AMERICA NEEDS TO DEVELOP A NEW BOMBER NOW

WHY BUILDING THE LONG-RANGE STRIKE BOMBER IS CRUCIAL TO OUR NATION'S SECURITY

LOREN B. THOMPSON

SUMMARY CONTENTS

1. **Bombers have played a vital role in recent conflicts (page 3).** From the Balkans to Afghanistan to Iraq to Libya, the Air Force's fleet of long-range, heavy bombers has proven highly useful in defeating diverse adversaries. Bombers typically deliver a disproportionate share of the munitions expended in air campaigns, and the advent of precision-guided weapons has enabled them to hit many targets in a single flight -- day or night, in good weather or bad.

2. **Heavy bombers are uniquely versatile and cost-effective (page 5).** The defining features of heavy bombers are long reach and large payloads. These features have allowed them to adapt to changing threat conditions in a way that smaller tactical aircraft -- manned or unmanned -- could not. For instance, the B-52 bomber debuted as a high-flying nuclear bomber, but later became a low-level penetrator, then a conventional bomber, and today a mixed-use strike aircraft that can launch cruise missiles.

3. **The current bomber force is capable but aging (page 6).** The heavy bomber force includes 76 B-52 Stratofortresses averaging 50 years of age, 63 B-1 Lancers averaging 28 years, and 20 B-2 Spirits averaging 20 years. Each of the bombers can deliver a mixed payload of precision munitions to an unrefueled range of 6,000 miles or greater. The B-52 is the only standoff cruise missile carrier in the fleet, the B-1 is the only supersonic bomber, and the B-2 is the only stealthy bomber. All three are facing age-related issues.

4. **Efforts to buy a new bomber have been repeatedly delayed (page 7).** When the Cold War ended, the defense department terminated production of the B-2 and ceased development of new bombers for the first time since the 1920s. Plans to pursue a next-generation bomber were delayed by changing threat conditions and the appearance of new technologies that could bolster the performance of aging planes. As a result, the U.S. has not developed a new heavy bomber in three decades.

5. **The Air Force has plans to develop a new bomber (page 9).** The Air Force has budgeted $6 billion for development of a Long Range Strike Bomber (LRS-B) between 2013 and 2017. The service says it will buy 80-100 aircraft at an average cost of $550 million each, with initial operational capability in 2025. Although details are secret, experts predict the new bomber will be able to operate autonomously in hostile airspace, carrying a mixed payload of precision munitions over intercontinental distances.

6. **Existing strike capabilities must be upgraded as a new bomber is developed (page 11).** It will take 20 years to develop, produce and deploy LRS-B. During that time, the Air Force must continue sustaining legacy strike aircraft to deter aggression and defeat aggressors. Each of the bombers in the current fleet requires upgrades to enhance connectivity with other friendly forces, expand the range of munitions that can be delivered, and cope with age-related maladies such as metal corrosion.

7. **Failure to develop a new bomber could have fatal consequences (page 12).** The existing bomber force cannot cope with new challenges indefinitely. As countries like China pursue anti-access strategies and more agile air defenses become available to potential adversaries, the U.S. must recapitalize its aging bomber fleet. Failure to do so could eventually result in major military setbacks, since future enemies will doubtless attack the joint force where it is weakest.

INTRODUCTION: AMERICA NEEDS A NEW LONG-RANGE BOMBER

It is now nearly a hundred years since the U.S. Army's air service took delivery of America's first bombers in the waning days of World War One. Those fragile aircraft arrived too late to make a difference in the war's outcome, but bombers have played a role in every major military campaign the nation has mounted since then. As early air-power theorists predicted, long-range strike aircraft had a unique ability to fly over distant frontiers and deliver decisive blows against an enemy's heartland, destroying the capacity to sustain a war effort.

Over time, bombers proved capable of doing much more. With the arrival of atomic weapons they became the backbone of the U.S. strategic deterrent, discouraging nuclear attacks. When precision-guided munitions ("smart bombs") appeared, bombers acquired the ability to hit pinpoint targets without harming nearby civilians—even in the midst of raging sandstorms. And as the new millennium dawned, bombers took on the novel role of supporting the global war on terror, providing tailored effects suited to the elimination of elusive foes.

No other combat system in the U.S. arsenal is capable of reaching remote targets so quickly with discriminate, decisive effects. U.S. leaders recognized the unique potential of long-range strike aircraft shortly after World War Two by making them the centerpiece of a newly independent Air Force, and new technology has since conferred upon them the ability to carry out missions air-power enthusiasts of an earlier day could barely imagine. However, a combination of changing threats, technological options and political fashions led to doubts about the path forward after the Cold War ended, and plans for future bombers faltered.

As a result, the Air Force's inventory of heavy bombers has shrunk and aged to a point where its capacity to win future wars is increasingly in doubt. Many of the bombers in the fleet now exceed 50 years of age, and continuous efforts to equip aging aircraft with new equipment have not closed the technological gap that results from failing to develop an all-new aircraft for nearly three decades. Favorable circumstances that enabled the joint force to win without new bombers are gradually disappearing as overseas base access diminishes, foreign air defenses improve, and threat scenarios multiply.

Against that backdrop, the Lexington Institute has prepared this report to explain concisely why the military can no longer delay development of a new long-range strike aircraft. The report describes how bombers have contributed to recent military campaigns and why they provide unique capabilities to the joint force. It then details deficiencies in the current bomber force and explains how the Air Force proposes to remedy those deficiencies by developing a new aircraft. It concludes with an assessment of the risks that would result from failing to buy better bombers soon, and argues that quick development of a new long-range strike aircraft should be a national priority.

A Boeing B-17 Flying Fortress bombing the Focke Wulf fighter plant in 1943. The legendary B-17 was developed in the 1930s to implement the precision-bombing doctrines of air-power proponents within the U.S. Army, and delivered 43% of all the bombs dropped on Axis powers in Europe by the Allies during World War Two.

BOMBERS HAVE PLAYED A VITAL ROLE IN RECENT CONFLICTS

Heavy bombers began playing an important role in U.S. military strategy during World War Two, when aircraft such as the B-29 Superfortress devastated Axis nations in massed raids often involving hundreds of aircraft. However, plans to use bombers for targeting bottlenecks in the enemy war economy were undermined by poor accuracy, high attrition rates, and the frequent diversion of aircraft to missions supporting ground troops. As the war progressed, U.S. bombing tactics increasingly stressed indiscriminate attacks on urban areas. This trend continued into the Cold War, when the primary mission of bombers became nuclear deterrence.

Bombers remain part of the nation's nuclear force today, providing greater flexibility than the ballistic missiles that make up the rest of the strategic arsenal. However, the main role of long-range strike aircraft now is to deliver tailored, precise effects against conventional and unconventional foes (like terrorists). A key turning point was reached after Operation Desert Storm (the first Gulf air war) in the 1990s, when satellite- and laser-guided weapons began to reach the force in large numbers. So-called smart bombs enabled bombers to accurately target a dozen aim-points in a single flight, greatly increasing the effectiveness of U.S. air strikes while reducing civilian casualties.

The enhanced precision of heavy bombers was exhibited during Operation Allied Force—the Balkan air war—in 1999, when stealthy B-2 bombers flying round-trip missions from the U.S. Midwest delivered 2,000-pound Joint Direct Attack Munitions against Serbian economic, military and political targets in response to the ethnic cleansing of Kosovo. Because the accuracy of JDAM bombs depended on signals from Global Positioning System satellites rather than visual sighting of targets, they were well-suited to delivering pinpoint attacks in the often stormy weather conditions of the Balkans. Thus, whereas multiple aircraft were often needed to destroy a single target in 1991, by 1999 one aircraft could destroy multiple targets.

Because Serbia was readily accessible from NATO bases and carriers at sea, a diverse mix of aircraft was used to win in the Balkans. The challenge was different two years later when coalition forces launched an air campaign in Afghanistan following the 9-11 attacks. Afghanistan was landlocked and remote, making the long ranges and big payloads of heavy bombers more crucial to success. All three U.S. bomber types—the venerable B-52, the supersonic B-1, and the stealthy B-2—were used in Afghanistan, and they became the stars of the air campaign. Two-thirds of the munitions dropped during the most intensive months of air operations were carried by 18 B-52s and B-1s flying 15-hour missions from Diego Garcia in the Indian Ocean.

Operation Enduring Freedom, the official name of the campaign in Afghanistan, was the first in which U.S. bombers routinely relied on datalinks with ground forces in order to target their munitions in the most effective ways. That tactic, which was dictated by the fluid nature of the threat, carried over into the Iraq campaign that began two years later—known as Operation Iraqi Freedom. During the initial stages of the air campaign in 2003, all three bomber types were once again used to destroy Iraqi military and political targets, quickly collapsing enemy defenses. As the campaign progressed, bombers increasingly relied on en-route updates to guide them in hitting key targets. The air war accomplished most of its key objectives in a mere three weeks.

A Boeing B-52 Stratofortress, arguably the most successful heavy bomber ever developed. Over 700 of the planes were built for the U.S. Air Force during the early Cold War period, and they remain the most common airframe in the U.S. bomber fleet today despite the fact that production ceased four decades ago.

HEAVY BOMBERS ARE UNIQUELY VERSATILE AND COST-EFFECTIVE

Heavy bombers have been defined since their birth by the ability to deliver large payloads of munitions over long distances. Early air-power enthusiasts saw them as an alternative to ground combat because they could fly over front lines to attack the "vital centers" of enemy power. Although poor bombing accuracy and the advent of radar dashed hopes that bombers could win wars quickly, later technological developments restored their war-winning potential. Today, a B-2 bomber can safely penetrate the airspace of any nation thanks to stealth features that make it largely invisible to radar, and it can reliably target dozens of aimpoints in a single flight thanks to lightweight, satellite-guided smart bombs.

Bombers are adaptable to changing threat conditions in a way that smaller, more specialized aircraft are not. For instance, the B-52 Stratofortress debuted at the dawn of the Cold War as a high-flying strike aircraft designed to penetrate Russian airspace with atomic bombs. As Russian defenses improved, the B-52 transitioned to low-altitude penetration so that it could escape detection by Soviet radar. When new bombers better suited to the penetration mission joined the fleet, the B-52 was transformed into a standoff carrier of nuclear-armed cruise missiles that could launch its weapons from outside Russian airspace. As its nuclear role was evolving, the B-52 went through a series of additional transformations to facilitate its use as a non-nuclear bomber—eventually supporting counter-insurgency operations in Afghanistan.

The B-52 example highlights the fact that when strike aircraft have long ranges and large payloads, they can respond more readily to new requirements. Long range enables the planes to fly evasive routes to distant targets rather than following predictable paths, or to circle above elusive targets for hours until the time is right to strike. Large payloads permit strike aircraft to carry a mix of munitions from bunker-busters to area-denial systems, so that a diverse array of targets can be addressed in one flight. It is harder to achieve such flexibility using smaller aircraft such as fighters, because their limited range leaves them dependent on nearby bases or aerial refueling, and their limited bomb-loads must be tailored to specific classes of targets.

For many missions, heavy bombers are inherently more effective than alternative systems. In the case of nuclear deterrence, a manned bomber can be recalled or retargeted in a way that ballistic missiles, once launched, cannot. Having pilots in the cockpit also makes bombers better suited to search-and-destroy missions against mobile targets than cruise missiles or remotely-piloted drones would be. And even though fighters are more agile than bombers, their limited combat radius often precludes them from executing strike missions in circumstances where local bases and/or aerial refueling is unavailable. Some analysts believe that U.S. bases in the Pacific are either too close to China (and therefore vulnerable) or too far away to allow effective use of fighters in a future war.

The operational advantages of heavy bombers have been somewhat obscured in recent conflicts by the modest military capabilities of adversaries and geography that was favorable to U.S. warfighters. When enemies lack air defenses and local allies permit access to nearby bases or littoral waters, the U.S. military has a diverse portfolio of strike options from which to choose. However, conditions will not always be so advantageous to U.S. warfighters in the future. Well-equipped adversaries will be able to destroy the nearby bases of U.S. allies, and keep U.S. aircraft carriers at bay. Integrated air-defense networks will prevent U.S. aerial-refueling tankers and reconnaissance aircraft from entering local airspace. In such "anti-access" conditions, bombers may be the only strike option available.

THE CURRENT BOMBER FORCE IS CAPABLE BUT AGING

The operational effectiveness of bombers depends on keeping pace with new threats and new technology. When threats and technology change incrementally, aircraft can be kept useful by upgrading on-board equipment and providing links to off-board capabilities. When threats and technology change in major ways, though, it is necessary to develop new aircraft. For example, no amount of modification can make a non-stealthy aircraft as survivable as an aircraft that was designed to be stealthy. During the Cold War, the U.S. Air Force continually developed new bombers as the Soviet Union and other adversaries fielded air defenses that raised doubts about the ability of existing strike aircraft to successfully accomplish their missions.

Today, the U.S. long-range bomber force consists of three aircraft types that were conceived at different stages in the evolution of the Soviet threat. There are 76 B-52 Stratofortresses averaging 50 years of age, 63 B-1 Lancers averaging 28 years of age, and 20 B-2 Spirits averaging 20 years of age. A total of 744 B-52s were built during the Eisenhower and Kennedy Administrations, mainly to provide a manned intercontinental delivery system for the nation's nuclear force. A hundred B-1 bombers were produced during the Reagan Administration to provide a more survivable, supersonic successor to the B-52 while awaiting delivery of the stealthy B-2 bomber. The Pentagon had planned to buy 132 B-2s, which were configured to penetrate Soviet airspace in pursuit of mobile strategic targets during a nuclear war, but the program was canceled after 20 planes were ordered when the Cold War ended.

Each of these aircraft combines the key features of heavy bombers—long ranges and large payloads. The B-52s can carry 70,000 pounds of munitions nearly 9,000 miles without refueling, and even farther if tanking is available. The B-1s can carry 75,000 pounds of munitions to an unrefueled range of 7,500 miles. The B-2s have a smaller payload of 40,000 pounds, which can be carried up to 6,000 miles without refueling. As military requirements have evolved, each bomber has been optimized for certain types of missions. For instance, the B-2 is the only stealthy plane in the bomber fleet, and thus typically flies on the first days of war before enemy defenses have been suppressed. The B-1 is the only supersonic plane in the bomber fleet and has the biggest payload, making it well suited to delivery of weapons like area-denial munitions. The B-52 is the only U.S. bomber that can launch long-range standoff weapons like cruise missiles.

It is a testament to the versatility of heavy bombers that all the planes in today's fleet are flying missions considerably different from those for which they were first conceived. The utility of bombers is further underscored by the fact that on any given day, less than a hundred heavy bombers are kept in a high state of readiness for combat operations. Yet from the Balkans to Afghanistan to Iraq to Libya, the bombers have consistently accomplished their wartime objectives. The question military planners face today is whether that will continue to be the case in the years ahead as potential enemies field more lethal air defenses and changing circumstances make alternatives to bombers less viable.

Although all three bomber types are expected to remain in the active force until 2040, over time metal fatigue, corrosion and parts obsolescence take a toll on airframes. In addition, the ability of even the stealthy B-2 to penetrate hostile airspace will diminish as other countries learn how to counter the current defensive features of U.S. bombers. Even if potential adversaries were not deploying new technologies aimed at denying access to their airspace, the cost of maintaining and modernizing aged aircraft will become increasingly burdensome. For all of these reasons, the nation needs to develop a new long-range bomber that can address emerging threats with the latest technology. It will take at least 20 years to design, develop and produce such a bomber, by which time today's planes will be thoroughly obsolete.

EFFORTS TO BUY A NEW BOMBER HAVE BEEN REPEATEDLY DELAYED

The average age of aircraft in the U.S. heavy bomber fleet is 33 years, making today's force the oldest ever. Because there are no plans to produce new bombers until late in the next decade, the fleet will probably continue aging until it reaches an average lifespan of 50 years in 2030. If other nations continue upgrading their air defenses during the same period, the ability of the bomber fleet to accomplish wartime objectives could be significantly degraded—particularly if those objectives require penetration of hostile airspace. Doubts about the future effectiveness of the fleet are traceable to delays in developing and producing next-generation bombers following the end of the Cold War.

During the early decades of the Cold War, the Air Force always had multiple bombers in development or production as it sought to fashion the most credible nuclear deterrent. Bomber development slowed with the advent of intercontinental ballistic missiles, but then accelerated in the late 1970s as advances in stealth technology opened the way to big gains in survivability. During the Reagan years, the U.S. built two new bombers, the supersonic B-1 and the very stealthy B-2, greatly enhancing the operational flexibility of a fleet that had come to consist almost exclusively of venerable B-52s. Both new planes were controversial at the time, but they have proven their value in combat over and over again.

By the time the Reagan Administration ended, though, the Soviet Union had begun the decline that would lead to its breakup in the early 1990s. With the main driver of U.S. military needs collapsing, Washington rushed to cut defense spending so it could claim a "peace dividend." The B-2 bomber program was an early casualty of budget cutting, terminated just as it was entering serial production. Shortly after B-2 production funding ceased, a Heavy Bomber Study conducted by the Clinton Administration concluded that a mixed force of legacy B-52s, 100 B-1s and 20 B-2s would be sufficient to meet U.S. needs given reduced global tensions. The plan was to rely on other strike aircraft, mainly fighters, to make up for any shortfall in bomber assets.

The success of air power in the 1999 Balkan war seemed to confirm the findings of the Heavy Bomber Study. Subsequent conflicts in Afghanistan and Iraq focused military requirements away from the bomber force, which from its earliest days had been designed mainly for deterring or defeating peer adversaries. With no such peers on the horizon, there was little sense of urgency about developing a new bomber. Thus, for the first time since World War One, the U.S. spent an entire decade with no bomber under development or in production. The capabilities of the bomber force grew rapidly thanks to the acquisition of smart bombs, digital datalinks and other new technology, but the fleet was aging as a result of the B-2's premature termination.

Recognizing that dealing with future threats might require a more capable fleet, the Air Force began formulating plans for a Next Generation Bomber during the administration of George W. Bush. However, in 2009 Secretary of Defense Robert Gates recommended canceling the program because he believed future bomber requirements needed further refinement. The service then came forth with plans for a new development program called the Long Range Strike Bomber, or LRS-B. LRS-B is now the centerpiece of Pentagon plans to recapitalize the heavy bomber force—a goal that has become more urgent given the repeated setbacks in previous such efforts.

A Boeing B-1 Lancer, the only supersonic bomber in the current U.S. fleet. Originally conceived as nuclear strike systems, the 63 B-1s still in the force today are configured solely for conventional bombing missions and have repeatedly demonstrated their warfighting value in the Balkans, Afghanistan and Iraq.

THE AIR FORCE HAS A PLAN TO DEVELOP A NEW BOMBER

The need for improved long-range strike capabilities has been cited in every Quadrennial Defense Review conducted since the new millennium began. Recognizing that threats were changing, overseas base access was becoming problematic, and the existing bomber force was aging, the Obama Administration in 2010 began planning for a new heavy bomber program designated the Long Range Strike Bomber, or LRS-B. This program is a successor to the Next Generation Bomber program, a medium-range strike aircraft that was canceled in 2009 at the recommendation of defense secretary Robert Gates. Gates stated that the objectives of the earlier program needed to be refined, and LRS-B was structured to address his concerns.

As was the case with the B-2 bomber during its development, the Long Range Strike Bomber is a highly classified (secret) program. Few details about the program's performance specifications have been released, and cost tradeoffs are still being conducted. The Air Force has indicated that it wants to acquire 80-100 new bombers at a unit cost of $550 million each, with initial operational capability achieved around 2025. Fielding in that timeframe would enable the service to assemble a sizable force of new bombers before the oldest aircraft in the current fleet begin retiring late in the following decade. About $6 billion has been budgeted between fiscal 2013 and 2017 to get the program started.

Given the characteristics of the current bomber fleet, many analysts expect the Long Range Strike Bomber to have an unrefueled range of about 5,000 nautical miles and a payload similar to the B-2's 40,000 pounds—with all munitions carried internally to minimize the plane's radar signature. Like the B-52 it may have the capability to launch standoff weapons of considerable range, which presumably would dictate development of a new munition. The airframe, sensors and engines of LRS-B probably will be stealthy across a broader range of frequencies than those of previous bombers, so that the plane can operate for prolonged periods in hostile airspace. Experts also expect a typical cruising speed in the high subsonic range, perhaps with supersonic "dash" capability.

Secretary Gates gave a speech in early 2011 stressing the need for the new bomber program to remain on-budget and on-schedule if it was to meet emerging military needs in a timely fashion. That has not been the pattern in recent bomber development programs, so LRS-B incorporates some novel features aimed at assuring its affordability and timeliness. First, it will leverage proven technologies already in use on other programs, such as the stealth features, radar and engines of the F-35 fighter. Also, it will be designed to serve as part of a "family" of long-range strike systems rather than as a comprehensively capable and self-sufficient airframe. In other words, LRS-B will rely on various off-board systems to reduce the cost of equipment the plane must carry.

However, the bomber probably will need to function autonomously in hostile airspace given the difficulty of relying on off-board capabilities in a threat-rich environment at extreme ranges. That is only one in a series of tradeoffs that will need to be made in the effort to keep the plane affordable. Another challenge is providing LRS-B with safeguards enabling it to carry nuclear weapons, since it will eventually replace many of the planes currently performing the strategic deterrence mission. The Air Force would prefer to delay nuclear certification of LRS-B until it is time for those legacy planes to retire. It also would prefer to delay implementing the option of flying the plane unmanned, since that too would add to cost in the early stages of the program.

The Northrop Grumman-Boeing B-2 Spirit is the nation's most survivable bomber, but only 20 exist. The unique shape of the airframe and other low-observable features enable the B-2 to operate safely in hostile airspace, and it is capable of precisely destroying dozens of targets in a single flight.

EXISTING STRIKE CAPABILITIES MUST BE UPGRADED AS A NEW BOMBER IS DEVELOPED

It will require at least two decades to develop, produce and deploy the Long Range Strike Bomber. Even after it is fully fielded, some of the bombers in the current force are likely to remain operational for additional decades—most notably the B-2 Spirit. Therefore, it is essential to continue maintaining and modernizing the existing bomber force so it remains operationally relevant as threats and technology change. Furthermore, because the LRS-B will comprise part of a "family" of strike systems, it is also necessary to maintain and modernize other parts of that family on which the future bomber will depend. The most important off-board systems that must be sustained are aircraft delivering reconnaissance and electronic-warfare support.

With regard to the other parts of the strike-system family, the effectiveness of the Long Range Strike Bomber will hinge on the availability of various support aircraft that contribute to situational awareness, defense suppression, and other vital aspects of the plane's mission. For example, all of the planes in the current bomber force depend on sensor aircraft such as the E-8 Joint Surveillance and Target Attack Radar System (a ground-tracking radar plane) and the RC-135 Rivet Joint (a signals-intelligence plane) to identify and localize targets. They also are increasingly dependent on electronic-warfare planes such as the Navy's EA-18G Growler to prevent enemy air defenses from tracking and targeting them on penetrating missions.

Such off-board systems also support a host of other aircraft, such as the multirole fighters that the Air Force, Navy and Marine Corps operate. The same is true of aerial-refueling tankers, without which the reach of bombers and fighters alike would be limited to their unrefueled range. Without these aircraft, the joint force would be unable to tailor strike forces to the specific characteristics of emerging threats, reducing the prospects for mission success. In addition, the absence of such off-board capabilities would force designers to equip LRS-B with on-board sensors, jammers and other equipment that could make each bomber prohibitively expensive. So sustaining the full panoply of airborne enablers is important to the bomber's affordability and operational success.

With regard to the heavy bombers already in the fleet, those will have to remain operationally relevant until the Long Range Strike Bomber is available to either replace them or at least take over the most challenging missions. The Air Force has developed plans for upgrading each of the legacy bombers so that they can continue to make useful contributions to the nuclear deterrence mission and to the diverse non-nuclear missions in which the bomber force will be needed. In the case of the B-52's, which average 50 years of age, on-going upgrades include new datalinks, targeting pods, and weapons-bay modifications for carrying joint weapons. Over the longer term, additional upgrades will be needed in the on-board communications and electronic-warfare systems.

The 63 B-1 bombers in the current fleet, which average 28 years of age, will require similar upgrades to their datalinks, navigation systems and on-board radar. The B-1 no longer is equipped for nuclear missions, but it is the only supersonic long-range strike aircraft in the U.S. inventory, and it carries the largest payload of munitions. It thus is likely to play a pivotal role in conventional bombing missions for the next 30 years as the less numerous B-2s are reserved for the most challenging roles. As the youngest and most survivable bomber in the fleet, the B-2 is expected to remain operational for another 45 years; however, that will require periodic upgrades to the plane's stealth features, sensors, communications and weapons-delivery capabilities.

CONCLUSION: FAILURE TO DEVELOP A NEW BOMBER COULD HAVE FATAL CONSEQUENCES

The newest planes in the U.S. heavy bomber fleet were designed over 30 years ago. The world has changed in fundamental ways since they were first conceived. The Soviet Union has fallen and China has risen. The information revolution has transformed commerce and culture. Old technologies of mass destruction have spread to new nations, and new technologies have empowered extremists of every stripe. In sum, virtually every feature of the threat environment has changed since America last commenced development of a new bomber. At some point, it will no longer be feasible to deter and/or defeat emerging threats with combat systems designed for another time.

Although America has encountered unexpected threats in this new age, it continues to enjoy global air dominance. Non-traditional enemies such as the Taliban have lacked the means to challenge U.S. forces in the air, or at sea, or in conventional combat on land, and so have resorted to asymmetric strategies. The legacy bomber fleet and tactical aircraft in the joint inventory have proven highly adaptable to the demands imposed by new kinds of warfare, mainly because there was so little that irregular adversaries could do to deny access to their airspace. As a result, military planners have been under greater pressure to upgrade ground combat systems than their counterparts in the air.

However, one thing that has not changed over the last several decades is the search of America's enemies for places where the forces of democracy are weak. As the long-range bomber force ages, it will gradually come to present an opportunity for rising powers or movements that think they can carve out sanctuaries by denying U.S. air power access to those areas. If they can force U.S. aircraft carriers to remain far away and hold at risk the nearby land bases used by U.S. military aircraft, then the bomber force becomes the sole impediment to their plans short of America launching ballistic missiles. Ballistic missiles will seldom be a cost-effective, proportionate or even credible response to the threats America faces.

Thus, developing a Long Range Strike Bomber that can gradually take over the most demanding missions of America's fading Cold War bomber force is an indispensable step in preserving the nation's security through mid-century. A new bomber will strengthen nuclear deterrence by allowing U.S. leaders to hold at risk the most valued assets of aggressor nations with a strike system that can be quickly recalled or retargeted as conditions dictate. A new bomber will enable the joint force to deliver tailored effects against a wide array of conventional threats at distances beyond the reach of tactical air power, in circumstances where reliance on standoff munitions would be either unaffordable or simply unexecutable.

Most importantly, though, a new bomber would be a hedge against the uncertainty military planners face during a period of unprecedented change in human civilization. Having failed to anticipate most of the major threat developments over the last hundred years, it would be foolish indeed for U.S. leaders to think they have a better grasp of the future now that every facet of human experience is subject to simultaneous change. What they can know, though, is that being able to reach anywhere on earth with survivable, versatile air power will continue to be a crucial feature of U.S. military capability. Failure to preserve that capability by developing the Long Range Strike Bomber could have fatal consequences for U.S. warfighters, and many other Americans.

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1600 Wilson Boulevard • Suite 900 • Arlington, VA 22209
Tel: 703.522.5828 • Fax: 703.522.5837
www.lexingtoninstitute.org • mail@lexingtoninstitute.org