

The F-35 Does Not Need an Alternate Engine



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About CAGW

Citizens Against Government Waste (CAGW) is a private, nonprofit, nonpartisan organization dedicated to educating the American public about waste, mismanagement, and inefficiency in government.

CAGW was founded in 1984 by J. Peter Grace and nationally syndicated columnist Jack Anderson to build public support for implementation of the Grace Commission recommendations and other waste-cutting proposals. Since its inception, CAGW has been at the forefront of the fight for efficiency, economy, and accountability in government.

CAGW has more than 1 million members and supporters nationwide. Since 1984, CAGW and its members have helped save taxpayers more than \$2.4 trillion. CAGW publishes special reports, including the *Congressional Pig Book* and *Prime Cuts*, as well as its official newsletter *Government WasteWatch* and blog *The WasteWatcher*, to expose government waste and educate the American people on what they can do to stop the abuse of their hard-earned money. Internet, print, radio, and television news outlets regularly feature CAGW's publications and experts.



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Introduction

After winning a multi-year, multi-faceted battle to eliminate funding for a wasteful alternate engine for the F-35 Joint Strike Fighter (JSF) that should have been dead and buried, Citizens Against Government Waste (CAGW) and the Council for Citizens Against Government Waste (CCAGW) are leading the effort to stop its resurrection. The alternate engine is once again being opposed by the Department of Defense (DOD), the White House, and taxpayer groups, but members of Congress are determined to serve their parochial interests at the expense of national security needs and priorities.

The first fight over the alternate engine occurred between fiscal years (FY) 1998-2010. Former Presidents George W. Bush and Barack Obama both agreed it should not be funded, and the Pentagon did as well. Nonetheless, between FYs 1998-2010, legislators added 13 earmarks costing \$1.5 billion for the engine, including \$465 million added anonymously in both FYs 2009 and 2010.

Many of the same arguments against the alternate engine still apply today as legislators once again attempt to circumvent opposition by the Pentagon and White House to fund a second engine for the JSF. As CAGW noted in its September 2009 [issue brief](#), the government would be paying to “develop, produce, and supply the engines.”¹ It would also “have to underwrite two teams of engineers, as well as duplicate sets of tooling, parts, assembly sites, repair facilities, supply chains, management systems, workforces, and every other cost of production.” Adding to these reasons for rejecting the alternate engine now, the Pentagon’s request to upgrade the existing engine would be far less costly, and the alternate engine is not compatible with all three versions of the JSF, making it illogical and particularly wasteful to fund its development. Questions have also been raised about pilot safety if the alternate engine is deployed, and any alleged harm to the industrial base from using a sole-source engine is overblown.

Indeed, the incumbent engine is one of the few parts of the JSF that is not contributing to the cost overruns and delays in the largest procurement program in the history of the country. Producing an alternate engine will increase the many reasons why the F-35 exemplifies the DOD’s broken acquisition system.

The JSF has been under continuous development since the contract was awarded in 2001. Total acquisition costs exceed \$428 billion, 84 percent greater than the initial estimate of \$233 billion, with [projected](#) lifetime operations and maintenance costs of \$1.727 trillion.² In February 2014, then-Under Secretary of Defense for Acquisition, Technology, and Logistics and now Air Force Secretary Frank Kendall [referred](#) to the purchase of the F-35 as “acquisition malpractice.”³ On April 26, 2016, the late John McCain (R-Ariz.), who was then chairman of the Senate Armed Services Committee, [called](#) the JSF program “both a scandal and a tragedy with respect to cost, schedule, and performance.”⁴

Despite annual increases in spending, the DOD’s budget is stretched thin. The Pentagon has correctly decided to eliminate funding for the alternate engine in its FY 2024 budget request and invest in higher national security priorities. However, as in the past, this has raised the ire of members of Congress who are primarily motivated by parochial concerns.

This issue brief is part of CAGW’s and CCAGW’s multi-faceted effort to stop those members of Congress from unnecessarily wasting billions of dollars on the duplicate and unnecessary alternate engine.⁵

1 David Williams and Sean Kennedy, “Joint Strike Fighter Alternate Engine,” Citizens Against Government Waste (CAGW), p. 6, September 28, 2009, https://www.cagw.org/sites/default/files/pdf/2009/jsf_issue_brief_final_sep_28_-1.pdf.

2 Anthony Capaccio, “F-35’s \$10 Billion Funding Gap Hints at a Jet Too Costly to Fly,” *Bloomberg*, September 11, 2020, <https://www.bloomberg.com/news/articles/2020-09-11/f-35-is-running-10-billion-short-through-2025-pentagon-finds?embedded-checkout=true>.

3 Andrea Drusch, “Fighter plane cost overruns detailed,” *Politico*, February 16, 2014, <https://www.politico.com/story/2014/02/f-35-fighter-plane-costs-103579>.

4 Ryan Browne, “John McCain: F-35 is a ‘scandal and a tragedy,’” *CNN*, April 27, 2016, <https://www.cnn.com/2016/04/26/politics/f-35-delay-air-force/>.

5 CAGW, “F135 Engine,” <https://www.cagw.org/f135engine>.

History

The JSF program was designed to create an affordable aircraft for the Air Force, Navy, and Marine Corps. In 1995, there were four participants in the bidding process for the JSF platform: Boeing, Lockheed Martin, and Northrop Grumman, all of which elected to incorporate the Pratt & Whitney engine into their designs, and McDonnell Douglas, which chose a model produced by General Electric (GE) and Rolls-Royce that became known as the F136. Before the competition for the JSF design began in 1996, McDonnell Douglas abandoned its bid and joined with Northrop Grumman. This effectively created three bidders, all of which chose the Pratt & Whitney engine, a variant of the F119 used in the F-22, which would come to be known as the F135.

According to Air Force General George Muellner, who was then the director and program executive officer for the Joint Advanced Strike Technology Program, the bidders were free to choose whichever engine they wanted. In a September 1995 *Aerospace America* interview, General Muellner stated, “We are going to have a competitive flyoff, with two design families competing against each other and a downselect by the year 2000. With regard to the engine, we told the contractors that they were free to select any engine that was or could be available. The weapons system contractors have all selected a variant of the F119 engine for the demonstration phase.”⁶

In 2001, Lockheed Martin’s design, which included the F135 engine, won the contract for the JSF platform, and Pratt & Whitney was awarded a 10-year, \$4.8 billion contract to produce the engine. The alternate engine program received support from the executive branch through FY 2006. In FY 2007, the DOD proposed terminating the F136 GE/Rolls-Royce engine and did not include funds in its budget request. When asked to address the decision by the DOD to forgo funding for the F136, then-Secretary of Defense Donald Rumsfeld [stated](#) on February 16, 2006, “any sole-source risk was modest and acceptable.”⁷

The alternate engine program was the subject of several comprehensive reports indicating that it was duplicative and unnecessary. According to a July 30, 2007, CBS News [article](#), the Air Force and two independent panels concluded that the second engine is “not necessary and not affordable,” and that the alleged savings from creating a mock competition “will never be achieved.”⁸ A March 22, 2007, Government Accountability Office (GAO) [report](#) stated that the DOD did not request funding for the alternate engine in its FY 2007 budget submission because, “no net cost benefits or savings are to be expected from competition,” and “low operational risk exists for the warfighter under a sole-source engine supplier strategy.”⁹

Ignoring input from the Pentagon, independent experts, and two presidential administrations, members of Congress provided \$1.5 billion in funding with 13 earmarks between FYs 1998-2010.

The matter was finally settled in March 2011, when the DOD issued a [stop-work order](#) following five years of attempting to terminate the program.¹⁰ In its order ceasing the program, the Pentagon labeled the alternate engine “a waste of taxpayer money that can be used to fund higher Departmental priorities.”¹¹ If that sounds familiar, it is the same reasoning the Pentagon used to eliminate funding for the alternate engine in its FY 2024 budget request. And hopefully for taxpayers, it will not again take five years to stop the program.

6 Williams and Kennedy, “Joint Strike Fighter Alternate Engine,” p. 3.

7 Megan Scully, “Rumsfeld defends budget decisions on weapons systems,” *Government Executive*, February 16, 2006, <https://www.govexec.com/defense/2006/02/rumsfeld-defends-budget-decisions-on-weapons-systems/21190/>.

8 Michelle Singer, “The Engine No One Wants; Except Congress,” CBS News, July 30, 2007, <https://www.cbsnews.com/news/the-engine-no-one-wants-8212-except-congress/>.

9 Government Accountability Office (GAO), “Analysis of Costs for the Joint Strike Fighter Engine Program,” March 22, 2007, <https://www.gao.gov/assets/gao-07-656t.pdf>.

10 Andrea Shalal-Esa, “GE to fund F-35 engine despite stop-work order,” *Reuters*, March 24, 2011, <https://www.reuters.com/article/ge-roll-sroyce-engine/update-2-ge-to-fund-f-35-engine-despite-stop-work-order-idUSN2415170220110324>.

11 Ibid.

Alternate Engine: Still a Waste of Money

Taxpayers might believe that if the Pentagon does not want to spend money on a particular program or project as a matter of national security priorities, members of Congress would accede to their request. But members of Congress disagree with the budget request so often that defense spending is always the largest single source of earmarks in the annual appropriations bills, often more than 50 percent of the total.

The scope of the JSF's mission has changed over time, and most new batches of F-35s purchased come with new capabilities. The upgrades in the latest version [include](#) advanced electronic capabilities, improved targeting, and extra missile capacity.¹² These changes have necessitated increased electrical power and cooling capacity in the engine.

The DOD identified two paths forward for the JSF. It could upgrade the existing Pratt & Whitney engine through the Engine Core Upgrade (ECU) program or fund a second, or alternate engine, built by GE through the Adaptive Engine Transition Program (AETP).

The Pentagon's FY 2024 budget request established the ECU as the department's preferred option. It [included](#) \$462 million for the ECU and shuttered the AETP. The ECU was the logical choice because it bests the AETP on cost, compatibility, and safety.¹³

High Cost of the AETP

In a April 27, 2023, Senate Defense Appropriations Subcommittee [hearing](#), Secretary Kendall stated that the AETP would require, "a large upfront cost associated with engineering, manufacturing and development."¹⁴ Funding the AETP would necessitate "several billion dollars before you start production. So that was definitely something that was not affordable."¹⁵

The Air Force [estimated](#) upfront AETP development costs would be nearly \$6.7 billion,¹⁶ which is 279 percent more than the \$2.4 billion development cost for the ECU [projected](#) by Pratt & Whitney.¹⁷ The engine manufacturer determined that the ECU would save tens of billions of dollars in total JSF lifecycle costs by avoiding a duplicative production line and global supply chain to service two separate engines.

Secretary Kendall [said](#) that another adverse consequence of building an alternate engine would mean the Air Force alone would be forced to purchase 70 fewer JSFs.¹⁸ The \$7.2 billion cost of the first alternate engine would have been enough to buy 53 JSFs for all branches of the military.¹⁹

Compatibility

In addition to the duplicative costs and fewer JSFs, the AETP cannot meet the needs of the entire JSF fleet. It is incompatible with the Marine Corp's F-35B variant, and would [require](#) substantial airframe modifications to fit into the F-35A and F-35C.²⁰ Secretary Kendall made this point on March 10, 2023, [saying](#) the Air Force was the

12 Stephen Losey, "The F-35 engine is at a crossroads, with billions of dollars for industry at stake," *Defense News*, July 15, 2022, <https://www.defensenews.com/air/2022/07/15/the-f-35-engine-is-at-a-crossroads-with-billions-of-dollars-for-industry-at-stake/>.

13 Michael Marrow, "Air Force will not develop new F-35 engine, keeping Pratt as sole contractor," *Breaking Defense*, March 13, 2023, <https://breakingdefense.com/2023/03/air-force-will-not-develop-new-f-35-engine-keeping-pratt-as-sole-contractor/>.

14 United States Senate Committee on Appropriations, "A Review of the President's Fiscal Year 2024 Budget Request for the Air Force and Space Force," April 18, 2023, <https://www.appropriations.senate.gov/hearings/review-of-the-presidents-fiscal-year-2024-budget-request-for-the-air-force-and-space-force>.

15 Ibid.

16 Frank Wolfe, "Groups Question Investment in F-35 AETP Engine," *Defense Daily*, July 13, 2022, <https://www.defensedaily.com/groups-question-investment-in-f-35-aetp-engine/air-force/>.

17 John A. Tirpak, "Pratt says F135 Upgrade for F-35 Would Save \$40 Billion Over New Adaptive Engines," *Air and Space Forces Magazine*, December 13, 2022, <https://www.airandspaceforces.com/pratt-f135-upgrade-f-35-save-40-billion-over-new-adaptive-engines/>.

18 Stephen Losey, "New adaptive engine or fewer F-35s? Kendall says it's time to choose," *Defense News*, September 7, 2022, <https://www.defense-news.com/air/2022/09/07/new-adaptive-engine-or-fewer-f-35s-kendall-says-its-time-to-choose/>.

19 Williams and Kennedy, "Joint Strike Fighter Alternate Engine," p. 7.

20 "Letter to Under Secretary of Defense for Acquisition and Sustainment William LaPlante," July 22, 2022, <https://larson.house.gov/sites/evo-sub-sites/larson.house.gov/files/evo-media-document/F-35%20Engine%20Letter%20to%20Secretary%20LaPlante.pdf>.

only service that was “seriously interested” in the second engine, and that it would be “very, very difficult, if not impossible” to incorporate the engine into the F-35B.²¹

During a March 28, 2023, House Appropriations Committee [hearing](#), Secretary Kendall touched on the same themes, stating, “the problem is that the engine does not fit in the other airplanes...It’s quite clear it doesn’t fit in the Marine Corp variant and the Navy doesn’t believe it is justified for the Navy on a cost basis even if you could fit it – there’s uncertainty about that. The only service it would really benefit significantly is the Air Force.”²²

Safety Considerations

Introducing a new engine to a single-engine aircraft might also jeopardize pilot safety. In their July 22, 2022, letter, 35 members of the House of Representatives expressed concerns with introducing an unproven engine to the F-35, writing, “[t]o our knowledge, the Department [of Defense] has never put a new centerline engine in a single-engine aircraft without twin-engine learning or combat experience. We believe the risks associated with this must be carefully considered to protect the safety of our pilots.”²³

Unlike the AETP, the ECU builds on proven technology already demonstrated by the F135. In the last 20 years, Pratt & Whitney has [delivered](#) more than 1,000 F135 engines²⁴ that have [safely amassed](#) more than 600,000 flight hours, “or 1 million, if you count the safety record of the F119 engine it was based on.”²⁵ The F119 is the first fifth-generation engine deployed in a fighter aircraft, and the Usage Based Lifting program that is now being [used](#) will save taxpayers \$800 million over the life of the program.²⁶ It does not make sense to incorporate an engine that has never been flight tested when the Pentagon has a cost-effective option that builds on combat-proven technology.

The Competition Fallacy

Proponents of the alternate engine often cite the advantages of competition. However, in the highly specialized, complex, and expensive world of defense contracting, competition is unlikely to result in savings for the taxpayer. A second version of a defense program does not magically lower costs or improve military readiness. In addition, the funding mechanisms for upgrading the JSF’s engine are different from the incentives that drive the free market. In this case, the government is footing the bill for the duplicative development and design costs as well as production and maintenance.

In fact, funding the development of separate engines by rival firms would lead to immense and wasteful costs for the government. To create competition, the DOD would have to underwrite two teams of engineers, as well as duplicate sets of tooling, parts, assembly sites, repair facilities, supply chains, management systems, workforces, and every other cost of production. These costs would be so substantial they would obviate the potential for achieving savings through competition.

Building a second engine would also necessitate the creation by the DOD of a second supply chain, complicate maintenance and sustainment, and divert money from much-needed modernization efforts across the services. It would make the JSF program, which already suffers from a poor readiness rate, even harder to maintain and keep flying consistently.

21 Stephen Losey, “Pentagon rethinks F-35 engine program, will upgrade F135,” *Defense News*, March 13, 2023, <https://www.defensenews.com/air/2023/03/13/pentagon-rethinks-f-35-engine-program-will-upgrade-f135/>.

22 United States House of Representatives Committee on Appropriations, “Budget Hearing – Fiscal Year 2024 Request for the United States Air Force and Space Force,” https://www.youtube.com/watch?v=GOJSHi52F_0.

23 “Letter to Under Secretary of Defense for Acquisition and Sustainment William LaPlante.”

24 “Pratt & Whitney Marks F135 Engine Milestone,” *CBIA*, September 5, 2022, <https://www.cbia.com/news/manufacturing/pratt-whitney-marks-f135-engine-milestone/>.

25 “The future of the F-35 with an engine upgrade and better cooling,” *Space Daily*, January 20, 2023, https://www.spacedaily.com/reports/The_future_of_the_F_35_with_an_engine_upgrade_and_better_cooling_999.html.

26 “Pratt & Whitney, USAF launch revolutionary F119 engine monitoring technology,” *Defense Here*, November 3, 2022, <https://www.defensehere.com/en/pratt-whitney-usaf-launch-revolutionary-f119-engine-monitoring-technology>.

Furthermore, proponents seem to forget that there was a competition to see who would provide the engine that concluded in 2001, and the Pratt & Whitney engine won. There is no alternate airframe, no alternate landing gear, and no alternate cockpit.

Industrial Base Concerns

A further argument by those seeking to fund the alternate engine are worries over the health of the industrial base. While finite national security spending should never be driven by parochial concerns, in this specific instance, such anxieties are irrelevant.

Even in the first fight over the alternate engine, GE dismissed the impact of the absence of alternate engine funding on its bottom line. At a hearing before the Senate Armed Services Committee on March 15, 2006, then-GE Aviation President and CEO Scott Donnelly said, “I don’t think anybody’s ever said that GE’s going to shut up shop and go home if they’re not part” of the JSF contract.

Retired Air Force General John Michael Loh also dismissed the argument in a June 22, 2009, *Fort Worth Star-Telegram* op-ed, saying, “It is poor acquisition policy to guarantee production to a manufacturer just to maintain an industrial base,” and “Industrial base considerations also are overblown. General Electric, the alternate engine contractor and the largest U.S. producer of military engines, has substantial military and commercial engine programs for 15 years and beyond.”²⁷

No one should lose sleep over the bottom line at GE, as the company is now just as dominant. The company will continue to serve as a major contractor without the AETP. It is the [largest supplier](#) of engines in the world, with a standalone 16 percent of market share, or 55 percent when taking into account CFM International, a partnership between GE and the French engine firm Safran.²⁸ GE reported [revenue](#) of \$71.56 billion in FY 2022.²⁹

Policy Developments

The House Armed Services Committee version of the FY 2024 National Defense Authorization Act (NDAA), H.R. 2670, passed on July 14, 2023, authorized \$588.4 million for the AETP. The funding contravenes the DOD’s FY 2024 budget request, which terminated the AETP and asked for \$462 million to upgrade the current F135 engine through the ECU. House Armed Services Tactical Air and Land Forces Subcommittee Chairman Robert Wittman (R-Va.), who was primarily responsible for the funding, believes it is necessary to [maintain the country’s industrial base](#).³⁰ This [earned](#) Rep. Wittman CAGW’s *Porker of the Month* award for July 2023.³¹

The White House rejected this funding proposal in the House version of the NDAA. In its July 10, 2023, [Statement of Administration Policy](#) on the NDAA, the Biden administration said it “strongly opposes” the \$588.4 million authorization.³² The statement added, “There are currently no plans to transition AETP engines to a program of record. The F135 ECU and F-35 cooling enhancements are more affordable and a common solution across all three F-35 variants. Continued funding for AETP would defer the transition of a skilled workforce to the Next Generation Adaptive Propulsion (NGAP) program. This, in turn, would increase the risk that NGAP prototype test results would not be available in time for the [Next Generation Air Dominance] programs and that future NGAD platform capability would be compromised by legacy propulsion constraints.”³³

27 Williams and Kennedy, “Joint Strike Fighter Alternate Engine,” p. 6.

28 “Who are the world’s largest aircraft engine manufacturers?” *Aerotime Hub*, October 14, 2022, <https://www.aerotime.aero/articles/32417-who-are-the-world-s-largest-aircraft-engine-manufacturers#:~:text=As%20previously%20mentioned%2C%20CFM%20and,engine%20manufacturer%20in%20the%20world>.

29 “Revenue for General Electric (GE),” *CompaniesMarketCap.com*, <https://companiesmarketcap.com/general-electric/revenue/>.

30 Audrey Decker, “Fund the New F-35 Engine—If Only to Keep Industrial Base Humming, Lawmaker Says,” *Defense One*, June 15, 2023, <https://www.defenseone.com/defense-systems/2023/06/keep-funding-new-f-35-engine-if-only-keep-industrial-base-humming-lawmaker-says/387597/>.

31 CAGW, “Citizens Against Government Waste Names Rep. Rob Wittman July 2023 Porker of the Month,” July 11, 2023, <https://www.cagw.org/porker-of-the-month/citizens-against-government-waste-names-rep-rob-wittman-july-2023-porker-month>.

32 Executive Office of the President, Office of Management and Budget, “Statement of Administration Policy,” July 10, 2023, <https://www.white-house.gov/wp-content/uploads/2023/07/H.R.-2670-NDAA.pdf>.

33 Ibid.

Speaking at the Potomac Officer Club's 2023 Air Force Summit on July 18, 2023, Secretary Kendall [stated](#) that even if the alternate engine funding makes it into the final version of the NDAA, the AETP will never be used in the F-35 because the Air Force is committed to the ECU.³⁴ Despite being unsuitable for the JSF, "As often happens, the Hill doesn't want to let go."³⁵ Secretary Kendall also stated that other Air Force priorities might go unfunded should Congress persist in its support of the AETP.³⁶

John Sneden, who serves as Air Force Propulsion Directorate Director, agrees that Congress should forgo spending money on the alternate engine. When asked about Secretary Kendall's comments regarding the futility of more funding for the AETP, Sneden [stated](#) on August 1, 2023, that, "if the decision has been made to not put AETP technology into the F-35, if we continue to lean into that activity, then that's a waste. So why would we continue to spend money on AETP specifically as it relates to the F-35."³⁷

Despite this pushback by the White House and Pentagon officials, the House of Representatives included \$150 million in H.R. 4365, the Defense Appropriations Act, stipulating that the funding should be used for the Next Generation Adaptive Propulsion program, for future application in the Next Generation Air Dominance fighter, and not the F-35.³⁸ The bill stated, "the Committee emphasizes that this increase is not intended to incentivize the Air Force, or any other Service, to create an alternative engine program for the F-35. Therefore, the Act includes a general provision that prohibits the use of funds to integrate an alternative engine on any F-35 aircraft."³⁹ Inserting guardrails on the use of funding is a positive sign, but it still contravenes the Pentagon's guidance, which did not include any funding for the AETP.

Fortunately, the Senate Armed Services Committee version of the FY 2024 NDAA, S. 2226, passed on July 27, 2023, [did not include](#) funding for the alternate engine.⁴⁰ The final versions of both the FY 2024 defense authorization and appropriations bills should follow the guidance of the Biden administration and Pentagon officials by stripping any funding for the AETP and fully funding the ECU.

Congressional Obstruction of Pentagon Priorities

Unfortunately, congressional interference to the detriment of national security is nothing new. Funding the alternate engine fits a larger pattern of legislators ignoring DOD guidance to provide money for programs that serve a local interest. Several recent examples stand out, including the JSF.

Members of Congress have often earmarked unrequested funding for the F-35, including \$1.5 billion for three earmarks in FY 2023 for the acquisition of 18 aircraft beyond the amount requested by the DOD, including 11 for the Air Force and seven for the Navy.⁴¹ Because the JSF is still being developed, additional funding will one day be needed to retrofit the earmarked JSFs, adding to overall program costs and crowding out other DOD spending. Since FY 2001, legislators have added 37 earmarks for the JSF program, costing \$12.1 billion.⁴²

One reason for the consistent and costly JSF earmarks is the widespread distribution of F-35 supply lines across the country. According to a map showing the local economic impact of the JSF on Lockheed Martin's [website](#), the only states that do not have at least one supplier for the aircraft are Hawaii, Louisiana, and North Dakota.⁴³

34 Potomac Officer's Club, "2023 Air Force Summit," July 18, 2023, <https://potomacofficersclub.com/events/poc-2023-air-force-summit/>.

35 Ibid.

36 Ibid.

37 Michael Marrow, "In reversal, Air Force wants prototype NGAD engines from both Pratt and GE: official," *Breaking Defense*, August 2, 2023, <https://breakingdefense.com/2023/08/in-reversal-air-force-wants-prototype-ngad-engines-from-both-pratt-and-ge-official/>.

38 House of Representatives Committee on Appropriations, "Department of Defense Appropriations Bill, 2024," p. 223, <https://docs.house.gov/meetings/AP/AP00/20230622/116151/HMKP-118-AP00-20230622-SD002.pdf>.

39 Ibid.

40 John A. Tirpak, "Air Force Propulsion Czar: NGAD Engines Will Have Different Size, Similar Tech to AETP," *Air and Space Forces Magazine*, August 2, 2023, <https://www.airandspaceforces.com/air-force-propulsion-czar-ngad-engines-aetp/>.

41 2023 Congressional Pig Book, p. 16, <https://www.cagw.org/reporting/pig-book>.

42 Ibid.

43 "The Most Economically Significant Defense Program in History, Contributing Approximately \$72 Billion Annually," *F35.com*, <https://www.f35.com/f35/about/economic-impact.html>.

This gives all but nine representatives and six senators more than enough incentive to keep greasing the wheels. Members of Congress have similarly ignored Pentagon officials by routinely providing funding for the M1A2SEP Abrams tank upgrade program. In FY 2023, legislators added two earmarks costing \$699.2 million for the Abrams, including \$602 million to upgrade 46 tanks.⁴⁴ Although the tank plant is in Lima, Ohio, its suppliers are spread across the country, which helps to explain the widespread support. Past versions of the DOD bills, including in FYs 2016 and 2017, hinted at a parochial incentive for the program's continuance: industrial base support.

On September 6, 2023, the DOD [announced](#) that it intends to move on from the M1A2SEP.⁴⁵ Adapting in part from lessons learned in the fighting in Ukraine, the Pentagon intends to redistribute funding once intended for the M1A2SEP program to develop the M1E3. This new version of the Abrams will integrate technologies designed to increase survivability and maneuverability on the battlefield and will likely be fielded in the 2040s and onward. Since FY 1994, there have been 43 earmarks for the M1 Abrams, requested by at least 13 members of Congress, costing taxpayers \$2.4 billion. Continuing to commit vast resources to an unnecessary program will inevitably make upgrading the Abrams in the manner the Pentagon prefers much more difficult.

Finally, members of Congress have hindered the retirement of Naval ships, including the Littoral Combat Ship (LCS), one of the service's worst performing vessels. In 2022, the Navy announced its intention to mothball nine Freedom-class LCSs, saving \$4.3 billion. However, members of Congress immediately cried foul, and ultimately managed to [block the retirement](#) of five of the vessels.⁴⁶

A brief look at the program's history shows why the Navy is keen to divest itself of the LCS. It has been a disaster since inception, with problems that include a vaguely defined mission, a lack of [firepower and survivability](#),⁴⁷ and design flaws causing [corrosion](#).⁴⁸ A February 24, 2022, GAO [report](#) stated that the LCS fleet, "has not demonstrated the operational capabilities it needs to perform its mission."⁴⁹ The report found that operating and maintaining the 35 LCS the Navy intends to purchase, including the 17 already delivered, will cost more than \$60 billion.⁵⁰ Yet despite all of this, the LCS continues to tread water thanks to the efforts of a handful of legislators who fear the local economic impact of retiring even some of the Navy's LCS fleet. Since FY 2003, at least eight legislators have added 30 LCS earmarks costing \$2.2 billion.⁵¹

Funding the JSF alternate engine despite all the countervailing evidence is yet another example of members of Congress preferring narrow-minded local projects to the detriment of taxpayers and national security.

The Future

Unfortunately, members of Congress are highly unlikely to allow the second alternate engine to fade away. If the \$588.4 million in the House version of the NDAA or any other amount for the AETP makes it into the final version of the bill, legislators motivated by parochial concerns are likely to add funding for the alternate engine in the FY 2024 DOD appropriations bill and other legislative vehicles in the future. In the first go-round, members of Congress added 13 earmarks costing \$1.5 billion for the alternate engine, and they are highly likely to use the same playbook again.

44 2023 Congressional Pig Book.

45 Jen Judson, "US Army to scrap Abrams tank upgrade, unveils new modernization plan," *Defense News*, September 6, 2023, https://www.defense-news.com/land/2023/09/06/us-army-scraps-abrams-tank-upgrade-unveils-new-modernization-plan/?utm_campaign=dfn-ebb&utm_medium=e-mail&utm_source=sailthru&STOverlay=2002c2d9-c344-4bbb-8610-e5794efcfa7d.

46 Eric Lipton, "The Pentagon Saw a Warship Boondoggle. Congress Saw Jobs." *The New York Times*, February 4, 2023, <https://www.nytimes.com/2023/02/04/us/politics/littoral-combat-ships-lobbying.html>.

47 David Lerman, "Ship Costing \$37 Billion Lack Firepower, U.S. Admiral Warns," *Bloomberg*, March 28, 2013, <https://www.bloomberg.com/news/articles/2013-03-28/ships-costing-u-s-37-billion-lack-firepower-navy-fold?embedded-checkout=true>.

48 David Axe, "Builder Blames Navy as Brand-New Warship Disintegrates," *Wired*, July 23, 2011, <https://www.wired.com/2011/06/shipbuilder-blames-navy-as-brand-new-warship-disintegrates/>.

49 GAO, "Littoral Combat Ship: Actions Needed to Address Significant Operational Challenges and Implement Planned Sustainment Approach," February 24, 2022, <https://www.gao.gov/products/gao-22-105387>.

50 Ibid.

51 2023 Congressional Pig Book, p. 19.

Pulling the plug and burying the alternate engine permanently should not be controversial. It has been consistently opposed by three presidential administrations, the DOD, and a host of independent analysts. The ECU bests the AETP on cost, compatibility, and safety, and the advantages of competition and potential harm to the industrial base are wildly overstated.

Moreover, upgrading existing jet engines is [not a rare occurrence](#).⁵² The engine used in the Navy's F/A-18 Super Hornet engine has successfully undergone several upgrades. The same could and should be accomplished with the F135.

While it would be in the best interest of taxpayers for legislators to heed the Pentagon's wishes and move forward with the ECU, given the history of support for a wasteful second engine, the issue may not be conclusively settled in the near term. But members of Congress at least cannot now claim to be unaware of the arguments against the alternate engine.

⁵² John Barry, "Congress Should Listen to U.S. Air Force on F-35 Engine Upgrade," 19fortyfive.com, May 30, 2023, <https://www.19fortyfive.com/2023/05/congress-should-listen-to-u-s-air-force-on-f-35-engine-upgrade/>.

