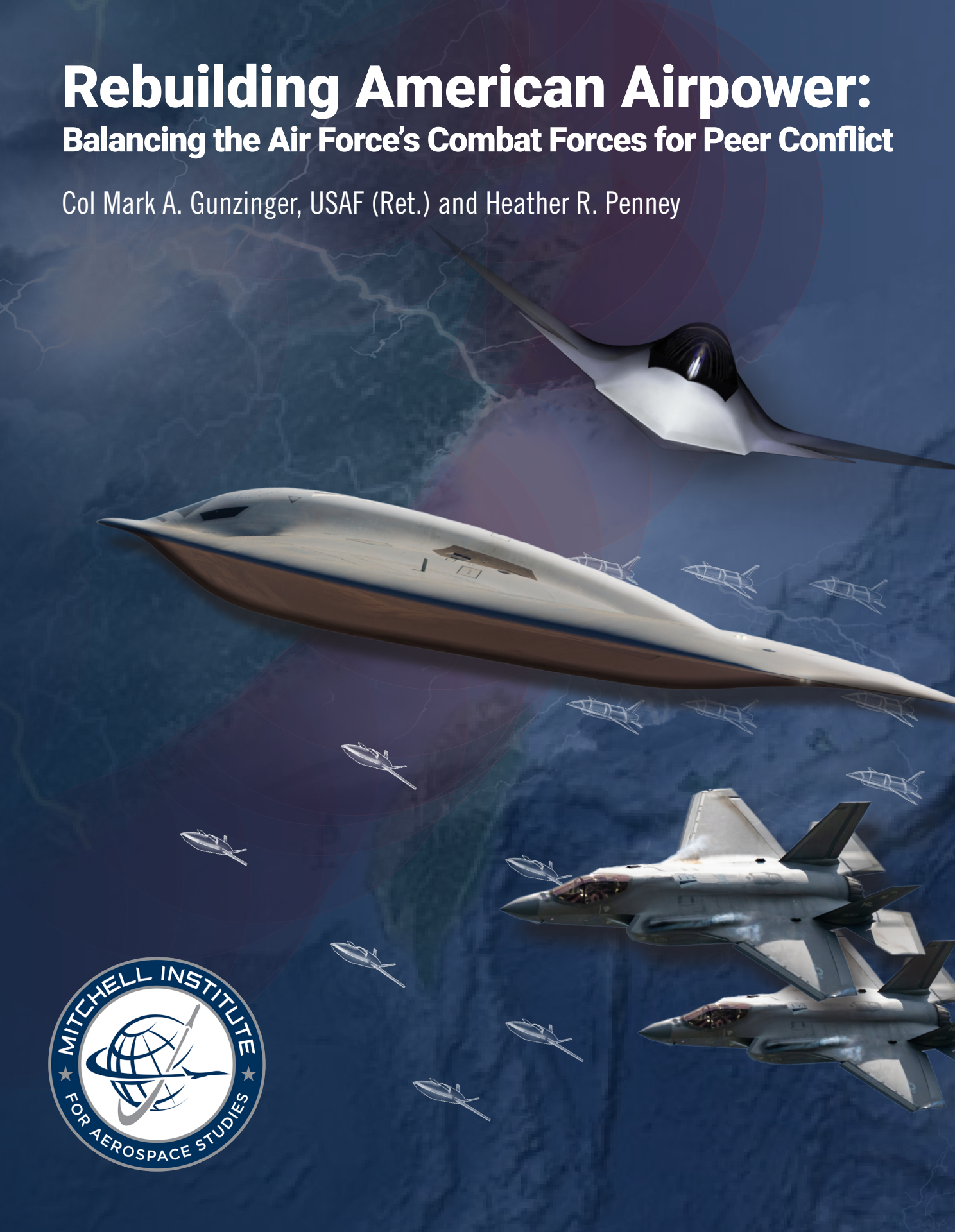
Rebuilding American Airpower:

Balancing the Air Force's Combat Forces for Peer Conflict

Col Mark A. Gunzinger, USAF (Ret.) and Heather R. Penney



MITCHELL INSTITUTE FOR AEROSPACE STUDIES

REBUILDING AMERICA'S AIR FORCE

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Foreword

The U.S. Air Force stands at an inflection point. The findings of this study make clear that the erosion of the Air Force's combat capacity, survivability, and resilience now places our nation at unacceptable risk in a conflict with a peer adversary—most notably the People's Republic of China. This moment demands clarity, candor, and action. Thirty-five years ago, Operation Desert Storm demonstrated the decisive capability that airpower. Guided by an effects-based approach to campaign design, U.S. air forces shattered a large, well-equipped military in weeks—not by attrition alone, but by collapsing the enemy's ability to function as an integrated force. It was a transformational moment in warfare that fundamentally reshaped how modern militaries think about power, precision, information, and tempo. China studied those lessons carefully.

Since then, the People's Liberation Army (PLA) has internalized the very concepts that once gave the U.S. military a decisive advantage. Beijing has built its own system-of-systems warfighting approach designed explicitly to counter how the United States fights, by targeting our networks; forward bases; air, space, and cyber dependencies; and our ability to project sustained combat power at range. In short, the PLA is now attempting to use against us the intellectual foundations of the success we pioneered. The challenge we face is not conceptual ignorance; it is strategic neglect.

This study shows that the Air Force is now too small, too old, and too dependent on vulnerable kill chains to prevail in a conflict with China while simultaneously fulfilling its foundational responsibilities of defending the U.S. homeland and deterring nuclear attack. Insufficient force size, inadequate base defenses, overreliance on stand-off effects, and presumptions of political sanctuary inhibiting attacks against China's mainland are not signs of a winning force design; they are symptoms of three decades of deferred decisions driven by chronic underfunding of the Air Force and not capitalizing on the strategy that brought us success in our last major war.

This report is not an argument for nostalgia. It is a call to recapture the advantages of coherent, integrated air, space, and cyber power—updated for a contested, multi-domain battlespace at necessary capacity levels with a focus on strategic attack. The wargame insights presented here demonstrate that victory against a peer adversary will require a balanced mix of penetrating and stand-off forces, crewed and uncrewed systems, resilient kill chains, and—most critically—the capacity to sustain continuous pressure against an adversary and deny them any sanctuary.

The Mitchell Institute conducted this study to inform policymakers, military leaders, and the public of what is at stake. If we wish to deter conflict—and prevail in conflict if necessary—we must once again lead in designing, fielding, and employing air, space, and cyber power as decisive instruments of national security. That responsibility cannot be deferred any longer. Decline is not inevitable, but reversal is not free. The necessary cost is high, but the cost of inaction is higher: strategic failure.

Lt Gen David A. Deptula, USAF (Ret.)
Dean, The Mitchell Institute for Aerospace Studies

Executive Summary

The United States Air Force requires a balanced mix of capabilities and the capacity to simultaneously defend the U.S. homeland, deter nuclear attacks, and defeat aggression by a peer adversary as required by the national defense strategy. However, its capabilities mix and combat capacity are both deficient, eroding U.S. deterrence and increasing the risk of a major, potentially existential conflict with China or Russia. The Department of Defense/War (DoD/W) and Congress now have a once-in-a-generation opportunity to rebuild an Air Force that has a balanced mix of fifth-generation and beyond combat aircraft, autonomy-enabled uninhabited systems, guided munitions, and other advanced technologies needed to fight and win in the most stressing threat environments. These capabilities are not "silver bullets" on their own, as the Air Force must also have the *capacity* to simultaneously defeat a peer adversary and defend the U.S. homeland. Building this capacity will require at least a decade of increased resources for the Air Force, including both additional budget and personnel. These investments are needed to overcome shortfalls created by over 30 years of chronic underfunding, force cuts, and deferred modernization. Allowing the force to continue this decline is a choice, but it is no longer a viable choice for an Air Force that must provide the lethal combat capabilities and mass to deter, fight, and win against peer adversaries in the Indo-Pacific and other regions. The choice is now between victory or defeat.

Rebuilding an Air Force that wins will require Congress and the Department of Defense/War to make strategic choices on the service's future force design.[1] These choices should be informed by insights into the potential for new capabilities and innovative operating concepts that can maximize the effects the Air Force can create during high-intensity conflicts. Toward this end, the Mitchell Institute for Aerospace Studies led a wargame to compare the effectiveness, survivability, and resiliency of two alternative force mixes for a 2035 Air Force in a defense-of-Taiwan scenario. One of the alternatives represented a partially recapitalized version of today's Air Force projected to 2035, and the other force assumed the service would receive additional resources over the next decade to accelerate its acquisition of next-generation capabilities. This report's recommendations are based on discussions and conclusions developed during the wargame by experts who have the greatest stake in the service's force design—the air campaign planners, strategists, and operators who may be called upon to defend our nation and fight and win against China.

Major Wargame Insights

The Air Force must have the capacity to simultaneously conduct synchronized counterair operations, precision strikes, and other combat missions over long ranges—to include into mainland China—to defeat a PLA joint island landing campaign (JILC). The Department of Defense/War's theory of victory for defeating a Chinese assault on Taiwan centers on preventing the PLA from achieving an irreversible force lodgment on the island. This will require the Air Force to conduct high-intensity strikes against not only the PLA's JILC forces—including its amphibious assault and roll-on/roll-off (RORO) ships, surface action groups (SAGs), and other integrated air defense systems (IADS) providing cover for the JILC—but also other key Chinese centers of gravity on the Chinese mainland. The Air Force now lacks the capacity to simultaneously perform these missions, defend the U.S. homeland, and deter nuclear threats. Failing to defeat a PLA JILC would result in a victory for China that diminishes America's ability to meet its security commitments and maintain its military presence in the Western Pacific.

Characterizing a PLA Joint Island Landing Campaign (JILC)

A JILC is the PLA's core operational concept for seizing and controlling a large, defended island in the Pacific. A doctrinal JILC is synonymous with a PLA multi-phase invasion of Taiwan that begins with cyberattacks, long-range precision strikes, and electronic warfare operations to paralyze Taiwan's defenses, followed by air and maritime blockades to isolate the battlespace. Once conditions are set, PLA amphibious task forces, protected by surface combatants, submarines, and air cover, would cross the Taiwan Strait. Amphibious and airborne assault units supported by special operations forces would seize beachheads, ports, and airfields on Taiwan to enable the PLA to land its second-echelon forces. China's objective will be to rapidly land enough forces on Taiwan to achieve a fait accompli before outside forces could intervene against the JILC. PLA writings stress the need to synchronize its operations across all domains—land, sea, air, cyberspace, and space—to establish its dominance, prevent foreign interference, and consolidate its control over Taiwan.

Air superiority, not air denial, remains a prerequisite for victory against China. During Mitchell Institute's wargame, two teams of airpower experts from the United States, United Kingdom, Australia, and Japan developed plans to achieve air superiority instead of air denial against the PLA. The air denial theory is a school of thought based on the supposition that the widespread use of drones in the Russia-Ukraine war has flipped the advantage from offensive air operations to air defense. For longtime combat airpower experts, the more apparent truth arising from the conflict is that the failure of either Russia or Ukraine to achieve superiority is a key reason for why they are now engaged in a stagnated war of attrition. Attempting to achieve air denial instead of air superiority over the PLA in a defense-of-Taiwan operation or similar scenario would similarly result in a war of attrition that favored China, which can more easily generate and sustain its combat capacity in battlespaces that are located on its periphery.

Pulsing the Air Force's counter-JILC operations creates significant opportunities for China. Because the size and readiness of the Air Force's combat forces have reached historic lows, the service must plan to episodically surge or "pulse" its airstrikes against the PLA's JILC forces over long ranges. This opens windows in time and space between pulses for the PLA to maintain the initiative, reset its forces to counter the next Air Force combat surge, and otherwise exploit its freedom of action.

Uninhabited aircraft are additive and complementary capabilities but do not replace requirements for advanced piloted aircraft. Autonomy-enabled collaborative combat aircraft (CCA) and other air-launched and ground-launched uninhabited systems promise to increase the Air Force's capacity between pulses to maintain continuous pressure on the PLA. The USAF's force design should seek to establish the *right mix* of next-generation fighters and bombers augmented by ground-launched and air-launched CCA and other uninhabited systems. Like other new technologies, CCA and other uninhabited aircraft are not panaceas for the Air Force's capability and capacity shortfalls, and an excessive reliance on emerging technologies that are unproven in combat increases operational risk.

The Air Force is at risk of losing its ability to fight alongside America's first island chain allies. China is prepared to launch large-scale air and missile attacks to suppress the Air Force's capacity to generate combat sorties from airbases in the Western Pacific. These attacks could result in unacceptable Air Force attrition rates on the ground since its Pacific airbases continue to lack effective missile defenses. Reverting to a second island chain and beyond force posture in the Pacific—including in Alaska and elsewhere along the U.S. West Coast—would reduce the density of China's missile attacks against the USAF's forces. However, a more remote posture would diminish the service's sortie rates, since its aircraft would have to fly longer distances, possibly thousands of miles, to reach the Taiwan Strait battlespace and then recover at their airbases to regenerate for their next sorties. These reduced sortie rates could greatly decrease the Air Force's capacity to counter a PLA JILC and defend the homelands of America's Pacific allies. Accordingly, Air Force planners must focus on preventing China from launching debilitating missile attacks by countering every element of the PLA's long-range kill chains as a key element of any successful U.S. counter-JILC campaign strategy.

Excessive reliance on stand-off kill chains would degrade the Air Force's combat resiliency. The ability to complete long-range kill chains (LRKC) from stand-off distances is an advantage for Air Force fighter and bomber forces that predominately consist of non-stealthy aircraft. However, a force design that is *overly* dependent on LRKCs would degrade the Air Force's resiliency in highly contested battlespaces. LRKCs require networks of command, control, communications, computers, ISR, and targeting (C4ISR-T) systems—including space-based capabilities—to complete attacks on targets. China has adopted a warfighting strategy that is centered on achieving information dominance by countering U.S. C4ISR-T networks. Excessive reliance on these networks to close hundreds and possibly thousands of LRKCs per day would risk playing into China's warfighting strategy and reducing the Air Force's operational resiliency.

Recommendations

New acquisitions for rebuilding the Air Force should be guided by a force design that establishes the right mix of new and existing capabilities, defines innovative operating concepts that focus on preventing any adversary from operating from sanctuary, and prioritizes other characteristics of a force that can win. The Air Force has created a new force design that describes "key attributes of the capabilities that will accomplish the USAF's enduring missions (defend the homeland, maintain strategic deterrence, and project power)."[2] This design is a living document that will change over time as the Air Force transforms for peer conflict and adopts new technologies to outpace emerging threats. Toward this end, the following recommendations are based on insights developed by airpower experts from across the Air Force and industry during Mitchell Institute's wargame, workshops, and related studies:

- **Break the tyranny of pulsing the Air Force's combat operations against China.** An undersized Air Force may have to resort to what it calls "pulsing" its strikes and other offensive operations during a campaign to defeat a PLA JILC. This sequencing is driven by the need to project effective, survivable combat mass over long ranges with a greatly diminished force. Pulsing creates opportunities in time and space for the PLA to advance its offensive and regenerate its JILC forces. Increasing the frequency of the Air Force's pulses would reduce these opportunities, but that requires increasing the service's current combat sortie capacity by 100 percent or more. The Air Force should also augment its forces with CCA and other

air-launched and ground-launched uninhabited aircraft that can operate from the first island chain and team with piloted aircraft to project effective mass *between* its pulses to maintain continuous pressure on the PLA. These aircraft must have smaller logistics footprints, the ability to periodically change their first island chain operating locations by executing the Agile Combat Employment (ACE) concept, and other attributes that will reduce the risk from China's missile salvos..

- **Create a mix of Air Force organic and distributed kill chains that increase its combat resiliency.** Excessive reliance on long-range kill chains for peer conflict would risk creating a more fragile USAF force design. Reducing requirements to rely on off-board airborne and space-based sensors, communication networks, and other capabilities needed to complete LRKCs would improve the Air Force's resiliency against China's counter-C4ISR-T attacks. Growing the Air Force's inventories of stealthy aircraft capable of penetrating high-density threat areas and striking targets with little or no support from offboard systems would help achieve this resilience. It could also reduce incentives for China to attack high-value U.S. C4ISR-T assets, including space-based systems, and increase the U.S. Space Command's options to conduct offensive operations to maintain space superiority.

- **Accelerate the F-47's fielding to increase the Air Force's lethality and survivability against the pacing threat**. The U.S. Congress and DoD/W should accelerate the F-47's development as much as is feasible and fund the acquisition of a minimum of 300 of these sixth-generation aircraft. The lack of long-range, penetrating air dominance aircraft is one of DoD/W's most significant shortfalls. A force of at least 300 F-47s would still be less than the number of stealthy F-22 fighters required by the Air Force nearly 25 years ago. Since then, China and Russia have fielded advanced IADS with the intent to outpace a U.S. military that has insufficiently funded the Air Force to modernize its counterair forces. Continuing to undersize the nation's premier air dominance force will further erode deterrence and increase the risk of a U.S. military failure in a peer conflict.

- **Accelerate B-21 acquisition to restore deterrence in the mid-term.** The DoD/W and Congress should accelerate acquisition of the B-21 to create a robust long-range strike family of systems for peer conflict. The combination of B-21s and F-47s will enable the Air Force to strike any target—airborne, maritime, ground-mobile, or hardened and deeply buried—anywhere in China. This capability is core to an effective U.S. strategy to deter China from aggression in the first place. Rebuilding the Air Force's penetrating long-range strike capacity will also help restore conventional and nuclear deterrence. No other combination of existing or planned combat aircraft in the free world can provide similar capacity to create these effects over long ranges in high-density threat areas.

- **Enable the Air Force's non-stealthy combat aircraft for peer conflict.** The U.S. Air Force has long relied on using its non-stealthy fighters and bombers to complete hundreds of kill chains per day during conflicts with lesser adversaries. These aircraft cannot operate in the high-density air threat environments that will exist during a conflict with China or Russia at an acceptable level of risk. Moderately increasing the Air Force's long-range kill chain capacity would increase options to use its non-stealthy aircraft for strikes, counterair missions, and other operations from survivable stand-off ranges.

- **Counter air and missile threats to the Air Force's theater bases and forces.** China has the capacity to launch large salvos of guided missiles at U.S. bases and operating sites located along the Pacific's first and second island chains. The Air Force has developed an ACE operating concept to reduce the density of China's missile attacks, but ACE alone will not maintain a Joint Force Air Component Commander's (JFACC) ability to generate combat sorties at required rates. Moreover, although posturing the Air Force's aircraft at more distant operating locations would reduce the density of China's missile attacks, doing so would require the force to routinely operate over long ranges—a thousand or more miles. This employment method would reduce the service's sortie rates. Avoiding this dilemma will require the DoD/W to acquire air and missile defenses for its Pacific airbases to enable the Air Force to "generate combat power within dense threat areas while under constant attack" from a distributed ACE force posture.[3] Failing to do so would cede an asymmetric advantage to China. It also requires the capability and capacity to directly attack the PLA's offensive kill chains to reduce China's ability to launch debilitating attacks on allied air and sea bases in the region.

- **Develop a more resilient layered system of systems for contested area ISR.** The Department of the Air Force should mature space-based assets to track airborne and ground moving targets as part of a multi-domain system of systems for contested area ISR. These assets should incorporate layered sensors operating in all domains, including penetrating ISR aircraft. This layered architecture will be key to a resilient force design. Excessive dependence on space-based air moving target indication (AMTI), space-based ground moving target indication (GMTI), and other space ISR assets creates incentives for the PLA to degrade and destroy them, reducing the combat effectiveness of all U.S. forces in a conflict with China.

- **Develop a better understanding of the PLA's C4ISR-T vulnerabilities**. Countering the PLA's C4ISR-T networks will be key to offsetting its combat capacity advantages. The PLA cannot effectively attack targets that it cannot find, fix, or track with precision. Blinding the PLA will require kinetic and non-kinetic—including cyber and electronic warfare—attacks against key nodes and links in its C4ISR-T system of systems. The U.S. Air Force and Space Force should develop a better understanding of these links and nodes to inform its development of capabilities and concepts for counter-C4ISR-T operations.

- **Increase the Air Force's resiliency for protracted conflict**. The Air Force lacks the capacity to sustain high-intensity operations in a protracted conflict with China. The Air Force should increase its fighter, bomber, air mobility, and other aircraft inventories to increase its readiness for protracted conflict in the Pacific and a crisis that simultaneously threatens the U.S. homeland. The DoD/W and Congress should also continue to increase funding to rebuild the Air Force's munitions inventories, which remain undersized for a conflict with a peer adversary. These munitions should include next-generation survivable mid-range weapons that are designed to maximize targets per sortie for fifth-generation and beyond fighters and bombers.

- **Take full advantage of CCA force multiplying potential.** The Department of Defense/War and Congress should fully fund the rapid development and fielding of a substantial force of CCA over the next FYDP, if they deliver on their potential after comprehensive development and testing. Expendable and reuseable CCA variants should be capable of delivering air-to-air and air-to-ground munitions, conducting active and passive sensing, conducting electronic warfare, and executing other missions that will increase the Air Force's survivability and lethality. These CCA may become force multipliers that could help free some fifth-generation and beyond piloted aircraft for other priority missions. CCA should not be considered cheap fighters that replace requirements for advanced piloted aircraft. Attempting to design early increment CCA to perform as fighters will extend their development, delay their fielding, and increase their cost.

- **The Air Force should reaffirm that strategic attack remains a core force design requirement and prioritize rebuilding its capacity to strike China's centers of gravity.** Long-range airpower's unmatched ability to conduct strategic attacks must remain a leading requirement for the Air Force's force design and development priorities. The Air Force should also develop a better understanding of how it should prioritize strategic attacks against targets that will achieve the greatest effects to deny China's objectives, impose costs, and undermine the coherence of China's military and political system from the outset of a conflict.

- **Prioritize and shift resources to rebuild the Department of the Air Force for peer conflict in the Pacific.** A U.S. campaign to defeat a PLA JILC will predominately occur in the air, space, maritime, and cyberspace domains. It will not be another land war. The U.S. Congress and DoD/W should shift resources toward the Department of the Air Force and Department of the Navy by trading-off forces and capabilities—primarily from the U.S. Army—that will be less relevant in a conflict with China in the Western Pacific. These resources should include additional funding to allow the Air Force to defend its bases and operating locations in the Pacific's first and second island chains.

Insights from Mitchell Institute's most recent wargame align with recommendations from other independent and government-sponsored studies: the Air Force must accelerate its efforts to create a force with the right mix of capabilities and the capacity to defend the U.S. homeland and win in the Pacific. Rebuilding an Air Force that can deter, fight, and win must be informed by a force design that prioritizes next-generation aircraft with the range, survivability, and payloads needed in the Indo-Pacific, force-multiplying UAVs, new munitions for counterair and maritime strikes, and other advanced technologies. This force design must also be accompanied by a force *sizing* construct that defines an objective force that has the capacity to meet the nation's defense requirements. Balancing the service's capabilities without sufficient capacity will only continue the downward spiral that has significantly diminished the Air Force's ability to fight and win America's wars.

Today's Air Force is a High-Risk Force

Decades of DoD-directed force cuts, deferred modernization, and insufficient budgets are the primary reasons the U.S. Air Force now operates the smallest, oldest, and least ready combat force in its history. This report assesses priorities for rebuilding an Air Force capable of defending against an array of threats that are now "the most serious and most challenging the nation has encountered since 1945."[4] Defeating Chinese aggression, defending the U.S. homeland, and deterring nuclear attacks must constitute the foundation for the Air Force's rebuilding—requirements it *cannot meet today* at acceptable levels of risk.

Rebuilding an Air Force that can win will require accelerating its acquisition of F-35A, F-15EX, F-47 Next-Generation Air Dominance (NGAD) fighters, B-21 bombers, CCA, and other advanced capabilities at a scale that outpaces PLA modernization. The Department of Defense/War's budget currently does not support this goal, and, in fact, reduces the Air Force's new aircraft acquisition and further shrinks the size of its forces.

The Mitchell Institute designed its 2025 wargame to develop a better understanding of risks associated with the Air Force's growing combat shortfalls and alternatives to reduce these risks over the next decade. To create a baseline for the game, the Mitchell Institute assessed the pacing challenges the Air Force now faces and DoD priorities that created the smallest and oldest combat aircraft inventory in the service's history. This is followed by a summary of major operational choices for employing Air Force airpower made by experts during Mitchell Institute's wargame in a defense-of-Taiwan scenario, including the reasoning behind their choices. These airpower experts included former and current U.S. Air Force airmen and technical experts from defense industry. Officers from the Royal Air Force (RAF), Royal Australian Air Force (RAAF), and Japan Air Self-Defense Force (JASDF) also provided insights during the wargame on future USAF forces and theater postures that would deter China and secure the peace in the Pacific should deterrence fail.

The Road to High Risk

After the Cold War, the U.S. military became accustomed to having enough time and freedom of access to deploy its forces to distant theaters in response to crises, build-up its combat power, and then initiate an offensive to defeat an adversary. This sequential, Operation Desert Storm-like operating concept became DoD's template for sizing and shaping its forces well into the 21st century. DoD's planning guidance in the 1990s and 2000s also assumed its forces would have the freedom to operate in forward areas unconstrained by attacks on their bases, logistics lines of communication, and C4ISR-T networks.

America's adversaries learned a different lesson from the Persian Gulf War. China, in particular, viewed Operation Desert Storm as the harbinger of a shift in warfare that fundamentally changed how it must organize, train, and equip its military. According to renowned China expert J. Michael Dahm, "The similarities between the PLA and the vanquished Iraqi military—an army-centric force organized for a defensive campaign—created a sense of urgency, as Beijing realized its military was ill-prepared to face a modern foe like the United States."[5] In the mid-1990s, China initiated a sweeping effort to modernize the PLA and develop a warfighting strategy to counter U.S. forces in all operational domains, including space, cyberspace, and the electromagnetic spectrum (EMS).

System of Systems Warfare: The PLA's Approach to Defeating the U.S. Way of War

China's counter-intervention strategy. Core to China's warfighting strategy is the belief that allowing the United States enough time and access to mass its forces in opposition to a PLA campaign is a prescription for defeat. To preclude this, China created an anti-access/area-denial (A2/AD) system of systems that includes land-attack cruise missiles and long-range ballistic missiles that can reach targets located along the Pacific's second island chain and beyond. The PLA Rocket Force (PLARF) and PLA Air Force (PLAAF) can now launch large salvos of these weapons against U.S. forces and bases across the Pacific as part of a campaign to prevent the United States from deploying forces to the region and generating sufficient combat power in time to effectively intervene against a PLA assault on Taiwan.[6]

China is also prepared to launch attacks to compel U.S. forces already in theater—including the U.S. Navy's aircraft carriers—to operate from outside the Western Pacific's first island chain, which extends from Japan southward through Taiwan, the Philippines, and Borneo. This would decrease the Navy's ability to strike PLA forces in the Taiwan Strait. For instance, it is likely the Navy's aircraft carriers will remain east of the Philippines to reduce the risk from China's long-range anti-ship missile attacks. This could result in carrier stand-off distances of 1,500 nautical miles (NM) or more from Taiwan, which is about twice the unrefueled combat radius of the Navy's carrier-based fighters. Similarly, operating Air Force fighters, bombers, aerial refueling tankers, and other aircraft from second island chain and beyond locations would decrease their sortie rates by 50 percent or more, depending on the distances they must fly to reach the battlespace (see Table 2).

China continues to grow its capacity to create high-density threat areas on the ground, in the air, and at sea over long ranges. Its intent remains to compel the U.S. military to reduce or even abandon its posture in the first island chain posture. This would leave China as the predominant military power in the Western Pacific and increase the vulnerability of America's regional allies. For China's leadership, this constitutes a major step toward its ultimate objective of displacing the United States as the world's preeminent superpower.[7]

Targeting the U.S. military's system of systems. The PLA also designed its warfighting strategy to degrade and paralyze battle networks that U.S. joint force operations depend on. A PLA "blinding" campaign will include attacks against space constellations that provide U.S. forces with positioning, navigation, and timing (PNT) data, long-range communications, and ISR information critical to completing long-range kill chains.[8] Other PLA counter-space targets will likely include the low Earth orbit (LEO) satellites the U.S. Space Force intends to deploy to provide AMTI and GMTI information.[9] According to the DoD/W, China believes its counterspace operations will "make it difficult for the U.S. and allied militaries to use precision-guided weapons" and ultimately will be a means to "deter and counter a U.S. intervention during a regional military conflict."[10]

The Air Force Has Insufficient Capacity to Deter, Fight, & Win Against China

Beginning in the 1990s, the U.S. Air Force was directed to dramatically cut its combat forces to comply with DoD policies that shifted its resources toward preparing to defeat lesser regional aggressors. After 2001, Air Force capabilities and resources continued to shift toward sustaining counterterror and counterinsurgency

operations. The Air Force attempted to partially compensate for these mandated cuts by upgrading some of its legacy combat aircraft, acquiring a limited number of new technologies, and adopting new ways to fight its forces as a system of systems. These initiatives proved insufficient to prepare the Air Force for the future, leaving the force ill-equipped to face today's security challenges. According to the Department of the Air Force's top three leaders,

> Changes to our strategy and capabilities have been incremental, not transformational. We still operate many of the same platforms and rely on a similar path to victory. However, our adversaries spent the last three decades learning how to dismantle and defeat that strategy. They developed new platforms, weapons, and defenses that specifically counter our tactics and target our vulnerabilities.[11]

The result is an undersized Air Force that lacks enough advanced fighters, bombers, and uninhabited aircraft with the range and survivability needed to prevent China from achieving a rapid *fait accompli* in the Pacific while simultaneously defending the U.S. homeland and deterring other threats.

The Air Force's undersized fighter force. Decades of divestment and deferred recapitalization have yielded a U.S. Air Force fighter force that does not have enough capacity, range, and survivability to achieve air superiority, nor can it provide the strike density required to defeat peer aggression. During the Cold War—the last time that the United States faced a peer adversary—the Air Force boasted well over 4,800 fighters, of which 702 were permanently based in Europe and postured for immediate response in the event of a Soviet invasion of Western Europe.[12] Another roughly 1,100 Air Force fighters stood ready to deploy forward to reinforce combat operations in Europe and replace attrition losses.[13] By contrast, the U.S. Air Force now has roughly 2,000 total fighters in its active and reserve components combined—*less than half* of what the service had in the Cold War.[14] Of those fighters, only 88 are permanently based in the Pacific (South Korea and Japan) to deter and respond to Chinese aggression.[15]

It is also unlikely that the Air Force's 503 U.S.-based combat-coded fighters (including those in Alaska and Hawaii) will be fully available to surge forward to fill combat aircraft shortfalls in the Pacific or Europe.[16] In the event of a peer conflict, many CONUS-based fighters will be withheld to conduct homeland defense missions. The Air Force recently said it needs 1,558 combat-coded fighters by 2030, which will require it to reverse its downward force structure spiral and significantly grow its fighter forces.[17] The service simply does not have sufficient numbers of modern fighters, bombers, and other forces needed to blunt a PLA offensive, sustain operations against China, and simultaneously defend the U.S. homeland.

The Air Force's bomber force is a raid force, not a campaign force. The Air Force's bomber force suffers from the same sizing challenge. Conducting long-range strikes at the scale required to defeat Chinese aggression would far outstrip the sortie capacity of the service's 141 remaining B-2, B-1, and B-52 bombers. Today's force is about a third the size of the bomber inventory that deterred the Soviet Union during the Cold War, which had nearly 440 bombers in 1989. This smaller force increasingly cannot meet peacetime operational demand, which has reached a record high level.[18] Requirements for bomber sorties during a combat surge to defeat Chinese aggression would greatly exceed peacetime taskings.

According to one Air Force general officer, the service's bomber inventory is now a raid force, not a campaign force.[19] This means the Air Force has enough bombers to conduct discreet raids like the June 2025 Operation Midnight Hammer strike against Iran's nuclear facilities, but it cannot generate enough sorties on a day-in, day-out basis during a protracted major air campaign. The Air Force's combat-coded bombers may be capable of generating a couple of dozen sorties per day at most, depending on where they are based, the ranges they must fly to reach their targets, and their readiness rates, which now average 52 percent. Bomber sortie shortfalls could make the difference between victory or defeat, given that the Air Force will be asked to provide the preponderance of long-range combat mass early in a fight to blunt a PLA assault against Taiwan or defeat a Russian attack on a NATO ally in Europe. Multiple wargames and analyses, including Mitchell Institute studies, have recommended rebuilding the bomber force to at least 300 aircraft to deter threats to the U.S. homeland and defeat aggression in two theaters simultaneously.[20]

Nuclear deterrence and homeland defense are additive force sizing requirements. The U.S. national defense strategy prioritizes deterring nuclear attacks and defending the U.S. homeland. The Air Force must dedicate part of its fighter and bomber forces for these missions during a major crisis, which has a significant impact on how the service must size and shape its forces. The Air Force will increasingly fail to fully meet these requirements if it continues to spiral toward a smaller and older force.

Beginning with the end of the Cold War, DoD repeatedly directed the Air Force to downsize its nuclear-capable bomber inventory in pursuit of budget cuts and to comply with arms reduction treaties with Russia. Today, the U.S. bomber inventory remains sized to deter a single nuclear peer adversary, despite China's development of a nuclear triad. The United States must now deter *two* nuclear peer adversaries simultaneously who both, according to a former commander of the U.S. STRATCOM, "have the capability to unilaterally escalate to any level of violence in any domain worldwide with any instrument of national power at any time."[21] An undersized U.S. triad increases the risk of nuclear coercion by China, Russia, or both during a crisis in the Pacific.

A similar risk dynamic applies to the Air Force's undersized fighter inventory, part of which must be dedicated to defending the U.S. homeland against air and missile attacks in peace and in war. These fighters must be supported by air refueling tankers, airborne early warning and control (AEW&C) aircraft, and other USAF forces. Homeland defense requirements, which cannot be met by another service, will decrease the number of aircraft the Air Force can deploy abroad to defeat peer aggression. Moreover, the service's fighter inventory continues to shrink even as the threat of conventional and nuclear attacks against the United States increases.[22] Most notably, the Air National Guard continues to lose fighters needed for homeland air sovereignty missions.

The Mitchell Institute accounted for these additive requirements during its 2025 wargame. As in a real-world crisis, the wargame's two "blue" teams could not use Air Force fighters, bombers, tankers, and other aircraft that were withheld for homeland defense and nuclear deterrence as they developed air campaign plans to defeat a PLA assault on Taiwan.

Undersized precision-guided munitions stocks. Years of inadequate budgets were likewise a root cause of the Air Force's current undersized munitions stocks. Shortfalls in air-to-air missiles, anti-ship weapons, and other PGMs will increase the risk that a U.S. counter-JILC operation will fail. This underfunding continues today. The Air Force provided Congress with an FY 2026 unfunded priorities list (UPL) that included nearly $4.8 billion for AIM-120 AMRAAM air-to-air missiles, Joint Advanced Tactical Missiles (JATM), hypersonic boost-glide Air-Launched Rapid Response Weapons (ARRW), and other munitions that would be in high demand in a Pacific conflict. The U.S. Indo-Pacific Command's UPL included another $700 million for maritime strike weapons and stand-off missiles that also did not make the cut in DoD's FY 2026 proposed budget.[23]

China has been going in the opposite direction. The legacy aircraft and other weapon systems that gave the U.S. Air Force a decisive combat edge over the last 30 years are increasingly unsuitable for warfare against peer and near-peer adversaries. China understands this and continues to increase the size of its advanced combat air forces to outpace the U.S. Air Force. The PLA now has the largest air force in the Western Pacific according to DoD/W.[24] The Mitchell Institute estimates the PLA Air Force will procure over 250 combat aircraft per year through 2027 to replace its older aircraft, and it may continue this modernization pace well into the 2030s. China's PLA prioritized modernizing its air forces by significantly reducing the size and slowing the modernization of its ground forces. The PLA partially funded this modernization by cutting 300,000 army personnel from its ranks in 2017 on top of a reduction of 500,000 army troops in 1997. As the PLA transformed, the U.S. Air Force cut its forces and terminated new weapon system programs to comply with DoD guidance. While limited upgrades advanced the capabilities of some of the Air Force's legacy aircraft, upgrades were half measures that failed to keep pace with China's growing combat advantage in the Western Pacific.

The Air Force's Current Aircraft *Mix* Also Increases Risk

The Air Force's current unbalanced force *mix* is also the consequence of years of underfunding, failed recapitalization, divestments, and decades of forced aircraft service life extensions. Decades of budget-driven choices have culminated in an Air Force that predominately consists of aged, legacy equipment that lacks enough survivability and other attributes of an agile force the nation needs to win against China.[25]

An aging combat force. The majority of the Air Force's fighter and bomber inventories were designed for threat environments of the far distant past. B-52Hs, which make up almost half of the Air Force's bomber fleet, were designed in the early 1950s and have an average age of 65 years. All of the Air Force's remaining B-52s were delivered by October 1962, more than a year before President Kennedy was assassinated. The F-16, which comprises 40 percent of the USAF's fighter fleet, averages 34 years old, the same number of years since the Soviet Union collapsed. While both aircraft were designed to go to war with the Soviet Union, the threat environment has dramatically changed over the last 30 years, and the bulk of the Air Force's combat aircraft has not kept pace.

Today, modern aircraft like the F-22, F-35A, and F-15EX make up just over 30 percent of the Air Force's total fighter fleet, whose collective average age exceeds 26 years.[26] The same trends are true for the USAF's bomber force, which received its last new production B-2 in November 1997, with an average age of over

30 years. The age of a combat aircraft matters because it impacts its survivability, structural integrity, and ability to accept technological upgrades. Stealthy aircraft like the F-117, B-2, and F-22 were designed with different computer processors and other technologies than the B-21, fifth-generation F-35, and sixth-generation F-47. The performance of modern surface-to-air and air-to-air threats exceed the capabilities of combat aircraft that were originally designed in the late 1970s, 1980s, and even the 1990s. The structural integrity of combat aircraft also diminishes with age due to metal fatigue and other stresses created while in flight. Only so much can be done to extend the life of an aircraft before they cannot compensate for age-induced structural issues. There is also a point in an aircraft's life cycle when it is unable to accept modernization upgrades. This limitation might be the result of aircraft space constraints, power and cooling limitations, outdated main processors and architectures, or other obsolescence factors.

A more survivable force mix is a fundamental requirement for peer conflict. Today, only 30 percent of the Air Force's fighter force consists of stealthy aircraft, and stealthy bombers represent a mere 15 percent of the bomber force. Not only is low-observability critical for aircraft survivability, it also is key to achieving the operational initiative over an adversary and securing the electromagnetic spectrum in contested battlespaces. Though low observability technologies are traditionally thought of as aircraft defensive capabilities, modern all-aspect, wideband stealth combined with advanced sensors and avionics can transform stealthy combat aircraft into systems that are optimized for offensive electronic attacks. But older aircraft *cannot be modified* to give them the shapes, engines, radar absorbing materials, and other technologies needed to achieve this level of advanced stealth—a key reason why the Air Force must recapitalize its penetrating combat aircraft inventory.

The F-22, which should have fully replaced the 750 F-15C to accomplish the air dominance mission, was prematurely terminated at 187 aircraft. Moreover, the F-35A's original planned acquisition rate, which was designed to replace the Air Force's F-16 and A-10 fleets, has been suppressed by inadequate Air Force budgets for more than ten years. These reduced rates are increasing operational risk in the near-term, even as the threat of a PLA assault on Taiwan is growing. The Air Force also needs new fighters with all-aspect, wideband stealth and longer ranges to operate in high-density threat environments in the Pacific. These are the leading reasons the Air Force must field sixth-generation F-47s at scale as quickly as possible.

Like the Air Force's fighter inventory, its legacy long-range bomber fleet lacks the survivability required to penetrate highly contested areas at acceptable levels of risk. The service's B-52s were designed during the 1950s, and its remaining B-1Bs are based on 1970s-era technologies. Only 14 percent of the nation's bomber force—19 B-2s—have all-aspect, wideband stealth. Much like the F-22 program, DoD directed the Air Force to terminate its B-2 procurement at 21 aircraft, which was just 16 percent of its original requirement for 132 aircraft. The Air Force employed all its combat-capable B-2s to support Operation Midnight Hammer, a strike against hardened and deeply buried nuclear installations in Iran. Over the next decade, the Air Force intends to field at least 100 B-21 Raider bombers with the all-aspect, wideband stealth required to penetrate highly contested air environments. Given the age and designs of the Air Force's legacy bombers, a force of 100 B-21s will be too small to meet the scale and scope of a peer conflict in the Pacific in addition to nuclear deterrence hold-back requirements in the United States.

Figure 1: EA-37B in flight. EA-37B Compass Call aircraft will help suppress air defenses by preventing them from transmitting critical information between their multiple systems.

Source: photo courtesy of L3Harris.

Future conflict will require a force that can dominate the EMS operating environment. The Air Force also lacks enough modernized capabilities and trained personnel to operate in a contested electromagnetic spectrum. The PLA's system of systems warfighting strategy will seek to disrupt, degrade, and deny U.S. access to and use of the electromagnetic spectrum. Allowing the PLA to dominate the EMS would be fatal to a U.S. campaign, given how dependent U.S. forces are on using the EMS for navigation, timing, sensing, C2, force coordination and synchronization, and weapon guidance. Control of the EMS has become foundational to every aspect of U.S. force employment, but this reliance matured during a period where U.S. access to and use of the EMS was uncontested. Consequently, core U.S. capabilities such as the GPS system, Link-16 datalinks, and other weapon systems lack robust protection against EW threats. In short, the U.S. military is not fully prepared to operate in the EMS-contested environments that will be the norm, not the exception, in 21st century conflicts.

The importance of controlling and exploiting the EMS is evident in the Russia-Ukraine war. Both militaries have employed electronic attacks to disrupt and deny navigation signals, satellite and terrestrial radio communications, drone control datalinks, and battlefield networks.[27] Although the Ukrainian military identified controlling the EMS as a key priority in its operations to repel Russian forces, it has proven unable to secure and retain its dominance in the spectrum. The advantages it has managed to gain have often proved short-lived. The same is true for Russian forces. Neither side has been able to achieve an enduring advantage in the Electromagnetic Spectrum Operations (EMSO) battle, and this has been a

major reason the conflict has devolved to a horrific stalemate.[28] The lesson is clear: wars can be won or lost in the electromagnetic spectrum, which is why the Air Force must prioritize electronic protection, attack, and other EMSO capabilities in its combat aircraft to secure the operational advantage in a peer conflict.[29]

The good news is the Air Force's advanced combat aircraft like the F-35A can conduct highly effective electronic attacks and likely other EW missions. In addition to performing their primary combat missions, F-47s and B-21s will be the world's most capable penetrating EW aircraft. However, all three must be acquired in sufficient quantities to achieve the degree of information dominance required for a decisive air campaign to defeat China's system of systems warfighting strategy.

The Air Force is also acquiring EA-37Bs to replace its aging fleet of EC-130H Compass Call aircraft, but budget restrictions imposed by the DoD/W are preventing the service from buying more than ten of these converted business jets. This is less than half of what is required to support a campaign against the PLA. An undersized EA-37B force will degrade the U.S. military's ability to dominate the EMS—a critical warfighting environment—in a conflict with China or Russia.

A range-limited force mix. The preponderance of the Air Force's combat force still consists of fighters that have a combat radius of less than 750 NM. The lack of range will constrain the service's ability to overcome the tyranny of distance in the Pacific and sustain a tempo of operations that will maintain continuous pressure on the PLA's forces. It also increases the need to posture the USAF's combat forces at first island chain bases that are within range of China's missile salvos.

Similarly, the Air Force's munitions inventory mostly consists of short-range, direct-attack munitions developed in the 1990s. Aircraft delivering weapons like the Joint Direct Attack Munition (JDAM) must closely approach targets, sometimes within single-digit miles. Air Force fighters and bombers attacking targets in contested areas must have the survivability to penetrate China's multi-layered IADS.

Wrong kill chain balance. Balancing the Air Force's capacity to complete thousands of dependent and independent kill chains in hundreds of hours will be a crucial step on the path toward creating a force design for peer conflict. The service's kill chain mix is now unbalanced, which is another result of its aging combat forces. The reduced survivability of the Air Force's legacy combat aircraft, combined with a force mix bias toward shorter-range aircraft, has greatly increased its dependence on closing LRKCs from stand-off distances in a high-end peer conflict. These stand-off distances can exceed 800 NM, depending on the density, weapon ranges, and lethality of air defense threats.

Aircraft that launch weapons from standoff distances are typically dependent on multiple off-board systems to find, fix, or track targets and then assess the outcomes of their attacks. This supporting system of systems includes air, ground, and space-based sensors, communication networks, and command and control centers. An overreliance on LRKCs would play directly into the PLA's warfighting strategy, which seeks to blind and otherwise sever the links in the Air Force's kill chain system of systems.

	Team Doolittle			Team Mitchell		
	TAI	Combat-coded available to team	Comments	TAI	Combat-coded available to team	Comments
Fighters						
F-15E	110	54	• Invested in SLEP • Additional withheld for homeland defense	110	54	• Additional withheld for homeland defense
F-15EX	100	66	• Additional withheld for homeland defense	224	144	• Accelerated F-15EX acquisition
F-16	600	240	• Additional withheld for homeland defense and deterrence in other theaters	360	0	• Additional withheld for homeland defense and theater deterrence • Traded some F-16 modernization & sustainment funding to accelerate F-47, CCA acquisition
F-22	160	112	• Bought back Block 20s	130	62	• Divested Block 20s
F-35A	900	380	• Additional F-35 withheld for deterrence in other theaters	900	380	• Additional F-35 withheld for deterrence in other theaters
F-47	6	0	• Not IOC	54	40	• Accelerated acquisition rate
Total	**1,876**	**852**	**Available mix: 492 LO, 360 non-LO**	**1,798**	**680**	**Available mix: 482 LO, 198 non-LO**
Bombers						
B-52J	76	50	• 8 withheld for nuclear deterrence	76	50	• 8 withheld for nuclear deterrence
B-1B	36	20	• B-1s were bought back	0	0	
B-2	0	0		18	8	• B-2s bought back, 8 withheld for nuclear deterrence
B-21	45	28	• 8 withheld for nuclear deterrence	100	85	• Accelerated acquisition
Total	**157**	**98**	**Available mix: 28 LO, 70 non-LO**	**194**	**143**	**Available mix: 93 LO, 50 non-LO**
AEW&C, ISR						
E-3G	0	0		0	0	
E-7	10	6	• Additional E-7 withheld for homeland defense	35	25	• Accelerated acquisition, additional E-7 withheld for homeland defense
MQ-9A	200	100	• Bought back for theater airbase defense and homeland defense	100	0	• Bought back for homeland defense
RQ-4B	7	5	• Bought back for ISR missions along the 1st island chain	0	0	
E-11A	5	3		5	3	
Electronic Attack						
EA-37B	15	10		20	14	• Accelerated acquisition
CCA						
Increment 1	360	300		540	480	
Increment 2	265	200		350	275	
Total	**673**	**500**		**890**	**755**	

Table 1: Two different 2035 Air Force force mixes. The Mitchell Institute allocated a different 2035 force mix to each of two blue teams acting as air campaign planners in a defense-of-Taiwan scenario. This created a foundation to compare the two teams' independent decisions on how they planned to posture and employ their forces. The two forces are based on Mitchell Institute assessments of DoD/W force planning trends and acquisition programs.

Source: The Mitchell Institute for Aerospace Studies.

Creating a more resilient kill chain *mix* in the Air Force's combat forces would increase its lethality against the PLA. Fielding new long-range, penetrating aircraft like B-21s and F-47s equipped with organic sensors and targeting systems will increase the service's capacity to complete kill chains within contested areas. During the Mitchell Institute's wargame, blue team players explored the potential for these next-generation combat aircraft to reduce the Air Force's dependence on long-range kill chains and create innovative ways to defeat China's counter-C3ISRT operations.

Survivability on the ground is another challenge to generating Air Force combat sorties. Attacking U.S. forces and the bases they depend on is another pillar of China's counter-intervention warfighting strategy. The PLA is sizing and shaping its missile forces to sustain attacks to suppress the Air Force's sortie generation rates. China understands the best place to kill an adversary's air force is when it is on the ground between sorties. This is especially true for the U.S. Air Force, which is still optimized to operate its aircraft from a handful of airbases in the Pacific that lack sufficient missile defenses. The PLAAF and PLARF can now range fixed and sea-based moving targets located across the Pacific. They are also developing multiple longer-range, air and surface-launched missiles to strike targets in Australia, Alaska, and the West Coast of the United States.

To help counter these threats, the U.S. Air Force has adopted a concept called Agile Combat Employment (ACE) to disperse and operate its forces from a distributed posture. ACE will help offset China's ability to accurately locate and attack the Air Force's deployed forces, and its distributed posture will cause the PLARF to spread its attacks across a greater number of targets. However, this posture must be complemented by active and passive missile defenses, including electronic warfare, the capacity to rapidly recover airbases after attacks, and the airlift and other logistics needed to frequently move USAF forces to different operating locations. But beyond these defensive measures, the key to winning will be an *offensive* counterair campaign that prevents the PRC from effectively employing its A2/AD strategy in the first place. This means U.S. air forces must conduct strikes against the PRC's centers of gravity to deny China its desired advantages.

The Air Force is not funded to meet its missile defense requirements, and the U.S. Army, which is responsible for ground-based missile defenses, has steadfastly refused to allocate enough resources to do so.[30] This particular gap is a premier example of how the DoD has failed to acquire the right kinds of capabilities to maximize effects on an adversary agnostic of military department. Instead, it continues to stovepipe its planning and budgeting practices, which encourages the services to pursue programs for capabilities that can be better provided by other services on a cost-per-effect basis. The U.S. Army, in another such example, is pouring billions of dollars to acquire single-warhead ground-launched hypersonic missiles that cost an estimated $45–50 million each.[31] This is about half the cost to buy an advanced fighter, which can deliver multiple PGMs per mission and fly scores of missions over their lifespans. Grossly redundant investments in long-range strike capabilities like this also reduce resources the Army could allocate toward more combat-effective and greatly needed missile defenses in the Pacific.

The Air Force must explore the relative effectiveness of different capability mixes as it grapples with how it should rebuild a force that can deter, fight, and win against China. The Air Force's force design and force sizing construct must also identify the combat capacity it needs to perform its core missions of air superiority, global strike, ISR, rapid global mobility, and command and control at moderate risk in a peer-on-peer conflict.

Wargaming the Alternatives

In June 2025, the Mitchell Institute led a wargame to better understand alternatives for a rebalanced, combat-ready Air Force. The recommendations presented are based on the insights of experts from the Air Force and defense industry, as well as the distinguished airmen from the RAF, RAAF, and JASDF, who participated in the game. These experts agreed that rebuilding the Air Force must begin in earnest now, given growing threats in the Pacific and other regions. This will require the U.S. Department of Defense/War to reallocate its resources to acquire the next generation of air, space, and cyber forces that will yield the greatest cost per effect in highly contested battlespaces. The Air Force must make it explicitly clear to the President and the Congress that its need for modernization in the quantities necessary to meet the demands of U.S. national security have been neglected for over three decades, and that the continued neglect risks failing in a war with China.

Mitchell Institute's Wargame Methodology & Alternative Force Mixes

The Air Force has created a new force design to provide a foundation from which to rebuild its combat forces and create a mix of capabilities that can win against China. Importantly, informing the Congress and American public on the need to fully resource the Air Force's requirements is a major step toward realizing this force design. Toward this end, the Mitchell Institute led an unclassified wargame that tasked two blue teams comprising experts from the U.S. Air Force, RAF, RAAF, JASDF, and defense industry to independently assess the combat effectiveness, survivability, and resiliency of two alternative USAF force mixes in a 2035 defense-of-Taiwan scenario. Acting as air campaign planning staffs, each blue team independently developed a concept of operations to counter a PLA JILC; conduct strategic attacks to degrade the China's air, missile, and anti-satellite forces; and sustain effective combat operations in a protracted conflict.

The Mitchell Institute allocated a different 2035 USAF force mix to each blue team to create a basis for comparing the advantages and disadvantages of their dependent and independent kill chains, the survivability of their aircraft in the air and on the ground, and their capacity to sustain the fight in a protracted conflict.[32] Blue team "Doolittle" was allocated a 2035 force that was a partially modernized version of today's Air Force extended into the future. The Mitchell Institute developed a more fully modernized and recapitalized force for blue team "Mitchell." This modernized force will only become a reality if the Air Force receives additional funding and other resources needed to outpace the PLA and other developing threats.

While the total number of fighters in each of the two blue forces were roughly equal, their mix of capabilities were different (see Table 1). For instance, team Doolittle lacked operational sixth-generation F-47 fighters, while team Mitchell's force included 40 combat-ready F-47s. Team Doolittle also had about one-third the number of stealthy B-21 bombers as team Mitchell's force, and all of Doolittle's B-2s were retired by 2035. Team Doolittle's lack of long-range stealthy penetrating fighters and bombers meant its CONOPS for defeating a JILC would be far more dependent on conducting long-range strikes and other attacks from stand-off distances compared to team Mitchell's CONOPS. This dependence meant team Doolittle would be far more reliant on a complex of ISR, command and control, and battle management systems to complete its air-to-air and air-to ground kill chains over long ranges compared to team Mitchell, which had a greater capacity to penetrate contested areas to find, fix, track, and attack targets independently.

Understanding Strategic Attack in Mitchell Institute's Wargame

According to U.S. Air Force doctrine, strategic attacks are offensive actions against targets that are "specifically selected to achieve strategic objectives" and directly affect an "adversary's strategy by creating dilemmas that impact their will and capacity to fight. This, in turn, forces adversaries to divert resources to defense." During Mitchell Institute's wargame, teams of airpower experts were tasked to plan strategic attacks against C2 nodes, airbases, missile facilities, and other targets they believed would erode and eventually collapse China's capacity to launch air and missile attacks against U.S. forces and bases in the Western Pacific. Attempting to counter the PLA's air and missile salvos by defensive means alone would permit China to shift additional resources to reinforce its JILC and launch long-range attacks to attrit U.S. forces.

United States Air Force, Air Force Doctrine Publication 3-02, "Strategic Attack," page i, August 4, 2025.

Both blue teams were given significant numbers of CCA based on the assumption the Air Force would receive funding to acquire CCA beginning in FY 2026. CCA "Increment 1" was a notional recoverable aircraft capable of returning to expeditionary airfields after a mission and regenerating for additional sorties, while the wargame's notional "Increment 2" CCA was an expendable aircraft designed to fly a single mission and launch air-to-air missiles at airborne targets. Both CCA variants were given ranges, payload capacity, and other capabilities that were representative of aircraft the Air Force could acquire.

Of note, the Mitchell Institute did not permit the blue teams to use forces from other U.S. services or allied militaries during the game. This artificial constraint was the result of wargame time limitations as much as its focus on developing insights to inform the USAF's force design choices. Perhaps more importantly, though, it also reflected reality in the sense that the Air Force will be the predominant service capable of projecting the lethal combat mass over long ranges and at the scale required to rapidly blunt a JILC and conduct strategic attacks to suppress China's long-range air and missile attacks. The wargame assumed other services' forces would be tasked with other missions pertinent to the scenario but more suited to their force designs.

Three Operational Requirements to Test the Wargame's Two Blue Forces

The Mitchell Institute designed its wargame to increase operational strains on the two blue forces over three game "moves" to determine their limitations and assess options to address them. U.S. experts on China's military strategy and forces acted as a "red team" during the game to develop plans to conduct a JILC and counter blue force operations. This red teaming introduced interactive play that helped the wargame's participants identify opportunities to rebuild an Air Force that wins.

Wargame move 1 operational challenges: deter and prepare to fight. During the first of the wargame's three sequential moves, the Mitchell Institute asked the blue teams to independently develop plans to deploy their forces into the Western Pacific to deter China and prepare to counter a PLA JILC. This move was designed to assess how the blue teams' different force mixes influenced their decisions and initial plans to deter and then blunt a JILC. Red team players observed blue player discussions and then finalized their operational plans based on their knowledge of the PLA's warfighting strategy. It also led to interactions between blue players and red players that helped them identify insights into operating concepts and capabilities that would best counter their opponent's actions. The wargame's "deter and prepare to fight" move ended when the red team kicked off its assault on Taiwan.

Wargame move 2 operational challenges: counter a JILC plus conduct strategic attacks. During the wargame's second move, the Mitchell Institute asked the two blue teams to refine their plans to counter the red team's JILC and simultaneously begin strategic attacks against high-value PLARF and PLAAF targets located on China's mainland. Players organized their counter-JILC operations to win the "rate fight" by attacking PLA air and maritime forces in and around the Taiwan Strait. By a rate fight, blue players meant they sought to reduce the PLA's capacity to transit the Taiwan Strait and disembark on Taiwan's shores to the point where it could not achieve the critical mass of forces ashore needed to launch a breakout assault inland.[33] Both blue teams sought to prevent the PLA from achieving this critical mass by slowing its buildup of forces on Taiwan and creating time for the U.S. Air Force to achieve air and space superiority. The blue teams did this by planning to strike the PLA Navy's cross-strait conveyor belt of amphibious ships and ROROs, PLA forces as they attempted to land on Taiwan, and the SAGs and coastal IADS providing them with defensive cover against U.S. attacks.

China may decide to continue to fight even if the United States and its allies defeat a PLA JILC. The enemy always gets a vote in the timing and conditions for conflict termination, and China is aware the U.S. military is sizing its combat forces, munitions inventories, logistics, and other capabilities for a short war of denial in the Pacific.

Wargame move 3 operational challenges: sustain a protracted campaign against China. The Mitchell Institute included a protracted conflict in its wargame for the simple reason that China may decide to continue to fight even if the United States and its allies successfully halt a PLA JILC. The enemy always gets a vote in the timing and conditions for conflict termination, and China is aware the U.S. military is sizing its combat forces, munitions inventories, logistics, and other capabilities for a short war of denial in the Pacific.

China also understands that U.S. industry cannot surge its production of advanced weapon systems in time to make a difference during a campaign against the PLA that may last longer than a few weeks. Moreover, although U.S. allies will provide complementary and additive air capabilities essential to a counter-JILC operation, they lack the capacity to fill the U.S. Air Force's existing shortfalls. For these reasons, the red team adopted a warfighting strategy in the wargame's third move that was designed to exhaust the blue teams' remaining forces.

Examples of Major Operational Choices During the Game

Blue teams initially deployed their forces to deter and fight. During the wargame's first move, both team Doolittle and team Mitchell deployed their allocated forces—minus aircraft withheld for homeland defense and nuclear deterrence—to the Western Pacific to deter China and prepare for combat operations. The teams initially postured most of their fighters and CCA at first island chain operating locations to deter China, assure U.S. allies, and maximize the Air Force's sortie rates should deterrence fail. Deploying to a warfighting posture was intended to increase the credibility of U.S. deterrence and hedge against the potential that hostilities could commence with minimal warning.

The blue teams also planned to conduct airborne show of force missions to signal U.S. resolve and readiness to intervene against the PLA. These operations included conducting fighter patrols to the west of the first island chain to maintain awareness of the PLA's movements and increase the Air Force's ability to counter air and missile threats to allied forces and bases.

The lack of airbase defenses against China's air and missile attacks created the most significant risk to USAF forces in terms of attrition and reduced sortie rates.

After the start of hostilities, both blue teams modified their theater postures and operations to reduce risk from missile attacks. The lack of airbase defenses against China's air and missile attacks created the most significant risk to USAF forces in terms of attrition and reduced sortie rates during the wargame. These projected risks reflect today's reality, given the U.S. Army has failed to allocate enough resources toward countering China's missile salvos against U.S. forces and bases—including the Army's own forces—in the Pacific.

Both blue teams independently decided to relocate many of their forces to the second island chain and beyond to partially compensate for their lack of airbase missile defenses. The teams dispersed their stealthy bombers to operating locations in southern Australia, Diego Garcia, and other areas that were outside the range of most of the PLA's ballistic missiles (see Figure 4). The blue teams understood that using distance to decrease missile threat density was a half measure and not an adequate substitute for the active and passive air and missile defenses needed to ensure the Air Force can fight alongside the JASDF other first island chain allied forces.

The blue teams also planned to implement Agile Combat Employment. The blue teams sought to implement the Air Force's ACE operating concept to reduce the threat of missile attacks. ACE shifts the USAF's deployed forces from a small number of Pacific main operating bases (MOBs) located in high-density threat areas to a network of smaller, dispersed locations across the region that would be more readily defensible, sustainable, and relocatable.[34] Operating from a dispersed ACE posture and frequently relocating forces would complicate China's ability to find and target the USAF's assets. If implemented at the right scale, ACE can also dilute China's missile threat by reducing the PLA's ability to concentrate its salvos on a handful of U.S. MOBs, like Kadena Air Force Base in Okinawa.

The blue teams were concerned over the Air Force's chronic shortfalls in theater airlift and logistics needed to sustain operations from a distributed Pacific posture. These shortfalls are now the Achilles' heel of ACE. Blue team experts were also concerned with the Air Force's ability to coordinate the aerial refueling, airborne combat operations, and recovery of its forces that launch from multiple geographically dispersed locations. This coordination would be affected by the PLA's attacks against the Air Force's command and control networks and other infrastructure that manages the sequencing and inflight rendezvous of U.S. fighters, bombers, CCA, aerial refueling tankers, and other aircraft essential to mission success.

Escalation risks shaped initial planning. Both wargame blue teams and the red team shaped their initial campaign plans to reduce the risk of vertically and horizontally escalating a conflict with China. The blue teams limited their initial strikes during the opening "blunt" phase of their operations to attacking PLA forces that were directly supporting China's JILC, including PLAAF aircraft and PLAN SAGs providing an outer ring of defenses screening the Taiwan Strait. Taking advantage of the ability to team F-47s with B-21s, team Mitchell also attacked air defense targets and ports located along China's coastline supporting the JILC. Because they lacked F-47s and had an undersized B-21 force, team Doolittle was hesitant to strike targets on China's mainland throughout the conflict.

For the same reason, red players sought to fight a short, sharp war to rapidly seize Taiwan while avoiding escalation to an all-out conflict with the United States. During the wargame's first move, the red team limited their airbase attacks to U.S. facilities located along the first island chain and did not attack Air Force operating locations in Guam, Australia, Diego Garcia, and Alaska. In response to blue team strikes on JILC-related targets along the coastline of China, the red team expanded its air and missile attacks to Air Force bases throughout the Pacific region. Later in the game, red players used small, land-based drones secreted in Alaska before the war to strike Air Force tanker aircraft on the ground at Eielson Air Force base in Alaska. These drone attacks were intended to degrade the Air Force's ability to refuel its bombers operating out of Alaska and cause the United States to redeploy some of its air defense assets to protect its homeland against attacks.

Rapidly degrading the PLA's ability to project power and achieve air superiority was critical to the blue teams' campaign plans. Blue team campaign planners sought to achieve air superiority in support of their counter-JILC operations and, in later game moves, strategic attacks against China. Based on the principal that air combat power is inherently offensive, the blue teams prioritized offensive counterair (OCA) missions to disrupt and destroy the PLA's ability to complete long-range kill chains against U.S. and allied air forces. The teams' highest-value targets included the outer defensive ring of SAGs and airborne KJ-500 and KJ-3000 AEW&C aircraft that are key to closing the PLA's long-range kill chains. The blue teams also used CCA to support their OCA operations, leveraging the force-multiplying potential of CCA to free up some of their fifth-generation and beyond fighters for other priority missions.

The blue teams did *not* plan to conduct "air denial" operations. Air denial is a school of thought proposed by some who suppose the widespread use of drones in the Russia-Ukraine war has flipped the advantage from offensive counterair to defensive air operations. The theory is that defensive air operations alone can enable militaries to adopt a "strategy of blue-skies air denial, in which an air force aims to deny operational freedom to an adversary's air force without necessarily being able to control that airspace."[35] Underlying this theory is the assumption that the U.S. military's ability to deny air superiority to an adversary is a powerful deterrent to war, even if the Air Force cannot achieve air superiority.

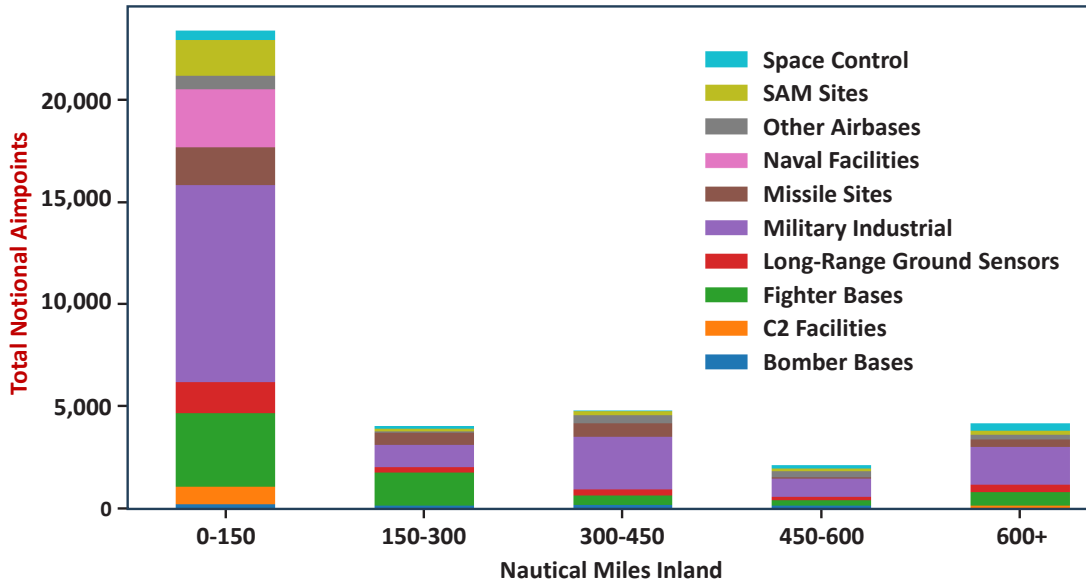

Figure 2: Distribution of notional strategic attack aimpoints for wargame coalition teams to use for their campaign planning. Teams had to consider aircraft and weapons needed to successfully attack multiple aimpoints per target.

Source: Mitchell Institute graphic.

The real air superiority lesson to be learned from the Russia-Ukraine conflict is quite different.[36] The inability of either combatant to achieve and exploit air superiority has resulted in a stagnated war of attrition that continues to inflict terrible losses on both sides. In a war with China, a state of mutual air denial would favor the PLA, which has a significant combat mass advantage created by its closer proximity to the Taiwan battlespace and land-based IADS providing protective cover for its JILC. For these reasons, the wargame's air campaign planners sought to achieve the degree of air superiority essential to the success of their campaign plans. Moreover, the teams took full advantage of their CCA and other uninhabited aircraft for their counterair campaigns, but they did not consider them as substitutes for F-35As, F-22s, F-47s, and other NGAD capabilities.

The blue teams prioritized countering the PLA's JILC throughout the game. As described before, the teams launched stand-off and penetrating strikes against the PLA's ROROs, amphibious assault ships, their ports of embarkation, and landing sites on Taiwan to draw-down the PLA's cross-strait conveyor belt deployments below sustainment level before it could land enough forces to break through Taiwan's defenses. Blunting the PLA's JILC and preventing its forces from achieving a critical mass on the shores of Taiwan was the highest operational priority of both blue teams. Countering the PLA's JILC was even prioritized at the expense of the teams' planned strategic attack level of effort. The experts believed that a failure to counter the JILC would result in a decisive victory for China, since the United States and its allies would then lack the capability and capacity to expel the PLA from Taiwan.

Pulsing counter-JILC operations created risk. Both blue teams decided they must pulse their counter-JILC operations, since neither of their 2035 forces could generate enough sorties on a continuous basis to achieve the combat mass needed to operate in high-density threat areas with acceptable risk and effectively strike the PLA. Specifically, the teams lacked enough fighters and bombers to fly long duration sorties on a sustained basis to

reach the Taiwan Strait and then recover to their bases to regenerate. The teams also could not generate enough E-7, EA-37B, aerial refueling, and other aircraft sorties to support continuous air operations.

Pulsing U.S. air operations created opportunities for the wargame's red team to maintain the initiative between pulses, regenerate their forces, and then surge against U.S. attacks. And while the blue teams sought to vary the timing and geography of their pulses, these tactics did not significantly decrease their predictability or the red team's ability to counter them. The blue teams also decided they must dilute the intensity of their pulses by withholding some of their combat aircraft during the wargame's early moves to maintain an attrition reserve and hedge against a protracted conflict with China. This dilution was exacerbated by the red team's airbase attacks. The assault on close-in airbases caused the blue teams to shift many of their forces to more distant operating locations to reduce forces lost on the ground, an action that further cut the size and frequency of the teams' counter-JILC pulses.

The blue teams reduced the intensity of their strategic attacks because of their lack of knowledge on targets that would achieve the greatest effects on China's campaign and decision-making. Blue players understood that launching strategic attacks against key PLA centers of gravity—including PLARF and PLAAF forces and bases located within China—would be a key to campaign success. Team Mitchell players collaboratively operated their F-47s with B-21s to strike targets that would reduce the size and frequency of China's air and missile attacks, which underpin its counter-intervention warfighting strategy. Because they lacked F-47s and sufficient B-21s, team Doolittle conducted few attacks beyond China's coastal areas.

Conducting strategic attacks against an adversary's military leadership, command and control nodes, and other high-value targets have long been a core Air Force mission. It is also a mission that cannot be performed at the same scope and scale by any other U.S. service or allied nation. Overall, experts playing the wargame agreed the U.S. Air Force *must develop a better understanding of how it should prioritize its strategic attacks* to achieve the greatest effect against China. The lack of understanding is the result of decades of conducting counterterror operations instead of preparing for high-end warfare against a peer adversary.

Other U.S. services cannot fill the Air Force's capacity and capability gaps. During Mitchell Institute's wargame, both blue teams understood that other U.S. services will be extremely limited in the combat effects they can create against PLA forces during the early stages of a counter-JILC operation. Unlike the Air Force, the Army, Marine Corps, and the Navy will be limited to conducting stand-off air and missile strikes against targets in the Taiwan Strait. These stand-off strikes cannot provide the mass at range needed to effectively counter a PLA JILC or attack targets located beyond China's coastal areas. Moreover, the Air Force will be the only service capable of conducting long-range strategic attacks across the highly contested Western Pacific battlespace to affect China's will and capabilities to continue its offensive campaign.

The blue teams also strongly desired to use U.S. Army and Navy forces to defend their Pacific airbases from missile attacks. The experts acknowledged these defenses may not be available by 2035 primarily because of the Army's refusal to acquire sufficient capabilities to perform its core mission of defending the Air Force's airbases against missile attacks and the Navy's diminished force structure.[37]

Insights from the Experts on Balancing the Air Force's Capabilities Mix

During Mitchell Institute's wargame, air and space power experts identified key force mix advantages and disadvantages that shaped their operational choices. The Mitchell Institute asked these experts a series of questions that helped them to develop the following insights on how the Air Force could balance its force design, operating concepts, and other initiatives to restore deterrence and rebuild a force that can win against the pacing threat.

Teaming B-21s & F-47s Will Greatly Expand Options to Conduct Strategic Attacks & Other Missions in Highly Contested Battlespaces

Airpower experts playing Mitchell Institute's wargame agreed that a family of counterair systems anchored by the F-47 will be critical to achieving the air superiority needed to deny a PLA JILC and conduct other missions against China at a war-winning scale. Team Mitchell launched pulses of F-47s, B-21s, and CCA to strike JILC targets across the Taiwan Strait battlespace. This was not the case with team Doolittle, which lacked operational F-47s and were given a much smaller B-21 inventory compared to team Mitchell. Team Doolittle decided it would be prohibitively risky to operate their small number of B-21s in highly contested areas west of the Taiwan Strait unaccompanied by F-47s.

The Doolittle team also discussed the value and feasibility of penetrating strategic attacks at length, but ultimately concluded that these operations, while potentially valuable, were unsustainable with the blue forces in the team's inventory. Importantly, most Doolittle players determined that they did not have a sufficient inventory of B-21s to pursue deep strikes at the cost of their counter-JILC operations. Moreover, because the Doolittle team did not have operational F-47s, they expressed concern over potential B-21 losses in a bomber fleet that was already too small. A minority in team Doolittle argued that imposing costs on China by conducting focused mainland strategic attacks and degrading the PLA's ability to sustain operations over the long haul were critical to achieving victory regardless of the team's B-21 and F-47 shortfalls.

Similar survivability considerations drove the blue teams' strategic attack planning. Team Doolittle determined their inability to collaboratively operate F-47s with B-21s greatly reduced their options to attack high-value targets on China's mainland. By contrast, team Mitchell's long-range family of systems allowed them to plan substantive strategic attacks against the PLA, including strikes against high-value air, missile, and counter-space forces in China's interior. Of note, team Mitchell used its B-21s to strike PLA anti-satellite garrisons located in central China in support of the USSF's space superiority operations (see Figure 3).

Both blue teams used EA-37Bs and EW-capable CCA to increase the survivability of their stand-off and penetrating aircraft. EA-37s will be most effective when operating within range of the PLA's air defenses. The teams used CCA configured for EW and as decoys to further disrupt the PLA's air defense operations and increase the survivability and effectiveness of other U.S. piloted and uninhabited aircraft. However, neither blue

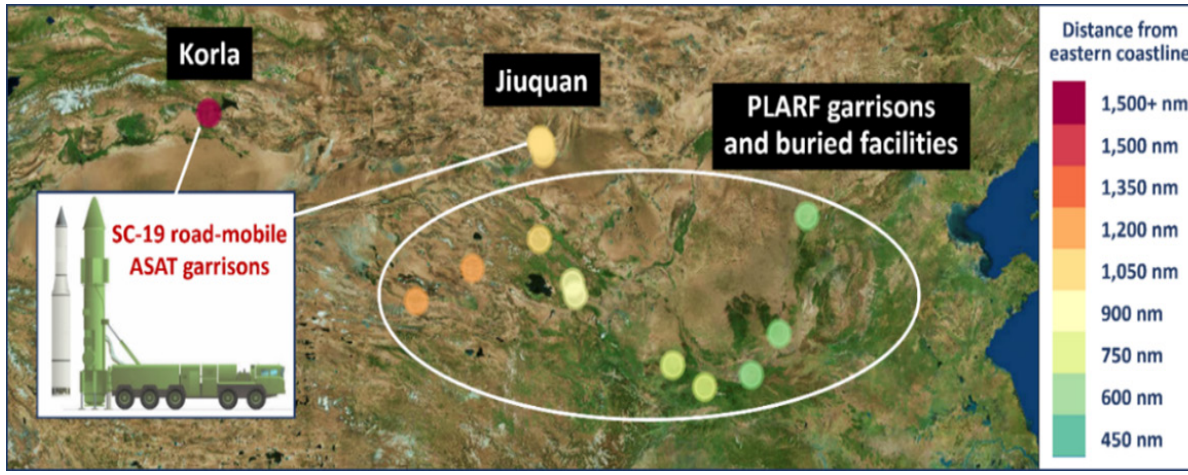

Figure 3: The PLA has stationed ASAT launchers and ballistic missile garrisons deep in China's interior to reduce the threat from U.S. precision strikes. The PLA has conducted test launches of its SC-19 direct ascent anti-satellite missile from facilities located close to Jiuquan and Korla, which are about 1,100 NM and 1,500 NM from China's eastern coastline, respectively. The PLA Rocket Force operates DF-26 IRBMs from garrisons located close to Xinyang in China. These targets can be reached by B-21s but would be out of range of U.S. and allied stand-off strike systems.

Source: Mitchell Institute graphic.

team believed they had enough EA-37s in their notional 2035 forces to adequately support their counter-JILC operations. This was a capacity, not a capability issue. Acquiring only 10 EA-37Bs will not recapitalize the Air Force's 14 EC-130H, and it will fall far short of a Compass Call force that is sized for a peer conflict in the Pacific.

Flightpath to a 2035 survivable force mix. Experts agreed that team Mitchell's rebalanced 2035 force would be significantly more survivable and combat-effective in a campaign against the PLA compared to team Doolittle's partially modernized force. The increased survivability combined with the longer ranges of team Mitchell's F-47s and B-21s greatly expanded its options to strike high-value targets throughout contested battlespaces. These options will only be available if the Department of Defense/War and U.S. Congress:

1. Fully fund and accelerate as much as possible the Air Force's F-47 NGAD fighter to create the foundation of a next-generation family of systems for counterair operations, electronic warfare, and other missions.

2. Increase the Air Force's B-21 acquisition rate and planned inventory size.

3. Support the Air Force's acquisition of at least 24 EA-37Bs to provide continuous coverage for U.S. forces countering a PLA JILC.

Airpower experts playing Mitchell Institute's wargame also recommended the Air Force equip some of its CCA as EW aircraft to improve the survivability and lethality of its operations. EW-capable CCA could act as force multipliers by reducing force attrition as well as the number of weapons the Air Force would need to create desired effects in contested areas. This would be an important advantage given the Air Force's combat sortie and munition shortfalls.

Survivability on the Ground: China's Missile Attacks Placed Blue Forces on the Horns of a Dilemma

Both blue teams independently determined they should posture their combat forces as far forward as possible in the Western Pacific to increase their sortie rates and operational tempo to counter a PLA JILC. However, these forward postures increased opportunities for the red team to launch large-scale missile attacks against blue team airbases in the first island chain. The Mitchell Institute estimated the red team's planned attacks against inadequately defended U.S. bases during the wargame would attrit more blue aircraft on the ground than would be lost in air engagements. This is consistent with other assessments that have indicated the preponderance of USAF aircraft losses in a conflict with China could occur as the result of PLA airbase attacks.[38]

Because of this threat, during the wargame's second move, both blue teams decided to use distance to partially compensate for their lack of airbase missile defenses. Moving some U.S. air forces to southern Australia, Alaska, and other bases located further from the battlespace reduced the frequency and density of the PLARF's missile attacks on the blue team's forces, since the preponderance of China's 2035 ballistic missile inventory will likely consist of short-range and medium-range weapons, as it does today (see Figure 4). For context, the U.S. territory of Guam is located along the Pacific's second island chain, approximately 2,900 km from China.

These revised postures increased the blue team's sortie durations, since their aircraft had to fly longer distances to reach planned target areas and then recover. Longer sortie durations have the effect of decreasing the number of sorties the Air Force can generate and fly over the course of a campaign to a fraction of a sortie per aircraft per day (see Table 2). Flying sorties over greater distances would also increase demand for the service's air refueling tankers, which will already be severely stressed to support all joint force requirements in a Pacific conflict. Finally, longer transit times allow for significantly reduced dwell times once aircraft reach the battlespace.

The red team placed the blue teams on the horns of a dilemma. The lack of airbase defenses allowed the red team to force the blue teams to choose between two undesirable courses of action. Blue players could posture their forces as far forward in the theater as possible to maximize their sortie rates but would do so at the risk of absorbing increased aircraft attrition and loss of sortie generation resources. Alternatively, the teams could choose to deploy their forces beyond the second island chain to reduce attrition from missile attacks at the expense of reduced sortie rates. Both choices would have the effect of decreasing the blue teams' sortie rates, the size and pace of their pulses against the PLA, and ultimately their ability to rapidly blunt a JILC.

Team Doolittle's partially modernized, range-limited force was less capable of compensating for diminished sortie rates created by their revised extended force posture. Mitchell Institute assessments indicated **blue team Doolittle's reduced combat capacity would likely prevent it from blunting the PLA's JILC, while team Mitchell's modernized force increased combat ranges and greater survivability in the air would make the difference in their counter-JILC campaign**. However, both blue teams determined they would lack enough combat capacity to simultaneously suppress the tempo and intensity of the PLARF's and PLAAF's airbase attacks and sustain a protracted operation against China.

Type of Ballistic Missile	Estimated Missile Range (km)	Estimated Missile Inventory
Intercontinental-Range	Greater than 5,500	400
Intermediate-Range	3,000-5,500	550
Medium-Range	1,000-3,000	1,300
Short-Range	300-1,000	900

Figure 4: DOD estimate of the PLARF's ballistic missile inventory and ranges.

Source: Office of the Secretary of Defense (OSD), Military and Security Developments Involving the People's Republic of China 2025, annual report to Congress.

Airbase Location	Estimated Sorties per Day
From the U.S. mainland and Alaska	0.34
Hawaii	0.34
Wake, Kwajalein	0.50
Diego Garcia	0.75
Northern Australia	0.75
Guam, Mariana Islands	0.75
1st island chain fighters and CCA	2.00
1st island chain bombers and other aircraft	1.00

Table 2: Notional sortie rate planning factors used during Mitchell Institute's wargame. As the table shows, the team's sortie rates decreased as planned mission durations increased. Blue teams used these notional rates to plan their counter-JILC and strategic attack missions.

Source: The Mitchell Institute.

Flightpath to a more resilient Air Force posture. Experts contributing to Mitchell Institute's wargame—including allied players—recommended the U.S. Department of Defense/War field additional air and missile defenses for the Air Force's Pacific bases. These defenses, combined with ACE, additional Rapid Airfield Damage Repair (RADR) capacity, and a USAF force that is modernized and sized for peer conflict, are all needed to deter China and prevent it from imposing unacceptable choices on the United States.

This will require providing additional resources to the Air Force, especially if it must assume responsibility for the Army's ground-based missile defense mission. The Air Force cannot afford to tax its existing modernization and recapitalization programs to pay for ground-based missile defenses. The resulting reduction in its capacity to achieve air superiority, conduct long-range strikes, provide air refueling, and perform other missions that benefit all U.S. forces would lead to the failure of a joint campaign against China.

Air Force Kill Chains Must be Balanced, Layered, & Resilient

Mitchell Institute's wargame mirrored other government and independent analyses by affirming the need to increase the Air Force's capacity to complete both long-range "dependent" kill chains and "independent" kill chains at the scale required for a peer conflict—in combination, thousands of kill chains in hundreds of hours. Dependent and independent kill chains each have their advantages and disadvantages, the challenge for the Air Force is to determine a force design that establishes the right balance of both.

During the wargame, the blue teams took advantage of their LRKC system of systems to generate lethality from stand-off ranges. Both teams used their non-stealthy bombers and fourth-generation-plus F-15EXs to complete long-range attacks against moving airborne and maritime targets. Generating effects against targets located in contested areas while remaining outside the range of lethal threat systems is a key advantage of LRKCs. However, LRKCs are highly dependent on C2 networks, battle management assets, and sensors in multiple domains, including space.

The blue and red teams also noted that **over-reliance on LRKCs would create opportunities for the PLA to interdict the Air Force's air-to-air and air-to-surface strikes**. This is one of the most significant findings of the wargame. The red team planned counter-C4ISR-T operations, including strikes against U.S. satellites, to degrade the Air Force's long-range kill chains. Moreover, both blue teams found they lacked enough advanced long-range

munitions like HACMs, JASSM-ERs, and anti-ship LRASSMs for stand-off attacks. Designing munitions with long ranges, secure on-board datalinks to receive target updates after launch, terminal sensors to locate targets, and other systems need to strike fixed and moving/relocatable targets increases their cost. Higher munitions costs can constrain the Air Force's ability to acquire sufficient stand-off weapons to attack tens of thousands of targets—likely 100,000 or more individual weapon aimpoints—over the duration of a campaign against China or Russia.

The blue teams discussed how decreasing the Air Force's dependence on LRKCs could help counter the PLA's system of systems warfighting strategy. Moreover, reducing the Air Force's dependence on space systems—including space-based AMTI and GMTI sensors—to complete its kill chains could reduce incentives for the PLA to conduct offensive operations to counter U.S. space superiority.

Flightpath to a more resilient kill chain mix. Airpower experts participating in the Mitchell Institute's wargame recommended the Air Force continue to shift its force mix toward fifth-generation and beyond fighters and bombers capable of finding, fixing or tracking, targeting, and attacking airborne and surface targets in all threat environments. The service should also continue to create a future layered ISR system of systems that includes penetrating and stand-off airborne aircraft in addition to space-based AMTI and GMTI systems. During the wargame, Air Force and Space Force experts emphasized the need for this layered approach, mirroring priorities established by U.S. Air Force and Space Force leaders.[39] A layered ISR system of systems is a prerequisite for resilient kill chains in a peer conflict. Without this resilience, U.S. space assets, including AMTI and GMTI satellites, will be become disproportionately lucrative targets, since U.S. forces will be overly dependent on them to complete its long-range kill chains.

The E-7 Wedgetail will be a critical part of this layered system of systems. Wedgetails are B737-700s that have been modified to provide AMTI and beyond-line-of-sight connectivity to support joint force operations. E-7s can track hundreds of targets simultaneously over long ranges to support the Air Force's air superiority operations. Wedgetails modified for the U.S. Air Force's requirements will be key to maintaining a layered approach to providing battle management and AMTI information to combat aircrews engaged against PLA forces in contested environments. The blue teams used their E-7s to anchor the operations of their penetrating and stand-off counterair operations.

While team Mitchell's 2035 force included a larger number of E-7s than team Doolittle's force, team Mitchell did not maximize their use early in the opening stages of the conflict due to concerns over the E-7's survivability. Team Mitchell partially compensated for this by using their larger force of F-47s and B-21s to complete organic kill chains throughout the highly contested battlespace. Both teams noted that CCA equipped with active and passive sensors could provide additional AMTI to support penetrating and stand-off counterair aircraft.

Insights from the Experts on Critical USAF Capacity Shortfalls

Insufficient Air Combat Capacity Created Another Blue Force Dilemma

Countering the JILC competed with strategic attack operations. As they would in an actual crisis, both blue teams made choices about the weight of effort they should allocate toward achieving their assigned campaign objectives of countering China's JILC and conducting strategic attacks to collapse the PLA's offensive missile salvos. These objectives stressed both teams, since neither possessed the combat air capacity to achieve them simultaneously. Overall, the combination of an undersized force constrained and suboptimized both blue teams' operational campaign designs and outcomes. This created another dilemma, which caused the teams to make hard choices as they iterated their operational plans.

Team Doolittle. For team Doolittle, a grossly undersized and partially modernized force meant they must choose what mission—counter-JILC or strategic attack—they could *not* do. Because of their small B-21 force and total lack F-47s, team Doolittle allocated most of their combat forces toward countering the PLA's JILC at the expense of strategic attacks. This left the PLA's land-based C2 and space installations fully functional and permitted China to surge from its interior without holding back its munitions, air defenses, and combat aircraft to support the JILC. Moreover, the PLARF was able to launch long-range missile strikes against team Doolittle's bases without opposition. These attacks caused team Doolittle to redeploy many of their forces from the first island chain to more distant locations, which had the effect of decreasing their sortie rates and the density and frequency of their counter-JILC pulses. Over the course of the campaign, team Doolittle determined their partially modernized and undersized 2035 force could not generate enough maritime strikes and other combat sorties to prevent the PLA from achieving an irreversible lodgment on Taiwan.

Team Mitchell. Blue team Mitchell decided their modernized and recapitalized 2035 force would allow them to counter the JILC *and* sustain strategic attacks against the PLA's airfields, missile forces, and other mainland targets. Of note, in addition to PLAAF airbases and C2 facilities, team Mitchell attacked PLA anti-satellite installations located deep inside China to support the U.S. Space Command's space superiority operations. These strategic attacks were key to degrading the PLA's information networks and compelling it to withhold some of its forces to defend their inland bases. The red team determined these blue force strategic attacks would also help lower the intensity of the PLA's airbase attacks and the PLA's threat density in the air in the vicinity of the Taiwan Strait. Overall, team Mitchell's counter-JILC operations would have denied a successful PLA lodgment on the shores of Taiwan by the thinnest of margins, but their strategic attacks greatly stressed the team's ability to simultaneously counter the PLA's JILC.

Breaking the Tyranny of Pulsed Operations

Both blue teams developed a counter-JILC CONOPS that pulsed their forces against the PLA's SAGs, amphibious assault ships, and other priority interdiction targets. Their decisions to pulse were driven primarily by assessments that their 2035 force could not generate enough long-range sorties to maintain continuous pressure on the PLA. Instead, the

teams planned to conduct episodic long-range strikes, offensive and defensive counterair missions, and other operations to generate enough mass to survive and strike Chinese forces located in the Taiwan Strait weapons engagement zone.

Both blue teams and the red team agreed that breaking the tyranny of pulsed Air Force counter-JILC operations in a Pacific conflict should be one of the service's highest priorities. Pulsed operations created opportunities in time and space *in-between pulses* for the red team to surge its cross-Strait amphibious landing operations, launch attacks against U.S. forces and bases, and regenerate its forces to counter the next U.S. pulse. In a conflict, the relief provided to PLA forces between USAF pulses may give China critical strategic and operational advantages that would grow over the course of a conflict—and make the difference between the success or failure of a U.S. counter-JILC campaign.

Both blue teams took advantage of CCA and other uninhabited systems to help fill the gaps between their pulses. To maximize the reach and mission duration of these uninhabited aircraft into the Taiwan Strait battlespace, the blue teams dispersed them to multiple operating locations in southern Japan and the northern Philippines. Both blue teams used their CCA to stimulate PLA responses, harass PLA forces, and cause the PLA to expend its resources between the USAF's major pulses. This mirrored CCA postures and operating concepts adopted by airpower experts in the Mitchell Institute's previous tabletop exercises.[40]

The blue teams' innovative use of CCA and other uninhabited systems demonstrated their potential to maintain pressure on PLA forces and create dilemmas for the adversary. However, both blue teams agreed these uninhabited systems cannot fully compensate for a USAF force design that lacks the necessary capacity of crewed combat aircraft. The U.S. Air Force must be sized to maintain continuous pressure on the PLA's JILC and simultaneously prosecute PLA targets across the Western Pacific *and* deep inside mainland China. Moreover, blue force attrition and CCA expenditures increased the duration between the blue teams' offensive pulses as the wargame progressed. The combination of longer periods between pulses and fewer CCA to fill the gap had the effect of reducing U.S. pressure on the PLA.

Considerations for "affordable mass" uninhabited aircraft. Both blue teams employed their CCA and other uninhabited systems for use cases with high potential for attrition to decrease risk to their piloted combat aircraft. While these uninhabited systems had functionalities such as sensing, electronic warfare, and even weapons capability, teams often used language such as "missile sponges" to characterize how they could use them to decrease red's threats to blue's crewed combat aircraft. This planned attrition implied the Air Force's future uninhabited systems should be lower-cost aircraft. Both blue teams initially hesitated to use uninhabited aircraft that they perceived as "exquisite" to avoid creating an unsustainable cost-exchange ratio.

The tension between combat effectiveness and costs illuminated a key consideration the Air Force should keep in mind as it develops a force of CCA and other uninhabited aircraft. The more capable the sensors, avionics, and mission autonomy of these aircraft, the greater their unit and sustainment costs, including the cost of personnel and logistics needed to operate them at scale during an air campaign. CCA that are too exquisite and too costly could constrain the Air Force's ability to acquire and sustain enough of them to disrupt the PLA's operations and help fill the gaps between combat pulses.

The blue teams also commented on assumptions regarding the *complexity* of the mission autonomy required for their uninhabited systems. Many team members expressed that they were hopeful yet skeptical that CCA mission autonomy would be mature and complex enough for the aircraft to reliably behave and perform as intended. Overall, blue team planners were more confident in assigning relatively simple tasks that supported, but were not integrated within, their planned pulses.

Despite these concerns, the wargame's blue teams agreed that **CCA and uninhabited systems would be essential to the success of their operations**, and developing and fielding them must be an imperative for the U.S. Air Force. They also concurred with insights from previous Mitchell Institute exercises that uninhabited expendable and reusable aircraft will *complement, not substitute* for piloted fifth-generation and beyond combat aircraft. CCA should not be considered silver bullet capabilities that will ensure the success of a counter-JILC campaign.

Sizing & Shaping the Air Force for Strategic Attacks

A U.S. warfighting strategy that focuses solely on conducting interdiction operations to deny a PLA JILC is a high-risk approach that risks ceding operational sanctuaries to the PLA. During the wargame, the blue teams were asked to plan strategic attacks against the PLAAF's airfields, PLARF ballistic missile garrisons including their resupply depots, command and control centers, and other key target sets in mainland China to reduce the tempo and scale of the PLA's offensive operations. These attacks would be critical to simultaneously countering the JILC and degrading the PLA's campaign to drive U.S. forces out of the first island chain.

The red team noted that **foregoing strategic attacks on targets located on mainland China would allow the PLA to more easily redeploy forces from its Western and Central Theater Commands to reinforce its JILC operations** (Figure 5). This is a key wargame finding. Moreover, reverting to one-dimensional U.S. "catcher's mitt" terminal missile defense operations would result in offensive-defensive asymmetry and cost exchange ratios that favor the PLA's offensive missile strikes. In short, a U.S. failure to take the fight to China would cede operational sanctuaries to the PLA, which would make all the difference in a fight with the United States.

Strategic attack is a core Air Force mission. Long-range airpower's unmatched ability to conduct strategic attacks was a key reason the Air Force became a separate military department after World War II, and it remained a leading requirement for the service throughout the Cold War. The success of the Desert Storm air campaign—the most successful air campaign in history—was based on the fundamental tenets of strategic attack.[41] However, after the fall of the Soviet Union, requirements for Air Force conventional strategic attacks were substantively replaced by requirements to conduct air interdiction operations against lesser regional adversaries. The Air Force should reaffirm that strategic attack remains a core mission requirement for its force design and prioritize rebuilding its capacity to strike China's centers of gravity.

Wars against capable state adversaries are won by collapsing an enemy's ability to function as a system, not through attrition or prolonged surface (sea or ground-centric) campaigns. This logic has even greater applicability in a peer conflict with China, where geography, distance, anti-access strategies, and escalation

Figure 5: The PRC's five theater commands. During Mitchell Institute's wargame, the red team planned to relocate, as necessary, PLA forces from China's Western and Central Theater Commands to reinforce its joint island landing campaign and replace forces lost in combat.

Source: OSD, Military and Security Developments Involving the People's Republic of China 2016, annual report to Congress.

risks severely constrain the utility of massed ground or maritime forces. Strategic attack enabled by aerospace power will be essential to impose costs, deny objectives, and undermine the coherence of China's military and political system from the outset. The post-9/11 subordination of airpower to counterinsurgency eroded institutional understanding of these realities, even as China studied Desert Storm and built a force explicitly designed to counter U.S. airpower.

Air Force Professional Military Education must refocus on strategic attack as a fundamental tenet of airpower by restoring rigorous education in systems theory, effects-based planning, parallel warfare, and historical case studies—especially Desert Storm. The service must concurrently prepare its airmen to think and operate at the campaign and strategic levels required to prevail in a major conflict with China.

The Air Force should reaffirm strategic attack remains a core mission requirement for its force design and prioritize rebuilding its strategic attack capacity.

The Air Force has an opportunity to rebuild its strategic attack capacity. The service should size its future F-47, B-21, and munitions inventories for strategic attacks against China in addition to interdiction and counterair missions. No other U.S. or allied capabilities will have the range, survivability, and payloads to conduct effective strategic attacks against China's centers of gravity and deny China a sanctuary from which to conduct its aggression.

The USAF must develop a better understanding of strategic attack target sets that would have the greatest effect on China's operations and decision-making. Players quickly realized this was a serious gap in planning for U.S. strategic strikes against China in a defense-of-Taiwan scenario. During the Cold War, the Air Force, DoD, and other U.S. national security organizations dedicated thousands of analysts to assessing the Soviet Union's centers of gravity. A similar level of effort is needed to bolster deterrence in the Pacific and prepare U.S. forces to conduct strategic attacks and other operations to defeat Chinese aggression should deterrence fail.

Wargame Operational Stressors	Team Doolittle (partially modernized force)	Team Mitchell (modernized/rebalanced force)
Counter-JILC	Counter-JILC failed due to insufficient next-generation forces	Counter-JILC would likely succeed by the thinnest of margins
Strategic Attacks	Team decided to prioritize countering the JILC and not conducting strategic attacks due to their combat capacity and survivability limitations	Conducted strategic attacks but the team's ability to sustain strategic attack tempo limited by insufficient capacity
Protracted Conflict	Lacked combat capacity (including insufficient PGMs) and the right mix of capabilities	Force mix was right, but team Mitchell also lacked capacity for protracted warfare, including replacements for combat losses

Figure 6: A Major insight of the game was that the U.S. Air Force must increase its capacity to conduct long-range, penetrating combat missions. Both teams sought to achieve air superiority—not just "air denial." This is a prerequisite for combined campaign success, but the force mix and capacity limited the teams from achieving the intended effects.

Source: Mitchell Institute graphic.

Sizing for Resilience: Forces Must Remain Combat Effective with Attrition

During Mitchell Institute's wargame, both blue air planning teams recognized that they did not have sufficient combat capacity to maximize the density and frequency of their counter-JILC pulses and retain the ability to backfill combat losses. Moreover, these players reasoned they could not afford to sustain significant losses in the initial stages of the blunt phase and maintain enough of a reserve to fight a longer duration conflict with China. Consequently, both blue teams withheld some of their allocated combat aircraft from their counter-JILC pulses to hedge against a protracted conflict. This hold-back also caused the teams to reduce the size of their pulses to a "minimum effective" level of force, decreasing blue mission effectiveness. This further accelerated blue combat losses, both in the air and on the ground, and otherwise turned the advantage toward the PLA.

Over the course of Mitchell Institute's wargame, blue team aircraft losses in the air and on the ground combined with lower sortie rates reduced the frequency of their counter-JILC pulses. Overall, insufficient forces caused both blue teams to struggle to meet initial blunt phase operational requirements. Despite holding back attrition reserve forces, neither blue team had enough combat forces to sustain their operations for a protracted conflict with China. This lack of resilience and strategic depth created opportunities for China to continue its offensive operations—even in the event of a failure of its JILC—with the intent to exhaust an undersized and under-resourced U.S. military. More importantly, neither blue team had a force that was size to win a quick, decisive victory as required by the U.S. national defense strategy.

Airpower experts on both teams strongly recommended the Air Force increase the size and survivability of its forces in the air and on the ground to reduce attrition and improve its resiliency in protracted conflicts. The experts also recommended the Air Force prepare for combat operations in high- -density threat environments by:

- **Sizing its fifth-generation and beyond combat aircraft inventories for an extended conflict with China.** This would require increasing procurement rates and planned quantities of F-35A and B-21s and accelerating the fielding of the F-47 NGAD fighter. Teams emphasized the synergies that these aircraft brought to the fight when employed together. Airpower experts cautioned that relying on small, silver bullet fleets of these aircraft would risk mission failures in a fight to defeat Chinese aggression, despite having made significant investments in them. Instead, F-35, B-21, and F-47 must represent a robust segment of the Air Force's combat inventory to meet the scale of scope of a peer conflict in the Pacific.

- **Rapidly and iteratively developing *and fielding* lower-cost CCA and other uninhabited aircraft that are more attrition tolerant.** Both blue teams employed these capabilities to decrease risk to their main operational pulses and improve survivability for their piloted aircraft in ways that disrupted PLA operations. The teams emphasized that affordability was key to their willingness to employ—and lose—these uninhabited systems. Moreover, to achieve maximum mission effectiveness, they found that employing CCA and other UAS from the first island chain and unconventional launch points was ideal. Using CCA and other uninhabited systems would have a positive effect on the Air Force's survivability and combat pulse effectiveness.

- **Combining ACE operations, fielding additional rapid airfield repair capacity, and increasing missile defense capacity to enable a higher combat tempo from first island chain bases.** Airpower experts emphasized that operating from the first island chain was an imperative for a successful campaign, but they lacked enough airbase defenses and rapid airfield repair capacity to sustain forward operations for the duration of the campaign. ACE operations would also impose an increased demand for mobility airlift aircraft, which were already insufficient in number to meet the basic needs of the wargame's conflict scenario. Many team members believed the Air Force must further mature and exercise its ACE concept, and that investment in additional mobility aircraft of all cargo capacities would be required.

Key Insights from Allied Air Force Experts

The Mitchell Institute invited officers from the Japan Air Self-Defense Force, Royal Air Force, and Royal Australian Air Force to participate in its 2025 wargame as allied air campaign planners. These experts provided insights from their unique perspectives on the U.S. Air Force's force design, future capabilities, operational concepts, and other priorities needed to deter China. Among their insights, the need for the Air Force to operate its forces from airbases in Japan, the Philippines, and other first island chain locations while under attack stood out as critical to the defense of their homelands. This will require the Department of Defense/War to increase its capacity to defend the Air Force's first island chain airbases from missile attacks and rapidly recover its airbases and other operating locations after attacks.

Allied airpower experts highly prioritized maintaining the Air Force's capacity to fight from the first island chain during a conflict with China. Allied officers participating in Mitchell Institute's wargame viewed the presence of the Air Force's combat aircraft and other forces along the first island chain as a credible, unambiguous signal the United States was committed to defending their homelands and an unreplaceable deterrent to PLA aggression. Redeploying Air Force piloted and uninhabited aircraft from the first island chain during a crisis to reduce risk from missile attacks would greatly erode deterrence and encourage China to choose a military confrontation rather than peace. It would also play into China's long-term strategy, which is to create an area denial complex of long-range ballistic missiles, cruise missiles, and armed drones to compel the United States to abandon is force posture in the first island chain.

Allied host nation support will be critical. During the wargame, RAAF and JASDF airpower experts indicated their homelands would likely support the U.S. Air Force's combat sortie generation and sustainment operations after China attacked their sovereign territory. Host nation support, including access to local fuel sources and other materiel, will be critical to conducting distributed operations envisioned by the Air Force's ACE concept. ACE will also require the Air Force to preposition munitions and other warfighting materials along the first island chain to reduce strains on U.S. and host nation logistics networks while under attack. Moreover, air campaign planners indicated that Japan would be willing to help defend U.S. airbases located on Japan's sovereign territory against air and missile attacks. These defenses would be additive and complimentary to U.S. defenses.

Need to counter an emerging narrative on U.S. territories in the Pacific. During Mitchell Institute's wargame, allied players generally viewed PLA air and missile attacks against Guam and other U.S. Pacific territories as attacks on the U.S. homeland that would trigger allied treaty commitments to the United States. However, some allied players expressed concern that there is an emerging public narrative that these attacks would *not* trigger allied responses based on the belief that these territories are "not part of the U.S. homeland." U.S. and allied players suggested there is a need to address this false narrative by clarifying in unambiguous terms that an attack on the United States' Pacific territories *would* constitute an attack on the U.S. homeland.

Conclusion & Recommendations

The U.S. Air Force has reached a pivotal moment. Throughout the Cold War, the service received the resources it needed to continuously modernize and size its forces to defend the homeland, deter nuclear attacks, and defeat aggression by the Soviet Union—its peer adversary. After the Cold War, the Air Force was forced to repeatedly cut the size of its forces and cancel planned modernization programs to comply with DoD guidance. Today, the Air Force is a smaller and older force that flies fewer hours to maintain its readiness than ever before in its history. At the end of the Cold War, U.S. combatant commanders could call on the Air Force's 134 squadrons to deter, fight, and win. The Air Force's current 54 fighter squadrons and 141 bombers constitute less than a one-war force, and it is planned to become even smaller due to insufficient budgets.

This does not have to remain the case. The Mitchell Institute's wargame illustrated that, with additional funding, the Air Force can increase its acquisition of F-15EX, F-35A, and CCA while simultaneously developing and fielding F-47 NGAD fighters and B-21 bombers. These acquisitions, combined with sizing the U.S. munitions inventory for peer conflicts, will rebuild an Air Force with the capacity and mix of capabilities to deny a PLA JILC, conduct strategic attacks, and simultaneously perform mission number one—defend the U.S. homeland.

As the Air Force rebuilds, it must navigate toward a force design that establishes the right balance between its independent and dependent kill chain capacity, shift toward longer-range forces for operations in the Indo-Pacific, and improve its survivability in the air and on the ground. Excessive reliance on dependent LRKCs would expand opportunities for the PLA to counter the U.S. C4ISR-T networks needed to support stand-off operations. An Air Force that remains overbalanced toward non-stealthy fighters and bombers will not be able to penetrate PLA defenses at the pace necessary to neutralize the targets that China's leaders value most highly. Creating a balanced force is just as important as growing the Air Force's capacity to conduct its core missions in highly contested environments. This is why the Air Force needs a force design that will define priorities for a balanced force and guide its acquisitions, technology investments, and operational concept development.

Rebuilding a balanced U.S. Air Force will not be possible without additional resources. Independent research by the Mitchell Institute indicates the Department of the Air Force requires a plus-up of at least $45 billion annually for at least a decade to rebuild a force that wins.[42] This is the cost of over 30 years of cutting air forces, trading warfighting capacity for marginal improvements in some capabilities, and other harmful practices that placed the Air Force in a death spiral. Without immediate action, the spiral toward an even smaller, less resilient Air Force will continue, as shown by the service's proposed FY 2027 budget.

Recommendations

The following recommendations to rebuild a balanced Air Force that has the capacity to win are based on insights from Mitchell Institute's wargames, workshops, and related studies over the past four years:

- **Break the tyranny of pulsing the Air Force's combat operations against China.** An undersized Air Force may have to resort to pulsing its strikes and other offensive operations during a campaign to defeat a PLA JILC.

This pulsing is driven by the need to project effective, survivable combat mass over long ranges with a greatly diminished force. Pulsing creates opportunities in time and space for the PLA to advance its offensive and regenerate its JILC forces. Increasing the frequency of the Air Force's pulses would reduce these opportunities, but that requires increasing the service's current combat sortie capacity by 100 percent or more. The Air Force should also augment its forces with CCA and other air-launched and ground-launched uninhabited aircraft that can operate from the first island chain and team with piloted aircraft to project effective mass *between* its pulses to maintain continuous pressure on the PLA. These aircraft must have smaller logistics footprints, the ability to periodically change their first island chain operating locations by executing the ACE concept, and other attributes that will reduce the risk from China's missile salvos.

- **Create a mix of Air Force organic and distributed kill chains that increase its combat resiliency.** excessive reliance on long-range kill chains for peer conflict would risk creating a more fragile USAF force design. Reducing requirements to rely on off-board airborne and space-based sensors, communication networks, and other capabilities needed to complete LRKCs would improve the Air Force's resiliency against China's counter-C4ISR-T attacks. Growing the Air Force's inventories of stealthy aircraft capable of penetrating high-density threat areas and striking targets with little or no support from offboard systems would help achieve this resilience. It could also reduce incentives for China to attack high-value U.S. C4ISR-T assets, including space-based systems, and increase the U.S. Space Command's options to conduct offensive operations in space to maintain space superiority.

- **Accelerate the F-47's fielding to increase the Air Force's lethality and survivability against the pacing threat**. The U.S. Congress and DoD/W should accelerate the F-47's development as much as is feasible and fund the acquisition of a minimum of 300 of these sixth-generation aircraft. The lack of long-range, penetrating air dominance aircraft is one of DoD/W's most significant shortfalls. And yet, a force of at least 300 F-47s would still be less than the number of stealthy F-22 fighters required by the Air Force nearly 25 years ago. Since then, China and Russia have fielded advanced IADS with the intent to outpace a U.S. military that has been unable to modernize its counterair forces. Continuing to undersize the nation's premier air dominance force will further erode deterrence and increase the risk of a U.S. military failure in a peer conflict.

- **Accelerate B-21 acquisition to restore deterrence in the mid-term.** The DoD/W and Congress should accelerate acquisition of the B-21 to create a robust long-range strike family of systems for peer conflict. The combination of B-21s and F-47s will enable the Air Force to strike any target—airborne, maritime, ground mobile, or hardened and deeply buried—anywhere in China. A future force of at least 200 B-21s would rebuild the Air Force's penetrating long-range strike capacity and help restore conventional and nuclear deterrence. No other combination of existing or planned combat aircraft in the free world can provide similar capacity to create these effects over long ranges in high-density threat areas.

- **Enable the Air Force's non-stealthy combat aircraft for peer conflict.** The U.S. Air Force has long relied on using its non-stealthy fighters and bombers to complete hundreds of kill chains per day during conflicts with lesser adversaries. These aircraft cannot operate in the high-density air threat environments

that will exist during a conflict with China or Russia at an acceptable level of risk. Moderately increasing the Air Force's long-range kill chain capacity would increase options to use its non-stealthy aircraft for strikes, counterair missions, and other operations from survivable stand-off ranges.

- **Counter air and missile threats to the Air Force's theater bases and forces.** China has the capacity to launch large salvos of guided missiles at U.S. bases and operating sites located along the Pacific's first and second island chains. The Air Force has developed an ACE operating concept to reduce the density of China's missile attacks, but ACE alone will not maintain a JFACC's ability to generate combat sorties at required rates. Moreover, although posturing the Air Force's aircraft at more distant operating locations would reduce the density of China's missile attacks, doing so would require the force to routinely operate over long ranges—a thousand or more miles. This employment method would reduce the service's sortie rates. Avoiding this dilemma will require the DoD/W to acquire air and missile defenses for its Pacific airbases to enable the Air Force to "generate combat power within dense threat areas while under constant attack" from a distributed ACE force posture.[43] Failing to do so would cede an asymmetric advantage to China. It also requires the capability and capacity to directly attack the PLA's offensive kill chains to reduce China's ability to launch debilitating attacks on allied air and sea bases in the region.

- **Develop a more resilient layered system of systems for contested area ISR.** The Department of the Air Force should continue to mature space-based assets to track airborne and ground moving targets as part of a multi-domain system of systems for contested area ISR. These assets, however, should be part of a layered system of systems that incorporates sensors operating in all domains, including penetrating ISR aircraft. This layered architecture will be key to a resilient force design. Excessive dependence on space-based *air moving target indication (AMTI*), space-based ground moving target indication (GMTI), and other space assets creates incentives for the PLA to degrade and destroy them, reducing the combat effectiveness of all U.S. forces in a conflict with China.

- **Develop a better understanding of the PLA's C4ISR-T vulnerabilities**. Countering the PLA's C4ISR-T networks will be key to offsetting its combat capacity advantages. The PLA cannot effectively attack targets that it cannot find, fix, or track with precision. Blinding the PLA will require kinetic and non-kinetic—including cyber and electronic warfare—attacks against key nodes and links in its C4ISR-T system of systems. The U.S. Air Force and Space Force should develop a better understanding of these links and nodes to inform its development of capabilities and concepts for counter-C4ISR-T operations.

- **Increase the Air Force's resiliency for protracted conflict**. The Air Force lacks the capacity to sustain high-intensity operations in a protracted conflict with China. The Air Force should increase its fighter, bomber, air mobility, and other aircraft inventories to increase its readiness for protracted conflict in the Pacific and a crisis that simultaneously threatens the U.S. homeland. The DoD/W and Congress should also continue to increase funding to rebuild the Air Force's munitions inventories, which remain undersized for a conflict with a peer adversary. These munitions should include next-generation survivable mid-range weapons that are designed to maximize targets per sortie for fifth-generation and beyond fighters and bombers.

- **Take full advantage of CCA force multiplying potential.** The Department of Defense/War and Congress should fully fund the rapid development and fielding of a substantial force of CCA over the next FYDP pending the results of their development and testing. Expendable and reuseable CCA variants should be capable of delivering air-to-air and air-to-ground munitions, conducting active and passive sensing, conducting electronic warfare, and executing other missions that will increase the Air Force's survivability and lethality. These CCA may be force multipliers that could help free some fifth-generation and beyond piloted aircraft for other priority missions. Moreover, CCA should not be considered "cheap fighters" that will replace some requirements for fifth-generation and beyond piloted aircraft. Attempting to design early increment CCA to perform as fighters could extend their development, delay their fielding, and increase their cost.

- **The Air Force should reaffirm that strategic attack remains a core force design requirement and prioritize rebuilding its capacity to strike China's centers of gravity.** Long-range airpower's unmatched ability to conduct strategic attacks must remain a leading requirement for the Air Force's force design and development priorities. The Air Force should also develop a better understanding of how it should prioritize strategic attacks against targets that will achieve the greatest effects to deny China's objectives, impose costs, and undermine the coherence of China's military and political system from the outset of a conflict.

- **Prioritize and shift resources to rebuild the Department of the Air Force for peer conflict in the Pacific.** A U.S. campaign to defeat a PLA JILC will predominately occur in the air, space, maritime, and cyberspace domains. It will not be another land war. The U.S. Congress and DoD/W should shift resources toward the Department of the Air Force and Department of the Navy by trading-off forces and capabilities—primarily from the U.S. Army—that will be less relevant in a conflict with China in the Western Pacific. These resources should include additional funding to allow the Air Force to defend its bases and operating locations in the Pacific's first and second island chains.

The U.S. Air Force is now too small to meet growing operational demand. Its need to transform to meet emerging threats is immediate, and its current resources will not allow it to do so. An Air Force that cannot achieve air superiority, conduct strategic attacks, and provide the needed combat mass over long ranges--which no other service can bring to the fight—threatens America's credibility as a global power. Congress and the administration are now at an inflection point: they can provide the resources needed to rebuild the Air Force's combat capacity and rebalance its capabilities, or they can continue to watch as the service's size and the hours its pilots fly to maintain their combat skills decline to new historic lows. Rebuilding the Air Force at a scale that outpaces PLA modernization is not a stretch challenge, since next-generation capabilities like the F-35A, F-15EX, F-47, B-21, CCA, and other combat systems are in production or will shortly enter production. But recent defense budgets have continued the trend that has caused the Air Force to retire its forces at a pace that new acquisitions cannot match. This is a prescription for further eroding the Air Force's capacity to perform its core functions. Allowing the Air Force to continue its decline is a choice that incurs serious risks to U.S. national security–but it must be reversed. ✪

Endnotes

1 The Air Force describes its force design as a document that "identifies the key attributes of the capabilities that will accomplish the USAF's enduring missions (defend the homeland, maintain strategic deterrence, and project power)." The force design also establishes a framework for the Air Force to "address key imbalances and create a more lethal and resilient force." U.S. Air Force, "Unclassified Force Design Overview," 2024.

2 U.S. Air Force, "Unclassified Force Design Overview."

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4 Jane Harman, Eric Edelman, et al., Commission on the National Defense Strategy (Santa Monica, CA: RAND Corporation, July 2024), p. v.

5 J. Michael Dahm, "China's Desert Storm Education," *Proceedings*, March 2021.

6 For more on these threats, see U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2024*, annual report to Congress (Arlington, VA: DOD, December 2024), p. 97. Xi Jinping has said, "resolving the Taiwan question to realize China's complete reunification is the shared aspiration of all Chinese people and is in the fundamental interests of the Chinese nation." Xi Jinping, "Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era," October 18, 2017, p. 50.

7 According to Dr. Ely Ratner, former Assistant Secretary of Defense for Indo-Pacific Security Affairs, "China seeks to seize Taiwan, control the South China Sea, weaken U.S. alliances, and ultimately dominate the region. If successful, the result would be a China-led order that relegates the United States to the rank of a diminished continental power: less prosperous, less secure, and unable to fully access or lead the world's most important markets and technologies." Statement to the U.S. Senate Foreign Relations Committee, "Standing Up in the Grey Zone: Recommendations for Congress," October 7, 2025.

8 For a more comprehensive description of this warfighting strategy, see J. Michael Dahm, Disconnected by Design: 5th- & 6th-Gen Aircraft in Disaggregated Collaborative Air Operations (Arlington, VA: The Mitchell Institute for Aerospace Studies, August 2025).

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12 John Venable with Joshua Baker, *Winning the Next War: Overcoming the U.S. Air Force's Capacity, Capability, and Readiness Crisis* (Arlington, VA: The Mitchell Institute for Aerospace Studies, September 2025), pp. 9–11.

13 Venable with Baker, *Winning the Next War*, pp. 9–11.

14 "2025 USAF & USSF Almanac: Equipment," *Air & Space Forces Magazine*, June 29, 2025.

15 Venable with Baker, *Winning the Next War*, p. 21.

16 Venable with Baker, *Winning the Next War*, p. 21.

17 Michael Marrow and Valerie Insinna. "Air Force needs hundreds more fighters, service says," *Breaking Defense*, October 9, 2025.

18 Air Force Global Strike Command boss Gen Thomas Bussiere shared insight on this demand: "In the last 18 months, I have seen more activity and more demand signals for bombers than I have seen probably in the last, at least, five to 10 years." John A. Tirpak, "No Slowdown in Demand for Air Force Bombers, 4-Star Says," *Air & Space Forces Magazine*, July 31, 2025.

19 This statement was made at a Mitchell Institute event on a non-attribution basis.

20 For instance, see Mark Gunzinger et al., *An Air Force for an Era of Great Power Competition* (Washington, DC: Center for Strategic and Budgetary Assessments, 2019); MITRE, *U.S. Air Force Aircraft Inventory Study Executive Summary* (McLean, VA: MITRE, 2019); David A. Deptula and Douglas A. Birkey, *Building the Future Bomber Force America Needs: The Bomber Re-Vector* (Arlington, VA: Mitchell Institute for Aerospace Studies, September 2018); and Michael R. Moeller, *U.S. Bomber Force: Sized to Sustain an Asymmetric Advantage for America* (Arlington, VA: Mitchell Institute for Aerospace Studies, 2015).

21 Admiral Charles A. Richard's testimony to the Senate Armed Services Committee in March 2022, as reported in David Vergun, "DOD Leaders Say Russia, China Provide Challenges to National Security," *DOD News*, March 8, 2022. According to the U.S. Strategic Command, "China has surpassed 600 deliverable nuclear warheads and is forecasted to have over 1,000 nuclear warheads by 2030, many of which will deploy in higher readiness levels." General Anthony J. Cotton, Commander United States Strategic Command, Statement Before the Subcommittee on Strategic Forces, Senate Armed Services Committee, March 26, 2025, p. 3.

22 General Gregory M. Guillot testified that, "Today, our competitors have the capability and capacity to threaten all of North America with a range of advanced nuclear, conventional, and non-kinetic systems." General Gregory M. Guillot, Commander United States Northern Command and North American Aerospace Defense Command, Statement to the House Armed Service Committee, April 1, 2025, p. 3.

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24 For a comprehensive net assessment of the U.S. Air Force and PLA Air Force's current forces, see Venable with Baker, *Winning the Next War*.

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26 "2025 USAF & USSF Almanac: Equipment," *Air & Space Forces Magazine*.

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29 Electronic attack capabilities are not the sole purview of China or Russia. In fact, electronic warfare can be an affordable and asymmetric means for non-peer combatants to counter or spoil U.S. capabilities, given the proliferation of software-defined radios, advanced algorithms, and apertures.

30 For more on ACE and airbase defense, see J. Michael Dahm, *Fighting the Air Base: Ensuring Decisive Combat Sortie Generation Under Enemy Fire* (Arlington, VA: The Mitchell Institute for Aerospace Studies, July 2024).

31 According to the Congressional Research Service (CRS), the Army's FY2025 budget request requested $744 million for "the production of LRHW Battery 3 Ground Support Equipment (GSE) and the basic load of eight All-Up Round + Canister (AUR+C) [missiles]." According to a January 2023 CBO study, U.S. Hypersonic Weapons and Alternatives, purchasing 300 Intermediate-Range Hypersonic Boost-Glide Missiles (similar to the LRHW) was estimated to cost $41 million per missile (in 2023 dollars). In recent CRS discussions with Army program officials, the Army stated that the "fly away cost" for the eight missiles requested in the Army's FY2025 budget request would exceed CBO's 2023 per missile cost estimate, but future missile costs could likely decrease as order quantities increased." CRS, "The U.S. Army's Long-Range Hypersonic Weapon (LRHW), Dark Eagle." June 12, 2025.

32 This report uses the term "dependent kill chains" to describe air-to-air, air-to-surface, and surface-to-surface kill chains that are dependent on supporting system of systems that include remote sensors, long-range communications networks, and fire control systems. "Independent" kill chains can be completed by combat aircraft capable of using their sensors and other on-board systems to find, fix, track, target, and attack aimpoints with little or no reliance on external systems if necessary.

33 This rate is based on China's capacity to load its forces on amphibious assault ships and RO/RO vessels, transit the Taiwan Strait, and then disembark its forces on Taiwan's shores. It will be extremely difficult to counter a JILC once the PLA lands enough forces to launch an assault inland.

34 U.S. Air Force, "Agile Combat Employment," Air Force Doctrine Note 1-21, August 23, 2022.

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36 See David A. Deptula and Christopher J. Bowie, *The Significance of Air Superiority: The Ukraine-Russia War* (Arlington, VA: The Mitchell Institute for Aerospace Studies, July 2024).

37 Instead of allocating more resources toward increasing its missile defense capacity, the Army is pursuing new weapons and launchers for long-range stand-off strikes, fixed-wing aircraft for ISR, and other systems that are redundant to capabilities provided by the U.S. Air Force.

38 See Mark F. Cancian, Matthew Cancian, and Eric Heginbotham, *The First Battle of the Next War: Wargaming a Chinese Invasion of Taiwan* (Washington, DC: Center for Strategic & International Studies, January 9, 2023), p. 87. The Congressional Select Committee on the CCP cited these wargames in a call for DOD to address its enduring air and missile defense shortfalls in the Pacific. "Letter from the Congressional Select Committee on the CCP to Secretary of the Air Force Frank Kendall and Secretary of the Navy Carlos Del Toro," May 8, 2024.

39 During testimony to the House Appropriations Committee on May 6, 2025, General B. Chance Saltzman emphasized the need for a layered air and space system of systems for BMC3 in contested operating environments: "Space offers a lot of advantages, particularly in a contested environment, but it isn't necessarily optimized for the full spectrum of operations that your military is going to be asked to do." He added, "No one system is going to be perfectly optimized to take care of the full spectrum of ops. And so that's where I think you need a mix of systems." Chris Gordon, "USAF's Planned E-7 Fleet on Trump's Chopping Block," *Air & Space Forces Magazine*, May 13, 2025.

40 See Mark A. Gunzinger, *Logistics While Under Attack: Key to a CCA Force Design* (Arlington, VA: The Mitchell Institute for Aerospace Studies, March 2025). In these tabletop exercises, teams forward-deployed uninhabited aircraft to complicate adversary targeting challenges. However, the dispersed posture and need to frequently change their operating locations to counter the PLA's ability to fix and target them imposed significant logistical challenges and increased the demand for responsive air mobility within the first island chain. Previous Mitchell Institute exercises identified the need to increase the Air Force's airlift and theater logistics, or even develop new types of autonomous mobility forces, to support a highly distributed CCA force posture in the Western Pacific. The Air Force will have difficulty meeting these requirements—which are inherent to all ACE operations—without a larger budget.

41 The U.S. Government Accountability Office's (GAO) assessment of Operation Desert Storm noted the operation's 43-day air offensive was, by some measures, "perhaps the most successful war fought by the United States in the 20th century" due to its effectiveness in achieving strategic objectives. *Operation Desert Storm: Evaluation of the Air Campaign* (Washington, DC: GAO, June 1995), p. 2.

42 Deptula and Gunzinger, *Air Force and Space Force Vectors for the Incoming Trump Defense Team*.

43 Harris, "Returning the Air Force to its expeditionary roots."

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