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Key Points

Today, the U.S. Air Force is smaller, older, and less ready than it has ever been. It now lacks the capacity to fight a peer conflict, deter elsewhere, and defend the homeland as required by the *National Defense Strategy*.

The Air Force has less than half its fighter force and only one-third of the bombers it had in 1990. Its latest proposed budget divests about 1,000 more aircraft than it buys over the next five years, which will create an even smaller, older, and less ready force in the near term. The nadir will occur the same time that USINDOPACOM warns China will be prepared to conquer Taiwan—2027.

Decades of Air Force "divest to invest" decisions were the result of inadequate budgets that forced it to choose between modernization, force size, and readiness. The Air Force's budget has been less than the Navy and Army's for the last 30 years in a row. The Army received over $1.3 trillion more than the Air Force between 2002–2021, an average of $66 billion more per year than the Air Force.

Due to insufficient modernization funding, about 80 percent of its fighters have now exceeded their design lives, and only about 24 percent of its total fighter aircraft are stealthy or survivable against modern threats. That may result in excessive loss rates in a conflict with China.

The Air Force must both modernize and increase its force capacity to defeat peer aggression. This will require growing its budget by 3 to 5 percent annually over inflation for a decade or more. Without additional resources, the Air Force will have no choice but to further cut its forces and delay modernization. This puts all U.S. armed services at risk of losing a war with a peer aggressor.

Decades of Air Force Underfunding Threaten America's Ability to Win

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Abstract

The Air Force lacks the force capacity, lethality, and survivability needed to fight a major war with China, plus deter nuclear threats and meet its other national defense requirements. This is the result of decades of inadequate budgets that forced the service to cut its forces and forgo modernizing aircraft designed 50–70 years ago for environments that were far more permissive than what exists today in the Indo-Pacific.

The first step toward addressing these shortfalls involves removing the over $40 billion that passes through the Air Force's annual budget and goes to non-Air Force organizations and programs. Removing this "pass-through" money reveals the reality that the Air Force receives billions less than the Army and Navy each year.

The second step is to correct this budget imbalance by increasing investments in capabilities and force capacities required by the China threat. The Air Force budget requires a plus-up given China is now DOD's pacing threat, and a conflict with China will predominately occur in the air, space, and cyberspace, and to a lesser degree at sea. Of note, the Air Force is responsible for two of the three legs of the nuclear triad which must be modernized.

Third, the Air Force requires at least 3 to 5 percent annual budget growth on top of inflation for a decade or more to close the gap between the modernized forces it can bring to a peer fight and the *National Defense Strategy's* requirements. To reduce risk of Chinese aggression in the 2027–2030 timeframe, the Air Force should use this funding to maximize its acquisition of near-term advanced capabilities like F-35As and munitions designed to survive in contested environments. It will also require full support of its Next-Generation Air Dominance (NGAD) aircraft, the stealthy B-21 bomber, and their associated system of systems.

Introduction

The Air Force now lacks a force structure that has the lethality, survivability, and capacity to fight a major conflict with China, deter nuclear threats, and meet its other operational requirements necessary to achieve the *National Defense Strategy*.[1] Decades of annual budgets that were billions of dollars less than what the Army and Navy received left the Air Force with little choice but to repeatedly cut its forces and forgo modernizing aging weapons systems that were never designed to operate in current threat environments. The impact of these budget shortfalls was magnified by decades of a force design strategy that assumed capacity—existing force structure—could be traded to fund some incremental upgrades to the Air Force's existing weapon systems. The result is an Air Force that is the oldest, smallest, and least ready in its history—simply too small, too old, and not ready to do the missions it is required to perform.

Why is force capacity as important as the capabilities the Air Force can bring to the fight? The answer is simple—numbers matter in the battlespace. The best, most advanced fighter, bomber, tanker, or airlifter can only be in one place at a time. A force that is sized to fight a war with China in the vast expanses of the Indo-Pacific region will be very different than a force that is sized to operate in the relatively confined battlespaces of Iraq, Afghanistan, and even Iran and North Korea. Yet sizing for those lesser conflicts is exactly what the Department of Defense's (DOD) force planning policies directed the Air Force to do for over two decades after the Cold War. Defeating peer aggression, deterring a lesser threat in another theater, deterring nuclear attacks, and defending the homeland are all *National Defense Strategy* requirements, but the Air Force will run out of force structure well before it can meet these requirements.

Trends that created an Air Force that is now too small, too old, and not ready, continue today. The latest President's Budget asks Congress to fund a smaller budget for the Air Force in Fiscal Year (FY) 2023—$169.5 billion—than it requests for the Navy ($180.5 billion) and the Army ($177.5 billion). This difference may not be apparent to those who don't understand how DOD reports the Air Force's budget. Like previous years, the Air Force's true budget of $169.5 billion is masked by an outdated DOD practice that reports it is requesting $209.6 billion for the service in FY23. The $40 billion difference is money that will "pass-through" the Air Force's budget and go to non-Air Force organizations and programs. The Air Force **cannot use this pass-through funding** to buy new aircraft, increase its readiness, and otherwise organize, train, and equip its forces. For context, $40 billion would buy 400 Air Force 5th generation F-35A fighters that are designed to fight in high-threat operational environments that would exist during a conflict with China or Russia.

DOD should immediately change this practice and begin reporting the Air Force's true budget. Not counting pass-through funding reveals the Air Force's budgets have chronically lagged, not led, the Navy and Army's Total Obligational Authorities (TOA). The Navy recieved $1.7 trillion more funding than the Air Force since 1962. This trend is more than a Cold War artifact—between 2002 and 2021, the Army and Navy received about $1.3 trillion dollars and $914 billion dollars more, respectively, than the Air Force after removing pass-through. For context, a trillion dollars is roughly double the amount needed to modernize the Air Force's two legs of the nuclear triad by acquiring a new intercontinental ballistic missile (ICBM) to replace its geriatric Minuteman-III force and a new nuclear-capable stealthy bomber, the B-21.[2]

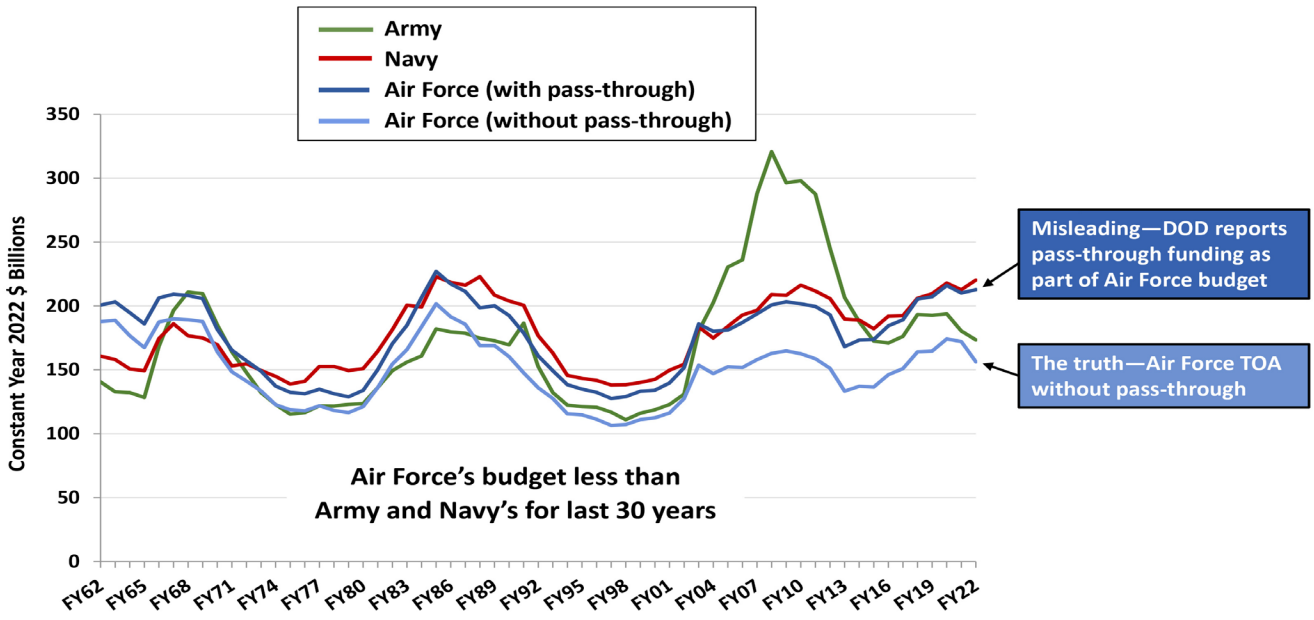

Figure 1: Military department TOA since 1962, with and without funding that passes through the Air Force's budget and goes to non-Air Force organizations and programs.

Credit: Mitchell Institute, data from Office of the Under Secretary of Defense (Comptroller), National Defense Budget Estimates for FY 2022, the Greenbook (Washington, DC: OUSD(C), August 2021), Table 6-3; and the U.S. Air Force.

Chronic budget shortfalls are a major reason behind why the Air Force has had little choice but to cut its force structure to partially fund its modernization and readiness requirements over the last 30 years. This is a failed approach that has led to the oldest, smallest, and least ready aircraft inventory in Air Force history. The reason why this approach does not and will not work is simple—savings from these cuts were never sufficient to acquire enough new aircraft to keep the average age of the Air Force's aircraft inventory from increasing to what is now an unprecedented 29 years.[3] The service's B-52 bombers and KC-135 tankers have been in service for over 60 years, three of its other aircraft types are over 50 years old, another thirteen are between 30 and 50 years old, and seven more exceed 20 years of age on average. The Air Force is also more than a decade behind its original timeline to field 5th generation fighters and stealthy bombers that have the survivability and other capabilities needed to project power into highly contested operational environments. **This is not a force mix that is optimized to defeat China's rapidly modernizing military.**

Despite a global security environment filled with numerous concurrent threats, the FY23 budget will not make much progress in the near-term toward filling the Air Force's capability and capacity shortfalls in key areas where operational demands are growing. This includes long-range strike; counterair; intelligence, surveillance, and reconnaissance (ISR); electromagnetic warfare; and other mission areas that were created by a 30-year modernization pause. And while the track record clearly shows a "divest to invest" force design approach does not work, the Air Force is trying it once again. Over the next five years the service projects it must divest another 1,463 aircraft and procure only 467 new aircraft of all types. Once again, this will fall short of the number of aircraft it must buy every year to halt its slide toward a smaller and older force.

Without 3 to 5 percent annual real budget growth—on top of inflation—for a decade or more, the gap between the

modernized forces the Air Force can bring to the fight and the *National Defense Strategy's* requirements will continue to increase. Adversaries understand these challenges and the difficulty the Air Force will have in meeting its world-wide operational demands with a force that is now too small, old, and not ready. This risks incentivizing China, Russia, and other adversaries to pursue increasingly aggressive behavior. Stated bluntly, if we do not recapitalize and modernize the Air Force systems at levels that reflect realistic combatant commander operational demands, we risk losing a future war.

Another step toward reducing this gap would be to take DOD's strategy seriously, invest more in the capabilities and missions that are most relevant to countering a modern Chinese threat, and less in those that are not as critical. This means allocating a greater percentage of the overall defense budget to the Air Force. Both the Air Force and the Navy's share of the budget should exceed the Army's, given China is now the DOD's pacing threat and conflict with China will predominately occur in the air, sea, space, and cyberspace domains. Redistributing resources among the armed services—while painful—is not a new practice. Most recently, this occurred after 2002 when funding was shifted to the Army from the other services to compensate for the increased operational demand for land forces in Iraq and Afghanistan. It is now time to apply this same logic to stop the decline in Department of the Air Force's capabilities and capacity so it can provide the forces required to deter and, if necessary, win in a fight against our enemies.

Air Force Chief of Staff General C.Q. Brown has said his service must accelerate change or lose, which means it must accelerate its modernization to keep pace with China, the most significant threat to our nation's vital interests. While this is exactly right, it will be extremely difficult for the Air Force to go faster without enough gas in the tank to rebuild a force that can meet the demands of the national security strategy—it needs additional budget and resources.

Force Structure Trends: Divestitures have been a One-Way Street

Today's smallest, oldest, and least ready Air Force is the product of decades of force cuts and truncated, delayed, or canceled modernization programs. Senior independent defense analysts now assess the Air Force is only marginally prepared to defend U.S. vital interests due to its decreased readiness, the advanced age of its aircraft, and budget constraints that are "driving the service to retire planes faster than they can be replaced."[4] The chronic inability to recapitalize and modernize means the Air Force must still operate ISR, strike, counterair, and other types of aircraft that are approaching or have exceeded their original planned design lives. These advanced ages are why Air Force aircraft like the E-8 Joint Surveillance Target Attack Radar System (Joint STARS), E-3 airborne warning and control system (AWACS), and multiple B-1B bombers and F-15C fighters must now be retired. These aircraft are not mission capable—and in many cases are no longer safe to fly—because of their advanced age and systems and structures that are failing at increased rates.

This aging force also has small inventories of advanced combat aircraft like stealthy B-2 bombers and 5th generation F-22 air superiority fighters. While these aircraft are the best in the world, their small, "silver bullet" inventories fall short of what is needed to fight a large-scale conflict with a peer adversary like China. The consequences of too few advanced jets, too few highly trained aircrews, and the

wrong mix of Air Force capabilities in a war with China include unsustainable loss rates across all U.S. forces and possibly a devastating defeat.

This did not happen overnight. By the end of the Cold War, the Air Force had a relatively robust force that proved its value in the first Gulf War. In the 1990s, confidence was high that this healthy force could absorb some reductions to realize near-term savings. However, three decades of this "divest to invest" budget-driven approach has eroded any force structure hedge the Air Force once had. Overall, several key lessons can be learned from DOD's budget-driven force design decisions over the last 30 years: 1) forces divested by the Air Force to generate some savings were never fully replaced by new systems; 2) force modernization delays created opportunities for China to catch up and even surpass some of the Air Force's technological advantages; and 3) the combination of both eroded our nation's ability to deter and defeat peer aggression. Unfortunately, in the face of continued budget pressures, the Air Force appears to be "divesting to invest" once again. While this may have been a reasonable approach in the early 1990s, the healthy force of that era is gone, and the Air Force now lacks force capacity that can act as a hedge in the event of a crisis.

While nearly all the Air Force's major combat, air mobility, ISR, and other aircraft inventories have suffered from these trends over the last 30 years, for the sake of brevity, the following sections focus primarily on its combat air forces (CAF).

Summarizing Major Trends in the Air Force's Combat Air Forces

DOD's post-Cold War strategic reviews have been one-way streets to a smaller force. The shift toward defeating lesser regional aggressors, a desire to reduce defense spending, and prioritizing capabilities over capacity formed the basis for DOD's decisions to cut its forces after the Cold War. The B-2 program was slashed from its original procurement goal of 132 aircraft to just 20 as announced by President George H.W. Bush in his 1992 State of the Union Address.[5] Some of the most significant cuts were the product of DOD's 1993 Bottom-Up Review, which determined that roughly 40 percent of the Air Force's "fighter wing equivalents," as they were called at the time, and 31 percent of its bombers were no longer needed after the fall of the Soviet Union and could be phased out of the force by 1999.[6]

DOD's 1997 Quadrennial Defense Review (QDR) further cut the Air Force and throttled back on some of its most critical modernization initiatives, including programs designed to create a 5th generation CAF. For example, then-Secretary of Defense William Cohen directed the Air Force to reduce the number of stealthy F-22 air superiority fighters it planned to buy to replace its F-15C/Ds, arguing his decision was "consistent with [the F-22's] much greater capability compared to the F-15."[7] Cohen applied the same logic to curtail other modernization programs across the services. Secretary of Defense Robert M. Gates' subsequent decision to cancel F-22 procurement at 187 aircraft was partly based on his assumption that a peer adversary would not soon develop capabilities that would challenge the Air Force's command of the air. This decision has proven to be extremely near-sighted given the growing threat of Chinese aggression and Chinese 5th generation fighters and advanced air-to-air weapons that now threaten U.S. air superiority. The small, silver bullet F-22 force resulting from Gates' decision simply cannot generate enough sorties to support joint operations in a fight with China. In short, it is a now very high-risk force.[8]

Flawed assumptions behind today's high-risk F-22 force

Secretary Gates' rationale for prematurely canceling the Air Force's F-22 program has not stood the test of time. As he testified in 2008, "The reality is we are fighting two wars, in Iraq and Afghanistan, and the F-22 has not performed a single mission in either theater. So, it is principally for use against a near peer in a conflict … and looking at what I regard as the level of risk of conflict with one of those near peers over the next four or five years until the Joint Strike Fighter comes along, I think that something along the lines of 183 is a reasonable buy." The following year Gates asserted that "China is projected to have no 5th generation aircraft by 2020. By 2025 the gap will widen."

See Secretary of Defense Robert M. Gates, "Speech to the Economic Club of Chicago," July 16, 2009; and Secretary of Defense Robert M. Gates, Fiscal Year 2009 Defense Budget Proposal, Senate Armed Services hearing, February 6, 2008.

The 2011 Budget Control Act

The BCA created caps on the federal budget with the intent to reduce deficit spending. A failure by Congress to agree to a deficit reduction plan for a fiscal year would trigger sequestration, a process used to enforce spending cuts. These spending reductions were to be evenly split between the defense budget and non-defense budget. In FY13, sequestration reduced the defense budget by $37.8 billion. In just two short years after Congress passed the 2011 BCA, the Air Force's new aircraft procurement funding as a percentage of its total budget reached the lowest level in its history.

While many of these actions appeared reasonable in the decade after the Cold War, DOD-directed force cuts continued nearly unabated in the 2000s and 2010s—the very years China accelerated its military buildup. Like the Bottom-Up Review, these reductions were largely driven by a desire to cut defense spending and the belief that upgrading old instead of buying new would maintain the U.S. military's overmatch over lesser adversaries like Iran and North Korea.

The Air Force's 2009 CAF restructuring is a case in point. The "CAF Redux," as it was then called, proposed divesting about 250 F-15s, F-16s, and A-10s in response to then-Secretary of Defense Gates' guidance to "eliminate excessive overmatch in force structure" and redistribute savings to "modernize and equip a smaller, more flexible, capable, and lethal force."[9] A portion of the approximately $3.5 billion in CAF Redux savings were used to buy MQ-1 and MQ-9 remotely piloted aircraft, additional crews for MC-12 tactical ISR aircraft, and other capabilities to support counterterrorism operations, not high-end weapon systems.[10] Most of the funding "saved" by this reduction was lost by the Air Force because of the 2011 Budget Control Act (BCA).

While the Air Force's investments in capabilities to support counterterrorism and counterinsurgency operations were understandable at the time, they also contributed to the development of a 2022 force that is out of balance with the present threat environment. It is also important to note that the same "smaller but more capable" and "capability over capacity" arguments are now being made to substantiate a new round of cuts to the Air Force's aircraft inventory.

Fighter force trends since the Cold War. The total number of fighters in the Air Force's 2022 inventory is about half the number on the ramp in 1989, even though the demands for fighters capable of winning air superiority and performing other missions are on the rise. Without air superiority the U.S. Air Force provides,

ships at sea, forces on land, and their operating bases cannot survive attacks by an enemy's air forces. This is a keystone defense capability, yet it is incredibly fragile at present. The first three columns in Figure 2 illustrate this reality. These three columns include training, test, attrition reserves, and other fighters that are counted as part of the Air Force's total aircraft inventory (TAI), as well as mission aircraft that are assigned to combat units.[11] The fourth column shows the Air Force has 1,420 mission fighters after subtracting test, training, and other assets. After applying mission capable rates—the percentage of total time an aircraft can perform at least one of its assigned missions—the count decreases to 975 fighters. **This is the force that can fly and fight today**, a force that is wholly inadequate to simultaneously defeat peer aggression, defend U.S. sovereign airspace from enemy attacks, and deter threats in another theater as required by the *National Defense Strategy*.

DOD has repeatedly rationalized cutting the Air Force's fighters by claiming fewer would be needed to defeat regional aggression and it was cheaper to upgrade existing fighters to compensate for lost capacity rather than buying new. Doing "more with less" has meant modernizing Cold War aircraft that were designed in the 1960s and fielded in the 1970s and 1980s. Over the last 25 years, the Air Force funded multiple upgrades and service life extension programs (SLEPs) to sustain its legacy fighters. Without question, these investments gave Cold War-era A-10s, F-15s, and F-16s the capability to deliver guided weapons with precision, improved their survivability against some threats, and enabled them to better network with other sensors and shooters.

However, the Air Force has reached a limit in what can be achieved by further upgrading its aging fighters and, in some cases, even keep them flying. The service's A-10 fleet has reached an average age of

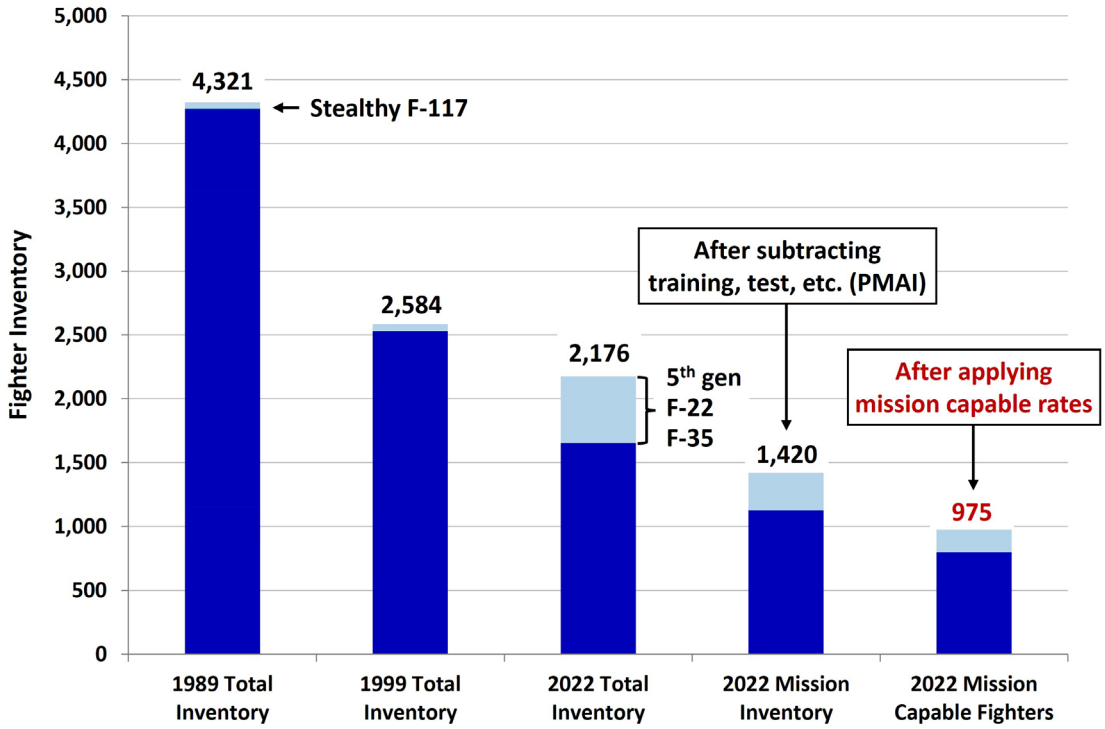

Figure 2: Decline of the Air Force's Fighter Inventory

Credit: Mitchell Institute. Inventory data provided by the U.S. Air Force and mission capable rates from a U.S. Air Force database current as of October 19, 2021. Lockheed Martin provided the mission capable rate for F-35As. Also see John A. Tirpak, "Fighter Mission Capable Rates Fell in 2021," *Air Force Magazine*, November 22, 2021.

41 years, and its F-16s, F-15C/Ds, and F-15Es exceed 30 years in service. Plus, the renewal of great power competition—now a multipolar competition—has dramatically changed what the Air Force needs to perform its assigned missions. Aside from the fact that the Air Force's current fighter force already cannot generate enough sorties for a peer conflict, additional modifications cannot give Air Force A-10s, F-16s, and F-15s designed 40–50 years ago the stealth and other characteristics needed to survive in contested environments. Even newly manufactured, so-called "4th generation-plus" variants of legacy fighter designs cannot survive in high-threat areas without risking significant attrition. The exact same trends are true for the Air Force's long-range strike bomber force.

Bomber force trends since the Cold War. The Air Force provides the free-world's only long-range strike capability. Its B-1B, B-52H, and B-2 bombers have global reach, can attack dozens of targets on a given sortie, and present critical options to commanders. However, like its fighters, the decline of the Air Force's bomber inventory began in the early 1990s and continued into the 2000s and 2010s. The bomber force totaled 411 aircraft at the end of the Cold War. Today's inventory of 20 B-2s, 45 B-1Bs, and 76 B-52Hs is about a third as large, and only 113 of these bombers are assigned to operational combat units. After applying mission capable rates, the Air Force can call on an estimated 59 bombers to conduct long-range strikes day-to-day—a shadow of the force that deterred the Soviet Union and defended America's allies and friends 30 years ago. Operationally, this means only about 15 bombers could be engaging in one theater at any one time with 15 recovering, 15 enroute, and 14 regenerating.

Air Force bomber retirements over the years were primarily the result of budget pressures, not declining operational demand for them. The same is true for DOD's 1992 decision to buy only 21 stealthy B-2s, a number well short of the Air Force's original requirement of 132 aircraft. Twenty operational B-2s—one was lost in a 2008 accident on Guam—are now the nation's

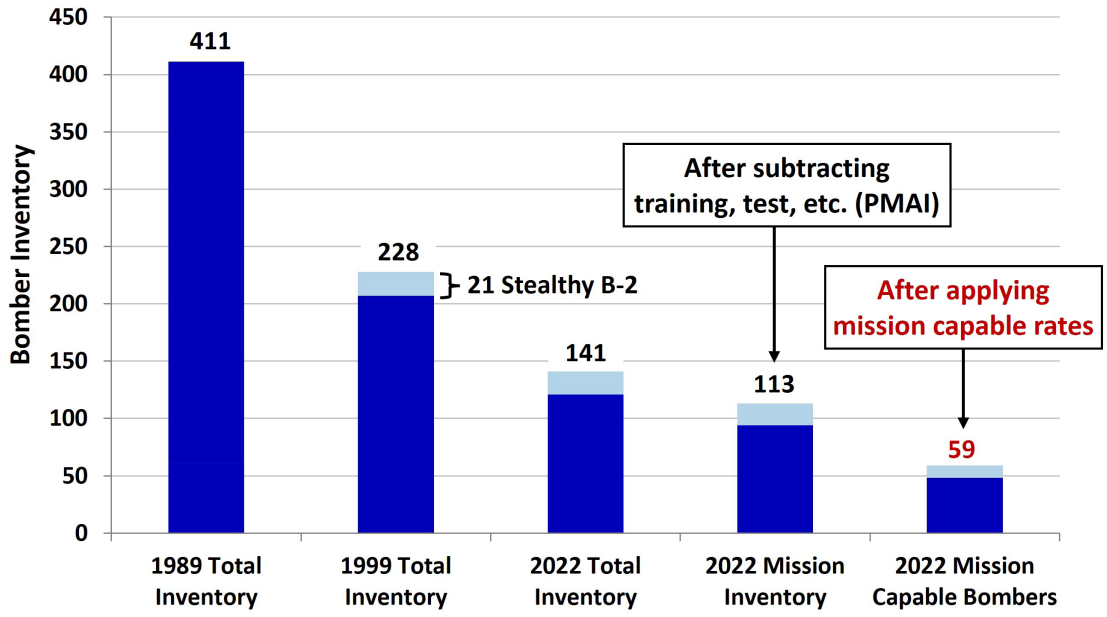

Figure 3: Thirty Years of Cutting the Nation's Bomber Force

Credit: Mitchell Institute. Inventory data provided by the U.S. Air Force and mission capable rates from a U.S. Air Force database current as of October 19, 2021.

only combat aircraft that have the long range, payload capacity, survivability, and other attributes needed to strike deep into highly contested environments. Cold War-era non-stealthy B-52Hs and B-1Bs are limited to launching "stand-off" strikes from areas that cannot be reached by advanced, long-range air defense systems of the kind operated and exported by China and Russia. Unlike "stand-in" strikes by stealth bombers that penetrate contested areas, stand-off attacks can be less effective against hardened and deeply buried military facilities or highly mobile targets like ballistic missile transporter-erector-launchers.[12]

Overall, the bomber inventory falls far short of the Air Force's stated future requirement of 225 total bomber aircraft. This shortfall will persist into the 2030s until a significant number of B-21s join the operational inventory. It's also important to understand that cuts over the last 30 years have eliminated the bomber fleet's ability to compensate even for planned events, much less unplanned incidents like the failure of critical aircraft components or structures. There are now no excess bombers to compensate for nominal attrition in war or even replace part of the force that needs extensive maintenance in peace. B-52Hs that will soon begin to cycle through depot maintenance to receive new engines and other upgrades will not be mission capable. Upgrading all the Air Force's 76 B-52Hs might require seven or eight years depending on depot production rates, and cost growth could increase this timing even further.[13] This will have the effect of reducing the number of bombers the Air Force has available for operations.

High Operational Tempos Also Helped Create a Smaller and Older Force

A persistent lack of funding after the Cold War caused the Air Force to divest part of its bomber force to free-up resources to sustain and modernize its remaining aircraft. However, these modest gains were

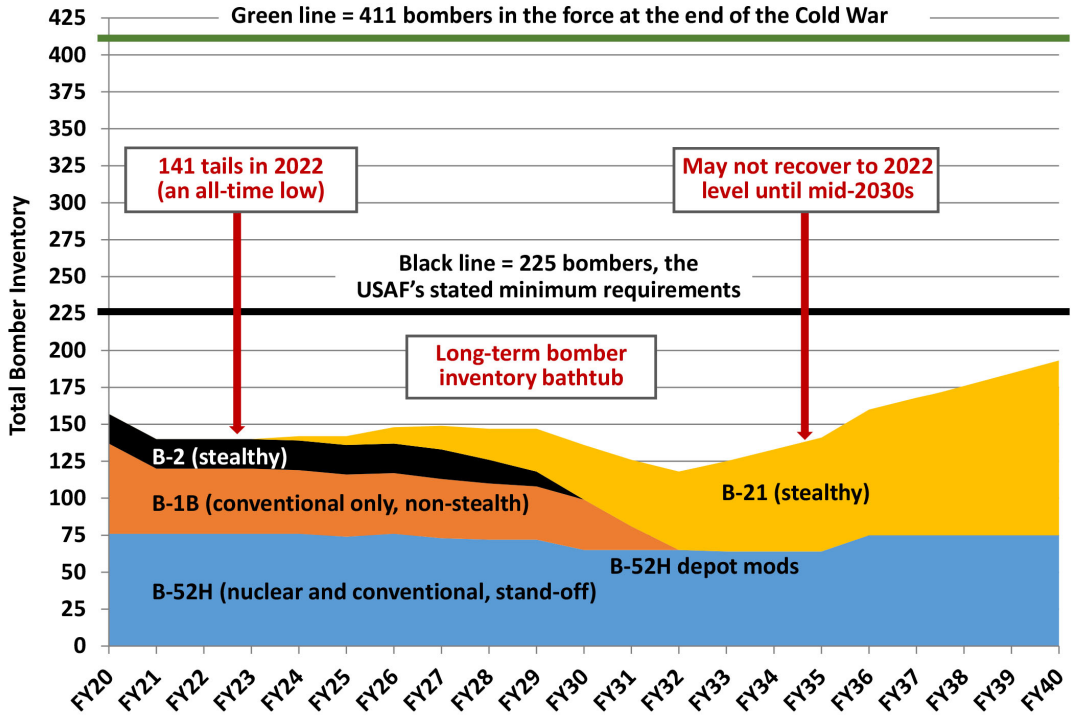

Figure 4: An Enduring Bomber Bathtub

Credit: Mitchell Institute projection.

temporary, and the remaining smaller aircraft inventories were flown even harder to meet real-world operational requirements. This toxic combination continued to erode the health of the service's remaining forces, which then drove the next round of force cuts. This is exactly what happened to the Air Force's B-1 bombers and E-3 AWACS aircraft.

Example: B-1 bombers. The Air Force completed its buy of 100 B-1 bombers in the late 1980s largely on schedule and within cost estimates. This force remained above 90 total aircraft until 2002, after which it declined by about a third within several years. These retirements were not accompanied by reductions in operational demand for B-1s. Due to their multi-mission capability, global range, and large weapons payload capacity, the Air Force called B-1s the workhorse of its CAF for counterinsurgency and counterterrorism operations in the 2000s and 2010s. However, years of flying these aircraft on non-stop operations broke the health of the fleet to the point that the Air Force decided to retire another 17 B-1s in FY21 so it could concentrate funding on sustaining the health of its remaining bombers. Today, the B-1 force consists of 40 mission aircraft.

Example: The E-3 AWACS force. The Air Force's FY23 budget proposes retiring 15 of its 31 E-3 Airborne Warning and Control Systems (AWACs). Since they first joined the force in the 1970s, E-3s have provided airborne battle management and command and control, a real-time picture of the battlespace, and information on enemy actions to joint and coalition forces. These aircraft are finally aging out and becoming unreliable due to continuous operational deployments and delays in recapitalizing them. Lt Gen Joseph Guastella, the Air Force's most recent Deputy Chief of Staff for Operations testified to Congress, "The aircraft is exhausted ... it's been deployed continuously—much of the Air Force's fleet is in that condition. It's not maintainable out there in the field, and it has significant capability gaps."[14] Air Force Deputy Chief of Staff for Plans and Programs Lt Gen David S. Nahom further clarified to Congress, "We struggle to keep roughly half that fleet airborne" because of its "significant maintainability challenges."[15]

The Air Force is buying new commercial derivative E-7 aircraft—called "Wedgetails" because of the large Multi-Role Electronically Scanned Array (MESA) radar mounted on its top—to replace its E-3s. The first Wedgetail will not join the inventory until FY27, which means the Air Force will have a major airborne battle management and command and control capability gap until all Wedgetails are operational sometime in the 2030s. This gap cannot be avoided by keeping E-3s slated for retirement in the force until then, since they are not mission capable. Like the Air Force's other aircraft inventories, this is the direct result insufficient resources preventing the service from replacing its AWACS in past years. The ultimate cost

Wearing out the B-1s

"The story of the B-1 is that we designed an aircraft to fly low altitude, high-speed, supersonic to penetrate enemy defenses and take out targets... For the last 18 years, we've flown it at medium altitude, very slow, wings forward. We flew the B-1 in the least optimal configuration for all these years. And the result of that is we put stresses on the aircraft that we did not anticipate. When it goes into depot we're seeing significant structural issues with the B-1."

Chief of Staff of the Air Force
General David L. Goldfein, 2019

source

Figure 5: U.S. Air Force E-3 AWACS (left) and Royal Australian Air Force E-7A Wedgetail (right)

Credit: U.S. Air Force Photo | RAAF Photo

of that delay is a significant shortfall in a capability that will be critical to joint and coalition operations in a conflict with China or another adversary.

The FY23 POM Continues Trends of the Past

Defense planners developing the U.S. Air Force's future requirements can benefit from understanding the major influences that helped shape the size and capabilities mix of its forces in the past. As a starting point, DOD routinely claims that its planning and resource priorities are closely aligned with the *National Defense Strategy*. While this alignment should always be the case, assessing the Air Force's force structure cuts over the last 30 years reveal three additional influences:

- To a significant extent, major USAF force cuts since the Cold War were *driven by a lack of resources* and a desire to reduce defense spending, not strategic priorities.
- DOD claimed that force structure reductions would help the Air Force to modernize and equip a smaller, more flexible, capable, and lethal force. Yet its current forces—while smaller—are *not more flexible and lack the degree of lethality* needed for a conflict with China.
- Finally, savings from the USAF's force cuts—when DOD leadership allowed the service to keep some of those savings—were *not enough to significantly increase its capacity to fight a high-end war* with a peer adversary.

"Capabilities over capacity," "smaller but better-equipped," and other shop-worn arguments are now being used to justify additional force cuts proposed by the FY23 President's Budget. In the words of Lt Gen Nahom, "Following *National Defense Strategy* (NDS) guidance, the Air Force seeks to invest in technologies and field systems that are both lethal and survivable against tomorrow's threats. This ultimately means transitioning away from many legacy platforms in order to free up manpower and resources to modernize and field more capable systems."[16]

Brief Overview of FY23 Force Structure Initiatives

The Air Force is planning to cut 252 of its aging aircraft and acquire 87 new platforms including 33 F-35s and 24 F-15EXs in FY23. Over the Future Years Defense Program (FYDP), the Air Force has proposed retiring a total of 1,463 aircraft and buying only 467. This would be a net loss of 996 aircraft, which is about a 25 percent force reduction.

Aircraft	FY23 Divestitures	FY23 Procurement	Notes
A-10	21		
F-22	33		Block 20 aircraft
E-3 AWACS	15		Leaves 16 E-3s in the force
E-8 Joint Stars	8		Plan retires 4 more in FY24
C-130	12 C-130H		
Aerial refueling tankers	13 KC-135	15 KC-46	
MQ-9 remotely piloted aircraft	100		Transfer to a USG agency
T-1 trainer	50		
F-35A 5th generation fighter		33	
F-15EX 4th generation fighter		24	
HH-60W combat search & rescue		10	
MH-139 multi-mission helicopter		5	
Total	**252 divested**	**87 added**	

Table 1: USAF Aircraft Cuts and Adds Proposed by the FY23 President's Budget

Credit: Based on U.S. Air Force FY23 budget documents.

These proposed cuts continue the post-Cold War divestment trend which successfully created a smaller Air Force, but utterly failed at achieving a "more capable" force, much less the service's other force design objectives. The 2022 Air Force lacks the flexibility, lethality, and enough next-generation capabilities to fight and win against China. Its forces are increasingly antique, fragile, and lack the reserves to absorb the kind of attrition—including aircrew losses—that should be expected in a major peer conflict.

Both China and Russia are aware of these shortfalls, which could lead them to conclude they have a window of opportunity to successfully launch a *fait accompli* attack the United States cannot defeat. The nadir in the Air Force's force capabilities and capacity will occur within the next six years, around the same time that Admiral Philip S. Davidson, Commander of the USINDOPACOM in 2021, warned that China would be capable and ready to assault Taiwan to force its reunification.[17] Director of National Intelligence Avril Haines reaffirmed this timeline when she said during congressional testimony in May 2022 that the threat to Taiwan was "acute between now and 2030."[18] A budget-driven force design strategy that continues to trade USAF force structure to fund some modernization ignores this threat and is contrary to the fact that the Air Force needs more next-generation capabilities as well as capacity as soon as possible.

The Air Force Needs Modern Capabilities and More Force Capacity

The "capability over capacity" mantra that DOD has used to justify cutting the Air Force over the years is severely outdated. Today, the service needs more capacity as well as modernized capabilities to deter and, if necessary, defeat peer aggression. Bluntly stated, the Air Force of 2022 is a high-risk force that is not sized to fight a major conflict with China and meet its other global operational requirements established by the *National Defense Strategy*. And this is not just about the Air Force—the missions its forces execute like air superiority, long-range strikes, and air mobility underpin the success and viability of all joint force

operations. Senior defense force planner Dave Ochmanek said it in another way in a recent publication:

> *Approaches to force modernization that seek, broadly, to transform capabilities without paying attention to operational needs are likely doomed to fail or, at the very least, waste time and money. Such approaches are especially pernicious when U.S. forces face serious and known gaps in their ability to defeat aggression by current and projected enemy forces—which is the case as of this writing.*[19]

Right sizing the Air Force is important to our nation's defense simply because numbers matter. The most capable and advanced combat aircraft can only be in one place at a time. Force size is critical for fighting in a conflict against China that spans the vast distances of the Indo-Pacific region. Plus, creating massed effects like killing thousands of enemy targets in hundreds of hours or surveilling large areas of a highly contested battlespace can only be provided by air forces that are sized to do so and have the right mix of long ranges, mission persistence, payload capacity, and survivability. Only airpower can respond on day one of a conflict and bring the mass and precision needed to blunt and then halt a Chinese or Russian invasion before it can succeed. Defeating a Chinese or Russian *fait accompli* campaign, deterring a second lesser aggressor, deterring nuclear attacks, and defending the homeland are all *National Defense Strategy* requirements. Unfortunately, the following assessments show clearly that the Air Force runs out of combat forces before it can meet these requirements.

Bomber and Fighter Shortfalls

The most recent analysis released by the Air Force on its future force structure requirements was called "The Air Force We Need." Directed by the 2018 National Defense Authorization Act (NDAA), the objective of this analysis was to determine the number and mix of aircraft the Air Force needed in its inventory by FY30 to meet *National Defense Strategy* requirements at a moderate level of risk without using a specific budget target to artificially constrain results. The 2018 NDAA also directed DOD to commission two non-DOD think tanks to complete independent studies to complement the Air Force's analysis. **All three analyses concluded the Air Force must grow its force structure by about 25 percent.** More specifically, the Air Force recommended increasing its forces from 312 to 386 operational squadrons, including seven more fighter squadrons and five additional bomber squadrons. This growth and accompanying modernization would create the minimum force the Air Force needs to defeat aggression by a single peer aggressor, deter nuclear attacks, defend the U.S. homeland, and deter a lesser aggressor in a second theater.

One of the complementary NDAA-directed studies also recommended the Air Force grow its warfighting capacity to defeat a second adversary seeking to take advantage of the U.S. military's engagement in another theater.[20] Given China's increasingly aggressive posturing in the Indo-Pacific, Russia's invasion of Ukraine, North Korea and Iran's saber rattling, and non-state actors that continue to drive instability at regional levels, this sort of demand for U.S. air forces is very realistic and absolutely required to achieve conventional conflict deterrence. Until the 2018 *National Defense Strategy*, maintaining a force that could fight two wars nearly simultaneously was the foundation for sizing and shaping the U.S. military.[21] Figures 6 and 7 compare a Mitchell Institute projection of the Air Force's

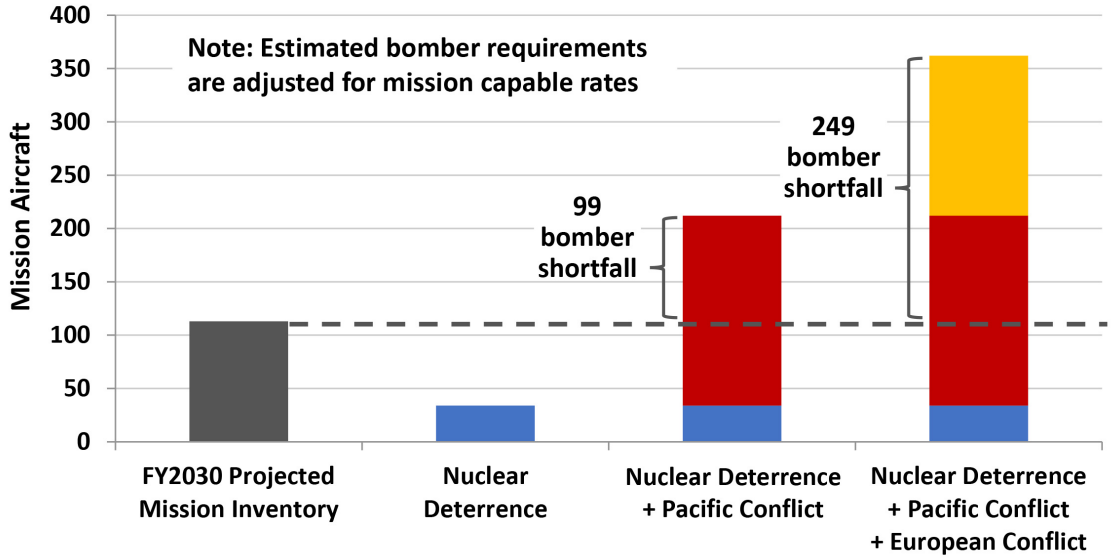

Figure 6: Projection of Future Air Force Bomber Requirements
Credit: Mitchell Institute. See endnote 22.

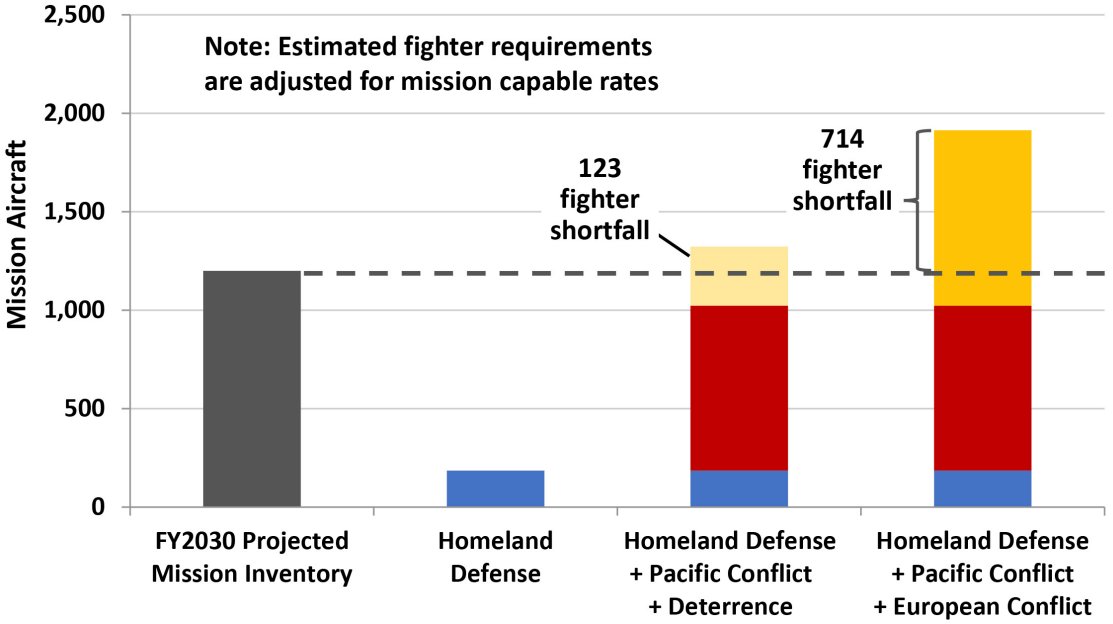

Figure 7: Projection of Future Air Force Fighter Requirements
Credit: Mitchell Institute. See endnote 22.

2030 fighter and bomber inventories with this larger force. Both illustrations show the Air Force lacks sufficient fighters and bombers to fight a single major peer conflict—much less a second war—plus conduct nuclear and conventional deterrence operations and defend the homeland.[22]

A 5th Generation Fighter Force is Also Late to Need

A military's capabilities mix is just as important as its overall numbers. The Air Force has long sought to develop a 5th generation combat force that had the right mix of stealthy aircraft capable of surviving in the kinds of contested environments that will exist in high-end fights with China or Russia. The service's progress toward this 5th generation force suffered major setbacks in the 1990s and the 2000s after receiving direction from the Office of the Secretary of Defense to end its B-2 and F-22 programs prematurely. Lower-than-planned annual buys of the F-35A have also stunted progress toward a 5th generation CAF.

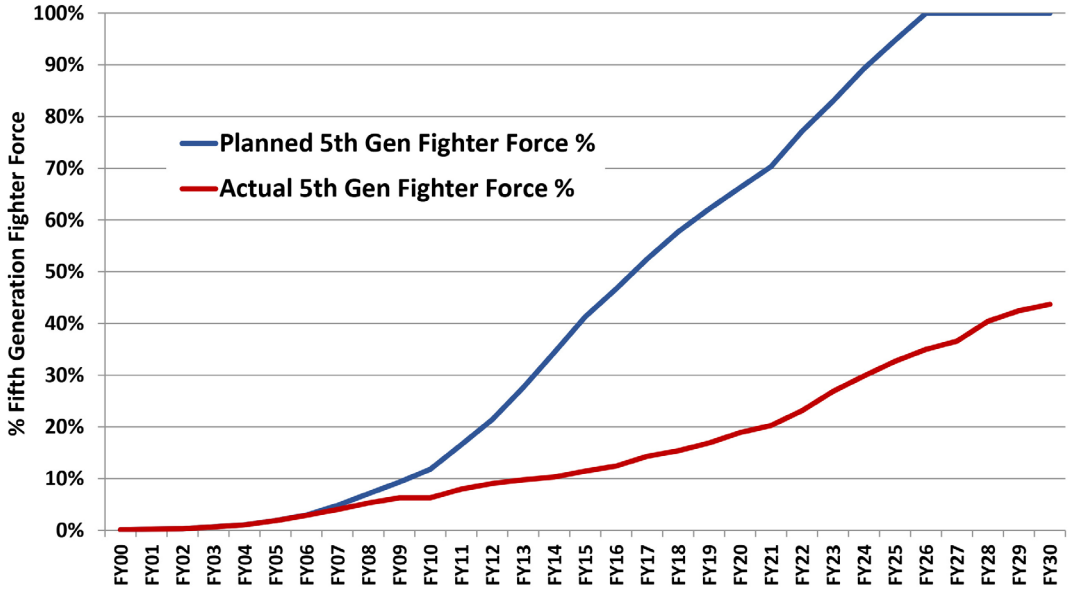

Figure 8: The Air Force's 5th Generation Fighter Force is Far Behind Its Original Timeline.

Credit: Mitchell Institute. Chart is based on the Air Force's FY 2004 plan to buy 381 total F-22s and grow F-22 production to a max rate of 36 per year, and its FY 2005 plan to buy 1,763 total F-35As and grow to a max production rate of 110 per year.

Figure 8 traces progress since FY 2000 toward the Air Force's originally planned force of 5th generation F-22s and F-35As. The inventory buildup shown by the blue line is based on the Air Force's FY04 plan to buy 381 F-22s and grow its acquisition rate to 36 per year combined with its FY05 plan to buy 1,763 F-35As and reach a maximum production rate of 110 per year. **Today only 24 percent of the Air Force's total fighter inventory are 5th generation aircraft**—if early production F-35s are included—as shown by the red line in Figure 8.[23] The FY23 budget will grow this by another 2 percent—a rate that will not, if it continues, reach the Air Force's objective for a 5th generation force until sometime in the 2040s.

USAF Force Structure is Driven by an Arbitrary Budget, Not Operational Requirements

There comes a point where technology and training cannot overcome shortfalls in the number of weapon systems required to meet the needs of the U.S. security strategy. In an era where conflict is bound to unfold rapidly, decisive action will be required immediately to spoil an enemy's attempt at a *fait accompli* and staying power may prove crucial when facing peer adversaries who persist beyond expectations. It is therefore crucial to build a force that is sufficiently sized and aligned with the requirements of the U.S. National Security Strategy. Yet, the Air Force confronts today's burgeoning threat environment with an inventory of aircraft that is too small, has reached an unprecedented age, and is declining in readiness—all because of decades of insufficient funding.

Example one: Reduced F-35A acquisition in FY23. Inadequate budgets are the root cause of many, if not most of the Air Force's current fighter and bomber shortfalls. And this trend is continuing; the Air Force's latest budget request asks for only 33 new F-35As in FY23, less than the 60 it acquired in FY21 and the 48 it will buy FY22. Budget pressures and the need to modernize nuclear-capable IBCMs and bombers—two of the three legs of the nuclear triad—forced the Air Force to reduce F-35A procurement as well as funding for other modernization programs. Lt Gen Nahom emphasized this ground truth when he recently said, "Would we have bought more F-35s if we had more resources? Yes, absolutely."[24]

Figure 9: U.S. Air Force EC-130H Compass Call (left) and EC-37B (right)

Credit: Tomás Del Coro, Creative Commons | illustration courtesy of Gulfstream and Air Force Magazine

Example two: Delayed recapitalization of the USAF's airborne electronic jamming force. The Air Force also intends to acquire six EC-37Bs to replace its aging force of ten EC-130H Compass Call aircraft. The remaining four EC-37Bs the Air Force would like to buy are on its "Unfunded Priority List," which means it ran out of budget before it could fund them.

EC-130Hs are C-130 cargo aircraft that have been modified to conduct electromagnetic warfare, suppression of enemy air defenses (SEAD), and offensive counter-information missions. Using EC-130H in combination with other electromagnetic warfare systems to disrupt enemy communications and radars can have a major impact on joint and combined operations. Like AWACS, the EC-130H fleet has aged out and must be replaced. Some EC-130H now in the active inventory were delivered during the Vietnam War—the fleet itself has an average age of over 47 years.

The Air Force is replacing its EC-130Hs with EC-37Bs, which are Gulfstream G550 business jets modified to carry electronic warfare equipment from retiring EC-130Hs. This commercial derivative approach reduces the time and cost to field an EC-130H replacement compared to designing an entirely new aircraft for the mission. However, six EC-37Bs will not provide the Air Force with the capacity it needs to jam communications between enemy forces and perform other missions during a major campaign that spans very large areas like the Indo-Pacific region. According to Lt Gen Nahom, a force of six EC-37Bs "is too small...If you take a couple away for training, maybe one or two away for maintenance, you're not left with a lot for operational use—and there is a lot of use for those airplanes right now."[25] At best, a budget-driven force of six EC-37Bs may be capable of sustaining a single continuous orbit of aircraft when operating over long ranges from their airbases. Aircraft operating without the support of an EC-37B are at increased risk from a survivability perspective. This risk can spiral to other Air Force capabilities that cannot compensate for the increased risk because they are similarly fragile and lack enough operational capacity.

The lack of a sufficient budget, not operational needs, is the prime driver shaping Air Force modernization and recapitalization programs. The operational environment has tolerated this risk thus far, but that is no longer a prudent assumption given China's aspirations and its ability to launch a *fait accompli* campaign against Taiwan this decade. Understanding the Air Force's budget and its major trends over the last 30 years is key to understanding why it is now—and may remain for some time—a high-risk force.

Understanding the Air Force's Budget

Decades of Air Force's "divest to invest" decisions were primarily driven by inadequate budgets that forced Air Force leadership to choose between modernization, readiness, and force size. On the surface, the Air Force appears to be funded at a level of parity with the Army and Navy. However, the true nature of the Air Force's budget shortfalls is masked by an outdated DOD practice that adds over $40 billion per year to the Air Force's budget that really goes to other DOD agencies—the Air Force has no control or access to any of that money. $40 billion is enough to buy 400 F-35As per year. Even in Department of Defense math, that is a lot of capability. This so-called pass-through funding also obscures the fact that the Air Force absorbed the largest cuts to its budget during the 1990s when there was a push to reduce defense spending to achieve a post-Cold War peace dividend. Although the defense budget increased for a handful of years after September 11, 2001, most of the additional funding went to support the Army's requirements and buy capabilities for counterterrorism and counterinsurgency operations—not for next-generation aerospace systems suitable for peer conflicts. Today, the Air Force continues to organize, train, and equip its forces with a budget that remains smaller than either the Army or Navy's topline. This is why the Air Force's procurement of new aircraft remains flat, its readiness continues to erode, and the size and average age of its aircraft inventories are both trending in the wrong direction.

The Air Force's Actual Budget

How DOD reports the budget. Inadequate budgets and the lack of other resources have had an outsized role in undersizing and misshaping the U.S. Air Force for decades. Understanding the magnitude of these trends requires an appreciation of how DOD's budget reporting practices mask this fact from Congress and the general public.

Each year, DOD submits its budget request to Congress as part of the President's Budget. This submission includes tens of billions of dollars that pass-through the Department of the Air Force's requested budget,

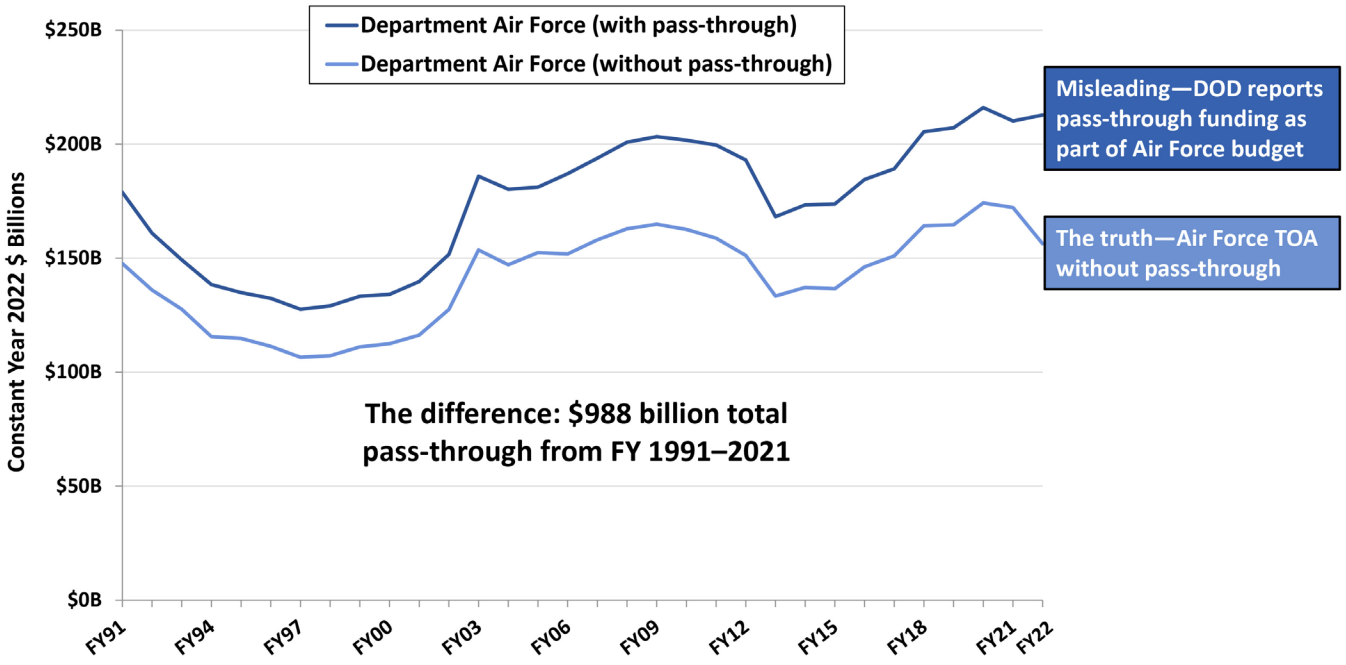

Figure 10: Air Force Funding Since 1991 With and Without "Pass-Through"

Credit: Mitchell Institute, based on data from OUSD(C) Greenbook, Table 6-3 and the U.S. Air Force.

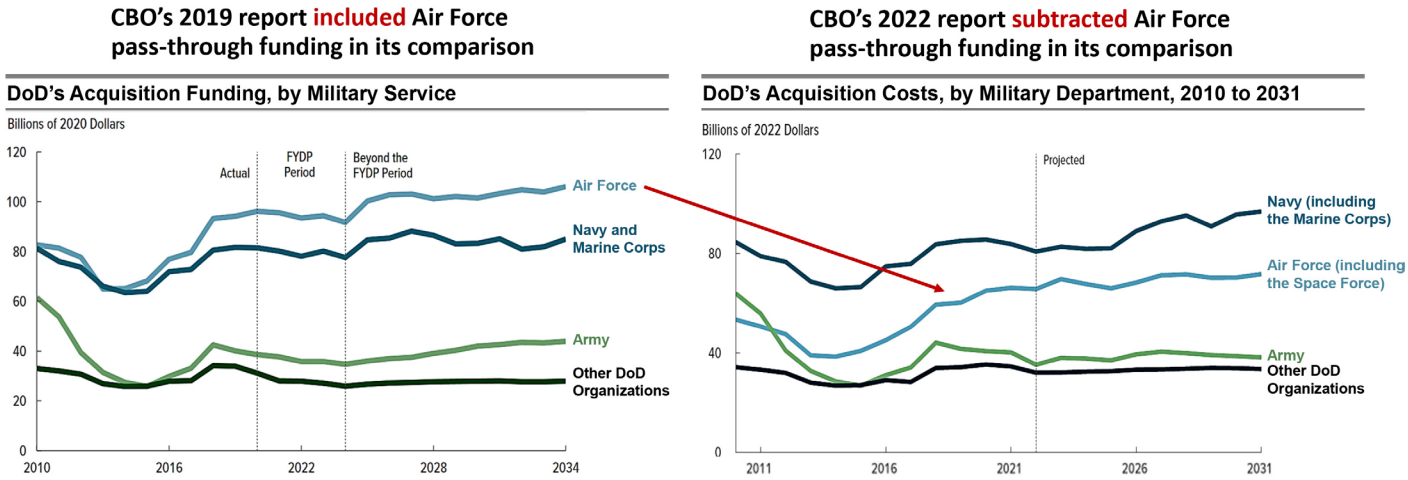

Figure 11: One Example of How to Change Air Force Budget Reporting to Exclude Pass-Through

Credit: Congressional Budget Office (CBO), *Long-Term Implications of the 2020 Future Years Defense Program* (Washington, DC: CBO, August 2019), p. 17; and CBO, *Long-Term Costs of the Administration's 2022 Defense Budget* (Washington, DC: CBO, January, 2022), p. 10.

even though none of it is actually allocated to Air Force organizations or programs. Failing to distinguish between pass-through and the Air Force's actual funding paints a false picture of the resources it can use to organize, train, and equip its forces. It also masks how resources are allocated across the services. The President's Budget Request for FY23 is a good example of this. DOD has requested $209.6 billion for the Air Force in FY23, which on paper exceeds its proposed budgets of $180.5 billion for the Navy and $177.5 billion for the Army. The truth is, the Air Force will only receive $169.5 billion of this $209.6 billion if appropriated by Congress—the other $40.1 billion is pass-through funding for other DOD agencies. Reporting for the Department of the Air Force's full 2023 budget request also includes the U.S. Space Force's budget, which inflates the apparent total for the Air Force by an additional $24.5 billion ($234.1 billion with pass-through or $194.0 billion without).

Over time, this pass-through funding adds up to hundreds of billions of dollars. As Figure 10 illustrates, the Air Force's reported budget since 1991 including pass-through (dark blue line) exceeded the actual funding (light blue line) the Air Force could use to organize, train, and equip its forces by about **$988 billion**.

How the budget should be presented. Obscuring the Air Force's real budget misleads and complicates the work of decisionmakers in Congress, the Office of Management and Budget (OMB), the DOD, and the White House who are responsible for determining how to allocate resources across the military services. Achieving transparency and honesty in DOD budgeting is an imperative for the DOD to correctly allocate limited resources among the services to optimally prepare for a fight with China.

Figure 11 shows two charts extracted from Congressional Budget Office (CBO) reports on the U.S. defense budget. The chart on the left shows the Air Force's acquisition funding with pass-through significantly exceeds the Navy's acquisition budget. The Mitchell Institute used this chart in 2019 to point out how including pass-through could create a misleading projection of the Air Force's acquisition funding. The second chart is from an updated report that CBO released in 2022 which subtracted pass-through funding from the blue line representing the Air Force's actual acquisition budget. This second chart is an excellent example of how DOD and other government organizations should accurately report the Air Force's budget to Congress and the American people.

Budget Category	Department of the Air Force	Department of the Navy	Department of the Army
Military Personnel	- 37.9%	- 31.8%	- 34.3%
Operations & Maintenance	- 9.4%	- 26.1%	- 22.1%
Procurement	- 48.7%	- 32.0%	- 34.4%
RDT&E	- 37.3%	- 16.7%	- 7.8%
Total Change in TOA	- 31.2%	- 28.2%	- 28.9%

Table 2: Percentage Changes in Total Obligational Authority from 1989 to 2001. Red shaded blocks indicate the most significant reductions for each budget category.

Credit: Mitchell Institute. Air Force blue-only budget data in table was provided to the authors by the U.S. Air Force. Other data is from OUSD(C) Greenbook. The Greenbook reports the Air Force's TOA without subtracting pass-through funding.

It is not an exaggeration to state that the greatest threat to the Air Force is the pass-through, as it continues to create false presumptions and misperceptions of actual funding allocated to the service. Fixing this malpractice is not difficult. All that must be done is shift the total pass-through to DOD's "defense wide" budget category which includes DOD's agencies and other non-service organizations. For the sake of clarity, remaining tables and illustrations in this report will exclude funding that is not part of the Air Force's budget.

Understanding 30 Years of Inadequate Air Force Budgets

The first hit: The 1990s, decade of the peace dividend. Excluding funding that passes through the Air Force reveals the service's annual budgets have been less than the Army and Navy's budgets for all but one year since 1990. It also shows the Air Force sustained the most significant budget cuts compared to the other services over that period. The Air Force absorbed the largest budget cuts in the decade after the Cold War as the Clinton administration sought to reduce defense spending to fund

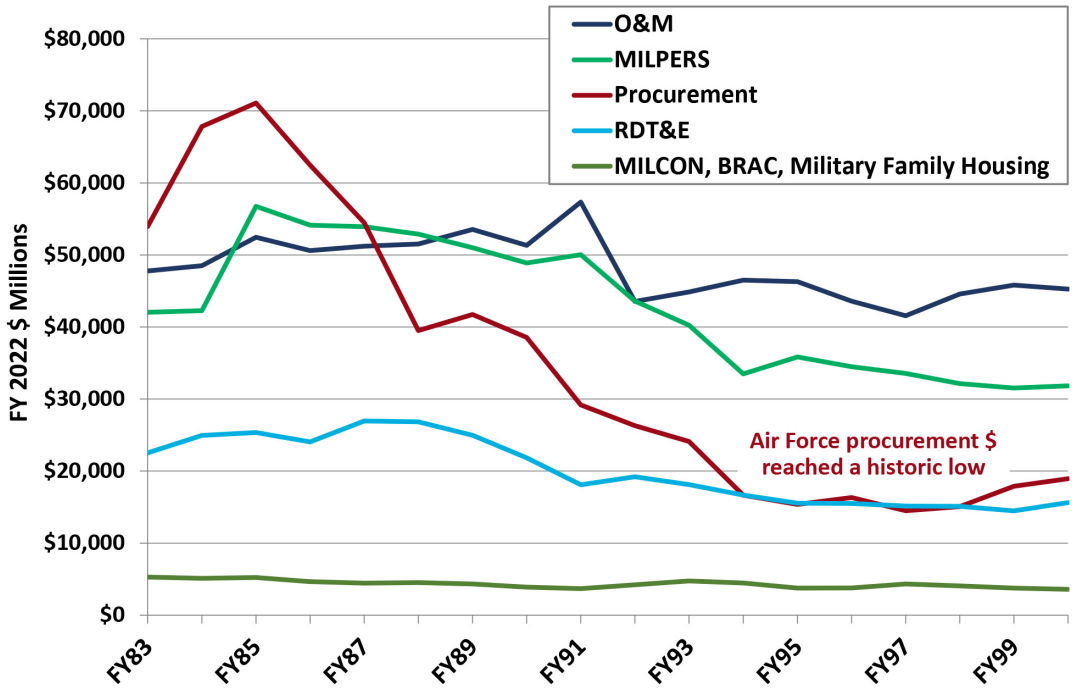

Figure 12: Cuts to the Air Force's Budget After the Cold War

Credit: Mitchell Institute. Data from OUSD(C) Greenbook and U.S. Air Force.

domestic programs and other non-defense priorities. The Air Force's procurement budget in 2001 was about half the size of its procurement funding in 1989, while the Army and Navy's procurement budgets were reduced by about a third over the same timeframe. The Air Force also absorbed the largest percentage of cuts to its military personnel and research, development, test, and engineering (RDT&E) budgets compared to the other services.

Figure 12 presents an even more dramatic picture of the magnitude of the Air Force's budget cuts in the 1990s. The dark blue line represents the Air Force's operations and maintenance (O&M) funding, which remained high even as the Air Force decreased its force size and end strength. This reflects the Air Force's continued high operational tempo in the Middle East and other regions after Operation Desert Storm. In contrast, the Air Force's procurement funding (red line) cratered after 1990 and reached a historic low in the second half of the decade.

The second hit: Hollowing the Air Force to fund the Army. As the 1990s ended, budget shares across the services had settled into a static pattern. This changed dramatically after the September 2001 terrorist attacks on New York City and Washington, DC. In FY02, Congress increased defense spending to support the U.S. military's global counterterrorism operations. As shown by Figure 13, this spending surge was not allocated equally across the services—the Army's annual budget grew nearly 250 percent between FY01 and its high point in FY08, while the Air Force's budget increased by a far more modest amount.

A significant part of additional funding the Air Force received during this period went to supporting the high operational tempo of its forces conducting strikes, providing persistent overwatch of the battlespace, and performing other counterterrorism-related missions in the Middle East, not modernizing its forces for high-end warfare. The Air Force's

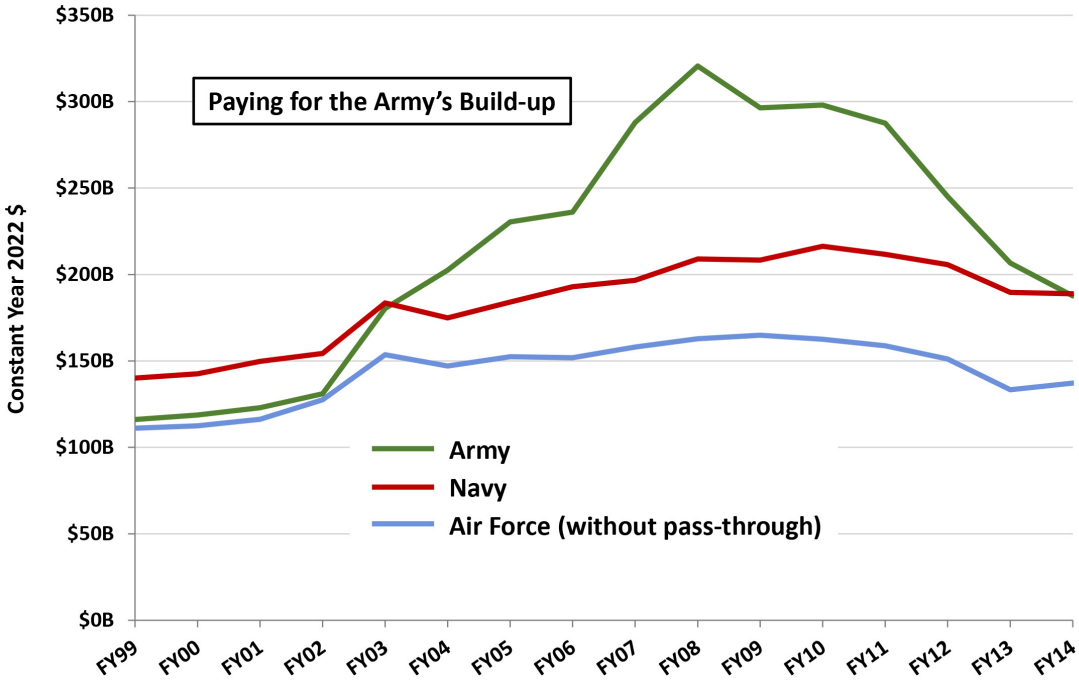

Figure 13: Surging Funding to Support Army Counterterrorism and Counterinsurgency Operations

Credit: Mitchell Institute. Data from OUSD(C) Greenbook and U.S. Air Force.

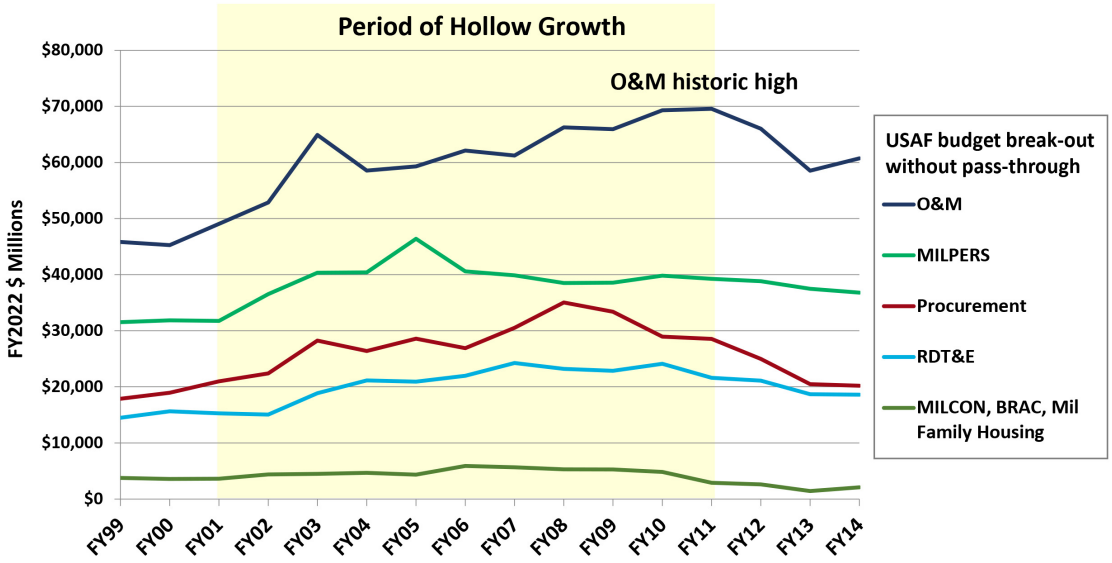

Figure 14: Growth in the Air Force's Operations and Maintenance Funding Requirements Has Been Driven by its Aging Forces. This has had the effect of reducing funding available for the service's other budget categories including procurement.

Credit: Mitchell Institute. Data from OUSD(C) Greenbook and U.S. Air Force.

O&M spending growth also consumed much of the additional funding it received, while its RDT&E and procurement remained anemic, as can be seen in Figure 14. Moreover, the Air Force used its small procurement funding bump to field additional remotely piloted aircraft; increase its capacity to process, exploit, and disseminate intelligence to allied forces engaging terrorists; and recapitalize part of its airlift force. The Air Force also required a tremendous resource investment to take on entirely new cyber domain missions, which had to come from core funding. Overall, most new capabilities that joined the Air Force's inventory over this decade were better suited for operations in permissive environments, not peer conflicts that are now DOD's highest priority.

It's important to note that Figure 14 shows the Air Force's overall procurement, RDT&E, and military personnel accounts all declined beginning in FY08. This trend was opposite to its O&M funding, which continued to increase until it reached its highest level in the Air Force's history. This O&M trend is understandable, given the Air Force's sustained high operational tempo and the increased cost of maintaining an aging force.

In the face of these facts, it is fair to say that the ten years following September 2001 was a period of hollow growth for the Air Force. Instead of modernizing, the Air Force was directed to concentrate on sustaining current operations. Even as late as 2009, Secretary of Defense Gates ordered the Air Force to terminate its 5th generation F-22 fighter program at 187 aircraft—less than half of the Air Force's validated required force of 381 F-22s—and canceled the Next Generation Bomber which was going to replace older bombers that could no longer penetrate areas covered by advanced air defenses.[26] These misguided decisions reflected Gates' mindset that the services were infected by "next-war-itis," which he described as "the propensity...to be in favor of what might be needed in a future conflict."[27] In hindsight, Gates' short-sighted decisions to forgo force modernization are a major reason why the Air Force—and the rest of the DOD—now lacks the capabilities and capacity needed for a conflict with China. Moreover, the time wasted, and risks created

by imprudent defense acquisition decisions in the past cannot be quickly resolved in a future crisis. This was exactly the sentiment of U.S. Secretary of War Henry Woodring, who said on the eve of World War II, "We are not prepared for conflict. Billions appropriated today cannot be converted into preparedness tomorrow."[28]

The third hit: an Air Force buildup that wasn't...and still isn't. Compared to previous defense buildups, there was no real surge in defense spending during the late 2010s to rebuild and modernize the U.S. Air Force. Its acquisition budget remained flat, and its O&M requirements continued to grow due to sustained high operational demands and the increased costs of maintaining an aging force.

Looking ahead, the prospect for the Air Force budget is more of the same. DOD requested $169.5 billion for the Air Force in FY23, which is less than what it has asked for the Navy ($180.5 billion) and the Army ($177.5 billion). For that matter, the Marine Corps' $50.3 billion FY23 budget request is more than double the Space Force's $24.5 billion request. These disparities are even more stunning considering that many if not most of the missions the Air Force and Space Force are responsible for—like air superiority, aerial refueling, air mobility, airborne and space-based communications and ISR—benefit forces from all the services. No U.S. joint force operation can be conducted without some element of the Department of the Air Force being involved. This cannot be said about any other military department. Furthermore, current high inflation rates will decrease the Air Force's purchasing power despite modest defense spending plus-ups proposed by Congress.

The Air Force's ability to modernize and transition to a more lethal and survivable force will not improve over the foreseeable future without significant growth in its budget and a more equitable allocation of spending across the services. The current Air Force Chief of Staff coined the motto of "accelerate change or lose." The current Secretary of the Air Force has defined his top three priorities as "China, China, China." Without a major shift of resources toward the Department of the Air Force soon, what the DOD risks accelerating is not change, but its potential of losing to China.[29]

Smallest Budget, Flat Modernization

For decades, budgets allocated to the Army and Navy far exceeded funding provided to the Air Force. This budget share disparity is a leading reason for why the Air Force has not recapitalized much of its existing forces and modernized for the future. Over the last five years, the Air Force's procurement funding remained flat even as its RDT&E budget climbed to an all-time high. In other words, the Air Force continues to invest in next-generation technologies needed to compete with China, but it simply does not have the budget to begin procuring them in the numbers required to fight and win a major peer conflict. As the former Commander of the Air Force's Air Combat Command General John Corley explained, "If it's always about 'program next,' you'll never have a program at all."[30]

This also helps explain why its acquisition of new aircraft has lagged the Navy's aircraft buys for 16 of the past 21 years. Importantly, Navy aircraft are primarily deployed and controlled from a small number of carriers, whereas Air Force aircraft provide more options and flexibility to combatant commanders. In other words, while additional naval aviation capacity is appreciated, a lag in Air Force procurement denies planners and combatant commanders of the critical airpower capabilities they

require. A more equitable division of the defense budget—even if it doesn't reach the mythical one-third mark for each of the services—would go a long way toward resolving the Air Force's modernization deficits.

The One-Third, One-Third, One-Third Budget Split Myth

For the last three decades, the Air Force's budgets have been smaller than both the Navy and Army's budgets. The comparison in Figure 15 dispels the persistent myth that each service traditionally receives about one-third of the defense budget. On the contrary, the Air Force's share by percentage has remained well below 25 percent of DOD's budget since 1992 and dropped to an all-time low of less than 20 percent in the 2000s. Even DOD's defense wide spending—after adding funding that passes through the Air Force—exceeded the Air Force's budget share throughout the 2010s, as shown by the purple line in Figure 15. This transparency is the reason why pass-through funding should be reported as part of DOD's defense wide budget instead of funding that is allocated for the Air Force's use, which it is not.

For the sake of comparison, Figure 15 also shows that the Army received about $1.3 trillion more than the Air Force since 2002, which averages to about $66 billion more per year than the Air Force. While that allocation was understandable given the Army's predominant role during counterinsurgency and counterterrorism operations in Iraq and Afghanistan, we are no longer in Iraq or Afghanistan. This analysis shows clearly that the declining size, capability, and readiness of the Air Force is in part due to the disparity in funding the Army received relative to the Air Force after 2002. Now that money needs to come back to the Air Force to make it whole—not just for the sake of the service itself, but for all U.S. forces that depend on the necessary, enabling capabilities that air and space forces alone provide. Allocating even half

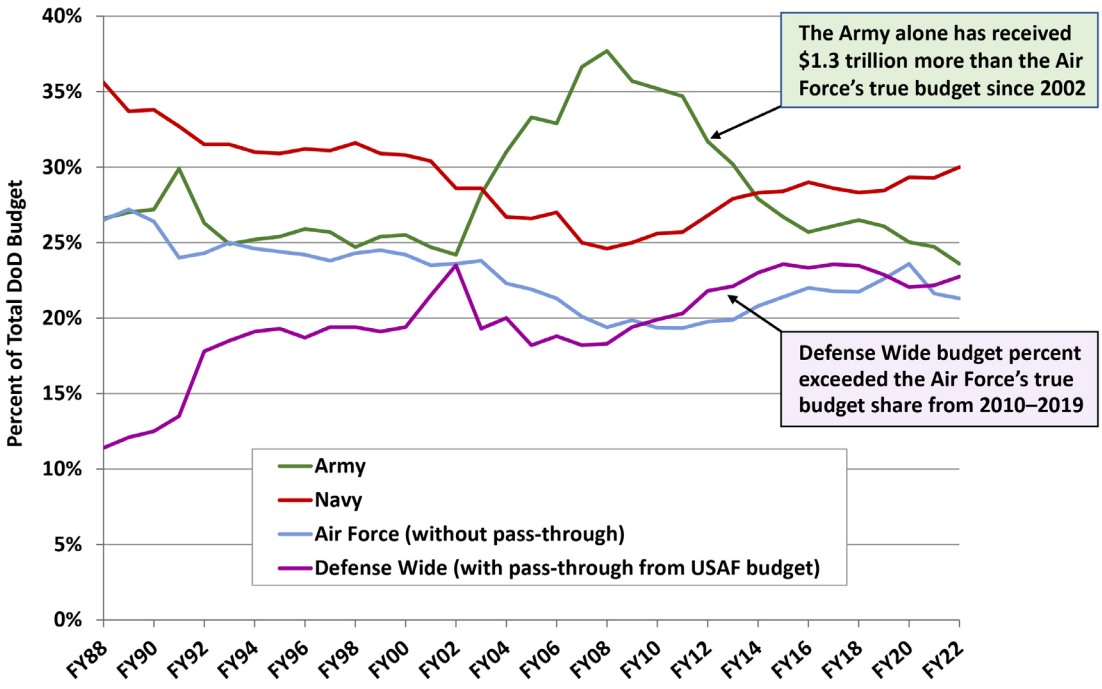

Figure 15: The Air Force's True Share (Without Pass-Through) of the Defense Budget Has Lagged Other Services for Decades

Credit: Mitchell Institute. Data from OUSD(C) Greenbook and U.S. Air Force.

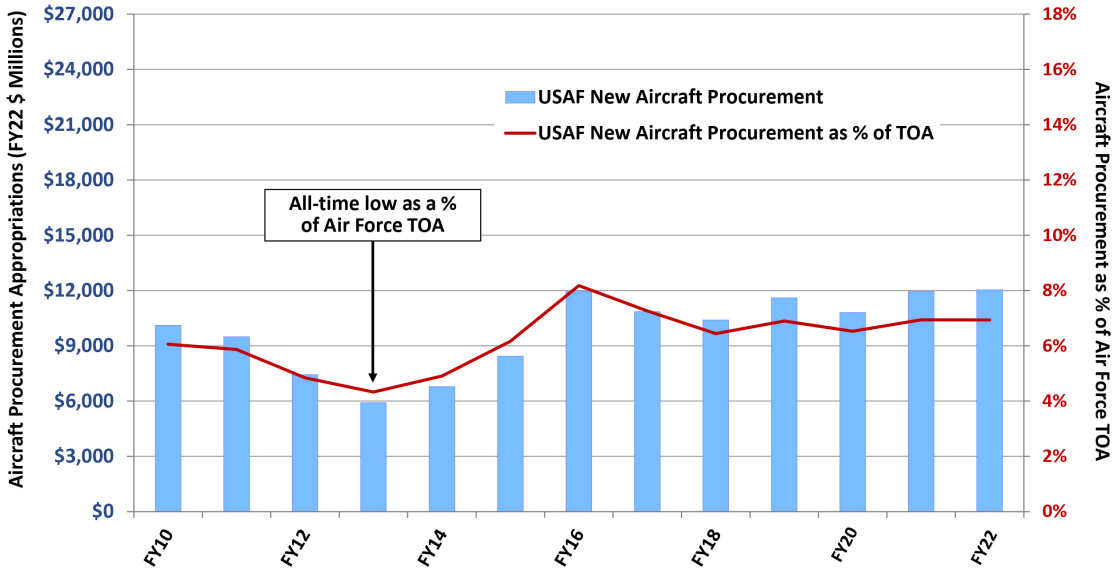

Figure 16: Air Force New Aircraft Procurement in Dollars and as a Percentage of its TOA

Credit: Mitchell Institute. Data from OUSD(C) Greenbook and U.S. Air Force.

this amount to the Air Force could fund the B-21 bomber program, recapitalize the Air Force's ICBM forces, increase its acquisition of 5th generation fighters, and develop new air-to-air and air-to-ground munitions that are suitable for high-end warfare in contested environments.

Developing but Not Acquiring Next-Generation Aircraft

With few exceptions, the Air Force's spending on new aircraft has remained flat since the end of the Cold War. As the red line in Figure 16 shows, the Air Force was able to allocate less than 8 percent of its TOA to buy new aircraft over the last decade—and that number has hovered around 7 percent for the last five years. This is entirely due to the Air Force's lack of funding, not a lack of requirements. Instead of buying significant numbers of new combat aircraft, DOD's reasoning in the 1990s and the 2000s was that the Air Force should continue to invest in next-generation aircraft technologies so it could acquire them "when they matured" and "when needed." This was a holding pattern that delayed modernization of the Air Force's CAF through the 2010s and continues to do so. Thirty years after the Cold War, the Air Force still does not have a 5th generation force that is capable of meeting current operational demands, and it will not be able to quickly procure new aircraft in the number needed to fulfill all its obligations.

DOD now admits the Air Force—and the other services—are behind China in fielding game-changing technologies like hypersonic weapons, directed energy systems, and next-generation uninhabited aerial vehicles. The good news is the Air Force's advanced technology investments have grown robustly over the last few years—to a combined 23 percent of its total budget projected for FY22–23—which should be expected in a sprint to modernize. The not-so-good news is the Air Force's procurement funding does not match its RDT&E increase. As shown by the red line in Figure 17, procurement is in decline, which helps explain why the Air Force has not been able to buy more F-35As and other capabilities that are in production.

All said and done, the Air Force continues to lack the resources it needs to fill both capability and capacity gaps created by

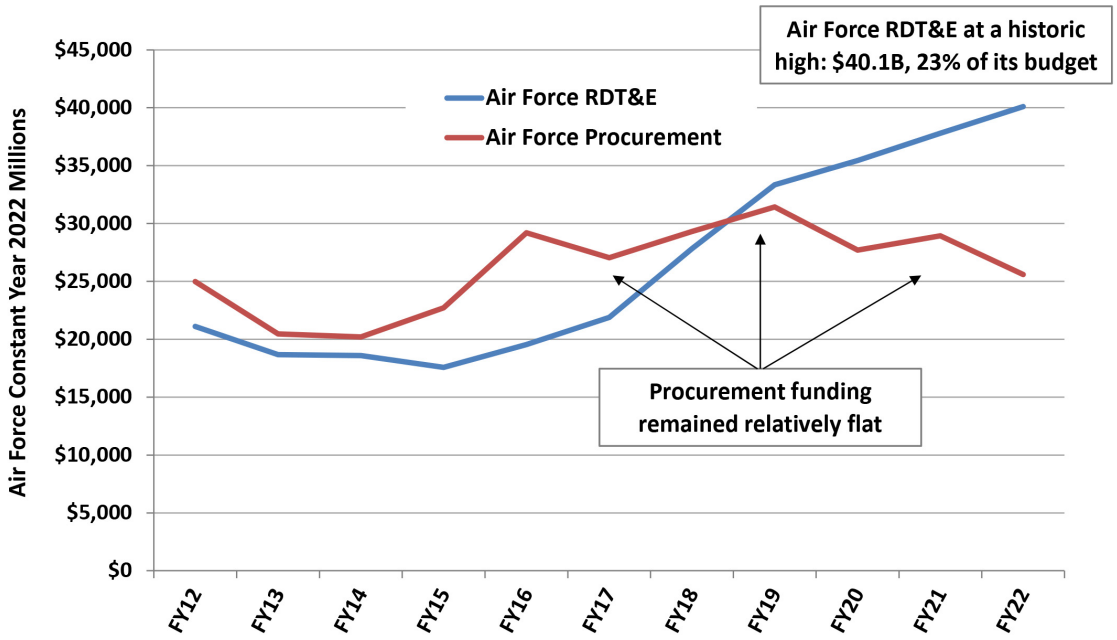

Figure 17: Air Force Procurement Has Remained Flat As RDT&E Grew to a Historic High

Credit: Mitchell Institute. Data from OUSD(C) Greenbook and U.S. Air Force.

decades of budgets that were simply too small. Even the U.S. Navy was able to buy more combat aircraft than the Air Force for 16 of the last 21 years. In fact, the Department of the Navy procured more new aircraft from FY08 to FY19 than all types of aircraft the Air Force bought over the same period. This is directly attributable to the Navy receiving a larger share of the defense budget.

Although the picture presented in Figure 18 has slightly improved in the Air Force's favor over the last couple of years, service roles and functions—much less common sense—dictates its new combat aircraft buys should consistently outstrip it sister service's. Realistically it should not even be close, given the Air Force is responsible for controlling the air, striking enemy forces over long distances, providing close air support, and conducting other missions in the air that create the conditions required for all joint operations to succeed.[31] Again, addressing this disparity will require DOD and the Congress to revisit how the defense budget is allocated across the services over the long term.

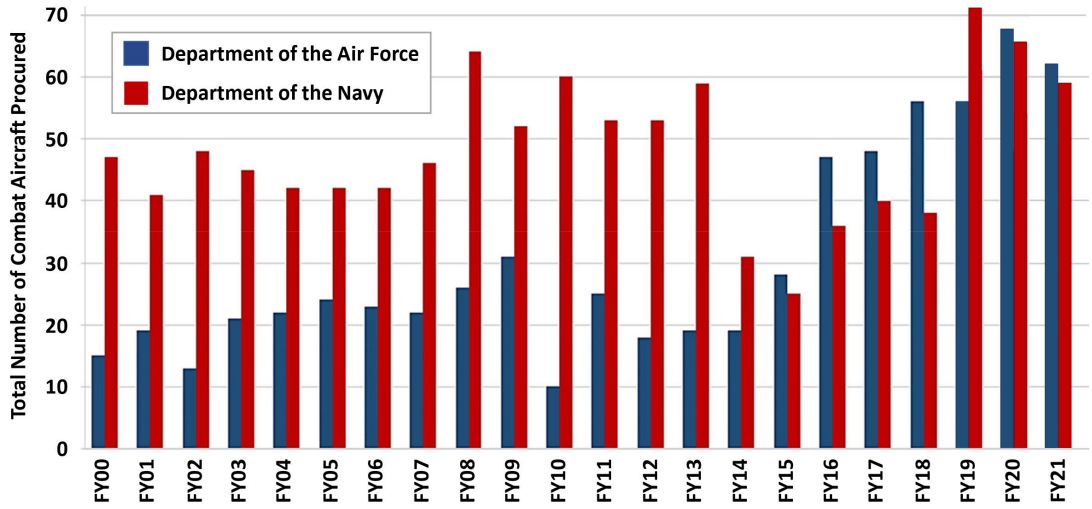

Figure 18: Comparing the Number of Combat Aircraft Procured by the Air Force and Navy

Credit: Mitchell Institute. Data in Figure 18 was compiled from Department of the Navy and Department of the Air Force Aircraft Procurement documents published by the services and the Office of the Under Secretary of Defense (Comptroller).

Conclusion and Recommendations

Years of flat or declining defense budgets after the Cold War have taken a predictable toll on the U.S. military. The toll has been greatest on the Air Force, which operated for decades on budgets that were smaller than the Navy and the Army's budgets. Worn out jets, aircraft inventories that lack attrition reserves, and an insufficient number of 5th generation aircraft suitable for peer conflicts are all directly attributable to a lack of funding. This trend continues today as the Air Force proposes retiring additional force structure to fund some—but not all—of its most critical modernization needs. Ultimately, this is a detriment to the viability of the entire joint force and limits core options available to America's theater commanders.

In summary, the post-Cold War defense modernization holiday that lasted for decades is a major reason for why the Air Force has a significant strategy-resource gap. The Air Force's topline and modernization budgets dropped precipitously in the aftermath of the Cold War and again in the late 2000s after the surge of U.S. forces to Iraq began to wind down. After reaching a low point in FY13, the Air Force's share of the defense budget slowly increased. This modest increase helped the Air Force to fund some critical near-term readiness shortfalls but did not reach the level needed to place it solidly on the path toward creating a modernized force that also has the capacity required by the *U.S. National Defense Strategy*. The Mitchell Institute recommends the Congress and DOD should reverse the Air Force's unchecked trend toward a smaller, older, and declinedingly ready force by taking the following actions:

- Provide a transparent picture of the Air Force's budget and how DOD allocates resources across the services by removing pass-through funding from the Air Force's budget. This pass-through funding should be added where it belongs—to DOD's budget category that includes funding for defense agencies and other non-service organizations, not the Air Force's budget. At the very least, Congress should require DOD's official budget documentation to clearly identify funding that directly goes to the Air Force without any pass-through.
- Improve the Air Force's ability to attain the resources it requires to meet the demands of the *National Defense Strategy* by developing a force sizing construct. Without such a construct, the service's force structure and personnel size have been driven by available budget, not by strategy. Correspondingly, the underlying reason the Air Force has not been effective in acquiring the force structure, associated manpower, and modernized capabilities needed to develop a war-winning force is this lack underlying rationale for these entities that is easily understood by the Office of the Secretary of Defense, the Office of Management and Budget, other White House leadership, and the Congress. Air Force leaders should increase their focus on building an enduring force sizing construct that provides a logical, relevant, and easily understandable means for the American people and Congress to comprehend the tie between the demands of the *National Defense Strategy* and the quantity and types of aircraft needed to execute it.[32]
- Resolve the imbalance in the budget allocation that benefitted the Army while engaged in fighting in Iraq and Afghanistan. For those 20 years, the Army received $66 billion more per year than the Air Force. That

disparity, in part, resulted in the current situation where the Air Force is the oldest, smallest, and least ready in its history. We are no longer engaged in Iraq or Afghanistan, and now a greater proportion of DOD's resources must return to the Air Force to make it whole. The Air Force's ability to modernize and transition to a more lethal, survivable force will not improve over the foreseeable future without significant growth in its budget and a shift in allocation of resources from the other services to the Air Force. The Air Force, followed by the Navy, should receive the largest shares of the DOD budget given the need to increase DOD's capacity of modernized air and maritime capabilities to deter and, if necessary, defeat Chinese aggression—DOD's pacing threat.

- Reverse the trend toward a smaller and older Air Force by increasing its budget by 3 to 5 percent annually after adjusting for inflation. Real budget growth combined with a more equitable distribution of resources across the services is the only realistic path toward creating a modernized Air Force that also has the force capacity to win. The service simply cannot retire enough old to buy enough new.
- Reduce risk in the near-term and mid-term by increasing the Air Force's acquisition of next-generation capabilities that are currently or will soon be in production. This includes ramping up F-35A procurement to 60 to 80 per year as soon as possible, increasing annual B-21 deliveries as much as possible, and buying larger quantities of advanced precision-guided munitions that are designed for strikes into contested operational environments.

Providing Congress and other U.S. national security leaders the information they need to fully understand the capabilities and force capacity the *U.S. National Defense Strategy* requires of the Air Force is the first step toward rebuilding a force that can win. However, understanding these facts alone will not suffice—the Air Force must also receive a larger share of the DOD budget if it is to halt its spiral toward a smaller, older, and less ready force. This means increasing its overall procurement funding with a priority on fielding, as quickly as possible, new combat aircraft and weapons that will reduce risk of Chinese aggression in the 2027–2030 timeframe. Without more resources, this risk will grow, and the Air Force will not have the lethality, survivability, and capacity to project decisive power that denies a Chinese *fait accompli* and defend the U.S. homeland against nuclear and non-nuclear threats. ✪

Endnotes

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4 Dakota L. Wood, ed., *2022 Index of Military Strength* (Washington, DC: Heritage Foundation, 2022), p. 19.

5 "President George H.W. Bush's Address Before A Joint Session Of The Congress On The State Of The Union," *C-SPAN*, January 28, 1992.

6 These cuts are based on the difference between the Air Force's 1991 force and the Bottom-Up Review's projected force for 1999. A "fighter wing equivalent" was defined as three squadrons with a total of 72 fighter aircraft. See John T. Correll, "The Legacy of the Bottom-Up Review," *Air Force Magazine*, October 2003.

7 DOD, *Report of the Quadrennial Defense Review* (Washington, DC: DOD, May 1997), p. 45.

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9 "Combat Air Forces (CAF) Restructuring," U.S. Air Force briefing, May 13, 2009, slides 2 and 3.

10 "Combat Air Forces (CAF) Restructuring," slide 3.

11 TAI includes aircraft that are "assigned to operating forces for mission, training, test, or maintenance functions." The Air Force defines its mission aircraft—also called Primary Mission Aircraft Inventory—as aircraft that are "assigned against a unit for the performance of its wartime mission." U.S. Air Force, "Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination," September 27, 2019, pp. 47–48 and Attachment 2.

12 For more on these limitations, see Mark Gunzinger, *Long-Range Strike: Resetting the Balance of Stand-In and Stand-Off Forces* (Arlington, VA: Mitchell Institute for Aerospace Studies, June 2020).

13 John A. Tirpak, "New Power for the B-52," *Air Force Magazine*, March 23, 2022; and John A. Tirpak, "Cost of B-52 Re-Engining Jumps By Half in New Estimate of Refit," *Air Force Magazine*, May 19, 2022.

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19 David Ochmanek, "Determining the Military Capabilities Most Needed to Counter China and Russia: A Strategy-Driven Approach," *RAND Perspective*, June 2022.

20 For a report on this independent complementary study, see Mark Gunzinger et al., *An Air Force for an Era of Great Power Competition* (Washington, DC: Center for Strategic and Budgetary Assessments, March 29, 2019).

21 For a more in-depth analysis of the history of DOD's two-war requirement and the strategic impact of shifting to a one-war force sizing construct, see Mark Gunzinger and Lukas Autenried, *Building A Force That Wins: Recommendations for the 2022 National Defense Strategy* (Arlington, VA: Mitchell Institute for Aerospace Studies, June 2021).

22 Aircraft inventory requirements shown in Figures 6 and 7 were based on data from the 2018 National Defense Authorization Act Section 1064 Air Force Aircraft Inventory Study completed by the Center for Strategic and Budgetary Assessments in 2019. The study estimated future Air Force aircraft inventory requirements for a two-war scenario plus homeland defense, nuclear and conventional deterrence, and other requirements of the 2018 National Defense Strategy as required by the NDAA. For more information on the study's methodology and recommendations, see Gunzinger et al., *An Air Force for an Era of Great Power Competition*.

23 According to U.S. Air Force inventory data, there are 2,176 TAI fighters, of which 520 are TAI F-35s and F-22s (24%); and there are 1,420 mission fighters, of which 292 are mission F-35s and F-22s (20.4%).

24 Abraham Mahshie, "Air Force 'Would Buy More F-35s' if Resources Allowed, Plans and Programs

Chief Says," *Air Force Magazine*, March 29, 2022.

25 Stephen Losey, "As Air Force plans for new aircraft, senators worry about capability gaps," *Defense News*, May 17, 2020.

26 The Air Force originally intended to acquire up to 750 F-22s. The 1993 Bottom-Up Review reduced this to 438 aircraft, and the 1997 Quadrennial Defense Review further reduced planned acquisition to 339 F-22s. This was finally cut to 187 F-22s.

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