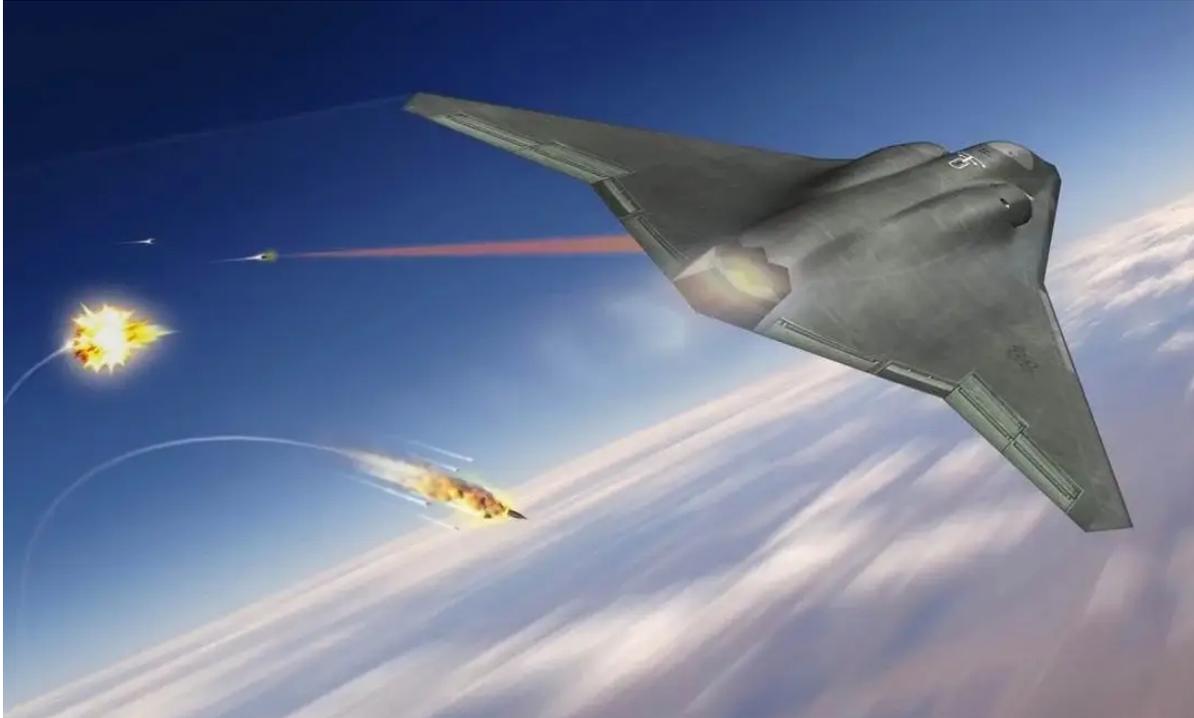




BRIEFER

U.S. Air Force Next Generation Air Dominance (NGAD) Program

Timeline, Budget and Outlook for
Americas Sixth Generation Fighter



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The **U.S. Air Force Next Generation Air Dominance (NGAD) program** is designed to replace the F-22 Raptor with a sixth-generation fighter capable of operating and achieving air superiority in the face of advanced integrated air defense systems and fighter aircraft, including aircraft like the Sukhoi Su-57 and China's emerging inventory of stealth fighters. The Air Force plans for NGAD to incorporate a "family of systems" approach to create a new manned stealth fighter design that works seamlessly in combat with uncrewed assets. A higher level of integration between the fighter and uncrewed assets could enhance the fighter's combat power by allowing it to extend the reach of its sensors and weapons systems while increasing survivability using a range of new technologies. The NGAD program expects to present advanced, unpredictable, and evolutionary elements for the future of air combat and the warfighting domain.

Origin and Timeline

NGAD, since its inception, has undergone a number of strategic changes or updates regarding the exact aim and practical components of the program. During congressional testimony in early 2015, the Pentagon introduced plans for the Aerospace Innovation Initiative, a DARPA-led program designed to produce a semi-joint air platform prototype to replace the Navy's F/A-18 and Air Force's F-22 with a next-generation fighter. The Air Force and Navy have since separated out development analysis for their respective fighter replacement programs, though it is expected the platforms will share some component commonality. Though NGAD, at least initially, was branded

as a fighter replacement, over time the program’s fully realized nature is unknown, as discussion surrounding the manned NGAD aircraft has also included the desire to incorporate the payload, range, and capability characteristics of other types of Air Force aircraft.

A major program milestone occurred in September 2020 when the Air Force announced the flight of an NGAD demonstrator aircraft, though the mission, capabilities, and design elements of the event remain unknown and classified. The Air Force awarded \$975 million contracts to Boeing, GE Aviation, Lockheed Martin, Northrop Grumman, and Pratt & Whitney in August 2022 for propulsion prototypes. The contracts, penned under the Air Force’s Next Generation Adaptive Propulsion (NGAP) program, are expected in part to eventually contribute to the NGAD manned platform engine system. In March 2023, Air Force officials discussed a notional plan for NGAD to initially employ 200 manned aircraft platforms and 300 F-35s, each mated with two unmanned Collaborative Combat Aircraft (CCA), totaling 1,000 autonomous wingman units.



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Most recently, in May 2023, the Air Force [released a classified contract solicitation](#) for engineering and manufacturing development (EMD) for the NGAD manned fighter platform with an intent to sign a deal by 2024. While the major prime military aircraft manufacturers are all considered contenders for the bid, details surrounding a possible producer, or the aircraft itself, are currently unknown.

Budget

Congressional funding for NGAD research and development and concept exploration was first appropriated for FY15 at \$18.2 million. Though funding ebbed in the following years, by FY22 NGAD appropriations surpassed the \$1 billion mark and have increased steadily. For FY24, the White House has requested \$2.3 billion, an increase of nearly \$670 million from FY23, for the program, with a five-year Future Years Defense Program (FYDP) projected total of over \$22 billion. Plans in the current FY24 budget request include the development and integration of NGAD demonstrative prototypes.

The Air Force has previously announced a goal to begin NGAD production by the end of the decade, but critics argue full-scale manufacturing will likely push well into the 2030s.

Development and Outlook

The production outlook for NGAD currently is hazy at best, considering the complexity and scope of the project and the program's highly classified nature. The Air Force has previously announced a goal to begin NGAD production by the end of the decade, but critics argue full-scale manufacturing will likely push well into the 2030s. The 2023 announcement of 200 notional sixth-generation primary NGAD aircraft and 1,000 CCA platforms represents the only known procurement estimate, but these numbers are likely to shift based on future budgeting, production capabilities, and operational requirements. Any NGAD production projection or the Air Force's expected acquisition request is highly speculative. However, given the program's fighter replacement intent, a consideration of the final production number of the Air Force's 195 F-22 aircraft seems warranted. Yet the pairing of unmanned CCA elements with the manned NGAD platform naturally indicates a lower requisite number of primary aircraft.

While the projected average unit cost is unclear, officials have noted the price tag will be enormous, with estimates for the NGAD manned platform reaching into the hundreds of millions of dollars range. Though the feasibility of NGAD exports has not been publicly discussed, foreign sales are unlikely. NGAD's high price point would eliminate any interested buyers, and its sensitive strategic

and technological nature suggest the program will not be marketed outside U.S. borders. The NGAD project defines the Air Force's capital effort to evolve its most advanced and expensive fighter program into the manned/unmanned teaming frontier. The Air Force's future NGAD procurement outlook and budget request are expected to continue to reflect the significance of this enterprise.

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