Understanding the Long-Range Strike Debate

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What are the issues?

• DOD has a shortfall in long-range strike capabilities
  o High-volume long-range strikes needed to rapidly halt Chinese aggression in the Indo-Pacific or a Russian attack on a NATO ally in Europe
  o Not just bombers and other launch platforms—must increase inventories of precision-guided munitions (PGMs) and posture them forward

• All services plan to acquire new capabilities for long-range strike to meet this need, including hypersonic (Mach 5-plus) weapons

• How should DOD prioritize its long-range strike investments?
  o DoD should balance the cost of redundancy vs. benefit of resiliency; ground and sea-based strikes can increase targeting complexity for aggressor and the diversity of attacks possible

What are the most cost-effective alternatives for conducting long-range strikes at scale in an era of flattening or declining defense budgets?
Key findings

• Army’s initial Precision Strike Missile (PrSM) and future Mid Range Capability (MRC) useful for counter-A2/AD strikes in Europe
  - Sufficient range for battlespace; can fire from defended areas
  - Intra-theater transportation and logistics networks to support
  - Can complement high-volume airstrikes by attacking from under A2/AD envelope

• PrSMs launchers located in Japan and elsewhere along First Island Chain would have limited utility for strikes against targets in China’s mainland
  - Ranges from defended areas are at least 700-800 km to China, requires longer-range weapons; weapon cost and size greater than weapons needed in Europe
  - If PrSMs have seekers needed to attack moving ships, they could complement Marine Corps counter-maritime strikes in Indo-Pacific littoral areas
Comparing potential PrSM coverage

- PrSMs are smaller and have more range than ATACMs, 200-pound class blast-frag warheads (trade missile size and weight for range), INS/GPS guided.

- Planned rocket motor upgrade could double or more PrSM range, plus Army will add multi-mode seeker to attack emitting targets—upgrades will increase cost.
Rules of thumb for munitions

- Size and cost increases with range
- Cost increases with speed
- Surface-launched weapons generally larger & cost more than air-delivered PGMs
- Must also consider cost of delivery platform and their required defenses

Army Long Range Hypersonic Weapons (LRHW) will have range needed for Indo-Pacific and ability to penetrate defenses

- However, they will be large weapons and could cost $40-50 million each...difficult to buy in significant numbers
- Strike aircraft and surface ships that maneuver closer to target areas can use smaller, less expensive weapons
Illustrating these relationships

- If they have sufficient range, LRHWs launched from Guam could strike Chinese targets from U.S. territory—but their cost would limit size of their inventory.

- Supported by aerial refueling, long-range bombers carrying less expensive JASSM-ER or Stand-in Attack Weapons (SiAW) could strike Chinese targets from multiple directions.
Must consider effectiveness of different weapons against challenging targets

<table>
<thead>
<tr>
<th>Hardened, deeply buried</th>
<th>Subsonic Long-Range Missiles</th>
<th>Hypersonic Long-Range Missiles</th>
<th>Penetrating Aircraft</th>
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<tbody>
<tr>
<td></td>
<td>Insufficient penetration</td>
<td>Insufficient penetration</td>
<td>Still challenging, but only means to deliver very large penetrating munitions</td>
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<td>Deep inland</td>
<td>Insufficient range for very deep targets, increased potential to be intercepted</td>
<td>Very long ranges possible, more survivable, but unit cost could limit inventory</td>
<td>Bombers with air refueling have range, may need support to reduce threats</td>
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<td>Mobile or relocatable</td>
<td>Time needed to complete kill chain and weapon flight times a challenge</td>
<td>Time needed to complete kill chain still an issue for very long-range weapons</td>
<td>Still challenging, but can complete own “find-fix-track-target-attack” kill chain</td>
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<td>Fixed targets</td>
<td>Good</td>
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Also assess cost effectiveness of alternatives to determine mix that maximizes capacity

- Cost to achieve effects against targets should be considered, not just unit costs
- Total costs include missile battery and new stealth bomber acquisition plus their 30-year operating and support (O&S) as well as the cost of their weapons

Cost of the LRHW option quickly exceeds cost of bomber options

starts with cost to acquire plus 30 years O&S for stealth bomber and missile battery

Battery with LRHW Hypersonic Boost Glide Weapon
New stealth bomber with SiAW
B-52 bomber with Airbreathing Hypersonic Weapon

Notional missile battery in long-range fires battalion
Our recommendations

• **Complete a cost effectiveness assessment** to determine the mix of capabilities that would maximize DOD’s long-range strike capacity and provide theater commanders with multiple options.

• **Also consider the opportunity costs** of the Army’s long-range strike investments to determine if resources could be better used for its core mission of defending U.S. forces and theater bases against missile salvos.

• **Address potential host nation concerns** with stationing U.S. strike batteries in Japan/other Indo-Pacific allies and then using them to strike China in a crisis.

• **Procure Army mid-range weapons for Europe** to deter and defend NATO allies against Russian aggression.

• **Integrate Army and Marine Corps counter-maritime strike** by cooperatively developing operating concepts, tactics, techniques, and procedures that integrate their littoral strike operations in the Indo-Pacific.