

# CONVENTIONAL PROMPT GLOBAL STRIKE (CPGS): A CONVENTIONAL OR A NUCLEAR WEAPON?\*

Konvansiyonel Ani Küresel Vuruş (CPGS): Konvansiyonel mi Yoksa  
Nükleer Silah mı?

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## Abstract

The role of nuclear weapons diminished to a great extent after the end of the Cold War, while conventional weapons with a precision guidance system have emerged as a crucial asset for warfare in the new security environment. After the September 11 attacks the US embarked on the Conventional Prompt Global Strike (CPGS) program, to develop weapons that can strike any target in the world in less than one hour. CPGS was intended to reduce the role of nuclear weapons in US politics, but Russian strong opposition to the project, is expected to start a new nuclear armament race. This paper will analyze the evolution of the CPGS project and debate how it will affect nuclear politics between the US and Russia.

**Keywords:** Conventional Prompt Global Strike, Nuclear Weapons, Hypersonic Missiles, Ballistic Missile Defense, US, Russia.

## Özet

Soğuk Savaş sonrası dönemde hassas güdümlü sistemine sahip konvansiyonel silahlar, yeni güvenlik ortamındaki muharebeler için kritik malzeme haline gelmişken, nükleer silahların etkisi büyük oranda azalmıştır. 11 Eylül sonrasında ABD, dünyanın herhangi bir yerindeki bir hedefi bir saatten daha az sürede vurabilecek bir silah sistemi geliştirebilmek amacıyla "Konvansiyonel Anlık Küresel Vuruş Projesi"ni başlatmıştır. Proje, ABD politikalarında nükleer silahların rolünü azaltmayı amaçlamaktadır. Ancak, Rusya'nın sert tepkisi dolayısıyla bu projeye karşı geliştirdiği taarruz ve savunma programlarının (Rusya, Füze Savunma Sistemi ile birlikte bu projeyi kendi güvenlik politikalarına karşı büyük bir tehdit olarak tanımlamaktadır.) her iki ülke için de yeni bir nükleer silahlanma yarışı başlatması beklenmektedir. Bu çalışma, CPGS projesinin gelişimini ve ABD-Rusya arasındaki nükleer politikaları nasıl etkileyeceğini incelemektedir.

**Anahtar Kelimeler:** Konvansiyonel Ani Küresel Vuruş, Nükleer Silahlar, Hipersonik Füzeler, Füze Savunma Sistemi, ABD, Rusya.

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## Introduction

Nuclear weapons dominated political and military relations between the superpowers during the Cold War, especially in the early days of the Nuclear Age when massive retaliation, in which any crisis could directly escalate to nuclear warfare, was seen as the main military strategy. With the launch of Sputnik, the capability of the then Soviet Union to strike the continental US changed the security paradigm in the US, leading to adoption of a flexible response strategy that emphasized the importance of conventional weapons at the beginning of a crisis and regarded nuclear confrontation as the last option. Conventional weapons, though, remained in the shadow of nuclear weapons until the end of the Cold War.

The changing security environment in the post-Cold War era increased the importance of conventional weapons with precision guidance systems. Long range missiles with conventional warheads figured among the most crucial assets the US should acquire, along with Ballistic Missile Defense (BMD) to counter emerging threats against the US and US forces abroad, with terrorists and rogue states cited as the main threats. The studies and concept developments intensified after the September 11<sup>th</sup> attacks, with the international community (including Russia) supporting, at least tacitly if not openly, US efforts to fight terrorism.

Prompt Global Strike (PGS) -the ability to strike any target with conventional weapons anywhere in the world in less than one hour- emerged as a prioritized capability for the US. The Navy, Air Force, and Army embarked on various projects to acquire this capability, including employing conventional warheads on existing ballistic missiles. Congress decided to merge existing programs, though, and funded a defense-wide program named Conventional Prompt Global Strike (CPGS), which will employ boost-glide technologies that have a different trajectory than ballistic missiles.

Intense debate has ensued among politicians and scholars on the feasibility, necessity, and efficiency of the project. The debate is especially focused on whether the risks -including nuclear retaliation

due to misunderstanding or miscalculation by Russia or China, both of whom strongly oppose the US efforts- outweigh the benefits. The benefits of deploying CPGS systems are not completely clear, and research on boost-glide technologies will define the future of the project. However, it is clear that the system, if achieved successfully as described, will open a new page in the future of nuclear weapons.

## Evolution of the Program

The notion of striking long-distance targets in a very short time began in the US mainly during the early years Bush Administration. The classified Nuclear Posture Review (NPR) of January 2001 pointed out that America's New Triad will consist of offensive strike systems (nuclear and non-nuclear), defenses (active and passive), and a revitalized defense infrastructure that will provide new capabilities in a timely fashion to meet emerging threats.<sup>1</sup> The goal of this new Triad is "reducing US dependence on nuclear weapons"<sup>2</sup> and "providing the President more non-nuclear deterrence options and responses to potential crises".<sup>3</sup> Non-nuclear offensive systems came to characterize post-Cold War deterrence and warfare strategies.

President Bush's elevation of preemption from military option to national doctrine gave real impetus to making the Global Strike concept operational.<sup>4</sup> In 2003, the US Department of Defense (DoD) specifically identified a new mission -Prompt Global Strike (PGS)-that sought to provide the US with the ability to strike targets anywhere on Earth with conventional weapons in as little as an hour, without relying on forward-based forces.<sup>5</sup> US efforts at prompt strike with

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1 *Nuclear Posture Review (Excerpts)*, 8 January 2002, <http://web.stanford.edu/class/polisci211z/2.6/NPR2001leaked.pdf>, (Date of Accession: 17.02.2017).

2 *Nuclear Posture Review (Excerpts)*, 8 January 2002, <http://web.stanford.edu/class/polisci211z/2.6/NPR2001leaked.pdf>, (Date of Accession: 17.02.2017).

3 Robert Gates, "Nuclear Weapons and Deterrence in the 21st Century", *remarks at the Carnegie Endowment for International Peace*, Washington, D.C., October 28, 2008, 4, [http://carnegieendowment.org/files/1028\\_transcrip\\_gates\\_checked.pdf](http://carnegieendowment.org/files/1028_transcrip_gates_checked.pdf), (Date of Accession: 12.03.2017).

4 Dennis M. Gormley, "American Conventional Superiority: The Balancing Act", Catherine M. Kelleher and Judith Reppy, eds., in *Getting to Zero: The Path to Nuclear Disarmament*, Stanford University Press, Stanford 2011, p. 324.

5 James M. Acton, *Silver Bullet: Asking the right Question about Conventional Prompt Global Strike*, Carnegie Endowment for International Peace, Washington D.C. 2013, p. 1.

conventional weapons capabilities have intensified since then. The US Army, Navy, and Air Force have worked separately on various projects with different options for launch and re-entry vehicles as main components of the new weapon.

Conventional ballistic missiles, with shorter range, and Intercontinental Conventional Ballistic Missiles (ICBM) emerged as the main launch vehicle options at the beginning. The Navy started a project in 2006 to modify some existing Trident submarine-launched nuclear ballistic missiles to hold conventional warheads, in what was called Conventional Trident Modification (CTM). The Quadrennial Defense Review (QDR) 2006 Report stated that the DoD will convert a small number of Trident submarine-launched ballistic missiles for use in PGS.<sup>6</sup>

CTM sparked great interest at the beginning because of its feasibility and easy availability. In 2008 the Committee on CPGS Capability advised proceeding with CTM, calling CTM the only option in near term.<sup>7</sup> However, in large measure, concerns over the possibility that launch of a conventionally armed Trident D-5 missile could be misconstrued as a nuclear attack led Congress to repeatedly deny funds for CTM development,<sup>8</sup> and the project, which consisted of conventional ballistic missiles and conventional warheads, was cancelled in 2008.

On the other hand, the Air Force in cooperation with The Defense Advanced Research Projects Agency (DARPA) -the agency of the U.S. DoD responsible for research on new technologies for the military- began feasibility studies for the Force Application and Launch from the Continental US (FALCON) project. FALCON's aim is to develop and demonstrate technologies that will enable both near-term and far-

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6 *Quadrennial Defense Review (QDR) 2006 Report*, US Department of Defense, 6, <https://www.defense.gov/Portals/1/features/defenseReviews/QDR/Report20060203.pdf>, (Date of Accession: 24.01.2017).

7 Committee on Conventional Prompt Global Strike Capability, *US Conventional Prompt Global Strike: Issues for 2008 and beyond*, The National Academies Press, Washington D.C. 2008, p. 146.

8 Scheber Etal, *Conventional Prompt Global Strike: A Fresh Perspective*, Fairfax: National Institute Press, 2012, p. 13.

term capability to execute time-critical, global-reach missions.<sup>9</sup> The FALCON project consisted of two main projects: a launch vehicle similar to the Ballistic Missile, and a hypersonic re-entry vehicle called Common Aero Vehicle (CAV). The Air Force considered reconfiguring existing ICBMs as launch vehicles, announcing in 2004 their plans to modify Minuteman II and Peacekeeper (MX) missiles -which already carry nuclear warheads with ranges of 11,200 and 9,600km respectively- and renaming the modified missiles “Minotaur IV” missiles.

For a hypersonic re-entry vehicle, the Air Force focused on the Hypersonic Technology Vehicle (HTV) program, the multiyear research and development effort to increase the technical knowledge base and advance critical technologies in order to make long-duration hypersonic flight a reality.<sup>10</sup> HTV-1, the design part of the HTV project, ended in 2004 and the HTV-2 project began immediately after; the HTV-2 vehicle can be launched into Earth’s upper atmosphere and then descend to the target at 22 Mach or approximately 21,000km per hour. Per DARPA, “the ultimate goal is a capability that can reach anywhere in the world in less than an hour.”<sup>11</sup>

For its part, the Army also has been pursuing a hypersonic boost-glide vehicle program, AHW (Advanced Hypersonic Weapon), first started in 2006. The AHW is a first of its kind glide vehicle, designed to fly within the earth’s atmosphere at hypersonic speed and long range.<sup>12</sup> Compared to HTV, though, its short range does not allow the US to acquire CPGS capability as planned. As Acton highlighted, the AHW has a shorter range than the HTV-2 and would not allow targets across

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9 *Evaluation of the National Aerospace Initiative*, prepared by National Research Council, Division on Engineering and Physical Sciences, Air Force Science and Technology Board, Committee on the National Aerospace Initiative, The National Academies Press, Washington D.C 2004, p. 114, <http://www.nap.edu/catalog/10980.html>, (Date of Accession: 16.12.2016).

10 Jerome Dunn, *FALCON HTV-2*, DARPA, <http://www.darpa.mil/program/falcon-htv-2>, (Date of Accession: 04.02.2017).

11 Jerome Dunn, *FALCON HTV-2*, DARPA, <http://www.darpa.mil/program/falcon-htv-2>, (Date of Accession: 04.02.2017).

12 “Army tests Advanced Hypersonic Weapon over Pacific”, *Official Web site of the US Army*, 18 November 2011, [https://www.army.mil/article/69608/Army\\_tests\\_Advanced\\_Hypersonic\\_Weapon\\_over\\_Pacific/](https://www.army.mil/article/69608/Army_tests_Advanced_Hypersonic_Weapon_over_Pacific/), (Date of Accession: 11.02.2017).

the globe to be at risk from the continental US,<sup>13</sup> but its feasibility prompted decision makers to continue the AHW program.

Congress decided to merge the programs of the Air Force, Army and Navy and urged the Pentagon to continue with a combined CPGS. The Conventional Strike Missile (CSM) program that the Air Force started in 2008 became the leading project for CPGS. The Minotaur IV missile will be the main launch vehicle to deliver a conventional payload, combining boost-glide technologies to fly on a flatter trajectory than ballistic missile trajectory and thus prevent misunderstanding and miscalculation. Based on land -probably either on the U.S. west or east coast- the CSM would employ boost-glide technologies and after separation, the payload would travel hypersonically to the target while having the capacity to execute substantial cross-range maneuvers.<sup>14</sup>

The re-entry hypersonic glide vehicle, whose velocity makes it extremely difficult to intercept, greatly increases the chances of penetration of air defenses, even when the adversary is able to detect the launch or track its path/trajectory.<sup>15</sup> The Army's AHW and Air Force's HTV are the most likely options for the re-entry vehicle, and share significant technical characteristics. The HTV has a range of roughly 16,000km, speed of over 20 Mach, and accuracy within a few meters, while the AHW range is between 5,500 and 8,000km with speed of 5 Mach. AHW has a conical shape while HTV-2 has a wedge-shape design.

The Air Force's HTV-2 is considered the priority option for the project because of its technical superiority. However, DARPA has conducted two unsuccessful tests of HTV-2 in 2010 and 2011,<sup>16</sup> while

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13 Acton, *Silver Bullet: Asking the Right Question about Conventional Prompt Global Strike*, p. 1.

14 James Martin, "Hyper-glide Delivery Systems and the Implications for Strategic Stability and Arms Reductions", *Center for Nonproliferation Studies*, April 2005, Washington D.C., p. 8, <http://calhoun.nps.edu/bitstream/handle/10945/45558/Hyperglide%20Final%20Report.pdf?sequence=>, (Date of Accession: 19.02.2017).

15 Abel Olguin, "Employment of Hypersonic Glide Vehicles: Proposed Criteria for Use", Sarah Minot, ed., in *Nuclear Scholars Initiative: A Collection of Papers from the 2014 Nuclear Scholars Initiative*, Rowman & Littlefield, Lanham 2015, p. 146.

16 Ian Sample, "Falcon HTV-2 is lost during bid to become fastest ever plane", *The Guardian*, 11 August 2011.

the Army's first AHW test succeeded in 2011, with the missile flying 4,000km in less than half an hour.<sup>17</sup> Another test conducted in 2014 failed, and the weapon was destroyed four seconds after its launch controllers detected a problem with the system.<sup>18</sup> Thus, based on feasibility and successful tests, the Army's AHW has been selected as the main payload delivery vehicle option for the CPGS.

Studies continue for the project. In the 2016 budget for the CPGS program, Congress allocated \$88.7 million, \$86 million of it for AHW, and in the 2017 budget \$181.3 million, \$176 million of it for AHW.<sup>19</sup> These figures show that most of the CPGS budget is allocated for AHW, which will have flight tests in 2017 and 2019. Therefore, CPGS will have its first boost-glide re-entry vehicle after 2020, if tests succeed a sign that Conventional Prompt Strike, which will need forward presence will not be global within years, as planned, perhaps even decades.

## Theoretical Debates

Intense debate continue in the US administration among politicians, the military, and scholars, on the feasibility, efficiency, and necessity of CPGS, even while studies on the project continue. The debate focuses on whether investment in the project will pay off, considering that the product has technical issues as well as domestic and especially international political problems to solve.

First of all, the main target of the weapons has been unclear since the beginning, dating back to the early George W. Bush administration. Some reports in the US after September 2001 claimed that the US had plans to acquire long range missiles that carry conventional weapons, but lacked a solid and clear definition of the proposed target. The QDR 2001 Report of the Bush administration stated that "the new

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17 Le Ferran, "DoD: Army Successfully Tests Top Secret Hypersonic Weapon", *ABC News*, 17 November 2011.

18 James Nye, "Pentagon's top-secret hypersonic weapon explodes in mystery Alaska fireball: Flaming missile that can hit anywhere on Earth in an hour lights up the sky", *Dailymail.Online*, 26 August 2014.

19 U.S. Department of Defense, "RDT&E Programs (R-1)", [http://comptroller.defense.gov/Portals/45/documents/defbudget/FY2017/FY2017\\_r1.pdf](http://comptroller.defense.gov/Portals/45/documents/defbudget/FY2017/FY2017_r1.pdf), (Date of Accession: 27.02.2017).

multifaceted approach to deterrence requires non-nuclear forces that can strike with precision at fixed and mobile targets throughout the depth of an adversary's territory; active and passive defenses; and rapidly deployable and sustainable forces that can decisively defeat any adversary."<sup>20</sup> The September 11 attacks played an important role in this definition, but what "fixed and mobile targets" exactly were remained unclear.

A 2007 report for Congress stressed that DoD strongly believes CPGS to be a critical capability to address America's evolving 21<sup>st</sup> century security needs,<sup>21</sup> without giving details. The 2010 Nuclear Posture Review (NPR) Report stated that "DoD is studying the appropriate mix of long-range strike capabilities, including heavy bombers as well as non-nuclear prompt global strike."<sup>22</sup> However, none of these general statements elaborated the main purpose of the project.

One of the most cited reasons to acquire CPSG has been the intent of the US administration to reduce reliance on nuclear weapons. This argument can be traced back to the end of the Cold War when, for example, Paul Nitze, who was convinced by early 1994 that it was time for the US to reconsider its longstanding reliance on nuclear weapons for deterrence, stated that U.S. presidents would no longer be willing to employ nuclear weapons to punish aggression, and that precision-guided conventional weapons would perform better deterrence than nuclear weapons.<sup>23</sup> His experiences during the First Gulf War also played an important role in his emphasizing precise-guided conventional weapons in the post-Cold War conflicts.

The 2001 NPR stated that the establishment of the New Triad shape in QDR 2001 Report can both reduce US dependence on

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20 *Quadrennial Defense Review (QDR) 2001 Report*, US Department of Defense, p. 12, <https://www.defense.gov/Portals/1/features/defenseReviews/QDR/qdr2001.pdf>, (Date of Accession: 01.02.2017).

21 *Report to Congress on: Prompt Global Strike Plan*, submitted by the Office of the Secretary of Defense, February 2007, p. 6, [http://www.dod.mil/pubs/foi/Reading\\_Room/Other/Prompt\\_Global\\_Strike\\_Plan\\_02-2007.pdf](http://www.dod.mil/pubs/foi/Reading_Room/Other/Prompt_Global_Strike_Plan_02-2007.pdf), (Date of Accession : 17.01.2017).

22 *Nuclear Posture Review Report*, US Department of Defense, April 2010, p. 24, [https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010\\_Nuclear\\_Posture\\_Review\\_Report.pdf](https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf), (Date of Accession: 18.01.2017).

23 Paul H. Nitze, "Is It Time to Junk Our Nukes?", *Washington Post*, 16 January 1994.

nuclear weapons and improve its ability to deter attack in the face of proliferating WMD capabilities. The document also noted that “the addition of non-nuclear strike forces -including conventional strike and information operations- means that the U.S. will be less dependent than it has been in the past on nuclear forces to provide its offensive deterrent capability.”<sup>24</sup> It is worth noting that the 2001 NPR was written after the September 11<sup>th</sup> attacks, when terrorism, rather than relations between Russia and the US, played an important role in shaping security politics.

The ODR 2006 Report suggested reducing America’s nuclear weapons while simultaneously enhancing its Global Strike capabilities.<sup>25</sup> DoD argued that although “there will continue to be a national security role for nuclear weapons, non-nuclear systems represent a major element of the Global Strike mission that may be used, when appropriate, in lieu of nuclear capabilities.”<sup>26</sup>

US government and other military officials articulated the same thing. “The goal of the new triad is to reduce our emphasis on nuclear weapons for deterrence and provide the president more non-nuclear deterrence options and responses to potential crises,” said Secretary of Defense Robert Gates in 2006.<sup>27</sup> General Cartwright, Vice Chairman of the Joint Chiefs of Staff, on the other hand, noted that replacing nuclear weapons with conventional weapons in the US strategic war plan might further reduce its reliance on, and therefore its number of, deployed strategic nuclear weapons.<sup>28</sup> However none of these documents specifically mentioned how the system will help the US reduce its dependency on nuclear weapons.

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24 *Nuclear Posture Review (Excerpts)*, <http://web.stanford.edu/class/polisci211z/2.6/NPR2001leaked.pdf>, (Date of Accession: 17.02.2017).

25 *Quadrennial Defense Review (QDR) 2006 Report*, U.S. Department of Defense, <https://www.defense.gov/Portals/1/features/defenseReviews/QDR/Report20060203.pdf>, (Date of Accession: 11.12.2017).

26 *Report to Congress on: Prompt Global Strike Plan*, submitted by the Office of the Secretary of Defense, February 2007, p. 2, [http://www.dod.mil/pubs/foi/Reading\\_Room/Other/Prompt\\_Global\\_Strike\\_Plan\\_02-2007.pdf](http://www.dod.mil/pubs/foi/Reading_Room/Other/Prompt_Global_Strike_Plan_02-2007.pdf), (Date of Accession: 17.01.2017).

27 Robert Gates, “Nuclear Weapons and Deterrence in the 21st Century”, p. 4.

28 Elaine M. Grossman, “US General Precise Long-range Missiles may enable big Nuclear Cuts”, *Inside the Pentagon*, 28 April 2005.

The 2010 NPR of the Obama Administration listed five objectives regarding nuclear weapons; two of them are reducing the role of U.S. nuclear weapons in U.S. national security strategy and maintaining strategic deterrence and stability at reduced nuclear force levels. The document also highlighted that one of the main purposes of CPGS is reducing the role of nuclear weapons in US security strategy.<sup>29</sup> In February 2010, Vice President Joseph Biden said that “capabilities like an adaptive missile defense shield, conventional warheads with worldwide reach, and others that we are developing enable us to reduce the role of nuclear weapons.”<sup>30</sup> General Cartwright pointed out that a small class of targets exists against which these assets would be ineffective, but nuclear weapons would be inappropriate.<sup>31</sup>

Many analysts oppose this view and argue that nuclear weapons have more effect than any conventional weapon, and that no conventional weapon can substitute for nuclear weapons in deterrence capability. Former USSTRATCOM Commander General Kevin Chilton opposed replacement of nuclear weapons with precision-guided conventional weapons, noting that “the nuclear weapon has a deterrent factor that far exceeds a conventional threat” and highlighted that “rapid global strikes with non-nuclear missiles would be an additional weapon in the quiver of the president” during a crisis when only nuclear missiles are a timely option.<sup>32</sup>

Another target for the project is time-urgent targets, such as terrorist leaders or ballistic missiles with nuclear warheads launched by rogue states. The QDR 2006 Report, for example, stated that “one of the capabilities needed to defeat terrorist networks was Prompt Global Strike to attack fleeting enemy targets rapidly.”<sup>33</sup> The document also highlighted that the main goal of PSG would be “to attack fixed, hard and deeply buried, mobile and re-locatable targets with improved accuracy anywhere in the world promptly upon President’s order”.<sup>34</sup>

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29 *Nuclear Posture Review Report*, April 2010.

30 Joseph Biden, “The Path to Nuclear Security: Implementing the President’s Prague Agenda,” remarks at the *National Defense University*, Washington, D.C., 18 February 2010, <http://www.presidency.ucsb.edu/ws/?pid=121263>, (Date of Accession: 11.02.2017).

31 James Cartwright, “Testimony for the Senate Armed Services Committee Strategic Forces Subcommittee Hearing on Global Strike Plans and Programs in Review of the Defense Authorization Request for FY07”, 29 March 2006.

32 Bill Gertz, “Cyberwarfare is Coming”, *The Washington Times*, 18 March 2010.

33 *Quadrennial Defense Review (QDR) 2006 Report*, p. 24.

34 *Quadrennial Defense Review (QDR) 2006 Report*, p. 49.

The 2010 NPR of the Obama Administration, on the other hand, stated that the US will “develop non-nuclear prompt global strike capabilities and these capabilities may be particularly valuable for the defeat of time-urgent regional threats.”<sup>35</sup> General C. Robert Kehler, Commander of U.S. Strategic Command noted that the US would like to have the capability to be able to go after a time-critical target in a very short amount of time with a conventional warhead.<sup>36</sup>

However, no one has articulated exactly what these “time-urgent targets” might be. Examples given by analysts, such as “picking off Osama bin Laden in a cave, if the right one could be found; taking out a North Korean missile while it is being rolled to the launch pad; or destroying an Iranian nuclear site all without crossing the nuclear threshold,”<sup>37</sup> do not sound credible. The statement in Senate testimony by Brian Green, Deputy Assistant Secretary of Defense for Strategic Capabilities, that CPGS capabilities might be necessary to prevent WMD transfers to terrorists, disrupt missile launches by rogue states, and hit targets protected by anti-access capabilities,<sup>38</sup> has similarities with other statements but still lacks details as to how these goals would be achieved. Additionally, it should be noted that this kind of operation would need, first of all, “very convincing intelligence”<sup>39</sup> and very good and coordinated communication between intelligence resources and the launch center of the missile.

Reorganization of US military deployment and forward presence has been cited as one of the main reasons for CPGS. Officials state that the US has been working on reducing reliance on forward basing, for example Admiral Michael G. Mullen, former Chief of Naval Operations highlighted that this “new capability is required to defeat

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35 *Nuclear Posture Review Report*, April 2010.

36 *Prompt Global Strike: American and Foreign Developments, Hearing before the Subcommittee on Strategic Forces of the Committee on Armed Services House of Representative*, U.S. Government Publishing Office, 08 December 2015, <https://www.gpo.gov/fdsys/pkg/CHRG-114hhrg98278/html/CHRG-114hhrg98278.htm>, (Date of Accession: 11.03.2017).

37 David E. Senger-Thom Shanker, “U.S. Faces Choice on New Weapons for Fast Strikes”, *The New York Times*, 22 April 2010.

38 Brian R. Green, Testimony for the Senate Armed Services Committee Strategic Forces Subcommittee Hearing Regarding Global Strike Issues, 28 March 2007, p. 7.

39 Elaine M. Grossman, “Hayden: Prompt Global Strike raises bar for Intel community”, *Inside the Air Force*, 22 June 2007.

a diverse set of unpredictable threats, such as Weapons of Mass Destruction (WMD), at short notice, without the requirement for a forward-deployed or visible presence, without risk to U.S. forces, and with little or no warning prior to strike.”<sup>40</sup> The 2010 NPR, on the other hand, described one of its main objectives as countering the “growing threats to forward-deployed forces and bases”.<sup>41</sup>

None of these explanations clarified the anticipated mission of the project. As James M. Acton, an expert on nuclear policy, stated in his testimony before the House Armed Services Subcommittee on Strategic Forces, “the Pentagon has no official policy that sets out the specific military missions for which CPGS weapons might be acquired.”<sup>42</sup> That is also highlighted by a report prepared by the Council on Foreign Relations, that PSG has neither a common definition nor concept of operation; most Pentagon officials envision it simply as a niche capability that could be called upon to strengthen regional deterrence architectures.<sup>43</sup>

There is no clear consensus within Congress and the US national security policy community as to whether the United States should develop and deploy CPGS capabilities.<sup>44</sup> There has been intense debate concerning whether the project would be worth possibly triggering a crisis that might result in nuclear confrontation. As Acton argued, the most cogent argument within the United States against the development of certain hypersonic weapon systems has been the concern that Russia might mistake the launch of a conventionally armed system for

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40 Statement of Admiral Michael G. Mullen (Chief of Naval Operations) before the Senate Armed Services Sub-Committee on Seapower, 03 May 2007, p. 25, [http://www.navy.mil/navydata/cno/mullen/testimony/07843C2-2\\_Statement\\_SASC\\_SP\\_3May07\\_CNO\\_final.pdf](http://www.navy.mil/navydata/cno/mullen/testimony/07843C2-2_Statement_SASC_SP_3May07_CNO_final.pdf), (Date of Accession: 11.03.2017).

41 *Nuclear Posture Review Report*, April 2010.

42 Prompt Global Strike: American and Foreign Developments, Hearing before the Subcommittee on Strategic Forces of the Committee on Armed Services House of Representatives, 08 December 2015, <https://www.gpo.gov/fdsys/pkg/CHRG-114hrg98278/html/CHRG-114hrg98278.htm>, (Date of Accession: 11.03.2017).

43 Micah Zenko, *Toward Deeper Reductions in US and Russian Nuclear Weapons*, Council on Foreign Relations, Council Special Report No: 57, November 2010, p. 17.

44 M. Elaine Bunn and Vincent A. Manzo, “Conventional Prompt Global Strike: Strategic Asset or Unusable Liability?”, *Strategic Forum*, National Defense University, February 2011, p. 2.

a nuclear-armed system and launch a precipitous nuclear response.<sup>45</sup>

Potential misunderstanding and miscalculation by other nuclear states has been one of the most crucial arguments against the effectiveness of the project. Many analysts argue that the launch of the CPGS would be detected by states that have satellite detection capabilities such as Russia and China, and those states could not be certain if the missile had nuclear or conventional warheads (termed “warhead ambiguity” or “payload ambiguity,” or if these countries themselves were targeted by the missile. It is undeniable that “nuclear-only missiles capable of delivering conventional warheads are fraught with the prospect of serious unintended consequences.”<sup>46</sup> The risk of CPGS ambiguity triggering a Russian nuclear strike was central to Congressional opposition in the 2008 Budget.<sup>47</sup> Cooperation and confidence building measures with Russia and China, such as establishing a political consultation mechanism, data exchange, prior notification before launch, a hotline communication system, and on-site inspections, are methods to mitigate possible risks. But many scholars argue that these measures will not be enough to mitigate the risk. Russian officials, meanwhile, have warned that CPGS might trigger nuclear retaliation. Russian Foreign Minister, Sergei Lavrov, for example, has argued that the development of “conventionally armed long-range missile systems will lead to a significant decrease in the ‘threshold’ for strategic missiles use.”<sup>48</sup>

The technological feasibility of the project has constituted another important field of debate. Employing conventional warheads instead of nuclear warheads on the ballistic missiles was at first described as the most feasible and short-term project, but ballistic missile option has not constituted a desired option because of the warhead ambiguity problem. Rather, hypersonic vehicles that have a different trajectory than ballistic missiles were selected as the main re-entry vehicle of

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45 Acton, *Silver Bullet: Asking the right Question about Conventional Prompt Global Strike*, 118-3.

46 Dennis M. Gormley, “US Advanced Conventional Systems and Conventional Prompt Global Strike Ambitions: Assessing the Risks, Benefits, and Arms Control Implications”, *Nonproliferation Review*, Vol: 22, Nu: 2, p. 125.

47 Bunn and Manzo, “Conventional Prompt Global Strike: Strategic Asset or Unusable Liability?”, p. 14.

48 Sergey Lavrov, “New START Treaty in the Global Security Matrix: The Political Dimension”, *Mezhdunarodnaya Zhizn*, Nu: 7, July 2010.

CPGS. Two unsuccessful tests of HTV-2 brought the feasibility of the project into question, however. As Gormley pointed out, “the Air Force CSM and DARPA HTV-2 programs have not demonstrated sufficient technical progress, while the financial basis for pursuing them has fallen prey to severe cuts in the Pentagon budget.”<sup>49</sup>

The project will continue with the US Army AHW, which has shorter range than the HTV-2. The AHW was successfully tested once, but failure of a second test in 2014 resulted in questioning its technological feasibility. Additionally, AHW can travel roughly 8.000 km maximum, which is far short of the proposed global strike range and will require a forward presence, which the US plans in the long term to reduce or completely cancel.

Despite intense studies and research, it seems that global strike without warhead ambiguity will not be achieved in the short term. As Gormley stresses, research and development programs attempting to achieve technological breakthroughs in global strike capabilities by 2025 are, frankly, problematic at best.<sup>50</sup> Nonetheless, it is highly likely that the US will continue with HTV research using AHW as the short-term platform, given its superiority.

## Russian Objections

The US repeatedly insisted that the CPGS does not target Russia or China. The 2010 NPR, for example, stated that “the Administration is currently examining the appropriate mix of such capabilities needed to improve our ability to address such regional threats, while not negatively affecting the stability of our nuclear relationships with Russia or China.”<sup>51</sup> General Chilton said that the United States would size its CPGS force to avoid “perturbing our strategic relationship with Russia and China.”<sup>52</sup> That said, since the beginning of the project the US government has ignored China’s and especially Russia’s opposition to it.

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49 Gormley, “US Advanced Conventional Systems and Conventional Prompt Global Strike Ambitions: Assessing the Risks, Benefits, and Arms Control Implications”, p. 128.

50 Gormley, “American Conventional Superiority: The Balancing Act”, p. 326.

51 *Nuclear Posture Review Report*, April 2010.

52 Kevin Chilton, testimony for the House Armed Service Committee Strategic Forces Subcommittee Hearing on Strategic Forces, 16 March 2010, p. 13, [http://armedservices.house.gov/pdfs/StratForces031610/Chilton\\_Testimony.pdf](http://armedservices.house.gov/pdfs/StratForces031610/Chilton_Testimony.pdf), (Date of Accession: 11.02.2017).

Russia has repeatedly stated that it regards US efforts on CPSSG along with Ballistic Missile Defense (BMD) as one of the greatest threats to its security. Anatoly Antonov, who was then Director of Security and Disarmament at the Russian Ministry of Foreign Affairs, stated in 2007 that Russia sees a direct link between US plans for global missile defense and the prompt global strike concept, and argued that this concept, when combined with global missile defense, becomes a means of seeking to dominate the world politically and strategically, undermining the principles of mutual deterrence and mutual security, and eroding the architecture of strategic stability.<sup>53</sup>

Considering CPSSG a destabilizing factor for nuclear stability, Russia insisted that CPSSG will diminish strategic stability, with Putin warning that CPSSG “could negate all previous agreements on the limitation and reduction of strategic nuclear weapons, and disrupt the strategic balance of power.”<sup>54</sup> Russian Foreign Minister Lavrov opined that “world states will hardly accept a situation in which nuclear weapons disappear, but weapons that are no less destabilizing emerge in the hand of certain members of the international community.”<sup>55</sup>

Russia’s 2014 military doctrine listed implementation of the concept of global strike as one of the main external military dangers.<sup>56</sup> The 2015 Russian National Security Strategy also highlighted that opportunities for maintaining global and regional stability are shrinking significantly with US missile defense systems in Europe and with implementation of the “global strike” concept.<sup>57</sup>

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53 Anatoly I. Antonov, Speaking Notes, NATO-Russia Council Meeting, 2007, [http://web.archive.org/web/20080704102317/http://www.nato-russia-council.info/htm/EN/news\\_33.shtml](http://web.archive.org/web/20080704102317/http://www.nato-russia-council.info/htm/EN/news_33.shtml), (Date of Accession: 26.03.2017).

54 Vladimir Putin, *the Federal Assembly of Moscow*, 12 December 2013, <http://eng.kremlin.ru/transcripts/6402>, (Date of Accession: 04.03.2017).

55 Craig Whitlock, “US looks to Nonnuclear weapons to use as deterrent”, *The Washington Post*, 08 April 2010.

56 Military Doctrine of Russian Federation, 25 December 2014, <https://www.offiziere.ch/wp-content/uploads-001/2015/08/Russia-s-2014-Military-Doctrine.pdf>, (Date of Accession: 12.03.2017).

57 “Russian National Security Strategy”, (Full Text Translation), 31 December 2015, <http://www.ieee.es/Galerias/fichero/OtrasPublicaciones/Internacional/2016/Russian-National-Security-Strategy-31Dec2015.pdf>, (Date of Accession: 02.03.2017).

As Gormley pointed out, Russia sees the combination of conventional offense and defense as leaving it at a decided and uncomfortable disadvantage vis-a-vis the US in the aftermath of deep nuclear reductions, no less a world without nuclear weapons.<sup>58</sup> Deputy Defense Minister Anatoly Antonov was more specific, openly stating that the destructive capabilities of CPGS weapons are increasingly approaching those of nuclear weapons, and that the US is seeking to make a considerable new segment of its strategic arsenal capable of solving a wide range of tasks that used to be assigned exclusively to strategic nuclear weapons.<sup>59</sup>

Russia openly threatened that the use of CPGS might trigger nuclear retaliation, with President Putin stating that “the launch of such a missile could provoke an inappropriate response from one of the nuclear powers, could provoke a full-scale counterattack using strategic nuclear forces.”<sup>60</sup> In December 2013 Dmitry Rogozin, Deputy Prime Minister, publicly stated that the United States “may experiment with conventional weapons on strategic delivery platforms, but they must bear in mind that if we are attacked, in certain circumstances we will of course respond with nuclear weapons.”<sup>61</sup>

Russia also warned that the project will negatively impact nuclear disarmaments talks between the two states. Russian Deputy Foreign Minister Sergei Ryabkob said that Washington’s ongoing efforts at creating missile defense systems and developing the PGS precision conventional weapon program continually destabilizes nuclear disarmament talks.<sup>62</sup>

Russia’s main concern is that the US will have first strike capability with nuclear warheads employed as CPGS with a precision guidance

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58 Gormley, “American Conventional Superiority: The Balancing Act”, p. 319.

59 Anatoly Antonov, “Russia forced to develop Global Prompt Strike Weapons” *Security Index 19*, Nu: 3, 2013, p. 5.

60 “Annual Address to the Federal Assembly”, 10 May 2006, <http://en.kremlin.ru/events/president/transcripts/23577>, (Access: 12.03.2017).

61 “Russia Warns of Nuclear Response to U.S. Global Strike Program,” *Sputnik News*, 11 December 2013.

62 “Moscow slams Washington over Development of Prompt Global Strike System”, *Sputnik News*, 6 February 2016.

system, while preventing Russia's second-strike capability with BMD. That would render Russian nuclear forces obsolete while enabling the US to wield the only strategic nuclear forces. As Acton stressed, he has heard in many conversations with Russian experts and officials that Russia worries the US might rearm CPGS with nuclear warheads.<sup>63</sup> Therefore Russia has been adamantly opposing CPGS, even threatening nuclear retaliation, while working on projects such as the S-500 surface to air missile systems<sup>64</sup> that would intercept CPGS.

## Conclusion

The CPGS studies began primarily during the Bush administration after the September 11th attacks as part of the New Triad. Although it was defined as one of the US offensive strike systems, along with strategic nuclear weapons, the war on terror and the second Gulf War helped shift emphasis to targeting fleeting or buried targets, and the smuggling of WMD, anywhere in the world within a very short time. Reducing the role of strategic nuclear weapons in the US policy remained a second priority.

Studies for the project by the Navy and Air Force focused largely on use of existing platforms such as conventional warheads employed on long range ballistic missiles designed for nuclear warheads. Although these platforms were considered feasible in the short term, opposition to the project emerged because of the fear that ballistic missiles with a traditional trajectory might cause misunderstanding and miscalculation by Russia or China, and hence nuclear retaliation. Thus, Congress decided to merge the existing projects and urged DoD to continue with boost-glide technology with different flight paths than the traditional missile trajectory.

CPGS studies intensified especially during the Obama administration, which embraced the project, along with missile defenses, as enabling America to reduce its historic reliance on nuclear

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63 Gormley, "U.S. Advanced Conventional Systems and Conventional Prompt Global Strike Ambitions: Assessing the Risks, Benefits, and Arms Control Implications", p. 127.

64 "Russia boosts Air Defense in face of US Prompt Global Strike Capacity", *Russia Today*, 5 April 2015.

weapons. At the same time the US worked with Russia to reduce the numbers of nuclear weapons, especially under the new START Treaty of 2010, with the goal, as Obama himself stated, of completely eliminating nuclear weapons in the world. Contrary to the Bush administration, the Obama administration emphasized the mission of CPGS as reducing the role of nuclear weapons in US strategy.

Although there has been intense debate on the efficiency and feasibility of CPGS, in particular because of Russia's harsh opposition, studies for the project continue, and at an increasing rate. Tests for HTV seem stopped for now, but if the AHW tests planned for 2017 and 2019 succeed, as seems possible, the US will obtain the niche capability to strike any target in the world with conventional weapons within a very short time, possibly less than one hour. But the US will still need to retain a forward troop presence, which is considered undesirable in the long term.

The CPGS/BMD projects did increase nuclear tension between the US and Russia, with the latter believing both projects would undermine its nuclear capabilities. Thus, nuclear confrontation became more likely than at the beginning of the Cold War. American insistence on the project despite Russia's adamant opposition likely will start a new round of nuclear arming, contrary to US efforts to reduce the number and role of nuclear weapons in US policy.

Despite Obama's vision of zero nuclear weapons in the future, US efforts to produce a hypersonic boost-glide along with developments in BMD seem to justify Russian concerns. Although developed for conventional warheads, or at least that is the claim, the system with its capability of reaching anywhere in the world in a very short time with different trajectories from traditional ballistic missile, and which will be not detected by existing missile defense systems, might employ nuclear warheads without notification to Russia or China. That would enable the US a first strike capability bolstered by a BMD system that will prevent Russia from striking the US with nuclear weapons. This scenario would completely change the deterrence theories that dominated both US and former Soviet strategies during the Cold War.

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