

BULLET BACKGROUND PAPER

ON

CHANGING THE DETERRENCE PARADIGM: A SPACE-BASED DEFENSIVE GRID

PURPOSE

Implement a worldwide defensive space-based directed grid for increased nuclear deterrence, increased US strategic advantage and as an alternative to modernizing the nuclear enterprise

BACKGROUND

The US nuclear enterprise is in need of modernization and President Trump has called for strengthening and expanding nuclear capability. Making use of space-based technology to intercept and destroy nuclear missiles entering the space domain is an alternative near-term solution that can change the existing paradigm of deterrence and increase US security.

POSITION

- The US should pursue development of a constellation of low-power directed energy platforms capable of co-targeting to achieve kinetic effects against nuclear or anti-satellite threats.
 - Low power of each individual beam makes collateral damage less likely and reduces offensive capability. Multiple satellites must co-target to raise the damage level to disabling.
 - The destructive power of directed energy employments decrease the closer the target is to the Earth--reduces misinterpretations of platforms as offensive capability, boosts defense.
 - Distributed, fractionated architecture increases system resiliency, ensures survivability.
- Global reach of this constellation enables the targeting of any spot above the Earth, increasing reach of US power and policy: Any missile that enters the space domain will be destroyed
 - Increases extended deterrence with allies, decreases incentives for nuclear proliferation and boosts global security by reducing the chances of a “mutually assured destruction” event.
 - By rendering ballistic missiles obsolete, the need to field and maintain the land-based leg of the nuclear triad is no longer necessary--long-term benefits to the nuclear surety mission
 - A space-based system is less effective against submarine and bomber launches, which may never enter the space domain--particularly true if co-targeting is required.
- Current deterrence policy centered around doctrine of proportional response and retaliation with a second-strike capability--space-based defense concept completely changes this paradigm

- Billions of dollars spent on a second-strike capability or modernizing the nuclear deterrent can be phased back, though complete replacement may not be feasible or desirable.
- The proposed system can be fielded against anti-satellite weapons (ASAT) threats as well.

SECOND ORDER EFFECTS

- The fielding of a similar capability by a near-peer adversary would further strengthen a global no-ICBM employment policy and boost security, as opposed to a zero-sum arms race in space
 - Further incentivizes US policy to shift away from the land-based leg of the nuclear triad
 - Removes incentive for nations such as Iran to develop nuclear capabilities--no way to deliver
- Shifts nuclear focus from global to regional. Rogue nuclear nations only hold neighbors at risk
 - Israel solidifies regional power, India and Pakistan détente, US unthreatened by neighbors
 - Principles of extended deterrence continue to encourage nuclear non-proliferation
- A space-defensive grid may be vulnerable to asymmetric warfare attacks such as cyber warfare

THIRD ORDER EFFECTS

- A policy against weaponization in space, and employment of the proposed constellation to ensure policy objectives of “freedom of navigation” in space, encourages commercial space enterprises; this \$330B annual industry is primarily US dominated.
- Benefits to the world economy may help stabilize international relationships (“liberalism”)
- Despite low power, risk of inadvertent damage to another nation’s space asset while employing the constellation must be accounted for--an attack on a US satellite is considered an act of war.
- Proposed solution encourages fractionation in the greater US space architecture--this deters threat of high-reward attacks against vulnerable US space centers of gravity
 - Gives the US the capability to proportionally respond to space-on-space attacks

CONCLUSION

The US should use any and all means available to avoid the offensive weaponization of space. Policy and development should instead focus on a defensive worldwide space network. This changes the concept of deterrence from retaliatory to preventative in nature, and renders the land-based leg of the nuclear triad obsolete. The proposed solution increases world security, reduces the global nuclear threat, preserves détente relationships and prevents an arms race.