U.S. ability to tailor deterrence and assurance, expand the range of credible U.S. options for responding to nuclear and non-nuclear strategic attack, and, enhance deterrence by signaling to potential adversaries that their concepts of coercive, limited nuclear escalation offer no exploitable advantage (et.al). When flexibility is the objective, it makes sense to include non-strategic nuclear capabilities. The 2010 does not share this objective, hence the exclusion of the word flexible in that document. The 2018 NPR states that this “is not meant as war-fighting”, but how other states interoperate the addition of a low-yield option cannot be certain. Where the Obama nuclear posture review focus on dialogue, strategic stability and the NPT, the Trump nuclear posture review focus on flexible capabilities to able a tailored deterrence and additional emphasis on nuclear weapons.

The nuclear command, control, and communications:

In short this system is called NC3, and its architecture is essential for deterrence and enables a response if deterrence fail. The system has the following functions: detection, warning and attach characterization, nuclear planning, decision-making conferencing, receiving presidential orders, and enabling the management and direction of forces. The system consists of a warning system, communication system, fixed command posts, and control centers. Current NC3 is challenged by threats from space technology, cyber warfare and the nuclear environment. Hence, ensuring that the NC3 system is survivable and effective is critical. To strengthen the system following initiatives will be pursued (et.al:57):

- Strengthen protection against space-based threats
- Strengthen protection against cyber threats
- Enhance in Tactical Warning and Attack Assessments
- Improve Command Posts and Communication links
- Advance decision support technology
- Integrate Planning and Operation
- Reform Governance of the overall NC3 system
The nuclear infrastructure:

As noted, chapter 8 describes the documents plans for the nuclear weapons infrastructure. U.S. capacity to adapt flexibly to shifting requirements, deter, assure, hedge against developments and discourage adversary interests in arms competition are dependent on the nuclear weapon infrastructure, which has the following tasks (et.al: 60):

- Sustain today’s nuclear stockpile and ensure its continued safety, security, and effectiveness
- Extend the life of a select subset of nuclear warheads, and design, develop, and produce nuclear weapons as needed for today and into the future
- Assess and clarify annually whether the safety and reliability of the future nuclear stockpile can be assured in the absence of underground testing, and as a safeguard, maintain nuclear test capability.
- Maintain the capability to design, develop and produce nuclear warheads with new or different military capabilities if required in the future
- Provide an effective response to technical problems with a warhead or to adverse geopolitical developments that call for force augmentation

Nuclear infrastructure supports nuclear arms control, threat reduction, naval nuclear propulsion, non-proliferation efforts, and assessment of foreign nuclear weapon programs, nuclear counterterrorism, and emergency response

To maintain all its functions in between rebuilding cycles in ensure the health of the infrastructure, the last cycle was completed in 1990s. A successful replacement program depends on a healthy infrastructure to deliver on-time warheads which is supporting the strategic and non-strategic capabilities. This is the objective of the modernization plan, which is in contrast to the objective of the 2010 NPR where modernization will enable reduction of nuclear weapons. Both agree there is no margin for further delays as the U.S. has fallen short in sustaining a modern infrastructure to respond to unforeseen developments, but the 2018 NPR focus on the ability to produce new nuclear weapons. In order to do so there must be produced plutonium pits, tritium, and critical materials such as lithium and enriched uranium. These challenges must be solved, and funding must be granted to the infrastructure the next
five years. In meeting the security challenges, the U.S. posture is to remain ready to resume nuclear testing if necessary to meet the technical and geopolitical challenges (et.al: 61). This undermines the NPT commitment to disarmament, which in turn makes the statements of supporting this regime weak. In addition, “NNSA will maintain the capability to resume underground nuclear explosive testing if called upon to do so, and the U.S. will not seek Senate ratification of the Comprehensive Nuclear Test Ban Treaty” (et.al:63). The reason for this posture is the understanding that the U.S. must retain ready to resume testing if necessary to meet technological or geopolitical challenges. Again, this is a shift from 2010 NPR.

The 2018 NPR also describes the importance of skills possessed by those who work with nuclear weapons, technology and materials. Maintaining the critical skills and personnel needed is essential for the nuclear infrastructure. “Should a technical or geopolitical development demand a new nuclear weapons, it is crucial that the nuclear weapons workforce possess the skills and the knowledge needed to design, develop, and manufacture warheads of different design in a timely manner” (et.al:63). The need for skills is not to address challenges in proliferation and terrorism, rather enable the production of new nuclear capabilities. Therefore it is important to identify any gaps in the range of skills needed to design and develop nuclear weapons. This is part of the hedging strategy, it promises to provide new capabilities if they are needed to meet changes in the security environment (et.al). The hedging strategies, which are additional roles to nuclear weapons from 2010, justify the 2018 NPR strategies of developing new nuclear capabilities and resume to nuclear testing if necessary.

3.2.4.2.2 2010 NPR on nuclear capabilities and infrastructure

The 2010 NPR focus on reducing the nuclear capabilities and investing in new infrastructure to enable this. Yet, the nuclear triad plays an important role.

Current and future nuclear capabilities:

The U.S. strategic forces (SLBMs, ICBMs, and heavy bombers) continue to underwrite deterrence of nuclear attack against the U.S., its allies and partners (NPR 2018:19). Russia and the U.S. retain many more nuclear weapons than needed for deterrence (et.al:19). The
New Strategic Arms Reduction Treaty (START) will work to preserve stability between the two countries at reduced force levels, and the NPR concludes that the U.S. can sustain stable deterrence with fewer strategic warheads, assuming parallel Russian reductions (et.al:20). The new START agreement is not mentioned in the 2018 capability section, and the focus to reduce the nuclear weapons is not percent. The 2010 concludes that the U.S. should retain the nuclear Triad, but analyses the force structure for each Triad leg in order to serve the following functions:

- Support strategic stability through an assured second-strike capability
- Retain sufficient force structure in each leg to allow the ability to hedge effectively by shifting weight from one Triad leg to another if necessary due to unexpected technological problems
- Retain a margin above the minimum required force structure for possible addition of non-nuclear prompt-global strike capabilities
- Maintaining the needed capabilities over the next several decades or more, including sufficient trained military and civilian personnel and adequate infrastructure

As the U.S. and Russia have agreed to mutual limits under the New START, the U.S. should retain a smaller Triad of SLMBs, ICBMs and heavy bombers, but remain all three Triad legs as this best maintain strategic stability and hedge against potential technical problems (et.al:21). Table 3 summarizes the current nuclear capabilities, and the intended plans for these capabilities.
<table>
<thead>
<tr>
<th>Current triad</th>
<th>What</th>
<th>Function</th>
<th>Problem</th>
<th>Future of the Triad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea-based Deterrent force – strategic SSBNs and the SLBMs they carry</td>
<td>14 nuclear-capable Ohio-Class SSBNs</td>
<td>No threats to its survivability, but cannot be ruled out over time</td>
<td>By 2020, have serviced longer than any previous submarine</td>
<td>Remain all 14 SSMBs for the near term, but consider reduction to 12 in the second half of the decade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not vulnerable to air defense</td>
<td></td>
<td>Develop a follow-on to the Ohio-class submarine, replacement planned for 2027, but begin the technology development of an SSBN replacement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Robust the security program that aims to anticipate potential threats and develop appropriate countermeasures to protect the current and future SSBNs</td>
</tr>
<tr>
<td>Land-Based Deterrent Force – strategic ICBMs</td>
<td>450 deployed silo-based Minuteman III ICBMs, with one to three warheads On alert</td>
<td>Contribute to stability, and not vulnerable to air defense Advantages for the U.S. nuclear force structure with extremely secure command and control, high readiness rates, and low operating costs</td>
<td>“deMIRV” all deployed ICBMs so each only has one nuclear warhead to enhance the stability of the nuclear balance by reducing incentive for either side to strike first Continue the Minuteman III life extension program Initiate a study to consider a range of possible deployment options, with the objective of defining a cost-effective approach that supports continued reductions in the U.S. nuclear weapons while promoting stable deterrence</td>
<td></td>
</tr>
<tr>
<td>Air-Based deterrent Force- Strategic Heavy bombers</td>
<td>76 B-52H bombers and 18 B-2 bombers that can be equipped with nuclear weapons</td>
<td>Can visibly be deployed forward, as a signal in crisis to strengthen deterrence and extended deterrence Rapid and effective hedge against technological challenges as well as geopolitical uncertainties</td>
<td></td>
<td>Retain nuclear-capable bombers, but converting some B-52Hs to a conventional-only role Invest $1 billion over the next five years to support upgrades to the B-2 stealth bombers to enhance survivability, and improve mission effectiveness</td>
</tr>
</tbody>
</table>

*Table 3, 2010 NPR on nuclear capabilities (et.al:22-25)*
“The U.S. retain the ability to “upload” some nuclear warheads as a technical hedge against any future problems with U.S. delivery systems or warheads, or as a result of a fundamental deterioration of the security environment” (et.al:22). This NPR keeps the option open of uploading new warheads as a hedging strategy, while the 2018 NPR keeps the option for developing new nuclear weapons as a hedging strategy. The investments in technically skilled personnel to address the unknown future challenges associated with the aging system is important (et.al:25). Therefore, implementation of the Stockpile Stewardship Program and the nuclear infrastructure investments will allow the U.S. to shift away from retaining a large number of non-deployed warheads as a hedge against uncertainties (et.al:30). This objective is in contrast to the 2018 NPR where investments are made in order to enable new developments. The 2010 NPR places focus on Russia, and the importance that they follow the lead on moving to lower levels.

Non-strategic nuclear weapons:

The U.S. keeps a limited number of forward-deployed nuclear weapons in Europe and a small number of nuclear weapons stored in the U.S. These weapons will be included in any further reduction agreement between the U.S. and Russia. In the decision about future basing of nuclear weapons in Europe, the U.S. will make consensus decisions through NATO process and the following steps will be taken (et.al:28):

- The Air Force will retain a dual-capable fighter as it replaces F-16 with F-35 Joint Strike Fighter
- B-61 (nuclear bomb) Life Extension Program to retain the capability to forward-deploy non-strategic nuclear weapons in support for its Alliance commitments
- Retire the nuclear-equipped sea-launched cruise missile (TLAM-N) as it serves a redundant purpose in the U.S. nuclear stockpile because:
  - Forward-deployment of dual-capable fighters and ICBMs and SLBMs are capable of striking any potential adversary which is sufficient for deterrence and assurance

There is no plans to include a low yield option and the non-strategic nuclear weapons are planned to be part of future reduction agreements with Russia. The different approach to non-strategic nuclear weapons signals a shifting nuclear strategy.
The nuclear command, control, and communications:

To enable strategic stability at reduced force levels one strategy is to maximizing decision time for the President. This includes maintaining the current posture of heavy bombers off full-time alert, ICBMs on alert, SSBNs at sea any given time. The effectiveness of the command and control of U.S. nuclear forces as this is an essential element in ensuring crisis stability, deterrence, and the safety, security and effectiveness of our nuclear stockpile (et.al:26). The NC3 system enables informed and timely decisions by the President. To strengthen this system:

- Modernizing “legacy” single-purpose NC3 capabilities to meet current and projected challenges
- Invest in secure voice conferences for NC3
- Initiate a study to determine the investments needed and the organizational structure best suited to further strengthen the NC3 capabilities

The Stockpile Management Program:

“Significant investments are needed in both physical and human capital to ensure the stockpile can be maintained without ever needing to test again” (NPR2010:6). In order to sustain a safe, secure, and effective stockpile today, the U.S. must “prudently manage the nuclear stockpile and related Life Extension Programs (LEPs), and at the same time cultivate the nuclear infrastructure, expert workforce and leadership required to sustain it” (et.al:37). On managing the stockpile, nuclear weapons can be divided into the following:

- Deployed warheads; strategic (planned to be delivered), and non-strategic weapons assigned a nuclear mission deployed in Europe. These capabilities will be reduced through arms-control agreements with Russia (New START agreement)
- Non-deployed warheads to provide logic spares, support surveillance program, and hedge against technological or geopolitical surprise
  - The stockpile includes more warheads than required because the LEPs for deployed weapons is a timely manner
• Warheads awaiting dismantlement. There are several thousand nuclear weapons in line, and this number will increase. The elimination time would take more than a decade. Modernization of the infrastructure will enable this at a more rapid speed.

The Stockpile Management Program outlines ways to ensure the safety and security of warheads over time (et.al:38):

• The U.S. will not conduct nuclear testing, and will pursue ratification and entry into force of the Comprehensive Nuclear Test Ban Treaty
• The U.S. will not develop new nuclear warheads. LEPs will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities
• Study options for ensuring safety, security and reliability of nuclear warheads on a case-by-case basis
• Strong preferences to options for refurbishment or reuse in LEPs
• The U.S. will retain the smallest possible nuclear stockpile consistent with the need to deter adversaries, reassure allies, and hedge against technical or geopolitical surprise

The Stockpile Management Program can be seen as the opposite as the replacement program in the 2018 NPR, and how this program states to not conduct nuclear testing is in contrast with the plans of the Trump nuclear posture review.

**Infrastructure and human capital:**

“By modernizing our aging nuclear weapons-supporting facilities and investing in human capital, we can sustainably reduce the number of stockpiled nuclear weapons we retain as a hedge against technical or geopolitical surprise, accelerate the dismantlement of nuclear weapons no longer required for our deterrent, and improve our understanding of foreign nuclear weapons activities” (et.al:7). These modernization objectives different to 2018 NPR when they focus on reducing the stockpile of nuclear weapons, and also adding the element of understanding foreign nuclear weapons activities.
“A modern nuclear infrastructure and highly skilled workforce is not only consistent with our arms control and non-proliferation efforts; it is essential to them” (et.al). Modernization is not to enable flexible capabilities, but to enforce the objective to prevent proliferation. To shift away from retaining large numbers of non-deployed warheads and reduction in the U.S. stockpile, the nuclear infrastructure must be restored and modernized (et.al: 40). Today’s nuclear complex has fallen into neglect and it includes oversized and costly-to-maintain facilities from the 40s and 50s. This is also true for human capital, which has been underfunded and underdeveloped (et.al:40). Investment must be done in order to ensure a long-term safety, security, and effectiveness of the nuclear arsenal. These investments can reduce the reliance on large inventories of non-deployed warheads to deal with technical surprise, and support the long-term path to zero nuclear weapons (et.al:41). Again, there is a completely different language about modernization of nuclear capabilities, infrastructure and human capital.

3.2.4.2.3 Nuclear terrorism and non-proliferation and arms control

Both documents present strategies to deal with the challenge of nuclear terrorism and proliferation. In addition, it says something about how arms control benefits the U.S. Differences in the approach can shed light on how the nuclear strategy has changed from 2010 to 2018.

3.2.4.2.4 2018 NPR on nuclear terrorism and non-proliferation and arms control

Chapter 9 has two pages on the strategies to combat the threat of nuclear terrorism (NPR 2018:66). The approach is multilayered with a wide range of activities to comprise a defense-in-depth against the current and emerging dangers. It strives to “prevent terrorist from obtaining nuclear weapons or weapon usable materials, technology, and expertise; counter terrorist efforts to acquire, transfer, or employ these assets; and respond to nuclear incidents, by locating and disabling a nuclear device or managing the consequences of nuclear detonation” (et.al:66). Hence, the U.S. will:

- Secure nuclear weapons, materials, related technology, and knowledge
- Enhance cooperation with allies, partners, and international institutions to combat nuclear terrorism
- Deter state support for nuclear terrorism through advanced forensics and attribution capabilities
- Strengthen defense against nuclear terrorism
- Enhance preparedness to mitigate the effects of nuclear incidents

Because the quantity of nuclear materials continues to increase, the main focus is to reduce the vulnerability of these weapons, and decrease availability of sensitive equipment and technologies on the black market (et.al). This means there will not be done any effort to reduce the number of nuclear weapons. This is the most effective way to reduce the risk of nuclear terrorism, but it must be done in cooperation with allies and partners by improving the coordination with international export-control and law-enforcement agencies. This strategy is also found in the 2010 NPR. Should an nuclear terrorist attack occur, the U.S. maintains advanced nuclear forensics capabilities to identify the source of the material used, which strengthen deterrence of such attacks (et.al:67). In contribution to this effort the U.S. will establish a nuclear materials archive to store, consolidate, and analyze high-value nuclear materials (et.al). Any state, terrorist group or other non-state actor who obtain or employ nuclear deceives will be held responsible. The role of nuclear weapons in counter nuclear terrorism is limited, but adversaries must understand that “a terrorist nuclear attack against the United States or its allies and partners would qualify as an “extreme circumstance” under which the United States could consider the ultimate form of retaliation” (et.al:68).

Chapter 10 has three pages on non-proliferation and two pages on arms control, and the document states that “effective nuclear non-proliferation and arms control measures can support U.S., allied, and partner security by controlling the spread of nuclear materials and technology; placing limits on the production, stockpiling, and deployment of nuclear weapons; decreasing misperception and miscalculation; and avoiding destabilizing nuclear arms competition” (et.al:70). Because of these benefits of non-proliferation and arms control the U.S. strategy is to

1. Minimize the number of nuclear-armed states (including by maintaining extended deterrence)
2. Deny terrorist organization access to nuclear weapons, materials and expertise
3. Control weapon usable material, related technology, and expertise
4. Seek arms control agreements that enhance security, and are verifiable and enforceable

The Nuclear Non-Proliferation Treaty (NPT) plays an important role in building consensus for non-proliferation which enhances international efforts to impose costs on those who uses nuclear weapons outside the Treaty (et.al:70). It safeguards nuclear material and prevents the spread of sensitive technology. Therefore, the U.S. remains committed to the NPT, but the cornerstone of U.S. non-proliferation efforts is the extended deterrence which covers thirty allies and partners because it enables them to forego independent nuclear weapons capabilities. The credibility of the 2018 commitment to the NPT is questionable, as there is little in the document on efforts to disarmament from the U.S. In addition, placing extended deterrence as a cornerstone for non-proliferation instead of strengthening the NPT creates further credibility issues.

Preventing North-Korea from pursuing nuclear weapons is an urgent task for the international community, as well as the challenge of Iran. Iran is able to produce uranium, which can be used if they decide to develop a nuclear program. To tackle these challenges, strengthening institutions like the International Atomic Energy Agency (IAEA) is important, together with potentially negotiations on nuclear reductions if the security environment permits.

To support non-proliferation efforts, the U.S. will (et.al:72):

- Pursue conditions that enables nuclear reduction
- Increase transparency and predictability to avoid miscalculations among nuclear weapon states through dialogues and risk-reduction communication channels
- Support initiatives to improve capabilities to detect, deter, and attribute proliferation and use
- Reduce the vulnerability of materials to theft
- Reduce the availability of proliferation-sensitive equipment and technologies
- Support multilateral supplier regimes
- Finding long term-solutions to the technical challenges of verifying nuclear reductions with new concepts and approaches
- Disrupt proliferation network
• Not seek ratification of the Comprehensive Nuclear Test Ban Treaty, but
  o Support the Comprehensive Test Ban Treaty Organization Preparatory Committee
• Not resume nuclear explosive testing unless necessary to ensure safety and effectiveness of the U.S. nuclear arsenal
• Not support the Nuclear Weapons Ban Treaty, as it could undermine ongoing and prospective military cooperation between the U.S. and signatory states

Again, these statements undermines the NPT and places greater importance on the IAEA on non-proliferation efforts. There are no efforts on the above list to reduce own nuclear weapons as a measure to achieve non-proliferation.

The potential benefits from arms control could be reduction of strategic competition, establishing cooperation among states, and foster transparency, understanding and predictability (et.al:72). Regular dialogues can also reduce the risk of miscalculation and increase mutual understanding. Arms control agreements can potentially be of importance in the U.S. strategy, but there are several challenges. The U.S. has met the new START Treaty’s central limits, and will continue to implement the New START Treaty and verify Russian compliance, but arms control is not an end in and of itself as it depends on the security environment and participation of willing partners (et.al:73). Further progress in arms control is difficult to envision because the environment today includes nuclear-armed states who seeks to change boarders and overturn existing norms, and in addition continue non-compliance with existing arms control commitments (et.al). This language portrait the “others” as felons, and the U.S. as the hero in reducing nuclear weapons. The 2018 NPR suggests no further reductions in their own nuclear capabilities; instead, the reliance on nuclear weapons has increased.

The NPR states that Russia continues to violate arms controls, such as the INF Treaty. Their violation and rejection of arms control commitments extends to several other agreements. Treaties depends on all parties remaining committed to compliance. In order to preserve the treaties, the U.S. will continue to “exert appropriate pressure to restore Russian compliance
and preserve the INF Treaty” (et.al:74). But, the U.S. will not forever endure the Russian continuing non-compliance because violated agreements cannot provide predictability and it undermines the prospects for future agreements, and it can harm the U.S. security. Hence, to engage in further arms control agreements would indicate lack of consequences for non-compliance and undermine arms controls in general (et.al). The strategy is therefore to convince states in violation of their arms control obligations to return to compliance, and new efforts should emphasize confidence building measures to rebuild trust and communication. “The United States seeks to reestablish the conditions necessary for greater trust with Russia and improved transparency with China as it expands and modernizes its nuclear forces” (et.al:74). Arms control opportunities can be considered, but only those who return parties to predictability and transparency, and if conditions permit and the potential outcome improves U.S. security (et.al). In other words, arms controls will not be introduced unless they have a clear benefit to U.S. security, and are verifiable and enforceable. There seems to be less optimistic views on the potential of new arms control agreements in this NPR, where the 2010 NPR focus on the importance of these agreements.

3.2.4.2.5 2010 NPR on nuclear terrorism and non-proliferation and arms control

“The growing dangers of nuclear proliferation and nuclear terrorism have altered the hierarchy of our nuclear concerns and strategy objectives. In coming years, we must give top priority to discouraging additional countries from acquiring nuclear weapons capabilities and stopping terrorist groups from acquiring the materials to build nuclear bombs” (NPR2010:6). In addition to the specific strategies presented below, promoting strategic stability with Russia and China can create the conditions needed to move forward in a world without nuclear weapons and build stronger bias for addressing the threats of proliferation and nuclear terrorism (et.al:7). Credible extended deterrence is also a means to prevent non-proliferation as it ensures allies and partner’s security without having their own nuclear weapons.

Preventing nuclear terrorism cannot be accomplished by the United States alone, and all states has a responsibility to ensure security and control of nuclear materials and weapons in their possession (et.al:11). In order for the following strategies to work, there must be an active engagement of a broad coalition of nations acting in concert. The U.S. efforts to prevent
nuclear terrorism is (et.al:12): Expand cooperation with other countries to strengthen the security standards, practice and safeguard

- Hosting the Nuclear Security Summit
- Increasing funding with 25%
- Accelerate the Global Threat Reduction Initiative to remove vulnerable nuclear material around the world
- Support programs to upgrade security on Russian sites and cooperation beyond Russia
- Support reduction programs to secure and eliminate weapons of mass destruction
- Enhance capabilities to detect and interdict smuggled materials
- Strengthen efforts to improve the ability to identify sources of nuclear materials used or intended used by terrorist
- Hold any state or groups accountable if they enable a terrorist group to obtain or use nuclear weapons

The 2010 NPR has similar approaches to preventing nuclear terrorism, but one that differs is the initiative to remove and not just reduce the potential of theft of nuclear weapons.

Regarding non-proliferation, the 2010 NPR states that because of the growing concerns about the increasing number of nuclear-armed states, the U.S. commits to strengthen the NPT by (et.al:9-10):

- Reversing the nuclear ambitions of North Korea and Iran by engaging with them to arrive at solutions, which assures their political and economic integration in the international community, and at the same time confirming that they are not pursuing nuclear weapons. Continued defiance of agreements will lead to further isolation.
- To strengthen the IAEA with more funding in order for the agency to safeguard nuclear materials, which is essential in maintaining assurance that no countries will transfer nuclear materials to illicit nuclear weapons programs.
- Establish consequences for non-compliance and states who violate their obligations will not escape these consequences.
- Strengthening of export and border controls to disrupt proliferation networks, and tighter restrictions on transfer of dual-use enrichments technologies.
• Promotion of peaceful use of nuclear energy without increased risk of proliferation with a new framework for nuclear energy cooperation including fuel banks, multilateral fuel supply assurance, agreements by suppliers to take back spent fuel repositories. Is addition, assistance to other countries to have benefits from peaceful application of nuclear materials.

In contrast to the 2018 NPR, the commitments to the NPT is more credible as the objective of the document is to reduce the role of nuclear weapons.

In terms of arms control, the document states how arms controls and disarmament efforts can contribute to the goal of preventing nuclear proliferation and terrorism. Especially, it is important to demonstrate the commitment to the NPT obligation in pursuing nuclear disarmament (et.al:12). In order to strengthen the ability to mobilize support for the needs to reinforce non-proliferation and secure nuclear materials the strategy is (et.al):

• New START agreement with Russia which limits the U.S. and Russian nuclear force levels to well below those provided for the 1991 START Treaty.
• Over time engage with other nuclear weapons states, including China, on ways to expand the nuclear reduction process in the future. Such procedures must include efforts to improve transparency of states’ nuclear policy, strategy and programs
• Ratification of the Comprehensive Nuclear Test Ban treaty, which is the central to leading other nuclear weapon states towards a world of diminished reliance on nuclear weapons, reduced nuclear competition, and eventual nuclear disarmament.
• Seeking negotiations on a verifiable Fissile Material Cutoff Treaty (FMTC) to stop the production of fissile materials for nuclear weapons.
• Together with Russia, eliminate 68 tons of weapon-grade plutonium no longer needed for defense purposes
• Initiate research and development programs that supports the progress of a nuclear free world. Verification technology and transparency measures are important in managing risks when pursuing this path
These strategies on preventing nuclear terrorism and proliferation are the main focus of the 2010 NPR, and this is the first chapter after presenting the changed international environment. The following discussion section will compare these categories in order to see changes in the intended nuclear strategy of the Trump administration.

### 4.1 Discussion

This section will use the presented empirical evidence in order to answer the research question: is the Trump NPR suggest a change in nuclear strategy for the United States? It starts by evaluating how different the two documents are, before discussing what can be read out of this type of document in order to answer the question if the Trump nuclear posture review represents a changed U.S. nuclear strategy.

### 4.2. Differences and similarities

The comparison will follow the structure of the empirical part and compare each of the four categories: the international security environment, the role of nuclear weapons, the objectives of the NPR and the presented strategies.

#### 4.2.1 The security environment

There way these two documents describes the international security environment are very different. The 2018 NPR focus on the return of great power competition because Russia and China has developed asymmetrical ways to counter U.S. capabilities. The 2010 NPR states that the relationship between Russia and the U.S. is not characterized by competition, and there are decreased probability of military confrontations. The consequences are a 2018 NPR seeking to respond to the Russian and Chinese threat with flexible, adaptable and resilient nuclear weapons. The 2010 NPR changes the priorities to focus on non-proliferation and preventing nuclear terrorism, because there is now a cooperation with Russia on this shared interest. The 2010 NPR does note a challenge with China in the lack of transparency, but at the same time welcomes a China that takes a greater role internationally.
The 2018 NPR characterizes the Russian nuclear strategy as dangerous, because their modernization increases the risk of miscalculations. Because Russia has gone the opposite direction of the U.S., who has tried to reduce the salience of nuclear weapons, the 2018 NPR must re-think its strategies. As shown, the U.S. strategies is to modernize and apply low yield options to counter the Russian threat. This marks an inconsistency in the document, as it focus on the same policy Russia has (which can lead to miscalculation), but the U.S. policy will not increase instability, according to the 2018 NPR.

The 2018 NPR document describes in detail how each adversary poses a threat to the U.S., while the 2010 document does not have this type of detailed description of “enemies” of the U.S., other than “terrorist” in general and the dangers of proliferation. This is an important difference because other states reads this document, and if there are to be any future agreements with adversaries on disarmament, the direct language in describing those adversaries might increase difficulties in doing so.

Another interesting difference is how Obama NPR looks at the changed environment as an opportunity to reflect upon how the U.S. policy can shape the international dynamics. The Trump NPR on the other hand uses the changed landscape to legitimize the nuclear strategy as a necessary response to a much more dangerous world than before. This shows little reflection on how U.S. strategies has consequences for the international security environment. The 2010 NPR does not say anything about future uncertainties, while the 2018 NPR emphasize on these challenges, which might be a way to legitimize the modernization plans of the nuclear arsenal. In short, the two documents portrait a very different view on of the challenges to U.S. security, and thereby has fundamentally different approaches which nuclear strategy to apply.

4.2.2 The role of nuclear weapons

Nuclear weapons role is to deter an attack on the U.S. allies and partners, and is stated in both documents as the highest priority of nuclear policy and strategy. Also, assuring allies and partners is an important role for nuclear weapons, which in turn helps prevent proliferation. But, in the role nuclear weapons have to deter are portrayed with different language in the two
documents. The 2018 NPR does not differentiate between deterring nuclear and non-nuclear attacks. The focus is to make sure adversaries understand that aggression of any form will be defeated and result in unacceptable consequences. It puts the declaratory policy into the document, where it states how the U.S. would only use nuclear weapons in extreme circumstances, and not threaten to use nuclear weapons against non-nuclear weapon states party to the NPT. But, they reserve the right to make any adjustments if necessary. The 2010 NPR also includes this in the document, but with a main focus to also reduce the role of nuclear weapons. They place importance on the “negative security assurance”, that the U.S. will not threat non-nuclear states party to the NPT. The difference between the 2018 NPR and 2010 NPR is that the latter explains more in detail when a nuclear response will take place, and when conventional response take place. If states, despite being covered by negative assurance, attacks with CBWs, there will be devastating conventional response, but there is a right to make adjustments to this. For countries not covered by this assurance, nuclear weapons play a role in deterring non-nuclear attacks in a narrow range of scenarios, and therefore the U.S. cannot have a “sole purpose” of nuclear weapons to deter nuclear attacks. There is a difference in language where 2018 is more direct, but the message is similar how nuclear weapons play a role for deterrence. The only difference is that 2010 NPR states it wants to establish the conditions to adapt such a policy, and there will not be an increased willingness to use nuclear weapons because of this posture. The 2018 NPR on the other hand tries to send out a clear message to adversaries that any form of attacks on the U.S. or allies and partners will be responded to, but when the response is nuclear or conventional is less clear in this document.

What is different is while the 2010 NPR describes how the role and number of nuclear weapons should be reduced, the 2018 NPR adds two additional functions to nuclear weapons. First, nuclear weapons should achieve U.S. objectives if deterrence fail, which is to reestablish deterrence and to limit damage. Conventional weapons cannot be used for this purpose. Second, nuclear weapons are irreplaceable in hedging for an uncertain future. These two additional roles to nuclear weapons are in contrast to the goal of reducing the role and number of nuclear weapons because they underlines that nuclear weapons cannot be replaced with conventional weapons. Consequently, the goal of a world without nuclear weapons cannot be said to be an objective of the 2018 NPR, while despite the need for nuclear
weapons in deterrence, the 2010 NPR aspires to achieve the conditions where a nuclear free world is possible.

4.2.3 The objective of the NPR

The objectives of the two documents are similar that they want the NPR to ensure a “safe, secure and effective nuclear deterrent”. The 2018 focus on the need to establish flexible capabilities, which enables the President with more options to tailor the emerging challenges. The 2010 NPR has a broader set of objectives as they list five concrete goals the NPR seeks to achieve, and in addition mentions how the NPR sets out a path to a nuclear-free world. These two objectives are different because the Trump NPR has a capability focused goal, while the Obama NPR includes capabilities in their objectives, but the main focus is for the NPR to prevent nuclear terrorism and proliferation, reduce the role of nuclear weapons, maintain deterrence and reduced force levels, and strengthen regional deterrence. That the 2010 NPR is in this sense controversial than the 2018 because it places terrorism and proliferation at the top of the nuclear agenda for the first time. This has not been a top priority on the U.S. nuclear agenda prior to the 2010 NPR. The 2018 on the other hand can be seen as a controversial in comparison to the 2010 NPR, but looking back in time the objective of flexible capabilities might not be controversial in the history of nuclear strategy. It does take a turn from 2010 NPR regarding the objectives of the document, but if in order to assess if there is a change in nuclear strategy, we must look into the specific strategy proposals.

4.2.4 Deterrence strategies, nuclear capabilities and preventing nuclear terrorism and proliferation

Nuclear strategies to enhance credible deterrence must be tailored, according to the Trump NPR. Each adversary is given a specific deterrent strategy. For Russia, the strategy is to make sure Russian Leadership knows that their limited use of nuclear weapons will fail to achieve their objectives. This is done by having a range of limited and graduated options, which is a variety of delivery systems and explosive yields which are flexible and ready to target the Russian risk. For China, the strategy is similar where the U.S uses their graduated capabilities to influence Chinese leaders when they calculate costs and benefits. A strategy towards China is also to seek dialogues to pursue peaceful security and stable relations. The 2010 approach
to maintain strategic deterrence with China and Russia is to pursue high-level, bilateral dialogues aimed to promote more stable, resilient, and transparent strategic relationships. This approach is different from the 2018 because it does not focus on threats of nuclear weapons use, but rather wants to enable communication channels for the parties to elaborate on their nuclear strategies. The 2010 NPR claims strategic deterrence can be achieved at lower force levels, while the 2018 NPR focus on more variety and flexibility in the capacities.

The 2018 NPR also has a direct strategy towards North Korea by stating that any nuclear attack from the regime will end the regime. Along the same lines, any Iranian non-nuclear attack will be defeated. The 2010 NPR does not have specific strategies for these countries, but rather focus on regional deterrence strategies. These includes forward deployment of U.S. forces, strengthen allied non-nuclear capabilities and strengthen the non-proliferation regime. This will deter threats from neighboring states from using nuclear weapons, as well as contributing to non-proliferation. The extended deterrence is different for Asia and Europe, where collaboration with NATO helps ensure deterrence in Europe, while bilateral alliances and forward military presence secures Asian allies. This is a tailored deterrence strategy, which is the same in the 2018 NPR.

An element found in 2018 NPR and not in 2010 NPR is the deterrence strategy to hedge for unexpected political risks, which are to prevent the likelihood of these emerging challenges and to reduce the harm of these measures fails. An important element here, which is in sharp contrast to the 2010 NPR is than there should be a nuclear production infrastructure to produce new weapons and having non-deployed inventory of weapons (hedge-weapons). The 2010 NPR seeks to reduce the non-deployed stockpile and pledges to not develop new nuclear weapons.

This leads us to the document’s approach to nuclear capabilities. The 2018 NPR devotes a large part of the document to describe the necessity and importance of nuclear capabilities, their problems and replacement programs. The document explains how nuclear weapons support essential functions like response capabilities, flexible response options, how they can ensure respond to broad range of contingencies and mitigate the risk of technological failure and adversary breakthroughs. The U.S. nuclear capabilities suffers from several problems.
The SSBNs cannot be extended any further, and there must be built 12 new SSBNs to replace the Ohio fleet. The ICMBs cannot be kept viable with extension programs, and the GBSD will be replaced in 2029. The ICMBs will be modernized to replace the Minuteman III. The B-52 and B2A will also be modernized and a program to develop next generation bomber will be started. The ALCM and the LRSO will be replaced with modern air-launched cruise missile. Nuclear capability will be incorporated into the F-35. These modernization plans are essential for a diverse and flexible nuclear arsenal. The 2010 NPR focus more on a Stockpile Management Program to extend the life of nuclear weapons and does not have the same detailed replacement program like the 2018 NPR. It does, like the 2018 NPR state how the nuclear Triad is essential to deterrence, but is possible at reduced force levels. The Triad must remain to hedge against potential technical problems and maintain strategic stability. The SSMBs will remain, and there will be a replacement program of the Ohio-class submarine. This corresponds with the 2018 NPR. The Minuteman III will be maintained with life extension program, and a study to consider a range of possible deployment options will be conducted, but the objective is to find the approach that support continued reductions in the U.S. nuclear weapons. This language is different from 2018 NPR, as they not only want to modernize, but also develop next generation member. Some of the B-52 will be converted to conventional-only role, but there will be investments to upgrade the B2 bomber. The 2018 NPR has more detailed plans for the nuclear arsenal and seeks to replace much of the capabilities. Both documents agree that there is need for investments in the capabilities, but 2018 has a focus of making the capabilities more flexible, the 2010 NPR seeks to give life extension programs in order to maintain strategic deterrence at reduced force levels. In short, capabilities does matter for deterrence and are essential parts of the nuclear strategy in both document. The specific plans vary in some degree and the reasons for modernization are for both deterrence, but the Trump NPR wants to enable the President with a more flexible nuclear arsenal. Some argued that this makes them more “usable”, but all nuclear weapons are made usable to maintain effective deterrence. A more controversial element of nuclear capabilities are the non-strategic capabilities.

The 2018 NPR want to supplement the existing replacement program for non-strategic nuclear weapons. This is a response to the Russian belief that limited first use will provide them coercive advantages over the U.S. Therefore, the U.S. will maintain a spectrum of capabilities needed to ensure that no adversary can perceive and advantage through limited
nuclear escalation or other strategical attacks. This includes expanding flexible nuclear options to include low yield options. This is a new element from the 2010 NPR, and a subject to much debate. In the 2010, NPR the nuclear-equipped sea-launched cruise missile would be retired. The 2018 NPR suggest restoring the nuclear-armed SLCM by initiating a study to develop a modern SLCM. The Trump NPR states how these supplements are not intended as “nuclear war-fighting”, and argues how this new element would rather lower the threshold for nuclear weapons use because adversaries are ensured that no advantages can be made by limited nuclear escalation.

Both documents calls for a modernization of the NC3 as means to meet the current challenges, and there are no notable differences in the strategy to enable this modernization. When it comes to infrastructure, the 2018 NPR suggest a modernization plan for the infrastructure to respond to unforeseen developments. Today, the U.S. does not have the ability to produce new nuclear weapons, and there must be adjustments to the infrastructure in order to enable this. In addition, the Trump NÅR states that the U.S. will remain ready to resume nuclear testing if necessary and will therefore not seek ratification of the CNTBT. This is different from the 2010 NPR, which agrees that the infrastructure must be modernized, but it will not resume nuclear testing, nor develop new nuclear weapons. The reason for investments in the infrastructure is to reduce the reliance of non-deployed warheads. Both agrees on the need to sustain the nuclear stockpile, but the 2010 NPR focus on a specific Stockpile Management Program which commits to not test nuclear weapons, not develop new warheads and retain the smallest number of nuclear stockpile possible to secure deterrence and hedge against uncertainties. These differences on why modernization of the infrastructure is important is fundamentally different and sends different messages to both adversaries and allies. There are no emphasis in the 2018 NPR to reduce salience on the nuclear stockpile, nor to reduce the stockpile itself. Both documents states that investments in human capital is important, but the 2018 NPR focus on the need to design, develop, and manufacture warheads of different designs. The 2010 NPR states that investments in human capital must be done to ensure a long-term safety, security, and effectiveness of the nuclear arsenal, but also to enable the reduction in the U.S: stockpile. Here, the strategy seems similar, but objective is different.
Preventing non-proliferation and nuclear terror is placed as top priority in the 2010 NPR, where the 2018 NPR does not mention these challenges until the end of the document. In preventing nuclear terrorism the 2018 NPR focus on securing nuclear weapons and materials because there is an increased number of nuclear materials around the world. It does not use a strategy to reduce the amount of such materials, but rather to reduce the vulnerability of these weapons. The most effective way to do this is in cooperation with allies and partners. The document realizes the limits nuclear weapons have on countering terrorism, but underlines how a nuclear terrorist attack would qualify as “an extreme circumstance”, and the U.S. could consider the ultimate form of retaliation. The 2010 NPR strategy includes commitments to remove vulnerable materials around the world and reduction programs to eliminate weapons of mass destruction, not only reduce the vulnerability of theft. Both documents states they will hold any group responsible, and focus on enhancing capabilities to identify nuclear materials used by terrorist. The main difference here is therefore the priority of this challenge, as well as the focus in 2010 to reduce the amount of nuclear materials, where the 2018 NPR efforts are to reduce the possibility of theft. This further underlines the differences between the two documents on their prospects on a nuclear free world.

Non-proliferation is also a top priority in the 2010 NPR. In the 2018 NPR the most important contribution to non-proliferation is the extended deterrence to allies and partners. It does agree that the NPT plays an important role in building consensus for non-proliferation and therefore the U.S. will remain committed to the treaty, but at the same time this commitment is somewhat reduced when many of the objectives in the NPR is to increase the role of nuclear weapons, and no measures to reduce their numbers are taken. In contrast, the 2010 NPR the non-proliferation strategy is to it bolster the NPT regime in several ways. Despite a different language on non-proliferation in the two documents, the concrete strategies are similar. For example, reversing the North Korean and Iranian nuclear ambition, strengthen the IAEA, establish consequences for non-compliance, strengthen border controls, and increase transparency. What is different, as mentioned, is view on the Comprehensive Nuclear Test Ban Treaty, where 2018 does not seek to ratify it.

On arms control the language in the two documents are different. The benefits of arms control are have to be in the interest of U.S. security, and not a goal in itself, according to 2018 NPR.
Arms control agreements are only of interest to the U.S. if they are enforceable and verifiable. Current arms-control agreements are being violated, and because the international environment consists of states seeking to change boarders and overturning existing norms, future arms-control agreements are challenging. The strategy on arms control is therefore to put pressure on states to resume to their compliance on existing arms control agreements. Any future arms control agreements have to rebuild trust and communication. This language in the 2018 NPR is direct and puts a pessimistic view on arms controls. Also, the reasons to engage in such agreements are restricted to benefit U.S. security. The 2010 view on arms control agreements are that they can mobilize support for non-proliferation and prevent nuclear terror. This can be said to be a U.S. security interest, and if there is a difference between the two documents on arms control is therefore questionable. Yet, the 2010 has a more optimistic language on the possibility of arms control, and it also underlines how arms control demonstrate commitment to the NPT obligation to pursue disarmament. The 2018 argues that arms controls depends on compliance and commitment from both parties, and the U.S. will not forever endure the Russian non-compliance. This “we have had enough” language sends a message that arms control agreements will not be made unless the parties commit fully to the responsibilities of them.

4.4.5 Summary

Table 4 summarizes the similarities and differences. In sum, there are more differences than similarities in the two documents. The elements of the document, which suggests a change in the approach to nuclear strategy, are the following: The 2018 places a greater role on nuclear weapons, and directly states that nuclear weapons has a bigger role than deterring aggression. The differences in the role of nuclear weapons which marks a shift in strategy is how nuclear weapons, and especially non-strategic and the possibility of new weapons, will hedge against unexpected risks. The 2010 NPR used the existing nuclear weapons to hedge against this risk, but by seeking to use them at the lowest possible force level. The description of the Russian threat is fundamentally different in the two documents, which is the base for the changed strategy of the 2018 NPR. Where the 2010 objective is to reduce the role of nuclear weapons, the 2018 objective is to enable the president with more options in responding to the developing threats. Flexible and diverse nuclear capabilities are in contrast to the objective of “maintaining strategic stability” because flexible capabilities includes non-strategical nuclear
weapons. These capabilities have more importance in the 2018 NPR, which indicates a
different strategy approach. The most controversial changes are the option of nuclear testing,
and the objective to modernize in order to develop new capabilities. This makes the strategy
inconsequent with the commitments to the NPT, and a significant change from the 2010 NPR.
Overall, the 2010 NPR does many of the same strategic choices as the 2018 NPR in terms of
deterrence of nuclear attack, extended deterrence and modernization of the nuclear arsenal.
But the where this document focus on reduced reliance on nuclear weapons, and a focus on a
nuclear free world throughout the document, the 2018 NPR does not mention these objectives
at all and repeatedly focus on flexible and diverse capabilities as a key objective.

*Table 4*

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</tr>
<tr>
<td><strong>Proliferation, terrorism and arms-control</strong></td>
<td>Top priority vs. last in the document Extended deterrence vs. NPT Benefits and possibility of arms control agreements</td>
<td>Cooperation with allies Border control Support the IAEA</td>
</tr>
</tbody>
</table>
Clarifying the differences and similarities says something about a change in nuclear strategy, but in order to make any conclusions there we must know what the content of this type of document can tell us about the U.S. nuclear strategy.

4.3 What can the NPR tell us?

Which signals does the 2018 send? Is the U.S. acting in a consistent matter with the 2018 NPR? Is this an administration that “does” strategy at all? There exists a wider gap between what is said, and what is done in all administrations. There is reason to suspect, due to previous inconsistencies, that this administration follows the instructions of the President more than policy documents. Also, there is much decision power dedicated to the President on the use of nuclear weapons, and the chosen response to any aggression is not known until it (hopefully not) happens. In addition, there the NPR depends on budgets. This process is already working in Congress, and there is uncertainty about the resources devoted to this strategy. In addition, if democrats takes back the House, consensus on the strategy might fail. The previous empirical evidence also suggests that these documents does not change U.S. nuclear strategy. Any intentioned change in strategy cannot be directly translated to actual policy.

As presented in chapter 2, the nature of this document makes it important to realize that reflecting on the impacts of this document is an important thing to do, but at the same time, these assessments are necessarily tentative. This is an ongoing debate and unresolved issue. How much should we make out of these signals, notwithstanding these uncertainties? One approach is to revisit the questions in chapter 2. To what extent does deterrence depend on demonstrating how the U.S. would use nuclear weapons to prevail against any adversary at all levels of conflict? The 2018 NPR places great efforts into demonstrating their “willingness” to use nuclear weapons when they call upon flexible and diverse nuclear capabilities. The document uses the word flexible throughout the document, and emphasize on the importance of this in all chapters. The second question; to what extent does “what the U.S. says” about the value and utility of its nuclear weapons affect the behavior of others? The nuclear weapons in the 2018 NPR are given this exact role, to affect the decisions and behavior of both adversaries and allies. Yet, this document might overstate the U.S. ability to actually
change the behavior of others, which makes the review declaratory and not programmatic. Then, what does these changes in strategy tell us?

What can be read out of these changes are the signals they send to the world. The U.S. nuclear strategy might in fact be resistant to these planned strategy changes, but the world might be of a different opinion. The 2018 NPR signals a renewed importance of nuclear weapons compared to the previous nuclear posture review. The U.S. is prepared, or will be prepared, to any aggression from adversaries with flexible capabilities. This includes non-nuclear attacks on for example the N3C. The credibility of this threat is questionable, as this response is asymmetrical and therefore unrealistic. Yet, it might affect how Russia and others postures their nuclear arsenal. Low yield options in the U.S nuclear strategy sends signals to Russia about U.S. readiness to use limited nuclear force in response to threats. Despite the NPR argues how this will enhance stability, the possibility of miscalculations with limited nuclear use might decrease this stability.

The role of nuclear weapons has changed from the 2010 NPR strategic deterrence, to 2018 views on nuclear weapons to enable other policy objectives in a national security policy. More nuclear weapons equals more deterrence, and consequently fewer problems. Nuclear weapons are given additional roles which were not present in 2010. This can affect other states’ decision to proliferate as the 2018 NPR several times argues how unreplaceable these weapons are.

The 2018 NPR undermines the NPT by not committing to nuclear disarmament; while at the same time encourages others to do so. This sends out a message that a nuclear free world is no longer the objective of the U.S. nuclear strategy. There is no roadmap to non-proliferation and extended deterrence is the best option to achieve this objective. Arms control agreements have not worked and therefore future agreements are therefore not likely. In sum, the signals sent out from the 2018 nuclear posture review suggests a changed nuclear strategy, but the impact of these changes on actual nuclear policy remains an unanswered question.
5.1 Conclusion

This thesis has examined the following question: does the Trump nuclear posture review suggest that the U.S. is changing its approach to nuclear strategy? Based on a systematic comparison to the 2010 NPR, the thesis concludes that the 2018 NPR does suggest that the U.S. intend to change the approach to nuclear strategy, but intentions are not equal actual nuclear policies. There are other factors determent ting the impact of this document, which is subject to a current scholar debate. Given the nature of the NPR as a declaratory policy document, the thesis concludes that the changes in the nuclear posture review must be seen as signals sent to the world about U.S. nuclear strategy.

The thesis started with a definition of nuclear strategy; “a state’s views and plans on how nuclear weapons can achieve policy objectives”. The literature review debated the difficulties in selecting a nuclear strategy in order to achieve the goal of deterrence. There is little consensus on which strategy is most effective, as well as little consensus on the content and impact of the 2018 NPR. Scholars are debating if there is a change in the nuclear posture review compared to previous strategies, which gave room for further examination. The nuclear posture review as a policy document was argued to be declaratory and not programmatic, which were affirmed in the discussion about the impact of the 2018 NPR. The main section of the thesis compared the 2018 and 2010 nuclear posture reviews in four categories: the description of the security environment, the role of nuclear weapons, the objective of the NPR, and the chosen nuclear strategies. Each category was unpacked in detail to examine potential changes in the two documents.

The most important differences were the role of nuclear weapons and the approach to deterrence and capability strategies. The 2018 NPR increases the role of nuclear weapons by adding additional roles to the more familiar deterrence role, including hedging for unexpected risks. This required modernization and replacements of nuclear capabilities and infrastructure. Although the 2010 NPR includes a modernization plan, the reasons for modernization differed. The 2018 NPR placed importance on development of new nuclear weapons if necessary, and to enable the President with flexible response options to the emerging threats. The threats presented by the two documents are different, where 2018 NPR argues there is a
return to great power competition between the U.S., Russia and China. Based on this, the objective of the Trump nuclear posture review is to change the thinking in nuclear strategies.

The last part of the discussion emphasize how these changes must be viewed as signals and not actual changes in policy. The message from this nuclear posture review is a renewed reliance on nuclear weapons to tailor deterrence strategies, hedging for unexpected risks and enable non-proliferation through extended deterrence. What the world makes out of these signals will affect the international security environment, hence the importance of examine the difference in approaches to U.S. nuclear strategy.
Reference List:


Arbatov, Alexei, Dvorkin, Vladimir, and Oznobishev, Sergey (2010). Contemporary Nuclear Doctrines. Moscow, Rusian Academy of Sciences


