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STATEMENT OF
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Introduction

Chairman Rogers, Ranking Member Cooper, and distinguished members of the House Subcommittee on Strategic Forces, thank you for the opportunity to testify on the important topic of Prompt Global Strike (PGS).

My views on PGS were formed initially during the development of the 2001 Nuclear Posture Review (NPR). During the 2001 - 2006 timeframe I served in OSD Policy. In particular, I was the Director for Strike Policy and Integration and was responsible for the implementation plan for the 2001 NPR. It was this transformational policy-related study by the Department of Defense (DoD) which provided the rationale for and led to the specific development effort which has become known as Conventional Prompt Global Strike (CPGS) or PGS. Since leaving government in late 2006, I have continued to follow PGS issues closely.

2001 Nuclear Posture Review and PGS

As many of the committee members are aware, the 2001 NPR addressed the emerging global security environment in the twenty-first century, the defense policy goals served by strategic forces, and the kinds of strategic capabilities needed to support those goals. I will be brief in summarizing those findings as they related to the topic of this hearing—PGS.

Security Environment. First, the global security environment in 2001 was characterized at the time as highly complex and uncertain, especially when compared to the decades during the Cold War. Significant threats were posed by uncertainty over the future relationship with Russia, an emerging China, regional states with weapons of mass destruction (WMD), and non-state actors, including al-Qaeda which had stated the intent to obtain WMD to be used on populated areas in the United States and its allies. The threat was dynamic and could change rapidly. The security environment of 2015 is even more complex and challenging.

Defense Policy Goals. Long-standing national security goals remained important. These goals included deterring adversaries from specific actions, assuring U.S. allies and friends, discouraging potential adversaries from military competition, and, should deterrence efforts fail, limiting damage and defeating an adversary. Given the complex security environment and pace of technological change, nuclear forces remained important to serve national goals, however, additional strategic capabilities could also contribute toward these goals. This led to an organizing concept which was referred to as the "New Triad."

New Triad. The concept of a New Triad included the integrated strategic capabilities of offenses (both nuclear and non-nuclear), defenses (active and passive), and a responsive infrastructure, all dependent on the support of a network of command, control, communications, and intelligence capabilities. Of specific interest to this hearing, was the focus on developing and deploying advanced non-nuclear strike capabilities as a supplement to, not a replacement for, nuclear strike capabilities. The combination of offensive capabilities—nuclear, conventional, and non-kinetic—could strengthen overall strategic capabilities for deterrence, assurance, dissuasion, and defense.

The concept of a New Triad was unique primarily because it provided an organizational framework for how these capabilities could be integrated to serve national goals. The PGS concept was one such capability that resulted from this transformation of thinking regarding U.S. strategic capabilities.

Initial PGS Proposal. The initial concept for a PGS capability emerged from the assessed need to fill a capability gap in U.S. strike capabilities. The number of U.S. bases across the globe had declined during the 1990s following the end of the Cold War and the breakup of the Soviet Union. With potentially severe threats emerging in many different regions and limited bases for the forward deployment of U.S. forces, the concept of being able to strike almost anywhere in the world in a relatively short amount of time was viewed as an extremely valuable option for a U.S. president. The problem at the time (and remains so today) was that the only prompt, long-range, kinetic strike capability on which a president could call was a nuclear-armed ballistic missile. As a result, the concept of a conventionally-armed, prompt, global (or near-global) capability was initiated. As documented in various government reports, in 2006 the Joint Chiefs of Staff validated the Prompt Global Strike (PGS) Initial Capabilities Document (ICD). This requirements document was reviewed again in 2013 and revalidated.

PGS and Defense Policy Goals. The potential scenarios requiring "use" of such a weapon often becomes a focus of inquiry. A PGS capability could help serve U.S. defense policy goals in a variety of ways, including the following:

- *Deterring adversaries*. Advance conventional strike capabilities, including PGS, could pose a more credible offensive threat to some adversaries in specific scenarios—specifically, scenarios in which the stakes are not sufficiently high, or too uncertain, to

warrant a nuclear strike by the United States. In addition, in some circumstances a PGS capability would further complicate planning for adversaries. Thus, a PGS capability and uncertainty over how the U.S. might respond to an immediate threat would enhance U.S. deterrence capabilities.

- *Assuring allies*. Similarly, some allies in high threat regions have expressed concerns about U.S. nuclear reductions while adversaries are modernizing their nuclear and other WMD capabilities and perceived threats to them are increasing. U.S. technical developments such as PGS could help assure allies that the United States is a reliable, capable, and technologically proficient partner and is responding effectively to the rapidly developing and uncertain security environment. Some countries may be reassured by the knowledge that the United States has a prompt, non-nuclear strike capability, should a need arise. Developing a PGS capability could help assure allies that the United States has both the resolve and capability to meet its commitments to the security of its allies. And finally, PGS would demonstrate American preeminence in military technology and would help bolster U.S. leadership of alliances and coalitions.

- *Discouraging strategic force competition*. Developing and deploying a global or near-global precision strike capability would demonstrate to potential adversaries the technical prowess of the United States and the resolve to apply cutting edge technologies to serve defense related needs. Some potential adversaries could be dissuaded from competing militarily with the United States because of the tangible display of U.S. technical superiority and the cost and challenge of competing militarily with the United States.

- *Defending the United States and its allies in cases in which deterrence fails*. Should a serious situation emerge which the president judges to be extremely serious, a PGS capability would provide one additional option—a unique strategic capability—for the president's consideration. One or more PGS weapons could be employed to degrade, disrupt, or destroy adversary capabilities which need to be neutralized promptly and for which other options would not have been timely and effective. Such an option might need to be employed to limit damage to the United States or an ally. Those who argue against developing PGS, would foreclose such an option from those available to a future president.

This thinking regarding the potential value of a PGS capability, outlined above, was developed during the 2001 timeframe. The rationale appears to be relevant today, perhaps even more so.

Initial DoD Plans for PGS

In implementing the concept for transforming U.S. strategic capabilities, cost, time, and preserving force structure were important considerations. Therefore, the potential to retain and

modernize an appropriately-sized nuclear force and to adapt nuclear forces considered excess at that time to other needed capabilities was a prime consideration. This approach involved "adaptability"—where feasible—to modify existing forces in order to develop a broader range of strategic capabilities for the emerging security environment. This approach to adapting existing forces can be illustrated by two of the initiatives for advanced conventional strike: 1) the conversion of four ballistic missile submarines to conventionally-armed, cruise missile submarines (SSGNs); and 2) the proposal to develop a near-term PGS option. U.S. Strategic Command was responsible for conducting a study of potential PGS concepts and recommended the Conventional Trident Modification (CTM) concept as the initial option to be pursued. The proposed CTM program would adapt a limited number of Trident II D5 submarine-launched ballistic missiles (SLBMs) to carry non-nuclear, near-precision payloads. As many on the Strategic Forces Subcommittee are aware, the initial DoD proposal for PGS involved a three-year development phase leading to a decision in 2008 on whether to proceed with further development and deployment of a conventional Trident variant. Reports from the Congressional Research Service (CRS) have chronicled the history of legislation regarding this and other PGS-related initiatives.

Potential Benefits and Limitations of PGS

U.S. defense officials from both political parties have envisioned PGS as a "niche" strike capability which would be procured in limited quantities—at most, tens of missiles. Such a capability could be of great value to disrupt an ongoing action in distant parts of the world. The damage inflicted by a PGS weapon may not be catastrophic against all types of enemy targets, but it could be sufficient to cripple an adversary threat or enabling capabilities until heavier and more sustained strike capabilities and defenses could be moved into place.

Several potential concerns regarding PGS have been well documented. The weapons would be costly, the damage inflicted by PGS payloads would be limited by weight and volume constraints for ballistic missile payloads, and concern exists over the potential for Russia, or in the future some other country, to mistake a PGS launch for a nuclear attack. Even with these limitations, assessments such as the 2008 study by the National Research Council, concluded that PGS could be of great value and the identified drawbacks are manageable. The potential for timely employment of such a weapon would, of course, be dependent on timely, accurate intelligence. Such intelligence could not be guaranteed, but this is a competency in which the United States excels and adversaries lag far behind.

PGS-Like Developments by Other Countries

As advanced technologies become available to an increasing number of countries, these countries will likely look for innovative ways to compete, including militarily. Open source reports from several countries—including China, Russia, Pakistan, and India—indicate keen

interest in conventional, prompt strike weapons. Below are a few examples from my research on open source reporting on such developments in other countries.

China. China's leaders appear to have found multiple applications for conventional prompt strike weapons in its military strategy in the western Pacific. According to Chinese sources, Xi Jinping, China's President, Chairman of the Central Military Commission, and General Secretary of the Chinese Communist Party, has ordered the People's Liberation Army (PLA) to build a powerful and technologically advanced missile force. These "conventional missiles for strategic use" are reportedly to intimidate Taiwan, for use in wars in the western Pacific, and to support China's anti-access/access-denial strategy against the U.S. military. According to one China analyst, the PLA's conventional prompt ballistic missile inventory includes about 1,200 short-range missiles (DF-11/CSS-7 and DF-15/CSS-6), medium-range missiles such as the DF-21/CSS-5 family which includes an anti-ship version and the DF-16/CSS-11 which can target Okinawa, and development of an intermediate-range missile, the DF-26, to be able to target U.S. capabilities as distant as Guam. In fact, one Chinese Communist Party newspaper has reportedly referred to the DF-26 as the "Guam killer." These missiles do not need to be of global reach to support China's strategy of dominating the western Pacific.

In addition, in November 2015, China reportedly conducted its sixth flight test of a hypersonic glide vehicle (HGV), designed to be launched from an ICBM missile booster. The vehicle, dubbed DF-ZF in press reports, is described as capable of maneuvering to avoid defenses and gliding to its target at speeds up to ten times the speed of sound (i.e., hypersonic). Unclassified reports speculate that the DF-ZF could carry either a nuclear warhead or perform non-nuclear strike missions.

Russia. Numerous reports on Russian strategic force developments cite the potential value of deploying conventional warheads on ballistic missiles. For example, press reports from Russia state that Russia is capable of outfitting its newer submarine-launched ballistic missiles with either low-yield nuclear warheads or conventional warheads with precision delivery. In December 2012, the Commander of Russia's Strategic Missile Forces, Colonel-General Sergei Karakayev said that Russia was also considering developing a conventional payload for its new powerful, liquid-fueled ICBM. Subsequently, Russian President Vladimir Putin spoke publically about the value of "high-precision weapons" for deterrence. In November 2014 a Russian defense industry executive announced that Russia would have an air-launched hypersonic missile by 2020.

Pakistan and India. Both Pakistan and India have reportedly deployed and are continuing to develop conventionally-armed, prompt missiles for use in a local conflict. In early 2012 Pakistan test fired a short-range ballistic missile that was characterized by a Pakistani military spokesman as having "high maneuverability, pinpoint accuracy." The Hatf-II missile, also called Abdali, is reported to have a range of 180 kilometers and is capable of carrying either a conventional or nuclear warhead. India also has conventionally-armed ballistic missiles. In

addition, India's Defense Research and Development Organization has teamed with a Russian weapons development organization to develop a hypersonic cruise missile. The missile referred to as BrahMos, is reported to have a range of about 290 kilometers.

Potential for Misinterpretation

The potential for misinterpretation—another country observing the launch or flight of one or more PGS weapons, misinterpreting this as a nuclear attack, and responding by launching its own nuclear strike—has often been cited as a reason for proceeding cautiously in developing a U.S. PGS capability. This concern is certainly worthy of serious consideration and DoD reports to Congress have addressed measures which would be undertaken to lessen the potential for any such misunderstanding. In 2007, the National Research Council (NRC) of the National Academy of Sciences was directed by the Congress to study this and other PGS issues. The NRC gave the "nuclear ambiguity" (i.e., misunderstanding) issue special scrutiny. In their 2008 final report, the NRC stated the following as one of its major conclusions regarding the Conventional Trident Modification program and the potential for misunderstanding/nuclear ambiguity:

> Nuclear ambiguity is an understandable concern regarding CTM and, to varying degrees, all other CPGS systems. Nuclear ambiguity cannot be eliminated simply by avoiding a "legacy" nuclear system, such as Trident. The risk of a CPGS attack being misinterpreted and leading to a nuclear attack on the United States could be mitigated and managed through readily available mechanisms. The benefits of possessing a limited CPGS capability, such as that provided by CTM, outweigh the risks associated with nuclear ambiguity.

Proposed efforts to mitigate this concern include cooperative measures with Russia to keep them informed about U.S. plans and the characteristics of a planned PGS system, observable differences between types of weapons/missiles, and hot-lines and emergency notification systems to be used whenever needed. Since the NRC report was published in 2008, Moscow has made significant progress in rebuilding and modernizing Russian air and missile defense and space surveillance systems that were left in disarray after the breakup of the Soviet Union. According to a June 2015 report in the Moscow Times, the modernized Russian early warning system of launch detection satellites and ground based radars is expected to be completed and operational in 2018.

According to Russian reports and press accounts, Russian leaders already have a number of modern detection and tracking systems at their disposal to help them in discerning operational characteristics of one or more PGS weapons in flight. For example, General-Lieutenant Sergey Lobov, then-Deputy Commander of the Space Troops, told journalists on February 15, 2011, that Russia's missile attack warning system was able to detect ballistic missile launches from missile bases in a number of countries, including the United States, China, and Iran. According to Lobov, when an intercontinental ballistic missile enters the ground-based early warning radar's

field of view, the radar the calculates its impact point and the time the strike will arrive. This information is sent to the Main Missile Attack Warning System Command Post in a matter of seconds, where it is processed, and the degree of threat is determined. Lobov also said that the system tracks more than 4,500 space objects on a daily basis and transmits from 40,000 to 55,000 measurements on them to the Outer Space Monitoring Center.

Summary

For the United States, the rationale for PGS remains as valid today as when first proposed. The United States has numerous strategic commitments in distant parts of the world and there is no guarantee that general purpose forces could be effectively brought to bear in time should an urgent situation arise.

For the United States, developing a PGS capability has been a goal of both the Obama and Bush administrations, and both administrations have shared similar views on the potential value of a PGS capability. Such a capability could strengthen U.S. efforts to support a number of national security goals, such as those outlined earlier. Senior officials in each administration have differed, however, over the details of the particular weapon concepts to be developed and shifting opinions in Congress have, at times, slowed or stalled progress. As a result, efforts toward realizing such a capability have languished. Currently, over a dozen years since the initial PGS concept was proposed, there is apparently no consensus on a preferred PGS concept to be developed and no planned deployment date.

I urge this subcommittee to work closely with DoD on efforts to develop a near-term PGS capability as soon as feasible.