

POLICY BRIEF

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LEVERAGING ASYMMETRIC NAVAL STRATEGIES

Lessons from Ukraine for Taiwan's
Defense Against Chinese Aggression



Serpens Center for
International Security

EXECUTIVE SUMMARY

Ukraine's successful campaign against Russia's Black Sea Fleet offers crucial strategic lessons for nations facing asymmetric naval threats.

For Taiwan, integrating Unmanned Surface Vehicles (USVs) into its national defense framework addresses critical structural vulnerabilities:

- **Sustain combat power:** USVs allow defenders to maintain operational tempo and domain awareness even after traditional naval assets degrade.
- **Impose cost and delay:** Massed unmanned systems force an invading amphibious force into complex combined-arms defense, significantly slowing their operational tempo.
- **Scalable deterrence:** Produced at a fraction of the cost of conventional naval vessels, USVs offer Taiwan a cost-effective means to raise Beijing's cost of aggression dramatically.

KEY RECOMMENDATIONS

1. Tactically exploit environmental constraints to Taiwan's advantage.
2. Adapt USV employment to each phase of a contingency.
3. Maintain a peacetime reserve of USV platforms.
4. Adopt distributed logistics.

BACKGROUND

Growing Chinese military pressure has placed the prospect of conflict over Taiwan at the center of Indo-Pacific defense planning, with an amphibious invasion representing the most dangerous scenario, even as blockade and gray-zone coercion remain important alternatives. Taiwan faces this challenge from a position of conventional asymmetry: the PLAN fields the world’s largest fleet by hull count.

At the same time, the ROCN has been unable to keep pace with China’s naval expansion, making a symmetrical contest increasingly difficult to sustain. Ukraine offers a relevant real-world experience in confronting a similar imbalance.

Since 2022, it has compensated for shortages in conventional military power through inexpensive, attritable unmanned systems, rapid adaptation, and mass production. In the Black Sea, this approach has imposed disproportionate costs on a larger naval force and constrained its freedom of action. Taiwan cannot simply replicate the Ukrainian model, but Ukraine provides a tested blueprint for how asymmetric capabilities can help offset conventional disadvantages.



PROBLEM DESCRIPTION

1. Taiwan faces a heavily constrained geographic, economic, and military environment.

The PLA enjoys a substantial advantage in conventional naval mass and industrial capacity, while its increasingly sophisticated, layered defenses complicate Taiwan's ability to impose costs through traditional means. At the same time, Taiwan would struggle to sustain its conventional combat power through the opening phase of a conflict. Its fleet would be vulnerable to early degradation, while damage to airfields and supporting infrastructure could limit the availability of airpower.

2. Taiwan's geographic isolation worsens these military constraints.

A Chinese blockade would sever supply chains and transform defense production into a closed-system loop. Access to critical components and raw materials would be constrained, precisely as wartime attrition increases demand for replacement parts and systems. Taiwan would have to sustain combat power with the forces, industrial capacity, and material reserves available on the island at the outset of hostilities.

3. The central problem is Taiwan's ability to sustain operations.

It must preserve and regenerate combat power under conditions of rapid attrition and geographic isolation. Existing industrial and logistical constraints complicate that task, particularly the production, storage, dispersal, and sustainment of forces under blockade and persistent attack.

4. With the right military doctrine and logistics, USVs offer Taiwan a more feasible way to overcome these structural weaknesses than traditional systems.

They add an affordable, attritable layer of combat power to existing defenses and rewrite the deterrence equation in Taiwan's favor. Their size and transport capacity allow them to provide cover and concealment against an initial strike. With the right peacetime stockpiling, Taiwan can leverage USVs to sustain combat power under isolation once supply chains are severed.

RECOMMENDATIONS

1. Tactically Exploit Environmental Constraints to Taiwan's Advantage

Taiwan should design its USV force for the Strait's unique conditions. Sea state should be a core design criterion for future USVs, alongside turning agility and survivability, to ensure systems remain effective in rough waters and against advanced PLAN radars. Fog and heavy seas can hinder surveillance and coordination while benefiting smaller, low-profile systems by providing concealment opportunities. Taiwan should treat these environmental constraints as defensive advantages and align USV design, doctrine, and training with actual operating conditions.

2. Adapt USV Employment to Each Phase of a Contingency

Taiwan should develop a flexible concept for employing USVs whose main effort varies across the phases of a cross-Strait contingency. Rather than forming an independent fleet, USVs should impose disproportionate costs and persistent friction on a larger force while complementing conventional naval, air, and land capabilities.

The overarching goal should be tempo degradation, not the outright sinking of enemy vessels: disrupting the PLA's speed, synchronization, and logistical continuity, which a large cross-Strait operation would require:

- **Under a blockade**, USVs should harass and divert PLAN vessels, forcing the adversary's fleet to use escorts and raising the costs of an otherwise non-kinetic operation.
- **During an initial landing**, USVs should prioritize targeting vulnerable supply chains between sea and shore. Even minor attacks in this phase can seriously disrupt PLAN tempo and have critical consequences on the PLA's ability to sustain land combat.
- **If the PLAN secures a foothold**, USVs should shift their focus to exploiting the vulnerabilities of docked ships. Vessels unloading heavy equipment are vulnerable, high-value targets for maritime drone strikes.

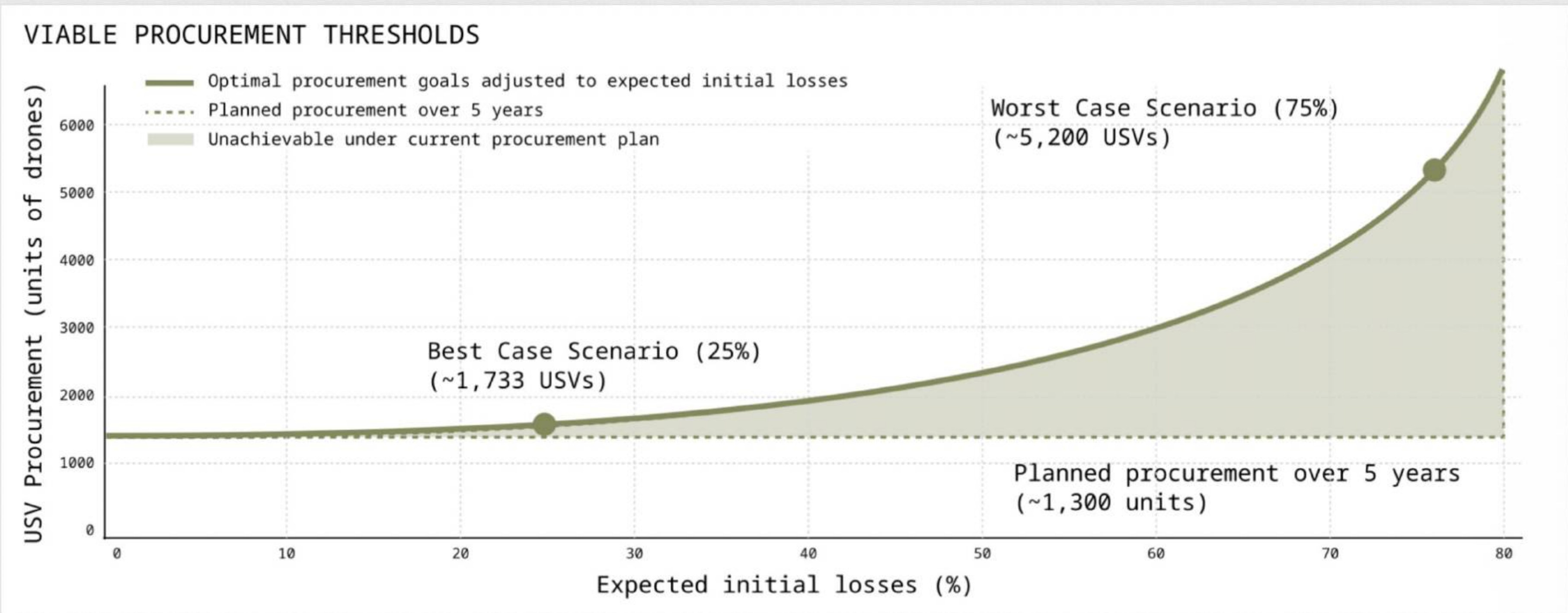
RECOMMENDATIONS

3. Maintain a Peacetime Reserve of USV Platforms

A significant prewar USV reserve is essential for Taiwan to ensure readiness in a conflict. Given Taiwan's geographic vulnerabilities, wartime production and external resupply may be insufficient once a blockade is imposed. Based on SCIS war-games predictions, a successful defense of Taiwan would require 113-138 Chinese naval losses. With a conservative estimate of 10 USVs per target, a stockpile of 1,100–1,400 strike USVs is required, not factoring probable early losses. At a best-case scenario of 25% loss rate, Taiwan would need to procure 1,500–1,900 USVs; at a more pessimistic assumption of 75% loss rate, 4,400–5,600 platforms would be necessary. In 2025, Taipei planned to acquire up to 1,600 USVs over 5 years but real production tempos have fallen short of targets. In turn, **Taiwan would need at least 1,500–1,900 systems to maintain operational capability to sustain early losses.** A more proactive reserve strategy will bolster Taiwan’s resilient defense posture.

4. Adopt Distributed Logistics

Taiwan should build a geographically distributed, hardened logistics network to preserve its USV reserve during the conflict’s opening stages. Concentrating the fleet in a few storage and maintenance facilities would expose much of it to early strikes, erasing the resilience provided by mass. Decentralized storage is essential to a viable USV strategy and leverages the transportability of Taiwan’s principal USV designs. **Prioritize peacetime redundancy in basing to mitigate wartime risks associated with concentrated assets.**



Comparison of optimal procurement thresholds to maintain operational viability under different initial loss rate estimates.

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