



INTERVIEWS

This year, National Institute has conducted a series of interviews with key national security experts on a variety of contemporary defense and national security topics. These “Conversations on National Security” have been published as part of National Institute’s *Information Series* and are available on our website at <https://nipp.org/information-series/>.

In this inaugural issue of National Institute’s *Journal of Policy & Strategy*, we present a three-part interview with General Larry Welch (USAF, Ret.), conducted by David Trachtenberg, Vice President of the National Institute for Public Policy. Gen. Welch is a Senior Fellow of the Institute for Defense Analyses. He is former the Chief of Staff of the Air Force, Commander of the Strategic Air Command, and President of Institute for Defense Analyses. In Part One, he discusses sustaining an effective nuclear deterrent, emphasizing the importance of confidence in the face of uncertainty. In Part Two, he discusses some imperatives of the current international strategic environment. And in Part Three, he addresses two questions about the demands of modernization and senior leader focus on the needs of the nuclear forces to sustain an effective nuclear deterrent.

This interview is presented here in its entirety and adds insightful context to the contemporary debate on the re-emergence of great power competition and how the United States should respond to the difficult challenges of a highly dynamic international security environment.

PART ONE

In this installment, Gen. Welch discusses sustaining an effective nuclear deterrent, emphasizing the importance of confidence in the face of uncertainty.¹

Q. In response to critics who have argued that our ICBMs are unlikely ever to be used or are too dangerous to maintain, you have noted that our ICBMs are “used” every day to ensure the continued functioning of deterrence. In light of this, what do you think of proposals—made by former Secretary of Defense Bill Perry and others—to eliminate ICBMs because they are needlessly redundant, expensive, and subject to accidental launch?

What is the value of the U.S. extended deterrent or “nuclear umbrella”? Does it remain a credible deterrent to aggression and a disincentive to nuclear proliferation as some suggest? Or is its value diminishing in light of more aggressive behavior by great power adversaries and concerns over U.S. credibility by allies?

¹ See *Information Series*, No.491 (National Institute Press, June 3, 2021) available at https://nipp.org/information_series/conversations-on-national-security-part-one-general-larry-d-welch-usaf-ret-no-491-june-3-2021/.



A. The questions within the two presented for the interview can be summarized as being about the needed composition and size of U.S. nuclear forces. The core question should be: “What is required for the involved parties to be confident in the adequacy of the U.S. strategic nuclear deterrent?” The sub-questions, differences in views, and differences in positions associated with this core question are secondary.

The Needed Trajectories

There are three sets of involved parties that need this confidence to ensure that we stay on the right trajectories. There is a right trajectory to continue the pattern of no use of nuclear weapons established in 70-plus years of working through frequently dangerous levels of tension between nuclear capable adversaries. There is a right trajectory to continue to limit the motivation for proliferation among nations that are fully capable of producing nuclear weapons and building nuclear forces. There is a right trajectory to ensure that U.S. political leaders have confidence they can deal with a range of crises supported by our nuclear deterrence power. For each of these trajectories, there is an involved party or set of parties that the policies and practices of the United States must influence. If involved parties lose confidence in the U.S. nuclear deterrent, it can expose the United States to such risks that other considerations must be secondary.

Confidence and the Need for Some Intellectual Humility

There can be no credible analytical approach to defining what constitutes confidence since it is in the minds of the involved parties, in the minds of the political leadership in Russia, China, and other nuclear powers, in the minds of the political leadership of the 30-plus nations depending on the nuclear umbrella provided by the United States, in the minds of the changing political leadership of the United State, allies, and other partners. In the face of this, there are those who previously served in positions of authority and responsibility who are willing to assert their certainty that we no longer need to operate and sustain the three legs of the triad to sustain confidence in the effectiveness of the nuclear deterrent. They are, in effect, declaring they can see into the minds of potential adversaries.

Others of us who have been directly and personally responsible for operating and sustaining the nuclear forces find more intellectual humility serves us better in maintaining confidence in the effectiveness of the nuclear deterrent. We freely acknowledge our limited capacity to see into the minds of the changing leadership of involved sets of parties. Lacking that capability, 70-plus years of a successful strategy for nuclear deterrence and decades of building confidence in the U.S. nuclear umbrella support a level of confidence that the triad composed of Sea-Launched Ballistic Missiles (SLBMs), land-based Intercontinental Ballistic Missiles (ICBMs), and the bomber force serves the deterrent needs in the face of inherent uncertainty.



While there are important nuances, the core of the strategy for deterrence is not complicated. It is to ensure that the political leadership of potential adversaries believes that we hold at risk what they value most to ensure they can never believe that the benefit from attacking the United States or allies with nuclear weapons is worth the cost and risk. While this core of the strategy has been constant, the forces to underwrite the strategy have been dynamic, responding to changes in the international environment, changes in technology, and the desires of political leadership to limit the use of nuclear weapons to the constant daily purpose of deterring nuclear attacks.

With careful study and analyses, the United States has moved from more than 10,000 deployed strategic nuclear weapons to 6,000 to 2,200 to 1,550. So, today, the nuclear forces needed to sustain confidence in underwriting the strategy are a fraction of the size of the forces at the height of the Cold War. The triad structure of the nuclear force has been constant since the early 1960's when ICBMs and SLBMs joined the bomber force to form the nuclear triad. Today, the triad force structure objective is the bomber force (to include the cruise missile), one modern delivery platform for sea-based ballistic missiles, one for land-based ballistic missiles, and the nuclear weapons to arm the force. The composition and size of the nuclear force must continue to underwrite the strategy with high confidence. That is the imperative. Further, this force should continue to evolve based on realistic and credible analyses.

Motivation for Radical Change and the Role of the ICBM Leg of the Triad

Given the dynamic nature of the composition and size of the nuclear deterrent force and the world environment in which it must perform its vital mission, it is important that we try to understand what is driving the assertion that we need radical change in nuclear force plans. The issues seem to be primarily focused on the ICBM force. The fundamental argument for radical change is that the cost and risk associated with operating and sustaining the ICBM force outweighs the benefit. So, it is useful to consider the role of the ICBM in the minds of the involved sets of parties.

Both Russia and China value their ICBM forces above other nuclear forces. The Soviet Union deployed the world's first ICBM, the R-7A in 1959 using the vehicle type that put Sputnik in orbit. The United States fielded the Minuteman in 1962. The launch of Sputnik and the deployment of the R-7A led to the "missile gap" as a major political issue in the United States in 1959-60. The gap proved to be illusory but the focus on the importance of the ICBM to national security was established. The Strategic Rocket Force in the Soviet Union and now in Russia was formed as a service separate from their Army and Air Force from the initial deployment of their first ICBM. I once spent a day with General Maksimov, Commander of the Soviet Rocket Forces. There was no question in his mind that the Rocket Forces were first



priority. The available information on Russia's nuclear forces modernization plans provides ample evidence that remains true today.

China's Second Artillery was upgraded to a full separate service in 2015. China's first operational ICBM was deployed in 1971 and the ICBM was the single deployed leg of China's strategic nuclear forces until 2015 when their first nuclear ballistic missile submarine (SSBN) began patrols. North Korea and Iran have also focused primarily on the ballistic missile as their nuclear capability delivery vehicle. If ICBM forces are so important to national security in the minds of the political leadership of our potential nuclear adversaries, it is difficult to understand any perception that they are not important in our forces that must deter those potential adversaries. Russia has elevated their threat to our national interests and those of our allies, China has become increasingly assertive. Both are making large investments in increasing the capability of their nuclear forces. Given these developments, it would be massively inconsistent with the realities in the real world for the United States to consider giving up a leg of the nuclear deterrence triad.

There are additional reasons why the ICBM leg of the triad is so important to the effectiveness of the nuclear deterrent. While each leg of the triad brings important capabilities to the deterrent force, the ICBM has unique characteristics. First it is uniquely stabilizing in that it is in a constant state. There is no need for provocative changes in status in a crisis. It is on U.S. soil. It is tied to the nuclear command and control system with a stable reliable structure. In some respects, it protects the other two legs of the triad. With concentrated focus, a determined, technology rich adversary, might develop a campaign that is effective in attacking the sea leg of the triad and doing so without attribution which would greatly complicate the deterrent calculus. The bomber leg of the triad is concentrated on a small number of locations that can be placed at risk with a handful of nuclear or even conventional weapons. Neither effort is worth the cost and risk for the adversary so long as the ICBM force is constantly ready. There could be no ambiguity about an attack on the ICBM force. It would take a massive attack on the U.S. homeland. Even with a massive attack no adversary could be confident in the effectiveness of the attack on the ICBM force so long as it consists of significant numbers.

History also suggests that ballistic missiles evoke a different level of concern for the leadership of the United States. For years, Soviet Bear bombers violated U.S. airspace over western Alaska with relative impunity beyond attempts to intercept and escort them out of U.S. airspace. Soviet Delta SSBNs patrolled within missile range of east coast cities and military bases. The United States paid careful attention to the Deltas to include adjusting bomber alert status on northeastern bases to deal with the short missile flight time. Neither Soviet bombers nor submarines created a crisis. In contrast, Soviet ballistic missiles in Cuba that could reach U.S. east coast cities brought the United States and the Soviet Union perilously close to nuclear war.



The Cost and Risk of Sustaining the Triad

The point is there is high risk to deterrence with a nuclear deterrent force missing the attributes of the ICBM force. So, the question is: what is the cost and risk associated with sustaining the ICBM force that is more compelling than the risk to deterrence and world confidence in the United States from a radical change in force composition and size? The cost issue seems to be straightforward. The Minuteman III, which the new ICBM, the Ground Based Strategic Deterrent, will replace was designed for a 10-year life. By the time it is replaced it will have served its purpose for 60 years. Given this history, the cost-benefit seems unassailable. The cost of the replacement is sometimes declared to be over \$250 billion but that number is not always accompanied by the fact that it is the estimated 50-year life-cycle cost. This is an unusual way to portray the cost of any system.

As to risk, the principal concerns seem to be unauthorized or unwise launch. Both are sometimes lumped together as the consequence of a readiness standard that allows for rapid launch, characterized as “hair trigger” by opponents of continuing to operate and sustain the triad. If the trigger guard has been completely effective for more than 70 years, that should warrant confidence in the “always, never” objective. That is, the alert missiles will always respond when directed by proper authority and will never be launched if not properly authorized. Even so, with an abundance of caution, ICBMs on alert are aimed at open ocean areas until a launch is authorized.

As to unwise launch with a decision by the President made too quickly, there is no evidence that any President would be motivated to launch on inadequate information and there is no need to do so. Even after losing numbers of ICBMs to a massive attack, the remaining nuclear forces can deliver a devastating retaliatory response. “Use them or lose them” as a reason to launch on warning is a myth. Launch on warning is an operational capability, not a plan. The operational plan is to launch whenever the President makes the decision. Giving the President the widest range of options is the most effective approach to reduce the existential threat for the United States and allies. Limiting the President’s authority to stop or respond in the most effective way to an imminent threat to the nation is contrary to the constitutional role as Commander in Chief. There can be no more serious imminent threat than that presented by potential adversaries’ nuclear capabilities. To attempt to ameliorate the danger presented by potential adversaries by limiting our nuclear forces is illogical and counterproductive.

Conclusion

At the start of this interview, a core question was posed; “What is required for the involved parties to be confident in the adequacy of the U.S. strategic nuclear deterrent?” I would add a question. Where is the greatest risk? Is it radical change to a nuclear triad that has served its design purpose effectively for 70-plus years through a wide range of crisis situations



supporting U.S. national interests, those of our allies, and limiting the motivation for nuclear proliferation? Or is it sustaining the three legs of the triad, each serving safely and effectively for 70-plus years, each bringing unique value to the deterrent? The choice seems clear.

PART TWO

In this installment, Gen. Welch discusses some imperatives of the current international strategic environment.²

Q. How do you assess the current international strategic environment compared to the 1980s? Is Russia today as much of a threat to the West as the Soviet Union was then?

A. The complexity of the current international strategic environment is due to far more than the traditional focus on Russia's threat to the West. I once heard Dr. Kissinger declare something like: "The day will come when we look back on the Cold War with fond nostalgia." I don't believe that, and I doubt that Dr. Kissinger believed it, but his point is clear. While much of the world lived under the effective dictatorship of the Soviet government and there were periods of danger of massive human annihilation, it was a world that posed national security threats that we had come to understand. It was a world that was more predictable and changed only incrementally over time. It was a world in which our national security strategy and priorities, shared by our allies, were clear with the top priority being to deter attacks on the United States or our allies by the Soviet Union. There was a single existential threat to the United States and our allies. The focus on that single threat was the priority and we clearly succeeded in dealing with that priority.

Now, the situation is far more complex. Russia and China both pose existential threats. The overriding continuing priority is deterring an attack with nuclear weapons from any nuclear power. Virtually everything else has evolved to some degree. With that evolution there is an unfortunate tendency to treat the threats from Russia and China as similar. This tendency is not useful in understanding the threats or formulating effective strategies to address them.

Similarities in Great Power Competitors

There are important similarities in the challenge presented by each. Perhaps the overriding similarity is the prime focus in both Russia and China. That focus is survival of the political regime. Both are great power competitors who view the United States as the greatest obstacle to achieving their regional and global objectives. The similarities include intense

² See *Information Series*, No.491 (National Institute Press, July 14, 2021) available at https://nipp.org/information_series/conversations-on-national-security-part-two-general-larry-d-welch-usaf-ret-no-496-july-14-2021/.



focus on increasing military power, rapid exploitation of technologies to undermine U.S. military advantages, economic coercion, other activity to intimidate and threaten nations within their region, disregard for international law and norms of behavior, and near continuous engagement in attacks at levels below armed conflict – gray zone operations. Gray zone operations are inherently more difficult for nations that operate within the rule of law and adhere to international standards of conduct. While we have little strategic experience in dealing with gray zone attacks, we clearly have advantages that we can exploit. These advantages include information technologies, cyber operations, global economic power, and global status. Further, we have allies. We need to overcome our reluctance to engage in the gray zone. Within the limitations of international law and accepted norms of behavior, we can and should engage in the full range of activities to counter adversary gray zone operations.

Differences in Great Power Competitors

Beyond addressing the similarities in the challenges posed by Russia and China, effective strategies to deal with the broader strategic challenge require that we understand and respond to the differences in political motivations, objectives, geopolitics, and national strengths and weaknesses.

Russia

Russia is a declining power with the leadership striving to retain or buttress a great power role. It is a nation beset by a level of corruption and inefficiency that has been so pervasive for so long the society simply accepts this as the way things are with minimum motivation to change. Without such motivation for change, there is little likelihood of reversing the decline. Lacking diplomatic or economic power beyond European dependence on Russian natural gas and being devoid of allies, their strength is in national military power that presents a credible threat to others in the region. The regime is in the survival mode that, coupled with military power, makes them particularly dangerous. The West's approach to dealing with that danger includes economic sanctions with little or no effect on the interests of Russia's political leadership. It is useful to remind that the demise of the Soviet Union was due largely to economic failure. The world is fortunate that, with General Secretary Gorbachev in power, the result was a peaceful end to the Soviet Union and the Warsaw Pact. It would be foolhardy to rely on a similar response to national collapse with the current leadership in Russia.

That the current leadership is facing renewed internal political opposition could be viewed by the West as a positive development. The decline in the economy with GDP per capita slipping from over \$15,000 in 2012 to under \$10,000 in 2020 may exacerbate the Russian leadership's political challenge. Both developments are likely to further harden the resolve of the Russian political leadership. Any strategy to deal with the threat from Russia must include the persistent combined economic, political, and military power of the United States



and our European and Asian allies. It must also consider the prime motivation of the political leadership in Russia to sustain the regime. This is particularly important in formulating realistic strategies.

A respected military strategist that I greatly admired emphasized that two critically important factors in formulating a strategy for dealing with adversary objectives are the stakes and the capabilities to protect those stakes. Given that, when uneven stakes are buttressed by matching uneven capabilities, the likelihood of a result to our advantage is slim. That advice simply recognizes reality. That reality applies to the Russian response to their perception that Georgia was turning to the West. Both the disparity in stakes and in capability to protect those stakes made the outcome of Russia's support for the breakaway ethnic Ossetians and Abkhazians impervious to Western intercession. Twelve years after the Russian occupation of the breakaway ethnic entities, the recent attempt to change this new status quo failed again. The West had ample information to understand that Russia's political leadership saw and would continue to see change in the status quo in its relationship with Georgia or Ukraine as a threat to the regime. It should have been foreseeable that the threat of Ukraine joining the European Union would lead to a violent response. These experiences should teach us that Russia's red lines are real and that sustaining the position of the political leadership is the ultimate red line.

Hence, the outcome of a political collapse in a nation with the military power of Russia may be far more dangerous to the world than continuing to patiently manage the current challenges with the clear understanding this is not a short-term challenge. It requires a realistic strategy, renewed attention to the relationship at multiple levels, and attention to the long game. It also requires assured deterrence and unquestioned military strength. The needed military strength must include a balanced multi-domain force of land, air, sea, space, and cyberspace combat capabilities since the United States and our allies are facing this full set of capabilities in Russia's military forces.

China

In contrast to Russia, China is a rising power pushing for regional dominance and increased global power and influence. While the economy in Russia is in continuing decline and the regime is under growing internal pressure, neither applies to China. In the same eight-year period with more than a one third decline in GDP per capita in Russia, China experienced a 62 percent increase. As to the stability of the regime in China, Xi Jinping has added more than a dozen titles to his roles as President and General Secretary of the Communist Party. Each added role provides additional authorities. Further, scrapping presidential term limits in 2018 may be a step towards "president for life" for Mr. Xi. In any case, China's political leadership has the economic resources and internal political stability to pursue their regional and global goals with confidence. At the Chinese Communist Party's (CCP's) 19th national congress, Mr. Xi announced that their global goals include becoming a top



innovative nation by 2035 and a global power by 2050. This set of goals is typical of the long game approach of China's political leadership. Further, it is apparent that that leadership is confident they are on the path to those goals. Some China analysts in the United States believe they will achieve both goals well before those dates. It should be apparent that we are dealing with a set of challenges with China that are fundamentally different from those from Russia and our strategy must be accordingly different.

In formulating a strategy, it is useful to assess relative strengths and weaknesses. The growth of China's economy is impressive. Still, in GDP per capita adjusted for purchasing power, China's economy is only about a fourth of that of the United States. An important advantage of the United States is our allies. This combination, U.S. economic strength, the power of allies, and proven U.S. leadership sustains a wide U.S. economic and political advantage.

Any armed conflict between the United States and the People's Republic of China (PRC) will be vastly different than with Russia. There will be no massed ground maneuver forces facing each other. General MacArthur advised President Kennedy, "Anyone wanting to commit ground troops to Asia should have his head examined." As applied to conflict with China, that remains good advice. At present, China's People's Liberation Army (PLA) ground force strength is almost a million soldiers on active duty. This can be a threat to India and was an important issue in the Korean conflict but has little relevance to the current U.S. challenge from China. Their ground forces are at least as directed at internal security as at foreign threats. Armed conflict with China will be predominantly conflict in the maritime, air, space, and cyberspace domains. China's advantage in the maritime and air domains is proximity. The most worrisome hot spot, Taiwan, is less than 100 miles from the China mainland but 1,700 miles from the U.S. airbase in Guam and 5,000 miles from Honolulu. The U.S. Naval presence in the region is a powerful force but the balance is changing. The point is that regarding Taiwan, the stakes and capabilities to protect those stakes are heavily weighted for China. At the same time, the consequence of a U.S. failure to prevent a PRC invasion of Taiwan could do enormous damage to allied confidence in the United States. This means that an effective strategy to deal with that situation cannot be a U.S. led military defense of Taiwan against a PRC invasion. Instead, there must be other approaches to make the cost not worth the gain. That includes the need to make it clear to the political leadership in Taipei that provoking an attack by the PRC will have a near certain outcome that will not serve Taiwan's interests.

The Technology Imperative

The first announced goal by Mr. Xi at the CCP 19th national congress, to become an innovative leader by 2035, carries a focus on technology. This can strongly impact both economic and military advantages. While U.S. technical superiority remains an advantage, China is moving faster with more focus and our advantage is shrinking. The reason for the shrinking advantage is not because of any inherent advantage in their system. It is because



the U.S. drive for technical superiority, once led by the Department of Defense, has been smothered in process, layers of decision and oversight, and unwillingness to take risks. To illustrate, in the 1970s and 1980s, the U.S. Air Force considered that a useful increment of military capability should be delivered in five to seven years followed by increments of increased capability in follow-on models. The nation delivered on that expectation. The F-15 was delivered in seven years; the F-16 in six. In both cases, the initial capability was followed by incremental improvements that made the systems more and more relevant to the changing environment and operational need. The five-to-seven-year goal was dictated by the technology and operational horizon. Now the technology horizon is much less than five years, and the operational horizon is certainly no longer, yet it takes twice as long to deliver new systems. The same is true of naval aviation and space systems. We will lose our technology advantage unless we address this urgently and effectively. If we lose the technology advantage, it will be followed by losing the military advantage.

The Overriding Existential Threat

There is an additional dimension to the United States-China great power competition that is not relevant to competition with Russia. That dimension is the efficacy of governance and the benefits to the governed. More specifically, which best serves the governed, representative democracy or competent autocracy? President Joe Biden has declared that Xi Jinping is betting democracy can't keep up with autocracy and that proving the Chinese leader wrong is key to the survival of the United States. Chinese scholars point out that the United States did not become a fully representative democracy until somewhere between the 19th Amendment in 1920 and the Voting Rights Act in 1965. In the eyes of China's leadership and perhaps elsewhere in the world, that is not long enough to assume that representative democracy will survive unless carefully nurtured and protected. This is perhaps the overriding existential threat to the United States.

Conclusion

While the United States and allies face a complex set of threats and challenges from gray zone conflict to the threat of nuclear annihilation, understanding the reality and implications of renewed and expanding great power competition is of paramount importance. It is not useful to attempt to prioritize the challenges presented by China over those from Russia or vice versa. These are fundamentally different threats. One with declining economic and international political power whose failure as a nation threatening the political regime could result in their cataclysmic use of military power. The other is a rising power with growing economic and political power and confidence they are on the path to their goals of regional dominance and global influence matching or surpassing that of the United States. These two threats are so different that effective strategies to deal with them will have little in common beyond the need for an effective strategic nuclear deterrent and allies that come together to provide increased levels of regional multi-domain strength.



PART THREE

In this installment, Gen. Welch addresses two questions about the demands of modernization and senior leader focus on the needs of the nuclear forces to sustain an effective nuclear deterrent.

Q. Some argue that we are reaching a tipping point with respect to nuclear deterrence and that if the current nuclear modernization program does not proceed according to current plans that the U.S. nuclear deterrent will be undermined to the point where its effectiveness will be dangerously compromised. Do you share this pessimistic assessment?

A. This question leads to two sub-questions. What is the effect if a planned program is cancelled and what is the effect if not delivered on the planned schedule? The planned modernization program includes four major delivery vehicle programs – Columbia nuclear ballistic missile submarine (SSBN) to replace the Ohio Class, Ground-Based Strategic Deterrent (GBSD) replacing the Minuteman III ICBM, the B-21 bomber replacing the B-2, and the Long-Range Stand-Off (LRSO) missile replacing the air-launched cruise missile (ALCM). At the same time there are four major nuclear weapons programs required to continue to arm delivery vehicles – B61-12 gravity bomb, W87-1 warhead for the GBSD, W80-4 for the LRSO, and W88 Alt 370 to sustain the warhead for the sea-launched ballistic missile (SLBM). Each of the legacy systems, delivery platforms and weapons, have been extended to the maximum assessed end of life.

Consequence of Cancelling a Major Program

The answer to the first sub-question is not complex. There is a single platform for the sea-based leg of the triad and a single platform for the ICBM leg. For the bomber leg, the B-21 is essential to a continued capability to penetrate highly defended areas. The B-52 armed with a stand-off weapon system is and will continue to be the core of the air leg of the triad. Without the LRSO, that capability will wither away. We need not rehash the importance of the triad in answering this question. The need for the triad to sustain confidence in the strategic nuclear deterrent has been revisited repeatedly by a wide range of responsible parties and it remains clear that it is essential to confidence in the effectiveness of the nuclear deterrent. The nuclear bombs and warheads that arm the delivery platforms are also essential to continuation of an effective triad. So, the answer to the effect of cancelling a major planned program is that a leg of the triad would be eliminated, or its effectiveness drastically reduced. With that, confidence in the nuclear deterrent would be undermined to the point where its effectiveness would be dangerously compromised.



The Likelihood of Delay of Major Programs

The second sub-question warrants a more complex answer. It addresses the effect of not fielding delivery platforms or nuclear weapons on the planned schedule. It has been over 30 years since the last new United States strategic nuclear platform (Trident D5) was designed and developed. A single major nuclear weapon program has been delivered during that same period (W76-1) and it was a refurbishment of the W76-0 introduced over 40 years ago. Given the long period of little or no development activity for strategic nuclear systems, the magnitude of this set of programs, and the acquisition performance history for such programs, there is a very low probability of delivering the set of modernization programs on the planned schedule.

Schedule challenges include program management, infrastructure, qualified workforce, budget, and continuing political support. The set of programs incorporates extensive new technologies and processes that are new or that must be re-established. The infrastructure issues include industrial capacity and production of nuclear weapons materials. For example, it has been 32 years since the nation lost the production facility for plutonium pits. The likelihood of executing the plan on schedule to meet plutonium pit production needs for approved programs is near zero. The expected delivery of capability at the repurposed facility at Savannah River has been delayed 3 to 5 years and the projected cost has more than doubled. The workforce challenge extends from industrial skills to high level laboratory experience and skills. Any of these factors can result in significant delays in program delivery. The combination makes delays virtually a certainty.

The Consequence of Delay

The answer to the question of the impact of program delays on the effectiveness of the nuclear deterrent depends on the level of lasting commitment and attention from the nuclear enterprise leadership, the President, the Congress, the Department of Defense, the Department of Energy, industry, and the nuclear forces.

The choices for dealing with program delays are limited. The cost and risk of approaches vary with each program. The choices include extending the life of the legacy system beyond the assessed maximum life that has already been extended, in some cases more than once. This choice is not feasible for some delivery vehicle programs. For any of these programs there is the increasing cost of sustaining the weapon system and the support structure even to the currently stretched maximum life. This is particularly true for the Minuteman III with the missile and its support structure now over 50 years old. Part of the cost is the increasing workload on the missile force as the supply line for parts has become an issue, support equipment is aging, and extensive time-consuming repairs and workarounds are increasingly part of the daily demand.



Whatever the challenge, the men and women in the nuclear deterrence forces will do whatever it takes to deal with the challenges. But as noted in the 2014 Independent Review of the Nuclear Enterprise, the demands on the force have consumed the margins and there is risk with further demands on that force. Both the Air Force and the Navy have experience with the consequences of excessive demand on the men and women in the nuclear forces and will not want to repeat those experiences. Moreover, in the face of adversary developments, there are additional issues with further extending the life of systems that are already at multiples of the design life.

A second choice is to accept lower system availability for some time period, that is, a reduced deployed force. The currently defined needed deployed force is the result of years of continued reassessment of the level that provides for confidence in the deterrent strategy. With geopolitical change, the assessed need for deployed capabilities went from 10,000-plus deployed nuclear weapons to 6,000 in START I to a range of 1,700-2,200 in the Moscow Agreement to the 1,550 in New START.

The assessment of the needed force level is also influenced by developments and relationships with potential adversaries. There is no question about Russia and China's commitment to increased nuclear force capabilities. Iran seems committed to becoming a nuclear power. North Korea is committed to expanding their nuclear forces and the attendant increased influence. It is likely that the leadership of both will continue to see this as in their national interest. Relationships between the United States and Russia and China are significantly more adversarial than when New START was implemented. Russia's continuing expansion of nuclear weapons not covered by New START expands the mismatch in those weapons between Russia and the United States and our European allies. These developments and relationships would pose increased risk even if all U.S. planned nuclear force programs were delivered on time and on performance. Certainly, those developments and relationships are more challenging today than when New START was negotiated.

Bottom Line

Whatever the choices made, increased risk to the effectiveness of the nuclear deterrent with delayed delivery of the planned programs is a fact of life. The level of that risk will depend on the level of attention of the national security leadership in providing the needed priority to sustain the planned nuclear forces programs and minimize and manage delays. If the level of attention is similar to the level that allowed other priorities to consume all the schedule margin for nuclear force recapitalization and modernization, the effect could be major. So, the answer will depend on whether the national security leadership matches action to the now frequent declarations that nuclear deterrence and the forces that underwrite deterrence are the highest national security priority. If delays are extensive, there is the risk that the answer to the question would be yes, the effectiveness of the nuclear deterrent will be dangerously compromised.



Q. The independent review of the nuclear enterprise you co-chaired in 2014 highlighted a “decline in focus” on the nuclear mission that “has been more pronounced than realized and too extreme to be acceptable.” Since then, the Department of Defense has assured the public that nuclear deterrence is the number one mission of the Department of Defense. Has the situation improved satisfactorily since then? Are there actions that should be taken that were not?

A. The history of senior national security leadership focus since the end of the Cold War is not a source of confidence in lasting attention to the nuclear enterprise. Between 1993 and 2014, I chaired or co-chaired 18 assessments of facets of the nuclear weapons enterprise requested by the senior leadership of the Department of Defense or the Department of Energy. The assessments addressed a broad range of issues ranging from narrow operational issues to issues broadly impacting the nuclear deterrent forces or the nuclear weapons complex in the Department of Energy. In most cases, the assessments identified serious deficiencies in practices and in support for the nuclear forces. The enterprise leadership usually took near-term actions to address the deficiencies. When the issues were narrow and had clear immediate operational impact, corrective action was usually effective and lasting. But, until the 2014 Independent Review of the Nuclear Enterprise directed by the Secretary of Defense, attention to broader institutional issues with longer term effects waned quickly, sometimes after only months, sometimes after a year or two. Follow-on assessments were characterized by repetition of issues identified in past reports that resurfaced. While the nuclear forces were told by their commanders that strategic nuclear deterrence was job one, actions to support the forces and force capabilities did not match the words. Strategic nuclear programs, delivery platforms and weapons, and the infrastructure to support them were delayed to accommodate other priorities as needs multiplied across the Defense forces.

Some Cause for Optimism

There is reason for optimism beginning with the Secretary of Defense’s response to the conditions that led to the 2014 assessment and to the response to two reports describing the situation, one internal to the Air Force and an independent assessment. The independent assessment co-chair was retired Admiral John Harvey. The assessment was presented to the Secretary of Defense with the reminder that, at the first meeting with the co-chairs, he declared that he would personally own responsibility for response to the assessment. The Secretary responded to the assessment by establishing clear responsibility and an institutional structure to address the issues. The core message from the assessment was not complicated. A common commitment of the men and women in the nuclear forces was expressed as, “We’ll get it done, no matter what.” And they did. The key paragraph at the beginning of the report on the assessment started with: “The bottom line is that the forces are meeting the demands of the mission with dedication and determination but with such increasing difficulty that any margin of capability to meet the demands has been consumed



and the Sailors, Airmen, and Marines are paying an unsustainable price.” The message was that without lasting action, the nuclear forces were headed for a cliff.

In response to clear Secretary of Defense direction, the issues in the independent report were undertaken and results tracked and there has been more attention to matching actions with words. Before 2014, it had become difficult to find any declarations from senior leaders, from the President to Service Chiefs, about the priority for the nuclear deterrence mission and forces. After 2014 and continuing to the present, there are clear continuing declarations from the most senior levels of the Department of Defense, including the Service Chiefs, regarding the priority. While that does not guarantee needed action, words matter. The 2018 *Nuclear Posture Review*, with extensive engagement by the Secretary of Defense and approval of the President, was specific and prescriptive about the needs of an effective deterrent, which specifically includes the planned recapitalization and modernization programs. Congressional support has been consistent, adding more emphasis to the priority of the nuclear deterrence forces.

Conflict, Consequence, and Need

Still, while there is reason for optimism, there is also reason for skepticism. Since the 2014 report, schedule challenges and the consequences of delays in delivering needed nuclear forces capabilities were created by the same levels of leadership electing to delay programs to the limit of maximum life to pay for other needs. The competition for resources is likely to increase within the national security community and as other national needs compete with national security. So, it will take increased resolve, increased focus, and steadfast commitment to keep the programs on track and to minimize delays in delivering the needed capabilities.

The lesson is that when the Department leadership directs lasting focus on difficult problems, the Department works its way through solutions. So, the answer to the question about the impact of program delivery issues on the effectiveness of the deterrent depends on the willingness of the key leadership in the White House, the Congress, the Departments of Defense and Energy, industry, and the nuclear forces to provide increased focus and resolve. With increased focus the risk could be manageable. Without such focus we could be undermining the nuclear deterrent to the point that it is dangerously compromised.

