

AIR WAR COLLEGE

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THE FUTURE OF US NUCLEAR DETERRENCE AND THE  
IMPACT OF THE GLOBAL ZERO MOVEMENT

by

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## **Biography**

Lieutenant Colonel Seth Frank is a U.S. Air Force Security Forces Officer assigned to the Air War College, Air University, Maxwell AFB, AL. He graduated from the United States Air Force Academy in 1995 with a Bachelor of Science degree in Political Science, and the University of Missouri-Kansas City University in 2002 with a Master of Science degree in Criminology. He has served on the Air Combat Command staff as well as the USPACOM staff. Lt Col Frank has successfully commanded three Security Forces squadrons.



## **Abstract**

Advocates have recently proffered the Global Zero Commission (GZC) proposal as an alternative US nuclear strategy. The potential impact of the GZC proposal warrants a thorough examination of its background, theoretical roots, assumptions and impacts to include a comparison to US strategy. This paper's analysis finds the overall GZC framework to be insufficient and potentially harmful to US national security.

The GZ recommends an aggressive advance toward nuclear weapons elimination and proposes short-term reductions well beyond current US plans. The proposal presumes significant international cooperation. The most appealing GZC recommendation is for a de facto minimum deterrence model en route to GZ. To its detriment, however, the GZC proposal relies on the implausibility of future nuclear conflict with Russia or China and that a reduced US arsenal will remain a capable, credible deterrent. Ironically, the GZC touts superior conventional forces and Ballistic Missile Defense (BMD) systems as a replacement for a US nuclear deterrent even as these capabilities appear to fuel further nuclear arms races. A final GZC proposal shortcoming is the lack of any definitive recommendations specifically addressing continued nuclear proliferation by rogue states.

Finally, this paper provides three recommendations: 1) US arsenal size considerations must be driven by a resolute prioritization of national security maintenance and not devolve into a utopian pursuit of numerical reductions 2) BMD deployment must be tempered to prevent global strategic disruptions 3) a coherent strategy to counter nuclear proliferation by rogue nations must be developed, socialized, and pursued.

## Introduction

A post-Cold War era United States faces new challenges that some argue warrant a reconsideration of the US nuclear strategy. As the US ponders future nuclear posture and strategy, there have been renewed calls from high-level statesmen for a path toward “Global Zero,” encapsulated specifically in the Global Zero Commission (GZC) proposal as an alternative nuclear strategy. The GZC’s stature and potential impact on US policy warrants a thorough examination of the GZC proposal’s background and theoretical roots, including a comparison to US strategy as well as an analysis of the proposal’s assumptions and impacts. This paper’s analysis finds the overall GZC framework to be insufficient and potentially harmful as a basis for US nuclear strategy and instead proffers several recommendations for US nuclear security strategy. These recommendations include: 1) US arsenal size considerations must be driven by a resolute prioritization of national security maintenance vice a utopian pursuit of numerical reductions 2) BMD deployment must be tempered to prevent strategic disruptions 3) a coherent strategy to counter nuclear proliferation must be developed, socialized, and pursued.

For many Americans, the nuclear threat appears a fading danger and nuclear deterrence as a settled, timeworn subject. In this spirit, some have challenged the centrality of nuclear deterrence to US security strategy. In 2007, former Secretaries of State Henry Kissinger and George Schultz, former Secretary of Defense William Perry and former Senator Sam Nunn co-wrote “A World Without Nuclear Weapons,” advancing GZ as an alternative strategy to nuclear deterrence. Indeed, these former cold warriors deemed US-Soviet nuclear deterrence as “obsolete” and decried America’s reliance on a nuclear arsenal they characterized as “increasingly hazardous and decreasingly effective.”<sup>1</sup> Furthermore, in 2009, President Obama also proclaimed a world without nuclear weapons as a goal and professed, “Global Zero will

always have a partner in me...”<sup>2</sup> Certainly, calls for nuclear disarmament are not novel; however, this level of endorsement has near-term implications on US policy and warrants rigorous analysis.

The GZ initiative now claims 450,000 advocates and over 300 world leaders to include former President Jimmy Carter, US Ambassadors and foreign heads of state.<sup>3</sup> Schultz et al. further developed and presented their case to the American public in 2010 and 2011.<sup>4</sup> Most recently, the GZC, led by former Vice Chairman of the Joint Chiefs of Staff General James Cartwright and including the former Senator Chuck Hagel (currently nominated for Secretary of Defense), published a specific report on modernizing U.S nuclear strategy and force posture.<sup>5</sup> This proposal calls for a substantially reduced nuclear arsenal on a path toward nuclear elimination and advocates BMD and conventional superiority to supplement and eventually replace the reduced/eliminated nuclear arsenal. Moreover, the proposal recommends the United States implement these steps unilaterally if necessary. The GZC asserts these steps, combined with the promotion of a cooperative international security framework of shared intelligence and integrated ballistic missile defense, will ultimately lead to the elimination of nuclear weapons.

## **Background**

### **Constructivist Roots**

Examination of the theoretical underpinnings of the study of international relations provides some insight into GZC recommendations. Stephen M. Walt correctly claims “an inescapable link between the abstract world of theory and the real world of policy” and that disagreements over policy are usually rooted in fundamental disagreements over the forces that shape international outcomes.<sup>6</sup> Upon review, the GZC proposal rejects the mainstay assumptions of both Realist and Liberal worldviews.<sup>7</sup> The GZC policy, however, does reflect constructivist

theoretical tenets. Constructivism emphasizes the impact and influence of culture, ideas and collective norms in shaping state behavior and stresses the possibility for progressive change.<sup>8</sup> A relevant example is the constructivist explanation for the Cold War's end. Constructivists attribute Gorbachev's Soviet foreign policy reforms to his embrace of new ideas such as "common security."<sup>9</sup> GZ is a logical extension of that theory and, in fact, Mr. Gorbachev has endorsed the movement.<sup>10</sup>

### **Current US Strategy**

Parallels. The GZC's recommended direction shares a vector with current US policy and strategy. Since the Cold War, the United States has cut deployed strategic weapons by 75 percent and substantially reduced the nuclear stockpile of deployed and non-deployed weapons.<sup>11</sup> The GZC echoes the National Security Strategy's (NSS) pledge to pursue a nuclear weapon-free world and the NSS's assertion that active pursuit and eventual realization of this goal will increase global security and multi-lateral cooperation.<sup>12</sup> The 2011 New START Treaty when fully implemented "will result in the lowest number [1550] of deployed nuclear warheads since the 1950s."<sup>13</sup> Additionally, the 2010 US Nuclear Posture Review (NPR) focuses on reduction of nuclear weapons' role in US strategy as one objective.<sup>14</sup> Furthermore, President Obama has directed a review of future reductions beyond New START.<sup>15</sup> In fact, a draft 2012 Department of State (DoS) report, based on findings from a Harvard study, urges cutting the arsenal to 1,000 deployed strategic weapons or less.<sup>16</sup> Also in line with GZC proposals, the US policy is to lead expanded international efforts for ballistic missile defense.<sup>17</sup> The GZC can legitimately argue their proposal is a furtherance of, as well as an action plan for, the current, stated US policy.

Differences. The GZC proposal, however, does reach well beyond current US nuclear posture and recommends an aggressive advance toward nuclear weapons elimination that transcends the words of encouragement routinely offered toward this lofty goal. By 2022, the GZC proposes an arsenal of 900 strategic nuclear weapons.<sup>18</sup> These proposed reductions include total elimination of Intercontinental Ballistic Missiles (ICBMs) and tactical nuclear weapons, leaving a dyad of Ohio-class ballistic missile submarines (SSBNs) with Trident ballistic missiles (SLBMs) and B-2 bombers as the remaining nuclear deterrent.

## **Proposal Analysis**

### **Faulty Assumptions**

Nuclear Weapon Elimination. Certainly, nominal endorsement to this goal is consistent with Nuclear Proliferation Treaty (NPT) obligations.<sup>19</sup> The GZ proposal to elevate nuclear weapon elimination, as a primary US policy focus, may be a symbolic and utopian gesture, but it is also counterproductive in three ways. First, it cedes moral high ground by implicitly acknowledging a nuclear-armed United States threatens the very international order it has nurtured and protected for decades. Second, granting primacy to this goal erodes the credibility of the US nuclear deterrent. A nation focused on eliminating all nuclear weapons invites speculation on their resolve to use these weapons and thus erodes deterrence in an adversary's mind.<sup>20</sup>

Finally, elimination of nuclear weapons as a security framework's defining core reduces the seriousness of a nation's defense policy. Since the dawn of the nuclear age, many have hoped to roll back nuclear weaponry despite the absence of any precedent for voluntary abandonment of technology with such inarguable implications for national power. Adoption of hopeful dreams is not the stuff of which a realistic national security framework is constructed.

While acknowledging the intrinsic dangers of a nuclear arms race, Brodie stated, “It seems by now abundantly clear that total nuclear disarmament is not a reasonable objective. Violation would be too easy, and the risks presented to the non-violator enormous.”<sup>21</sup> This unrealistic goal invites skepticism about the remainder of the proposal. Despite what other nuclear powers publicly say, none seriously pursues this goal as a policy. Charles E. Costanzo’s analysis of current nuclear modernization programs and plans by the other major nuclear powers (China, Russia, Great Britain, and France) illustrates that none accept a nuclear free world as a realistic goal.<sup>22</sup> Actions matter more than words. Furthermore, there is a credible argument that a world without nuclear weapons may be less than desirable.<sup>23</sup> Ceding the point that nuclear weapon elimination is intrinsically good may be a mistake.

Mutual Cooperation. Given an exemplar United States, the GZC proposal assumes substantive support for nuclear weapons elimination will slowly coalesce from the international community. This support will presumably result in direct armament reductions as well as combined international pressure on recalcitrant powers to disarm. Theoretically, cooperation will build from an evolving “transparency global situational awareness,” “comprehensive data streams... early warning information” and finally “active missile defense cooperation.”<sup>24</sup> This mutual cooperation by all states demands a leap of progressive faith and presumes GZ will be equally desirable by authoritarian and liberal states. Unfortunately, the GZC proposal presupposes a level of cooperation not seen to date in the international community. Short of a disastrous nuclear exchange, it is difficult to envision from whence this international consensus for nuclear weapon elimination will spring. No substantive case is evident for why the rest of the world would cooperate with a US led effort on significant reduction or elimination of nuclear weapons. In fact, the success of nuclear deterrence over the past 60+ years and the inherent

status, benefits and power that nuclear states wield, makes this normative wholesale rejection of nuclear weapons unimaginable.

New Challenges. The GZ proposal asserts that nuclear deterrence is not applicable or helpful to 21<sup>st</sup> century problems. The argument posits that the US nuclear arsenal cannot “resolve... threats posed by rogue states, failed states, proliferation, regional conflicts, terrorism, cyber warfare, organized crime, drug trafficking, conflict driven mass migration of refugees.”<sup>25</sup> Indeed, the NPR agrees the US nuclear arsenal is “poorly suited to address the challenges posed by suicidal terrorists and unfriendly regimes seeking nuclear weapons.”<sup>26</sup> The emergence and even primacy, however, of this litany of “new” threats does not remove the threat of future nuclear conflict. Instead of a bipolar world with nuclear clubs split between ideologies (or declared neutrals), a larger nuclear club with varied interests now exists. The nuclear phenomenon is global with eight nuclear powers and three nuclear aspirants.<sup>27</sup> The most recent Presidential security direction surveys an “increasingly complex set of challenges and opportunities to which *all elements* [emphasis added] of U.S. national power must be applied” citing violent extremists, non-state actors, and proliferation of ballistic missiles and WMD.<sup>28</sup> Regardless of other challenges, the US nuclear arsenal exists to deter attacks, eliminate potential nuclear coercion and reassure allies and partners.<sup>29</sup>

### **Impacts of GZC Proposed US Force Structure**

Minimum Deterrence. Reduction of the existing US arsenal and the move toward a “minimal deterrence” posture is an appealing portion of the GZ argument in today’s fiscally constrained environment. Minimum deterrence is the concept that an overwhelmingly destructive amount of nuclear weapons is not required to deter an aggressor’s actions.<sup>30</sup> Bernard Brodie illustrated this by plotting a "deterrence effect" curve with a decreasing rate of return.

Simply put, the first nuclear weapon expected to fall on an aggressor's cities creates a high level of deterrence. The deterrence however, increases at a decreasing rate "closely approaching horizontal with a relatively modest" nuclear arsenal size.<sup>31</sup> Although the club of potential aggressors has grown, the concept retains theoretical validity. All nuclear actors, other than the United States and Russia, have successfully utilized a strategy of minimum deterrence.<sup>32</sup>

It is important to note that the GZC denies that their initial force structure recommendation is a minimum deterrence force.<sup>33</sup> Despite the proposed 80% reduction in the current US arsenal, including the elimination of ICBMs and tactical nuclear weapons, the GZC asserts the United States could hold at risk a diverse set of targets in all countries of potential nuclear opponents.<sup>34</sup> GZC's reductions, however, would certainly transform the US arsenal to its lowest level since the 1950s, and it is difficult to dispute that this path leads, at least eventually, to a minimum deterrence model. It is likely that the US can continue to wield a credible and capable deterrent with a numerically reduced nuclear arsenal; however, there are flaws within the GZ proposal. Specifically, the GZC justifies the significant arsenal reduction based on two arguments. First, that a current or future nuclear conflict with Russia or China is essentially "implausible," and second, that a shrinking US arsenal will remain a capable, credible deterrent.

Despite the Cold War's end, Russia's nuclear arsenal remains an existential threat to the United States. Despite hopeful presumptions of benign intentions, the Russian strategic nuclear arsenal is capable of decimating the United States while its overwhelming tactical nuclear arsenal is capable of destroying US allies and partners in Europe. There is no realistic assurance of future, friendly US-Russian relations. Due to the degradation of Russian conventional capability, the Russian nuclear arsenal remains integral to its strategic position.<sup>35</sup> In fact, the

Russians continue to modernize their nuclear arsenal and have recently conducted the largest strategic nuclear exercise in 20 years.<sup>36</sup> As one example of nuclear bellicosity, Russia's General Makarov, in May 2012, levied a pre-emptive nuclear threat against the US BMD shield, in response to its ongoing deployment.<sup>37</sup> Nuclear conflict with Russia remains "plausible," and unfortunately, is not the only threat.

China is now a rising, significant military power in Asia and wields immense economic and diplomatic power worldwide. China is also aggressively modernizing its nuclear arsenal and is close to achieving its own triad of delivery systems.<sup>38</sup> It is unclear how China will utilize its power; however, US-Chinese conflict certainly remains plausible. Specifically, several US Allies have ongoing disagreements with China that could potentially affect US critical interests and treaty obligations. Furthermore, China's doctrine of "Active Defense" includes an element of offense that advances pre-emptive attack based on a perception of enemy intent to strike either militarily or politically.<sup>39</sup> Andrew Scobell found a heightened sense of threat perception as well as a tendency for aggressive Chinese responses described in terms of self-defense characterize this doctrine.<sup>40</sup> Despite this apparent conflict with China's "no first use" policy, the potential tensions with China and their doctrine of warfare demand the US hedge against a Chinese nuclear threat.

Hoping for good intentions from Russia or China is insufficient; instead, a capable, credible deterrent is critical to countering these threats and is especially so in a minimum deterrence model. Two key assumptions of a minimum deterrent strategy affect this calculus of capability and credibility. First, minimum deterrence theory assumes that launching a nuclear weapon at an attacker's city or cities is a credible threat. This leads to a second assumption that, theoretically,

only one nuclear weapon needs to survive a nuclear first strike in order to deter an enemy due to the devastating punishment it will cause to the offender's city.

In support of the first assumption, Brodie's deterrence graph, referenced earlier, assumes this "city busting" or countervalue calculation.<sup>41</sup> Conversely, the survivability and diversity of the US nuclear triad provides the flexibility to pursue a counterforce strategy whereas minimal deterrence eventually requires countervalue targeting of population centers. Thérèse Depeche agrees: "As the number of nuclear warheads and missiles is reduced in the disarmament process, at some point, what other choice will be left than to target cities?"<sup>42</sup> Given the US dedication to minimizing collateral damage in recent conflicts, a US arsenal, or strategy, of this nature lacks credibility and utility.<sup>43</sup> A strategy of using or planning to use nuclear weapons against cities is not likely to be palatable with the American public and may not be an acceptable option for a US President. The resulting uncertainty of a US nuclear response targeting cities directly erodes deterrence.

The assumption that an effective deterrent requires only one nuclear weapon's survival contains an implicit acknowledgement that targeting cities is central to a "second strike" capability. Theoretically, if an enemy pre-emptively destroys significant portions of a reduced US nuclear arsenal, then countering against enemy nuclear forces with the few remaining assets has a rapidly declining value. The likelihood of affecting the enemy calculus with counterforce targeting is unlikely at that point. Subsequently, US resolve to escalate by decimating an adversary's cities would be dubious, while the futility of targeting adversary nuclear forces with few surviving warheads would also be apparent. Even James Forsyth, in his minimum deterrence proposal, tacitly acknowledges this by recommending retention of an (albeit smaller) US ICBM force.<sup>44</sup> The US ICBM force provides a unique survivability characteristic due to its

dispersal and thus is invaluable as a disincentive against an adversary's first strike. Conversely, the elimination of the US ICBM force reduces an adversary's required aim-points from 555 to 5.<sup>45</sup> This dramatically simplifies adversarial targeting calculations for pre-emptive neutralization or degradation of the US arsenal.

In this way, the significant initial reductions and subsequent further reductions of the GZC proposal both encourage a pre-emptive strike and damage US response credibility. The dismissal of "plausible" nuclear confrontation with Russia and/or China, as well as the possibility of a pre-emptive strike, exposes constructivist assumptions about nuclear use taboos and "no first use" norms that may not exist in current and future scenarios.<sup>46</sup>

Nuclear Proliferation and Arms Races. The GZC proposal calls for replacement of the US nuclear deterrent with the development and employment of BMD capabilities and superior conventional military forces. The GZC argues that US superiority in these areas will fill any deterrent gaps caused by the reduction of nuclear arsenals and will allow the United States to safely lead in the nuclear disarmament process. It is true that the United States has, and likely can maintain in the near future, superiority in both BMD and conventional military capability. Unfortunately, US capabilities in both these areas actually encourage nuclear proliferation and arms buildups that are counter to goals of reduced nuclear weapons and fewer nuclear powers.

US development and deployment of BMD capabilities remains an incendiary topic with Russia and China. The deployment of these systems directly incentivizes continued upgrades and increases in their nuclear armaments. Beijing bases objections to BMD systems on the reality that these capabilities undermine and degrade the minimal deterrent force it currently deploys. This provides a direct incentive to expand and enhance their nuclear forces.<sup>47</sup> Chinese diplomat Cheng Jingye recently criticized BMD development by warning it would "disrupt

global strategic balance" and it "should be abandoned."<sup>48</sup> In an apparent direct reaction, China is developing new and more capable ICBMs and SLBMs, increasing its existing ability to deliver nuclear warheads to the United States and overwhelm BMD systems.<sup>49</sup> Likewise, despite their significant nuclear arsenal, Russia has clearly opposed further development and employment of BMD capabilities. Russia's leadership has directly linked further nuclear arms reduction talks with cessation of US BMD deployment.

The GZC also touts continued US conventional military superiority as a powerful and more credible alternative to a nuclear deterrent. US conventional military superiority is indisputable; yet conversely, that same superiority actually increases the incentives for other states to acquire nuclear weapons. Few, if any, states can aspire to match the US military except through asymmetric means. It does not require a particularly astute strategist to recognize the advantages and achievability of weapons of mass destruction in countering the US advantage in conventional smart weapons.<sup>50</sup> Nuclear capabilities, comparatively, are not only dramatically cheaper but are achievable without a broad industrial military infrastructure. Indeed, US interventions in Iraq, juxtaposed with US restraint against nuclear-armed North Korea, illustrate the apparent value of just a few nuclear weapons. The GZC ignores the irreplaceable value of nuclear deterrence against aggression by adversaries possessing superior conventional capabilities. In fact, the United States used nuclear deterrence as a cheap alternative to superior Soviet conventional capabilities at the onset of the Cold War, and Russia still explicitly maintains "the right to use nuclear weapons in conventional conflicts."<sup>51</sup> Western "Right to Protect" (R2P) intervention in Libya is also proffered as a stark example of potential ramifications to states that voluntarily give up nuclear aspirations. Ironically, as the GZC touts superior conventional forces to replace the US nuclear deterrent, these capabilities actually

increase incentives for arms races with current nuclear powers and incentives for non-nuclear powers to pursue nuclear capabilities.

A final GZC proposal gap is the lack of any definitive actions to deal specifically with continued nuclear proliferation. Essentially, the GZC asserts that US disarmament steps will embolden the global community to pressure for nuclear disarmament and prevent further proliferation. This again is a constructivist vision dependent on the emergence of global norms to reverse and counter nuclear proliferation trends. In the world of realpolitik, states that aspire to be nuclear powers do so for their own security, and the US nuclear posture will have no direct impact on these calculations.

### **Recommendations:**

As stipulated, the GZC proposal already shares a vector with current US nuclear policy, and credible GZC proponents are significant contenders in the today's battle of ideas. A substantive critique of the GZC proposal must include recommendations that move the debate forward. Therefore, this paper proffers three recommendations.

#### **US Force Size and Structure:**

A strong yet reduced US nuclear arsenal is feasible but requires resolute prioritization on maintaining US national security above a utopian pursuit of numerical reductions. Three keys to this recommendation are multi-lateral nuclear force reductions with Russia and China, increased deterrent capability and credibility, and retained resiliency of the US nuclear arsenal.

Multi-lateral Force Reductions. The GZC proposal for unilateral reductions, as an act of good faith, would be counter-productive. Instead, the US must be a forceful negotiator to garner significant multi-lateral reductions in any nuclear force drawdown. Historically, the Russians have some history of abusing US good faith initiatives. As SECDEF Harold Brown stated,

“When we build, they build, when we stop, they build.”<sup>52</sup> Additionally, the touted New START essentially was a unilateral US reduction as the Russians were already reducing their strategic arsenal for fiscal reasons.<sup>53</sup> The treaty, therefore, was a missed opportunity to seek reductions in tactical nuclear weapon arsenals, where the Russians hold a significant numerical advantage.<sup>54</sup> In future talks, US negotiators must press for real decreases in Russian and Chinese capabilities. At odds with this end, pre-announced numerical goals expose US bargaining positions and surrender the possibility of real gains.

Credibility and Capability. Reductions in the US nuclear arsenal are possible without jeopardizing national security but must focus on the retention of deterrence capability and credibility vice the pursuit of trendy numerical goals. It is critical, therefore, that the United States retain a nuclear arsenal with the capability to conduct counterforce strikes. This capability requires both a mix of high-yield and precision-guided, low-yield nuclear weapons.<sup>55</sup> As discussed previously, small arsenals of high-yield nuclear weapons require strategies that involve targeting enemy cities. To an enemy considering the feasibility of limited nuclear strikes or pre-emptive strikes against primarily military targets, a US response against cities is not credible. An adversary could rationally conclude that, given a response option limited to massive civilian casualties, a US President would opt to stand down and de-escalate instead of ordering a nuclear response. A diverse and robust capability therefore increases the credibility of a US response and is more likely to deter nuclear escalation.

Resiliency. The resiliency of the US nuclear arsenal is inseparable from its size and structure. Forsyth asserts that resiliency provides the simple theoretical answer to how many nuclear weapons are required to achieve relative security. The difference in an arsenal’s deterrent value is simply “an arsenal that an adversary might be able to take out with a first strike

and one it knows it cannot.”<sup>56</sup> The US triad has provided this required resiliency through the darkest days of nuclear confrontation in the Cold War. Abandonment of the mutually supporting and well-documented advantages of the triad, without major reductions to the nuclear arsenals of potential adversaries, must not occur. Reductions should come from within the triad structure and not thru elimination of triad legs. First, retention of the B-2 as the sole US nuclear-missioned bomber would maintain required flexibility while offering numerical reductions.<sup>57</sup> Likewise, a reduction of nuclear missile squadrons while preserving the strengths of the ICBM force is achievable. ICBMs are a relatively cheap yet significant deterrent capable of countering the large Russian arsenal. “In [FY11], the Air Force provided an ICBM capability... for one percent of the overall Air Force budget.”<sup>58</sup> Specifically, ICBMs preserve the inherent complexity, via their dispersed deployment, for adversary targeting and pre-emptive strike consideration. Lastly, the nuclear SSBN force is the most balanced leg of the triad in terms of survivability when at sea, ability to penetrate enemy defenses and flexible weapons’ loads.<sup>59</sup> Significant resourcing of its replacement needs to be a US national security priority.

### **Ballistic Missile Defense:**

The United States must temper BMD deployment and avoid over-advertising BMD capabilities or risk a strategic stability disruption and subsequent nuclear arms’ race resumption. For multiple reasons, the pursuit, development and employment of BMD are appealing. Most noteworthy is the allure of a real defense against a nuclear threat as a replacement to the theoretical complexity of nuclear deterrence. BMD is, however, expensive, largely unproven and never likely to defeat completely a large nuclear attack. It will likely always be cheaper to apply offensive mass to exceed the capabilities of BMD. Additionally, BMD is ineffective

against asymmetrically delivered nuclear weapons and has limited effectiveness against tactically delivered nuclear weapons.<sup>60</sup>

Despite US openness about BMD challenges and limitations, it is likely that adversaries, with good reason, overestimate BMD capabilities. US military technological prowess has seemed near-magical at times. US conventional arms dominance in the Gulf War and the Iraq invasion shocked potential US competitors. US claims of the limitations of US BMD system capabilities surely appear disingenuous and contrary to seemingly aggressive US BMD deployment plans. The reaction from adversaries, specifically the expansion and modernization of their offensive nuclear capabilities, is counter to US national security. The United States should not abandon BMD; however, it must focus resources on continued BMD research and development while limiting deployments that incite nuclear powers to increase their offensive nuclear capabilities.

### **Nuclear Proliferation:**

The United States must develop, socialize and pursue a coherent strategy to counter nuclear proliferation. The NSS states that, “reversing the spread of nuclear weapons is a top priority.”<sup>61</sup> North Korea’s successful acquisition of nuclear weapons and Iran’s relentless march toward this goal, however, prove the current failure of this strategic priority. Constructivist normative nuclear taboos will not counter security dilemmas and power balancing by states seeking nuclear weapons. In reality, there are three security choices for countering nuclear proliferation: coercion, prevention, or deterrence. Coercion, through sanctions and vague threats of force, has had little success, and future improved results are unlikely.

The dilemma between deterrence and prevention also occurred at the advent of the Cold War. Brodie cautioned, “Our rejection of the idea of ‘preventive war’ has committed us

completely and inevitably to the policy and strategy of deterrence, and it is now up to us to pay the price, to make deterrence work.”<sup>62</sup> The accuracy of hindsight leads many realists to celebrate and embrace the Cold War deterrence model. Despite the powerful evidence of historical success, the ongoing expansion of the nuclear club leads to a sober analysis that the continued, unmarred success of deterrence is less likely.

Multiple obstacles temper, however, any conclusions that multilateral or unilateral military action is required to prevent additional nuclear proliferation. An enduring legacy of the Operation Iraqi Freedom may be the reluctance, in both the United States and the international community, to pursue preventive war for this cause. As such, states invested in the current international order must formally evaluate the costs and risks associated with future deterrence of rising nuclear powers and balance these against the costs and risks of preventive war. As *carte blanche* policies, neither deterrence nor preventive war are currently feasible, or warranted; rather, each instance will require unique consideration. In any case, strengthening both options of deterrence and prevention is required. First, deterrence must include advancing a US-led, multilateral framework advocating overwhelming consequences against any state or actor engaging in first use of nuclear weapons. In the eventuality of deterrence policy failure (i.e. nuclear detonation in a conflict), this consensus will lay the groundwork for a likely re-invigorated embrace of multi-lateral preventive force to limit the nuclear club. Secondly, prevention, when embraced, must include specific, executable threats that transcend destruction of nuclear sites to include regime change/decapitation. Rogue states currently link acquisition of nuclear weapons to regime survival. Preventive actions must change that calculus by seeking regime change instead of settling for temporary program setbacks. In this way, acquiring nuclear weapons will become a threat to a regime instead of a safeguard.

## Conclusion

In the post-cold war era, debate and consideration of significant changes to US nuclear strategy and deterrent posture is ongoing and dynamic. The GZC proposal for significant US nuclear arsenal reductions, with its high-level sponsorship and verbal Presidential support, is a contender in the current policy discussion as an alternative nuclear strategy. The preceding examination of the GZ proposal's background and theoretical roots, as well as comparison to current US Strategy and analysis of the proposal's assumptions and ramifications, finds the overall framework potentially harmful if used as a basis for US nuclear strategy.

Although the GZC proposal shares language and a vector with published US strategy and nuclear posture, the proposal's recommendations significantly and inadvisably exceed current US strategic initiatives. The GZ movement is rooted in constructivist theory and is reliant on the emergence of normative values in the global community that will increase international pressure on nuclear powers to reduce and eventually eliminate nuclear arsenals. The GZC assumptions about nuclear weapons elimination, mutual cooperation in the global community and the irrelevance of nuclear arsenals due to "new" global challenges are flawed and result in unrealistic conclusions. Although a reduction of the US nuclear arsenal is likely possible without damaging national security, the GZC's specific assumptions on the implausibility of nuclear conflict with Russia or China are problematic. Additionally, the substitution of BMD capabilities and superior conventional forces for nuclear deterrence threatens to encourage additional proliferation and resumption of a nuclear arms race. Finally, in light of this analysis, this paper offers recommendations regarding US force size and structure, ballistic missile defense and countering nuclear proliferation. Those recommendations include: 1) arsenal size considerations must be driven by a resolute prioritization of US national security maintenance above a utopian pursuit of

numerical reductions 2) Ballistic Missile Defense (BMD) deployment must be tempered to prevent strategic disruptions 3) a coherent strategy to counter nuclear proliferation must be developed, socialized, and pursued.

## Notes

1. George P. Shultz et al., “A World Free of Nuclear Weapons,” *Wall Street Journal*, 4 January 2007, A15, [http://fcnl.org/issues/nuclear/world\\_free\\_of\\_nuclear\\_weapons/](http://fcnl.org/issues/nuclear/world_free_of_nuclear_weapons/).
2. President Barack H. Obama, “Speech on Nuclear Weapons,” (address, Prague, Czech Republic, 5 April 2009), [http://articles.marketwatch.com/2009-04-05/news/30713610\\_1\\_czech-republic-czech-people-tomas-masaryk](http://articles.marketwatch.com/2009-04-05/news/30713610_1_czech-republic-czech-people-tomas-masaryk).
3. “Global Zero,” LinkedIn, <http://us.linkedin.com/company/global-zero>, (accessed 13 Dec 12); “Global Zero: A World Without Nuclear Weapons,” GlobalZero.org, <http://www.globalzero.org/en/who/all>, (accessed 13 Dec 12).
4. George P. Shultz et al., “How to Protect Our Nuclear Deterrent,” *Wall Street Journal*, 19 January 2010, <http://online.wsj.com/article/SB10001424052748704152804574628344282735008.html>;  
George P. Shultz et al., “Deterrence in the Age of Nuclear Proliferation,” *Wall Street Journal*, 7 Mar 2011, <http://online.wsj.com/article/SB10001424052748703300904576178760530169414.html>.
5. General (ret.) James E. Cartwright et al., *Global Zero U.S. Nuclear Policy Commission Report: Modernizing U.S. Nuclear Strategy, Force Structure and Posture* (New York: Global Zero, 2012), 6. <http://www.globalzero.org/en/us-nuclear-policy-commission-report>.  
The GZC recommended a nuclear strategy and force posture with five main features:
  - 1) A substantially decreased stockpile of nuclear weapons and delivery vehicles on a path of reductions that lead in verifiable stages with an objective of their total elimination (“Global Zero”)
  - 2) A de-alerted operational posture requiring 24-72 hours to generate the capacity for offensive nuclear strikes, thereby relieving the intense pressure on nuclear decision-making that currently exists
  - 3) A more secure, consolidated and “locked down” nuclear weapons stockpile that reduces the day-to-day risks of theft or unintended use
  - 4) A stood-up alert missile defense and conventional force capability that is prompt and global, and that can function sufficiently well for 24-72 hours that a regional adversary would be deterred or defeated during an initial period of conflict prior to the generation of nuclear offensive forces
  - 5) A command, control, communications and early warning system that could endure and maintain coherence for a protracted time period and manage an effective transition from negative to positive control over nuclear force during the initial stage of conflict.

6. Stephen M. Walt, "International Relations: One World Many Theories," *Foreign Policy*, (Spring 1998): 29.

7. *Ibid.*, 31, 32. Realism: Incongruence with Realist World View - The GZC proposal's desire to eliminate or reduce nuclear weapons implies an understanding that war is inevitable; however, it disregards security dilemmas as well as power balancing and thus is incongruent with a Realist worldview. Although the GZC seeks a US "lead by example" approach, it does not advocate balancing or rule enforcement by a hegemon or superpower. Self-interested states would pursue, acquire and maintain nuclear weapons and would not cooperate in the proposed disarmament.

Liberalism: Incongruence with most Liberal tenets. The GZC proposal rejects most Liberal tenets (i.e democratic peace, free trade, liberal vs. illiberal states). There is no distinction between liberal or illiberal states in the advocated mutual cooperation framework nor does "Democracy" appear in the proposal. Furthermore, the policy does not rely on virtues of democratic peace and does not advocate spreading liberal democratic and free trade values in order to increase cooperative support for GZ. The policy does; however, appear to concur in part with the economic interdependence "globalization" school of liberal thought. This theory contends, for societies enmeshed in economic and social ties, that cooperation and lack of conflict will emerge due to the "costs" of warfare threatening everyone's prosperity.; Cartwright et al., *Global Zero U.S. Nuclear Policy Commission Report*, 22. The GZC's proposal presumes necessary mutual cooperation of States based on a projected "security globalization;" proffering the globalization trend in growing economic and informational interaction as evidence for policy success.

8. Walt, "International Relations," 40.

9. *Ibid.*

10. "Full List of Signatories," Global Zero.org, <http://www.globalzero.org/full-list-signatories>, (accessed 10 Jan 12).

11. President Barack Obama, *National Security Strategy*, (Washington, D.C.), May 2010, 67, [http://www.whitehouse.gov/sites/default/files/rss\\_viewer/national\\_security\\_strategy.pdf](http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf).

12. *Ibid.*, 23.

13. US Department of State, "New START Treaty Implementation Update," 17 May 2012, <http://www.state.gov/t/avc/rls/183335.htm> (accessed 20 Sep 12).

14. US Department of Defense, *2010 Nuclear Posture Review*, (Washington, D.C.), April 2010, V and 24. The NPR's rationale states the United States and Russia are no longer adversaries and military conflict is not likely; therefore the massive Cold War era nuclear arsenal inherited from an era of bipolar military confrontation is ill suited to "address the challenges posed by suicidal terrorists and unfriendly regimes seeking nuclear weapons."

15. *Ibid.*, 29.

16. Christopher J. Castelli, "Study Eyes 1,000 Warheads: Draft State Department Report Urges Deeper Cuts To Nuclear Arsenal," *Insidedefense.com*, 15 August 2012, <http://insidedefense.com/201208152407520/Inside-Defense-General/Public-Articles/draft-state-department-report-urges-deeper-cuts-to-nuclear-arsenal/menu-id-926.html>. Note: GZ advocate former Secretary of Defense William J. Perry oversaw the Harvard Study cited by this article.

17. US Department of Defense, *Ballistic Missile Defense Review Report 2010*, (Washington, D.C.), February 2010, iv, [http://www.defense.gov/bmdr/docs/BMDR%20as%20of%2026JAN10%200630\\_for%20web.pdf](http://www.defense.gov/bmdr/docs/BMDR%20as%20of%2026JAN10%200630_for%20web.pdf).

18. Cartwright et al., *Global Zero U.S. Nuclear Policy Commission Report*, 2. NOTE: Specifically GZC calls for 450 deployed nuclear weapons (and 450 in reserve).
19. United Nations, *Treaty on the Non-Proliferation of Nuclear Weapons*, <http://www.un.org/disarmament/WMD/Nuclear/NPTtext.shtml>.
20. NOTE: It is necessary to distinguish between the theory of minimum deterrence and commitment to nuclear weapon elimination.
21. Bernard Brodie, "The Anatomy of Deterrence," *World Politics*, volume, 11, no. 2, (January 1959): 190.
22. Charles E. Costanzo, Ph.D., "What's Wrong with Zero," *Strategic Studies Quarterly*, (Summer 2010): 3.
23. Thomas Schelling, "A World Without Nuclear Weapons," *Daedalus* (Fall 2009): 125. Thomas Schelling points out, "One might hope that major war could not happen in a world without nuclear weapons, but it always did."
24. Cartwright et al., *Global Zero U.S. Nuclear Policy Commission Report*, 13.
25. *Ibid.*, 2.
26. US Department of Defense, *2010 Nuclear Posture Review*, V.
27. Thérèse Depeche, *Nuclear Deterrence in the Twenty First Century: Lessons from the Cold War for a New Era of Strategic Piracy*, 3. Depeche lists seven overt nuclear powers (United States, Great Britain, France, Russia, India, China, and Pakistan, one covert nuclear power (Israel), and at least three nuclear aspirants (Iran, North Korea, and Syria).
28. US Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*, (Washington DC), 2012, 1.
29. *Ibid.*, 41.; US Department of Defense, *2010 Nuclear Posture Review*, 32.
30. James Wood Forsyth, Jr., "The Common Sense of Small Nuclear Arsenals," *Strategic Studies Quarterly* (Summer 2012): 1. "Minimum deterrence is an argument about states, security, and nuclear weapons. It makes three assumptions. First, minimum deterrence assumes that all states strive to survive; all statesmen want a state to rule. Second, it assumes that nuclear weapons produce political effects; that is, they compel statesmen to behave cautiously in the face of grave danger. This cautiousness produces restraint, which shores up international stability. Third, minimum deterrence assumes that large arsenals buy statesmen little."
31. Bernard Brodie, "The Anatomy of Deterrence," 177. Brodie speculates a number of nuclear weapons well short of 100 achieve a measurable deterrent increase that approaches horizontal.
32. Thérèse Depeche, *Nuclear Deterrence in Twenty First Century*, 120. China has long done so and pointedly avoided the US and Soviet arms race in the Cold War; however, China is also the most secretive in its nuclear capabilities and has never been receptive to reduction of its nuclear arsenal.
33. Cartwright et al., *Global Zero U.S. Nuclear Policy Commission Report*, 2. NOTE: Specifically GZC calls for 450 deployed nuclear weapons and 450 in reserve).
34. General (ret) James E. Cartwright and Ambassador Thomas Pickering, "Global Zero Commission Testimony to the United States Senate Committee on Appropriations Subcommittee on Energy and Water Development," (testimony, Washington D.C., 25 July 2012), 2, <http://www.appropriations.senate.gov/ht-energy.cfm?method=hearings.view&id=8434e3a5-d45f-4872-8c74-a4ec41dbf0fb>.

35. Roger N. McDermott, "Russia's Conventional Armed Forces, Reform and Nuclear Posture to 2020," 28 June 2010, 19-20, [http://www.ndu.edu/inss/symposia/2010%20Russia%20Security%20Workshop/OSD\\_Russia\\_McDermott.pdf](http://www.ndu.edu/inss/symposia/2010%20Russia%20Security%20Workshop/OSD_Russia_McDermott.pdf) (accessed 22 January 2013).

"Russia can ensure its national security and ward off military threats on the scale of local wars and above [regional and large-scale] only by recourse to the threat or direct use of nuclear weapons." (Konstantin Sivkov, the Vice-President of the Russian Academy of Geopolitical Problems, October 14, 2009).

[Russian doctrine had to] "compensate for the degradation of the Russian armed forces," adding that to preserve its great power status Russia "is ready to use nuclear weapons. (Igor Korotchenko, a member of the Defense Ministry's Public Council and the then editor of *Voyenno-Promyshlennyy Kuryer*, October 14, 2009)

36. Christopher Fargo, "Are Missile Tests Good for Strategic Stability," *USAF Counterproliferation Journal*, Issue no. 1031, (2 November 2012): 24.

37. Phil Black and Zarifmo Aslamshoyeva, "Russian General Raises Idea of Pre-emptive Strike Against Missile Shield," *CNN*, <http://www.cnn.com/2012/05/05/world/europe/russia-us-missile-defense/index.html>.

38. National Threat Initiative, "China." <http://www.nti.org/country-profiles/china/>, 1 November 12. (accessed 13 Dec 12); Jamie Crawford, "U.S. to China: Let's talk About Your Nukes," *CNN*, (14 Nov 12), <http://security.blogs.cnn.com/2012/11/14/u-s-to-china-lets-talk-about-your-nukes-2/>; Robert Johnson, "China's New MIRV Ballistic Missile Is A Big Deal," *Business Insider: Military and Defense*, 11 Dec 12, <http://www.businessinsider.com/chinas-df-3a-mirv-multiple-us-targets-one-missile-2012-12>

39. John W. Lewis and Lita Xue, *Imagined Enemies: China Prepares for Uncertain War*, (Stanford, CA: Stand University Press, 2006), 41-43.

40. Andrew Scobell, *China's Use of Military Force: Beyond the Great Wall and the Long March*, (Cambridge, UK: Cambridge University Press, 2003), 38.

41. Brodie, "The Anatomy of Deterrence," 190.

42. Depeche, *Nuclear Deterrence in Twenty First Century*, 37.

43. Keir Lieber and Daryl Press, "The Nukes We Need," *Foreign Affairs*, volume 88, no. 6, (November/December 2009): 39-51. "The most horrific retaliatory threat that the United States might issue--to destroy cities if enemy leaders brandish or use nuclear weapons--is a poor foundation for deterrence. First, this threat lacks credibility. Destroying cities would be a vastly disproportionate response if an enemy used nuclear weapons against a purely military target, such as a U.S. carrier group at sea or *even* a U.S. base located away from a major city (such as the U.S. airfields on Guam or Okinawa). During recent wars, the United States has labored to minimize enemy civilian casualties. It is hard to believe that Washington would reverse course and intentionally slaughter hundreds of thousands of civilians, especially if no U.S. or allied city has been destroyed."

44. Forsyth, "Common Sense," 5.

45. Dana J. Johnson, Christopher J. Bowie, and Robert P. Haffa, "Triad, Dyad, Monad?: Shaping the US Nuclear Force for the Future: Presentation to the Air Force Association," *Mitchell Institute for Airpower Studies*, 12 October 2009, 21, <http://www.northropgrumman.com/analysis-center/briefings/assets/triad-brief-to-afa-121009.pdf>.

46. Cartwright et al., *Global Zero U.S. Nuclear Policy Commission Report*, 1, 16, and 18.

“These steps could be taken with Russia in unison through reciprocal presidential directives, negotiated in another round of bilateral arms reduction talks, or implemented unilaterally. “A strong case can nevertheless be made that unilateral U.S. deep cuts and de-alerting coupled with strengthened missile defenses and conventional capabilities would not weaken deterrence in practical terms vis-à-vis Russia China or any of the more plausible nationstate challengers that America may confront in the years ahead.”

47. Paul H. B. Godwin, “Change and Continuity in Chinese Military Doctrine,” *Chinese Warfighting: The PLA Experience Since 1949*, (New York: East Gate Books, 2003), 37.

48. National Threat Initiative, “China Calls for “Drastic” Russian, U.S. Nuclear Force Reductions” *Global Security Newswire*, 30 April 2012,

<http://www.nti.org/gsn/article/china-calls-drastic-russian-us-nuclear-force-reductions/>.

49. Keith Bradsher, “China Is Said to Be Bolstering Missile Capabilities,” *New York Times*, 24 Aug 2012, [http://www.nytimes.com/2012/08/25/world/asia/chinas-missile-advances-aimed-at-thwarting-us-defenses-analysts-say.html?\\_r=0](http://www.nytimes.com/2012/08/25/world/asia/chinas-missile-advances-aimed-at-thwarting-us-defenses-analysts-say.html?_r=0).

50. Stephen J. Cimbula, *Nuclear Strategy in the Twenty-First Century*, (Westport CT: Greenwood Publishing Group, 2000), 197.

51. Daniel Vajdic, “Time to Cut Tactical Nukes,” *The Diplomat*, 28 February 12, <http://thediplomat.com/flashpoints-blog/2012/02/28/time-to-cut-tactical-nukes/>.

52. Angelo M. Codevilla, *Advice to War Presidents: A Remedial Guide to Statecraft*, (Philadelphia, PA: Perseus Book Groups, 2009), 91. “The Soviets have really been quite single-minded. They increased their defense expenditures as we increased ours. And they increased their defense expenditures as we decreased ours.” More succinctly, Brown noted, “Soviet spending has shown no response to U.S. restraint—when we build they build; when we cut they build,” (Harold Brown in a statement before a joint meeting of the House and Senate Budget Committees on 31 January 1979 regarding the fiscal 1980 budget). NOTE: Admittedly, this was a statement made during the Cold War era of the USSR, versus Russia today; however this author is aware of no evidence of a transformation in Russian defense thinking with the exception of the current fiscal constraints.; Daniel Vajdic, “Time to Cut Tactical Nukes,” 1. “There’s little to no evidence that such a “good faith gesture” on the part of the U.S. would somehow move the Kremlin to take a more reasonable stance when it comes to its perceived security interests.”

53. Vajdic, Daniel, “Time to Cut Tactical Nukes,” 1.

54. Ibid.

55. Lieber and Press, “The Nukes We Need,” 39-51.

56. Forsyth, “Common Sense,” 6.

57. NOTE: B-52s should be retained in a conventional role.

58. Major General William Chambers, USAF and Lieutenant General (ret.) Frank Klotz, USAF, “Role of the ICBM Force in 21st Century Deterrence,” (presentation, AFA Air & Space Conference National Harbor, Maryland, 18 September 2012), 3, <http://www.af.mil/shared/media/document/AFD-121002-064.pdf>.

59. Johnson, Bowie and Haffa, “Triad, Dyad, Monad,” 22-23. Note: It is no accident that the UK and French monad utilizes SSBNs. SSBNs also have the ability to engage a wider range of global targets, than the other two legs, without missile over flight of third party countries.

60. Joint BMDS Training & Education Center, *BMDS Student Reference Supplement*, 1 Jun 12. Dependent on type, BMD systems focus on either the 1) Boost phase 2) Ascent Phase 3)

Mid-Course Phase 4) Terminal Phase. Currently deployed US BMD systems are effective in the Mid-Course Phase (Aegis, and Ground Based Mid Course Defense based in CA and AK) or Terminal Phase (Aegis, Patriot). NOTE: When located very near (within 40km) the launch site, AEGIS has some Boost Phase Defense capabilities. By definition, BMD is designed for defense from ballistic missiles. Non-ballistic missile nuclear weapons delivered tactically by aircraft or artillery do not have a Boost phase, Ascent Phase or Mid-Course Phase only a terminal phase. The terminal phase is very short and is the most difficult and least desirable of the phases to do an intercept on.

Asymmetrically delivered weapons, vehicle, ship-borne, etc are also obviously outside the design capabilities of BMD systems.

61. Obama, *National Security Strategy*, 22.

62. Brodie, "Anatomy of Deterrence," 3.



## Bibliography

- Black, Phil and Zarifmo Aslamshoyeva, CNN. "Russian General Raises Idea of Pre-emptive Strike Against Missile Shield." <http://www.cnn.com/2012/05/05/world/europe/russia-us-missile-defense/index.html>.
- Bradsher, Keith. "China Is Said to Be Bolstering Missile Capabilities." *The New York Times*, 24 August 2012. [http://www.nytimes.com/2012/08/25/world/asia/chinas-missile-advances-aimed-at-thwarting-us-defenses-analysts-say.html?\\_r=0](http://www.nytimes.com/2012/08/25/world/asia/chinas-missile-advances-aimed-at-thwarting-us-defenses-analysts-say.html?_r=0). (accessed 9 January 2013).
- Brodie, Bernard. "The Anatomy of Deterrence." *World Politics*, 11, no. 2 (January 1959): 173-191.
- Cartwright, James, General (ret), Ambassador Richard Burt, Senator Chuck Hagel, Ambassador Thomas Pickering, General Jack Sheehan (ret). *Global Zero U.S. Nuclear Policy Commission Report: Modernizing U.S. Nuclear Strategy, Force Structure and Posture*. New York: Global Zero, 2012.
- Cartwright, James E. General (Retired), and Ambassador Thomas Pickering. "Global Zero Commission Testimony to the United States Senate Committee on Appropriations Subcommittee on Energy and Water Development." (testimony, Washington D.C., 25 July 2012), 2. <http://www.appropriations.senate.gov/ht-energy.cfm?method=hearings.view&id=8434e3a5-d45f-4872-8c74-a4ec41dbf0fb>.
- Castelli, Christopher J. "Study Eyes 1,000 Warheads Draft State Department Report Urges Deeper Cuts To Nuclear Arsenal." *Inside Defense.com*, 15 August 2012. <http://insidedefense.com/201208152407520/Inside-Defense-General/Public-Articles/draft-state-department-report-urges-deeper-cuts-to-nuclear-arsenal/menu-id-926.html>. (accessed 9 January 2013).
- Chambers, William, Maj Gen, USAF and Lt Gen Frank Klotz, USAF (ret). "Role of the ICBM Force in 21st Century Deterrence." *AFA Air & Space Conference--National Harbor, Maryland*, 18 September 2012. <http://www.af.mil/shared/media/document/AFD-121002-064.pdf>.
- Cimbulu, Stephen J. *Nuclear Strategy in the Twenty-First Century*. Westport, CT: Greenwood Publishing Group, 2000.
- Codevilla, Angelo M. *Advice to War Presidents: A Remedial Guide to Statecraft*. Philadelphia, PA: Perseus Book Groups, 2009.
- Costanzo, Charles E., Ph.D. "What's Wrong with Zero?" *Strategic Studies Quarterly* (Summer, 2010): 1-6.
- Crawford, Jamie. "U.S. to China: Let's talk About Your Nukes." *CNN*, 14 November 2012. <http://security.blogs.cnn.com/2012/11/14/u-s-to-china-lets-talk-about-your-nukes-2/>.
- Depech, Thérèse. *Nuclear Deterrence in the Twenty First Century: Lessons from the Cold War for a New Era of Strategic Piracy*. Santa Monica, CA: Rand Corporation, 2012.

- Fargo, Christopher. "Are Missile Tests Good for Strategic Stability?" *USAF Counterproliferation Journal*, no. 1031 (2 November 2012).
- Forsyth, James Wood, Jr. "The Common Sense of Small Nuclear Arsenals." *Strategic Studies Quarterly* (Summer, 2012): 93-11.
- Godwin, Paul H. B. "Change and Continuity in Chinese Military Doctrine." *Chinese Warfighting: The PLA Experience Since 1949*. Edited by Mark A. Ryan, David M. Finkelstein and Michael A. McDevitt. New York: East Gate Books, 2003.
- Johnson, Dana J., Christopher J. Bowie, Robert P. Haffa. "Triad, Dyad, Monad?: 'Triad, Dyad, Monad?: Shaping the US Nuclear Force for the Future: Presentation to the Air Force Association." *Mitchell Institute for Airpower Studies*.  
<http://www.northropgrumman.com/analysis-center/briefings/assets/triad-brief-to-afa-121009.pdf>.
- Johnson, Robert. "China's New MIRV Ballistic Missile Is A Big Deal." *Business Insider: Military and Defense*, 11 December 2012.  
<http://www.businessinsider.com/chinas-df-3a-mirv-multiple-us-targets-one-missile-2012-12>.
- Lewis, John W. and Xue, Lita. *Imagined Enemies: China Prepares for Uncertain War*. Stanford, CA: Stand University Press, 2006.
- Lieber, Keir and Daryl Press. "The Nukes We Need." *Foreign Affairs* 88, no. 6 (November/December 2009): 39-51.
- LinkedIn. "Global Zero." <http://us.linkedin.com/company/global-zero> (accessed 13 Dec 12).
- McDermott, Roger N. "Russia's Conventional Armed Forces, Reform and Nuclear Posture to 2020." 28 Jun 2010, 19-20.  
[http://www.ndu.edu/inss/symposia/2010%20Russia%20Security%20Workshop/OSD\\_Russia\\_McDermott.pdf](http://www.ndu.edu/inss/symposia/2010%20Russia%20Security%20Workshop/OSD_Russia_McDermott.pdf) (accessed 22 January 2013).
- National Threat Initiative. "China Calls for 'Drastic' Russian, U.S. Nuclear Force Reductions." *Global Security Newswire*, 30 April 2012.  
<http://www.nti.org/gsn/article/china-calls-drastic-russian-us-nuclear-force-reductions/> (accessed 13 Dec 12).
- National Threat Initiative. "China." *Global Security Newswire*, 1 November 2012.  
<http://www.nti.org/country-profiles/china/> (accessed 13 Dec 12).
- Obama, Barack H., President of the United States. "Speech on Nuclear Weapons." Prague, Czechoslovakia. May, 2009. [http://articles.marketwatch.com/2009-04-05/news/30713610\\_1\\_czech-republic-czech-people-tomas-masaryk](http://articles.marketwatch.com/2009-04-05/news/30713610_1_czech-republic-czech-people-tomas-masaryk)
- Obama, Barack, President of the United States. *National Security Strategy*. May 2010.  
[http://www.whitehouse.gov/sites/default/files/rss\\_viewer/national\\_security\\_strategy.pdf](http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf).
- Schelling, Thomas "A World Without Nuclear Weapons?" *Daedalus* 138, no. 4 (Fall 2009): 124-129.
- Scobell, Andrew. *China's Use of Military Force: Beyond the Great Wall and the Long March*. Cambridge, UK: Cambridge University Press, 2003.
- Shultz, George, William J. Perry, Henry A. Kissinger and Sam Nunn. "A World Free of Nuclear Weapons." *Wall Street Journal*, 4 January 2007.  
[http://fcnl.org/issues/nuclear/world\\_free\\_of\\_nuclear\\_weapons/](http://fcnl.org/issues/nuclear/world_free_of_nuclear_weapons/) (accessed 9 January 2013).
- Shultz, George, William J. Perry, Henry A. Kissinger and Sam Nunn. "How to Protect Our Nuclear Deterrent." *Wall Street Journal*, 19 January 2010.

- <http://online.wsj.com/article/SB10001424052748704152804574628344282735008.html>  
(accessed 9 January 2013).
- Shultz, George, William J. Perry, Henry A. Kissinger and Sam Nunn. "Deterrence in the Age of Nuclear Proliferation." *Wall Street Journal*, 7 March 2011.  
<http://online.wsj.com/article/SB10001424052748703300904576178760530169414.html>  
(accessed 9 January 2013).
- United Nations. *Treaty on the Non-Proliferation of Nuclear Weapons*. New York: United Nations Publications, 2013.  
<http://www.un.org/disarmament/WMD/Nuclear/NPTtext.shtml> (accessed 9 January 2013).
- US Department of Defense. *Ballistic Missile Defense Review Report 2010*. Washington DC: Department of Defense, 2010.  
[http://www.defense.gov/bmdr/docs/BMDR%20as%20of%2026JAN10%200630\\_for%20web.pdf](http://www.defense.gov/bmdr/docs/BMDR%20as%20of%2026JAN10%200630_for%20web.pdf)
- US Department of Defense. *2010 Nuclear Posture Review*. Washington DC: Department of Defense, 2010.
- US Department of Defense. *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*. Washington DC: Department of Defense, 2010.
- US Department of State. "New START Treaty Implementation Update." Washington DC: Department of State, 17 May 2012. <http://www.state.gov/t/avc/rls/183335.htm> (Accessed 20 Sep 12).
- Walt, Stephen M. "International Relations: One World Many Theories" *Foreign Policy*, no. 110 (Spring 1998): 29-46.  
<http://faculty.maxwell.syr.edu/hpschmitz/PSC124/PSC124Readings/WaltOneWorldManyTheories.pdf> (accessed 9 January 2013).
- Vajdic, Daniel. "Time to Cut Tactical Nukes?" *The Diplomat*, 28 February 2012.  
<http://thediplomat.com/flashpoints-blog/2012/02/28/time-to-cut-tactical-nukes/> (accessed 9 January 2013).