

DEPARTMENT OF DEFENSE AUTHORIZATION
REQUEST FOR APPROPRIATIONS FOR FISCAL
YEAR 2025 AND THE FUTURE YEARS DEFENSE
PROGRAM

HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED EIGHTEENTH CONGRESS

SECOND SESSION

ON

S. 4638

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2025 FOR MILITARY
ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CON-
STRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF
ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR
SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

PART 2
SEAPOWER

MAY 1, 2024



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**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2025 AND THE FUTURE YEARS DEFENSE
PROGRAM**

WEDNESDAY, MAY 1, 2024

UNITED STATES SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVY AND MARINE CORPS INVESTMENT PROGRAMS

The Subcommittee met, pursuant to notice, at 4:29 p.m., in room 222, Russell Senate Office Building, Senator Tim Kaine (Chairman of the Subcommittee) presiding.

Subcommittee Members present: Senators Kaine, Shaheen, Blumenthal, King, Peters, Cramer, Sullivan, and Scott.

OPENING STATEMENT OF SENATOR TIM KAINE

Senator KAINE. The hearing is coming to order, and it is historic because never have we started a hearing early in my 12 years in the Senate, but my clock says it is 4:29 p.m., so why not make history. We are a minute early.

I want to thank my Ranking Member, Senator Cramer. He and I are both from coastal States, and I want to thank our witnesses for this important hearing of the Seapower Subcommittee as we are getting ready to start to write the NDAA [National Defense Authorization Act], both in the Subcommittees and in the main Committee, moving toward a markup in the middle part of June.

It is kind of hard to believe that the markup comes around faster and faster. It doesn't seem like a year ago that we were doing this, but we have a lot to talk about. The hearing takes place at an extraordinary time for the United States Navy.

Commercial vessels from around the world, our naval vessels, and those of our partners have been attacked dozens and dozens of times in the past 6 months in the Red Sea. And we need to take a moment to appreciate the bravery of the women and men who sail those waters, their skill, their competence, and the competence of all those who have trained them and equipped them to undertake a very dangerous mission.

No one here needs to be reminded of the responsibility that we have to provide weapons systems to young men and women to serve them well on their worst days, but it has been a long time

since the Navy was presented with such a vivid illustration of this priority.

This generation of senior flag officers knows that the difference between a successful campaign and a travesty can be as small as one or two missiles. Today, in the Red Sea where our warfighters are operating within reach of threat systems every day, those one or two missiles, one or two drones, or one or two USVs are out there waiting for our people and for our systems to slip up.

No one in this room would deny the difficult tradeoffs between cost, schedule, and performance that our requirements officers and program managers work through every single day. But the Red Sea has to remind us all how well we balance those tradeoffs ends up being measured in very concrete ways in times of crisis.

For months now in the Red Sea, we have been in a position where we have to succeed 100 percent of the time, not 99, not 98, with our sailors, many from Virginia, in harm's way—those connected to the enterprise and others in that strike group in harm's way. We have to succeed 100 percent of the time.

A weapon system that delivers too late, is too expensive to afford, or not mission capable when it needs to be is not doing anything for sailors and marines as they go into harm's way, and getting these tradeoffs wrong will also consume taxpayer dollars that could buy real time capability elsewhere. I don't say any of this as a critique.

I just think we have been blessed with a very impressive, dedicated individuals in your positions over the past several years, but we are seeing in real time the consequences of decisions that have been made for decades that are now being relied upon to keep our folks safe.

Despite the best efforts of all predecessors, we have watched as the performance of Navy shipbuilding has slowly declined, and this is something I know we are going to talk a lot about today. And we know that the pacing threat for the Navy and Marine Corps is even more stressing, ultimately, than the challenge that we face in the Red Sea.

The Navy's list of headlines is familiar to everyone in this room. The use of the term once in a generation investment has become all too frequent in these settings. Must pay bills to modernize the Nation's strategic to turn and rebuild the infrastructure for nuclear vessel maintenance are coming due as we come to grips with the consequences of losing an entire generation of skilled shipbuilders to retirement during the pandemic.

Flagship programs like the *Columbia* struggle despite consistent prioritization, and secondary but just as vital programs are floundering too. There are success stories. People are great success stories.

The amphibious warship and destroyer production are both moving forward apace, but even these programs face pretty severe workforce shortages. As the saying goes, the first step is admitting we have a challenge, admitting we have a problem.

So, thank you, Secretary Guertin, and please pass my thanks to Secretary Del Toro for starting a hard conversation about the State of Navy shipbuilding with your 45 day review. I hope we can con-

tinue that conversation here and during the entire NDAA process and do what we can to make this problem better.

There is certainly areas we are going to—we are going to need to make big, painful investments to preserve our capacity to build warships for the generations to come, but there are also areas where money is not going to make a difference, or at least not make enough of a difference fast enough to be worth the investment.

Today I want to hear about how we are being intentional about those trades and the opportunity costs that go with them. In particular, we had a Readiness subcommittee hearing earlier today, and we talked an awful lot about the workforce. We talked about recruiting into the uniform service, but we talked about the workforce in our industrial base.

My belief, and I think, I am on the Health, Education, Labor and Pensions (HELP) Committee, so I focus a lot on education and workforce issues, is an awful lot of the challenge that we are seeing is a workforce challenge.

We sometimes say another part of the challenge is the supply chain challenge, but that is a workforce challenge too because an awful lot of our supply chain backups are driven by our industrial partners having the same workforce challenges attracting and retaining good talent as we see in the military and in our prime contractors.

General Heckl, I want to finish and just say a word about you. This is your last hearing in front of the subcommittee. Unless there is some emergency that crops up in the next couple of days that causes to have another one, and I want to make a particular point of thanking you.

Since you took this job, you have given very candid, frank testimony in front of this Committee in the midst of the most consequential reorganization of the Marine Corps in recent memory.

You have been open with us. You have been willing to tell us what you think we need to hear, even if it is maybe not what we want to hear, or even if you know you might face some disagreement from some on this Committee.

I hope to discuss Force Design a little bit today, as we have many times before, but I also want to applaud the sense of urgency and professionalism with which General Berger, General Smith, yourself, and many other fine marines have approached these efforts. You remind us of why America wants a Marine Corps.

And as you head into a well-deserved retirement, you have earned thanks from a grateful Corps, a grateful Congress, and a grateful Nation, and with that, now let me yield to my colleague, Senator Cramer, for his opening comments.

STATEMENT OF SENATOR KEVIN CRAMER

Senator CRAMER. Thank you, Mr. Chairman, and great to be your partner. As the Chairman alluded to, we are not both from coastal States, but together we know a lot about the seas and the prairies.

But that said, thank you to all of our witnesses, and I might as well start where the chairman ended, General Heckl, and thank you for your service. Congratulate you on your retirement, and I

am sure you could find another role that would allow you to come and testify before Congress.

I am sure that is one of your favorite things that you will miss the most in your job. But anyway, thank you. To that point, to the point about your directness, your bluntness, that is something that we appreciate very much on this Committee.

As I mentioned, others as well, Admiral, we look forward to hearing from you, and Mr. Secretary, I have appreciated our discussion earlier this week. But the plain truth is something we all need to hear and share with each other from time to time, realizing that the political constraints we work in.

We are also in a—you know, we are in a dangerous world right now, and we need to know what is necessary and what is doable, and you need to tell us what you need from us, and I appreciate all of you being here today and look forward to working with you.

The importance of sea power is obviously only going to increase over the years, and it is pretty darn important right now. Our Navy thwarts Houthi drones and missile attacks on a daily basis, our Marine Corps campaigns in the Western Pacific with allies and partners to deter the aggression of the Chinese Communist Party.

I, along with every other Republican Senate Armed Services Member, expressed serious concerns with President Biden's order to build a temporary pier on the Gaza coast because of the serious risk to United States personnel.

Unfortunately, as predicted, they came under mortar fire from Hamas terrorists just last week, which demonstrates the importance of contested logistics. No other nation can match the capabilities of our great Navy and Marine Corps, but there is always room for improvement, and we want to talk about that and be part of that.

Our sealift and logistical capabilities are in need of attention. While the Navy partially owns these responsibilities, sealift moves more than 90 percent of military equipment and supplies. We simply do not have adequate capacity.

For example, one large ship enroute to Gaza turned around due to an engine room fire, creating an indefinite delay. If we struggle to build a temporary pier in the Mediterranean, how will we build them in the hundreds in the Pacific? During World War II, the Navy's famed Seabees built over 400 advanced bases.

I also expect the Navy will improve its support to the Marine Corps as they pivot back to their traditional naval and expeditionary formations. Amphibious ships are in a deplorable State of readiness. Only one amphibious ship out of three was ready to participate in this year's international exercise, Cobra Gold.

Additionally, chronic instability of amphibious ship procurement puts the industrial base at great risk. A multi ship buy of amphibious ships is desperately needed. Instability in shipbuilding is not limited to amphibious ships, as you know. Forecasted shipbuilding plans have seen massive variation from year to year.

The difference between high and low procurement estimates—estimates procurement in a fiscal year has averaged six ships over the past decade. The December 2020 shipbuilding plan forecasted the procurement of ships in fiscal year 2025, but here we are dis-

cussing the 2025 budget that requests just 6, a difference of 13 battle force ships.

Industry investments, which take 5 to 10 years to materialize, require stability in shipbuilding orders. We need to send the right market signals and the right demand signals. I am also concerned with progress toward the unmanned fleet.

The Navy wants to jump into large, unmanned vessels, while largely ignoring the transition of small and medium systems that can be deployed to the fleet much sooner. For example, the Navy never planned to transition to small, unmanned surface vessel program. It has been thrust upon them from the outside.

We must learn, experiment, and scale these emerging technologies ahead of our adversaries. The United States enjoys the most innovative commercial and startup ecosystem in the world, and we must harness this advantage for National Security. Thank all again, all of our witnesses, and look forward to their testimony.

Senator Kaine. We needn't have introduction, since we know you really well. So, maybe I will start with Secretary Guertin, and then ask Admiral Pitts and General Heckl to testify, and then we will open up 5 minute rounds of questions.

JOINT STATEMENT OF HON. NICKOLAS H. GUERTIN, ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION; VICE ADMIRAL JAMES E. PITTS, USN, DEPUTY CHIEF OF NAVAL OPERATIONS FOR WARFIGHTING REQUIREMENTS AND CAPABILITIES; LIEUTENANT GENERAL KARSTEN S. HECKL, USMC, DEPUTY COMMANDANT FOR COMBAT DEVELOPMENT AND INTEGRATION

Mr. GUERTIN. Thank you, Chairman Kaine and Ranking Member Cramer, and distinguished Members of the Subcommittee. On behalf of myself, Vice Admiral Pitts, and Lieutenant General Heckl, thank you for the opportunity to appear before you today and address the Department of the Navy's fiscal year 2025 budget for sea power capabilities.

We would like to thank this Subcommittee for your leadership and support in shipbuilding, naval aviation, and ground programs, and to maintain maritime security in defense of our Nation. Thank you also for mentioning the sailors and marines operating around the world.

As the action over recent weeks have shown, support for our allies remains resilient on a superior naval force strategically postured to adapt to consistently evolving geopolitical challenges and threats. The sailors of the *Eisenhower*, the *Arleigh Burke*, the *Carnegie*, and others have to watch to defend against the Iranian Houthi aggression.

That includes engaging and destroying more than 80 one-way attack UAVs and at least six ballistic missiles intended to strike Israel from Iran and Yemen. We are grateful for the professionalism and skill of our sailors and marines, and mindful of the sacrifices of their families at home.

The investments that Congress made in previous budgets enabled our success. I also want to express the Department's gratitude at the passage of the security supplemental to make addi-

tional investments in submarine industrial base, while supporting our allies and partners.

As we look forward to 2025, the actions of the Navy and Marine Corps team reassures international allies and partners, deters potential adversaries, and responds to those who threaten the lives of our sailors, marines and civilian merchant mariners engaged in lawful international commercial activities.

The Navy remains focused on the pacing challenge of managing strategic competition with the People's Republic of China, Russia's illegal war of invasion of Ukraine, the Houthis strikes in the Red Sea, and Iranian aggression of our allies.

The President's Fiscal Year 2025 Budget provides the resources necessary for the Navy and Marine Corps to continue to implement the 2022 National Defense Strategy. This request builds and sustains the right mix of capabilities to keep the seas open and free, deter conflict, and defend against current and future threats.

In alignment with the Secretary of the Navy's priorities, the budget request enables a one Navy, Marine Corps team to continue to strengthen our maritime dominance, building on our culture of warfighting excellence, and enhancing strategic partnerships.

Thank you for the opportunity to appear before your Subcommittee today. Our mission begins and ends with providing the best possible capabilities to our sailors and marines in the fleet, and the three of us look forward to answering your questions.

[The prepared joint statement of Mr. Guertin, Vice Admiral Pitts, and Lieutenant General Heckl follows:]

JOINT PREPARED STATEMENT BY MR. NICKOLAS H. GUERTIN, VICE ADMIRAL JAMES PITTS, AND LIEUTENANT GENERAL KARSTEN S. HECKL

Chairman Kaine, Ranking Member Cramer, and distinguished Members of the Subcommittee, thank you for the opportunity to appear before you today to address the Department of the Navy's fiscal year 2025 budget request for Seapower capabilities. Maintaining a world-class and worldwide deployable Navy and Marine Corps as a first line of defense for the United States is a continuous effort. The Department of the Navy (DON) appreciates the support of Congress and this Committee for the Department's acquisition, sustainment, research, and development programs that allow us to continue to build and operate a lethal, capable, integrated, and forward-postured Navy and Marine Corps.

The security of our country and preservation of our national interests remains reliant on a superior naval force, strategically postured to adapt to constantly evolving geopolitical challenges and threats. The actions of the Navy and Marine Corps team reassures international allies and partners, deters potential adversaries and responds to those who threaten the lives of our sailors, marines and civilian merchant mariners engaged in lawful, international commercial activities. The DON remains focused on the pacing challenge of managing strategic competition with the People's Republic of China (PRC), Russia's illegal war and invasion of Ukraine and the Houthi strikes in the Red Sea. The DON is investing in lethal capabilities across a broad spectrum of platforms and programs to equip our warfighters for potential combat operations with credible and sufficient capability to deter, and when necessary, prevail in conflict. The investments we make today will shape DON's future and support the Secretary's three enduring priorities of strengthening maritime dominance, building a culture of warfighting excellence, and enhancing strategic partnerships.

Since the start of fiscal year 2023 we have delivered 11 battle force ships to the Fleet including three *Arleigh Burke*-class destroyers (DDG 51), one *Virginia*-class (SSN), three Littoral Combat Ships (LCS), one Replenishment Oiler (TAO-205), two *Spearhead*-class expeditionary fast transport dock (EPF), and one *Lewis B. Puller*-class expeditionary sea base (ESB). Today, the Navy has 293 battle force ships, with an additional 87 ships under contract and 58 ships in construction, with the balance of ships in pre-construction activities such as long lead material procurement and

planning efforts. The Department has made great strides in recapitalizing Naval aviation platforms. Last year we delivered 60 new aircraft for the Navy and Marine Corps team, including F/A-18E/F production and ongoing procurement and fleet integration of F-35, E-2D, V-22, P-8, KC-130J, CH-53K, VH-92A, and unmanned aircraft MQ-4C, MQ-9A Extended Range (ER), and MQ-25. Naval Aviation is now predominantly comprised of new airframes, made possible through a deliberate strategy of evolutionary, controlled technical risk development programs. We are continuing making advancements in fiscal year 2024 for unmanned aviation. The MQ-4 program is meeting schedule objectives, completing Initial Operational Capability (IOC) in July 2023 with its first orbit stand up in INDOPACOM. The Program is currently in the process of standing up its remaining two operational orbits in EUCOM and CENTCOM, scheduled for quarter 2 fiscal year 2024 and quarter 1 fiscal year 2025 respectively. The MQ-4 will undergo continuous spiral upgrades throughout the next 4 years, to include Link-16 targeting with LRASM in 2024 culminating in Full Operational Capability in fiscal year 2028 enabling near-24/7 ISR coverage in simultaneous theaters of operation.

The Unmanned Carrier Aviation Mission Control System (UMCS) is the system-of-systems required for MQ-25 air vehicle and payload command and control. UMCS integrates multiple networks and systems both afloat and ashore and is synchronized with the MQ-25 to provide a complete capability to the carrier. The program conducted its first C4I Operational Network Evaluation that validated network connectivity over Navy networks and wideband satellite communications in January 2024. The first ground control station will be installed on CVN 77 in fall 2024. Nine systems have been delivered to date and the first carrier-based ground control station installation will complete on CVN 77 in the fall of 2024. UMCS will also be the control system for the Air Wing of the Future.

The first Joint System Verification Test event to validate the initial software build was conducted in January 2024. The Static test article aircraft was completed in January 2024 and will begin testing in spring of 2024. The first EDM aircraft is scheduled to be delivered early 2025 with its first flight scheduled for summer of 2025. MQ-25 is scheduled to reach IOC in 2026.

For the Marine Corps, Unmanned Aerial Vehicle Squadron (VMU)-1 recently conducted phase zero operations with MQ-9A ER, including multisensory imagery reconnaissance, electronic support, unmanned escort of surface forces, and maritime domain awareness in support of the Joint Force and Coalition Partners in CENTCOM, totaling over 3,800 hours. VMU-3 started transition to the MQ-9A ER with flights to begin in 2023.

Over the last year, global events have continued to pressurize the need for rapid change across the Services and the DON has taken note, aggressively seeking and implementing new and improved ways to operate, integrate, and sustain our forces. Russia's ongoing war against Ukraine has affirmed our perception of the modern-day character of war. Specifically, Russia's war against Ukraine has displayed the value of enhanced sensors and long-range precision fires, the importance of freedom of navigation, and the ability to sustain a force. The war highlights the need for increased industrial capacity, and has shown the genuine value in maintaining relationships among partners and allies. Additionally, it has shown us that persistent, forward presence is essential for the success of our Nation's deterrence efforts. Moreover, recent provocations by China, such as flying collection assets directly over the continental United States, clearly show their willingness to compete below the threshold of armed violence.

The Marine Corps' activation of new units, including the 3d Marine Littoral Regiment and Task Force 62 are indicative of efforts made to compete and reassure allies and partners. Additionally, the establishment of Marine Corps Base (MCB) Camp Blaz on Guam is yet another positive for the Marine Corps and the Joint Force, as it will serve as a critical logistics and inside force enabler. These new organizations and installations will actively participate and support operational concepts, including Distributed Maritime Operations (DMO), Expeditionary Advanced Base Operations (EABO), and Stand-In Forces. However, continued fielding and sustainment of advanced capabilities in mobility, logistics, kill webs, and command and control will be essential for the entire Marine Corps to remain credible and lethal.

The security environment demands ships, aircraft, subs, expeditionary forces, special operations forces, and sailors ready to fight and win. Readiness is generated across the DON, from shipyards and aviation depots, to our global network of bases and stations, to the steaming and flight hours our sailors and marines need to hone their skills. For surface ship maintenance, we are reinforcing our commitment to our industry partners to share future demand signals. We are seeing the benefits of improved maintenance package planning, earlier contract awards, and delivery of

long-lead time material to our repair yards. Continued investments in spares supports readiness for training and operational units while simultaneously improving endurance for sustained operations. Funding of some availabilities that cross fiscal year boundaries via the OPN funding pilot also shows positive results. These initiatives enable a stable and predictable workload for our industry partners and ensure a balance of operational requirements with industrial capacity.

The Navy continues to expand opportunities for manned/unmanned teaming (MUMT) and recently stood up 4th Fleet's hybrid fleet providing continuous maritime domain awareness. 4th Fleet also demonstrated a multi-domain SINKEX and manned/unmanned teaming to include operations from the expeditionary fast transport USNS (T-EPF-10). This work expands on the lessons learned from TF-59 and the commercial use technology they continue to experiment with.

Another great example of recent successes of MUMT is when the Navy's USV prototypes deployed as participants in Integrated Battle Problem (IBP) 23.2 to the Western Pacific in 2023. During this ~6-month exercise, our Unmanned Surface Vessel (USV) prototypes Ranger, Mariner, Sea Hunter, Seahawk reached 3,191 hours operating in autonomy mode, totaled 39,10 nautical miles travelled under autonomy control and accomplished 1,333 autonomous missions. They participated in Autonomous Warrior, and one USV visited Yokosuka, Japan. This event is paying dividends to inform our sailors on future CONOPS to include our USVs doing astern refueling from a fleet oiler and operating with a controlling *Aegis* Destroyer. In order to ensure our people have the right skills to maintain our unmanned capabilities, the Navy recently established the first ever Robotics rating. This rating is designed to train our sailors to maintain our current and future unmanned capabilities. SURFDEVRON is also establishing Unmanned Surface Vessel Squadron 3 in fiscal year 2025, a new organization to support the TTP and CONOPS development for small USVs.

The Navy is also supporting and investing in Deputy Secretary of Defense's Replicator Initiative to build and field attritable autonomous capabilities at scale within 18 to 24 months.

In keeping with accelerating innovation, the Navy established the Disruptive Capabilities Office (DCO) to produce disruptive warfighting advantages by rapidly identifying and evaluating innovation solution paths for emerging operational problems in the execution and budget years. The DCO will stay aligned with, the Replicator Initiative.

Fiscal year 2024 and fiscal year 2025 will continue with more MUMT experimentation in order to expand our awareness, command and control, and forward contested logistics. This collaborative approach on innovation, experimentation and integration will leverage industries' pace of technology, allies, and partners' capabilities, while exploring new concepts.

The Fiscal Year 2025 President's Budget Request

The President's Fiscal Year 2025 Budget provides the resources necessary for the Navy and Marine Corps to continue to implement the 2022 National Defense Strategy (NDS). This request builds and sustains the right mix of capabilities to keep the sea lanes open and free, deter conflict, and defend against current and future threats. In alignment with the Secretary of the Navy's priorities, the budget request enables the One Navy-Marine Corps Team to continue strengthening our maritime dominance, building on our culture of warfighting excellence, and enhancing our strategic partnerships.

The fiscal year 2025 budget request is strategy-based and analytically driven to meet our strategic goals, while balanced with reform targeted at maximizing the value of every dollar. The budget reflects the Department's commitment to building and sustaining a modernized naval force and operating forward with sufficient capability, size, and mix to deter and defend. Fiscal year 2025 continues key investments in advanced technologies and modernization of our current Seapower and Projection forces. In this request we are prioritizing the recapitalization of the strategic ballistic missile submarine, the *Columbia*-class, which remains the Department's top acquisition priority. It requests the second year of incremental funding for the second *Columbia*-class SSBN and full funding for two DDG Flight IIIs, one SSN, one FFG, one LPD and the first LSM, while providing the next increment of funding for construction of CVN 80 and CVN 81. The budget supports modernization of our warfighting capabilities across all domains, including research and development (R&D) funding for the future attack submarine (SSN(X)), future destroyer (DDG(X)), the Next Generation Air Dominance (NGAD) manned strike fighter (F/A-XX), Marine Corps Unmanned Expeditionary (MUX) FoS, and recapitalization of the Take Charge and Move Out (TACAMO) mission (E-XX).

The Department requests \$16.2 billion in fiscal year 2025 and includes 75 fixed-wing, rotary-wing, and uncrewed aircraft to modernize our capabilities that can achieve lethal and persistent effects inside adversary weapon engagement zones. This budget funds 53 fixed-wing aircraft to include 13 F-35B and 13 F-35C Lightning II strike fighters to continue transitioning our 4th generation fighter squadron and 27 T-54A multi-engine training system aircraft. Last, three MQ-25 Stingrays are requested to conduct aerial refueling and Intelligence, surveillance, and reconnaissance (ISR). The fiscal year 2025 budget prioritizes readiness recovery, continuing prior year gains on ship and aircraft maintenance efforts to improve overall department readiness. It includes significant funding to improve operational readiness, material availability and reduce maintenance periods for submarines. The request continues investment to develop improved war-fighting capabilities across all domains and distributed maritime operations, investing in long range fires and hypersonic weapons as well as increases to unmanned platforms. This budget also develops the Integrated Combat System (ICS) which will deliver decision superiority at rapid speed and enable ships to operate force-wide as an integrated system. USS *Winston S. Churchill* (DDG 81) began operating with a virtualized Aegis Combat System, a crucial step in the wider transition to a single integrated system, in July 2023. In 2024, the *Arleigh Burke*-class destroyer USS *Lenah Sutcliffe Higbee* (DDG 123), as well as five more ships and four land based test sites are also projected to run virtualized Aegis combat systems.

The budget request increases investment in the Commandant's Force Design priorities by \$98.7 million, moving programs from concept/experimentation to production within five lines of effort (LOE)—sense and detect; fuse, understand and decide; act; protest; transmission paths; and sustain and move. These investments provide unique capabilities the Marine Corps requires to enable joint force access, sense and make sense of the battlefield, to close kill chains, and apply lethal fires when required to deter or defeat adversaries.

The fiscal year 2025 budget continues investment in the defense industrial base to ensure the continued viability of the crucial businesses and infrastructure needed to ensure our ships, aircraft, and ground equipment are available when needed for the defense of the Nation and our interests abroad. The budget request includes a \$8.8 billion investment across the FYDP in the submarine industrial base to support serial production of *Columbia*-class nuclear-powered, ballistic missile submarines (SSBN) in parallel with *Virginia*-class nuclear-powered attack submarine (SSN) construction and sustainment of the existing submarine force. The Navy is leveraging the implementation of dedicated workforce development incentives on Navy contracts to attract, recruit, develop and retain the workforce at our Nation's ship-building partners. President's Budget 2025 continues the Workforce Development Incentives awarded in fiscal year 2023 on the DDG-51 MYP contracts (fiscal year 2023 to fiscal year 2027). Additionally, the Navy is implementing dedicated Workforce Development Incentives on upcoming new contract awards for *Virginia*-class, *San Antonio*-class, and Medium Landing Ship.

Summary

The Navy and Marine Corps team continues to meet challenges head on—in cyberspace, in outer space, on the sea, under the sea, in the littorals and in the air every single day. With Congress' support, the Department of the Navy is focused on rapidly researching, developing, acquiring, and fielding the material solutions required to be more lethal, sustainable, resilient, survivable, agile, and responsive. We are committed to providing the Nation with a combat-credible, dominant, globally responsive naval force to keep the sea lanes open, deter aggression, and when called upon, decisively win our Nation's wars.

Programmatic details regarding Navy and Marine Corps capabilities are summarized in the following section.

U.S. NAVY AND MARINE CORPS SEAPOWER CAPABILITIES

SHIP PROGRAMS

Submarines

The *Columbia*-class SSBN, with the TRIDENT D5 Life Extension 2 (D5LE2) will ensure the effectiveness and availability of the Nation's Sea Based Strategic Deterrent (SBSD) through the 2080s. *Columbia*-class is the Navy's #1 acquisition priority as its construction and delivery are critical to pace the retirement of current ballistic missile submarines.

The lead ship of the class, *District of Columbia*, started full construction in fiscal year 2021. This ship must be on patrol by fiscal year 2031 to meet USSTRATCOM requirements. While the *District of Columbia* is progressing into the next phases of

construction the margin to the 84-month contract delivery schedule has been consumed and the shipbuilders' performance must improve to regain schedule. The Navy is driving both General Dynamics Electric Boat (GDEB) and Huntington Ingalls Newport News Shipbuilding (HII-NNS) to identify mitigations to recover critical path schedule, improve overall performance, and deliver on time. Because of the significance of the SBSB mission, the Navy is holistically managing SSBN inventory across the portfolio using targeted *Ohio*-class SSBN service life extensions to mitigate possible *Columbia* delays. The second ship of the class, *Wisconsin*, commenced full construction in October 2023 and learning is being demonstrated through reduced spans for early construction activities. The fiscal year 2025 budget request includes the second year of incremental funding for *Wisconsin*, as well as funding for advance procurement, advance construction and continuous production across the class. Continued funding for these initiatives are critical to reducing construction schedule risk and enabling cost savings across the class. The Navy appreciates Congress's continued support of these authorities.

As of March 2024, the Navy has taken delivery of 22 *Virginia*-class submarines with 16 additional under contract. Hyman G Rickover (SSN 795) delivered October 2023 and New Jersey (SSN 796) is planned to deliver in April 2024. The second ship of the Block V contract will introduce the *Virginia* Payload Module, which helps mitigate the loss of undersea strike capability with the retirement of SSGNs. All Block V ships will incorporate Acoustic Superiority program improvements. *Virginia*-class construction performance continues to be challenged to meet the required two per year delivery cadence and is currently at ~1.2/year. With congressional approval, the Navy intends to award the next *Virginia* multi-year procurement (MYP) contract, Block VI, in fiscal year 2025 which will include nine ships. Given the challenges in meeting the required construction rates, the fiscal year 2025 budget includes funding for one *Virginia* SSN, which provides an opportunity for the shipbuilders to balance production for VCS Block VI construction and serial *Columbia* production in fiscal year 2026 and allows for maturation of improvements in manufacturing, outfitting and assembly and test, as well as industrial base investments. The fiscal year 2025 budget also includes advance procurement (AP) and economic order quantity (EOQ) funding in support of Block VI ships. AP and EOQ allows for critical sub-tier vendors to be kept on cadence and support the procurement of long lead materials and components that are critical to the program. Cost to complete funding for Block IV and V boats are also included in this budget and well as funding for continued development of capabilities and technologies for future blocks.

The submarine industrial base (SIB), consisting of the public shipyards and two prime shipbuilders, General Dynamics Electric Boat (GDEB) and Huntington Ingalls Industries Newport News Shipbuilding (HII-NNS), along with the 16,000 suppliers across the country, supports both new-construction submarines and sustainment of the in-service submarine fleet. The SIB faces an increase in demand across the enterprise as the Navy ramps up production of the *Columbia*-class, continues to increase production to two *Virginia*-class submarines per year beginning in fiscal year 2026, while increasing SSN operational availability and supporting international commitments under the AUKUS partnership. The unprecedented demands on the submarine industrial base require a whole-of-nation effort. Our shipbuilders and their supporting high-tech supplier base are building up from a lengthy drawdown and our SIB requires a once-in-a-generation effort to modernize our force and develop our allies' submarine capabilities so we can fight alongside each other. The Navy appreciates congressional support to address these challenges. In 2021 and again this year, the Navy and DOD performed a study looking at the health of the industrial base. The fiscal year 2025 budget request expands upon the foundational investments made in prior budget cycles and are critical to shore up the SIB to produce *Virginia* and *Columbia*, sustain in-service submarines and ramp up to the build rate necessary to support AUKUS requirements. Investments are targeted in six key areas to include infrastructure, supplier development, scaling of new technologies, workforce development, strategic outsourcing and government oversight of these efforts. The Navy has seen significant benefit from investments made to date including installation of multiple additive manufactured components additively manufactured components on in-service submarines; graduation and placement of over 300 people from the Accelerated Training in Defense Manufacturing program, which will scale to train and place 800–1000 skilled trades by fiscal year 2025, and increased infrastructure for submarine production through the groundbreaking of the multi-class submarine production facility at Newport News, VA.

The fiscal year 2025 budget continues the efforts in support of requirements development, Analysis of Alternatives execution, concept design and technology development for the Future Attack Submarine (SSN(X)). As the *Columbia* design work-

force efforts diminish, SSN(X) design efforts will ramp up, thereby maintaining the strength of the submarine design workforce.

Aircraft Carriers (CVNs)

The fiscal year 2025 budget fully funds the operations and maintenance of 12 In-Service Aircraft Carriers, and three *Ford*-class Carriers under construction. The fiscal year 2025 budget continues investment in Sailor Quality of Service at Newport News Shipbuilding to improve the living conditions of our sailors onboard aircraft carriers and other ships undergoing extensive maintenance or construction.

The USS *Gerald R Ford* (CVN 78) completed a highly successful deployment to support international partners and allies, with critical new systems performing well. CVN 78 spent 239 days underway, sailed over 83,476 nautical miles, and worked with 17 nations throughout its deployment during critical strategic exercises. Her crew and embarked air wing logged over 17,826 flight hours and 10,396 sorties, conducted 33,444 flight deck moves, 3,124 hangar bay aircraft moves, 2,883 aircraft elevator moves, 16,351 aircraft fueling evolutions, and transferred 8,850 pallets of cargo and mail.

John F Kennedy (CVN 79) is over 90 percent construction complete and scheduled for delivery in the fourth quarter of 2025. *Enterprise* (CVN 80) construction is 37 percent complete, and *Doris Miller* (CVN 81) 14 percent complete with material procurements pacing ahead of previous *Ford*-class carriers. The Navy remains committed to reducing and controlling the cost of *Ford*-class aircraft carriers and continues to benefit from the \$4 billion acquisition savings achieved through the two-ship block buy contract award for CVN 80 and CVN 81. The aircraft carrier industrial base has significant overlap with the submarine industrial base, both at the shipyard and at major suppliers. The Navy's investments in SIB in many cases also benefit aircraft carrier programs by improving performance, efficiency, and capacity at these critical suppliers.

The *Nimitz*-class Refueling Complex Overhaul (RCOH) is the refueling of the ship's reactors and full recapitalization of the carrier in support of the second half of its service life. USS *John C Stennis* (CVN 74) is 61 percent complete, and USS *Harry S Truman* (CVN 75) awarded its RCOH execution Advanced Planning (AP) contract earlier this year.

The Navy has completed the Environmental Impact Study (EIS) for the disposal of decommissioned, defueled Ex-*Enterprise* (CVN 65), and announced via Record of Decision (ROD) in September 2023 to select and implement a full commercial dismantlement. This decision will allow the Navy to reduce the Navy inactive ship inventory, eliminate costs associated with maintaining the ship in a safe stowage condition, and dispose of legacy radiological and hazardous wastes in an environmentally responsible manner, while meeting the operational needs of the Navy.

Large Surface Combatants

Arleigh Burke-class (DDG 51) destroyers are the workhorse of the Fleet, with 73 ships delivered as of February 2024, including the very first DDG 51 FLT III ship. At the beginning of August 2023, the Navy awarded the next DDG 51 FLT III Multi-Year Procurement contracts to BIW and HII. These contracts awarded 9 DDG 51 FLT III ships (6 ships to HII and 3 ships to BIW) across the fiscal year 2023 FYDP. Additionally, each shipbuilder's contract contained options for additional ships over the next 5 years, providing the Navy and Congress flexibility to increase DDG 51 build rates, if authorized and appropriated. Fiscal year 2023 option ship was awarded to HII at the end of August 2023. As of today, the DDG 51 shipbuilders have a total of 26 DDG-51s under contract and 11 ships in various stages of production.

Flight III DDG 51s will provide enhanced Integrated Air and Missile Defense (IAMD) with the AN/SPY-6(V)1 (SPY-6) and AEGIS Baseline 10 (BL10). SPY-6 meets the growing ballistic missile threat by improving radar sensitivity and enabling longer range detection of increasingly complex threats. The program demonstrated design maturity through its successful completion of all developmental testing. SPY-6 is in production for delivery to support Flight III ships. Initial shipboard testing of the radar and combat system has commenced on the first DDG 51 Flight III ship, USS *Jack H Lucas* (DDG 125), which was delivered in June 2023.

Integration testing for the Flight III Combat System continues to progress steadily. Testing of BL10 integration with the SPY-6 array at a land-based development yielded significant risk reduction of first-time integration at the waterfront aboard DDG 125. Notably, the incorporation of software modifications identified during these tests facilitated the delivery of multiple combat system software increments to DDG 125 each adding capability and increasing stability, readiness, and performance. Each of these increments has enhanced the vessel's capabilities, bolstering its

stability, readiness, and overall performance. The first at-sea Live Fire Event completed in September 2023 with the successful launch of a Standard Missile at a drone target. Additionally, in Flight Test Other (FTX-23) DDG 125 demonstrated the first BL10, BMD 6, and SPY-6 integrated detection, tracking, and simulated engagement of a target at sea in February 2024.

The *Zumwalt*-class (DDG 1000) guided missile destroyers are multi-mission surface combatants designed to provide long-range, offensive surface strike capabilities. The DDG 1000 program continues to accomplish first-time integration of unique combat systems elements, complete Post Delivery Test and Trials, demonstrate operational performance and start the installation of the first Conventional Prompt Strike (CPS) hypersonic weapon system on a maritime platform. In fiscal year 2023, DDG 1000 started her Building Yard Modernization Period (BYMP) at HII shipyard. DDG 1001 is completing Post Delivery Test and Trials (PDT&T) with combat system and final ship delivery planned for July 2024. DDG 1002 continues her Combat Systems Activation (CSA) period at HII.

DDG(X) will be the next enduring large surface combatant (LSC) that follows the highly successful DDG 51 class. Like DDG 51's evolution from CG 47, the initial flight of DDG(X) is a new hull form built around the DDG 51 Flight III's SPY-6 with AEGIS BL10 to deliberately reduce execution risk. DDG(X) will provide significant increases in range, efficiency, and time-on-station compared to the DDG 51 class, providing Fleet Commanders with increased operational flexibility and decreasing the demand on Fleet Logistics. When deployed with the FFG 62 class, which is designed to relieve LSCs of lower-tier missions, the resulting Fleet mix will directly contribute to the Navy's concept of DMO.

DDG(X) will provide the flexibility and margins (space, weight, power, and cooling reservations) to accommodate required future capacity and capability upgrades to counter evolving threats. The Navy is committed to a smooth and successful transition from DDG 51 to DDG(X) in order to preserve the critical shipbuilding and supplier industrial base. Additionally, the Navy is executing a collaborative design process with current DDG 51 shipyards and transitioning to a proven limited competition model between these shipyards at the right point in ship construction.

In 2023, the Navy took this opportunity to re-engage with Surface Warfare leadership and Fleet Commanders to ensure that the final Top Level Requirements (TLRs) represent the necessary warfighting capabilities in the next enduring LSC. This resulting validation across the Requirement and Acquisition communities will ensure that the delivered capability is aligned with and will support future operational needs.

Small Surface Combatants

The Constellation Class Frigate (FFG 62) is the evolution of small surface combatants with increased lethality, survivability, and improved capability to support the full range of military operations as part of a more lethal Joint Force. The FFG 62 acquisition strategy is informed by previous shipbuilding programs and takes advantage of proven systems that increase commonality across platforms including the SPY-6 (V)3 radar, Vertical Launch System (VLS) missile launchers, and Aegis combat system software. The first four ships, the future USS *Constellation*, USS *Congress*, USS *Chesapeake*, and USS *LaFayette* are under contract with USS *Constellation* under construction. There have been schedule delays experienced in fiscal year 2023, and Navy and the shipbuilder have taken action to complete the design and design reviews are ongoing to ensure achievement of required capability. The Navy is confident in the capability FFG 62 will deliver to the Fleet!

The LCS program will deliver its final ships by the end of fiscal year 2025, having delivered 31 of the 35 total funded ships to date. As the LCS class matures, the Navy continues to invest in making the ships more lethal and more survivable to elevate their value in the strategic fight. Eight LCS platforms have Naval Strike Missile (NSM) installed, and all LCS hulls are programmed to receive the weapon system by fiscal year 2032. LCS Lethality and Survivability (L&S) upgrades will begin in fiscal year 2025 as the Navy continues development of a Common Combat System that utilizes program of record government furnished equipment in place of shipbuilder procured contractor furnished equipment. In addition to enhancing lethality, this transition will vastly improve the Department's ability to affordably maintain and sustain the ships' combat and mission systems. Additionally, USS *Mobile* successfully employed Aerosonde Uncrewed Aircraft System (UAS) as it conducted counter-UAS testing with enhanced surveillance capabilities, and USS *Savannah* executed a successful proof-of-concept launch of an SM-6 missile from a MK 70 Payload Delivery System. Further, the LCS Strike team and Task Force LCS continue to produce measurable increases in materiel availability, as demonstrated by the completion of a successful 26-month deployment of USS *Charleston* in 7th

Fleet as well as USS *Oakland*, meeting all operational commitments for 531 days with no mission days lost. In the past year, the Navy reached a significant milestone in modernizing mine countermeasure (MCM) capability, as the MCM Mission Package (MP) declared IOC in March, 2023. Initial deployments of the MCM MPs aboard Independence Variant LCS will begin in fiscal year 2025, and MCM MPs remain on track to fully replace the aging *Avenger*-class MCM fleet by the end of fiscal year 2027.

Large Deck Amphibious Warfare Ships

Amphibious warfare ships remain a critical component of the Nation's global forward presence, supporting deterrence, crisis and contingency response missions and providing decision space for our Nation's leaders. These ships support the amphibious assault, special operations, and expeditionary warfare missions of U.S. Marines and often Special Operations Forces by providing sovereign bases at sea, offering flexible services that provide shelter and sustainment, and enabling marines, sailors, and Special Operations Forces to plan and train a tailorable force.

The America Class Amphibious Assault Ships (LHA 6) program provides a lethal and versatile platform to serve as the flagship for the Expeditionary Strike Group (ESG)/Amphibious Ready Group (ARG) now and in the future. Among other capabilities, these ships host the fifth-generation F-35B Joint Strike Fighter (JSF) aircraft that are critical to maintaining air combat superiority. Bougainville (LHA 8), first of the LHA Flt I class, is at 63 percent construction complete and was christened in 2023. LHA 8 includes a well deck to increase operational flexibility and a reduced island structure increasing flight deck space to enhance aviation capability. Fallujah (LHA 9) will be the second Flight I ship and is a rollover of the LHA 8 design with obsolescence-related changes incorporated. Its construction contract was awarded in October 2022 and fabrication started in December 2022. Following advance procurement funding appropriated in fiscal year 2023, this year's budget requests full funding of LHA 10 as an fiscal year 2027 ship.

Other Amphibious Warfare Ships

San Antonio-class Amphibious Transport Docks (LPD 17) provide the ability to operate offensively in a medium-density, multi-threat, anti-access littoral environment by being a seabase for the Marine Expeditionary Unit (MEU), capable of launching and recovering helicopters, tiltrotor aircraft, landing craft, amphibious vehicles, and Special Operations Forces. The *San Antonio*-class LPD is an essential component to reaching the statutory requirement of not less than 31 amphibious warfare ships, and continues to be affordably constructed with capabilities critical to providing strategic mobility, force projection, and the range to campaign across the globe. *Richard M McCool Jr* (LPD 29) conducted Acceptance Trials in February of this year with ship delivery this spring. LPD 29 will be the first ship operating the SPY-6 (V)2 rotating variant of Enterprise Air Surveillance Radar (EASR), outfitting the ship with the latest technology and most sustainable equipment. LPD 28 and LPD 29 are the last of the LPD 17 Flight I line to be constructed and are the transition ships to the LPD 17 Flight II. This year's budget request includes the procurement of three LPD 17 Flight II ships in fiscal year 2025, fiscal year 2027 and fiscal year 2029, a testament to the Navy's commitment to maintain a 31 amphibious ship fleet at the most cost efficient pace.

Landing Craft

The Ship to Shore Connector (SSC) program continues to make progress on craft quality and delivery cadence. Resolution of early technical issues have enabled production to progress as originally envisioned producing four craft per year, with the delivery of Hull 109 anticipated in March 2024. While no SSC are requested in fiscal year 2025, SSC procurement is planned to continue in future fiscal years. Four craft were delivered in fiscal year 2023, and the program is on track to deliver four craft in fiscal year 2024. The additional craft provided by Congress have been instrumental in buying craft efficiently and supporting the unique vendor base.

The Navy is also replacing its aging Landing Craft Utility (LCU) fleet with the LCU 1700 program which recapitalizes the capabilities and flexibility currently provided by the LCU 1610 class in a more fuel efficient, cost effective, and updated design. The fiscal year 2025 budget request reflects a strategic pause in procurements to allow time to reevaluate the LCU 1700 acquisition approach to ensure the Navy is getting craft delivered on time and on budget.

Expeditionary, Auxiliary, and Other Vessels

Expeditionary support vessels are flexible platforms used across a broad range of military operations in support of multiple operational phases. The Medium Landing Ship (LSM) is planned to fill the capability gap that exists in the littoral environ-

ment between the Navy's large, globally deployable, high endurance, multipurpose amphibious warfare ships and smaller complementary landing craft. The Navy and Marine Corp have collaboratively finalized the best mix of Industry-informed requirements to efficiently and affordably procure LSM in support of integrated deterrence and distributed mobility, maneuver and sustainment for littoral expeditionary forces. Release of Detailed Design and Construction (DD&C) Request for Proposal (RFP) occurred in January 2024. The fiscal year 2025 funding request supports lead hull contract award. The program is also exploring alternate acquisition approaches to deliver LSMs more rapidly to the Fleet.

The LSM will be the primary maneuver and sustainment platform for marine elements of the Stand-in Force (SIF). However, current programmatic timeline for LSM delivery does not support the requirements to provide littoral mobility for one Marine Regiment until fiscal year 2034. In the interim, the DON is evaluating a diverse group of existing naval platforms (e.g., EPF, Commercial Charters, Ancillary Surface Connectors, etc.) to serve as the Littoral Maneuver Bridging Solution (LMBS) to support SIF operating in the Indo-Pacific. For example, the Marine Corps has chartered a commercial Stern Landing Vessel (SLV) to experiment and prototype the SLV's use in providing logistics/sustainment capability to support SIF conducting EABO. This vessel provides Marine Corps formations with the ability to use littoral waterspace for maneuver, distribution, and resupply using a roll-on/roll-off vessel capable of beaching in various shore environments. On February 13, 2023, the first SLV was officially undocked from its dry-dock location and underwent final shipyard modifications, various trials, and inspections. In addition to the SLV, the Marine Corps is pursuing a future strategy for a smaller craft to enable littoral maneuver, distribution, and sustainment—OMm00*the Ancillary Surface Connector (ASC). ASC will be built by industry to answer a Service requirement for a III Marine Expeditionary Force inter-island connector that supports the maneuver of forces within the littoral environment and delivery of logistics over the "last tactical mile." Furthermore, the Fast Transport (EPF) adds value to the LMBS through rapid, agile, intra-theater maneuver of personnel and equipment in support of Distributed Maritime Operations (DMO) and Littoral Operations in a Contested Environment (LCOE). These vessels have and continue to support critical partnerships throughout the Indo-Pacific and the globe, to include theater security cooperation events, Humanitarian Assistance, Disaster Relief missions such as Exercise Talisman Sabre and evacuation efforts.

The EPF Flight II (EPFs 14–16) does not have the autonomous capability of EPF 13 but is a modified EPF design that incorporates engineering, design and operational improvements which will provide Combatant Commanders with a more flexible and capable platform and enable an embarkable Role 2 Enhanced (R2E) medical capability. EPF Flight II will be capable of conducting the same missions conducted by the EPF but with a reduced lift capacity.

EMS is an EPF variant that has a similar shallow draft, is all aluminum, and is a commercial-based catamaran design. However, it is optimized to provide dedicated R2E medical care and intra-theater patient movement. The EMS will provide combatant commanders high-speed transport mobility to move casualties over operational distances. Fiscal year 2023 appropriations included the contract award of two Expeditionary Medical Ships (EMS). Construction of the first EMS ship is expected to start in fiscal year 2025.

The Expeditionary Sea Base (ESB) is a modified commercial ship that acts as an afloat forward staging base. ESBs are versatile ships that provide a flight deck platform, mission deck and cargo capacity, and command and control capabilities for mission planning and execution. The Navy accepted delivery of USS *John L. Canley* (ESB6) in March 2023 and commissioned her in February 2024. *Robert E. Simanek's* (ESB 7) keel was laid in October 2022. *Hector A. Cafferata Jr.* (ESB 8) started construction in August 2023.

The *John Lewis* (T-AO 205)-fleet replenishment oiler recapitalizes the T-AO 187 as the primary refuel asset vital to ensuring Navy intra-theater replenishment capabilities. USNS *Harvey Milk*, T-AO 206, delivered in July 2023. T-AO hulls 207 to 213 are under contract. Cost and schedule performance is starting to stabilize with the leveling of inflation, serial production and learning. President's Budget 2025 does not request additional T-AOs as the program finalizes a block buy acquisition strategy for T-AO 214 to 221, leveraging authorities provided by Congress.

Ten T-ATS Towing, Salvage, and Rescue vessels are currently under production across two Gulf Coast shipyards: five hulls at Bollinger Houma Shipyard and five hulls at Austal USA. In April 2022, Austal USA opened their first steel production line utilizing DPA Title III funding to expand their shipyard capability to enable construction of both steel and aluminum ships. The Auxiliary General Ocean Surveillance ships (T-AGOS 25 Class) consists of a ten—vessel program of record.

Austal USA was awarded a Detail Design Contract for the lead ship in May 2023 with options for lead ship construction as well as construction of 6 additional ships. Fiscal year 2025 reflects a gap year to allow sufficient time to complete detailed design work on the lead hull. The T-AGOS 25 ships will replace the T-AGOS 19 and T-AGOS 23 class ships.

Strategic Sealift

The DON remains committed to sealift readiness and recapitalization, working with our partners in USTRANSCOM and the Maritime Administration (MARAD). This recapitalization strategy includes procurement and refurbishment of used commercial Roll-On Roll-Off ships for replacement of aging Ready Reserve Force capacity. The buy-used recapitalization program provides a stable acquisition profile with forecasted maintenance and repair costs to meet strategic mobility requirements at a moderate level of risk. On February 27, 2023, MARAD completed the purchase of three ships that recapitalize over 660,000 square feet of Sealift capacity. The purchase of the three ships that make up the *Jolly*-class was the second purchase of the Buy-Used program which began with the purchase of the first used vessels in March 2022.

In fiscal year 2024, the first two used vessels (*Cape Arundel* and *Cape Cortes*), received their Certificate of Inspection, conducted sea trials, relocated from vessel acquisition outfitting pier to final layberth location, completed post sea trial regulatory findings, and enter into the Ready Reserve Force with 432,000 square feet of capacity. The work to modify and outfit these used vessels will continue to be performed by U.S. shipyards.

In parallel with recapitalizing strategic sealift, the Navy and Marine Corps are in the early stages of developing requirements for the next generation of maritime prepositioned ships. A new construction program is the most appropriate to substitute to the current Maritime Prepositioning Force (MPF) ship portfolio. This is due to capability adaptations to a concept oriented on campaigning that utilizes sea basing to persistently project, sustain, and maintain discrete forces forward in the competition space. In fiscal year 2023, military sealift command (MSC) transitioned eight MPF vessels from full operational status (FOS) to a reduced operational status (ROS) located in CONUS. Vessels were placed in ROS status as part of cost-reduction offset to prioritize higher Navy priorities.

In fiscal year 2024, the Navy is developing initial new construction concept designs and top-level requirements for the future MPF to support a first ship delivery in approximately fiscal year 2033.

Sustainment, Modernization, Service Life Extensions and Divestments

The Navy continues to prioritize readiness to ensure the Navy is postured to deter, defend, and win against any threat at any time. Proper platform maintenance is a critical enabler to ensure the Navy is ready to fight. For surface ship maintenance, completing availabilities on time and with required work completed remains the top focus and challenge to the maintenance and acquisition communities as Fleet Commanders must be able to depend on every player on the field to be on-time and ready. To support this, over the last 5 years, the Navy has been utilizing data analytics to improve availability planning, award contracts, procure material, and integrate schedules, so industry and government can better maximize every day in an availability and continue to drive out Days of Maintenance Delay. Additionally, the Navy is continuing its efforts to strengthen partnerships with industry via proper work package planning and early communication of workload projections for every surface Navy homeport to allow industry to better predict and manage its workload, infrastructure, and workforce.

In addition to the Navy's focus on maintaining the Fleet, the Navy team is executing critical modernization efforts on key platforms to ensure the Fleet has relevant combat capability. The Navy is continuing its program to invest \$17 billion over 17 years to modernize 25 Flight IIA DDGs to provide combat capability nearly identical to our future DDG Flight III ships, enabling the Navy to accelerate delivery of Terminal Defense and Long-Range Fires capabilities to the fleet and ensure these hulls are being upgraded to maintain relevance and reliability through their expected service life (ESL). The fiscal year 2025 budget includes funding for the third procurement of a SPY-6 variant for back-fit on two in-service DDGs, the combined hull, mechanical & electrical and combat system/AEGIS modernization upgrade installations on two DDGs in fiscal year 2025, the necessary procurements for additional installs planned in fiscal year 2026 and 2027, and the procurement of another two high efficiency super chiller shipset planned for installation in fiscal year 2028. The Navy has worked to incorporate Cruiser Modernization lessons learned into the DDG Modernization acquisition strategy, including availability planning,

solicitation strategies, appropriate contract types, system lay-up and reactivation, crew manning, and training. All of this collectively has been incorporated into the Navy's "crawl-walk-run" approach for the program that will enable the collective Navy/industry team to be properly prepared and experienced for the magnitude and complexity of the upcoming full DDG Mod 2.0 availabilities, the first of which is scheduled for fiscal year 2028.

The Navy is committed to balancing the submarine maintenance workload within the public and private shipyards, as well as maintaining a healthy industrial base for both submarine maintenance and new construction. The Navy will continue its investments in the *Virginia*-class Material strategy to improve material stock level and continue ramping outsourced work from public shipyards to the private sector to match public shipyard demand and capacity. The Navy will continue to work with our industry partners to improve cost and schedule performance for submarine maintenance, providing valuable maintenance surge capacity.

The National Defense Strategy (NDS) transforms the foundation of the future force by designing "transition pathways to divest from systems that are less relevant to advancing the force planning guidance." President's Budget 2025 supports the NDS by divesting of less survivable force structure, resource-intensive weapon systems, and less-relevant combat platforms that are not critical to maintaining our warfighting advantage against the People's Republic of China (PRC) and Russia. Careful prioritization in the near-term will result in a Navy battle force that is more ready, sustainable, and lethal. The Navy remains committed to ensuring resources are most effectively utilized and directly aligned to supporting NDS priorities, and to support this, the Navy's fiscal year 2025 budget proposes decommissioning 19 ships in fiscal year 2025. Of these 19 ships, 9 are at or beyond ESL and ten are prior to ESL. The inactivation of the nine ships at or beyond their ESL is a standard practice at the end of a ship's lifecycle. Legacy platforms that are extremely expensive to repair and maintain and cannot stay relevant in contested environments must be retired in order to invest in essential capabilities the Navy needs for our national security, and the Navy has identified ten ships to divest of in fiscal year 2025 (2 CG, 1 LSD, 2 LCS, 4 T-EPF, 1 T-ESD) to support this larger effort. The DON assesses no potential gaps in warfighting capability will result from removing the projected ships from service. Navy will only grow ready, lethal, warfighting capacity at a rate supported by fiscal guidance and our ability to sustain that capacity in the future. Therefore, President's Budget 2025 does not resource capacity beyond what can be reasonably sustained—manning, training, maintenance, ordnance, operations, and future modernization.

Shipyard Infrastructure Optimization Program (SIOP)

The Navy's four public shipyards perform an essential role in national defense by executing maintenance on submarines and aircraft carriers to provide combat-ready ships to the fleet. SIOP will deliver required dry dock repairs and upgrades to support current and planned future classes of nuclear-powered aircraft carriers and submarines, optimize workflow within the shipyards through significant changes to their physical layout, and recapitalize industrial plant equipment with modern technology that will substantially increase productivity and safety. SIOP will improve the Quality of Service for the over 37,000 engineers, artisans, and sailors who work at the four public shipyards.

The Navy instituted a first-of-its-kind infrastructure acquisition process for SIOP, similar to major defense acquisition programs. In 2023, the SIOP-tailored acquisition process selected a preferred alternative, determined capability requirements, and established threshold and objective parameters to guide overall cost, schedule, and performance at each shipyard. The master plan to deliver these capabilities to Pearl Harbor Naval Shipyard (PHNS) has been completed.

The Navy is instituting a first-of-its-kind infrastructure acquisition process for SIOP, similar to major defense acquisition programs. The SIOP-tailored acquisition process will guide program execution and establishes threshold and objective parameters for overall cost, schedule, and performance of the SIOP at each shipyard with total program cost.

With the tremendous support received from Congress—to include the \$2.0 billion appropriated in fiscal year 2023—the program is advancing three lines of effort: dry dock modernization, optimization, and capital equipment. The Navy has \$6 billion of SIOP construction under contract and \$577 million of capital equipment projects in progress. In fiscal year 2023, the program started construction of a new dry dock at Pearl Harbor Naval Shipyard, awarded \$240 million in repair projects to maintain mission readiness at the four shipyards, and continued construction of dry docks at Norfolk and Portsmouth Naval Shipyards. During the year, SIOP completed electrical upgrades of Puget Sound Dry Dock 4 and Pier 3; renovation of Dry

Dock 4, flood protection improvements of Dry Docks 2 and 3, and the Production Training Facility at Norfolk; and completed caisson flood protection improvements of Dry Docks 2 and 3 and the renovation of Berth 6 at Portsmouth. To date, SIOP has delivered 138 items of capitalized industrial plant equipment to the shipyards. The President's Fiscal Year 2025 budget continues the Administration's commitment to this program and requests \$2.8 billion for SIOP.

Unmanned Surface and Undersea Vehicles

The DON remains committed to maturing the enabling and core technologies needed to deliver unmanned surface and undersea capabilities. These capabilities will serve as the backbone to achieve the hybrid fleet of the future. Employing a Family of Systems in both surface and undersea domains increases our magazine depth, standoff, and battlespace awareness while providing protection of our manned platforms and reducing risk to our sailors and marines. In fiscal year 2025, we will continue to mature our USV systems engineering pillars. We have made great strides in demonstrating reliable Hull, Mechanical and Electrical capability with our industry partners via land based testing as well as advancing our networks and radios; common core USV Combat System; vessel control software; sensory perception and mission autonomy. During 2023, USV Division 1 (USVDIV 1) successfully conducted a developmental deployment to Seventh Fleet AOR, transiting more than 39,000nm and over 1300 hours of autonomous operation.

The Navy has an operational MUSV Land-Based Test Site and will continue operating several USV prototypes including three Overlord USVs (Ranger, Mariner and Vanguard), and two Medium Displacement USVs (Sea Hunter and SeaHawk) during 2024 and 2025. In September 2023, the MCM USV program established its ACAT II Program of Record (PoR) and was approved for Full Rate Production (FRP). The MCM USV program delivers multiple capabilities to the MCM MP requirements via payload delivery systems to include mine-hunting, and minesweeping. The program continues to develop Barracuda to provide future mine neutralizing capability. The Navy remains committed to investing in a family of Unmanned Undersea Vehicles (UUVs) designed to expand the DON's reach and persistence. In December 2023, the Navy took delivery of the Extra Large Unmanned Undersea Vehicle (XLUUV) test asset which is a pier-launched UUV capable of carrying large payloads and is on schedule to deliver and test the remaining prototypes in 2024 and 2025. In fiscal year 2023 the Navy paused funding of the Large Displacement Unmanned Undersea Vehicle (LDUUV), which will support Subsea and Seabed Warfare (SSW) and Intelligence Preparation of the Operating Environment. However, the Navy restored funding in fiscal year 2024 and prototype testing resumed in February 2024. The Navy is also partnering with DIU to evaluate and test large UUV commercial capabilities.

The submarine community has successfully launched and recovered both small and medium sized UUVs in fiscal year 2023 and is continuing to work on converting existing medium UUVs for torpedo tube launch and recovery capabilities during fiscal year 2024. Lionfish is the next generation fully cyber compliant, small UUV with increased capabilities relative to the legacy MK18 MOD1 system. The Navy awarded a 5-year Lionfish production contract to Huntington Ingalls Industries (HII) in September 2023 supporting procurements for Navy Expeditionary, Naval Special Warfare (NSW), and USMC forces. The Navy will continue to develop and procure small and medium UUV PoRs during fiscal year 2024 and 2025 increasing subsea and seabed warfare reach and persistence.

The Marine Corps plans in fiscal year 2024 continue developing the Long-Range Unmanned Surface Vessel (LRUSV). In July 2023, the Combat Development Directorate, Deputy Commandant for Capability Development and Integration issued a Capability Requirement Change shifting LRUSV focus from a fires mission payload in support of the Marine Littoral Regiment (MLR) to a sensor and communication mission payload as part of the Maritime Reconnaissance Company (MRC) and to pursue risk reduction activities using the prototype Unmanned Surface Vessel (USV) and Contact Vessel (CV) as surrogates for a future USV and Multi-Mission Reconnaissance Craft (MMRC).

In accordance with our plans to build a DMO hybrid fleet, the Navy and Marine Corps are conducting studies and experimentations to assess the supporting infrastructure requirements of unmanned systems, to include "motherships". Additionally, the Navy kicked off an Unmanned Systems Expeditionary Support and Integration Requirements Evaluation Team that is looking at ashore or afloat employment capability gaps for mobility, sustainment and command and control of current and future unmanned systems at sea in all domains.

Combat Systems

The Navy remains at the forefront of global surface and submarine combat systems, continually investing in cutting-edge technology to bolster the capabilities in the Fleet. Embracing the ever-evolving landscape of commercial technology, the Navy strives to provide reliable and real-time capabilities, breaking from traditional hardware-software dependencies. Investments continue for the Forge and the Foundry, the Navy's combat system software and hardware factories, to uphold industry standards such as Infrastructure as a Service, Platform as a Service, and Software as a Service. This approach enables the rapid deployment of iterative updates to the Aegis Weapon System and embeds continuous innovation processes into the delivery and maintenance of shipboard hardware. Increased operator feedback from Red Sea operations are driving smaller, more frequent software deliveries to the Fleet. Integrated Combat System development efforts continue within the Navy, with both new construction and existing Aegis BL9 and BL10 ships receiving upgrades through Capability Packages. In February 2024, *Arleigh Burke*-class destroyer USS *Winston S. Churchill* (DDG 81) became the first ship running a fully virtualized Aegis Combat System to successfully intercept an air target with a missile, proving that a virtualized system can work on an operational ship in a combat environment. This event marks a significant step in the Navy's plan to field a single force-level integrated combat system to all surface ships, enabling faster, over-the-air delivery and proliferation of capability.

The integration of the AN/SPY-6(V)1 Air and Missile Defense Radar (AMDR) into Aegis BL10 provides significant performance over BL9 and the AN/SPY-1 radar. This upgrade expands sensor coverage, bolstering the Navy's ability to counter increasingly sophisticated and numerous threats in the Integrated Air and Missile Defense (IAMD) mission. Building upon the design and testing maturity of the AN/SPY-6(V)1, the Navy is poised to deploy the AN/SPY-6(V)2 and AN/SPY-6(V)3 across various naval platforms including CVNs, LPDs, LHAs, and FFGs. Additionally, existing DDG Flight IIA destroyers are slated for retrofit with SPY-6(V)4, ensuring common training and sustainment benefits across the Fleet.

The Navy maintains the undersea warfare edge by constantly evolving our undersea combat systems, continuing the highly successful Submarine Warfare Federated Tactical Systems (SWFTS) modernization process for hardware Technology Insertions and Advanced Processing Build software upgrades. Leveraging commercial off-the-shelf technologies, the SWFTS modernization process enables advanced capability improvements at lower cost, delivering a decades-long progression in warfighting capabilities including advancements in the combat, sonar, electronic warfare, and imaging systems. SWFTS Technical Insertion upgrades continue to deliver more cyber resilient system architectures, more capable payload integration, and increased lethality. Additionally, the next wave of upgrades will provide a larger Common Computing Environment (CCE) footprint, paving the way for faster and more efficient modernization of the Navy's submarine combat systems.

Furthering investments initiated in prior years, the fiscal year 2025 budget supports continued adoption of Agile and DevSecOps software development best practices at SWFTS vendors to increase quality, expedite capability delivery, and improve cybersecurity by engraining cyber resiliency into the system architecture. Modernizing processes as well as capabilities will elevate the Fleet's ability to rapidly adapt to evolving threats and strategic priorities.

TACTICAL AVIATION

Carrier Air Wing (CVW)

The striking power of the CVW remains the cornerstone of power projection capability from 11 of the world's most survivable airfields, our aircraft carriers (CVNs). The modernization of the air wing and its weapons keeps the aircraft carrier relevant through the ship's 50 year service life. Today's air wing is transitioning to a mixture of 4th and 5th Generation strike fighter aircraft that continue to incorporate advanced capabilities to support the objectives of the NDS. The F-35C is replacing the early lot F/A-18E/Fs. E-2Ds, with an advanced airborne radar, networking, and aerial refueling capability are replacing the legacy E-2C. The CMV-22B is replacing legacy C-2As in support of strike group logistics, and Next Generation Jammer (NGJ) pods will augment and eventually replace the legacy ALQ-99 pods on the EA-18G and provide full spectrum integrated non-kinetic effects.

The Air Wing of the Future (AWOTF) refers to the evolution and composition of the CVW as it on-ramps advanced capabilities and capacity, measured at key milestones in the near, mid, and long term. The CVW will adapt and transform from an all "manned" to a teamed "manned-unmanned" force structure over the next two decades.

In the near-term, the AWOTF achieves a mix of F-35C Lightning II, F/A-18E/F Block III Super Hornet strike fighters, and EA-18G Growlers, and introduces the MQ-25 Stingray unmanned air vehicle (UAV). The MQ-25 will take over the air wing's organic aerial refueling mission, extending strike range and persistence, enhancing maneuverability, and enabling all strike fighters to focus directly on delivering effects in the high-end fight. In the mid and long term, the AWOTF will deliver game-changing lethality and survivability through the Next Generation Air Dominance Fighter (F/A-XX), further development and capability integration of unmanned systems, and continued development of jointly integrated multi-domain kill-chains.

The 2024 NDAA granted the Navy relief from the Title 10 requirement to stand up a 10th CVW by October 1, 2025 pending SECNAV submission of a report to Congress analyzing potential approaches to the manning, operation, and deployment of a 10th CVW. That report is on schedule to be submitted by the end of the current fiscal year. The current CVN maintenance schedule efficiently pairs nine CVWs to nine operational CVNs according to ship availability; 11 total CVNs with two under planned service-life maintenance. With an 11 CVN force structure, nine CVW are the optimal number of air wings for readiness, capability, and force generation.

Marine Expeditionary Unit (MEU) Aviation Combat Element (ACE)

The Marine Expeditionary Unit (MEU) is the embodiment of the Marine Air-Ground Task Force (MAGTF), providing the Nation with a critical strategic capability for naval campaigning, crisis response, and contingency operations. Deployed on a 3-ship Amphibious Ready Group (ARG), marines and sailors leverage the maritime domain as maneuver space to posture without the constraints and restraints of access, basing, and overflight. The self-sustained and flexible ARG/MEU can swiftly transition from steady-State competition and campaigning to crisis response or high-end warfighting without external augmentation, playing a vital role in integrated deterrence, global campaigning, and reinforcing American resolve.

As a lethal, forward-deployed, sea-based expeditionary force, the ARG/MEU operates across a spectrum of military operations with a tailorable and uniquely suited complement of aircraft. The MEU's Aviation Combat Element (ACE) inventory includes the F-35B, MV-22B, H-1, and CH-53E/K. The F-35B, the sole 5th Generation platform designed for amphibious warfare ships and expeditionary landing fields, stands as a cornerstone of Marine Corps' modernization efforts, integral to the Stand-in Force concept, and a crucial enabler for the Joint Force. Offering strategic agility, enhanced situational awareness, and increased maneuverability in contested environments, the F-35B provides commanders with a decisive advantage.

The MV-22B tiltrotor aircraft remains the most capable assault support platform in the joint inventory, revolutionizing assault support with its superior speed, range, and survivability. The H-1s, with their versatility, remain pivotal for the MEU's crisis response force and have played an indispensable role in safeguarding our capital ships. Finally, the new CH-53K, the only fully marinized heavy-lift rotorcraft, serves as a critical asset for mobility and logistical support in distributed operations within contested environments.

The ARG/MEU team represents one of the Nation's most capable crisis response tools, persistently forward deployed and ready to provide Combatant Commanders with options across the spectrum of military operations. With its complement of capable aviation platforms, the MEU ACE ensures seamless projection of power from the sea, air, and land, bolstering the ARG/MEU's organic operational mobility.

AIRBORNE ELECTRONIC ATTACK (AEA)

The EA-18G Growler is a critical enabler for the Joint force, bringing fully netted electronic warfare capabilities to the fight and providing essential capabilities in the Electromagnetic Maneuver Warfare environment. The fiscal year 2025 budget retains and fully funds the EA-18G aircraft and squadrons across the FYDP. Next Generation Jammer (NGJ) pods will augment and eventually replace the legacy ALQ-99 pods on the EA-18G to provide full spectrum integrated non-kinetic effects. The delivery of NGJ Mid-Band (MB) increases EA-18G Growler's lethality today providing a multi-generational leap in capability against adversary radars and communication targets utilizing advanced AEA techniques, as well as improved reliability and maintainability over legacy ALQ systems. NGJ is phased by threat, with initial focus on MB spectrum capability, followed in the future by Low-Band (LB) capability. NGJ High Band remains unfunded.

NGJ-MB is a cooperative development and production program with Australia, with Full Rate Production Decision expected in 3rd quarter fiscal year 2024. Three LRIP I shipsets were delivered in fiscal year 2023. The first LRIP II shipset were delivered in 2nd quarter fiscal year 2024 with the remaining four LRIP II shipsets

planned for delivery in fiscal year 2024. Upon conclusion of operational test, IOC and initial deployment will occur in fiscal year 2024. The fiscal year 2025 budget includes \$86.7 million in RDT&E funding to continue development of the NGJ-MB Extended (MBX) Engineering Change Proposal (ECP) to extend the upper frequency range coverage limit of the system to counter modern and adaptive threats. The fiscal year 2025 budget request also includes \$453.2 million in APN-5 funding for 10 Lot 5 shipsets, associated support equipment, training equipment and production support.

NGJ-LB is also a cooperative development program with Australia and is a critical AEA capability to augment and replace the legacy ALQ-99 Tactical Jamming System on the EA-18G in the low frequency bands where modern adversary radars have proliferated posing significant threats to joint forces. The fiscal year 2025 budget request \$209.6 million RDT&E for NGJ-LB to focus on pod design, advanced capabilities development, and the build of aeromechanical and mission systems test pods to support ground and flight testing.

Growler Block 2 (GB2) will deliver capabilities to the warfighter to detect, locate, identify and counter advanced Integrated Air Defense Systems and complex emitters. GB2 will utilize a phased approach for spiral development of AEA capabilities to modernize processing, sensors, and aircrew

decision aids to maintain dominance in the modern electromagnetic spectrum. Phase 1 will include an upgraded Next Generation Electronic Attack Unit with open mission systems architecture, multi-level security, and incorporation of the reactive electronic attack measures capability. Phase 2 is the addition of the advanced multi-function array into the inboard leading edge flaps of the aircraft, augmenting the ALQ-218 functionality and capability. GB2 serves as a critical technology development and risk reduction effort to support Naval AWOTF.

The Marine Corps, through the INTREPID TIGER II program, is bringing advanced Electronic Warfare (EW) to all its aviation platforms and is focused on MUM-T to answer the MAGTF's requirements for AEA. The Marine Corps has worked in conjunction with OSD to purchase the first two XQ-58 Valkyrie CCA platforms to test EW effects in partnership with F-35 and our assault support platforms.

AIRBORNE COMMAND AND CONTROL AIRCRAFT

The E-2D Advanced Hawkeye is the Navy's carrier-based airborne command and control aircraft, equipped with an advanced airborne radar, aerial refueling capability, and network connectivity required by naval and Joint Force commanders to provide command and control air and sea superiority, and to counter adversary anti-access and area denial strategies. The E-2D provides unique Theater Air and Missile Defense capabilities, and is a cornerstone of the Naval Integrated Fire Control (NIFC) system of systems linking Navy and Marine Corps fighter aircraft, Navy surface combatants, and Marine Corps ground units.

As of March 2024, the Navy has taken delivery of 60 E-2D aircraft with an additional 20 in production or on contract. Modernization priorities focus on Fleet capabilities to outpace the threat, including interoperability, communication and navigation hardware; essential Command and Control; networking and sensor performance capabilities that are critical enablers to Naval Integrated Fire Control; and vital upgrades and improvements to enable Joint All-Domain Command & Control (JADC2).

ASSAULT SUPPORT AND INTRA-THEATER LOGISTICS SUPPORT AIRCRAFT

Tiltrotor Aircraft (Marine Corps Osprey and Navy CMV-22B)

The V-22 tiltrotor capability remains in high demand from Combatant Commanders for the essential transportation of personnel and equipment in support of worldwide operations. Navy CMV-22B, in coordination with Navy Unique Fleet Essential Airlift (NUFEA), provide the last leg

of Navy Intra-theater Airlift (NITA) for time-critical cargo and personnel from distributed logistics sites essential to extending the range of CSGs, SAGS, and ESGs during DMO. The V-22 program is focused on remaining ready, reliable, and relevant in support of naval operations, with the safety of aircrew and personnel as the number one priority.

In 2025, the program continues progress toward improvements in safety and reliability through enhancements to the design and monitoring of critical components, including the V-22 drive system. The Osprey Drive System Safety and Health Instrumentation (ODSSHI) system provides continuous monitoring of the components of the drive system to identify issues prior to in-flight experiences. The tragic mishap of an Air Force CV-22 off the coast of Japan reinforced the need for this type of system on the V-22, which is critical to the continued safe operation of Navy and Marine Corps V-22s.

The Navy CMV-22 program declared IOC in December 2021, and completed its third deployment in 2023, in support of the USS *Carl Vinson* CSG. The fiscal year 2025 budget requests \$109.4 million in RDT&E for continued development of the Input Quill Assembly re-design, Digital Helmet Mounted Display for operations in Degraded Visual Environment, as well as other product improvements to maintain tactical relevance in support of modernization.

The fiscal year 2025 budget also includes \$295.2 million in APN for modifications to maintain commonality, implement safety and reliability improvements, improve capability, and support production line shutdown and engineering support through delivery of the final Lot 28/fiscal year 2024 aircraft. The fiscal year 2023 congressional add procured four CMV-22 funding the Navy for the full program of record quantity of 48 and one MV-22 funding the Marine Corps for the fully program of record quantity of 360. The fiscal year 2024 congressional add will procure five additional CMV-22 for the Navy. Production Line Shutdown for MV-22 and CMV-22 begins in fiscal year 2024.

Heavy Lift (Marine Corps CH-53K)

The CH-53K replaces the legacy CH-53E as a faster, more efficient heavy lift helicopter with greater payload capacity than any current or emerging rotorcraft. Last year, the Marine Corps took delivery of 5 CH-53K and eclipsed 6,500 total program flight hours as the service continued the transition from the legacy platform to the CH-53K. In October 2023, Marine Heavy Helicopter Squadron 461 demonstrated the unique performance of the CH-53K when it recovered a crashed MH-60S at an altitude of 10,000 ft in terrain unreachable by vehicles. This is the only aircraft capable of such a feat. In fiscal year 2024, the program continues execution of Follow-On Test and

Evaluation activities focusing on secondary missions testing, updated aircraft survivability equipment testing, interoperability testing, and correction of deficiencies. All System Development and Demonstration flight testing completed in 2023 with ground testing planned to complete this year.

Last year the CH-53K program awarded Lot 7, the first Full Rate Production lot and the first year of 2-year block buy contracts for aircraft and engines with plans to award Lot 8 in fiscal year 2024. The DON is requesting fiscal year 2025 congressional authorization for another 2-year block buy contract for airframes and a 5-year multi-year contract for engines. These opportunities leverage aircraft volume quantity to realize significant cost savings, encourage improved production efficiencies, and provide much needed stability to the rotorcraft industrial base. The fiscal year 2025 President's Budget requests \$86.1 million in RDT&E to continue the CH-53K development, test, and standup of organic test capabilities for follow-on improvements and \$2.642 billion in APN for procurement of 19 Full Rate Production aircraft, initial spares, and modifications.

EXECUTIVE SUPPORT AIRCRAFT

The VH-92A Presidential Helicopter provides worldwide safe, reliable, and secure executive transportation with survivability, maintainability, and reliability improvements over the legacy VH-3D and VH-60N. Production of VH-92A completes in fiscal year 2024 while the program continues to focus on improvements to support all mission types. The fiscal year 2025 President's Budget Requests \$51.4 million in RDT&E for VH-92A Helicopter Improvements which supports product improvements related to mission systems, maintainability, reliability, and obsolescence issues. These efforts include Mission Communications System hardware and software upgrades, Wideband Beyond Line-of-Sight capability enhancement, distributed network communications, cockpit upgrades, extended range cabin noise reduction, power margin, high-hot aircraft performance enhancements, and improved rotor blades. APN in the amount of \$69 million is required for mission computer software efforts including modifications to the VH-92A Mission Communications System.

FIXED-WING AIRCRAFT

TAKE CHARGE AND MOVE OUT (TACAMO)

The Navy's TACAMO mission is to deliver and provide survivable, reliable, and endurable airborne nuclear command, control, and communications (NC3) capabilities to the President, Secretary of Defense, and the United States Strategic Command. The TACAMO mission is currently flown on the aging E-6B Mercury, a Boeing 707 airframe. The platform is undergoing simultaneous sustainment and modernization efforts, but TACAMO requires a new platform to ensure continued success of the mission in the future. The TACAMO recapitalization (E-XX) program will utilize the C-130J-30 (stretched Super Hercules) aircraft as the air vehicle replace-

ment with a combination of existing and modernized NC3 mission systems developed and integrated onto the platform by a third-party contractor.

In fiscal year 2025, the Navy will invest \$775.3 million in RDT&E toward platform development. This includes \$659.9 million for the TACAMO Weapon System (TWS) Engineering and Manufacturing Development (EMD) contract, \$15.2 million for non-recurring engineering contracts on the C-130J airframe, and \$15.2 million for very low frequency (VLF) transmit system development and modernization. The TWS EMD contract has a planned award in first quarter fiscal year 2025 and will provide for the modification and integration of NC3 systems onto the C-130J-30 for the TACAMO mission. Fiscal year 2025 sets the stage for successful TACAMO mission integration on the C-130J-30 supporting U.S. nuclear deterrence and *Columbia's* assured second strike for decades to come.

MARITIME PATROL AIRCRAFT

The P-8A is the DOD's only long-range full-spectrum Anti-Submarine Warfare (ASW), cue-to-kill platform, with substantial armed Anti-Surface Warfare (ASuW) and networked Intelligence, Surveillance, and Reconnaissance (ISR) capabilities. The P-8A program continues to incrementally field warfighting capabilities via Engineering Change Proposals. Increment 3 Block 2 (Inc 3 Blk 2) is on track to initially field in fiscal year 2026 and delivers the final planned spiral upgrade to the platform to fulfill the validated baseline requirement for full ASW, ASuW and ISR warfighting capability at the Higher-than-SECRET (HTS) level. Inc 3 Blk 2 provides the full war-fighting capability required for Major Combat Operations (MCO) incorporating HTS processing, Integrated Broadcast System (IBS), ASW-Signals Intelligence (SIGINT), Multi-static Active Coherent-Enhanced (MAC-E), enhanced track management and sensor fusion (Minotaur) and Wide Band Line of Sight (WBLOS) SATCOM capability.

The fiscal year 2025 budget request includes \$173.5 million in RDT&E for final integration, completion of DT and commencement of OT testing for Inc 3 Blk 2 and additional rapid capability development efforts, such as LRASM testing, to pace emergent threats. \$319.6 million in APN is requested to fund additional ECP-6/7 kits for fleet instructor training and squadron transition safety upgrades, and the initiation of Boeing's P-8A production line shutdown activities. Boeing intends to initiate P-8A production line shutdown activities in fiscal year 2025 (for final line shutdown in fiscal year 2027) if no additional P-8A orders are received.

UNMANNED AIRCRAFT SYSTEMS (UAS)

Naval Aviation continues to integrate unmanned systems into the fleet to enable a fundamental shift in the way the DON conducts multi-domain integrated naval operations. Broadening unmanned aviation efforts will decrease risk to personnel, allow greater persistence, longer ranges, improved data speed and accuracy, and a faster decision cycle. These capabilities offer the DON increased asymmetric operational opportunities and tactical advantages that provide the warfighters an edge to dominate and win in ongoing and future conflicts. The fiscal year 2025 budget prioritizes the continued development and production of Unmanned Aircraft Systems (UAS) to support current fleet ISR requirements and future UAS integration into the CVW, ARG, and MEU.

MQ-25A Unmanned Carrier Aviation

MQ-25A will increase the strike range, persistence, capability, and lethality of the CVW through organic mission and recovery tanking, and provide an ISR capability to the CSG. As the primary CVW mission and recovery tanker, MQ-25A will increase available CVW strike fighter assets and preserve F/A-18E/F service life. MQ-25 is integral to the AWOTF and establishes the foundation for MUM-T and autonomous operations from the CVN. The fiscal year 2025 budget continues investment in MQ-25 and the Unmanned Carrier Aviation Mission Control System (UMCS) development, begins testing of Navy MQ-25A, and procures three MQ-25A air vehicles to increase fleet inventory. MQ-25A will IOC in late 2026. The fiscal year 2025 budget request supports procurement for the MQ-25 Stingray with \$552.3 million in APN and continues RDTE funding with \$214.94 million.

MQ-4C Triton

The MQ-4C Triton is a persistent force multiplier that delivers situational awareness of the battle space to shorten the sensor-to-shooter decision loop in the maritime domain. MQ-4C Triton's persistence and sensor mix is integral to Navy's Maritime Strategy to build and maintain a more lethal and effective global Joint Force Common Operational Picture.

The program is in the process of standing up its second and third operational orbits in the USEUCOM and USCENTCOM AORs (fiscal year 2024/fiscal year 2025), after successfully standing up its first orbit in INDOPACOM in fiscal year 2023. The multi-intelligence (Multi-INT) variant of Triton is currently executing in the western Pacific, providing Combatant and Fleet commanders with timely and actionable intelligence products.

The fiscal year 2025 budget requests \$281.2 million in APN to continue procurement of associated support elements and retrofit baseline units to Multi-INT configuration, and \$14.4 million in baseline RDTE for correction of deficiencies. An additional \$428.4 RDTE is requested for advanced MQ-4C safety systems and sensor modernization efforts as part of Increment 2 capability development efforts.

MQ-9A Extended Range (ER)

The Marine Corps MQ-9A ER is a critical enabler for the Naval and Joint Force providing an extended range, long-endurance multi-mission ISR capability through a suite of sensors designed to detect surface and air threats. The MQ-9A ER is a linchpin in providing Maritime Domain Awareness (MDA), as well as providing resilient and persistent information flow, enabling command and control of EABO and DMO forces against near or peer threats.

The Indo-Pacific has unique challenges requiring the Stand-in Force to be able to operate over significant distances between ground units. An MQ-9A ER overhead equipped with an Airborne Network Extension (ANE) payload facilitates connectivity for Stand-in Forces operating at the forward edge of the battlespace. MQ-9A ER will also provide an Electronic Warfare and Airborne Early Warning capability to enhance the situational awareness of decisionmakers, and provide input to the joint common operational picture.

With the addition of a Smart Sensor autonomous capability, the MQ-9A ER will be enhanced through automatic cueing and fusing of tracks to other onboard sensors. The Marine Corps is set to have 20x MQ-9A Block 5 air vehicles, 16 x Ground Control Stations (GCS), and payloads to conduct assigned missions. Existing U.S. Air Force and Air National Guard efforts are being leveraged to reduce cost as the Marine Corps matures this nascent Service-level capability, reducing risk.

WEAPONS PROGRAMS

Munitions Inventory and Industrial Base

The President's Fiscal Year 2025 Budget Requests \$6.6 billion for the Weapons Procurement account. Signifying a commitment to modernize our arsenal with crucial capabilities to bolster readiness. Additionally, a substantial portion of this funding is allocated to expanding production capacity, aimed at increasing critical munitions inventories.

Continued United States assistance to Ukraine, Israel, and operations in the Red Sea during Operation Prosperity Guardian underscores the imperative for investments across the industrial base to bolster readiness for the United States, its allies, and partner nations. The DON collaborated closely with industry partners to accelerate the replenishment of stocks, identifying barriers to production and strategizing on targeted investments to enhance inventory, capability, and capacity. Investment continues to be directed toward expanding and expediting production throughput, optimizing testing processes, and fortifying critical component supply chains. Concurrently, the Department intensifies its focus on recertification as a cost-efficient method to maintain and enhance short-term inventory levels. Together with these ongoing replenishment efforts, these investments signal a steadfast and stable demand signal to prioritizing munitions inventories.

Leveraging authorities extended in the Fiscal Year 2024 National Defense Authorization Act, the Department pursues MYP contracts for vital munitions programs such as Standard Missile-6 (SM-6) and Naval Strike Missile (NSM). MYP contracts for Advanced Medium-Range Air-to-Air Missile (AMRAAM) and LRASM will be joint efforts with the USAF. This strategy harnesses savings generated through Economic Order Quantity (EOQ) financing to procure additional missile lots, thereby enhancing efficiencies and yield.

Missile Programs

As the Navy carefully manages the approach to end of life of *Ohio*-class SSBNs, addressing the viability of the Strategic Weapons System (SWS) throughout the life of the *Columbia*-class SSBNs remains a priority. The current TRIDENT D5 Life Extension (D5LE) remains an effective and credible Strategic Weapon System on both the *Ohio*-class and *Columbia*-class SSBNs into the 2040s, supporting the *Ohio*-class submarine through end of service life and serving as the initial Strategic Weapon System for the *Columbia*-class SSBNs. Modernization of the SWS, D5LE2, is re-

quired to maintain the Sea Based Strategic Deterrent starting with the ninth *Columbia*-class submarine by ensuring sufficient missile inventory and seamlessly supporting USSTRATCOM requirements. D5LE2 incorporates the necessary flexibility and adaptability needed to maintain demonstrated performance and survivability in the dynamic threat environment until *Columbia*-class end of life. The Administration's Nuclear Posture Review (NPR) states that D5LE2 needs to begin deploying on *Columbia*-class in the late 2030s to sustain sufficient missile inventories to support the U.S. sea-based strategic deterrent as well as the United Kingdom's independent nuclear deterrent. The Navy will prioritize near-term investments in accordance with the NPR to ensure that D5LE2 is effective in the expected threat environment and delivers on time.

Tomahawk

The Navy is continuing investment into Tomahawk Block V new production, Maritime Strike Tomahawk, and recertification/modernization of Tomahawk Block IV. Ally and partner interest in Tomahawk capability emphasized missile production throughput challenges. The fiscal year 2025 budget request continues to fund factory improvements to increase industrial capacity, increasing throughput to 600 missiles per year by fiscal year 2027.

In the fiscal year 2025 budget request, the Department sustains the Tomahawk as the Nation's premier all-weather, long-range, survivable deep strike offensive weapon to include new production of and recertification of current inventory into modernized BLK V Tomahawk missiles. BLK V(a) Maritime Strike Tomahawk (MST) provides a long-range moving maritime strike capability to meet current and future threats, supporting the Surface Warfare Mission area through the inclusion of a seeker suite in the Tomahawk BLK V missile. The fiscal year 2025 budget request for MST provides continuation of Operational and Integration Testing and ultimately fields hardware, software, and munitions for the MST capability in 2025. The fiscal year 2025 budget request continues engineering, manufacturing, and development of the Joint Multiple-Effects Warhead System (JMEWS), which will deliver a hardened target penetration capability with the Tomahawk BLK V(b) missile in fiscal year 2027. The fiscal year 2025 budget request continues engineering, manufacturing, and development of the Military Code Global Positioning System (GPS) receiver, which will deliver significant increased resiliency in spoofing and jamming threat environments capability to the Tomahawk BLK V missile in 2026.

Offensive Anti-Surface Warfare (OASuW) Increment 1/ Long Range Anti-Ship Missile (LRASM), LRASM C-1/C-3, and OASuW Increment 2 / HALO

The LRASM C-1 and C-3 variants add near-term, cost-effective capacity to the DON's long range strike capability while enhancing the OASuW mission. The Fiscal Year 2025 President's Budget Requests \$102.5 million in procurement funding to buy 30 DON LRASM C-1 weapon systems with associated support to provide economic order quantity funding in support of the MYP initiated in fiscal year 2024, and to provide the assets for operational test of the C-1 configuration. The Fiscal Year 2025 President's Budget Request also includes \$163.3 million in RDT&E funding for the continuing development of the LRASM C-3 capability improvement. Navy AGM-158 development efforts involve integration of a Beyond Line-of-Sight radio subsystem to enable enhanced operational flexibility.

The Fiscal Year 2025 President's Budget continues developing the AGM-158 C-3 variant through software development and test, platform integration, and entry into integrated test. The Fiscal Year 2025 President's Budget Request also includes \$223.9 million for procurement of 60 LRASM in the C-3 configuration migrating the primary production line to the more-capable C-3 configuration as the program reaches sufficient maturity.

The Fiscal Year 2025 President's Budget includes \$178.6 million for development of OASuW Increment 2, which is now referred as Hypersonic Air Launched OASuW (HALO). HALO supports the national imperative to mature hypersonic capabilities and transition them into warfighting systems, increasing the lethality and deterrent effect of our Carrier Wings. The program represents a longer-term capability that encompasses increased performance and will provide the Navy with the necessary air-launched, carrier-based weapon to address evolving long-range,—threats from near peer competitors. HALO will complete Milestone B and enter formal Engineering and Manufacturing Development, to include a competitive contract award during fiscal year 2025.

Advanced Anti-Radiation Guided Missile (AARGM) & AARGM Extended-Range (AARGM-ER)

AARGM domestic procurement completed in fiscal year 2021 with the award of the last Navy Full Rate Production (FRP) contract. There have been 1450 AARGMs

(All Up Rounds, Training Missiles, and Spares) delivered to the Fleet as of March 2024. Program of record delivery is 1803 missiles. Deliveries continue through fiscal year 2025 in support of the transition to AARGM-ER. AARGM-ER provides the DON with a 5th generation compatible extended range asset to project power and provide Suppression of Enemy Air Defenses, both at-sea and on land. The first AARGM-ER delivery is scheduled for 3rd quarter fiscal year 2024. The fiscal year 2025 President's Budget requests \$22.3 million in RDT&E to support operational and integration testing of production representative hardware. The budget requests \$248.6 million in Weapons Procurement, Navy (WPN) to procure 151 AARGM-ER all-up-rounds and six Captive Air Training Missiles and advance procurement.

Hypersonic Program

The DON is developing a hypersonic weapon system that will enable precise and timely strike capability against deep inland targets in contested environments. In collaboration with the Army, the Department is leveraging a common missile design and joint test opportunities to field a conventional hypersonic weapon system. *Zumwalt*-class DDGs will be the first Navy platform to field this hypersonic capability in the mid to 2020s, followed by Block V *Virginia*-class SSNs. In March 2020, the Services executed a successful flight test of the Common Hypersonic Glide Body, and in 2022, the Services followed up that testing with several static-fire tests and a flight test of the newly developed two stage Solid Rocket Motor. The DON has validated the design of the Navy's cold-gas launch approach and is continuing subscale and component testing in support of future capability development, manufacturability, and affordability improvements. This rapid development and demonstration of hypersonic strike weapon systems supports the U.S. ability to deter, and if necessary, defeat potential adversaries.

The Department's fiscal year 2025 budget request will support critical milestones on the path to fielding CPS to the first *Zumwalt*-class DDG. The request totals \$903.9 million in CPS R&D funding.

The Marine Corps is working toward the capability to employ smaller, highly mobile hypersonic weapons through science and technology initiatives. The Marine Corps is pursuing an acquisition strategy that leverages the developmental work of other Services and agencies, investing when the capability has reached a higher technology readiness level that allows for expedited prototype experimentation at reduced costs.

Torpedoes

As the primary weapon in maintaining an advantage in the undersea domain, Heavyweight and Lightweight Torpedoes remain a critical component of the Department's munitions inventory. Continued investments in torpedo capacity and capability are vital to outpace our strategic competitors. The MK 48 Heavyweight Torpedo remains the Navy's primary submarine-launched ASW and ASuW weapon, while the MK 54 Lightweight Torpedo provides additional undersea dominance from the surface and air domains. The Navy continues to modernize and upgrade existing inventory to incorporate the latest capability advancements, the Navy has also restarted production of the MK 48, ramping up production through fiscal year 2023 after accepting delivery of the first new production heavyweight torpedoes in over 20 years during the summer of 2022. Furthermore, the MK 48 MOD 8 and MK 48 MOD 9 will bring new capabilities and technologies to ensure our advantage is maintained well into the future. The Department also continues to deliver and upgrade MK 54 Lightweight Torpedoes to surface ships and air platforms to maintain our edge over the ASW threat. Producing the upgraded MK 54 MOD 1 for the U.S. Navy as well as MK 54 MOD 0 torpedoes for our allied partners ensures the torpedo industrial base remains healthy.

The Department continues its partnership with industry and university affiliated research centers to develop next-generation torpedoes. These include the MK 54 MOD 2 Advanced Lightweight Torpedo designed to fight the high-end threat, and the Compact Rapid Attack Weapon, a Very Light Weight Torpedo with multi-mission capability providing both a hard-kill torpedo countermeasure and a short range ASW weapon. The Navy continues to procure the High Altitude ASW Weapon Capability (HAAWC) wing kit to employ MK 54 from high altitude via the P-8A, and we've made great progress in developing the Hammerhead encapsulated effector, continuously demonstrating the flexibility and effectiveness of MK 54 payloads for the United States and our Allies.

MARINE CORPS GROUND PROGRAMS

The Marine Corps has made significant progress in modernization initiatives and is a more lethal and appropriately postured naval expeditionary force-in-readiness.

By operating inside actively contested maritime spaces, the Navy and Marine Corps team provides the Joint Force a naval expeditionary warfare strategic advantage capable of operating in times of campaigning, or conflict, anywhere around the world to ensure global maritime commons remain free and open. However, operating forward within an adversary's weapons engagement zone presents unique challenges that pose threats to our networks, formations, and sustainment capabilities. As a result, the Marine Corps' fiscal year 2025 modernization investments prioritize resilient command and control systems, advanced air defense capabilities, and distributed logistics networks to enhance Joint Force lethality.

Command & Control and Sensing Capabilities

Through the Stand-in Force (SIF) concept, marines will be on the forward edge of a maritime defense-in depth. The Marine Corps has a unique requirement for rapidly deployable capabilities to sense and communicate across multiple domains to project Joint Force lethality inside an adversary's weapon engagement zone. Through this concept and approach, marines will be strategically placed on key maritime terrain to operate with allied and partners during competition, and respond to crises, or conflict to deter adversary actions, and if necessary, fight and win conflicts in support of the Joint Force. Our stand-in forces will increase maritime domain awareness, provide quality intelligence for sound decisionmaking, diversify redundancy in asset allocation, and increase targeting successes within the anti-access/area-denial environment.

The Ground/Air Task Oriented Radar (G/ATOR) is a multi-role, ground-based, expeditionary three-dimensional radar system that provides surveillance of airborne targets, detection of cruise missiles, Unmanned Aircraft Systems (UAS), rockets, artillery, and mortars. As a sensing asset, the G/ATOR exercises its cueing capability to the appropriate air defense platform. Furthermore, the G/ATOR increases maritime domain awareness for the Naval and Joint Force by providing persistent detection of aerial threats within an interoperable network via the Common Aviation Command and Control System (CAC2S). The Marine Corps has fielded or received funding for (54) G/ATOR systems with President's Budget 2025 requesting \$71.9 million to fund radar upgrades. Complementing these systems is the Medium-Range Air Defense Radar (MRADR), which will provide a persistent, high-quality, 360-degree field of view air picture with no detectable electromagnetic footprint. Although it is in development, the Marine Corps invested \$9 million for the first four prototype systems in fiscal year 2024 and anticipates investing \$16 million in fiscal year 2025.

The Common Aviation Command and Control System (CAC2S) enables a collaborative network of Marine Corps and Joint sensor inputs to facilitate detection and targeting decisions. The Marine Corps continues to invest in CAC2S as the command-and-control interface for air surveillance radars and Naval Cooperative Engagement Capability. Additionally, this capability, and future enhancements, enable the Marine Corps to share air surveillance tracks and radar measurement information with Joint partners in support of integrated air and missile defense, integrated fire control, and battle management effects. The 3d Marine Littoral Regiment (MLR) received one CAC2S Small Form Factor (SFF) Data Module System (DMS) in fiscal year 2023. The DMS is a SFF prototype that provides interim capability prior to SFF full-rate production in fiscal year 2025. The SFF system will achieve initial operational capability in fiscal year 2025 with five systems fielded and expect to achieve full operational capability in fiscal year 2029 with (42) systems. The President's Budget 2025 request of \$103.1 million supports these efforts to field CAC2S capabilities.

The Family of Integrated Targeting Cells (FITC) is a naval combat system that leverages data from national sources, processed and fused at the forward edge with additional tactical sensors to enable stand-in forces to support Joint Long-Range Fires (LRF) and all domain intelligence support to targeting against dynamic threats. The Marine Corps continues to invest in the FITC and the tactical-national interfaces that can support over-the-horizon awareness, identification, and targeting in contested environments. FITC is deployed at echelon for employment across multiple formations. Prototypes include the Maritime Targeting Cell—Expeditionary (MTC-X), the MTC-Mobile (MTC-M), and the Tactical Edge Node—Expeditionary (TEN-X) designed for highly mobile and dispersed units. Prototypes will demonstrate resilient networking and processing capabilities that integrate with national, commercial, and in-theater tactical feeds to increase capabilities operating at the tactical edge. Collectively, FITC uses a variety of sensors in numerous domains to create a comprehensive operational picture to drive real time decisionmaking on behalf of the stand-in force. The President's Budget 2025 request of \$104 million supports the Marine Corps efforts to field the FITC capabilities.

Air Defense

As the threat environment continues to be defined by increasing technological advancements, the Marine Air Defense Integrated System (MADIS) and Medium Range Intercept Capability (MRIC) provide complementary warfighting advantage to our naval expeditionary stand-in forces operating inside an adversary's weapons engagement zone.

The MADIS provides an upgradeable expeditionary capability that utilizes organic sensors for detecting and targeting aerial threats to increase force protection for ground forces, installations, and critical assets. Employed with a pair of Joint Light Tactical Vehicles (JLTV), the MADIS can defend against fixed and rotary wing aircraft, group 1–5 Unmanned Aircraft Systems (UAS) threats, with non-lethal electromagnetic attack and lethal fires. The approved acquisition objective is (190) MADIS systems comprised of (380) total vehicles with a \$132.2 million request to support the procurement of (13) systems in President's Budget 2025. Initial operational capability is the first quarter of fiscal year 2025 with the delivery of (13) systems to III Marine Expeditionary Force.

The Light-MADIS (L-MADIS) is an MV-22/CH-53 internally transportable pair of Ultra-Light Tactical Vehicles (ULTV) capable of defeating fixed and rotary wing aircraft and group 1–5 Unmanned Aircraft Systems (UAS), within the L-MADIS engagement zone, via electromagnetic attack and man portable air defense systems. L-MADIS' small size and lightweight design is tailor-built for air and amphibious assault, providing forwards postured forces organic sensors, and aviation command and control functions in a littoral environment. The approved acquisition objective is (21) systems consisting of (42) ULTVs with a \$33.2 million request to support procurement of (5) systems in President's Budget 2025. Initial operational capability scheduled for the second quarter of fiscal year 2025 with the delivery of three systems to III Marine Expeditionary Force.

Complementing the Marine Corps air defense capabilities, the MRIC defends forward-deployed forces and installations against threat cruise missiles, fixed and rotary wing aircraft, groups 3–5 UAS, and other aerial threats. This is accomplished through the integration of fielded Marine Corps systems including the CAC2S, the TPS-80 G/ATOR, the Iron Dome Battle Management Control console, and the SkyHunter missile and guidance uplink. In February 2024, industry partners broke ground establishing a U.S. based production facility in Camden, AR which will ensure continued access to a supply of domestic produced interceptor missiles. The Marine Corps currently plans to field a firing battery to each Marine Expeditionary Force (MEF) that can distribute four independently deployable firing platoons.

The Marine Corps is utilizing a Middle Tier Acquisition (MTA) rapid prototyping approach to procure and certify an MRIC prototype platoon that provides an initial capability by the end of fiscal year 2025. The first complete battery will be fielded by fiscal year 2026 followed by an additional battery in fiscal year 2027 and fiscal year 2028. In total, the Marine Corps seeks to field three firing batteries with several hundred missiles for each battery. The fiscal year 2025 request of \$111 million supports the procurement of (12) launchers and (242) missiles to begin fielding the MRIC capabilities to forward deployed marine formations.

Marine Corps Global Positioning Network (MCGPN)

Global sustainment operations are at risk of being contested from our home stations and bases to our forward postured forces. Therefore, the Marine Corps is actively wargaming, experimenting, and modernizing logistics capabilities to sustain marines in these contested spaces. Sustainment modernization efforts include expanding the positioning of materiel, and diversifying distribution capabilities through the Marine Corps Global Positioning Network (MCGPN). The MCGPN is an integrated global network of materiel positioned afloat and ashore in key strategic locations that support operations and active campaigning by the Marine Corps.

The MCGPN includes the current afloat Maritime Prepositioning Force (MPF) and the Marine Corps Prepositioning Program in Norway (MCPN), as well as multiple ashore sites we are preparing to establish in the Indo-Pacific. The Service has programmed resources for the establishment of three sites in the Indo-Pacific as a priority effort across fiscal year 2024 and fiscal year 2025. In fiscal year 2024, the Marine Corps received \$44 million for one ashore based MCGPN site, and in fiscal year 2025, the Marine Corps is requesting an additional \$38.5 million for an additional two sites. Ashore sustainment sites strengthen our relationships with allies and partners by providing forward stocks for humanitarian assistance and disaster relief, as well as critical capability sets during potential conflict.

Additionally, the Marine Corps continues to expand its methods and nodes available to the installation and logistics enterprise for staging, delivering, and recovering mission critical assets and logistics services. We are investing and experi-

menting with emerging unmanned platforms for smaller form-factor logistics support from the air. Fielding has begun for the Tactical Resupply Unmanned Aerial System (TRUAS) as the smallest in a family of unmanned aerial logistics systems. The TRUAS has an authorized acquisition objective of (179) systems and achieved initial operating capability in the first quarter of fiscal year 2024 with the fielding of the first systems to 3d Marine Littoral Regiment (MLR) in Hawaii. The PB25 request of \$16.1 million supports procurement of systems in pursuit of reaching full operating capability in fiscal year 2028. For the medium variant, the Marine Corps is conducting rapid prototyping of the Medium Aerial Resupply Vehicle Expeditionary Logistics (MARV-EL) utilizing other transaction authority to develop two prototype systems. In fiscal year 2024 the program will down select to one of these two prototypes and begin assessment of the medium capability to enable planned acquisition. The President's Budget 2025 Request includes \$17.2 million in research, development, testing, and evaluation (RDT&E) to further mature MARV-EL prototypes and develop a production representative system.

Campaign of Learning

Through an iterative, threat informed, and concept-based approach, the Marine Corps utilizes a campaign of learning to inform its balanced approach focused on modernizing a force that stands-in during competition, is postured to respond to crisis, and organically move, fight, and win during conflict. To enhance our modernization efforts, the General Robert B. Neller Center for Wargaming and Analysis (Neller Center) will provide a comprehensive digital environment to conduct fully informed, data-enabled wargames that contribute to the Service's balanced approach to modernizing a force that campaigns during competition, is postured to respond during crisis, seizes and defends key maritime terrain during conflict.

The state-of-the art venue will enable wargaming within threat-informed future operating environments at multiple classification levels to support senior leader decisionmaking. The Neller Center's primary use will be facilitating concept development, capability development, and operational decisions and plans. The Neller Center is expected to achieve initial operating capability in fiscal year 2026 and full operating capability in fiscal year 2028. At full operating capability, the Neller Center will possess the capability to ingest authoritative data accessed through twenty-one U.S. and coalition networks; and to conduct distributed wargames employing a collaborative electronic wargaming environment networked to an array of partners. Critical to achieving the Neller Center's optimal employment are the wargaming software material solution, and the Information Technology (IT) and Audio-Visual (AV) infrastructure. The IT/AV infrastructure includes complex programs requiring cyber authorizations of many technologies at all classification levels involving multiple approvals. The software material solution will require sustained resources to ensure the wargaming technology is current with the changing threat environment. The President's Budget 2025 request includes \$13.9 million in software and hardware to reach critical milestones in the Neller Center's development.

Conclusion

Today's the Marine Corps is prepared to serve as a naval expeditionary force-in-readiness and operate inside actively contested maritime spaces in support of Joint campaigns. Continued experimentation and learning from real-world threats will undoubtedly uncover additional refinements to enhance our force, we are confident our collective efforts will result in a Marine Corps organized, trained, and equipped to meet the global challenges of the 21st century.

Senator KAINE. Admiral Pitts.

Admiral PITTS. Thank you, Mr. Chairman. Secretary Guertin covered the opening statement for the—all three of us. And I am looking forward to our discussion this afternoon and any questions.

Senator KAINE. Same, General Heckl?

General HECKL. Yes, sir.

Senator KAINE. Okay. Well, we will jump in. So, let me say that it is not going to come as a surprise the first question I am going to ask is about the submarine industrial base and the one submarine request that came over this year.

We have made a commitment not only to try to build two a year for us, but we made a commitment to build *Virginia*-class subs for the Aussies to be able to sell to them in the 2030s, and it is a com-

mitment that is not just words. The Aussies have made a major investment in our workforce to enable this to happen.

Imagine, to my colleagues, if we were having a floor debate on the Senate floor about investing \$3 billion in the Australian workforce or the Korean workforce, that would not be an easy debate, and so, the Aussies have done a pretty heavy lift politically to make this investment. I have had conversations with them, and they are a little bit confused about the signal sent by the one *Virginia*-class sub.

We know how vital this is, the *Virginia*-class sub, and we have been alarmed by the 45 day report, but other indicia of real problems in that program over the last few years, and a lot of it is on the workforce.

We talk a lot about the workforce and supply chain development, and it seems like we talk about it a lot to try to push the boulder up the hill, but only make incremental advances. Earlier in the Readiness hearing, Senator Blumenthal was saying, we need to see kind of a great leap forward on this and we are not really seeing it.

With this one submarine request, there is a real risk, I believe, that progress we have made on building up capacity across the supplier base could be at risk. So, Secretary Guertin, let me start with you.

What is the impact of procuring only a single *Virginia*-class sub in fiscal year 2025 on our ability to meet our own needs, but also on our ability to meet the commitment that we have made on this really important AUKUS framework?

Mr. GUERTIN. Senator, the resources we got in the supplemental, especially related to the submarine industrial base, are part of that clear message we are sending to—

Senator KAINE. Is your mic on, Secretary Guertin?

Mr. GUERTIN. Maybe I need to lean a little bit more forward.

Senator KAINE. Okay. Great.

Mr. GUERTIN. So, the submarine industrial base funding is critical to making sure that we can build the capacity that we need to buildup to not just two *Virginius* a year, but really two and a third so that we could satisfy the needs of our Australian teammates.

In terms of the industrial base capacity, we have a lot of submarines on order, but we have also added additional resources for advanced procurement that will help smooth out those differences. Anything you would like to add, General, Admiral?

Admiral PITTS. No, sir.

Senator KAINE. Let me ask this just to followup. If workforce is a significant component of these delays, and we have known it for a while, and some of these industrial investments that we are making are to build a workforce, what are you seeing in kind of early returns, you know, priorities, projects, initiatives that are showing some signs of success that might give the committee confidence that we will get to where we need to with respect to these programs?

Mr. GUERTIN. We have had some tremendous success in not only getting the message out that the Navy is hiring, not the Navy, but

also industry, the industry we need to build say submarines, but also other parts of the Navy as well.

So, we are seeing some definite improvement in the hiring rates in industry, but also the training that we are working with industry, with organizations in Virginia, in New England, and other places to improve the breadth of people we have available to do this waterfront tradecraft work, as well as the engineers and logisticians and other people in support of the work.

Senator KAINE. Mr. Secretary, based on the conversation we had yesterday, just to share with the Committee, I find it interesting that you talk about the greening of the workforce in the ship and subspace.

Many of our workforces in the country have a graying workforce where huge percentages are within 5 years of retirement. That has its own set of challenges.

The greening of the workforce could be a good thing down the road if we can convince people to stay, but it also creates some significant challenges in production capacity. Now, could you talk about that a little bit?

Mr. GUERTIN. Thank you. Yes. So as the challenges of COVID made themselves manifest, we found that a lot of the production work that was going on was being done by seasoned veterans who really knew their craft, needed very little supervision.

But as they were retirement eligible and the challenges of working in a close proximity environment—I mean, you can't do shipbuilding over teams. They retired and we were able to hire in new people, but they required more supervision. Their first time quality wasn't as high.

So, that caused some challenges with some of our marquee programs, and unfortunately, it was—where we are with, say, *Columbia* is, it probably wasn't going to get any better than where we are.

Now, some of our other ship programs, we certainly are engaging with industry to improve and happy to be transparent with you about the work we are doing in that area.

Senator KAINE. I am going to stick to my 5 minutes and now yield to Senator Cramer. I will have more questions in a second round once others are done. Senator.

Senator CRAMER. Thank you, Mr. Chairman, and on that point, Secretary Guertin, about—I call it the reverse hockey stick, the acceleration of a project, you know, with multiple experiences throughout it.

I think Tim really hit the point, at this point, we are starting with some, you know, some fresh workforce. But what is the—what do we have to do differently to make sure that that fresh workforce turns gray while still building ships, or at least stays with long enough to get up to the speed of the adversaries.

Mr. GUERTIN. The investments we are making in training and improving that capacity has to be met with investments with industry so that we can work on this problem together.

We will do what we can to help them, but it is their business, and they are already appreciating some of the challenges with not being able to deliver in terms of the timing associated with their incentives, right.

They are, you know, behind on schedule. They are missing out on profit. So, this is our problem together and we are going to work it with industry. But what we found is that getting people out to the waterfront or in these places where it is physical labor, it is interesting, and it is something you can build a career out of.

There is ways of advancing in terms of going in as an apprentice, and then becoming a journeyman, and then a supervisor. These are great jobs for doing great work for this great nation.

What we are finding though is if we can hang on to them for 3 years, they are in it for the long term, but we are really learning, and we are helping industry figure this out together, is how do we get them to that third year so they will stay for the long haul.

Senator CRAMER. Yes. That is—you know, it is a great point. And you know, when you can get a workforce that works for mission as well as money, that is I think part of the secret sauce, and just let us know what we can do.

Now, along the same lines, I think we discussed this the other day, I was recently in San Diego and in L.A.. I visited NASCO, as a matter of fact, and learned a lot about some of the things you are talking about right now.

But I also visited the Air Force's Collaborative Combat Aircraft, a couple of the programs and it was, I don't mind telling you, a little bit excited about the recent awarding of what I would consider of the five companies that were competing to move forward, the two biggest disruptors were chosen, Anduril and General Atomics.

There are other examples of how we have, you know, sort of expanded our industrial base. The Army selected Palantir for its Titan program. Obviously Space Force, which is newest, is only really successful because of some disruptors in the industry that sort of kept space alive, SpaceX, E-Space, and a newer entrance into things, Rocket Lab.

Clearly the fleet has done a good job of experimenting. In fact, I think the Navy has the best research and development lab in the military. But can you describe any major Navy programs, not just prototypes that have been awarded, sort of innovative or nontraditional contracts or companies that have been able to get in the biz, if you will, and show some real innovation?

Mr. GUERTIN. We have done some amazing innovations in the area of unmanned surface and undersea vessels. I will let Admiral Pitts talk about that. I did want to talk about how the Navy's effort in larger collaborative aircraft, the MQ-25, refueling aircraft, and we are making great progress.

A little bit of a stumble to get that started, but Boeing is doing some important work in getting that aircraft through its testing so we can get in production, and we need that refueling jet in a big way. Admiral.

Admiral PITTS. Thank you, Mr. Secretary. For innovation and getting things out much quicker, we have had some recent success in that we stood up in the Navy a disruptive capabilities office to take emerging operational problems from our fleet commanders. Swarm it. Work with industry. Work with all the experts on the—appropriate experts on the OP-NACSEV to include contracting and acquisition and see if we can deliver a very fast solution and capability to our fleet commanders.

We are working hand in hand with OSD's replicator effort, which is scaling some of those mass smaller unmanned systems to meet operational challenges, and in that, we are introducing some newer companies and different companies that are showing innovation at scale, sir.

Senator CRAMER. Well, not wanting to offend the Chairman in any way since he kept to 5 minutes, I will do the same for this round, Mr. Chairman. Thank you.

Senator KAINE. Thank you. Senator King is up next.

Senator KING. I have a reputation around here for being reasonable and calm. Today, I am not going to be. The budget for directed energy in the Department of Defense has fallen by 50 percent in the last 2 years.

We are spending \$4 million to shoot down a \$20,000 drone from the Houthis. What in the hell are you guys thinking? The Navy directed energy budget has gone practically to nothing. I don't get it.

We are in a world of drones and low cost missiles and low cost drones, and this is the technology that can do something about this, and you are cutting the budget in half. This ought to be the highest priority.

You ought to be doubling and tripling the budget, not cutting it in half. Can you give me any rational reason for not pursuing this critical technology as we move into a time of swarming drones? I mean, we can't shoot swarming drones down with missiles. Come on.

Any answer to this?

Admiral PITTS. So, the—

Senator KING. I am only getting started by the way. I have got another one coming. But seriously, this is—I have been beating this drum for three or 4 years. I am getting nowhere, and we are getting creamed, and we have got—we are getting creamed in the Red Sea. We are getting—the Ukrainians are getting creamed with cheap drones coming in from Iran, and we are cutting the damn budget for the technology that could save us.

Admiral PITTS. The warfighters out on the fleet are using the tools they have to do the work they need—

Senator KING. But we are not giving them the tools.

Admiral PITTS. Well, we are giving them tools that have been successful but perhaps are on the wrong side of the cost curve. So, I agree with you completely. The opportunity to invest in directed energy is all around us. However, it has to work. We have an experiment prototype put on a one destroyer—

Senator KING. You HELIOS out in San Diego. I don't know why we are not testing HELIOS in the Red Sea, but that is another question.

Admiral PITTS. We have one unit—

Senator KING. The point is budgets are policy, and your policy is, we don't give a damn about directed energy. That is what the policy is in this budget.

I don't—I mean, I understand you got to make choices and everything else, but to me, this is an obvious choice. It is like telling of a soldier on the battlefield you can't have a rifle. This is the technology of the 21st century, particularly for aerial warfare.

Mr. GUERTIN. I am excited about—

Senator KING. Anyone want to take a crack at that?

Mr. GUERTIN. Go ahead.

Senator KING. Wouldn't you like to have directed energy on those destroyers?

Admiral PITTS. Yes. Thank you, Senator. Yes, sir, we would, and we would—we are continuing efforts, and it is an absolute valid point that our budget was—we reduced our budget in this particular area of directed energy. It was part of that risk allocation—

Senator KING. The Navy reduced from \$152 million to \$82 million at a time when the demand is going up. That is just—I cannot make that makes sense.

Admiral PITTS. Yes, sir. But we are continuing efforts. Not as fast as we would like, in both lasers, as HELIOS is one example. Then working with OSD and the Joint Force on a higher energy laser, land based.

Senator KING. Right. Microwaves.

Admiral PITTS. And high powered microwaves. Yes, sir.

Senator KING. Well, again, it's fine for you to tell me that, but the budget is what is talking here, and it is not talking very loudly about this essential need. Okay. Second issue that is really bothering me and that is readiness.

You—there is a detachment on the Navy website that talks about ships underway, and there are 294 ships deployable, there 70 that are underway. We have 12 aircraft carriers, 4 are underway. In other words, about 75 percent of the ships that we have aren't doing anything. What the hell is that all about?

By the way, I did a little research today in the Carnival Cruise Line, and I know there are differences, but 90 percent of their ships are available all the time, and their average time in drydock is about 8 weeks.

Those are complex ships. Those are like cities with 5,000 cabins and heat and water and light and everything else. I am not saying they are comparable, but it is a damn sight difference between 90 percent availability and 25 percent availability.

You as well know, as well as I do, a ship goes into one of our maintenance facilities and it is there. What can we do about that? We are appropriating a lot of money to build these ships. You are not using them.

Mr. GUERTIN. Senator, excellent point.

When I went through my confirmation hearing, I promised you and the rest of your colleagues that I would get out to the shipyards, I would see what is going on, and I would find out how to improve the way we not only build them, but also the way we maintain them.

And I have been true to my word on that, and I have been getting out to the shipyards, and we are working on improving how that work.

Senator KING. If you need more money for more infrastructure for maintenance, tell us. But you know, we are spending a lot of money building ships that are sitting somewhere that aren't being used.

A 25 percent utilization rate. If you were an airline—by the way, the numbers are similar for the airlines. They are about 90 percent

available at all times. They would be out of business. I mean, the difference is they have to make a profit.

I just hope you will look at it that way and think about a better utilization of the taxpayer's assets. When we spend \$12 billion for an aircraft carrier, it ought to be out in the ocean.

And then the final point, I am out of time, is hypersonics. As near as I can tell, we have no defense against hypersonics, which renders our entire Pacific fleet vulnerable in the first hour of a conflict. Thank you, Mr. Chairman.

Senator KAINE. Thank you, Senator King. Senator Sullivan.

Senator SULLIVAN. Thank you, Mr. Chairman, and gentlemen, thank you. We had a Readiness Subcommittee hearing with the Vice Chiefs, just about an hour ago. So, I am going to repeat some of the questions, but I am going to followup on Senator King's question.

Mr. Secretary and Admiral, I asked the Vice CNO in the hearing we just had, so assume you have a magic wand, right, meaning you can get done whatever you think you think you can get done.

The knuckleheads in Congress aren't in the way. The President of the United States, who in my view keeps putting forward budgets that don't reflect at all the sense of urgency and National Security challenges, those aren't limits.

If you guys, in terms of our shipbuilding—we didn't talk about amphibious. 32 percent of the amphibs fleet is ready—32 percent. Holy cow. Like Marine Corps can't deploy. The Boxer, you know, the big dock amphib that was supposed to go out with one of the mews just turned around because a screw doesn't work.

I mean, it is a disaster. I think the Navy is in a ship building crisis. And I think the leadership, from the Secretary on down, is responsible. The Secretary of the Navy often, cause all those big, you know, defense contractors are plusing up their stock. I saw that was one of his quotes. He gets us his climate action plan 18 months ago.

There is no statutory requirement, by the way, for the Secretary Navy to give us a climate action plan, but a shipbuilding plan is in disarray, disaster. So back to my question. Magic wand. No budget constraints.

To Senator King's question, I think—I just met with a bunch of Republican Senators on the Armed Services committee this morning. We are ready. You want more shipyards, you want private shipyards, you want public shipyards, because this is an existential challenge to the United States. Why? Because the Chinese are cranking out 10 to 12 high-end navy ships a year. That is the challenge.

So, for the two of you, what would be the top three things? Magic wand. Anything you want, we will give you. And I actually think we are close enough, all of us, to do that. What do you need?

We are America. We can build ships faster than a goddamn Chinese Communist Party. But right now, we are not, and they are eating our lunch. And if we go to war with them in the Taiwan Strait, it could be really ugly. What do you need, Mr. Secretary? I don't know, what the hell do you need?

Mr. GUERTIN. So, I probably am not well advised to take you up on your offer.

Senator SULLIVAN. Why not?

Mr. GUERTIN. I would have to tell you——

Senator SULLIVAN. Aren't you in charge of this?

Mr. GUERTIN. The biggest thing that we could use, honestly, is more capacity for repair and construction.

Senator SULLIVAN. Okay, so what does that mean?

Mr. GUERTIN. You need some——

Senator SULLIVAN. Do we need another shipyard, public, private?

Mr. GUERTIN. Honestly, we could use more shipyards.

Senator SULLIVAN. Okay.

Mr. GUERTIN. That would be an amazing place to end up. But China has been investing for 30 years on their ship repair—ship construction activities, and they have captured, I think, half of the commercial shipbuilding market right now.

That means that we, as America, would need to value commercial shipbuilding as highly as they have in order to beat them at that game.

Senator SULLIVAN. Well, your testimony is a little depressing. We can beat China at the game, right. Look at our history. We can do these things. We are America. We need leadership. We need ideas. Admiral, what is your idea? Magic wand.

Admiral PITTS. Sir, I agree with Secretary Guertin that the additional capacity—if you look at our shipbuilding plan this year to achieve our 381 ships per our requirement from the BFSAR, it relies on our current industry to achieving the capacity and delivering our ships on time and on budget, along with resources to sustain that large of a fleet. And the number one item would be capacity, whether that is through outsourcing through another yard——

Senator SULLIVAN. Can you guys just dig into the concept of capacity a little bit more. Like dive deeper on that. What do you mean by that? And what can we provide you?

Mr. GUERTIN. The Maritime Statecraft Initiative that Secretary of the Navy started talking about and has been working across other Departments is a good place to start the conversation.

And one of the things that we stepped away from in the 1970s and 1980s was valuing a commercial shipbuilding industry. So, that is a policy thing that together, Navy and Congress and Department of Transportation—my personal opinion is we need to go back and revisit valuing building commercial ships as a part of what makes America strong.

Senator SULLIVAN. Well, look, I am going to wrap up here, Mr. Chairman, but whatever you guys think, give us your big ideas. Maybe for the record, go back, you know, noodle on this a little bit. This is your job. This is your opportunity. You know, the history of our country is very promising in this regard.

My team and I were looking at 1937 to December 6th, 1941. A lot of people think we start building ships after Pearl Harbor, which we did. We actually almost tripled the size of the U.S. Navy before Pearl Harbor.

So, we can do this. It was Congress and it was a Navy. And so, we can do this. We just need help and direction. But I think you have a bipartisan motivation, given the threat, to get on it. We just need big ideas, bold ideas, and I certainly am one who would vote for them. Thank you.

Senator KAINE. Thank you, Senator. Senator Blumenthal.

Senator BLUMENTHAL. Thanks, Mr. Chairman. I want to follow up on a couple of the questions that have been asked so far. And Secretary Guertin, you and I talked a little bit about this issue when we were together in Groton recently.

I understand that there is an internal report that shows some of the delays. For example, the *Columbia*, I believe is more than a year behind schedule. Is that correct?

Mr. GUERTIN. A year—16 months—

Senator BLUMENTHAL. And what is the *Virginia*-class construction delay look like?

Mr. GUERTIN. We are building two variants of—I am sorry. We are building two variants of the *Columbia*—excuse me, of the *Virginia*, and one of the variants is up to 24 months behind. The other is 36 months behind.

Senator BLUMENTHAL. So, we are not just failing to build in terms of planning. We are way behind right now where we should be.

And I think that those numbers are a measure of the crisis that we face in submarine construction, which is essential to our under-sea superiority, which is in turn essential to our Navy strength and our defense. I am really at a loss for why we are planning on failure.

And this is not personal because I know the bed was on fire when you got into it. You are not, you know, responsible for a lot of these delays, but all of us are responsible right now for a failure to invest, if we in fact, fail.

The American public has no idea about this situation. My guess is that the numbers of people who really are familiar with it could fit on the floor of the U.S. Senate, but they are going to learn about it when that failure becomes apparent with the threats to us abroad. And it is not just the production capacity at Electric Boat or in Virginia.

There are literally, for every one of those submarines, 16,000 suppliers, 16,000 suppliers for whom the demand signals are, we ain't doing it anymore. In effect, go put your workforce on something else or disband your workforce.

So, it is not just the 5,300 people that Electric Boat has to hire. It is also the workforce for those 16,000 suppliers, and I would just repeat the request from Senator Sullivan, tell us what you need, not what the budget is.

The budget, I recognize, is not you are doing solely, but whether it is in a classified setting or in some other setting, give us what you need, and then it will be on us to meet those needs.

Mr. GUERTIN. Senator, I would be happy to engage in that conversation. I will have to say that the problem is pervasive, it is deep, and it is broad.

Our estimates is that just for getting to two and a third plus—*Virgins*, plus one *Columbia*, we are going to need up to 10,000 more people, not just tradecraft, but also engineers and the other elements of support for the people on the waterfront doing that work.

We have a big lift in front of us and we are gearing up for it. We are using the supplemental to engage with industry and create those trained people. It is going to be a long, hard run.

Senator BLUMENTHAL. I am going to interrupt, and I apologize, but it can't be long. It may be hard, but long is not acceptable, because long is in effect saying, we can't do this in the time that we need to do it.

Mr. GUERTIN. Thank you for that correction.

Senator BLUMENTHAL. I want to second the point that my colleague Senator King made.

I recently visited our base in Jordan, the joint base that we have with the Jordanians, and I heard a briefing on the Tower 22 drone attack, which is frightening, not just because we lost three of our troops there, but because the drones that were used there essentially are going to be the wave of the future.

They are cheap. They are low flying. They are slow. They fly at about the rate of a car, and they are unstoppable if they come at us in swarms right now with what we have. This technology is a matter of keeping our men and women alive when we put them out in those locations with the asymmetric warfare they have right now.

We are trying to combat them with missiles that cost millions of dollars. We don't have enough of them, and then they are not as effective as we need to be against them. So, I will followup on this line of questioning as well. Thanks, Mr. Chairman.

Senator KAINE. You bet. Thank you, Senator Peters.

Senator PETERS. Thank you, Mr. Chairman. Gentlemen, thank you for your testimony here today and your service to our country. I want to followup on some of the questions related to the submarine program and the industrial base.

Senator Sullivan talking about, and my colleague is talking about what more do you need? However, it seems as if you do have a lot of money that has been appropriated for this. So, it is not a lack of cash, but you just can't keep throwing money out there and not doing things differently.

In fact, I think Congress has allocated about \$3.3 billion in the recent National Security Supplemental to support the submarine industrial base. So, there are plenty of resources there, and I would argue that there are a lot of suppliers out there that do have the capacity and do have the workforce.

I speak from our industry and our industrial base in the State of Michigan. One thing we do in Michigan is we know how to make things. We are a major manufacturing State, and precision manufacturing is what folks do day in and day out. Highly skilled, union workforce is available there.

And I know we have a number of suppliers that currently provide material for the submarine program. So, my question for you, Secretary Guertin, is that to what extent are you looking at existing industrial suppliers that are able to provide immediate capacity to be able to shorten this time lag that you have with the submarine programs?

Certainly, I would want to work with you on Michigan, but to what extent are you looking at a very well developed and mature

supply—industrial supply base in Michigan to help solve the problems that you are dealing with?

Mr. GUERTIN. Thank you, Senator. It is amazing opportunities that we have for pushing work out of the waterfront activities, where we have these major shipyards, into other places that can build large sections or even smaller pieces that make up this overall thing we call, in this particular case, a submarine.

The focus factory effort that we are doing with our major suppliers to push out things like building whole decks or doing preassembly of things so they can be brought to the shipyards to be installed to move as much that work out of the unique place by the water that have—where we have to actually build the submarine.

Very interested in moving as much industrial activity out of those very dense places into areas, other places, other States where that work can be done effectively.

Senator PETERS. And you are familiar with some of Michigan's capabilities, our suppliers that are there, who do this kind of work, day in and day out, not just for the automotive industry, but actually a very growing and robust aerospace industry in Michigan and certainly naval construction. In fact, we have a major school that trains naval engineers at the University of Michigan. So, we are very, very well prepared. You are familiar with all of that?

Mr. GUERTIN. I am learning more about Michigan's opportunities and other opportunities in other States as well. The University of Michigan is a particular important place for me because that is a place where we get a lot of our naval architects.

Senator PETERS. Right.

Mr. GUERTIN. But we actually do need to share that joy and get more people into that business. And as well as advanced degrees besides, which I think University of Michigan may be the unique place where we get a master's and PhDs in naval architecture.

Senator PETERS. Right. Actually, has bachelor's, master's, and PhD. Is the only—our top tier research university that does that. So, could you—could the Navy provide me with a detailed accounting of the current Michigan submarine industrial base suppliers and future submarine suppliers' needs? Is that something that is available you could provide to me?

Mr. GUERTIN. I am not going to be able to give that to you immediately, because I might miss something, and I don't want to get anything wrong. I would be happy to take that for the record.

Senator PETERS. I think that is going to be really important. I think it is important for us to fully understand that and understand how we can help solve that problem. We are all about solving that problem.

So, if you could provide that for me and a commitment to work with me to try to figure out how we allow the Michigan industrial base to help solve this problem by making world class products for you.

Mr. GUERTIN. I am happy to make that commitment and to any other State as well.

Mr. GUERTIN. Senator Peters, the entire Great Lakes region, including Michigan, is a critical maritime center of gravity for the Navy's submarine enterprise, with more than 2,500 suppliers located in the five Great Lakes states, including 41 crit-

ical suppliers and 34 suppliers of sequence critical material. Michigan alone is home to more than 180 submarine suppliers, including eight critical suppliers. Since fiscal year 2018, the Navy has infused more than \$160 million in supplier development funding to add capability and capacity to Great Lakes based submarine industrial base (SIB) suppliers and has invested more than \$10 million since fiscal year 2023 in initiatives focused on workforce development and operationalizing advanced manufacturing technology.

Regarding future supplier needs, the Navy will continually assess our SIB efforts to ensure the goal of achieving the required one *Columbia* plus two *Virginia* (1+2) construction cadence can be met. The SIB efforts are focused on six lines of effort, specifically supplier development, shipbuilder infrastructure, strategic outsourcing, workforce development, technology opportunities, and government oversight.

Senator PETERS. Secretary—in your 45 day ship building review, you identified a lot of the ship building delays and some of the things that you have talked about today.

But as part of the review, it is not just submarines, you also highlighted delays to the Navy's new *Constellation*-class frigates. A couple of questions. What responsibility does the Navy share for the delays to the frigate program in particular?

Mr. GUERTIN. Senator, it is a particularly troubling conversation because there were opportunities where we could have kept a better eye on the shop, to be perfectly frank. We did not do sufficient oversight prior to my arrival.

However, what that 45 day study illuminated was some of the problems we were having relative to engaging with that company to make sure that they were doing the job necessary to perform with excellence.

We have moved hard into that area. I have got a bunch of people now from both the program executive office, as well as Naval Systems Command, rotating through Marinette to provide the additional intellectual resources to get into a better place, as well as making sure they have other contract support work from other naval architecture firms.

Senator PETERS. Well, I am out of time, but I would love to have further discussion with you about that as to how we solve that problem as well, which is critical. Thank you. Thank you, Mr. Chairman.

Senator KAINE. Thank you, Senator Peters. Senator Shaheen up next.

Senator SHAHEEN. Thank you all for being here. I would like to followup on some of these questions, but I have a good news story that I want to share with you, Secretary Guertin, as we are talking about the challenges the Navy faces.

I want to thank you for the recent establishment of the Accelerated Welding Program in New Hampshire. It is a partnership between SENEDIA, Granite State Manufacturing, and the Manchester Community College. It is working very well, so it is going to help as we look at the—what we need to do to get those 100,000 new workers that we need for submarine production.

But I want to better understand, Secretary Guertin, some of the things that you have said. When you talked about the utilization of our ships, is the issue that they aren't ready to—they are not seaworthy to go out? Is it that we don't have enough operating funds to put them—to deploy them out on—in the bases on which we need to do that? What is the issue with the utilization?

Mr. GUERTIN. I am sorry, Senator, I maybe misspoke. Maybe Admiral Pitts would like to jump in about what it takes to make our ships more ready to go to sea and keep them at sea longer.

Admiral PITTS. Thank you, Senator, for the question. In big picture, we have a tiered readiness system where a ship goes through a maintenance period, then it goes through basic training, integrated training, and then it is ready to deploy.

And we deploy based on how the Secretary of Defense tells us to allocate to the COCOMS and deploy through our global force management. So, we may have some ships that are not deployed, but they are still doing training or in earlier phases of the full readiness for deployed operations.

Now, the fair point is we still, as we are well aware, have some struggles right now of getting our ships through their maintenance, and that is one of the CNO's highest priorities to get more players on the field, to get—improve our maintenance performance so that we can get them in and out of maintenance and get them operational again.

Senator SHAHEEN. Okay, so with respect to maintenance, Senator King and I share the Portsmouth Naval Shipyard, where they have a very good record of maintenance. I think they continue to be on time and under budget, or at least on budget.

And we have significant investment in the shipyard infrastructure optimization plan. Are you saying that once we have completed the SIOP and the four public shipyards, that we still are not going to have the capacity that we need to get the maintenance done on our ships to keep them out at sea?

Mr. GUERTIN. So, I would like to take a first stab at that one. Admiral Pitts, you can join in. By the way, as a formal Portsmouth Naval Shipyard Navy reservist, big fan of the work going on there.

I was up there not too long ago, and seeing the new drydock coming together and all the waterfront support facilities were really helping to change how they will do that work now and into the future so that we can do the repair and maintenance of these, especially submarines up there, faster and better as a continuum.

This is something we are going to have to continue to invest on. We left that alone for a little too long, and now we are making these big investments now so that we can improve our public shipyards ability to do this work for the Nation.

Senator SHAHEEN. I understand that. The question that I am asking, maybe I wasn't clear, is that once we have—according to our SIOP plan, we are going to make these investments.

And at the end of that, are you saying that we are not—still not going to have the capacity we need to do the maintenance on the ships that are being maintained at those public shipyards? Is that one of the issues?

Mr. GUERTIN. Yes, the SIOP plan reaches a crescendo, but I think as we get to—further out in years, we are going to want to continue to invest and keep that edge sharp so we can always do this work better and faster as a long term proposition.

Senator SHAHEEN. Okay. I am still trying to get to what you were talking about when you were talking about needing more capacity. Do we need more capacity to build new ships? Do we need more maintenance capacity? Do we need both? And what is the

plan to get there? Because I still am not sure that I understand how we are going to do that.

Mr. GUERTIN. Both is good in terms of building and maintaining. In terms of specific capacity challenges—so the magic wand challenge that Senator Sullivan gave us, I would like to come back to the subcommittee and give you a more detailed and thorough understanding of what we could possibly do different in the future.

Senator SHAHEEN. You didn't answer my question, I got to say. I appreciate that there was an effort to do that, but I don't feel like we have an answer to what we need to do as Members of Congress to support the work that the Navy is doing to get us to where we need to be on the fleet that we need. So, I will leave it at that, Mr. Chairman.

Senator KAINE. We are going to have a second round of questions. General Heckl, I am going to start with you. And it is an INDOPACOM reality that congested logistics is going to be a significant challenge in the INDOPACOM. And INDOPACOM, TRANCOM—(technical problems)—of that problem.

But the Marine Corps—(technical problems)—logistical issues. So how within the Force Design and then Marine Corps planning are you working to provide options to commanders to support logistics for stand in forces who are within an adversary's weapons engagement zone?

General HECKL. Sir, thanks. And I was enjoying the show, so don't feel the obligation to ask me a question, sir, so—

[Laughter.]

General HECKL. Sir, I will just say, you know, we have gotten after this from the beginning with Global Positioning Network, which is rethinking everything from maritime pre-positioning to—you know, because the conclusion—the assumptions we made before about our force was that we would be able to dump in our mountains somewhere and they would be okay. That is never going to happen again. Never going to happen.

To Senator King's point about hypersonics, right. We—so we have to rethink everything. So, the way we approach this is a multi-tiered—we do have a Marine Corps concept for logistics in a contested environment.

We have gone after that as well, and as you know, we have fielded two prototypes of autonomous low profile vessels. Semi submersibles, narco-sub that is almost impossible to track.

We prioritized our focus of logistics. I told my staff focus on lethality, right. Good allies and partners. I met with the Commandant of the Philippine Marine Corps today. Our relationship is getting tighter and tighter every day.

Our allies and partners are going to be there for us in a lot of ways, you know, chow, you know, other things. The discussion becomes a little more testy when you start talking about lethality, things that we can launch, and so we are focused on lethality.

So, the ALPV, the autonomous low profile vessel, is form fit function for two naval strike missiles to get those to resupply points inside the weapons engagement zone of our pacing adversary. So, I think we are moving out on this already. And as you know, we have chartered a couple of vessels, stern landing vessels.

One is about to move forward to the island chain with the 3d Marine Littoral Regiment, and we are going to start experimenting with it now. And we will iterate and make adjustments to where we are going.

Senator KAINE. Let me ask you a followup. I want to ask about a UAS question in the INDOPACON or—(technical problems). How are you working to counter the prevalence of UAS in defend case, but also to incorporate UASs into your own—(technical problems)—

General HECKL. Well, sir, to your point about logistics, one of the UASs we have already fielded is the TRUAS, the tactical resupply unmanned aerial system. And it doesn't do heavy payloads but think chow, water, parts, and it has the range to do it within the first island chain, the range we need.

As far as countering, as you know, we have already fielded the Marine Air Defense Integrated System, MADIS, which is a little bit better on the, you know, the cost curve, right. Fielded with things like Stinger, and it uses a 30 millimeter cannon.

Now, the swarming part that Senator King is talking about, we are—you know, I think technology is catching up. I actually had discussion with a couple of industry partners today at Modern Day Marine about where—I specifically asked that question about swarming technology.

Probably is not going to be lasers, not point defense, but when you talk about large mass swarming, you need things like high energy microwave, right, that can just drop masses of them at one time.

I am going to tell you, sir, I am confident, 100 percent confident that technology is going to catch up to that, and we will field those, and we will get on the right side of the cost curve. Until then, we will keep pursuing other things. Like we are looking at APKWS, you know, Advanced Precision Kill Weapon System, a 2.75 rocket, much more affordable than SM-6 and SM-2s, and Evolved SeaSparrow Missiles.

Senator KAINE. Secretary Guertin, Senator Peters asked you about the frigate and the challenges with that.

You said something in the office yesterday that I would like my colleagues to hear, which is that part of the problem with the frigate was the way—(technical problems). It is great to do a fixed price contract.

That is great for predictability. But if you do it on a first in a class and then the first in class has a lot of changes, it is pretty much guaranteed that that contracting vehicle, which looks good up front, may not be such a good contract. And could you share that insight?

Mr. GUERTIN. So, one of the things that I have asked my team to do, as a result of the 45 day study, is to examine the way we balance risk with industry, the way we manage our incentives, and we restructure those kinds of contracts to make sure that we are utilizing the right tool at the right time.

And that is an example of perhaps not using the right tool at the right time. I think that at this point I would have to say it is the only bad example we have of big structure in terms of, you know, using fixed price in one place and cost plus in another.

But one of the things, other things that came up through that study is whether or not we are using the right balance of incentives and whether or not these publicly traded companies and how we reach to them and motivate their behaviors through the structure of profit—we are going to take a fresh look at that and see if we can, first of all, do that better risk balancing between Government and industry, and also make sure that their incentives are effective.

Senator KAINE. And before I hand it to Senator Cramer, the other thing about the frigate is, you go into it with a plan.

And then, okay, here is a platform that exists, and we will basically replicate 85 percent of the existing platform and 15 percent new. By the end of the design, it is 50 percent existing and 85 percent new, then you are going to have some challenges getting the job done.

I know that is a lesson from that as well. Senator Cramer.

Senator CRAMER. Thank you. I am going to ask one sort of open ended question about the budget from a different angle. I mean, I guess if we you could have more, you want more capacity, and we are struggling to understand what that is.

But if we are stuck with this flat budget or really inflationary—you know, inflation adjusted negative, you know, cut, our budget cut, what areas of this budget assume the most risk in your mind?

If we are stuck with what has been presented, what areas represent the greatest risk? And I think each of you could answer that.

Mr. GUERTIN. Admiral, you want to take first crack at that one?

Admiral PITTS. You want me to start?

Mr. GUERTIN. Oh, yes, please do.

Admiral PITTS. Sir, I will just say for the Marine Corps, we have—you know, we have been aggressively modernizing and we are very, very happy with where we are with forces design. And notice we don't call it 2030 anymore.

It is never going to end, but now our barracks 2030 initiative, which is one of the Commandant's top priorities. So, with this kind of budget, that pressurization on top—where I will take risks, sir, is in my war enterprise planning team. So, it is modernization. So, we will be forced to slow modernization.

General HECKL. Senator, we think the priorities as laid out by the CNO in the second half were the right priorities, given the resources that we had allocated. Where we took risk is in our future fleet.

Some of our—what we—we have the fleet in being. We are going to modernize the fleet that we have. Where we took risks is those follow on platforms to replace some of our legacy things, such as SSN(X) delaying procurement, air wing of the future. We have some risks there.

Senator CRAMER. Secretary.

Senator BLUMENTHAL. So, I like both those answers actually. I think that in terms of on the acquisition side, where we took risk is understanding what the outcome of the 45 day study and the realities of hire challenges with respect to labor, as well as the supply chain—the supply chain has fundamentally changed, right.

It is just going to be longer. It is going to take longer to get more stuff. In an inflation, capped environment, that is going to be very challenging for us in terms of making sure we get product put out the door in the time we need to.

Senator CRAMER. All right. Nothing further. Thank you.

Senator KAINE. Senator King.

Senator KING. Yes. Early in April, I requested the Pentagon to give me background on the directed energy budget, and I have an unclassified report which we got yesterday, which I would like to just submit for the record.

Senator KAINE. Without objection.

[The information referred to follows:]

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**DEPARTMENT OF DEFENSE RESPONSE TO
SENATOR ANGUS KING
REQUEST FOR INFORMATION**

April 30, 2024

REQUEST: As follow-up to the 4 April 2024 briefing to Senator King's staff, please provide funds appropriated or requested for all directed energy weapon (DEW) Program Elements (PE) across the services and agencies for Research Development Test and Evaluation (RDT&E), procurement, and Operations and Maintenance (O&M). Request the data go back to Fiscal Year (FY) 2023, and show FY2023, FY2024, and President's Budget (PB) 2025.

Response:

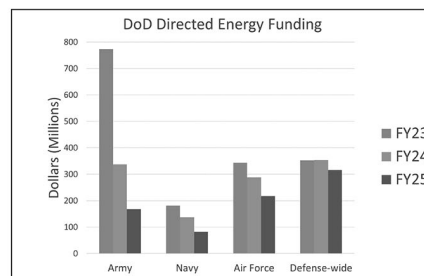
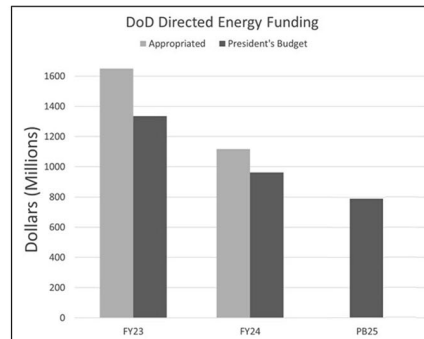
The following tables capture PEs across the Department of Defense that fund Directed Energy efforts. The majority of the funding is RDT&E with two caveats:

- Navy includes a relatively small amount of O&M Funding - in FY2024 the Navy transferred \$3.72M from FY24 RDT&E funding in PE 0603925N to PE 0204575N to Navy's Operations and Maintenance to Budget Activity 1, (Combat Communications and Electronics Warfare) to properly align funding for Optical Dazzling Interdictor, Navy (ODIN) and has comparable amounts planned for FY25 to support operational experimentation of fielded Directed Energy systems
- Air Force Procurement funding in PE 0208028F will fund the Directed Energy Weapon System Recovery of Airfield Denied By Ordnance (RADBO) Zeus IIA for Explosive Ordnance Disposal.

This list of PEs includes all efforts that the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) is tracking as key for transitioning directed energy technology to warfighting capability. These figures are determined from publicly accessible documents and informed by a data call to the Services to confirm the allocation of funds. As such these tables do not incorporate investments that are only described in classified budget requests/appropriations. Also, there may be future adjustments on the specific PE(s), including additions or deletions, depending on how Services and Agencies manage their programs.

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	FY23		FY24		FY25
	President's Budget	Appropriated	President's Budget	Appropriated	President's Budget Request
MilDep					
Army	557.8	772.8	249.9	337.2	167.9
Navy	152.2	181.2	119.7	137.2	82.4
Air Force	318.2	343.2	291.9	288.4	217.1
Defense-wide	306.1	352.6	321.7	353.7	316.6
Totals	1334.3	1649.8	962.4	1116.5	789.7

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Army

Program Element	FY23		FY24		FY25 President's Budget Request	Name
	President's Budget	Appropriated	President's Budget	Appropriated		
0601102A	2.9	2.9	2.2	2.2	2.8	Defense Research Sciences
0601141A	9.3	9.3	10.7	10.7	10.9	Lethality Technology
0602150A	17.3	55.3	25.1	72.1	24.6	PE 0602150A / Air and Missile Defense Technology
0603116A	1.1	1.1	1.2	1.2	1.2	PE 0603116A / Lethality Advanced Technology
0603466A	7.1	59.1	6.7	26.7	4.2	PE 0603466A / Air and Missile Defense Advanced Technology
0603305A	0.0	25.0	0.0	0.0	0.0	PE 0603305A / Army Missile Defense Systems Integration
0604019A	218.3	258.3	97.0	112.4	35.2	PE 0604019A / Expanded Vision Area Missile (EMAX)
0604116A	10.8	10.8	10.9	10.9	10.9	PE 0604116A / Joint Air and Missile Defense Technology
0604531A	10.8	10.8	0.0	0.0	0.0	PE 0604531A / Counter-Sea Unmanned Aerial Vehicle Systems Advanced Development
0605054A	103.9	153.9	0.0	5.0	0.0	PE 0605054A / Emerging Technology Initiatives
064538A	0.0	10.0	0.0	0.0	0.0	PE 0604258A / Target Systems Development
0605601A	0.0	0.0	0.0	0.0	0.0	PE 0605601A / Army Test Ranges and Facilities
Army Investment	557.8	772.8	249.9	337.2	167.9	

Air Force

Program Element	FY23		FY24		FY25 President's Budget Request	Name
	President's Budget	Appropriated	President's Budget	Appropriated		
0601102F	25.0	25.0	25.2	25.2	21.9	PE 0601102F / Defense Research Sciences
0602202F	45.8	45.8	18.0	18.0	46.1	PE 0602202F / Human Effectiveness Applied Research
0602609F	100.9	120.9	130.0	118.5	115.0	PE 0602609F / Directed Energy Technology
0603458F	0.0	0.0	0.0	0.0	5.4	PE 0603458F / Human Effectiveness Advanced Technology Development
0603979F	4.1	4.1	10.0	10.0	11.0	PE 0603979F / Directed Energy Technology
0604023F	4.2	4.2	11.0	11.0	3.71	PE 0604023F / Directed Energy Technology
0208028F	58.2	58.2	14.5	24.5	0.00	3089F: Other Procurement, Air Force, 84510F / Engineering and EOD Equipment
Air Force Investment	318.2	343.2	291.9	288.4	217.1	

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Navy

Program Element	FY23		FY24		FY25 Budget Request	Name
	President's Budget	Appropriated	President's Budget	Appropriated		
0601153N	7.1	7.1	7.2	7.2	8.3	PE 0601153N / Defense Research Sciences
0602114N	7.1	7.1	6.2	6.2	5.9	PE 0602114N / Power Prof Applied Research
0602792N	4.5	4.5	2.0	2.0	0.0	PE 0602792N / Innovative Naval Prototypes (INP) Applied Res
0602721N	0.0	0.0	0.0	0.0	0.0	PE 0602721N / Electromagnetic Systems Applied Research
0602799N	0.0	0.0	0.0	0.0	0.0	PE 0602799N / Future Naval Capabilities Applied Research
0603799N	0.0	0.0	0.0	0.0	4.5	PE 0603799N / Future Naval Capabilities Applied Research
0603801N	30.5	59.5	13.5	21.0	14.4	PE 0603801N / Joint Non-Lethal Weapons Tech Dev
0603729N	0.0	0.0	0.0	0.0	0.0	PE 0603729N / Joint Non-Lethal Weapons Tech Dev
0603640M	5.0	5.0	5.0	5.0	3.9	PE 0603640M / NC Advanced Technology Demo
0602651M	2.0	2.0	2.2	2.2	2.3	PE 0602651M / JT Non-Lethal Wpns Applied Res
0603680N	0.0	0.0	0.0	0.0	0.0	PE 0603680N / Manufacturing Technology Program
0603782N	0.0	0.0	0.0	0.0	0.0	PE 0603782N / Mine and Expeditionary Warfare Advanced Technology
0603651M	4.2	4.2	4.7	4.7	4.9	PE 0603651M / JT Non-Lethal Wpns Tech Dev
0603851M	9.2	9.2	9.3	9.3	9.1	PE 0603851M / Joint Non-Lethal Weapons Testing
0603382N	16.1	16.1	4.0	4.0	0.0	PE 0603382N / Advanced Combat Systems Tech
0603925N	65.1	65.1	52.1	62.1	9.9	PE 0603925N / Directed Energy and Electric Weapon System
0204228N	0.0	0.0	0.0	0.0	3.8	PE 0204228N / In-Service Radars & Sensors
0205757N	0.0	0.0	3.7	3.7	3.3	PE 0205757N / Surface Electronic Warfare
0604039N	0.0	0.0	2.7	2.7	2.1	PE 0604039N / Rapid Prototyping, Experimentation & Dem
0603781N	0.0	0.0	0.0	0.0	0.0	PE 0603781N / Advanced Surface Warfare
0603573N	0.0	0.0	0.0	0.0	0.0	PE 0603573N / Advanced Surface Machinery Sys
0603654N	0.0	0.0	0.0	0.0	0.0	PE 0603654N / JNT Service EOD Development
0603724N	0.0	0.0	0.0	0.0	0.0	PE 0603724N / Navy Energy Program
Navy Investment	152.2	181.2	119.7	137.2	82.4	

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Program Element	FY23	FY24	FY25	Name
060110808Z	16.3	16.3	16.52	PE 060110808Z / High Energy Laser Research Initiatives
060289008Z	48.6	48.6	48.64	PE 060289008Z / High Energy Laser Research
060392408Z	108.9	111.8	113.37	PE 060392408Z / High Energy Laser Advanced Development
06051310TE	0.0	0.0	0.00	PE 06051310TE / Live Fire Test and Evaluation (LFT&E)
06058140TE	0.0	7.5	10.10	PE 06058140TE / Operational Test Activities and Analyses
060312208Z	25.0	25.0	0.00	PE 060312208Z / Combating Terrorism Technology Support
060394108Z	30.0	30.0	10.01	PE 060394108Z / Test and Evaluation Science and Technology
0603176C	0.0	0.0	5.00	PE 0603176C / Advanced Concepts and Performance Assessment
0603180C	4.0	4.0	7.00	PE 0603180C / Advanced Research
0604115C	0.0	16.0	10.00	PE 0604115C / Technology Maturation Initiatives
0607202E	0.0	29.2	33.38	PE 0607202E / TACTICAL TECHNOLOGY
0607718E	0.0	0.0	0.00	PE 0607718E / TACTICAL TECHNOLOGY
0607827E	12.4	12.4	15.30	PE 0607827E / TACTICAL TECHNOLOGY
0607677E	25.6	25.6	15.52	PE 0607677E / SENSOR TECHNOLOGIES
060425008Z	0.0	0.0	0.00	PE 060425008Z / Advanced Innovative Technologies
11604088B	16.0	16.0	5.67	PE 11604088B / Aviation Systems
11604028B	0.0	18.0	0.00	PE 11604028B / Operational Enhancements
060405508Z	2.4	2.5	2.13	PE 060405508Z / SOF Advanced Technology Development
060721008Z	7.0	7.0	0.00	PE 060721008Z / Operational Energy Capability Improvement (OECI)
Defense Wide Investment	306.1	352.6	316.6	PE 060721008Z / Industrial Base Analysis and Sustainment Support

Defense Wide - Breakout

	FY23	FY24	FY25
Defense Wide	President's Budget	Appropriated	President's Budget
Joint Directed Energy Transition Office	173.8	178.8	176.9
Director, Operational Test and Evaluation	0.0	7.5	10.1
Irregular Warfare Technical Support Directorate	25.0	25.0	0.0
Test Resource Management Center	30.0	30.0	10.5
Missile Defense Agency	4.0	20.0	4.0
Defense Advanced Research Projects Agency	38.0	38.0	22.0
U.S. Special Operations Command	18.4	36.4	5.5
Office of the Under Secretary of Defense for Acquisition and Sustainment	17.0	17.0	0.0
Defense Wide Investment	306.1	352.6	316.6

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Senator T4King. It is pretty sad, by the way, but there it is. I don't really have any followups except, General, I agree with you. You said—the technology is going to catch up with the risk. It ain't going to catch up with the risk if we don't fund it, if we don't do the research, the prototyping, and the development.

It won't work without the investment and that is the point I am making. I came into this meeting with a cold, and you managed to help me clear my sinuses earlier, and I appreciate that. But seriously, I hope you will go back and think about directed energy, because it just makes so much sense and it is a place where the benefit is overwhelming.

A shot from a high powered laser is about, I think, \$0.25 instead of \$4 million, and on the other thing is about—I agree, ship build-

ing, all in. We need more ships, but we also need to utilize the ships we have better.

I hope that you would—and by the way, the same criticism goes for the Air Force. If they were sitting here, they would be getting a load of this too. These are expensive assets, and we should be using them more efficiently. When the private sector invests in a capital asset, they use it. Those mills are open 24 hours a day.

So, it would seem to me that it would be cost effective to really study maintenance patterns using AI to predict maintenance, what could be done on ship. For example, I think every ship should have a 3D printer, so you don't have to bring it into a dry dock to get a part.

So, I think—I hope that this is an area where you would really do some study because 25 percent utilization of these very valuable capital assets is just unacceptable. So, I appreciate your testimony here today.

Mr. Chairman, I appreciate your holding this hearing. Thank you.

Senator KAINE. I have two more items that I would like to ask about, and they are both related to AUKUS. So, I am going to go AUKUS Pillar 2, then AUKUS Pillar 1. So, AUKUS Pillar 2, talk about—we are very familiar with Pillar 1.

Pillar 2 is more open ended, so I am curious how both the Navy and the Marines are thinking about AUKUS Pillar 2 and our engagement with Australia and the UK. Just give us a little status report.

Mr. GUERTIN. Thank you for the question, Senator. We are fully committed to AUKUS Pillar 2. We work very closely with our Australian and UK counterparts.

In every domain that is underneath my charge, air, surface, undersea, science and technology, and digital warfare, we have efforts moving along the technology areas that are called out for AUKUS Pillar 2, whether that is hypersonics, undersea capabilities, AI, ML.

It is a very strong relationship, and we are charging out there to help make us all stronger.

Senator KAINE. General Heckl.

General HECKL. Sir, I don't know that the Marine Corps has much in Pillar 2, but I failed in our office call the other day to mention on—we are actually doing, in the vein of the stern landing vessel, you know, we have done—we have gone to industry and chartered ships. Hornbeck Offshore is the first one that will soon be heading out to the first island chain.

We are doing a full and comparative test with Australia's sea transport. It is going to be a cooperative operating agreement between the two countries, and we are super excited about it because Australians—specifically nothing with the UK other than we like getting on their boats and flying fifth gen fighters off of them.

But for the Australians, sir, there is a lot of promise there. They know the theater better than most, so excited about that. But from Pillar 2, sir, I think our activities are minimal.

Senator KAINE. Let me ask now back on a Pillar 1 question, although it is a little bit broader. So, Secretary Guertin, I am going to put you on the spot on this one. We got to get to 2 plus 1, Vir-

ginia plus one *Columbia*, and then we got to get to 2.3 plus 1 to meet the commitments that we have made in the AUKUS framework.

Based on the investments we have made, based upon the investments that we have committed now in this supp, based upon the investments the Aussies have made, based upon the 2025 budgetary requests, based upon what is in the FYDP for the submarine industrial base, when should we get to 2 plus 1, and when should we get to 2.3 plus 1?

Mr. GUERTIN. I am going to give you a couple of dates, but if I get it wrong, permit me to catch up with you. I believe we will get to two *Virginias* by 2028, and I think it is 2032 that we get to two and a third.

Senator KAINE. I see Admiral Pitts sort of nodding yes. Is that, General, your understanding as well?

General HECKL. That is the General understanding, yes, sir.

Senator KAINE. So, 2 by 2028, and 2.3 by 2032, and the commitment that we have made to the Aussies is to sell them 3 to 5 *Virginia*-class subs in the decade of the 2030s. So, if you get to 2.3 by 2032, and let's see, 0.3 times 9 is 2.7.

So, you are kind of maybe not quite getting the three in the 2030s that you would be able to sell. I mean obviously that pace—and they want to buy at least three. They said they might buy up to five.

Look, I think some of the Pillar 1 is still kind of open ended in the sense of if they start buying the *Virginia*-class and they really like them, and they are interoperable, and they learn how to maintain and operate them in an interoperable way with us, there might be a decision down the road, like, we will just keep buying *Virginia*-class and work on that together, rather than build of a different design that is off a kind of a UK framework, even though there would be a lot of U.S. technology in it.

But if—am I wrong to do the math that way? If we are doing 2.3 by 2032, we are not going to be able to sell them three in the 2030s.

Mr. GUERTIN. I think the first two are actually existing *Virginias*, and we are going to back fit our—we are going to plus hours in the future. So, I think we can get to three, even to five by the end of the 2030s.

Senator KAINE. Well, 2028 is not far off. I mean, you know, to try to get to two by 2028 because what are we at now, like 1.3?

Mr. GUERTIN. We are investing mightily, sir, as you mentioned, in improving our ability to do this business.

Senator KAINE. And then, when are we going to get to one a year of *Columbia*?

Mr. GUERTIN. Well, we are committed to several productions starting in the third boat, and that is where we have to start one a year and I am confident we will get there, but we are going to have to run fast to get to it.

Senator KAINE. Yes. Well, I think that seems to be a theme of the hearing. We are going to have to run fast to do what we have said we are going to do, and we need both provide you the resources to run fast, but we also, you know, again, on the workforce

issues—I just worry that some of our issues, you know, cannibalize one workforce to meet another or one regions to help and others.

We are not necessarily rowing the net and we got a declining birth rate as a Nation, and we got an economy that is pretty hot right now where people have a lot of competition for other jobs, and I don't see that necessarily changing. So, I mean, I appreciate, was it the Academy Awards? Yes. I mean, when I see an ad for the submarine industrial base during the Academy Awards, that is different.

That is showing like, hey, we really are reaching out in a non-traditional way, but we are going to have to do a lot in the non-traditional space, I think, if we are going to have the workforce to meet the kind of dates that you are stating before the Committee.

So, it has been a good hearing. We appreciate your service. We appreciate you being here. I will offer to my colleagues the chance to submit questions for the record by the close of business tomorrow.

If they are submitted, you know, I hope that you will be both prompt and comprehensive in your response. With that, the committee—the subcommittee adjourns.

[Whereupon, at 11:56 a.m., the Committee adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR MAZIE K. HIRONO

SHIP MAINTENANCE ISSUES

1. Senator HIRONO. Secretary Guertin, you are responsible for sustainment matters, including maintenance. The Navy submitted a legislative proposal to Congress seeking authority to send up to 6 U.S.-based ships a year to foreign yards in the Indo-Pacific for repairs to exercise for potential contingencies. While I am certainly in favor of keeping the ships, we have in optimal condition, I think it is short-sighted to outsource maintenance, especially when the Navy's own shipyards are in such disrepair. For example, the surface ship repair piers in Pearl Harbor are in poor shape, with only 4 of the 13 berths available for use. Why isn't the Navy investing more in these badly needed repairs to our shipyards at home instead of outsourcing the work?

Secretary GUERTIN. The Navy's legislative proposal sought to allow a limited number of ships homeported in the United States or Guam to execute a limited maintenance availability in a foreign port as part of the U.S. Navy's Surface War-time Repair and Maintenance (SWaRM) program. SWaRM supports the generation and sustainment of forces conducting distributed maritime operations within highly contested environments. The Navy did not propose this language as a result of insufficient or inadequate domestic capacity to complete required maintenance and repairs. SWaRM actions are intended to extend military operations within an adversary's weapons engagement zone. The SWaRM continuum begins with first actions by the crew in response to damage, then moves to afloat salvage, battle damage assessment, tow or heavy lift, and finally semi-permanent repair as well as maintenance.

The Navy recognizes the critical upgrades required in our public shipyards and naval stations. The proposed execution of naval vessel maintenance outside of the United States in support of the SWaRM program does not impact investment in these facilities. Upgrades and expansion of public shipyards and naval stations are managed through the Navy's Military Construction (MILCON) and Facilities Sustainment, Restoration & Modernization (FSRM) programs. The annual MILCON and FSRM programs assess these infrastructure requirements against each project's mission need date, in considerations of strategic laydown plans as well as general berthing and maintenance demand.

Regarding Pearl Harbor, investment in Joint Base Pearl Harbor-Hickam is amongst the Navy's top priorities for investment in submarine and surface ship infrastructure over coming years and has several projects in various stages of planning, design, and execution to address the surface ship berth condition in Pearl Har-

bor. The Navy has developed projects to address the surface ship pier condition in Pearl Harbor. These projects include electrical capability enhancements (to award this year), phased refurbishment of the depot-level surface maintenance piers, and a floating dry dock in the mid-fiscal year 2030s.

2. Senator HIRONO. Secretary Guertin, instead of asking for authority to do overseas maintenance on U.S.-based ships, why isn't the Navy simply sending the ships already based overseas into these foreign yards for maintenance and repair?

Secretary GUERTIN. The exclusive use of naval vessels homeported outside the United States and Guam (also known as forward deployed naval forces, FDNF) for overseas maintenance and repair in foreign shipyards would increase the time FDNF sailors are out of homeport (also known as personnel tempo). Performing maintenance activities on these forward deployed ships would negatively impact high-tempo FDNF operations. It would also fail to realistically exercise the required capability. The use of non-FDNF naval vessels for these repair availabilities allows for reducing the operational tempo of already stressed FDNF ships. Furthermore, scheduled maintenance on non-FDNF ships would have limited to no impact on personnel tempo because the stop can be integrated into the ship's overall deployment schedule.

SHIPBUILDING DELAYS—SECRETARY GUERTIN

3. Senator HIRONO. Secretary Guertin, the Navy recently released a 45-day Shipbuilding Review that found delays across several major ship programs—aircraft carriers, submarines, and frigates are the most noteworthy. What is the Navy's plan to get these major acquisition projects back on track?

Secretary GUERTIN. The 45 Day Shipbuilding Review found the largest challenges to shipbuilding performance is a dramatic change in the supply chain and a recent volatility in the skilled workforce both in availability and proficiency. Together with the shipbuilders, the Navy is working initiatives to drive improvement to these challenges to arrest the degradation in schedule completion and to improve overall shipbuilding performance. This includes the Navy assessing its contracting strategies to ensure an optimal risk balance between Navy and industry and that requirements meet the Navy's needs at time of contract award.

4. Senator HIRONO. Secretary Guertin, I am particularly concerned about the submarine acquisition delays. The Navy is now taking the extraordinary step of buying only one *Virginia*-class submarine this year instead of two. How are we going to sell these boats to Australia for the AUKUS agreement if we can't produce enough for our own needs?

Secretary GUERTIN. The Navy's ability to reach and maintain a production cadence to meet our submarine requirements, sustain the existing submarine fleet and ramp to meet the AUKUS trilateral agreement is gated by the Submarine Industrial Base (SIB) capacity. The President's Budget 2025 budget request reflects a prioritization in undersea warfare capabilities, with sustained investment in the SIB.

Removal of the second *Virginia*-class submarine in fiscal year 2025 was a difficult choice, but the Navy is optimistic it provides an opportunity to recover the backlog within the production line and for the SIB investments to take greater effect. The single SSN procurement in fiscal year 2025 provides an opportunity for the shipbuilders to balance production for *Virginia* construction and serial *Columbia* production in fiscal year 2026 and allows for maturation of improvements in manufacturing, outfitting and assembly as well as industrial base investments.

5. Senator HIRONO. Secretary Guertin, for the *Columbia*-class ballistic missile subs—does the Navy have a viable contingency plan to extend the *Ohio*-class boats if these delays continue?

Secretary GUERTIN. The Navy has established a plan to extend the service life of five *Ohio*-class SSBNs as a contingency against *Columbia*-class delivery schedule delays. The life extensions will be accomplished through a Pre-Inactivation Restricted Availability (PIRA) prior to the end of service life that will conduct necessary maintenance to ensure operability and hull certification up to an additional 3-year period. The Navy selected five PIRAs as providing sufficient and achievable risk mitigation if *Columbia*-class deliveries are delayed. Various five-SSBN PIRA combinations were analyzed against existing maintenance capacity, Strategic Weapons Facilities capacity, and ballistic missile inventory to identify executability, key limitations, and additional resource estimates to overcome these limitations. Navy will continue SSBN PIRA analysis throughout the *Ohio* to *Columbia*-class transition

as uncertainties in *Columbia*-class delivery schedules, uncertainties in *Ohio*-class service life projections, and unknown/unforeseen factors manifest and require resolution.

DRY DOCK 3 REPLACEMENT COSTS

6. Senator HIRONO. Secretary Guertin, I have significant concerns about the cost overruns associated with the replacement of dry dock 3. It is a critically important project but was recently beset by another cost increase of \$834 million, over 400 million of which was due to poor planning on the Navy's part. And dry dock 3 is not an isolated case. As the GAO has previously reported, the Navy has had trouble estimating SIOP construction costs. What assurances can you give me that the Navy has cost overruns under control for the Pearl Harbor dry dock?

Secretary GUERTIN. The Navy is implementing Government Accountability Office (GAO) guidance to ensure consistency and completeness of SIOP cost estimates. Independent cost estimates are being developed for all major projects in accordance with legislation. In December 2022, the Department of Defense directed the use of the GAO best practice of comparing cost elements to available historical data for construction. Further, the Navy formalized SIOP cost estimating expectations for escalation, risk, uncertainty, format, and comprehensiveness. SIOP cost estimates, including Dry Dock 3 at Pearl Harbor NSY have implemented improved economic forecasting and cost and schedule risk analysis that is updated throughout design and construction. Construction contractors are now involved in the design phase to improve estimates for logistics and constructability.

USS I89BOXER ISSUES

7. Senator HIRONO. Secretary Guertin, after maintenance delays, USS *Boxer* left for deployment on April 1st with the 15th Marine Expeditionary Unit embarked on-board only to return to San Diego several days later following an issue with the rudder. The ship is now sitting pier-side waiting for repairs. While I was happy to see the Navy's commitment to 31 amphibious ships reflected in this year's budget to support Marine Corps operations, do you have concerns about the readiness of the amphibious fleet?

Secretary GUERTIN. We are committed to improving maintenance processes and reducing maintenance delays for surface ship operational readiness through a data driven approach. Days of Maintenance Delay (DoMD) in private shipyards peaked in fiscal year 2019 and has trended downward since then. From fiscal year 2022 to fiscal year 2023 the Navy reduced surface ship DoMD by 18 percent—from 3,456 days to 2,839 days—and saw a slight improvement in on-time availability completion (from 36 percent in fiscal year 2022 to 41 percent in fiscal year 2023). President's Budget 2025 will continue to improve shipyard performance and reduce DoMD, particularly for our amphibious fleet.

Additionally, Navy is in coordination and discussion with the Marine Corps on Amphibious Warship requirements to include but not limited to: total and projected operational availability (Ao), time of ships in training and deployment, and challenges the Navy and Marines face in force generation.

8. Senator HIRONO. General Heckl, how is this delay impacting the readiness of the 15th Marine Expeditionary Unit, especially since the Marine Corps was planning to conduct several training exercises with our allies and partners in the Indo-Pacific?

General HECKL. Fifteenth Marine Expeditionary Unit (MEU) stands trained, certified, and ready to respond to global crisis.

Despite USS *Boxer* delays, the 15th MEU has executed 79 collective training events across their Pre-deployment Training Program / Fleet Response Training Plan and are certified across all 10 Mission Essential Tasks. Each ship in the Amphibious Ready Group (ARG) is task organized to perform the seven warfighting functions independently. However, the ARG/MEU is most effective when aggregated.

Boxer missed Exercise Balikatan an annual exercise supporting the U.S. Philippine Mutual Defense Treaty. Although *Boxer* was absent, USS *Harpers Ferry* was able to join USS *Somerset* for the final few days of the exercise, which included our first ever deployed usage of Amphibious Combat Vehicles. *Boxer* currently will miss an additional three exercises in the Pacific Theater. (Specifics can be provided at a higher classification). The several delays *Boxer* has experienced to date resulted in the substitution of the original Battalion Landing Team, and several months of shipboard proficiency training lost.

Elements of the 15th MEU and Amphibious Squadron (PHIBRON) Five are currently deployed onboard both *Somerset* and *Harpers Ferry*, and have continued their deployment in the Indo-Pacific working alongside allies and partners. Due to *Boxer* delays, the voyage plan was adjusted to have the *Somerset* support Exercise Tiger Strike in Malaysia and Exercise Cobra Gold in Thailand. As a result, *Somerset's* support to Exercise Rimpac was delayed causing her to miss the initial harbor phase. In an effort to cover the gap, 15th MEU sourced CONUS-based forces to support Rimpac. 3d FLT aligned the USS *Germantown* to provide opportune lift (OPLIFT) in support of Rimpac, with several hundred allocated rack spaces to transport CONUS-based 15th MEU forces to destination. These forces are aligned to support the first two phases of Exercise Rimpac. The *Germantown* is an OPLIFT vessel and is not being added to the ARG for employment in 7th FLT.

Boxer is projected on track for a projected 1 July repair completion. The ~300 marines supporting RIMPAC will be recovered with the *Boxer* and continue west in support of the voyage plan.

In the event *Boxer* is unable to get underway, alternative COAs are being pursued to recover the remainder of the CONUS based forces forward.

QUESTIONS SUBMITTED BY SENATOR ANGUS S. KING, JR.

READINESS AND OPERATIONAL CAPACITY

9. Senator KING. Secretary Guertin, the Navy and Marine Corps are responding to significant world crises. The Department is notoriously behind on submarine and ship repairs, thus affecting our operational and response capacity. What are you doing to prepare the industry to repair and maintain submarines, ships, and aircraft that are seeing an increase in operations?

Secretary GUERTIN. The Navy's budget request for fiscal year 2025 prioritizes our people and readiness to deploy and fight today, while investing in our industrial base to build and maintain our fleet to be strategically ready for tomorrow. In regards to maintenance, we must get our ships, submarines, and aircraft in and out of their availabilities on time and on cost. The budget request increases funding to \$14.5 billion in ship maintenance, including 58 ship availabilities, and covers private contracted availabilities as well as the Navy's four public shipyards, regional maintenance centers, and intermediate maintenance facilities. It also provides \$1.3 billion in aviation maintenance that paces the Fleet Flying Hour Program, funding 328 airframe and 1,486 engine events and sustaining aviation investments in depot overhauls and aircraft spares to increase mission capable aircraft numbers.

The Navy's fiscal year 2025 request also significantly invests in the Shipyard Infrastructure Optimization Program (SIOP) and Submarine Industrial Base to support submarine maintenance, increase the health of industry, build supply chain resiliency, and bolster our long-term capacity. The Navy is working with private industry partners to enhance cost-effectiveness and schedule adherence in submarine maintenance, and this collaborative effort aims to deliver valuable surge capacity for submarine maintenance operations. The Navy is continuing its efforts to drive out delays in finishing maintenance availabilities and enabling more players on the field through its collaborative efforts with industry.

Additionally, as the demand for Naval Aviation forces increases, the Naval Air Systems Command (NAVAIR) is preparing industry to repair and maintain aircraft by ensuring delivery of integrated warfighting capability at increased speed and at a reduced cost. Navy air programs implement both organic and commercial strategies for Maintenance, Repair, and Overhaul (MRO) activities during a product's operations and support phase. Commercially, the Navy is increasing contract specificity and schedule emphasis with industry partners to create more effective, long-term strategic vehicles to deliver products and depot level repairable material and piece parts. A focus on enterprise-wide centralized planning and continued implementation of Naval Sustainment System—Aviation improvements are increasing capacity at organic Navy MRO facilities and leading to greater collaboration with industry through Public Private Partnerships. Fleet Readiness Centers partner with industry and other Services to leverage collective strengths and implement agile and innovative approaches to address complex challenges that cause capacity or capability constraints.

10. Senator KING. Secretary Guertin, additionally, what is the Department doing to take care of the sailors and marines that are seeing an increase in their deployments away from home?

Secretary GUERTIN. The Department of the Navy is committed to ensuring the resiliency of sailors and marines while providing the resources necessary for successful reintegration following return to homeport. The Department adheres to the provisions set forth in Directive Type Memorandum (DTM) 21-005, Change 1 of October 13, 2022, establishing deployment-to-dwell and mobilization-to-dwell ratios for the Active and Reserve Components. These ratios ensure sailors and marines aren't exposed to disproportionate time away from homeport, station, or base unless required by operational necessity. Additionally, mental health support, post-deployment health assessments, financial counseling, religious outreach, and family and spouse reintegration are critical components to achieving positive outcomes.

Sailors and marines are provided with ready access to a full continuum of mental health resources. For example, short-term non-medical counseling is provided to sailors and marines at the installation, while on deployment, and virtually. Licensed mental health providers offer assessment, diagnosis, treatment planning, and referrals at installation-based Fleet and Family Support Centers or Marine Corps Community Services before and after deployment. Deployed Resiliency Counselors embark on ships to provide solution-focused non-medical counseling to sailors and marines while underway. The Department of Defense's Military and Family Life Counseling Program augments the work of Deployed Resiliency Counselors with licensed clinicians who also provide non-medical counseling to sailors and marines while ashore. Embarked chaplains also provide confidential counseling regardless of religious affiliation. Virtual clinical counseling is available anywhere with an internet connection and provides clients with convenience and flexibility.

The deployment of the USS *Dwight D. Eisenhower* Carrier Strike Group (IKE CSG), provides a relevant example of the clinical and non-clinical mental health support offerings. Ships comprising the IKE CSG deployed with an embarked organic behavioral health services contingent consisting of licensed clinical social workers, clinical

psychologists, and behavioral health technicians. Collectively, the behavioral health teams provide a wide variety of services from participating in Human Factors Councils to conducting individual sailor evaluations and group psycho-educational classes (psychological first aid, operational stress control, healthy life-style habits). Non-clinical resiliency services included embarked chaplains, a Deployed Resiliency Counselor, an integrated prevention coordinator, an expeditionary facility dog, and physical fitness and recreation coordinators.

Financial compensation is another critical component to ensuring sailors and marines, and their families, are adequately supported while away from homeport. Deployed sailors and marines are afforded Special and Incentive compensation to include Family Separation Allowance, Imminent Danger Pay if deployed to qualifying locations, and sea pay. Furthermore, sailors and marines who experience extended deployments are eligible for additional financial compensation: Hardship Duty Pay—Tempo is paid for each day deployed over 220, at a rate of \$495 per month (\$16.50 per day).

The Department of the Navy is constantly reviewing, evolving, and improving its level of care for its deployed sailors and marines, as well as their families. From mental and physical health resources, to increased financial payments through various compensation pays and allowances, the Department of the Navy remains steadfast and focused in taking care of its people at home and abroad.

11. Senator KING. Vice Admiral Pitts and Lieutenant General Heckl, the Navy and Marine Corps is being asked to do a lot in the Pacific, the Middle East, and Europe. Does this budget anticipate the increase in operations due to the crises and conflicts across multiple regions, and how does it account for subsequent effects?

Vice Admiral PITTS. While it is not possible to budget for every contingency or crises, President's Budget 2025 allocates resources to support the Navy's operations, training, maintenance, and other readiness accounts to position forward naval forces in defense of global U.S. interests, while investing in our industrial base to build and maintain our fleet. Overall, President's Budget 2025 adds +\$555 million in fiscal year 2025 to our major readiness accounts, and +\$600 million in ship maintenance increases to support the Navy's priority to maximize players on the field by moving ships through and out of their maintenance periods on time. Additionally, President's Budget 2025 invests in critical munitions, to accelerate production, increase resiliency, and improve interoperability.

However, the effects of high Operational Tempo (OPTEMPO), extended deployments, unplanned Request for Forces, fiscal constraints, inflation, and budget uncertainty are compounding factors that add friction and risk, and create long-term impacts to Operational Availability (Ao). Preventing further maintenance delays, backlogs and shortages in the future requires strategic investments today. President's

Budget 2025 invests \$2.8 billion for Shipyard Infrastructure Optimization Program (SIOP) for improvements to address inadequate facilities and industrial plant equipment at the four public shipyards.

General HECKL. Yes. Our fiscal year 2025 budget request highlights our commitment to maintaining a balance between current and future readiness to facilitate operations around the world. We're requesting \$17.4 billion in fiscal year 2025 for our Operation and Maintenance accounts, 32 percent of our total budget request, to sustain our current and projected operational requirements in support of the Joint Force and national tasking. Our Fleet Marine Force, which is comprised of all three Marine Expeditionary Forces (MEF) and Marine Forces Reserve (MARFORRES), are organized, trained, equipped, and postured to conduct a variety of missions in support of Marine Corps Title 10 responsibilities. The Marine Corps maintains all organic crisis response capabilities that enable the forward posture and rapid deployment of flexible and tailorable forces to the needs of the Combatant Commanders (COCOMs). The Amphibious Ready Group (ARG) and Marine Expeditionary Units (MEU) are the most common Navy-Marine Corps tactical units that are forward deployed at the operational level and can accomplish strategic level engagements—these MEUs are resident in all MEFs. At the direction and request of COCOMs, units, such as the Marine Littoral Regiment, can be organized, trained, and equipped to conduct missions not normally assigned as core task.

NAVY SHIP READINESS

12. Senator KING. Secretary Guertin and Vice Admiral Pitts, I noted that the Navy's website reports that it has 294 deployable ships with 26 conducting local operations. Currently underway, the Navy has 70 ships total with 44 deployed, including 4 carriers and 2 amphibis. It could imply that since 4 of 12 carriers are underway, only a small percentage of the force is ready for the fight tonight. My understanding is that of the 294 ships, some are in long-term maintenance overhauls while others are in shorter term maintenance overhauls, while crews are also conducting training. What is the Navy's assessment of ships ready for sea for the fight tonight, on average for the current fiscal year?

Secretary GUERTIN and Vice Admiral PITTS. The Navy employs a tiered readiness model that varies unit readiness levels as they cycle through the Optimized Fleet Response Plan (OFRP), which is designed to ensure sufficient time is dedicated for regular training and maintenance prior to deployment in order to generate long-term sustainable operational availability. On average, at any point in time, about one-third of our ships are deployed around the globe or in post-deployment sustainment; about one-third are completing training and certifications to be the next-to-deploy forces; and about one-third are undergoing critical maintenance and modernization necessary to be ready to deploy again in the future. Typically, the sustainment phase, which includes deployment and post-deployment, is the longest period of time in the OFRP cycle. Ships in post-deployment sustainment maintain readiness levels to surge for a fight, if called upon, for most of the sustainment phase. Likewise, the next-to-deploy forces finishing their final training and certification phases can also be surged for a fight to respond to crisis.

The current readiness ratings, including current category (C)-ratings, are classified data that is regularly reported to Congress in the "Department of Defense Semi-annual Readiness Report to the Congress (SRRC)." The Navy is currently meeting operational requirements and is seeing improvements in readiness levels, but acknowledges key challenges to readiness, particularly with recruiting/personnel and delays with ship maintenance. The Fiscal Year 2025 President's Budget specifically prioritizes taking care of our people and improving ship maintenance to focus on these challenges. More details can be provided at a classified level if desired.

13. Senator KING. Secretary Guertin and Vice Admiral Pitts, what is this average across the previous 5 fiscal years?

Secretary GUERTIN and Vice Admiral PITTS. Specific readiness ratings, including category (C)-ratings, are classified data that is regularly reported to Congress in the "Department of Defense Semi-annual Readiness Report to the Congress (SRRC)." The Navy has sustained an average of 110 deployed ships for the last 10 years, along with additional forces that can be surged for a fight to respond to crisis. More details can be provided at a classified level if desired.

14. Senator KING. Secretary Guertin and Vice Admiral Pitts, what is this projected to be at for fiscal year 2025?

Secretary GUERTIN and Vice Admiral PITTS. Specific readiness ratings, including category (C)-ratings, are classified data that is regularly reported to Congress in the

“Department of Defense Semi-annual Readiness Report to the Congress (SRRC).” The Navy’s Fiscal Year 2025 President’s Budget request prioritizes readiness investments, particularly in ship maintenance and taking care of our people. However, readiness levels could be negatively impacted in fiscal year 2025 if there is an extended continuing resolution, as lost time in readiness cannot be “bought back.” More details can be provided at a classified level if desired.

15. Senator KING. Secretary Guertin and Vice Admiral Pitts, what is the average number of ships on any given day in an overhaul or maintenance period of more than 4 months? What is this average across fiscal years 2018, 2019, 2020, 2021, 2022, 2023, and for the current 2024 fiscal year? What is the projection for fiscal year 2025? Please break this down by ship class.

Secretary GUERTIN and Vice Admiral PITTS. From fiscal year 2018 through fiscal year 2025, at any point in time, there is an average of 38 surface ships, 17 submarines, and 4 carriers in a CNO availability greater than 120 days in duration. The largest number of surface ships simultaneously in availabilities was in fiscal year 2018 with 47 ships undergoing maintenance simultaneously. In fiscal year 2019, the highest number of submarines in maintenance simultaneously was 24. Fiscal year 2025 is projected to have the fewest number of ships in availabilities concurrently.

The following table details the average number of ships simultaneously in CNO availabilities greater than or equal to 120 days from fiscal year 2018 through fiscal year 2025, separated by class:

Table 1. The Current and Future Triad Composition

Class	Fiscal Year							
	2018	2019	2020	2021	2022	2023	2024	2025
CG	10	10	7	9	8	5	2	0
DDG	16	16	18	18	17	20	15	17
LCC	1	0	0	0	1	0	0	0
LCS	1	1	1	2	3	2	2	3
LHA	1	1	0	0	0	1	1	0
LHD	2	4	3	3	3	3	4	3
LPD	3	4	2	4	4	6	2	
LSD	5	5	4	4	3	2	1	1
MCM	3	2	2	1	2	1	1	1
PC	3	5	3	1	0	0	0	0
CVN	3	5	4	5	5	4	3	4
SSGN	2	2	1	1	1	0	0	0
SSBN	4	5	3	4	2	3	2	4
SSN	12	17	11	16	18	15	18	17
Fleet Total	67	76	61	66	67	60	55	52

Note: The number of CNO Availabilities listed is rounded to the nearest whole number.

16. Senator KING. Secretary Guertin and Vice Admiral Pitts, what are the primary drivers for determining ships ready for the fight tonight?

Secretary GUERTIN and Vice Admiral PITTS. The Department of Defense measures readiness with category (C)-ratings, which are based upon readiness levels across personnel, equipment, supply, training, and ordnance (PESTO). The Navy’s Optimized Fleet Response Plan (OFRP) generates and sustains C-1/C-2 readiness levels during the cycle by balancing resources across the PESTO pillars as the primary

drivers for readiness. As units go through the training phase (basic and integrated, or advanced) of the Navy's OFRP cycle, they are certified for each of their respective warfare areas which generates a (C)-rating. C-1 and C-2 are the highest readiness levels and are defined as units which possess the required resources and are trained to undertake the full (C-1) or most of (C-2) the wartime mission(s) for which they are organized or designed.

17. Senator KING. Secretary Guertin and Vice Admiral Pitts, what are ways the Navy is working to put "more on the playing field" as described by the CNO? What are the limiting factors (i.e. personnel, training resource, and maintenance shortfalls in terms of funding, workforce, and shipyard capacity)?

Secretary GUERTIN and Vice Admiral PITTS. The Navy is concentrated on getting more operationally ready, capable players on the field—people and platforms while balancing Strategic Readiness to meet the National Defense Strategy priorities. To this end, we are coordinating efforts to receive our investments on time and on cost; getting our platforms in and out of maintenance on time; and advancing stewardship by taking care of what we have so that we can keep our players on the field. We are also getting the right people, right munitions, and the right parts in the right place at the right time. To strengthen our Navy team, we must recruit and retain talented people from across the Nation. Our recruiting and manning crises are themselves existential threats. The Navy's Fiscal Year 2025 President's Budget prioritizes and allocates resources to recruiting, quality of life, operations, training, maintenance, and other readiness accounts to position forward naval forces in defense of global U.S. interests.

For shipyard capacity, dry docks generally represent the most constrained aspect of the repair industrial base. Availability of dry docks can limit the scope and volume of maintenance able to be performed, thereby constraining the workforce. Navy has significant dry dock efforts ongoing on both United States coasts and Hawaii, as detailed in our Fiscal Year 2025 Long-Range Plan for Maintenance and Modernization of Naval Vessels Report to Congress.

PERSONNEL AND UNDERWAY OPERATIONS

18. Senator KING. Secretary Guertin and Vice Admiral Pitts, we discussed civilian shipyard readiness rates, such as Carnival cruise line having a 90 percent availability rate. I am not advocating our sailors spend 90 percent of their days at sea. Help me understand the current impact of underway operations on the force and Navy personnel. What are the number of days that servicemembers are away from their home station to perform their duties broken down from E1 to O6 since fiscal year 2018? What is it projected for fiscal year 2024 and fiscal year 2025?

Secretary GUERTIN and Vice Admiral PITTS. The below charts provide the number of days that Service Members were away from home station for fiscal year 2018-fiscal year 2023 and for fiscal year 2024 year to date. Of note, the information in this table corresponds to the data in the PERSTEMPO application. The accuracy of PERSTEMPO data primarily depends on whether commands correctly record the time that members spend away from their homeport or permanent duty station by capturing these events in the PERSTEMPO application. We regularly stress the importance to commands about capturing this data and we continue to look for ways to improve data quality.

19. Senator KING. Secretary Guertin and Vice Admiral Pitts, what is it projected for fiscal year 2024 and fiscal year 2025?

Secretary GUERTIN and Vice Admiral PITTS. The below charts provide data for the number of days that Service Members were away from home in fiscal year 2024 to date. The data provided cannot be accurately projected for fiscal year 2025 as it involves individual personnel, paygrades and commands.

SHIPYARD CAPACITY

20. Senator KING. Secretary Guertin, you testified that there is a need for more shipyard capacity. Does the Navy assess the country has the workforce available over the next 10 years to provide for the current shipyard base and add an additional shipyard, and what is the basis for your assessment?

Secretary GUERTIN. The current limiting factor in the shipbuilding industrial base and associated supply chain is the lack of a skilled labor pool to adequately staff shipyards, original equipment manufacturers, suppliers, ship designers, and associated supply chains.

The foundation of a healthy shipbuilding industrial base is to have stable, executable acquisition profiles that promote private sector development and retention of highly skilled workforces and investments in world-class manufacturing and shipbuilding facilities, while allowing the shipbuilders to maintain a reasonable return on investment. The Navy is focused on growing and modernizing the shipbuilding and repair base as a national security imperative through thoughtful acquisition strategies, targeted industrial base investments, increased collaboration with both Government and industry, and working with our allies and partners to identify and leverage opportunities to share best practices and promote foreign investment into our Nation's existing shipbuilding industry.

The Navy is working with industry and community colleges to improve the availability of the shipbuilding workforce. Congress has been providing the Navy with resources to improve the training availability and the demand signal for shipyard workers.

REQUIREMENTS CREEP

21. Senator KING. Secretary Guertin and Vice Admiral Pitts, I have served on this Committee for a long time, and a constant lesson is to minimize requirements creep starting with the uniformed military all the way to detailed design. What is the current status for DDG(X) requirements in terms of warfighting and design?

Secretary GUERTIN and Vice Admiral PITTS. DDG(X) Top Level Requirements (TLR) were approved by the CNO in December 2020. However, during the Concept Design phase, the Navy identified several TLRs that needed refinement and revalidation to ensure alignment with the warfighting requirements necessary to support the next enduring Large Surface Combatant while maintaining a focus on: flexibility, mobility, capability, and affordability. Refined TLRs have been approved by the CNO and shared with industry to support informed decisions regarding propulsion plant technology and configurations.

22. Senator KING. Secretary Guertin and Vice Admiral Pitts, in reference to the previous question, are there any current, ongoing, or assessed needs for changes, and when will you lock down these requirements?

Secretary GUERTIN and Vice Admiral PITTS. As of August 2024, the CNO has concurred with the DDG(X) Top Level Requirement (TLR).

DIRECTED ENERGY

23. Senator KING. Secretary Guertin and Vice Admiral Pitts, the Navy has previously testified to this Committee that the future is directed energy weapons, including fielding such weapon systems on DDG(X), however the Navy has significantly cut directed energy funding and future plans pertaining to its implementation on DDG(X) are unclear. What is the Navy's plan for directed energy and implementation on DDG(X), and what is the path to getting directed energy weapons fielded for operational use within the next 5 years?

Secretary GUERTIN and Vice Admiral PITTS. DDG(X) top level requirements include space, weight, and power for future incorporation of mature, high power directed energy (DE) systems that work against threat weapons. The Navy intends to take advantage of lessons learned from previous and current shipboard systems as well as the upcoming High Energy Laser Scaling Initiative to effectively incorporate the weapons onto the platform as they become mature and proven.

In support of fielding DE systems, the Navy awarded a contract to Leonardo DRS for the development of an Energy Magazine System capable of providing power to DE weapons on a DDG(X) platform with delivery in late fiscal year 2027. The system includes a modular design with separate cabinets for power conversion and control, and energy storage. This will reduce risk by increasing vendor flexibility and shipboard arrangement requirements.

Across the next 5 years, the Navy will continue to collaborate with OUSD, Army, and other partners on the Joint Beam Control System. This program brings together multiple services and stakeholders to design a common architecture in order to standardize components and stimulate industry by reducing variations in designs. The collaboration helps promote predictability for core requirements as it pertains to future acquisitions while allowing flexibility to address service specific needs. These efforts, in conjunction with the High Energy Laser Scaling Initiative, will feed directly into the next generation high-energy laser system.

24. Senator KING. Lieutenant General Heckl, what is the Marine Corps learning from Army efforts at utilizing directed energy weapons, and how is the Marine Corps applying those to your organic systems?

General HECKL. The Marine Corps leverages investments made on behalf of the naval services by the Office of Naval Research (ONR) and the Joint Counter-small Unmanned Aircraft Systems Office (JCO) toward developing capabilities that will address identified Marine Corps gaps and draft requirements for expeditionary directed energy weapon systems. High powered microwave (HPM) research to defeat UAS includes short, intense pulses of electromagnetic energy at high peak power or high repetitive rates to damage/disrupt critical electronics with persistent effects. This also offers potential for deep magazines to counter electronics for UAS, vessels, vehicles, or critical infrastructure. Engagement times are shorter than a laser, have broader effected areas, but also are closer-in systems. Solid State HPM systems in use by ONR reduce the size, weight, and power requirements for expeditionary systems for short-range protection. The current system can fire for 10–30 seconds in burst mode before recharging is required, which takes 2 minutes. The Marine Corps Warfighting Laboratory (MCWL) is planning to receive a JLTV trailer sized HPM intended to be towed behind a Marine Air Defense Integrated System (MADIS) from ONR in late fiscal year 2025 for follow on experimentation. ONR, partnered with MCWL, is also leading Marine Corps directed energy research, including high energy lasers and high-powered microwaves to counter-UAS, suitable for integration in tactical vehicles or trailers, and scalable to larger platforms. ONR has accumulated a large volume of lethality testing, along with Joint partners, to inform tactical use cases and design reference missions. Current capabilities include a 10-kW fiber laser integrated into a HMMWV platform. This includes the tracking system and laser beam director, power, thermal management, and joint laser deconfliction safety system. ONR recently accomplished the first airspace deconfliction on a Marine Corps live weapons firing range with a High Energy Laser (HEL) Weapon and achieved multiple successful laser hard kill defeats of group 1 and 2 unmanned air vehicles/drones by including in-flight US manned military aircraft. There is funding to increase HEL components to 20-kW to enhance range capabilities and decrease laser dwell times. ONR is coordinating with the Marine Air Defense Integrated System (MADIS) program of record since this HEL potentially meets objective requirements for future desired improvements. Those future upgrades are currently unfunded. HELs may offer deep magazines and low cost per kill with considerable standoff but also have system cons like high overall system cost and the need to dwell on a target several seconds for 10-kW to achieve effects.

Systems in development with USMC interest:

- High Energy Laser Expeditionary (HELEX)
- Expeditionary Directed Energy CUAS System (ExDECS)
- Joint Evaluation of Solid-State Technology for Electromagnetic Radiators (JESTER)

UKRAINE

25. Senator KING. Vice Admiral Pitts and Lieutenant General Heckl, what lessons are you learning from Ukraine and how are those reflected in this year's budget?

Vice Admiral PITTS. While primarily a land conflict, Ukraine's conduct of the conflict in the Black Sea highlights the timeless impact of operations at sea on the conduct of operations ashore. In this case, Ukraine's effective denial of the Black Sea to Russian naval forces constrained to land strategy and sustainment of their forces in southeastern Ukraine via a vulnerable line of communication thru Crimea. In this regard, the Navy has observed combat operations in Ukraine, with particular focus on UxV employment to effect Sea Denial, counter-UAS, and the critical importance of munitions depth—of all types, in a protracted conflict. The Navy is experimenting with advanced capabilities based on these lessons, including innovative operations conducted by Navy's Combined Task Force (CTF) 59/Hybrid 4th Fleet, thru ongoing experimentation in Navy's Integrated Battle Problems, and Large-Scale Exercises (LSE). These efforts are aligned with equally innovative OSD efforts including Rapid Defense Experimentation Reserve (RDER), Replicator, and Defense Innovation Unit (DIU).

General HECKL. The war in Ukraine is teaching us how drones can have an asymmetric impact on the battlefield as cheap platforms can inflict damage on multi-million dollar platforms. Unmanned Aircraft Systems (UAS) are changing the character of war in ways like the IED did 20 years ago. To combat the UAS threat, the Marine Corps is investing in five key programs: Marine Air Defense Integrated System (MADIS), Light-MADIS (L-MADIS), Medium Range Intercept Capability (MRIC), Installation C-UAS (I-CUAS), and Marine Electromagnetic Warfare Ground

Family of Systems (MEGFoS) as a key component of the broader dismounted CUAS systems. MADIS, L-MADIS, and MRIC were specifically designed for Low Altitude Air Defense Battalions (LAAD Bn) conducting air defense in support of critical assets and maneuver forces. MEGFoS is a counter remote controlled IED / counter small UAS family of systems, both mounted and dismounted, that will proliferate defensive EA and electromagnetic sensing and direction-finding capabilities across the entire Fleet Marine Force. The dismounted CUAS system is intended to provide every element of the Marine Corps a means of self-defense against Group 1 and 2 small UAS via electromagnetic attack and passive detection paired with smart optics on standard service weapons for lethal defeat. Each program organically, or through command-and-control networking, will complete the entire CUAS kill chain (detect, track, identify, and defeat). Two prevailing challenges will be the balance between the size, weight, and power (SWaP) versus system capability and lethality; and the ability to provide at every echelon the notification of adversary UASs for force protection and cueing, as well as notification of the employment of friendly UASs to mitigate mis-identification.

Additional Information:

- **MADIS**
 - o \$132.2 million request to support the procurement of (13) systems in President's Budget 2025.
 - o Employed on a pair of Joint Light Tactical Vehicles.
 - o Can lethally defeat manned aircraft and group 3–5 UAS with Stinger missiles, and lethally and non-lethally defeat group 1–3 UAS.
 - o AAO is (190) MADIS systems comprised of (380) total vehicles.
 - o IOC scheduled for 1QFY25 with the delivery of (13) systems to III MEF.
- **L-MADIS**
 - o \$33.2 million request to support procurement of (5) systems in President's Budget 2025.
 - o Employed on a pair of Ultra-Light Tactical Vehicles (ULTV).
 - o Can lethally defeat manned aircraft and group 3–5 UAS with Stinger missiles, and non-lethally defeat group 1–3 UAS.
 - o AAO is (21) systems consisting of (42) ULTVs.
 - o IOC scheduled for 2QFY25 with the delivery of (3) systems to III MEF.
- **MRIC**
 - o \$111.4 million request to support the procurement of (12) launchers and (242) missiles in President's Budget 2025.
 - o Designed to lethally defeat sub-sonic and super-sonic cruise missiles, and capable of lethally defeating manned aircraft and group 3–5 UAS.
 - o The first complete battery will be fielded in fiscal year 2026, followed by an additional battery in fiscal year 2027 and fiscal year 2028.
 - o In February 2024, industry partners broke ground establishing a U.S.-based production facility in Camden, AR which will ensure continued access to a supply of domestically produced interceptors.
- **I-CUAS**
 - o Currently (6) UUNS systems fielded across the FMF
 - o Transitioning to PoR 3QFY25 to field across a total of 34 sites and installations.
 - o Request \$64.5 million in President's Budget 2025 to support initial PoR fielding and transition of capital lease UUNS systems.
 - o Provides C-UAS capabilities for CONUS and OCONUS Marine Corps installations including the full detect, track, identify, and defeat kill chain.
- **MEGFOS**
 - o \$413.2 million request to support the procurement of (1050) signature management systems, (618) dismounted systems and (841) mounted systems in President's Budget 2025.
 - o Four variants programmed (fixed site, mounted, dismounted and signature management).
 - o The first variant fielded will be the signature management variant in fiscal year 2026, Dismounted system fielding will begin in fiscal year 2027 followed by mounted fielding beginning in fiscal year 2028.
 - o Fixed site and body worn systems are planned for development and fielding beyond fiscal year 2030.

- Dismounted CUAS
 - o Low SWaP body-worn or man-portable system that provides marines at the small unit level an ability to detect and engage Group 1 and 2 sUAS with organic weapon systems.
 - o Detect, track, and identification phase of the kill chain completed through a handheld graphic user interface to receive sensor data from external entities with an additional RF detection system.
 - o Combination of directional/omni-directional jammers and/or enhanced rifle optics to defeat sUAS.
 - o Urgent Needs and Program of Record Requirement Documents are currently in draft.

QUESTIONS SUBMITTED BY SENATOR DAN SULLIVAN

SHIPBUILDING DELAYS

26. Senator SULLIVAN. Secretary Guertin and Vice Admiral Pitts, imagine you weren't in a resource-constrained environment or operating under FRA caps, what are the top 5 changes that the Navy needs to build the fleet needed to effectively meet our worldwide commitments?

Secretary GUERTIN. and Vice Admiral PITTS. The Navy's budget priorities of Sea Based Strategic Deterrence (*Columbia*, Trident II D5LE2/W93, etc.), Readiness, Capability, and Capacity directly support the overall Navy priorities of Warfighting, Warfighters, and the Foundation that supports them. To simultaneously sustain and modernize the current fleet and sustainably accelerate capacity growth of our fleet, the Navy will require sustained budget growth above actual inflation as described in the 30-year Shipbuilding Plan. The Navy will also need better performance from the shipyards and other contractors to deliver capabilities and capacity on time and on budget. Further, the Navy needs on time appropriations to avoid disruption to programs due to continuing resolutions.

27. Senator SULLIVAN. Secretary Guertin, if you had a magic wand, how would you increase U.S. shipbuilding capacity?

Secretary GUERTIN. Health and competition in the shipbuilding industrial base and supply chain is vital to meeting our National Defense Strategy. Strengthening the shipbuilding and repair industrial base requires a whole of government approach to rebuild the comprehensive maritime power of the Nation, both commercial and naval.

With the help of Congress especially with investments in the Submarine and Surface Ship Industrial Base, and in coordination with local and State governments as well as national organizations, the Navy and its shipbuilders would continue identifying opportunities to generate resiliency and productivity in the shipbuilding industrial base, workforce and associated supply chain.

28. Senator SULLIVAN. Secretary Guertin, are there any feasibility studies on having U.S. Navy ships built in a foreign build yard?

Secretary GUERTIN. While the Navy is continually working with our allies and partners to identify best practices and lessons learned that could be shared and leveraged for our shipbuilding acquisition programs and shipyards, the Navy is not working on any feasibility studies for building U.S. Navy ships in a foreign shipyard. Additionally, given current statutory prohibitions on construction of naval vessels in foreign shipyards, without legislative relief, foreign construction is not a viable consideration for construction of U.S. Navy ships.

29. Senator SULLIVAN. Secretary Guertin, the compensation differential between good paying jobs near shipyards and the hourly rate that shipyards are able to pay is very close and cited as a reason why shipyards are having trouble recruiting and retaining workers. What restrictions are there on SCN or other funds being used for pay incentives for the shipbuilding industrial base?

Secretary GUERTIN. 10 U.S.C. § 8696 requires the Navy to include a shipbuilding workforce development incentive in solicitations for covered contracts beginning June 1, 2023. Attraction and retention bonus programs are one of the permissible forms of these required shipbuilding workforce development incentives. Use of 10 U.S.C. § 8696 requires (a) that any incentive be equal to at least one quarter of one per cent and not more than 1 percent of the estimated cost of the covered contract and (b) matching funds from the prime contractor, subcontractor, state/

county/local government, or industry association equal to the government contribution. The Navy is not aware of any current, additional restrictions on the use of SCN funds to support incentives under 10 U.S.C. § 8696 beyond the conditions set forth in that provision.

30. Senator SULLIVAN. Vice Admiral Pitts, does the United States have enough build yards for conventional Navy ships?

Vice Admiral PITTS. The foundation of a healthy shipbuilding industrial base remains stable, executable acquisition profiles that promote private sector development and retention of highly skilled workforces and investments in world-class manufacturing and shipbuilding facilities, while allowing the shipbuilders to maintain a reasonable return on investment. The current limiting factor in the shipbuilding industrial base and associated supply chain is the lack of a skilled labor pool to adequately staff shipyards, original equipment manufacturers, suppliers, ship designers, and associated supply chains. The Navy is focused on growing and modernizing the shipbuilding and repair base as a national security imperative through thoughtful acquisition strategies, targeted industrial base investments, increased collaboration with both Government and industry, and working with our allies and partners to identify and leverage opportunities to share best practices and promote foreign investment into our Nation's existing shipbuilding industry.

31. Senator SULLIVAN. Vice Admiral Pitts, does the Navy maintain a list of recommended locations to add another build yard?

Vice Admiral PITTS. The Navy has neither assessed nor developed recommendations for the creation of additional ship construction yards.

32. Senator SULLIVAN. Secretary Guertin and Vice Admiral Pitts, where would you recommend putting 1 to 2 more build yards?

Secretary GUERTIN and Vice Admiral PITTS. The Navy has neither assessed nor developed recommendations for the creation of additional ship construction yards.

33. Senator SULLIVAN. Secretary Guertin, please explain what effect increasing commercial shipbuilding capacity in the United States might have on the ability to produce Navy ships?

Secretary GUERTIN. The domestic shipbuilding industrial base includes shipyards, original equipment manufacturers, suppliers, ship designers, and associated supply chains that support both commercial and government shipbuilding efforts. Whole of government awareness, advocacy, and action to rebuild the comprehensive maritime power of the Nation, centered under the Maritime Statecraft effort, will contribute to a national effort to build comprehensive U.S. and allied maritime power, both commercial and naval. The goal of these efforts would be to increase overall shipping and shipbuilding capacity, incentivize private investment, grow the skilled labor pool, bolster resilience against hostile coercion, and ultimately result in a larger, more robust national shipbuilding base to deliver more ships, on time, and at lower cost than the current, naval-only industrial base.

34. Senator SULLIVAN. Secretary Guertin, what is being done to address the historically low numbers of Naval Architects at Naval Sea Systems Command?

Secretary GUERTIN. The Navy's ship engineering and design workforce is paramount to our ability to construct and sustain Naval ships. The Navy has several efforts in progress to increase the number of naval architects and ship design engineers in the Naval Sea Systems Command (NAVSEA) Enterprise. These efforts include: re-establishing World Class Ship Design abilities, assessing and monitoring the health of the ship design and engineering workforce, producing enterprise Capabilities Health Assessments, and conducting additional engagements with academia to ensure new, young engineers are exposed to NAVSEA job opportunities. Additionally, NAVSEA's Collaborative and Enduring Concepts and Tools (COLLECT) effort is targeting increasing the number of capable designers and their output through a structured development pipeline, NAVSEA Warfare Centers' (NSWC) Naval Innovative Science and Engineering (NISE) program is implementing a variety of workforce development activities to recruit, retain, and develop the workforce, and NSWC Carderock's Center for Innovation in Ship Design is working to rapidly develop new-hire engineers into innovative and capable naval ship designers through realistic, concept-level, and team learning activities. These efforts collectively are helping the Navy define current NAVSEA naval architect workforce health, identify gaps and risks, adequately predict and plan for future workload, predict the required workforce, and attract, retain, and develop critical naval architects and the engineering workforce.

35. Senator SULLIVAN. Secretary Guertin, what are the impacts of fewer naval architects at NAVSEA to shipbuilding design and contracting?

Secretary GUERTIN. Recognizing the critical role that our ship engineering and design workforce play, fewer naval architects and engineers involved with ship design in general reduces the government's ability to lead, execute and oversee government and industry ship design efforts. These efforts span from concept through preliminary and detail design. Shortages in NAVSEA naval architect capacity can consequently have negative impacts on ship construction as well as maintenance, modernization and repair after a ship has been delivered. Fewer government engineers also impacts the government's timely, quality support of contractual tasks such as reviewing specifications, requests for proposals, proposals, contractual design reviews and detail design and construction contract deliverables. Overall, this shortage can impose increased risk to ship program cost, schedule, performance and sustainment. For all of the reasons above, the Navy has multiple efforts underway to attract and retain naval architects at NAVSEA and monitor the continued health of the workforce.

36. Senator SULLIVAN. Secretary Guertin, Congressional Budget Office and Navy estimates for building ships are often wildly off. The Navy underestimates the cost to build ships by 25 to 40 percent, which leads to many issues, including delays as you reprogram or seek additional funds from Congress. Would more accurate cost estimates lead to more timely deliveries?

Secretary GUERTIN. Ship delivery timing is most impacted by resource availability (people and materials) as well as program planning and execution, and not typically impacted by the initial cost estimate of the ship. The Navy agrees that better cost estimates improve program execution as well as budget planning and execution.

FFG-62 CONSTELLATION-CLASS FRIGATE

37. Senator SULLIVAN. Secretary Guertin, did the Continuing Resolution (CR) prevent the *Constellation*-class Frigate from starting earlier this year?

Secretary GUERTIN. No, the Continuing Resolution did not prevent the Navy from awarding the fiscal year 2024 FFGs on time nor did it have any other financial impacts on the program. The Navy awarded the two fiscal year 2024 FFG ships, FFG 66 and FFG 67, on May 23, 2024 and executed the Government-furnished equipment contracts upon receipt of the fiscal year 2024 funding.

38. Senator SULLIVAN. Vice Admiral Pitts, what are the key design changes made to the FFG-62 class compared to the parent European Frigate FREMM design?

Vice Admiral PITTS. Fincantieri Marinette Marine's (FMM) bid, and ultimately the awarded design, included changes from the Italian FREMM design to incorporate US Navy Standards and other changes such as lengthening the hull, changing the bow shape to support the Variable Depth Sonar (VDS), and altering the top-side for a Government-furnished combat system. In order to incorporate all of these requirements, the parent ship of the FREMM had to be altered. For example, the space, weight, power, and cooling requirements drove changes to the FREMM piping, electrical and foundation designs of nearly every compartment. The structural hull and general compartment arrangements are similar to FREMM i.e., propulsion plant arrangement is similar, but the FFG 62 design has different equipment.

In the Fiscal Year 2023 National Defense Authorization Act, Congress mandated that the Tomahawk and Standard Missile-6 capability be added to the FFG 62 Class of ships starting on FFG 63, the second Frigate of the Class, prior to the first deployment. Since awarding the contract, the US Navy has taken tremendous care not to add or change the established requirements in order to avoid impacts to cost or schedule.

39. Senator SULLIVAN. Vice Admiral Pitts, by rough-percent, how similar is the FFG-62 to the European FREMM?

Vice Admiral PITTS. The FREMM parent design (versus clean sheet) provided an incremental step to use an existing hull integrated with US Navy systems. Key design changes between FREMM and FFG 62 were an outcome of FMM modifying their indicative parent design to comply with the requirements of the ship specification. There have been limited changes to the contract since award that were negotiated and agreed to with the shipbuilder.

40. Senator SULLIVAN. Vice Admiral Pitts, who directed the key design changes between the FREMM and the FFG-62 class ship?

Vice Admiral PITTS. Fincantieri Marinette Marine (FMM), along with 4 other shipbuilders, were provided system specifications during an 18-month concept design phase, which informed the FFG 62 Request for Proposal (RFP). FMM's bid, and ultimately the awarded FFG 62 Detailed Design and Construction (DD&C) contract, reflected their understanding of the system specifications and informed their developed build specifications. Key design changes between FREMM and FFG 62 were an outcome of FMM modifying their parent design to comply with the requirements of the ship specification and the incorporation of USN GFE.

Since awarding the contract, the US Navy has taken tremendous care not to add or change the established requirements in order avoid impacts to cost or schedule. Ongoing functional and detailed design efforts are driven in large part by challenges in both the engineering workforce and industry-wide blue collar hiring and retention, combined with issues the shipbuilder has encountered in adapting the parent design to meet the specifications/standards that were reflected in the system specification used in the competition. There have been limited changes to the contract after award that were negotiated and agreed to with the shipbuilder. However, the Navy does not consider the negotiated changes to be a primary driver of functional or detailed design schedule delays. To mitigate ongoing delays in the schedule, the Navy and FMM are jointly pursuing program-wide process improvements and mitigations across multiple program risk areas.

In addition, the Navy is providing much greater onsite support and engineering to drive design maturity, arrest schedule slide and reduce impacts to production.

41. Senator SULLIVAN. Secretary Guertin and Vice Admiral Pitts, what benefit is added by having NAVSEA naval architects co-located in Marinette, WI at the Fincantieri build yard?

Secretary GUERTIN and Vice Admiral PITTS. In order to accelerate the completion of design stability and support production of the lead ship, the Navy has established a collaborative design site in Marinette, WI and surged both Navy and contracted design engineering personnel to work alongside the Shipbuilder's design engineering workforce. This collaborative environment enables acceleration of the Navy's technical review and adjudication process of FMM's design deliverables, as well as workforce augmentation and side-by-side development efforts. Further, FMM and the Navy have instituted proactive 'swarm' events to further drive acceleration into the design approval process. In addition to the working-level collaboration, Navy Programmatic and Technical leadership has also established a persistent presence at the shipyard to coordinate efforts and proactively eliminate any roadblocks. This on-site presence significantly reduces administrative cycle time and is a key enabler for acceleration of design stability.

42. Senator SULLIVAN. Secretary Guertin, CBO estimated in 2020 that ten FFG-62s would cost \$12.3 billion, which is 40 percent more than the Navy's estimate of \$8.7 billion. CBO is historically far more accurate than the Navy. What accounts for the significant differences in the Navy's and CBO's estimates, particularly for first-in-class ships?

Secretary GUERTIN. Prior to Milestone B, the Naval Sea Systems Command Cost Engineering and Industrial Analysis (SEA 05C) completed an Informed Component Cost Position (CCP). This CCP reflects a buildup of discrete cost estimates across all appropriations and represents the programmatic and technical baseline per the November 2018 R3B, the September 2019 Final FFG(X) Cost Analysis Requirements Document (CARD) and March 2020 CARD Change Addendum, and the President's Budget 2021 FFG(X) quantity profile, among other sources. The cost estimating methodology for Ship End Cost aligns with each of the budget exhibit P-5 categories: Plans, Basic Construction Cost (BCC), Change Orders (CO), GFE, and Other/Programmatic. Within each cost category, a combination of contract actuals and return data, estimating factors for manufacturing hours derived from other lead ships and major upgrades, Navy Ship Work Breakdown Structure (SWBS) weight-based cost estimating relationships derived from shipyard return data, proposal data material costs, GFE system cost estimates, and parametric estimates from similar shipbuilding programs are all collectively used to develop the cost estimate.

While the Navy cannot speak to the CBO cost estimating process, based upon an April 2018 CBO report titled 'How CBO Estimates the Cost of New Ships' there are fundamental differences in the way that CBO and the Navy conduct cost estimation. CBO develops their cost estimates for future ships based on historical, per thousand-ton cost data from an analogous ship class. They then apply various cost adjustments based on rate of production, learning efficiencies, and overall acquisition strategy. Inflation is applied using a derived calculation from historical data of GDP price inflation and shipbuilding industry inflation.

The Navy acknowledges cost uncertainty parameters in the FFG 62 CCP, including assumptions such as Economic Order Quantity (EOQ), competition savings, factor-based estimating methodologies, historically based GFE cost estimates, and learning curve assumptions. It is not possible to directly correlate these uncertainty parameters (realized or unrealized) to a 40 percent difference between the Navy and CBO cost estimates; however given the difference in overall approach there is some difference in cost estimates that should be expected.

43. Senator SULLIVAN. Secretary Guertin, several LCS built in Marinette, WI were delayed in delivery because of winter and ice conditions in the Saint Lawrence Seaway. What will be done to mitigate FFG-62 delivery delays based on icing over of the Saint Lawrence Seaway?

Secretary GUERTIN. The Navy will monitor the FFG production and testing schedule to deliberately account for the Saint Lawrence Seaway icing over in order to ensure all vessels are provided sufficient time to transit through the Saint Lawrence Seaway and clear all locks and canals in a single transit. Additionally, the Navy will also incorporate lessons learned from the LCS Program so that no future ships are stuck in a foreign port for an extended period of time due to ice and harsh weather.

NAVY FORCE STRUCTURE

44. Senator SULLIVAN. Vice Admiral Pitts, the Navy is required by law to produce have a plan to get a fleet of 355 ships. Is this still the desired size of the U.S. Navy's fleet?

Vice Admiral PITTS. The June 2023 Battle Force Ship Assessment and Requirement (BFSAR) Report as well as the analytic work supporting it reflects the tenets of the 2022 National Defense Strategy (NDS) and the aligned Defense Planning Scenarios. This report identifies a future battle force objective of 381 ships in 2040 to meet future campaigning and warfighting demands.

45. Senator SULLIVAN. Vice Admiral Pitts, how will unmanned surface vessels count toward the Navy's fleet size?

Vice Admiral PITTS. While unmanned platforms are not counted in the battle force, they are additive to Battle Force ships and will continue to be an important part of the Navy's Hybrid Fleet. The Navy continues to focus on unmanned capabilities on, above, and below the sea with key investments to field unmanned technologies to increase the fleet's capability, capacity, and lethality. As testing of these platforms and their concepts of employment continue to evolve, and deemed capable of contributing to combat operations, the CNO will recommend their reclassification and inclusion in the battle force count for SECNAV approval.

46. Senator SULLIVAN. Vice Admiral Pitts, other than total fleet size, what are other useful ways to think about the comparable strength of the U.S. Navy compared to our adversaries?

Vice Admiral PITTS. An important way to compare the strength of world navies is to assess the overall naval power of each navy, which holistically includes elements of warfighting, warfighters, and foundation. For warfighting, the total fleet size is one factor, but the capability and technological advancement of each ship and weapon system are equally, if not more, important. For example, no other country has an aircraft carrier with the size or striking power of a Gerald R. Ford-class aircraft carrier. For warfighters, people remain our greatest strength and advantage. U.S. sailors receive world-class training and education to be highly skilled, agile, innovative, and strategic thinkers who voluntarily serve with honor, courage, and commitment. For foundation, the United States has an unmatched network of Allies and partners who collaborate closely to deliver integrated deterrence against adversaries and aggression. The U.S. Navy continues to deliver the greatest overall naval power in the world by balancing investments and efforts across all elements of naval power.

47. Senator SULLIVAN. Secretary Guertin and Vice Admiral Pitts, Navy procurement profiles change annually as shown in both the FYDP and the Thirty-Year Shipbuilding program. These fluctuations create uncertainty and therefore hesitation to invest by shipbuilders. What is being done to have less fluctuation in procurement profiles?

Secretary GUERTIN and Vice Admiral PITTS. The Navy works resolutely to maintain a steady, consistent demand signal to the shipbuilding industrial base. Key drivers of variability include shipbuilder performance and capacity, construction

schedules, inflationary cost increases, appropriated funding, and available resources within Navy topline. The Navy has worked to mitigate the impact on primary and secondary vendors in the industrial base by requesting resources to keep procurement of key components on-track.

48. Senator SULLIVAN. Secretary Guertin and Vice Admiral Pitts, are sustained and predictable procurement profiles more effective at encouraging private sector investment in shipbuilding capacity than a total battle force goal?

Secretary GUERTIN and Vice Admiral PITTS. The Navy remains committed to working with industry to provide clear expectations on upcoming requirements to allow for proper planning for and analysis of associated private sector investment. The Navy's procurement profiles are derived from our overarching battle force requirements; however, the foundation of a healthy shipbuilding industrial base remains stable, executable acquisition profiles that promote private sector development and retention of highly skilled workforces and investments in world-class manufacturing and shipbuilding facilities, while allowing the shipbuilders to maintain a reasonable return on investment. The procurement profiles provide greater specificity when it comes to platforms, timing, annual quantities, etc. to our industry partners that better enable businesses to plan and assess the return on private sector investment.

NAVY-MARINE CORPS FLEET INTERDEPENDENCE

49. Senator SULLIVAN. Vice Admiral Pitts, when will the required report on amphibious fleet readiness per section 352 of the Fiscal Year 2024 NDAA be briefed to us?

Vice Admiral PITTS. The review of amphibious fleet readiness is still in progress and is currently under review at the SecNav level. An interim letter is being staffed to notify Congress of an adjusted completion date.

Navy intends to provide a brief to Congress upon completion of the review and subsequent analysis and review internal to DON.

50. Senator SULLIVAN. Vice Admiral Pitts, what are the readiness rates of the amphibious fleet? In your answer, please define how you describe readiness.

Vice Admiral PITTS. On 12 June 2024, the Chief of Naval Operations and Commandant of the Marine Corps signed a Memorandum of Understanding (MOU) on Amphibious Warfare Ship Terms of Reference, demonstrating Navy and Marine Corps full alignment and commitment to amphibious ship readiness. The new terms of reference serve as supplemental guidance to existing readiness reporting criteria and will ensure consistency and uniformity in Navy and Marine Corps amphibious force planning, assessment, and operational mission execution. The MOU establishes two broad categories for amphibious ship readiness: (1) Available ships are capable of supporting operations and training, and (2) Not-Available ships are sub-categorized as those entering emergent maintenance, planned CNO maintenance availabilities, newly delivered ships that are conducting post-delivery testing and trials, and ships conducting pre-decommissioning activities. The first semi-annual report to Congress on the operational status of the amphibious warfare fleet is currently being finalized and will include detailed data on the operational availability of amphibious ships. I will ensure your office receives a copy of the report when complete.

While we have been able to deploy amphibious ships to meet global requirements, the Navy acknowledges that maintenance delays continue to be a challenge. Warships that are 30-plus years old routinely experience materiel and maintenance challenges, as recently occurred with USS *Boxer*. The Department of the Navy is committed to reducing maintenance delays and is heavily investing in maintenance and readiness in the Fiscal Year 2025 President's Budget, including amphibious ships.

51. Senator SULLIVAN. Vice Admiral Pitts and General Heckl, do the Navy and Marine Corps align on training cycles to ensure marines can train on the ARG ships in a time that is meaningful prior to deployment?

Vice Admiral PITTS. The Navy and Marine Corps are committed to supporting each other for both unit level and integrated training before an ARG/MEU deployment and endeavor to align maintenance completions with Navy and Marine training cycle needs to do so to meet requisite certification requirements. To enhance that commitment, Navy is in coordination and discussion with the Marine Corps on Amphibious Warship (AWS) requirements to include but not limited to: total and

projected operational availability (Ao), time of ships in training and deployment, and challenges the Navy and Marines face in force generation.

General HECKL. Yes, the training cycles are designed to allow for both Services to train their forces independently before the ARG/MEU team begins training together for deployment. As long as the ship's maintenance schedules remain on-track and their day-to-day readiness remains in a Mission Capable status, the schedule supports the teams being prepared to train together during the Integrated Phase.

The ARG and MEU will train together for approximately 126-days during the Integrated Phase, including the Warfare Commanders Conference and underway events PHIBRON / MEU Integration Training (PMINT), ARG / MEU Exercise (AMX), and Composite Training Unit Exercise (COMPTUEX).

Before training with the MEU, the Amphibious Warships (AWS) complete Basic Phase Certification events (~168-days) and the Advanced Phase training (~14-days). These training and certification events ensure the ships can execute necessary operations as independent ships and as an ARG.

52. Senator SULLIVAN. Vice Admiral Pitts, how are you going to raise amphibious warship readiness rates so Marine Expeditionary Units can train on the amphibious ships before they deploy on them?

Vice Admiral PITTS. We are committed to improving maintenance processes and reducing maintenance delays for surface ship operational readiness through a data driven approach. Days of Maintenance Delay (DoMD) in private shipyards peaked in fiscal year 2019 and has trended downward since then. From fiscal year 2022 to fiscal year 2023 the Navy reduced surface ship DoMD by 18 percent—from 3,456 days to 2,839 days—and saw a slight improvement in on-time availability completion (from 36 percent in fiscal year 2022 to 41 percent in fiscal year 2023). President's Budget 2025 will continue to improve shipyard performance and reduce DoMD, particularly for our amphibious fleet.

Additionally, Navy is in coordination and discussion with the Marine Corps on Amphibious Warship requirements to include but not limited to: total and projected operational availability (Ao), time of ships in training and deployment, and challenges the Navy and Marines face in force generation.

53. Senator SULLIVAN. General Heckl, how has amphibious ship readiness impacted the Marine Corps' ability to train as an ARG-MEU team?

General HECKL. During the 2023 Amphibious Readiness Review conducted with the Navy, we discovered 82 occasions in which amphibious warfare ship (AWS) readiness impacted the Navy and Marine Corps' ability to conduct training and operations over a 2-year period. The approximately 126-days of training as a combined ARG/MEU requires that all three ships be certified before the collective work-up period begins and remain ready for all underway training. Recently, combined ARG/MEU training has been impacted by the readiness of the AWS fleet due to planned maintenance and emergent maintenance casualties.

For example, the WASP ARG experienced multiple maintenance issues in preparation for deployment, impacting the 24th MEU landing force. USS *Oak Hill* (LSD-51) was unable to participate in most of the PHIBRON/MEU Integration (PMINT) at sea period due to a significant deficiency (CAT4 CASREP) in the navigation system. Additionally, USS *Wasp* (LHD-1) experienced casualties to the steam plant that required emergent pier side maintenance, prohibiting its participation in PMINT and forcing the ARG/MEU to combine two at sea periods into one.

Low readiness of AWS continues to condense multiple MEU Mission Essential Task events into single underway periods, resulting in reduction of integration and training repetitions; specifically, those tied to well-deck and flight-deck operations. Compounding these impacts, lack and/or loss of available AWS degrades operational readiness (proficiency and safety) and impacts certification and deployment timelines. To confront these readiness challenges, the Marine Corps and Navy established a Joint Integrated Planning Team to address AWS readiness, including the identification of all amphibious training requirements and associated ship requirements. This, when combined with the newly signed terms of reference, will ensure the Navy establishes clearly defined AWS readiness goals that enable our ARG/MEUs to remain the Nation's premier crisis response force.

54. Senator SULLIVAN. Secretary Guertin and General Heckl, the Landing Craft Utility (LCU-1700) contract was signed in 2018 and no vessel has been produced. Why is this shipbuilding program delayed?

Secretary GUERTIN. The Navy awarded the Detail Design and Construction contract to Swiftships, LLC, Morgan City, LA (Small Business Set Aside) in March 2018. Swiftships was under contract for 12 craft, with options for up to 32 craft.

Swiftships faced challenges in completing the design, procuring material, completing test procedures, developing sustainment products, and maintaining the requisite labor resources to complete craft construction by the original contract delivery dates. To simplify the contract and settle claims submitted by Swiftships, a consolidated settlement was reached in September 2022 to descope the contract, increase unit cost, re-baseline delivery dates, and remove all remaining options. Despite a re-baselined contract, Swiftships failed to make meaningful progress post settlement as it continued to struggle with the same issues experienced prior to the settlement. Estimates at completion continued to grow throughout Fiscal Year 2023 in excess of new contract targets and projected delivery dates continued to extend well beyond the contractually required delivery dates. The contractor failed to meet the contractual delivery dates and, in response to a Contracting Officer's Show Cause Notice, did not present any excusable basis for its failure to perform. The Navy ultimately was forced to terminate the contract with Swiftships in February 2024.

To recover this craft acquisition, the Navy awarded a Detail Design and Construction contract to Austal USA, Mobile, AL, for three craft and options for nine additional craft in September 2023. The lead craft is scheduled for delivery in June 2025, the second craft in March 2026, and the third craft in July 2026.

General HECKL. The original shipyard experienced challenges in design, safety, craftsmanship, and material. To simplify the contract and provide relief from inflation and labor challenges, a consolidated settlement was reached in September 2022 to descope the contract from 12 to 7 craft, increase unit cost, re-baseline delivery dates, and remove all remaining options. In January 2024, the Government issued a stop work in support of ongoing discussions between the Navy and Swiftships to reach a mutually agreeable settlement. By issuing a stop work order, Swiftships was protected and prohibited from incurring additional costs under the contract. Navy issued Notification of Termination for Default February 20, 2024.

55. Senator SULLIVAN. General Heckl, when will the LCU-1700's enter the fleet?

General HECKL. In September 2023 the Navy awarded a \$91.5M Detail Design & Construction (DD&C) contract to Austal USA, Mobile, AL for three craft and future option for nine additional craft through fiscal year 2027. Austal completed Production Readiness Review (Feb 2024) and started construction on the lead craft in April 24. The lead craft delivers in June 2025.

56. Senator SULLIVAN. General Heckl, with the delay in the Landing Ship Medium (LSM) program necessitating a bridging solution, how does the LCU-1700 delay impact the Marine Corps mobility bridging solution?

General HECKL. LCU 1700 delays will not impact the LMBS. However, the Navy and Marine Corps team are pursuing resources in the budget to maintain and further extend the service life of the current LCU 1610 fleet. The current LMBS investment strategy includes two LCU 1610 class vessels and other experimental craft to provide littoral maneuver to the Stand-in Force.

57. Senator SULLIVAN. Secretary Guertin and General Heckl, could a Japanese or South Korean yard build the existing LSM design by 2027?

Secretary GUERTIN. The Navy will adopt a best practice approach in support of LSM program execution by ensuring design maturity prior to start of ship construction. The LSM program has issued a Detail Design and Construction Request for Proposals. Industry responses are due Q4FY24 which support the Navy/Marine Corps plan to procure the first LSM in fiscal year 2025. It is highly unlikely that the LSM design will be mature enough for any yard beyond the lead construction yard to build the existing design by 2027.

General HECKL. With LSM proposals recently received from industry and currently under evaluation, we expect to have an award in fiscal year 2025 for construction, which supports our intentions to support the American industrial base. In addition, statutory limitations would preclude construction in those countries. Industry responses are due June 2024, and the Navy/Marine Corps team intends to procure the first LSM in fiscal year 2025. To assist the Department of Defense, the Maritime Administration may utilize existing authorities and programs or support new programs to provide vessels for "defense sealift functions for which other sealift assets are not reasonably available as outlined in 46 U.S.C. § 57100(b)(2)(B).

58. Senator SULLIVAN. Secretary Guertin and General Heckl, could a Japanese or South Korean yard build a scaled-down LSM design by 2027?

Secretary GUERTIN. The Navy will adopt a best practice approach in support of LSM program execution by ensuring design maturity prior to start of ship construction. The LSM program has issued a Detail Design and Construction Request for

Proposals. Industry responses are due Q4FY24 which support the Navy/Marine Corps plan to procure the first LSM in fiscal year 2025. It is unlikely that the LSM design or a scaled down version of the design will be mature enough for any yard to build by 2027.

General HECKL. Similar to the previous question, statutory limitations would preclude construction in those countries. Industry responses were received in June 2024 with the intent to achieve a purpose-built ship to meet the warfighter requirements as assessed by the analysis of alternatives to procure the first LSM in fiscal year 2025. In addition, a “scaled down” version would likely be limited just as each of the planned littoral maneuver bridging solutions (LMBS) are individually. The LMBS provides interim “aggregate” capabilities to the SIF, but cannot meet the effectiveness and efficiency required as an independent deployer.

59. Senator SULLIVAN. General Heckl, what is the impact of low readiness of Expeditionary Fast Transports (EPF) and LCU fleets to the Marine Littoral Regiments?

General HECKL. Surface mobility is a critical gap in strategic power projection, operational-level force closure and, in the case of EPFs and LCUs, the tactical maritime maneuver required to execute nearly all the various capabilities associated with Marine Corps modernization. Several platforms comprise the Littoral Maneuver Bridging Solution (LMBS), which is intended to close this gap for the MLRs until the Landing Ship Medium (LSM) is sufficiently fielded. Outside of our single contracted Stern Landing Vessel (SLV) and several yet-to-be fielded prototype platforms, our MLRs are heavily reliant on existing platforms such as the EPFs and LCU 1610's. Until LSM, the spectrum of platforms that comprise LMBS complement each other to cover various operational requirements. While EPFs can be used for intra-theater mobility, LCUs provide tactical maneuver. Unfortunately, resource and manning decisions require the very limited number of aging LCU-1610's to be prioritized to our deploying Marine Expeditionary Units (MEUs), and challenges with civilian mariners has delayed support from even a single EPF. In short, unless these readiness issues are addressed, there is no clear solution to support MLR surface mobility in any sufficient capacity until the 2030s.

60. Senator SULLIVAN. General Heckl, the Landing Ship Medium (LSM) program will not provide even a single Marine Littoral Regiment with operational sealift within a decade. The original vision for Landing Ship Medium was a risk-worthy ship that could be produced in quantity at no more than \$130 million. Why is the 80 percent solution not good enough?

General HECKL. The analysis of alternatives, which completed in fiscal year 2023, evaluated several existing ships and determined that none were adequate to meet the requirements to sufficiently support the maneuver and mobility of Naval Expeditionary Forces in execution of LOCE, DMO, and EABO. The AoA recommended a purpose-built shore-to-shore intra-theater vessel to support Stand-in Forces aligned with Force Design 2030. In the interim, the Navy and Marine Corps will employ a littoral maneuver bridging solution, comprised of various vessels in existence today, to partially support the LSM capability requirement.

61. Senator SULLIVAN. General Heckl, if the Landing Ship Medium actually costs closer to \$460 million, almost double what the Navy initially estimated, and delivers three or more years late, how would you re-evaluate your requirements for that ship?

General HECKL. Industry responses received in June 2024 are currently being assessed for accuracy and completeness. We will know more once submissions are reviewed. However, the USMC requirements have been developed to accomplish a specific mission. Cost is a consideration, but we must not accept anything less capable than what our warfighters require to set conditions and provide necessary mobility and sustainment to win a high-end fight.

62. Senator SULLIVAN. General Heckl, could you accept an intra-theater lift vessel that was less capable than the LSM in its current form but available sooner?

General HECKL. The LMBS is aimed at doing just that in the near-term, but none of those solutions meet the full requirement, necessitating a mix due to limitations in capacity and capability of each. As the AoA evaluated all of these solutions and more, the recommendation was that the purpose-built LSM is required.

63. General Heckl, if the Landing Ship Medium program was unaffordable, could the marines operate by scaling up mature bridging solutions?

General HECKL. The viable options of LMBS, and others currently being suggested, are stopgap measures with their own limitations that would neither be cost-effective nor viable in the long term due to service life. None have the capacity for expansion that could meet the embarked force berthing, cargo square footage, and fuel capacity requirements, while maintaining viable trim, stress, and stability of the vessels, regardless of cost. Furthermore, many of the vessels included in the LMBS are aging and past their intended service life.

64. Senator SULLIVAN. Vice Admiral Pitts and General Heckl, what options is the Navy-Marine Corps team exploring to scale up bridging solutions for the LSM?

Vice Admiral PITTS. Initial inventory requirement is planned for 18 Medium Landing Ships (LSMs), with the understanding that through experimentation and operational maturation, the objective force is 35 LSMs based on the concept of operations to provide littoral maneuver for three Marine Regiments. The Marine Corps supports President's Budget 2025 that initiates procurement of the first LSM in fiscal year 2025 and eight total over the FYDP, maintaining a procurement schedule of 1/1/2/2/2. Maintaining the current procurement profile is critical for delivering the late to need platform necessary to fill the void in current littoral mobility. The USN and USMC support scaling up production to meet the need if budgets support, providing additional investment in the shipbuilding industrial base.

Due to the urgency of this void, the Navy and Marine Corps have developed a Littoral Maneuver Bridging Solution (LMBS) as a phased approach to add operational mobility and tactical maneuver capacity for elements of the Stand-In Force (SIF) until LSM are available to support one Marine Littoral Regiment in the early 2030s. The purpose of LMBS is to provide forward capacity now in direct support to SIF task organized units of action with limited intra-theater mobility, tactical maneuver, and sustainment. This effort is not to negate the late-to-need of the LSM; this effort is to leverage what exists already, even if limited, and experiment with chartered vessels to develop procedures for SIF formations and future LSM employment as well as inform US Navy on lessons learned from experimentation.

The approved LMBS is four expeditionary fast transports (T-EPF) and two landing craft utility (LCU) and experimentation craft such as the four Marine Corps-funded charters and the two planned Ancillary Surface Craft (ASC).

- T-EPF will be used in support of intra-theater operational mobility, and pier-to-pier support of units conducting Expeditionary Advanced Base Operations (EABO) in an archipelagic environment.
- LCU will be used in exercises for tactical maneuver of smaller units and sustainment.
- Experimental chartered vessels will be used to support 21st century beaching operations in support of exercises and experimentation, adding needed littoral mobility capacity in the Indo-Pacific region. These chartered vessels will also assist in the refinement of tactics, techniques, and procedures (TTPs) in support of EABO. The TTP development with these chartered vessels serving as surrogates for the Medium Landing Ship (LSM) is needed now as the LSM program continues along the procurement path and remains late-to-need.
- ASC will be used for experimentation to provide enhanced maneuver, littoral mobility, and sustainment to/from expeditionary advance bases (EABs) and potentially Advanced Naval Bases (ANBs) within the archipelagos.

The capacity and capability of LMBS does not match or fulfill the requirements and capability of the LSM program once all vessels are delivered.

General HECKL. Initial inventory requirement is planned for 18 Medium Landing Ships (LSMs), with the understanding that through experimentation and operational maturation, the objective force is 35 LSMs based on the concept of operations to provide littoral maneuver for three Marine Regiments. The Marine Corps supports President's Budget 2025 that initiates procurement of the first LSM in fiscal year 2025 and eight total over the FYDP, maintaining a procurement schedule of 1/1/2/2/2. Maintaining the current procurement profile is critical for delivering the late to need platform necessary to fill the void in current littoral mobility. The USN and USMC support scaling up production to meet the need if budgets support, providing additional investment in the shipbuilding industrial base.

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- In addition to the LMBS, six Army LCU-2000's were made available for purchase in March 2024 following Army divestment interest, priced at \$2.5 million per vessel with an offer to hold them until the end of June. This opportunity aims to enhance littoral maneuver and sustainment for the SIF until the arrival of LSMs.

The capacity and capability of LMBS does not match or fulfill the requirements and capability of the LSM program once all vessels are delivered.

- Although the LMBS addresses some current operational gaps, existing platforms such as T-EPFs require both port services and exceptional sea states.
- Current and future manpower shortfalls within Naval Beach Groups and Military Sealift Command, limit number of available LCUs and T-EPFs needed to support operational requirements.
- Along with the operational demand comes a training requirement to properly employ the LMBS in a real-world contingency.

65. Senator SULLIVAN. Vice Admiral Pitts and General Heckl, will the Navy keep additional EPFs in the fleet to ensure MLR mobility?

Vice Admiral PITTS. The June 2023 Battle Force Ship Assessment and Requirement (BFSAR) report identified the Navy's requirement for EPF's as eight ships. The Navy is maintaining four additional ships for a total of 12 to support Marine Corps requirements as a Littoral Marine Bridging Solution in advance of delivery the LSM.

General HECKL. Although multiple EPFs have been funded to provide direct support to the MLRs, manning challenges have delayed their ability to do so. The Service requires time-now solutions to support the Joint Force with new combat formations as part of our force design modernization efforts.

FORCE DESIGN 2030

66. Senator SULLIVAN. General Heckl, HMLA-269 was deactivated as part of the original Force Design plan and was reactivated as the Marine Corps recalibrated how it was implementing Force Design. What other refinement is happening as part of the "Force Design Campaign of Learning"?

General HECKL.

- HMMH: east coast Marine Heavy Helicopter Squadron numbers will increase from 1x 1.0 squadron to 2x 0.75 squadrons.
- HMLA: east coast Marine Light Attack Squadron numbers will increase from 1x 1.0 squadron to 2x 0.75 squadrons.
- Infantry Battalion: IBX30 iterative experimentation has resulted in an 811x Marine sized battalion force structure.
- Artillery: Initial actions had M777 battery reduction to 7x batteries of 6x tubes; however, current initiatives are planned for 10-12x batteries of 8x tubes.
- Further refinements will be published later this year at the completion of the Campaign of Learning Audit Group (COLAG). Currently, COLAG 2024 outputs

are being assessed by the DOTMLPF-C Working Group to determine supportability and associated risk(s). The initiatives under assessment span across the total force and aim to balance readiness with modernization.

QUESTIONS SUBMITTED BY SENATOR ERIC SCHMITT

STRIKE FIGHTER INVENTORY

67. Senator SCHMITT. Vice Admiral Pitts, can you discuss whether the naval strike fighter inventory and readiness is sufficient to meet operational needs?

Vice Admiral PITTS. Based on the currently funded and budgeted production and technology refresh/advancement ramps for F-35C, new procurement F/A-18E/F aircraft delivering through fiscal year 2027, and Service Life Modification (SLM) funding for F/A-18E/F, the Navy has sufficient strike fighter capacity to meet operational deployments through the FYDP. However, the Navy's carrier air wing composition roadmap for fourth & fifth generation strike fighter integration is challenged by delays to F-35C Technological Refresh Three (TR3) and future F-35C Block IV capability deliveries. Perturbation in SLM quantities in combination with potential further F-35C TR3 delays poses additional risk to the Navy's carrier air wing composition roadmap. Currently, the Navy's strike fighter aircraft are meeting readiness metrics for operational squadrons as set forth by the Commander, Naval Air Forces (CNAF).

F/A-18 UNIT COST

68. Senator SCHMITT. Mr. Guertin, can you tell us what the unit price increase on F/A-18s will be compared to the original proposal back in 2022? How many fewer are we getting?

Secretary GUERTIN. Boeing's December 12, 2022 original proposal was only for the fiscal year 2022 F/A-18F 12 (12) aircraft at \$65.7M per unit cost and was conditioned upon the Navy awarding an Undefined Contract Action prior to December 31, 2022. Many of the proposal elements were incomplete and lacked supporting data. The proposed value represented a 34 percent increase from the Lot 45 F/A-18F unit price of \$49M and did not include the Technical Data Package (TDP). At that time, the proposed value was \$115M more than what was appropriated by Congress and would have resulted in a potential shortage of two (2) aircraft.

In order to achieve pricing efficiencies, the Navy issued a revised Request for Proposal (RFP) after Congress appropriated the fiscal year 2023 eight (8) additional aircraft budget, requesting pricing for 20 (20) aircraft on January 17, 2023.

Boeing provided their repriced proposal on August 18, 2023 at an average unit price of \$104.03M per aircraft, and the proposal still did not include the TDP. The TDP proposal was received on December 15, 2023.

The Navy was ultimately able to negotiate a unit price of \$76.9M for 17 (17) aircraft resulting in three (3) fewer aircraft than authorized, and approximately five (5) greater than would have been affordable at Boeing's August 2023 proposed price of \$104.03M. There are too many differences in the baselines of the 2022 proposal and final agreement to make a logical comparison of unit cost, most notably quantity and inclusion of the TDP.

F/A-18 TECHNICAL DATA

69. Senator SCHMITT. Mr. Guertin, what is the lifecycle cost savings from your acquisition of technical data?

Secretary GUERTIN. Having the technical data necessary offers the Navy numerous opportunities for significant cost reductions and strategic cost management. This data enables the Navy to optimize the following:

- Set up additional Intermediate Level
- Maintenance capabilities (contested logistics impact)
- Effectively develop and implement reliability solutions
- Effectively manage obsolescence
- Effectively develop depot solutions in accordance with title 10
- Maintain readiness and safety
- Inform additional organic support decisions
- Inform modification decisions
- Perform organic upgrades and technology insertion
- Inform engineering investigations/troubleshooting

- Perform limited organic manufacturing
- Provide potential cost savings (affordability initiatives) in obsolescence mitigation and redesign efforts
- Obtain the rights in data through data delivery
- Increase competition for configuration items without data rights restrictions

Currently, it is not possible to precisely quantify lifecycle cost savings, but ownership and direct access to the platform's technical data supports better decision-making for future acquisitions, aircraft modifications and sustainment. By leveraging these advantages, the Navy anticipates being able to achieve substantial cost savings and increased operational readiness. As opportunities are identified, cost savings will be captured and documented.

70. Senator SCHMITT. Mr. Guertin, what proportion of the F/A-18 technical data is held by suppliers rather than the prime?

Secretary GUERTIN. The F/A-18E/F and EA-18G technical data being procured initially is Boeing structural and primary infrastructure data including Northrop Grumman model data, tooling, support equipment, special test equipment, special packaging instructions, and limited supplier data Boeing has authority to deliver. This technical data package from the prime provides critical and necessary data required for long term sustainment of the platform. The technical data held by sub-tier suppliers is largely the aircraft subsystems, i.e. avionics and mission systems boxes and assemblies. Boeing has not provided the Navy with the sub-tier supplier proposal as of yet.

71. Senator SCHMITT. Mr. Guertin, how will you procure that information?

Secretary GUERTIN. The technical data for the F/A-18E/F and EA-18G is being procured as part of the Lot 46/47 aircraft procurement on the Multi-Year IV production contract, N00019-18-C-1046. The Navy is also pursuing options to acquire the sub-tier supplier data. Boeing has not provided the Navy with the Supplier proposal as of yet.

72. Senator SCHMITT. Mr. Guertin, what other programs are you taking this approach of withholding contract awards to obtain technical data?

Secretary GUERTIN. For all Navy and Marine Corps investment programs, we recognize the significant value in obtaining technical data from our industry partners in order to sustain programs throughout their lifecycle and support reprocurement where appropriate. We therefore carefully develop our contract award strategies to obtain this data to the greatest extent possible.

MQ-25 STINGRAY

73. Senator SCHMITT. Vice Admiral Pitts, can you talk a little about the importance of the MQ-25 Stingray to the US Military's future force projection efforts?

Vice Admiral PITTS. The MQ-25 significantly improves the US Military's future force projection effort by increasing the strike range, operational capability, and lethality of the Carrier Air Wing. MQ-25 will provide organic mission, and recovery aerial refueling, to Air Wing assets while also providing an Intelligence, Surveillance, and Reconnaissance (ISR) capability to the Carrier Strike Group. Most importantly, fielding MQ-25 will relieve F/A-18E/Fs from recovery tanking duties, expanding strike fighter capacity/capability by enabling increased fifth & sixth generation CVW aircraft ratios.

The MQ-25 and MD-5 ground control station in the CVN Unmanned Aviation Warfare Center (UAWC) are the "pathfinders" to the Air Wing of the Future to establish the foundation for carrier strike group integrated unmanned autonomous operations.

NEXT-GENERATION NICKEL ZINC SUBMARINE BATTERY

74. Senator SCHMITT. Mr. Guertin, the Committee included a provision in the Fiscal Year 2024 NDAA requiring the Navy to provide a report on the industrialization efforts and investments it is making into the Navy's next generation Nickel Zinc submarine battery. The recent supplemental appropriations request that was approved asked for approximately \$3 billion dollars for investments in the submarine industrial base. Out of the recently approved AUKUS SIB funds and in the fiscal year 2025 Navy budget request, can you please tell me what the investments are specifically planned for Nickel Zinc submarine battery manufacturability to ensure the *Virginia*-class submarines are delivered on time?

Secretary GUERTIN. The Navy is committed to investment in Nickel Zinc battery technology. There is funding allocated in the fiscal year 2024 supplemental appropriations and in the fiscal year 2025 budget request associated with scaling up of the Nickel Zinc battery manufacturing infrastructure. These investments will secure domestic sources, provide a viable alternative to current power sources and offer an environmentally friendly and safer energy storage solution.

