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Key Points

China designed its anti-access/area-denial (A2/AD) defenses to prevent the United States from intervening against a PLA assault on Taiwan. China also uses the depth of its landmass to posture its air, missile, and antisatellite forces in its defended interior. This combination is intended to create sanctuaries for the PLA to generate air and missile attacks that attrit U.S. forces and their capacity to project combat power in the Pacific.

Allowing the PLA to operate from sanctuaries would cede to China a combat mass advantage that the DoW cannot match. A campaign to defeat Chinese aggression must include strategic air attacks that deny sanctuaries to the PLA and erode its capacity to create high-density threat areas in the air, on the ground, and at sea over long ranges.

An Air Force sanctuary denial force should predominantly consist of advanced penetrating bombers and fifth-generation and beyond fighters supplemented by long-range stand-off attacks. The Air Force's stealthy bombers and fighter inventories have the survivability needed to penetrate high-density threat areas but lack enough sortie capacity for a conflict with China. Multiple analyses have recommended fielding a U.S. bomber force of at least 200 B-21s complemented by all remaining B-52s and sizing the Air Force's F-47 and F-35 inventories to meet operational needs instead of available budgets.

Rebuilding the Air Force's strategic capacity will require additional funding from the administration and Congress. The Air Force should conduct a cost-per-effect analysis to guide its development of a balanced mix of penetrating and stand-off strike forces. Wargaming should inform this development, but alone cannot determine the right force mix on a cost-per-effect basis.

Strategic Attack: Maintaining the Air Force's Capacity to Deny Enemy Sanctuaries

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Abstract

History has shown that allowing adversaries to operate from a sanctuary is a losing proposition. In a defense of Taiwan scenario, it would create a decisive combat mass asymmetry in favor of China. This is why preventing China's People's Liberation Army (PLA) from achieving a lodgment on the shores of Taiwan *will not, by itself, guarantee victory*. A war-winning strategy must also use long-range penetrating airpower to deny sanctuaries to the PLA and degrade its ability to launch air and missile salvos that could cripple U.S. operations in the Western Pacific.

Airpower's ability to bypass opposing ground forces to directly strike an enemy's sources of military power—its centers of gravity—was a key reason the United States Air Force became a separate service after World War II. Yet, decades of force cuts and deferred modernization have hollowed out the Air Force to the point where it cannot simultaneously deter nuclear attacks, defend the U.S. homeland, and defeat Chinese aggression at acceptable levels of risk—the Department of War's pacing challenge. These cuts have also eroded the Air Force's ability to conduct penetrating attacks against China's centers of gravity and deny operational sanctuaries to its forces.

Now is the time to rebuild the U.S. Air Force's long-range combat forces to defeat threats that are "the most serious and most challenging the nation has encountered since 1945."[1] The Air Force will soon field new, long-range stealthy bombers and fighters that can deny sanctuaries to PLA forces wherever they are located—if it can acquire enough of them. Multiple studies have recommended procuring at least 200 B-21s to meet operational demand for penetrating strikes. Stealthy F-47s and F-35As are also required at scale, but delaying or truncating their acquisition for budgetary reasons would create a future force that cannot take the fight to China—a less-capable force cannot achieve peace through strength or win should deterrence fail. This is a strategic choice for the nation, not just the Air Force.

Denying a Fait Accompli is Not Enough

At the end of the Cold War, the United States fielded a combat aircraft inventory that allowed the Air Force to project power deep behind enemy lines and deny operational sanctuary to an adversary. Today, the United States Air Force is losing its ability to prevent the PLA from generating long-range air and missile attacks from operational sanctuaries within China. This is eroding our nation's ability to deter Chinese aggression and win in the Pacific should deterrence fail.

The U.S. Department of War (DoW) has adopted a warfighting strategy that centers on denying the PLA from achieving a fait accompli seizure of Taiwan. This is insufficient on its own to deter Chinese aggression. A balanced warfighting strategy should include operations that *erode* and then *collapse* China's capacity to create high-density threat areas in the air, on the ground, and at sea over extended ranges from its mainland. Allowing the PLA to generate attacks against U.S. forces and bases throughout the Pacific without challenge would encourage its aggression and create a decisive advantage for China in war. A strong offense is the best defense, and a war-winning U.S. campaign must include strategic attacks against China's military leadership, command and control, and long-range combat forces that now threaten the U.S. military's ability to operate effectively in the Western Pacific.

The Air Force is the only U.S. or allied military service capable of conducting long-range conventional strikes at the scale needed to deny operational sanctuaries to the PLA. This unique advantage is at risk. The Air Force's stealthy bombers and fighters are the only weapon systems with the survivability needed to penetrate highly contested air environments, but their inventories are too small and lack the sortie capacity to collapse the PLA's long-range strike operations. Insufficient resources and the DoD's force planning priorities since the Cold War compelled the Air Force to divest two-thirds of its bombers and more than half its fighters. The DoD also prevented the Air Force from acquiring enough stealthy aircraft—namely B-2 bombers and F-22 air dominance fighters—to outpace China's development of a highly capable integrated air defense system (IADS).[2]

As the DoD divested its premier long-range combat air forces, China fielded advanced air defenses and other weapon systems to prevent the United States from intervening against the PLA. According to ADM Samuel J. Paparo, Commander of U.S. Indo-Pacific Command, "China's anti-access/area-denial capabilities are designed to prevent U.S. forces from operating within the first and second island chains in the Western Pacific."[3] These capabilities reinforce China's mainland sanctuary status and enable PLA forces to generate strikes from China's interior nearly unimpeded. A2/AD threats, combined with the Air Force's diminished penetrating strike capacity, may cause the service to rely on using the preponderance of its combat aircraft—fourth-generation and earlier fighters and bombers—to launch attacks against the PLA from stand-off distances.[4] These non-stealthy aircraft cannot penetrate contested areas created by advanced IADS, so they must launch their weapons from roughly 500 or more nautical miles (NM) from China's coastline.[5] The Navy, Marine Corps, and Army's strike platforms must also operate from stand-off distances from the Pacific's first island chain, assuming host nations grant access for their forces.

Standing off from target areas can greatly reduce the density, frequency, and effectiveness of U.S. strikes. The long-range kill chains (LRKC) needed to conduct stand-off strikes can also increase the cost to achieve desired effects on targets—greater cost per effect—since advanced long-range missiles are typically more expensive than the shorter-range munitions that can be delivered by stealthy aircraft on targets in contested areas.[6] Stand-off strikes also rely on complex, external

networks of multi-domain capabilities that include sensors, datalinks, and other systems to find, fix, or track and attack targets over long ranges.[7] These dependencies create opportunities for China to kinetically and non-kinetically attack critical links in U.S. long-range kill chains to prevent successful strikes. Assembling a system-of-systems to reduce the fragility and vulnerabilities of long-range kill chains at the scale necessary for a peer conflict would be prohibitively costly. A more cost-effective, resilient force should strike the right **balance** between stand-off aircraft that depend on long-range kill chains and penetrating bombers and fighters that can use their on-board systems to independently complete kill chains with less or even no reliance on external networks.

Fighting from the outside in also cedes the advantage. Excessive dependence on stand-off attacks cedes advantages in time, space, and operational initiative to an adversary. U.S. stand-off forces are constrained by the ranges of the weapons they launch and by how far out from China they must operate to avoid A2/AD threats. A U.S. force design that is overly reliant on stand-off strikes will not be capable of directly attacking critical sources of the PLA's long-range combat power. This is because U.S. conventional stand-off munitions lack sufficient range to reach many high-value targets and military assets that China has purposefully located hundreds of miles in its interior. Fighting on China's distant periphery would allow the PLA the freedom to generate air and missile attacks from secure locations inside China that could fatally stanch U.S. operations to defeat Chinese aggression. Moreover, stand-off weapons cannot deliver enough kinetic punch to defeat very hardened and deeply buried targets. This is why the DoD chose to use stealthy B-2 bombers in June 2025 to deliver the world's most capable penetrating weapons against deeply buried and fortified nuclear installations in Iran.

Collapsing the PLA's Ability to Strike at Range

Rebuilding the U.S. Air Force's capability and capacity to deny operational sanctuaries and collapse the PLA's ability to strike at range will be critical to defeating Chinese aggression. The loss of operational sanctuaries can decisively impact an adversary's ability to sustain operations essential to the success of its campaign. This has long been the promise and primary purpose of military aviation. During World War I, nascent combat aircraft provided new options to directly attack an opponent's sources of power without first breaking through its front-line ground forces. As aircraft technologies matured, using airpower to deny sanctuaries and achieve other strategic effects essential to victory was validated and became part of the U.S. military's warfighting doctrine.[8]

Rebuild the Air Force's ability to fight from the inside out. The return of peer conflict increases the importance of re-emphasizing that denying an enemy sanctuary is a critical aspect of military strategy, doctrine, and operations. Denying sanctuary is fundamental to defeating a Chinese joint island landing campaign (JILC) against Taiwan. While preventing the PLA from achieving an irreversible force lodgment on the shores of Taiwan will be a key objective in a defense of Taiwan scenario, victory will also require denying sanctuaries the PLA can use to launch attacks against U.S. forces. Permitting the PLA to operate from a sanctuary would give it an edge in projecting lethal combat mass that the DoW cannot match or overcome.

What *has* changed is that the U.S. Air Force has lost about two-thirds of its long-range strike forces since the Cold War, which means that it may not be able to deny operational sanctuaries to the PLA. The DoW and Congress must rebuild the Air Force's capacity to fight from the inside out to collapse the PLA's operational tempo and

ability to generate long-range attacks. This is an immediate imperative, since the Air Force is now acquiring fifth-generation and beyond combat aircraft at a pace suppressed by insufficient resources. Budget increases of at least $40 billion per year would enable the Air Force to double its B-21 procurement rate and increase F-35A acquisition to at least 72 aircraft per year.[9] It would also give the Air Force enough resources to acquire uninhabited collaborative combat aircraft (CCA) in the near-term and long-range sixth-generation F-47 fighters in the mid-term as keystones of its Next-Generation Air Dominance (NGAD) family of systems. This combination will help restore deterrence and create a more balanced force that offsets China's growing combat mass advantage in the Pacific.

Understanding "fighting from the inside out"

This report uses the phrase "fighting from the inside out" to describe **how and where U.S. forces create effects in the battlespace**, not where they are based. Inside out air warfare directly attacks an adversary's military leadership, C2 nodes, logistics, and other centers of gravity that are critical to its campaign. The U.S. Air Force is the only service capable of conducting strategic attacks over long ranges to achieve these effects at scale. Navy, Marine Corps, and Army forces must fight from the outside in, since they lack the range and survivability to reach targets that are located deep in contested areas. Outside in warfare also prioritizes attrition-based engagements that target an opponent's fielded forces instead of its centers of gravity.

Overview

This report assesses the need to rebuild the Air Force's capacity to conduct long-range strategic attacks that deny operational sanctuaries to China's PLA. The first section provides historical examples of conflicts where the United States permitted or denied operational sanctuaries to its adversaries and the resulting impacts on U.S. operations. The report then describes how the PLA is preparing to launch missile attacks at a scale that threatens to push U.S. forces out of the Western Pacific. Operating over very long ranges from the Taiwan Strait would greatly degrade the U.S. military's capacity to project lethal mass against the PLA and cede advantages in time and space to China. A third section addresses this report's key point, which is that rebuilding the Air Force's ability to conduct inside out warfare at scale will be critical to defeating a Chinese JILC. This is a significant departure from warfighting approaches that would limit the U.S. military to interdicting PLA forces directly engaged in an assault on Taiwan. A failure to deny operational sanctuaries to the PLA risks engaging in a war of attrition that cannot be sustained by a diminished U.S. military. A final section addresses other inside out warfare considerations, such as what would constitute a more balanced mix of Air Force stand-off and penetrating long-range combat aircraft and weapons.

Permitting the PLA to operate from sanctuary would give it an edge in projecting lethal combat mass that the DoW cannot match or overcome.

Background: Denying Operational Sanctuaries is Critical to Success in War

History has repeatedly demonstrated the imperative to deny operational sanctuaries that allow adversaries to husband their resources, produce war materiel, train replacement warfighters, secure their military leadership, and protect lines of communication to their fielded forces. Said another way, freedom from attack is crucial to preserving a military's ability to fight, which is why denying sanctuaries to adversaries is essential to a successful U.S. warfighting strategy. In fact, forces that do not pursue a strategy to deny sanctuary are often reduced to waging campaigns of attrition, a form of warfare that

is bloody, costly, and often self-defeating. The Russia-Ukraine conflict is only the most recent evidence of this. According to the Institute for the Study of War, restrictions the U.S. Government placed on weapons it provided to Ukraine essentially created "a vast sanctuary … which Russia exploits to shield its combat forces, command and control, logistics, and rear area support services that the Russian military uses to conduct its military operations in Ukraine."[10] More importantly, the ability to deny sanctuary is a unique advantage airpower can deliver—but only if political and military leadership see fit to exploit this ability.

The introduction of combat aviation in World War I was the first time that technology unlocked the potential for militaries to bypass opposing fielded forces and strike key targets deep in an enemy's territory. Prior to that, mobile forces like horse cavalry sought to outmaneuver their adversary's flank and conduct surveillance and harassment operations behind their lines to help tip the momentum of a battle. These operations were typically limited in nature and could not drive a conflict to a culmination point. Long-range aviation eventually transformed war by empowering militaries to conduct *strategic attacks* that deprive operational sanctuaries and collapse an enemy's ability to sustain effective combat operations.

World War I air operations hinted at the value of these strategic attacks, but the aircraft, weapons, and doctrine of the time were too immature to realize airpower's full potential. The airmen who led the U.S. Army Air Forces (USAAF) during World War II were heavily influenced by their Great War experiences and created doctrine and tactics for high altitude, daylight precision bombing operations that proved effective against Germany and Japan. Leaders at the Air Corps Tactical School (ACTS) during the interwar period advocated for acquiring new bomber aircraft designed with longer ranges, larger weapon payloads, and bomb sight technologies to conduct concentrated attacks from high altitude against targets located deep in an adversary's territory. Since that time, long ranges, large payloads, precision weapons delivery, and survivability have remained foundational requirements for combat aircraft designed to deny sanctuaries.

These same leaders also proposed building a bomber force that was large enough to maintain constant pressure against an enemy, preventing its forces from reconstituting, moving, or distributing its core warfighting activities to reduce their vulnerability to air attacks. This belief became entrenched in U.S. airpower doctrine: U.S. air forces must have *enough* long-range aircraft and munitions to deny sanctuaries with sufficient tempo and concentration over time. At the same time, U.S. leadership must be *willing* to employ airpower at the right scale to deny sanctuaries and create other war-winning effects. Failing to do so can result in a costly, bloody, and drawn-out military slugfests that culminate in frozen conflicts and devastating losses. History has proven more than once that the most capable, right-sized air forces can fail in war if national policies restrict them from realizing their full potential.

World War II's Combined Bombing Offensive Eroded Germany's Capacity to Fight

Long-range bombers like the B-17 Flying Fortress and the B-24 Liberator were essential to denying sanctuaries to Germany's war industries and forces during World War II.[11] The ranges, payloads, performance, and survivability of these two aircraft were the backbone of the Allied Combined Bombing Offensive (CBO) that wore down and eventually collapsed Germany's capacity to sustain effective combat operations.

The United States initially lacked enough bombers to achieve this outcome. When it entered the war, the USAAF had only 155 B-17s and no B-24s. The first two years of USAAF strikes denied German

forces a geographical sanctuary, but its small inventory of bomber aircraft prevented it from denying Germany a temporal sanctuary—the time needed for Germany to recoup its losses and restore its ability to continue to fight. The USAAF's 8th Air Force simply did not have enough bombers to sustain a high operational tempo and create decisive combat mass. This also gave Germany time to adapt by improving its air defenses, distributing its fighter aircraft production, and implementing other countermeasures against Allied air attacks.[12]

It was not until 1943 that U.S. industry achieved a heavy bomber production rate that could backfill the USAAF's combat losses and grow its forces to the size needed to collapse Germany's war machine.[13] By late 1943, the strategic bombing theories developed during the interwar period became reality as the USAAF destroyed key capital resources that hastened the German military's decline. In the final two years of conflict, Germany was increasingly unable to match Allied combat power in the air, at sea, and on land. In the words of noted military historian Phillips O'Brien, Allied air and sea power "put unbearable pressure on Germany and Japan's entire war-fighting machine … and allowed the Allies to destroy over half of the Axis's equipment before it had even reached the traditional battlefield."[14]

Long-range Airpower Accelerated Japan's Collapse

In the Pacific, U.S. long-range airpower played a key role in denying sanctuaries to Japan. Early in the war, the vast distances of the Pacific region combined with a powerful Imperial Japanese Navy protected Japan's home islands from Allied attacks to its east. Japan's occupation of Chinese and other Southeast Asian territories created a strategic buffer to its west. However, the U.S. long-range strategic bombing campaign against Japan stressed its homeland defenses beyond their capacity and eventually forced Japan's government to accept an unconditional surrender.

The Doolittle Raid caused Japan to change its warfighting strategy. Although the 1942 Doolittle Raid was an ambitious and risky plan that required launching B-25 bombers off the U.S.S. Hornet aircraft carrier to attack targets in Japan, it proved to be a key turning point in the Pacific War. The Japanese Imperial Navy's carrier airwings dominated the Western Pacific following its attacks on Pearl Harbor in December 1941, effectively blocking U.S. forces from advancing against Japan. In early 1942, the United States lacked aircraft that could reach Japan's home islands from land-based airfields. This inspired a U.S. Navy officer to propose using an aircraft carrier to ferry USAAF medium bombers to a point in the Western Pacific where they could reach Japan and then land in China.

On the morning of 18 April 1942, the U.S.S. Hornet launched sixteen B-25s led by Lt Col Jimmy Doolittle against targets located around several Japanese cities. Despite causing minimal damage, the Doolittle Raid shocked Japan and demonstrated that its homeland was no longer a sanctuary from attack. The raid caused Japan's high command to withhold four fighter groups for home island defense, which stretched its other forces across Japan's occupied territories in the Western Pacific to maintain its defense-in-depth. Japan's war planners also accelerated their timetable for attacking Midway Island, a U.S. territory. Japan lost four carriers and most of its aircraft during the Battle of Midway, crippling its navy and clearing the way for the U.S. island-hopping campaign that culminated in Japan's defeat.[15] Because of the Doolittle raid, Japan's military leadership reacted in ways that created advantages for the United States and forced Japan to make strategic errors that it could not recover from.

Long-range bomber strikes were key to Japan's capitulation. Despite its outsized strategic impact on the war in the Pacific, the Doolittle Raid was not an operation that could be immediately normalized by the USAAF. To routinely launch attacks against Japan's centers of gravity, including its war materiel production and training facilities, the United States required a combination of longer-range aircraft and Western Pacific airbases from which they could operate. Both were realized with the advent of operational B-29 heavy bombers in 1944 and the U.S. seizure of Tinian and the Mariana Islands.[16] These new aircraft could carry more tonnage and fly further than either the B-17 or B-24. USAAF aircrews finally had the right aircraft and airbases that allowed them to bypass Japan's extended defenses and deliver substantial ordnance directly on targets in Japan.

Sustained B-29 bombing raids permanently denied sanctuary to Japan's war machine.[17] By 1945, Japan still possessed armies deployed across the Pacific and in Korea, Manchuria, and elsewhere in China, but it could not keep them fully supplied because of the USAAF's B-29 raids. Japan's airframe production was cut to 40 percent of its 1944 peak, its aircraft engine and shipbuilding production were reduced by 75 percent, and Japan's oil refining capacity declined to less than 15 percent of its 1943 output.[18] Post-war interviews and surveys of the damage created by the USAAF's conventional bombing campaign provided conclusive evidence that it would have resulted in Japan's eventual surrender.[19]

China Exploited Sanctuaries Created by U.S. Warfighting Constraints During the Korean Conflict

President Truman's desire to limit the Korean Conflict resulted in restrictions on U.S. military operations that effectively allowed China to support North Korea's forces nearly unhindered.[20] Prohibitions against UN airstrikes and even overflights of Chinese territory north of the Yalu River created a sanctuary for China's People's Volunteer Army (now the PLA) to regroup and eventually launch a successful counterattack that nearly drove UN forces off the Korean Peninsula. General Nathan Twining, then-Air Force Vice Chief of Staff, noted that "current policy precludes the UN air striking at the sources of the enemy's strength beyond the Manchurian border. [With] the UN air effort being limited to the confines of Korea, the full effect of air striking power cannot be achieved."[21]

These policy restrictions are a key reason U.S. operations in the Korean Conflict devolved into a force-on-force interdiction campaign that slowly attritted the enemy's fielded forces. U.S. B-29, B-26, and B-25 bombers struck railroads, bridges, airfields, and other targets in North Korea, but with China's assistance, North Korea could quickly repair damaged infrastructure or reroute the flow of critical logistics and supplies from Manchuria to its forces.[22] Moreover, U.S. fighters were restricted from pursuing airborne Chinese or Soviet MiG fighters north of the Yalu River or attacking their air bases in Manchuria. This allowed Chinese and Soviet crewed MiGs to present an immense air superiority challenge to Allied forces throughout hostilities.[23] By the time the Korean Armistice Agreement paused fighting in July 1953, the conflict had reached an exhausted stalemate. Without the ability to deny sanctuary, neither side had been able to establish a clear advantage over its opponent. Since 1953, the Democratic People's Republic of Korea and the Republic of Korea have been locked in a frozen conflict, with the border between the two essentially unchanged.

The Vietnam Conflict: U.S. Policies Created Sanctuaries for North Vietnamese Forces & Placed U.S. Forces at Risk

The desire to limit hostilities during the Vietnam Conflict resulted in policy limitations that, again, prevented U.S. airpower from

denying sanctuaries to adversary forces. By granting sanctuaries in time and space, the United States effectively ceded the operational advantage to North Vietnam and state sponsors that provided North Vietnam with military and economic assistance. This led to unnecessary U.S. and allied combat losses—and eventually a strategic failure that resulted in the spread of Communism elsewhere in Southeast Asia. It was not until President Richard Nixon lost patience with his predecessor's graduated approach to air warfare in Vietnam that he approved major bombing operations—Operation Linebacker and Linebacker II—which compelled North Vietnam to seek a negotiated end to the conflict.

"Graduated Pressure" from the Air: Operation Rolling Thunder, March 1965–November 1968. U.S. political and military leadership designed the Operation Rolling Thunder air campaign to exert selective and graduated pressure on Hanoi to cause it to engage in negotiations to end its campaign to overthrow the government of South Vietnam. Rather than compelling North Vietnam and its sponsor states to halt their aggression, Rolling Thunder achieved the opposite effect. Limitations placed on the use of U.S. airpower provided the North Vietnamese forces with the sanctuary they needed to regroup and recover from attacks and receive the resources from China, Russia, and other sponsors they needed to sustain their campaign.

The Johnson administration was unwilling to use airpower to target centers of gravity like railyards, ports, air bases, and other core military targets located in North Vietnam because they believed these strikes would be unpopular at home and potentially cause North Vietnam's state sponsors to escalate the conflict. The administration even placed significant restrictions on countering North Vietnamese air defenses, such as SA-2 surface-to-air missiles. These constraints reduced U.S. airpower to conducting an ineffectual interdiction campaign and left U.S. and South Vietnamese forces vulnerable to attacks.[24] North Vietnam took advantage of the time provided by this "carrot-and-stick" approach to build up its SAM, MiG, and anti-aircraft artillery forces and refine its counterair operations to attrit American pilots.[25] By the end of 1971, 2,987 U.S. aircraft had been lost during operations in Vietnam, 2,984 U.S. pilots had been killed, and 373 pilots became prisoners of war.[26]

The gloves finally came off: Operation Linebacker, May–October 1972. By the spring of 1972, President Nixon lost patience with stalled peace negotiations and acted to end the fighting in Vietnam. The President decided to expand the rules of engagement for U.S. air operations in Vietnam, which led to the Operation Linebacker bombing campaign. This marked the first time in the conflict that U.S. air forces were permitted to launch major attacks against previously off-limits military targets in North Vietnam, including major seaports, military airfields, and surface-to-air missile sites.

Operation Linebacker significantly degraded North Vietnam's air defenses and isolated its forces from their sources of supply, reducing their offensive capacity and eventually halting North Vietnam's offensive against its southern neighbor.[27] In August 1972, North Vietnam's stalled offensive and the threat of further damage from U.S. airstrikes convinced the Communist regime to re-engage in peace talks in Paris. In October, Henry Kissinger declared that "peace was at hand." President Nixon ended all bombing above the 20th parallel in North Vietnam and effectively reinstated a sanctuary for its government and military.[28] This reprieve proved ineffective as both North and South Vietnam rejected a proposed peace accord. Nixon resumed limited bombing operations in November 1972, but by then, North Vietnam's resolve had hardened.[29]

Peace through strength: Operation Linebacker II, December 1972. Unlike Rolling Thunder and Linebacker, Linebacker II was conceived from the outset as a massive, decisive use of force that would cripple North Vietnam's ability to continue its offensive operations. Linebacker II was the largest U.S. bombing campaign since the Second World War—200 B-52 bombers, half of the Strategic Air Command's (SAC) B-52 fleet, flew 729 sorties and dropped over 15,000 tons of ordnance against key targets.[30] The Linebacker II "Christmas bombing campaign" effectively denied sanctuary to North Vietnam and compelled its leadership to return to the negotiating table in only 11 days.[31] The threat of the resumption of massive air attacks finally convinced North Vietnam to sign the Paris Peace Accords with the United States and the Republic of Vietnam on January 27, 1973.

Operation Desert Storm Unleashed Airpower to Deny Sanctuary to Iraqi Forces

The Operation Desert Storm air campaign was an intensive effort designed to impose strategic paralysis on the Iraqi regime. This could only be achieved by aggressively denying operational sanctuaries to Iraqi forces occupying Kuwait and defending Iraq.[32] The combination of advanced airpower technologies and a strategy designed to collapse the Iraqi army's ability to wage war resulted in one of the most stunning military successes in history. Determined to avoid repeating the misuse of airpower during most of the Vietnam Conflict, President George H.W. Bush allowed U.S. and allied airmen to force Iraq to its culminating point.[33]

The Desert Storm air campaign's stunning success was made possible not only by new technologies such as the F-117 stealth fighter and laser-guided precision munitions, but by an effects-based approach to operations that allowed simultaneous attacks across multiple key centers of gravity.[34] These air operations denied sanctuaries to Iraq's military, which, at the time, was a near-peer threat with battle-hardened forces that operated a sophisticated IADS.[35] U.S air forces could penetrate the "super-MEZ" (missile engagement zone), an extremely dense threat area, to prosecute Iraq's command and control bunkers, operations centers, power generation facilities, radar sites, and other targets to blind and paralyze Iraq's military. No area in Iraq was off-limits, and the overwhelming pace and volume of airstrikes so utterly collapsed the Iraqi military that the U.S. Army was able to liberate Kuwait and drive deep into Iraq in a mere 100 hours while sustaining fewer than 150 personnel killed-in-action.

The lesson from these historical examples is clear: fighting a war of interdiction and attrition can unnecessarily draw out a conflict and lead to suboptimal outcomes. Denying sanctuary to the adversary is one of the most powerful ways to rapidly prevail in a conflict—and only airpower can conduct strategic attacks at the scale, tempo, and concentration required to collapse an adversary's ability to sustain combat operations. The ongoing conflict in Europe between Ukraine and Russia is further evidence of how the inability to deny sanctuaries leads to strategic stalemates. An air force must be resourced with the right capabilities, aircraft, munitions, and numbers to penetrate adversary air defenses, execute its mission successfully, and return to fly again. To do this—to fight from the inside out—the Trump administration and Congress must commit to rebuilding the U.S. Air Force's atrophied long-range, penetrating combat forces.[36]

The Air Force's High-Risk Bomber Force

Developing an understanding of the Air Force's current long-range strike force, how it developed and evolved over the last 30 years, and its current lack of capacity to perform its core missions is an important step toward creating a future force capable of denying sanctuaries to China's PLA.

The Air Force Developed a Penetrating Bomber Force with Intercontinental Range

The Air Force became a separate, independent service in 1947. The service's long-sought liberation from the U.S. Army was rooted in the success of its strategic bombing campaigns and other air operations during World War II. Over the next four decades, the Air Force sized and shaped its bomber force to deter nuclear threats and conduct strategic attacks against the fielded forces and other centers of gravity of America's adversaries.

The Air Force's bomber inventory averaged between 750 and 850 aircraft from the early 1960s to the early 1990s, with a high of 1,800 bombers during the 1962 Cuban Missile Crisis and a low of slightly more than 400 aircraft in the final years of the Cold War. This force formed the core of the U.S. nuclear deterrent until it was joined by ICBMs capable of delivering nuclear warheads.[37] The bomber force also provided the means to conduct high-capacity conventional strikes over intercontinental ranges without the need to first posture U.S. forces on the ground or at sea within harm's way.

Continuous Modernization Outpaced Cold War Threats

The Air Force continuously modernized its bomber force throughout the Cold War to perform its core nuclear and conventional strike missions to maintain deterrence and its ability to deny sanctuaries to adversaries in increasingly contested environments. In the 1950s, the Air Force fielded the ten-engine B-36 bomber and then all-jet B-47s, B-58s, and B-52s to conduct long-range penetrating strikes. The B-36 gave the Air Force true intercontinental range, and the turbojet-powered, swept-wing B-47 and its

Figure 1. B-47s in formation. B-47s were designed with swept wings and turbojet engines to ensure they could match the inflight speeds of jet-powered fighter interceptors.

Credit: NRO photo.

Figure 2. B-52 launching an AGM-86 ALCM. Designed for an operational life of ten years, ALCMs remain the Air Force's only nuclear-capable cruise missile over 40 years since joining the inventory. The stealthy Long-Range Standoff Missile will replace the ALCM.

Credit: NARA/DVIDS

successors were designed to fly at high altitudes and speeds to avoid Soviet fighter interceptors. Later in the decade, the Air Force began training its B-52 and B-58 crews to penetrate threat environments at low altitudes, at times just hundreds of feet above the ground, to avoid attacks by increasingly sophisticated Soviet fighters and SAMs that could intercept aircraft at high altitudes. The Air Force also developed bomber-launched cruise missiles such as the jet-fueled AGM-28 Hound Dog and later the AGM-86 Air-Launched Cruise Missile (ALCM) to conduct long-range nuclear strikes against some targets.

In 1960, the B-58 Hustler, the world's first bomber capable of Mach 2 flight, joined the Air Force's inventory. The service also initiated a program in the 1960s to develop a new swept-wing bomber to replace its B-58 and B-52s. The B-1B, which is still operational, was designed to combine the speed of the B-58 with the long-range and high-altitude flight capabilities of the B-52.

The Air Force developed the B-2, the world's first stealthy bomber, in its next iteration of its modernization cycle to outpace emerging air defense threats and maintain the service's ability to conduct penetrating strikes. B-2s have all-aspect stealth, radar-absorbing materials, and a shape designed to obscure heat produced by its engines to avoid detection by adversary imaging infrared (IIR) sensors.[38] Advances in computing power and other technologies that power B-2 mission systems allow its pilots to detect threats and map routes to avoid them while in flight. The Air Force planned to acquire a total of 132 B-2s, a requirement that was never met due to changes in U.S. defense priorities after the fall of the Soviet Union.

1990–2020s: Downsizing the Air Force Replaced Continuous Modernization

In 1990, the Air Force operated a total force of slightly more than 400 bombers for conventional and nuclear strike missions. This inventory declined precipitously beginning in the early 1990s, as DoD shed many of its combat aircraft to reduce defense expenditures and achieve a so-called post-Cold War peace dividend. In 1992, President George H.W. Bush directed DoD to cap B-2 acquisition at 20 aircraft, breaking the cycle of continuously

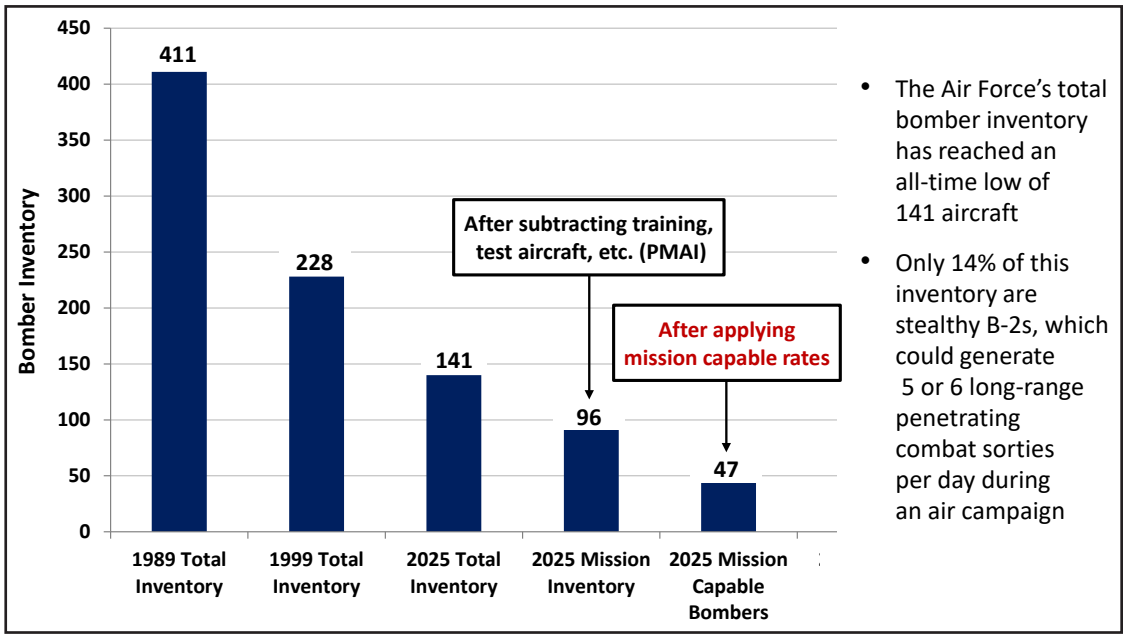

Figure 3. A greatly diminished bomber force. The Air Force's total inventory of bomber aircraft was downsized by nearly two-thirds since the end of the Cold War.

Credit: Mitchell Institute.

modernizing the U.S. bomber force.[39] In 1997, Secretary of Defense William Cohen reaffirmed this decision, asserting that DoD did not require more B-2s to fight Operation Desert Storm-like regional conflicts against lesser militaries. Secretary Cohen made this decision despite a comprehensive joint analysis concluding that "B-2s deployed quickly to a conflict could improve our ability to halt an adversary's advance during the opening days of a major theater war," and that B-2s could employ "less expensive munitions in more missions than existing aircraft."[40]

The Air Force retired additional B-52s and B-1Bs over the next 30 years, in part to reallocate resources to sustain its remaining bombers. More recently, the service divested 17 B-1Bs, primarily because it lacked sufficient budget to maintain their combat readiness. That is the equivalent of about 17 aircraft carriers' worth of power-projection capability, considering actual weapon deliveries.[41]

The size of the U.S. bomber force has now reached an all-time low—76 B-52Hs, 45 B-1Bs, and 19 B-2s (two B-2s were lost in peacetime accidents). This is the inevitable result of decades of divesting forces because of budget pressures. After subtracting test, training, and backup attrition inventory aircraft and accounting for their readiness rates, fewer than 50 mission-capable bombers may be available at any one time to deter nuclear attacks at home and deploy forward in a crisis (see Figure 3).

In practical terms, this means as few as 15 bombers could be engaging targets in a forward theater while other bombers are en route to their targets, regenerating at bases for their next sorties, or being withheld in the United States to deter nuclear attacks, as in the case of some nuclear-capable B-52s and B-2s. This falls far short of the sortie capacity combatant commanders would need to defeat a Chinese JILC against Taiwan or counter a Russian assault on one or more NATO allies. A conservative estimate is that the Air Force may need to attack 100,000 or more aimpoints over long ranges in a conflict with China, which would require two or three times the number of sorties per day than the service's current bomber force can generate. Importantly, this diminished

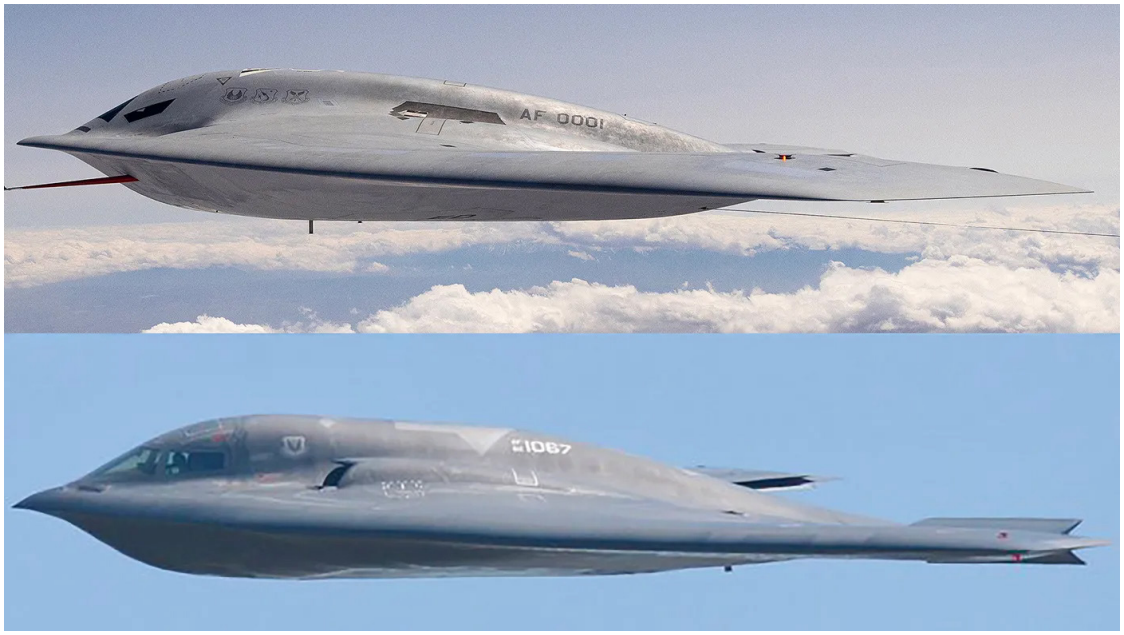

Figure 4. Inflight profiles of a B-21 (top) and B-2 (bottom). Both the B-2 and B-21 are flying wing designs that lack vertical tails and other structures that reflect radar energy that could be detected by air defense sensors.

Credit: U.S. Air Force photos.

inventory cannot absorb significant combat attrition without greatly reducing the DoW's long-range strike capacity or even compensating for bombers taken offline in peacetime for depot-level maintenance and upgrades.

The Air Force Will Slowly Grow Its Bomber Inventory Over the Next 15–20 Years

Air Force leaders have said at least 225 bombers are needed to meet growing demand for long-range strikes. This future force will consist of two bomber models—the next-generation stealthy B-21 Raider and non-stealthy B-52s—after retiring its remaining B-1Bs.[42]

The B-21's low-observable flying wing shape, exterior coatings that absorb radar energy, and other advanced technologies give it the all-aspect, broadband stealth it will need to penetrate advanced IADS for decades to come. Like the B-2, the B-21 is equipped with systems that can fuse information from multiple on-board and off-board sources and smart mission planning tools that will help its pilots to avoid high-risk threats.

The B-21's survivability will be further enhanced when they operate with sixth-generation F-47 fighters and collaborative combat aircraft (CCA) in ways that create a far more complex challenge for an adversary. Instead of concentrating on finding and tracking B-21s, adversaries will need to characterize inbound strike forces that could include multiple types of crewed and uninhabited aircraft and other systems capable of disrupting and destroying their IADS components. This combination can greatly complicate an adversary's ability to accurately characterize threats and cause it to expend defensive assets against uninhabited decoys and other lower-value capabilities instead of piloted aircraft.

The problem with buying B-21s "to budget." Buying to budget means the Air Force is acquiring its new bomber at a pace that is determined more by its available resources than operational needs. Whereas penetrating strike capacity may be the most needed capability to deter an increasingly aggressive China over the next decade, a budget-suppressed rate would

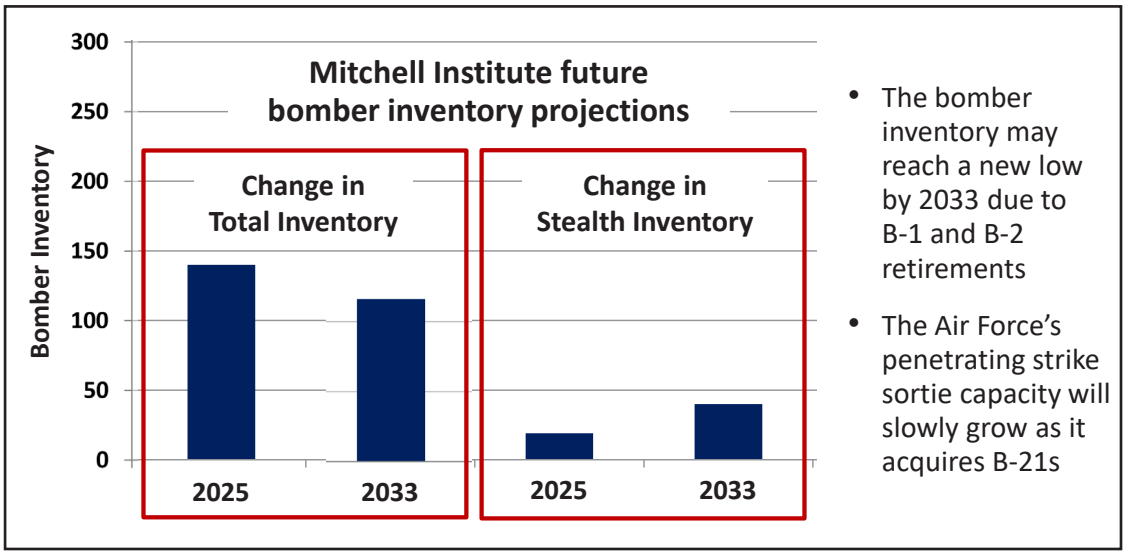

Figure 5. Planned B-1 and B-2 retirements combined with budget-constrained B-21 acquisition rates could further diminish the bomber inventory before it begins to grow. Based on a Mitchell Institute projection, the Air Force's bomber inventory may not surpass its current size until the early 2030s.

Credit: Mitchell Institute.

delay the modernization and growth of the U.S. bomber force. This problem cannot be solved with temporary budget increases. Based on unclassified information released by the DoW, the bomber force could reach new lows in the early 2030s should the Air Force retire its B-1Bs and B-2s to reallocate resources to build the B-21 force.

Overbalancing Toward Stand-off Strikes Risks Creating a Force That Cannot Deny Sanctuaries

Some defense planners have advocated for the Air Force to acquire additional stand-off attack aircraft and weapons to address the DoW's growing long-range strike shortfall. A major shift toward stand-off strike systems would risk creating a more fragile USAF force design. Some wargaming suggests such a shift would help reduce aircraft attrition in a fight with China. Standing off from high-density threat areas would likely reduce aircraft attrition, but it would also reduce the total number of weapons the Air Force could launch at targets in a combat pulse. Planners relying on wargaming alone to define a force design must proceed with caution and understand that wargaming is dependent on assumptions that may not be realistic—especially if the games fail to fully and accurately account for operational factors such as the effectiveness of adversary countermeasures against U.S. long-range kill chains.

Importantly, U.S. military planners should remember the lessons of airpower's evolution over the past century: only the Air Force will have the capacity to deny sanctuaries to PLA forces that are located hundreds of miles inland from China's coastline. U.S. Navy, Marine Corps, and Army strike forces are inherently stand-off in nature because they must operate from the first island chain, and locations beyond that will prohibit their surface-to-surface missiles from reaching critical centers of gravity deep in China's interior. This is not the case with the Air Force's long-range, penetrating aircraft.

Complex Long-Range Kill Chains Can Create Opportunities for Adversaries

Factors like attrition and effectiveness aside, **a major shift toward stand-off strikes would increase the Air Force's reliance on completing long-range kill chains at an unprecedented scale during a peer conflict.**

Completing thousands of long-range kill chains within hundreds of hours during a conflict with China—which is what such a conflict would require—is currently beyond the U.S. Air Force's and Space Force's capacity. According to Air Force General Kenneth S. Wilsbach, completing long-range kill chains "is extremely hard to do right now, but we're working on it, and we're pretty close."[43]

However, the mechanics of kill chain execution are only one hurdle. **A greater reliance on long-range kill chains can also increase opportunities for adversaries** to counter the effectiveness of U.S. air-to-air, air-to-surface, and surface-to-surface strikes. Even as these LRKCs mature technologically, the increased complexity of their sensor networks and datalinks can multiply an opponent's opportunities to counter or "break" a kill chain's flow of information from sensors to shooters. China, Russia, and other adversaries have multiple options to kinetically and non-kinetically attack U.S. sensors, communications systems, and other critical kill chain links. Rendering low-density, high-demand command and control systems and ground-based fire control centers ineffective can be a far more cost-effective approach for adversaries to disrupt U.S. long-range kill chains than attempting to intercept individual weapons after they are launched.

Time is another factor in closing kill chains over long ranges. It takes time for long-range missiles to fly to their targets, and this could increase the window of opportunity for an adversary to counter U.S. attacks. Cruise missiles flying at high subsonic speeds, for example, could require about 50 minutes to reach targets that are located 500 NM from their launch points, assuming the missiles travel in a straight line and do not maneuver to counter the adversary's interception operations. Very long ranges also impose a lag in dynamic kill chain operations. It takes time for remote sensors to find targets and relay information to shooters and for weapons to fly long distances to strike their designated targets.[44] Each step in this kill chain imposes a delay that can increase opportunities for an adversary to relocate its mobile targets and take other actions to counter attacks.

Stand-off Strikes Can Increase the Cost to Create Decisive Effects (Cost-per-Effect)

Increasing the paths available to transmit information from off-board sensors to shooters can certainly improve the overall resiliency of long-range kill chains. However, it can also increase the cost and complexity of stand-off strikes. Building the capacity to close hundreds and even thousands of long-range kill chains per day in a major air campaign will require acquiring and operating additional sensors, communications networks, and other systems.

Shifting toward stand-off attacks would also increase the cost of *munitions* needed to strike a given set of targets. Like combat aircraft, a munition's cost is determined primarily by its size, range, payload, and other design attributes. The cost of weapons increases as their ranges, stealthiness, warhead size, warhead weights, and even in-flight speeds increase. This cost can be tens of millions of dollars each for some long-range surface-to-surface weapons, like the U.S. Army's new Long-Range Hypersonic Weapon.[45] Higher costs can reduce the number of weapons the Air Force can afford to acquire, which translates directly to the number of targets it can strike and its resilience in a protracted conflict.

Stand-off weapons are limited in the effects they can create against some target classes. China, Russia, and other adversaries routinely protect their high-value military assets by building hardened shelters that are difficult for weapons to penetrate, burying them, or using a combination of both to counter precision strikes. Long-range, stand-off munitions typically cannot

carry warheads that are powerful enough to defeat these countermeasures. Even the use of multiple stand-off weapons against a very hard and deeply buried target may not be enough. This is why the Air Force acquired short-range direct attack penetrating munitions like the 5,000 lb-class GBU-72/B bunker buster bomb and the 30,000 lb GBU-57A/B Massive Ordnance Penetrator (MOP) to defeat hardened and deeply buried targets. As Operation Midnight Hammer aptly demonstrated in Iran, only stealthy aircraft can deliver these large, penetrating weapons to targets located in contested areas.

Frequently moving or relocating potential targets is another widely used countermeasure against precision strikes. Moving targets can create target location errors that are beyond the ability of a weapon to maneuver in its end-stage approach to a target. Likewise, long-range kill chain systems that are degraded by adversary actions may struggle to provide timely target updates to multiple stand-off weapons while they are in flight. While a munition may strike its predesignated aimpoint with great precision, it will be ineffective if its target is no longer there. Weapon time of flight after launch is another factor to consider in this equation, since longer flight times can afford adversaries more time and opportunities to detect attacks and then relocate targets or take other measures to counter them. Shorter-range boosted or glide weapons delivered closer to targets by penetrating aircraft can shrink these flight times to single-digit minutes, which can be inside an enemy's defensive targeting cycle.

Stand-off munition ranges are another limiting factor. The inability to reach distant targets over very long ranges is another limiting factor for stand-off attack aircraft and other stand-off launch platforms. The air-launched Joint Air-to-Surface Standoff Missile-ER (JASSM-ER) and its variants acquired by the DoW have ranges of more than 500 NM, while the Navy's Tomahawk cruise missile can reach targets located 1,000 NM or more from their launch platforms.[46] These and other stand-off weapons will be critical to preventing a Chinese fait accompli, but their effective target area coverage will be reduced significantly if they are launched by non-stealthy platforms that must operate 800 NM or more from China's coastline to remain survivable. These distances would greatly reduce the utility of using stand-off strike platforms to deny sanctuary to the PLA.

Affordable Munitions Mass

Munitions are single-use weapons since their employment results in their destruction. This matters when considering the cost-per-effect of long-range munitions compared to shorter-range, less costly weapons that stealthy aircraft can deliver on targets in contested areas. The DoW should seek to establish the right balance between its capacity for long-range kill chains that require these expensive, single-use missiles and kill chains that can be completed by penetrating bombers and fighters delivering less costly munitions. The need to create this balance from a cost-per-effect perspective will be critical for a force that must be capable of striking tens of thousands of aimpoints in a peer conflict.

Rebuilding the Nation's Long-Range Airpower Advantage

The Air Force is the only U.S. or allied service that operates long-range bomber aircraft and, in the future, long-range fighters. This makes modernizing the Air Force's combat forces and ensuring it has the right mix of non-stealthy stand-off and stealthy penetrating aircraft a national imperative. The Air Force has long held that it requires both stand-off and penetrating aircraft and munitions in its force design. In combination, they pose a more complex threat to opposing forces and increase the Air Force's options

to create war-winning effects. During a 2020 interview with the Mitchell Institute, then-Air Force Chief of Staff General David Goldfein observed that a "significant number of wargames" indicated a force that employs only stand-off weapons and attritable aircraft like CCA "didn't win" in conflicts with peer adversaries.[47] Considering the scale and scope of a peer challenge, as well as the highly contested nature of the threat environment, this is a fair assessment.

Balancing the Air Force's Long-Range Combat Forces

A better combat force *mix* is needed. One challenge for the Air Force is to determine the right mix of non-penetrating and stealthy penetrating aircraft for long-range operations in its future inventory. The service's current combat force mix is now weighted toward earlier-generation non-stealthy bombers and fighters. If not modernized with the right quantities of next-generation stealthy aircraft, this legacy force would have to close thousands of long-range kill chains in hundreds of hours in a peer conflict, a feat that is beyond the Air Force's current and projected capacity.

The Air Force has a total aircraft inventory (TAI) of 141 bombers consisting of 76 B-52Hs, 19 B-2s, and 46 B-1Bs. Only the 19 B-2s, or 13 percent of this force, can reach targets located deep in contested areas to deny sanctuaries. In other words, the Department of War's long-range, penetrating strike force now consists of 19 aircraft. This is not a resilient force that can sustain operations against highly capable adversaries, much less absorb aircraft losses in peacetime due to accidents or other reasons. Moreover, the bomber fleet has an average age of 43 years, which is a historic high for the Air Force.

Similar math applies to the Air Force's fighter inventory. The service's 51 combat fighter squadrons represent a 59 percent decrease from the number of squadrons it fielded during Operation Desert Storm in 1991. Of the Air Force's 2,000 TAI fighters—a historic low—none have an unrefueled mission radius that exceeds 700 nautical miles, and only 20 percent are stealthy F-22s or F-35As. This force has an average age that exceeds 26 years, another result of the Air Force's inability to recapitalize its forces over the last 35 years. By any measure—size, average age, and percentage of stealthy aircraft—the Air Force's bomber and fighter inventories are unbalanced in this era of renewed peer conflict.

More long-range, next-generation combat *capacity* is needed. Rebalancing the Air Force's combat aircraft mix alone will not result in a force design capable of defeating a peer aggressor and meeting other operational demands. The Air Force must also be properly *sized* to create war-winning effects in a peer conflict, deter nuclear attacks, and defend the U.S. homeland simultaneously.

A bomber inventory capable of meeting these requirements at a moderate level of risk should have the capacity to generate two or three times the number of combat sorties as today's force. Of the Air Force's 141 TAI bombers, 44 B-52s, 36 B-1Bs, and 16 B-2s are combat-coded aircraft. After factoring in their average mission-capable rate of 51 percent and subtracting B-2s and B-52s that must be withheld from deployments to sustain nuclear deterrence, this force may be able to generate about 26 long-range combat sorties per day.

The U.S. Strategic Command commander recently called for increasing B-21 acquisition to 145 aircraft over the next 15 years, but this is not enough, and it is not fast enough.[48] The planned inventory objective and the rate at which the Air Force is now buying B-21s—estimated at ten or fewer per year—are both driven more by budget restrictions than operational needs. Multiple studies have recommended growing the Air Force's bomber

inventory to at least 200 penetrating B-21s and retaining all remaining B-52s until their planned retirement in 2050. One analysis required by the U.S. Congress recommended the Air Force field up to 24 bomber squadrons (comprising 383 TAI) to meet growing long-range strike demand.[49] Other studies led by independent think tanks and retired Air Force general officers recommended the DoW acquire a similar number of B-21s to meet deterrence and warfighting requirements.[50]

A future force of 200 B-21s combined with remaining B-52s would more than double the Air Force's current long-range strike sortie capacity. This is not an unreasonable objective, considering this inventory would still be smaller than the bomber force the Department of Defense fielded to meet nuclear deterrence and conventional strike requirements throughout the Cold War. Since more than 70 percent of this force mix would consist of stealthy B-21s, it would also restore the Air Force's historical capacity to penetrate the most challenging air defenses to deny sanctuaries and attack an adversary's centers of gravity.

The Air Force's fighter inventory continues to free-fall due to insufficient budgets that have left the service with little choice but to retire more of its aircraft to sustain and modernize its remaining combat squadrons. The Air Force's FY 2026 budget submission proposes acquiring 24 F-35As and 21 F-15EXs (45 total fighters) while retiring 258 fighters (F-16C/Ds, F-15C/Ds, F-15Es, and A-10s). That is more than all combat-coded Air Force fighters currently assigned to units in either Europe (173) or the Pacific (240). It is also well below the 72 new fighters the Air Force requires every year to modernize and maintain its current force size. According to the Air Force, buying 72 fighters per year "is not currently achievable... based on the funding available and the ability of industry to deliver aircraft."[51]

The Air Force is now the smallest and oldest it has ever been in its history as an independent service—even as China continues to grow its combat air forces. Overall, the Air Force's FY 2026 budget would eliminate 340 of its current aircraft of all types and acquire only 76 new aircraft. This trend continues a decades-long death spiral that has resulted in an ever-decreasing combat aircraft inventory for the U.S. Air Force. By contrast, the PLA Air Force "now fields the largest aviation force in the Indo-Pacific region and the third largest in the world," according to the U.S. Air Force's top three leaders.[52] The PLA's growing Air Force includes over 1,900 total fighters, more than 225 J-16s that can carry very long-range air-to-air missiles, and fifth-generation J-20s.[53] In addition to fielding greater quantities of combat aircraft than the U.S. Air Force, the PLA is developing advanced capabilities intended to dominate the skies. The stealthy, long-range Xi'an H-20 bomber has been in development since 2016 and may enter production in the next few years.[54] Moreover, the PLA has revealed it is developing sixth-generation fighters: the Shenyang J-50 and the Chengdu J-36.[55] The J-36 may be a fighter-bomber hybrid, given the size and the apparent volume of its weapons bays.[56]

The Air Force's fighter death spiral does not have to continue. The service has requested funding to develop the sixth-generation F-47 fighter, which is estimated to have a combat radius greater than 1,000 nautical miles, a larger internal payload than any other free world fighter, and all-aspect, wideband stealth to penetrate the most capable IADS. The Air Force would like to acquire more than 185 F-47s, with initial operational aircraft on the ramp by the end of 2029. F-47s operating with B-21s and other aircraft in the Air Force long-range strike family of systems can be the DoW's "sanctuary denial force."

The F-47 challenge for the Air Force is the same one it is facing with its B-21 program—will it be able to acquire enough of them quickly enough to halt the decline of its fighter force? From an inventory perspective, 185 F-47s would only replace the Air Force's remaining F-22 air dominance fighters, which are slated for retirement. But that number is less than half the Air Force's validated requirement in 2000 for 381 F-22s. From a force mix perspective, the F-47's unmatched low observability, longer range, and larger payload capacity will go a long way toward rebalancing the Air Force's combat forces for peer conflict—but only if purchased in the numbers needed to meet the demands of the national defense strategy. Even the most capable F-47 can only be in one place at a given time, which is why far more than 185 F-47s will be needed to meet growing demand for long-range combat airpower.

The Air Force should do all it can to avoid the trap created by small fleet dynamics for both its B-21 and F-47 programs. Undersized aircraft fleets cannot generate enough sorties to maintain an operational tempo that projects combat mass in sufficient density to exert the level of pressure on an adversary needed to win. The Air Force's undersized B-2 and F-22 inventories have demonstrated the inherent force management challenges and high costs that small aircraft fleets impose on a service, including accelerated wear and tear, insufficient attrition reserve aircraft, too few test and training aircraft, and expensive maintenance and sustainment programs.

In addition to *rebalancing* its fighter and bomber inventories, the Air Force must *rebuild* them into a force that has the capacity to win. This will require the Air Force to aggressively replace its legacy fleets at the maximum production rates its next-generation combat aircraft programs can deliver. The DoW and Congress should fully fund the Air Force's F-35 and F-15EX procurement accounts and robustly resource the F-47 and B-21 to accelerate their maturation and pathway to full production. This will require additional budget for the U.S. Air Force. Without additional funding to offset 30 years in a row of budgets smaller than the Navy and the Army, the Air Force will be unable to deliver the operational combat power necessary to meet the needs of the national defense strategy.

Nuclear Deterrence & Homeland Defense are Additive Sizing Requirements

The U.S. national defense strategy requires the Air Force to size its forces to deter nuclear attacks and defend the U.S. homeland as well as defeat Chinese aggression. Nuclear deterrence is an additive requirement for the Air Force's bomber force. This means that the service must withhold some of its nuclear-capable bombers from deployments to deter nuclear attacks in a crisis. This withholding requirement could soon grow since "for the first time in history, the United States must be capable of simultaneously deterring two near-peer nuclear-armed adversaries": China and Russia.[57] China is in a nuclear weapons development breakout, having fielded more than 600 operational nuclear warheads to date, and it is projected to have "over 1,000 operational nuclear warheads by 2030."[58] Russia has nearly completed modernizing its nuclear triad and maintains an inventory of at least 2,000 shorter-range nuclear systems that are not subject to treaty limitations. The United States has yet to field a single new nuclear-capable Sentinel ICBM, Columbia-class SSBN, or B-21.

The U.S. triad, including the two legs operated by the Air Force, remains sized to deter Russia alone, and is therefore undersized for the scope of the nuclear deterrence mission that our nation now

requires. Acquiring at least 200 B-21s—as recommended by multiple independent studies—would help create a U.S. triad that is sized to deter both China and Russia.[59] It would also be the most cost-effective option to right-size the U.S. triad for today's threats. Unlike ICBMs and SSBNs, B-21s will be daily flyers that routinely deploy as bomber task forces to assure allies, deter adversaries, and demonstrate U.S. resolve. In 2024 alone, Air Force bombers completed 33 bomber task force missions, including ten missions in the Indo-Pacific, ten in Europe, and six in the U.S. Central Command's area of operations.[60] Since B-21s are dual-capable, a larger force would also enhance conventional deterrence and hedge against the potential of simultaneous conflicts in multiple theaters, which is a growing risk given the strengthening security relationships between Russia, China, North Korea, and Iran.

A similar force-sizing dynamic applies to the Air Force's fighter forces, some of which must be withheld from overseas contingencies to counter air and missile threats to the U.S. homeland. These fighters must be supported by air refueling tankers, airborne warning and control (AWACS) aircraft, and other Air Force capabilities essential to projecting long-range combat airpower. The Air Force is not sized to perform air sovereignty missions at moderate levels of risk in addition to its other missions. This means the service must either shortchange its homeland defense mission or deploy fewer fighters than required to defeat aggression by a peer adversary. To avoid these unacceptable choices, the Air Force must grow its fighter force by acquiring more F-35As and F-15EXs than proposed by its recent budget requests. This would ensure the Air Force will have the capacity to secure the homeland and project the power necessary to deny sanctuaries to Chinese or Russian forces.

Collaborative Combat Aircraft Will *Augment*, Not Replace, Piloted Aircraft

The Mitchell Institute has led multiple exercises to explore the potential for autonomy-enabled uninhabited CCA to increase the Air Force's capacity to project affordable mass at range in a conflict with China. Experts from the Air Force and industry participating in these exercises agree that CCA teamed with fifth- and sixth-generation fighters and stealthy bombers will present multiple dilemmas that complicate an adversary's counterair operations. Depending on the variants acquired by the Air Force—and how they perform—CCA with a combat mission radius of 800 to 1,000 nautical miles may increase the service's ability to project lethal mass, with precision, deep into contested areas while reducing risk to piloted aircraft. CCA carrying weapons, sensors, airborne electronic attack packages, or equipped to perform as expendable decoys could also act as force multipliers to free some fighters and bombers for other priority missions.

Experts participating in the Mitchell Institute's exercises also concluded that CCA should complement, but certainly cannot replace, stealthy F-35As, F-47s, or B-21s. Instead, it is the *combination* of these uninhabited and piloted aircraft that may enable new operational concepts that decrease risk and increase success rates for strategic attacks, air superiority operations, and other missions in high-threat battlespaces. Trading the procurement of some fifth-generation and beyond aircraft in favor of CCA would undermine their cost advantages. Without enough F-35As, F-47s, and B-21s for CCA to partner with, the Air Force would have to shift additional advanced technologies from these piloted aircraft to CCA, thereby increasing CCA complexity and cost. The key to leveraging the full potential of CCA at the right cost point to deliver affordable mass at range will be to determine how to best integrate CCA with U.S. Air Force combat aircraft.

Conclusion & Recommendations

The capability, capacity, and willingness to deny operational sanctuaries to opposing forces are prerequisites for winning in any conflict. Limiting U.S. operations to attacking PLA amphibious ships and other forces directly assaulting Taiwan will not guarantee victory, and DoW leaders who believe otherwise are engaging in hope, not realistic planning. Deliberately constraining U.S. forces from executing strategic attacks to deny sanctuary would allow the PLA's air and rocket forces to generate large-scale strikes against U.S. forces and bases in the Pacific unimpeded. These strikes would greatly diminish our military's ability to generate enough combat airpower and other forces to defeat the PLA and would create an offensive-defensive asymmetry that decisively favors China's offensive operations.

The U.S. military is currently incapable of denying sanctuary to the PLA Rocket Force and PLA Air Force. This is the result of decades of force cuts and deferred modernization programs that diminished the U.S. Air Force's long-range, penetrating combat aircraft inventories. No other military service, U.S. or allied, has forces that can operate in highly contested environments over long ranges to deny sanctuaries to China's military. The decline of this force need not continue. The Air Force now has a once-in-a-generation opportunity to rebuild the sanctuary denial capability and capacity that the U.S. military and its allies depend upon. But the Air Force must receive the resources required to do so. Toward this end, the Mitchell Institute offers the following recommendations:

- Congress and the Department of War should provide the U.S. Air Force with the additional funding it requires to accelerate B-21 acquisition and create a bomber force capable of denying operational sanctuaries to the PLA. B-21s in sufficient numbers are necessary to seize the operational advantage in a conflict with China. Analysis strongly supports growing the DoW's bomber inventory to 300 or more aircraft, including at least 200 penetrating B-21s, as rapidly as possible to deter Chinese aggression and, if necessary, reduce the risk of losing a conflict with China.
- Congress and the Department of War should support the acquisition of at least 300 sixth-generation F-47 NGAD fighters as part of the Air Force's future force design. At that force size, the F-47's longer range, larger payload, and all-aspect, wideband low observability may provide the Air Force a combat advantage against China's formidable IADS. F-47s and B-21s in combination will be able to strike any target on China's mainland to deny sanctuary and eliminate capabilities critical to the PLA's air and missile forces.
- In the interim, the Air Force should refrain from retiring its stealthy B-2s until a sizable force of B-21s—surpassing 100 aircraft—are fully operational in the 2030s. The B-2 is currently the world's only operational stealthy bomber capable of penetrating high-density air threat areas and striking the most challenging mobile, fixed, or hardened and deeply buried targets. Retiring B-2s prematurely would increase the risk that the PLA or other capable militaries will launch air and missile attacks that greatly degrade the effectiveness of U.S. joint force operations.
- The Air Force should also plan to acquire 74 F-35A and 24 F-15EX fighters per year to reverse decades of force cuts and hedge against future risk. These aircraft will help create a balanced penetrating and stand-off force mix for conducting long-range precision strikes, including attacks against maritime targets,

counterair operations, electromagnetic warfare, and other missions. They will also increase the Air Force's capacity to team its piloted aircraft with uninhabited CCA to achieve an affordable mass that offsets the PLA's combat mass advantage.

- The Air Force should conduct cost-per-effect analysis to inform its development of a balanced mix of long-range penetrating and stand-off combat aircraft and munitions. Such an analysis should factor in the whole system-of-systems that long-range kill chains require to be resilient and effective at the scale needed in a peer conflict. Wargaming should also inform this mix, but it cannot determine the right balance between long-range and short-range forces, stealthy and non-stealthy aircraft and munitions, and independent and dependent kill chains on a cost-per-effect basis without additional analysis.

The Air Force must size and shape its forces to defeat Chinese aggression while simultaneously defending the U.S. homeland and deterring nuclear attacks. It cannot do so at acceptable levels of risk with its current force mix and inventory.

With its range and stealthy attributes unmatched by any other combat aircraft, B-21s will hold mobile and other high-value targets located deep in a peer adversary's interior at risk. And if required, B-21s can do so without relying on cues from off-board networks that are susceptible to an adversary's countermeasures. B-21s will enhance conventional and nuclear deterrence by reducing a peer adversary's ability to use its vast interior as an operational sanctuary to stage its long-range power-projection operations. The same is true for a force of sixth-generation F-47s. Together, B-21s and F-47s will deny sanctuaries to China's forces and collapse, from the inside out, the PLA's capacity to sustain large-scale air and missile attacks against all U.S. forces in the Pacific. No other existing or planned U.S. combat systems will provide a similar unilateral capacity to strike dynamic targets at the same scale and tempo over long ranges in high-threat-density areas.

Yet the Air Force will not be able to increase its readiness, grow its combat capacity, and field these and other sanctuary denial capabilities without additional resources. The central themes of the Department of the Air Force's FY 2026 posture statement to Congress are the need to **rebuild** the Air Force and **reestablish deterrence**. This is an unambiguous acknowledgement that the Air Force is now too small and too old to meet the national defense strategy's requirements. The United States must rebuild its airpower forces, lest the nation continue on a path toward suffering a strategic shock in the Pacific. The resulting impacts on the United States, its allies, and its friends would be existential. ✪

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