

# NAVY SHIPBUILDING PROGRAMS

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## HEARING

BEFORE THE

SUBCOMMITTEE ON SEAPOWER

OF THE

COMMITTEE ON ARMED SERVICES

UNITED STATES SENATE

ONE HUNDRED FIFTEENTH CONGRESS

SECOND SESSION

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NOVEMBER 27, 2018  
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## NAVY SHIPBUILDING PROGRAMS

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TUESDAY, NOVEMBER 27, 2018

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

The Subcommittee met, pursuant to notice, at 2:31 p.m. in Room SR-220, Russell Senate Office Building, Senator Roger F. Wicker (Chairman of the Subcommittee) presiding.

Subcommittee Members present: Senators Wicker, Rounds, Shaheen, Blumenthal, Kaine, and King.

### OPENING STATEMENT OF SENATOR ROGER F. WICKER

Senator WICKER. The hearing will come to order. Ranking Member Senator Hirono is in a markup and will be joining us as soon as she can.

By agreement, we are going to skip opening statements of the chair and Ranking Member until such time as Senator Hirono arrives. And—but we will welcome our three distinguished panelists today—Honorable James F. Geurts, Assistant Secretary of the Navy for Research, Development, and Acquisition; Vice Admiral William R. Merz, Deputy Chief of Naval Operations for Warfare Systems; and Lieutenant General David H. Berger, Deputy Commandant of the Marine Corps for Combat Development and Integration.

So, gentlemen, I understand you have drawn straws, and one of you gets to make an opening statement. Is that correct?

Secretary GEURTS. Yes, sir.

Senator WICKER. All right. Well, we will let you proceed, and then we will take questions on a 5-minute basis. When my distinguished Ranking Member arrives, we may interject some opening statements for the record. You are recognized, Mr. Secretary.

Secretary GEURTS. Thank you, sir.

**STATEMENT OF THE HONORABLE JAMES F. GEURTS, ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION; ACCOMPANIED BY VICE ADMIRAL WILLIAM R. MERZ, USN, DEPUTY CHIEF OF NAVAL OPERATIONS FOR WARFARE SYSTEMS (OPNAV N9); LIEUTENANT GENERAL DAVID H. BERGER, USMC, COMMANDING GENERAL, MARINE CORPS COMBAT DEVELOPMENT COMMAND AND DEPUTY COMMANDER FOR COMBAT DEVELOPMENT AND INTEGRATION**

Chairman Wicker, Ranking Member Hirono, and distinguished Members of the Subcommittee, thanks for the opportunity to appear before you here today to update you on the Department of the Navy shipbuilding plan. I am joined today with Admiral Bill Merz, Deputy Chief of Naval Operations for Warfare Systems, and Lieutenant General Dave Berger, Deputy Commandant for Combat Systems Development and Integration.

With your permission, I would like to provide a few brief remarks for the three of us and then submit our formal statement for the record.

Senator WICKER. Okay, proceed.

Secretary GEURTS. We would like to first thank Congress for the timely enactment of the Fiscal Year 2019 DOD budget. On-time enactment of the authorization and appropriation for fiscal year 2019 without a continuing resolution provides the predictability and stability in funding that is critical as we build the Navy the Nation needs in support of the National Defense Strategy.

Timely passage of this budget has enabled us to accelerate contract awards, increase our acquisition efficiency, and deliver for our sailors and Marines. Additionally, your continuing support of our maritime accelerated acquisition programs has provided much-needed agility within the budget cycle. Through day-to-day interactions with the committees, we are able to quickly pursue near-term capability gaps against emerging threats.

The strategic environment continues to be more dynamic, increasing in its uncertainty and sophistication. The proliferation of modern technologies, along with the erosion of the competitive advantage in areas where we have long enjoyed relative superiority, contest our ability to influence and create a great range of challenges for a globally responsive force. In order to retain and expand our competitive advantage, it is imperative we continuously adapt to the emerging security environment and do so with a sense of urgency. This requires the right balance of readiness, capability, and capacity, as well as budget stability and predictability. It requires a Navy of at least 355 ships.

The Navy's 3-year shipbuilding plan for fiscal year 2019 provides the framework to achieve this 355-ship Navy at a steady, sustainable, and affordable rate. Our current plan puts the Navy on path to 327 ships by fiscal year 2023 and 355 ships by 2034. Executing this plan relies on sufficient and stable funding. It also requires we continue to work to improve our—and reform our business processes, as well as ensure we maintain a robust industrial base.

Our shipbuilding industrial base and supporting vendor base continues to be a unique national security imperative that must be properly managed and protected. We value our partnership with

Congress, and together, we can ensure that our Navy and Marine Corp teams operating around the world continue to provide effective deterrents as instruments of peace or, if necessary, to deliver superior naval power to protect those who are threatened.

We thank you for the strong support the Subcommittee has always provided the Department of the Navy and the opportunity to appear before you today. We look forward to answering your questions.

[The joint prepared statement of Secretary Geurts, Vice Admiral Merz, and Lieutenant General Berger follows:]

JOINT STATEMENT OF THE HONORABLE JAMES F. GEURTS, VICE ADMIRAL WILLIAM R. MERZ, AND LIEUTENANT GENERAL DAVID H. BERGER

Chairman Wicker, Ranking Member Hirono, and distinguished Members of the Subcommittee, thank you for the opportunity to appear before you today to update you on the Department of Navy's plan to achieve a 355-ship Navy. First we would like to thank Congress for your support for timely enactment of the fiscal year (FY) 2019 Department of Defense (DOD) budget. Enactment of the authorization and appropriation for fiscal year 2019 helps provide the predictability and stability in funding that is critical to our success and will support building the *Navy the Nation Needs* (NNN), generating lethal and resilient maritime forces to support the National Defense Strategy (NDS).

The strategic environment continues to be more and more dynamic, increasing in its uncertainty and sophistication. The proliferation of modern technologies, conventional weapons, and cyber capabilities to a broader range of state and non-state entities, along with the erosion of our competitive advantage in areas where we have long enjoyed relative superiority, is likely to continue as rival states attempt to contest our influence and create a range of challenges for a globally responsive force.

As described in the 2018 National Security Strategy and the 2018 NDS, in order to retain and expand our competitive advantage, it is imperative that we continuously adapt to the emerging security environment—and do so with a sense of urgency. This requires the right balance of readiness, capability, and capacity, as well as budget stability and predictability. It also requires we continue to work to improve and reform our business processes, as well as ensure we maintain a robust industrial base. Together, we can ensure our military's capability, capacity, and readiness can continue to deliver superior naval power around the world, both today and tomorrow.

355 SHIP REQUIREMENT

The *Annual Long-Range Plan for Construction of Naval Vessels for Fiscal Year 2019* prioritizes the framework for building towards the NNN objective of 355 ships at a steady, sustainable, and affordable rate. Fiscal year 2019 procurement and Service Life Extensions (SLE) puts the Navy on a path to 327 ships by fiscal year 2023 and 355 ships in the 2030s. The types of ships and capabilities procured over this 30-year timespan will evolve with technology and threat advancements. Protecting the baseline acquisition profiles provides long-term foundational stability for thoughtful, agile modernization, and a clearer forecast of when to evolve to the next ship design. The Navy's plan includes aircraft carriers, ballistic missile and attack submarines, large and small surface combatants, amphibious ships, and auxiliary ships. Surface combatant and attack submarine capabilities are the most dynamic and will likely evolve substantially to align with growing operational demands, emergence of new technologies, introduction of unmanned and autonomous systems, and more capable sensors and payloads. Accordingly, the Navy will continue to analyze and update the Surface Capability Evolution Plan, the Tactical Submarine Evolution Plan, Amphibious Warfare Capabilities Evolution Plan, and all supporting plans (aviation, ordnance, amphibious, etc.) for alignment of capabilities and appropriate NNN adjustments. This analysis is an enduring, responsive process that increasingly values agile and adaptable lethality against dynamic adversaries. Continual analysis coupled with a stable build profile will provide the foundation from which to ensure all future platforms keep pace with the ever-changing threat.

Although SLEs will continue to be a valuable tool for smoothing growth ramps, sustaining inventory, and extending the return on investment of a platform already paid for, they cannot be a substitute for long-term investment. Other elements identified in the annual ship construction plan for the Navy to continue to grow the force

are steady, sustainable growth with stable acquisition profiles and executing aggressive growth opportunities above the steady procurement profiles if resources are available. Examples of aggressive growth options to accelerate meeting force structure goals and take advantage of available industrial base capacity might include additional *Virginia*-class submarines above the 10 ship Block V MYP construction contract (fiscal year 2019 to 2023) and additional DDG 51 Flight III ships beyond the 10 ship MYP construction contract (fiscal year 2018 to 2022). Equally important, growing to a 355-ship navy requires commensurate increases to both military and civilian manpower and operations and maintenance funding to support and sustain the larger fleet.

A stable industrial base is a fundamental requirement to achieving and sustaining the Navy's baseline acquisition profiles. Our shipbuilding industrial base and supporting vendor base constitute a unique national security imperative that must be properly managed and protected. By balancing long-term acquisition profiles with targeted SLEs and aggressive growth options, the Navy will be able to stabilize the industrial base and set the foundation for growing the force towards its warfighting requirement.

Similarly, to increase its competitive advantage over pacing threats, the Marine Corps will rapidly adapt and modernize in an affordable way, which depends greatly on predictable funding in support of Force 2025. Historically, sea control/freedom of navigation has been a purely Navy mission; however, integrating Marine Air-Ground Task Force (MAGTF) air and ground fires capabilities will transition this to a true "naval" mission. Establishing sea control against a near peer competitor is an integrated naval and joint mission that leverages Marine Corps concepts and capabilities, such as the Expeditionary Advance Base Operations (EABO), F-35B, and precision artillery (i.e. precision cannon or HIMARS-like). The Chief of Naval Operations' Design for Maintaining Maritime Superiority which stresses freedom of maneuver and power projection ashore, combined with the Marine Corps Operating Concept (MOC) and Littoral Operations in a Contested Environment (LOCE) all illustrate the importance of an integrated force in anticipation of advancing threats. Specifically, LOCE describes how an integrated naval force, operating from dispersed locations, both ashore and afloat, will utilize its flexibility, versatility, and mobility to achieve sea control and power projection into contested littoral areas. EABO is the tactical/operational execution that provides the MAGTF's distributed, lethal, involvement in continuous contact layer advance naval task force operations. These concepts are directly in line with the NDS and the Defense Planning Guidance (DPG) which highlights the requirement for increased strategic flexibility and freedom of action. Marines operate regularly within these three layers today, making the focus on modernization priorities all the more critical. An essential supporting element to the USMC missions is the 38 Amphibious Warship fleet requirement. In accordance with the NDS, the Navy and USMC are looking at various paths to increase both the lethality and survivability of the amphibious force.

#### INDUSTRIAL BASE

The DOD accounts for approximately 70 percent of the total domestic shipbuilding market. With such a large market share of the shipbuilding industry, the timing of DOD ship procurements is critical to the health and sustainment of the U.S. shipbuilding industry and has economic impact industry wide. It is important, therefore, for DOD to provide stability and predictability to the industrial base in order to keep it healthy today and robust enough to meet the Nation's future needs.

Over the last 60 years, Navy procurement profiles have shown sharp peaks in shipbuilding followed by significant breaks or valleys in production that have severely degraded the ability to plan for the long-term and respond to changing requirements in the near-term. This created a boom and bust within the industry, degrading the industrial base and resulting in longer construction times and increased costs. The steady, sustainable baseline shipbuilding profiles in the Annual Long-Range Plan for Construction of Naval Vessels for fiscal year 2019 will establish industrial efficiency and agility and protect workforce skills in order for the U.S. shipbuilding industrial base to remain cost effective long-term and meet the demands of the 355-ship Navy the Nation Needs.

In a response to an Executive Order, the Navy contributed to the interagency report Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States. As a result of this analysis, there are multiple efforts currently underway focused on the shipbuilding industry to identify and mitigate risks and to ensure a healthy industrial base is available to support this navy and the next. These risks are monitored and addressed by the Navy in cooperation with OSD and our industry partners.

## THE FISCAL YEAR 2019 DEPARTMENT OF DEFENSE ENACTED BUDGET

Fiscal year 2019 authorized and appropriated procurement of 13 ships: two SSN 774 *Virginia*-class attack submarines; three DDG 51 *Arleigh Burke*-class destroyers; three Littoral Combat Ships (LCS); one Expeditionary Sea Base (ESB); one Expeditionary Fast Transport (EPF); two *John Lewis*-class fleet oilers (T-AO); and one Towing, Salvage and Rescue ship (T-ATS). The fiscal year 2019 enacted budget also included advanced procurement funds for two additional ships: one *San Antonio*-class LPD 17 Flight II; and one *America*-class LHA. The fiscal year 2019 enacted budget provides for SLEs on 11 Battle Force ships including six Cruisers, four Mine Countermeasure ships, and one Improved *Los Angeles*-class SSN and 21 vessels in the Ready Reserve Force (RRF) and the Military Sealift Command surge fleet.

Timely enactment of the fiscal year 2019 DOD budget has enabled the Department to initiate contracting actions at the start of the fiscal year, accelerating the timeline for getting critical capabilities to the Fleet. For example, the *Virginia*-class SSN program will be building on past success by awarding a Block V Multiyear Procurement (MYP) contract for 10 ships in fiscal year 2019, which will include the *Virginia* Payload Module and Acoustic Superiority enhancements. The *Arleigh Burke*-class destroyers MYP contract awarded in fiscal year 2018 for 10 firm Flight III ships, also includes flexibility to award five options ships (non-MYP ships) providing the ability to increase build rates. With funding available to the Department, the Navy is actively working to award the fiscal year 2019 multiyear ships as well as award the fiscal year 2019 option.

We continue to pursue accelerated acquisition and business process reforms as part of our enduring commitment to accelerating delivery of advanced capabilities to the warfighter. We are utilizing accelerated acquisition authorities provided by Congress to actively promote innovation, government/academia partnerships, and the transition of key manufacturing technologies and processes. These fundamental process changes, combined with stable resources, and targeted investments will enable us to more affordably deliver the lethal capabilities most beneficial to the warfighter.

## FORD-CLASS AIRCRAFT CARRIER PROGRAM

USS *Gerald R. Ford* (CVN 78) completed its post-delivery shakedown period and began Post Shakedown Availability/Selected Restricted Availability (PSA/SRA) in July 2018. CVN 78 shakedown accomplished six underway events, highlighted by conducting over 700 catapult launches and arrestments with Navy jets, including over a hundred launches and recoveries in one day on two separate occasions. These fixed wing operations were successfully supported by a number of aviation systems, while others will require continued refinement as they continue to support ongoing shipboard testing. CVN 78's yearlong PSA/SRA is underway, followed by a further shakedown period. Efforts already in place include capturing CVN 78 lessons learned, refining CVN 79's ship construction processes, capitalizing on technological improvements, shipbuilder investments in facilities, invoking better business strategies, and optimizing *Ford*-class operational systems. Lessons learned during CVN 78's Initial Operational Test and Evaluation will be captured and allow further optimization of *Ford*-class requirements, and continue to improve ship's design and construction schedules in order to reduce future aircraft carrier costs. As of October 2018, John F Kennedy (CVN 79) is over 50 percent complete with launch planned in late 2019 and delivery in the fall of 2024.

The Navy is aggressively pursuing cost reduction opportunities to deliver fully capable *Ford*-class CVNs at the lowest possible cost. The Navy is initiating contracting actions necessary to continue fabrication of Enterprise (CVN 80) in early fiscal year 2019 and preserve the delivery date while continuing to negotiate the significant savings associated with the two CVN buy, should the Department chose to pursue this option. The two-ship buy is a contracting strategy the Navy effectively used in the 1980s to procure *Nimitz*-class aircraft carriers. The strategy achieved significant acquisition cost savings compared to contracting for the ships individually.

## COLUMBIA-CLASS SUBMARINE PROGRAM

Ballistic Missile Submarines, coupled with the *Trident II D-5* Strategic Weapons system, represent the most survivable leg of the Nation's strategic arsenal and provide the Nation's most assured nuclear response capability. The *Columbia*-class program, the Navy's number one acquisition priority, is on track to start construction in October 2020 and deliver to pace the retirement of our current ballistic missile submarines, deploying for its first patrol in fiscal year 2031. Cost, schedule, and technical performance are being tightly managed to ensure this critical strategic ca-

pability is delivered on time and within budget. The design schedule is aggressive but achievable. Programmatic and enterprise readiness will be paramount to achieving on time delivery for the class's 12 hulls.

General Dynamics Electric Boat (GDEB) and the Navy continue to take corrective measures regarding the recent issues of welding quality and inadequate Ultrasonic (UT) Non-Destructive Testing (NDT) of missile tubes. Corrective actions are in progress for all delivered and in process BWX Technologies (BWXT) large diameter tubes, as well as conducting actions for the two other missile tube vendors (Babcock Marine [BM] and Northrop Grumman [NG]). U.S and UK leadership approved a GDEB and NAVSEA plan to accelerate follow-on missile tube procurement and improve schedule margin to U.S lead ship construction, while minimizing the impact on UK lead ship construction.

#### VIRGINIA-CLASS SUBMARINE PROGRAM

The *Virginia*-class program (SSN 774) program continues as one of the Navy's most successful shipbuilding programs with 17 ships delivered within budget and increased capability in each block. The fiscal year 2019 to 2023 Block V MYP delivers on the Department's commitment to build and sustain a lethal, resilient force while growing near-term capability and capacity. The MYP allows for the investment and sustainment of our critical industrial base, helping to ensure stability and more affordable acquisitions with the options to add additional ships in the future providing the Navy flexibility to increase SSN 774 build rates above the 10 MYP ships that was included in the Navy's Fiscal Year 2019 Budget request. The Block V MYP incorporates Acoustic Superiority and starting with the second ship in fiscal year 2019 incorporates the *Virginia* Payload Module (VPM). The VPM ships aid in the recovery of strike capability when guided missile submarines (SSGN) retire in fiscal year 2026 to 2028.

The Navy with the shipbuilders continue to work within the Integrated Enterprise Plan framework to support *Columbia*, *Virginia*, and *Ford*-class construction in an integrated approach. This long-term government and contractor effort guides the execution of these nuclear-powered platforms affordably, on time, to specifications, in the necessary quantities, and with acceptable risk.

#### LARGE SURFACE COMBATANTS

The *Arleigh Burke*-class (DDG 51) program remains another of the Navy's most successful shipbuilding programs with 66 ships delivered to the Fleet. The fiscal year 2018 to 2022 DDG 51 MYP delivers on the Department's commitment to build and sustain a lethal, resilient force while growing near-term capability and capacity. This MYP also allows for the investment and sustainment of our critical industrial base, helping to ensure stability and more affordable acquisitions with the flexibility to add additional ships in the future. Each shipbuilder's contract included options for construction of five option ships (non-MYP ships) in fiscal year 2018/2019/2020/2021/2022, providing the Navy flexibility to increase DDG 51 build rate above the 10 MYP ships that was included in the Navy's fiscal year 2018 budget request. All ships in this MYP will incorporate Integrated Air and Missile Defense and provide additional Ballistic Missile Defense capacity known as Flight III, which incorporates the Air and Missile Defense Radar (AMDR). AMDR 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 several stages of developmental testing, its entry into the Production and Deployment phase, and fiscal year 2017 Flight III awards to both shipbuilders.

Complementing the DDG 51, the DDG 1000 *Zumwalt*-class guided missile destroyers are an optimally crewed, multi-mission surface combatant designed to provide long-range, precise, naval surface fire support. The DDG 1000 ship is in combat system activation at its homeport of San Diego. DDG 1001 HM&E delivered April 24, 2018, and construction on DDG 1002 is over 79 percent complete. After a comprehensive review of *Zumwalt*-class requirements, the Navy decided in November 2017 to refocus the primary mission of the *Zumwalt*-class Destroyers to Offensive Surface Strike. This change in mission adds lethality and offensive capabilities by providing fires against targets afloat and ashore.

#### SMALL SURFACE COMBATANTS

The fiscal year 2019 appropriation funded three LCS in fiscal year 2019. Not to Exceed ship prices were established with the fiscal year 2018 LCS ship awards. Requests for repricing are with the shipbuilders with awards planned by December 31, 2018. The Navy is on track to award a single source Guided Missile Frigate

[FFG(X)] Detail Design and Construction contract, via a full and open competition, as planned. To support this, the Navy awarded five Conceptual Design (CD) contracts on February 16, 2018, and is now in month nine of the 16-month CD phase. The contracts allow for ongoing dialogue with Industry using monthly Technical Exchange Meetings held with each contractor facilitating an open forum to discuss technical issues, questions, and design progress with Navy Subject Matter Experts. FFG(X) award will be a full and open competition. The requirements have been refined and are being finalized based on industry feedback on the feasibility of meeting the desired performance levels and accommodating common Navy standard systems across the radar, combat system, and launcher elements in the various ship designs in a cost effective manner.

#### FUTURE SURFACE COMBATANTS

A significant portion of the surface combatant force will operate forward, consisting of a mixture of large and small manned surface combatants (LSC/SSC). To stay ahead of adversary technological advances, these combatants will be designed to be flexible and adaptable, supporting affordable upgrades at the pace technology will allow—throughout their full service life. Manned surface combatants will team with unmanned systems (UxS)—in all domains—providing for a variety of on and off-hull support capabilities such as persistent early, warning, communications, decoys, radars and acoustic radiation sources, naval surface fire support, and adjunct magazine capacity. All forces will operate as integrated networks, ranging from an individual ship with multiple off-board systems, multi-ship and system Surface Action Groups (SAG) and Strike Groups (SG). An Integrated Combat System (ICS) will link communications, command and control systems, sensors and weapons, and facilitate an exchange and analysis of data to provide warfighters with actionable knowledge to ensure decision superiority.

The capabilities delivered by Future Surface Combatant Force will span multiple platforms and systems. The earliest ICS Initial Operational Capability will occur in the mid-2020s as combat systems transition toward higher levels of integration across the combatant force. Also, in the mid-2020s, UxVs will deliver with increased levels of autonomy and capability as their mission systems are increasingly networked.

#### AMPHIBIOUS SHIP PROGRAMS

Amphibious ships operate forward to support allies, rapidly and decisively respond to crises, deter potential adversaries, and provide the Nation's best means of projecting sustainable power ashore. They also provide the preponderance of our naval response in humanitarian assistance and disaster relief. The operationally available inventory of amphibious warships and connectors remains below the 38 ship force structure requirement. The Navy is exploring service life extensions of existing ships and the acceleration of the LPD Flight II program to mitigate this shortfall.

LHA 6 *America*-class ships are flexible, multi-mission platforms with capabilities that span the range of military operations, from forward-deployed crisis response to forcible entry operations. *Tripoli* (LHA 7) is 93 percent complete and now scheduled to deliver in June 2019 as it continues to work through its shipboard test program. After a successful production readiness review, LHA 8 began sustained fabrication on October 18, 2018, and is scheduled to deliver in fiscal year 2024.

The *San Antonio*-class (LPD 17) provides the ability to embark, transport, and land elements of a landing force by helicopters, tilt rotor aircraft, landing craft, and amphibious vehicles. USS *Portland* (LPD 27) commissioned in April 2018 and the USS *Fort Lauderdale* (LPD 28) is expected to deliver in fiscal year 2021. LPD 28's design and construction features will leverage many of the ongoing LPD Flight II design innovations and cost reduction initiatives that are necessary for the program to achieve affordability goals while maintaining the high-level capabilities of the LPD 17 class. LPD 29 was awarded in February and will continue with the LPD 28 design, but add the Enterprise Air Surveillance Radar (EASR) among other improvements. LPD 30 will complete the design transition and meet the requirement. It has been designated as the first LPD Flight II. Contract actions are in process for the award of LPD 30 Detail Design and Construction.

#### AUXILIARY SHIP PROGRAMS

Support vessels such as the ESB, Expeditionary Transfer Dock (ESD), and the Expeditionary Fast Transport (EPF) provide additional flexibility to the combatant commanders. ESBs are flexible platforms designed and built for Airborne Mine Counter-measure Missions and capable of hosting multiple mission sets with air-

borne, surface, and subsurface assets. ESB 4 delivered in February 2018 and ESB 5 is currently under construction. Delivery of the EPF 10 is planned for November and the award of EPF 13 is planned by the end of the calendar year.

The Combat Logistics Force (CLF) consists of T-AOE fast combat support ships, T-AKE dry cargo and ammunition ships, and T-AO fleet replenishment oilers. CLF ships fulfill the vital role of providing underway replenishment of fuel, food, repair parts, ammunition and equipment to forward-deployed ships and embarked aircraft, to enable them to operate for extended periods of time at sea. The *Kaiser*-class (T-AO 187) fleet replenishment oilers will be replaced with the *John Lewis*-class fleet replenishment oilers, designated T-AO 205 class. The first T-AO 205 started construction on September 20, 2018.

The Department has begun procurement of a combined towing, salvage, and rescue (T-ATS) ship to replace the four T-ATF 166 class fleet ocean tugs, which reach the end of their expected service lives starting in 2021, and the four T-ARS 50-class salvage ships, which reach the end of their expected service lives starting in 2025. Fabrication is expected to begin in early summer 2019.

#### READY RESERVE FORCES (RRF)

The Navy, in coordination with the Office of the Secretary of Defense (OSD), U.S. Transportation Command (USTRANSCOM), and the Department of Transportation's (DOT) Maritime Administration (MARAD), provided the "Sealift That the Nation Needs" Report to Congress in March 2018. This report outlined a three-phased approach to strategic sealift recapitalization: SLE of select surge sealift vessels, used vessel acquisition, and a common-hull shipbuilding program.

Across the fiscal year 2017 to fiscal year 2019 budget cycles, the Navy programmed SLEs for 31 ships. These SLEs will add roughly 10 additional years to select hulls (typically increasing the service life from 50 to 60 years). The Navy will continue to identify other vessels suitable for extensions in subsequent budget cycles, subject to the requirements of the "Sealift That the Nation Needs." SLE is a temporary mitigation, which must be managed as the fleet's average age increases and the challenge of maintaining obsolete equipment and scarce spare parts expands.

Acquiring used vessels is the most cost-effective approach to replacing the aging fleet and bridging the gap for strategic sealift capability until a new construction program comes on line. The DOD-DOT strategy is to place the acquired used vessels into MARAD's Ready Reserve Force. Considering material condition of the current fleet, expected service life, and the new build acquisition timeline, the estimated total number of used vessels required is 26 to maintain the Sealift That the Nation Needs. Authority granted in the Fiscal Year 2018 National Defense Authorization Act (NDAA) permits the purchase of two used vessels. The Fiscal Year 2019 NDAA increased authority to purchase up to seven used vessels, contingent on the Secretary of the Navy certifying the initiation of an acquisition strategy for new construction of not less than 10 sealift vessels, with the lead ship delivery in 2026.

The Fiscal Year 2019 NDAA directed that the Navy in consultation with MARAD and USTRANSCOM prepare a Business Case Analysis (BCA) of recapitalization options for the RRF. Navy will deliver the BCA in 2019 in order to align the analysis with OSD and USTRANSCOM's Mobility Capabilities Requirements Study (MCRS). The MCRS is integral to the BCA as it will set the sealift capability required to meet combatant commander requirements. The Navy will continue to partner with Congress as well as interagency, joint, and industry partners to ensure the success of this important force projection capability.

#### UNMANNED UNDERSEA VEHICLES

The Navy is expanding its global reach through the development of unmanned capabilities to ensure maritime dominance and power projection. This requires persistent global presence in all maritime domains, the ability to deny our adversaries safe haven in the world's oceans, and the capability to generate kinetic and non-kinetic effects at the time and place of our choosing. The Navy executes multiple missions in and from the Undersea and Surface Domains including Strategic Deterrence; Intelligence, Surveillance, and Reconnaissance (ISR); ASW; Anti-Surface Warfare (ASuW); Strike; Naval Special Warfare; and Mine Warfare. The Navy is using a Family-of-Systems strategy to develop and employ unmanned vehicles to conduct a spectrum of missions that complement and relieve stress on the manned force. The Family of Systems approach leverages commercial and modified commercial vehicles, and is developing large and extra-large vehicles as necessary.

Snakehead and Orca are the large and extra-large undersea vehicles that will be used for unmanned undersea family development and tactical operations. Addition-

ally, medium and large unmanned surface vehicles will be used for unmanned surface family development, logistics and tactical operations.

#### SUMMARY

The ascendant threats posed by revisionist powers and rogue states require change—we must become more lethal, resilient and as a consequence, a more capable deterrent. The Navy and Marine Corps are actively integrating capabilities, synchronizing efforts, and moving forward as a unified force while preparing to meet challenges across the range of military operations. Naval integration bonds Navy and Marine Corps warfighting doctrine, concept development, task organization, material acquisition programs, logistics, training and command and control. Naval integration maximizes the warfighting capabilities of the Navy surface, subsurface, aviation, cyber, and special warfare communities with the MAGTF to create a credible multi-functional Naval capability that can influence, deter, and compete in all domains. At the Service-level, this implies achieving a greater degree of interdependence in organizing, training, and equipping of the force through the MOC. At the operational level, this implies a reform to theater maritime command and control (C2) architectures and sustainment; and, at the tactical level, this implies the rapid integration/interoperability of amphibious forces functional capability into larger Navy formations.

The Department of the Navy continues to increase capacity, lethality, and availability with the shipbuilding, aviation, and expeditionary programs. New capabilities are continually being delivered to the fleet and retrofitted on existing platforms to provide enhanced lethality and survivability to the warfighter. In addition, the Department is aggressively pursuing efforts to accelerate acquisition timelines and schedules and further drive affordability into our programs, in order to deliver capability to our warfighters faster and be as effective as possible within our resources. Continued congressional support of the Department's plans and budgets will help sustain a viable industrial base, as will timely enactment of appropriations, avoiding costly Continuing Resolutions.

By balancing new construction opportunities with calculated SLEs, the Department of the Navy is on the path to a 355-ship fleet. While the Navy continues to utilize multiyear procurements and block buy strategies to stabilize the industrial base and attain ships more affordably, achieving a 355-ship fleet will be a challenge. It's not just the number of ships that is important; it's the capability and the ability of our ships to be on station when and where needed. It is also the long-term operation and sustainment of this larger fleet that will require increased and predictable budgets well into the future. Procurement priorities must be balanced with what is needed to maintain our readiness including maintenance and planned modernizations to ensure our ships meet their expected service lives coupled with SLEs where appropriate. Through targeted SLEs, we will be able to retain highly-capable ships past their originally designed service life until the Navy can replace them with new construction ships.

This lays the ground work for growing warfighting capabilities in the Fiscal Year 2020 President's Budget, as the Department also makes initial investments in a larger Navy and Marine Corps. With the support of Congress, we can deliver the larger, more ready, and more capable force that our warfighters need. Our sailors and marines greatly appreciate your support and commitment.

Senator WICKER. Well, thank you very much. I will just direct questions to the panel, and the one who feels best suited to answer, step forward.

Encouraging news on the requirement, the statutory requirement according to the SHIPS Act, which is the unanimous position of this Subcommittee and also the law of the land signed by the President of the United States. So, 327 by the year 2023, 355 another 11 years after that. How will the—how optimal will that mix be, Mr. Secretary, at those two stages?

Secretary GEURTS. Sir, I think, you know, as we talked about in the springtime, we were ready to accelerate the plan to 2034 by extending the life of a number of our destroyers. That is not the optimal mix, per se. I will turn it over to Admiral Merz in terms of where he sees a little bit of an imbalance. But it is certainly a

workable mix that would allow us to execute the National Defense Strategy.

Bill, if you want to jump in?

Vice Admiral MERZ. Yes, sir.

First of all, Senator, I would like to echo Secretary Geurts' appreciation on the enactment of the 2019 bill. It just makes every process significantly more efficient.

Senator WICKER. It was a bipartisan achievement, and I am I proud to have been part of this team.

Vice Admiral MERZ. Yes, sir. Thank you very much.

Regarding the mix, you know, we have been long-time defenders of the proper mix to 355. The 355 is a derived number. We determine what type of ships we need in what numbers, add them all up, and we get the 355 or higher, depending on what study you rally around. When we extended the life of the DDG 51 to 45 years, it immediately shifted the shipbuilding plan left about 20 years as far as total numbers, but in the incorrect mix.

However, if you are going to have an incorrect mix, it is nice to have too many destroyers while we were balancing out the remainder of the fleet. So we have determined that that imbalance is less of a risk, more of an imbalance in the correct direction.

Senator WICKER. Good point. Good point.

Vice Admiral MERZ. But we still need to fill in the rest of the fleet, and holding the fort down with more DDGs is a sound way forward.

Senator WICKER. Well, let me ask you about some assumptions that might change the plan and get us there faster. Specifically, what would happen if the Navy changed some or all of the following assumptions? Executed additional service life extensions. Maintained overall shipbuilding funding levels at the fiscal year 2035 level after we get finished with the *Columbia*-class procurement. That would be sweet, would it not? Receive supplemental funding for the *Columbia* program outside the normal account in fiscal year 2021 through 2035. Or—and/or use the available shipyard capacity identified in the 30-year shipbuilding plan.

Secretary GEURTS. Sir, I think all those would be instruments of change to move that to the left. When we built the shipbuilding plan, we built a framework of what a steady, sustainable rate would be and then where we had opportunities to accelerate should funding become available, whether that is in destroyers or in submarines, or in some of the other classes.

So those opportunities exist. Depending on the levels of those assumptions you spoke of there, there is certainly opportunity to move that plan to the left.

Senator WICKER. Okay, so—

Secretary GEURTS. I think it is important, though, sir, and I think that both my colleagues would share that we are balanced in doing that. As we look forward to our plan, we got to make sure we include a balanced force that we can sustain and keep ready, and that is part of the calculus as we move forward as well.

Senator WICKER. Okay. You know, according to statute, we are supposed to revert back to the BCA caps. I view that as unthinkable, and it would be irresponsible on the part of this Congress. But what would happen if we did that, or how might a flat or de-

clining defense budget affect the shipbuilding account? What would that do to our national defense readiness?

Secretary GEURTS. Sir, I think, our job for the Department—  
Senator WICKER. You have 12 seconds, sir.

Secretary GEURTS. Yes, sir. Our job for the Department of the Navy is create the best balanced force mix we can, given the funding available. So I will not hypothesize what that might look like in those different budget scenarios other than to say, you know, we would try and balance with the funding available. Obviously, at the BCA level, that significant a cut would be difficult to imagine us executing the current plan under BCA caps.

Senator WICKER. Difficult to imagine, yes.

Vice Admiral MERZ. Sir, if I can just add on to that, actually two pieces, your previous question about service life extensions, we do that—we review every ship for service life extensions and extend what we can. But those last two points you made, I think, are absolutely fundamental to sustaining the shipbuilding plan. That is a steady funding profile and the figuring out an alternate solution to funding *Columbia*, which we have already identified in the shipbuilding plan, and that is work to be done. Not quite a panic yet, but it is on the horizon, and we are going to have to deal with that.

As far as the BCA, there would be immediate impact as soon as that went in. Depending on how it last, I think we can go from immediate to devastating impact on the program.

Senator WICKER. Thank you very much.

Senator Shaheen?

Senator SHAHEEN. Well, thank you, Mr. Chairman.

Secretary Geurts, I am glad that Admiral Merz was more direct about his response to that question. I would say to you all that this is an imminent possibility, and unless Congress is very clear about what the impact is going to be, I think it makes it harder to make a decision. So I hope that you will not be as diplomatic as you were in your response to that question, and you will be very direct and say, “This is what the impact is going to be.” Because I think people—I think we need to hear that in order to make the best decision possible.

Secretary GEURTS. Absolutely. Will do, ma’am.

Senator SHAHEEN. Secretary Geurts, as we all know, the goal of the 355-ship Navy came as the result of the QDR in 2014. Now all of us here on the Subcommittee were in Halifax a couple of weeks ago for the Halifax Security Forum, and we heard Admiral Davidson, who is the commander of United States Indo-Pacific Command, say that we need a bigger Navy. He said that the Chinese fleet continues to grow, and I quote, “The capacity concern is going to become greater in years to come.”

So, given that the 355-ship Navy was the result of a study in 2014, are we still comfortable that that number of ships is adequate to address the growing threat from China and Russia, for that matter, the great power competition that we are now facing?

Vice Admiral MERZ. Yes, ma’am. I will take that one.

So the 2016 FSA, it was a composite of the “O” plans, the threat, the threat vectors, and then what are the phases of warfare we have to deal with across those threat vectors. No matter what

study you looked at, they all said we need to be bigger, and we have endeavored on a path to get bigger.

Three hundred fifty-five, I think, is a minimum. We are—we have started the process on the next force-structure assessment. It is typically about a year-long process when we get the new combatant commanders in place. The adjustment to the old plans and how that affects the component command, in our case the Navy component commands, and then we put together the force structure assessment. Then we have typically a commission of external assessors to look at that, and then we red-team it, and then we put it out.

A single force structure assessment typically will influence two or three budget cycles, which is actually a pace that is very aligned with how quickly we can even adjust the shipbuilding plan and the force structure. So it typically works out well for us.

We have seen nothing from the combatant commanders to date or Secretary Mattis' National Defense Strategy that would give us any indication that we were going to be coming off that 355 ship in composition or in total numbers.

Senator SHAHEEN. Thank you.

Secretary Geurts, you testified before the Subcommittee in April about the Navy's initiatives to work with small business. I come from a State where small business is the foundation of our economy. We heard recently from Air Force Secretary Wilson about the Air Force's Blue Shift Initiative to try and engage small businesses in the needs of the Air Force in the future. Is there anything similar that the Navy is doing for small business?

Secretary GEURTS. Yes, ma'am, absolutely.

In coming off of 2018, it was the largest year on record for the Navy in terms of small business awards. We are a couple percent above our goals, with over \$15 billion going directly to small businesses. So they are key to our future, absolutely.

So, yes, I am coordinating directly with Dr. Roper and taking advantage of any opportunity there. The Navy still is kind of top performer of all the services on SBIR Phase III opportunities, where we turn those initial small business awards into larger awards. This last year we have awarded several major ship construction projects directly to small businesses on the coast. So sometimes, I think it gets thought of only from a technology standpoint, and we are having small business—they are constructing ships for us and doing an outstanding job. They will be a key to our future.

Secretary SHAHEEN. That is great. I appreciate hearing that. Can you tell us how we can ensure that small businesses in our States are aware of what is going on and how to be engaged in those proposals when they come out?

Secretary GEURTS. Absolutely. I have assigned a deputy program manager for all of our programs as a small business advocate. And so, one thing to recommend to them is for any of the programs that they are interested in, contact the program manager. That way they have got somebody inside the program that is their advocate, as well as any of our small business offices we have all around the Navy.

Secretary SHAHEEN. Great. We will follow up. Thank you.

Thank you, Mr. Chairman.

Senator WICKER. Let me just follow up, Admiral Merz, on Senator Shaheen's first line of questioning. The—and I would call to everyone's attention Secretary Geurts' opening statement. The emerging threats have not diminished in the last 2 years, have they, Admiral? If anything, they have gotten worse?

Vice Admiral MERZ. Exactly right, sir.

Senator WICKER. The challenges—I think his statement was that they are more dynamic, and you certainly agree with that. So, if anything, there would be a higher requirement.

Now, this 355 you mentioned, and I appreciate you saying this, this is the minimum that we need. A 355-ship fleet is not some best-case ideal that we would like to achieve if everything goes well. Am I correct there?

Vice Admiral MERZ. Yes, sir.

Senator WICKER. So, what—actually, the admirals and generals came back to us with 655, did not they?

Vice Admiral MERZ. Yes, sir. That was one of the numbers that was evaluated.

Senator WICKER. It was, of course, resource challenged, and we have to make all the numbers come out. We do not have unlimited funds. But the 355 is the minimum under a scenario where things were dangerous, but actually less dangerous than they are right now. Am I correct?

Vice Admiral MERZ. Yes, sir, absolutely correct.

When we constructed the shipbuilding plan, first and foremost, we set a steady build rate that would continue to grow the Navy over time at an affordable rate and to protect the industrial base. We put tremendous effort in identifying the extra capacity in the shipyards that we could increase the pace to 355. That was independent of the service life extensions that we did with not just the DDG 51s, but we are also looking at up to 7 *Los Angeles*-class submarines that we are going to endeavor to do service life extensions on.

The fact is, it is going to take us decades to get there, and the higher the pace, the steeper the ramp, the better. We are also endeavoring to design ships that can take much better advantage of things we can control on a shorter timeline, like the capabilities we put on these ships. The way we have been explaining it is, you know, the CONOPS, the tactics on how the commander employs the ships, that can change in hours, days, weeks; the capabilities, months and years to develop; ships, years and decades to put together.

So we are endeavoring to design these ships to take on these capabilities under a much shorter timeline to affect these CONOPS. It is all tied together. Three hundred fifty-five is the minimum to get there. The sooner we get there, the better.

Senator WICKER. I would just echo also, Secretary Geurts, what Senator Shaheen said. We do not want you to be alarmist. We do not want you to exaggerate and wave your arms. You are relaxed about your job, and you are going to do what you can with what we give you. But do tell us the facts, and let us be honest with the American people about how far behind we have gotten.

So thank you very much and—

Secretary GEURTS. Yes, sir. I just—one other piece on the Budget Control Act. Obviously, the number is devastating in itself. The other piece that is particular challenging for shipbuilding is that every ship are line-item appropriated, and those cuts come down as an equal share to every appropriation.

And so, not only is the number itself, you know, a drastic reduction which will cause great disruption, how that number will get laid across the budget, should we get in that condition, will be devastating to the way we have funded and constructed our shipbuilding program. So there is a little bit of a double whammy in there that will cause a complete disruption of our program should that path come to us.

Senator WICKER. I think Members of the Committee, we are actually working on the 2020 budget even as speak. So the future is imminent.

Senator Rounds?

Senator ROUNDS. Thank you, Mr. Chairman.

I would like to follow up on what the chairman was suggesting here. Admiral Merz, in September, the commander of the United States naval forces in Europe said, and I quote, “I think Russian submarines today are perhaps some of the most silent and lethal in the world.” And that the caliber of missiles that Russia has deployed from coastal defense systems, aircraft, and submarines have—and once again, I quote—“Shown the ability to reach pretty much all the capitals in Europe from any of the bodies of water that surround Europe.”

How is this type of Russian activity factoring into Navy budgeting and posture decisions?

Vice Admiral MERZ. Yes, sir. So the specific capabilities of Russia, we keep a very close eye on it, and Admiral Foggo, being a submariner, is uniquely attuned to the undersea capabilities. Matter of fact, he spends much of his life underwater working on this problem.

Unfortunately, I cannot really speak in this forum the specific capabilities we are concerned about and what we are doing about them. But I am happy to come and brief you in a separate forum on how that goes. But we do—

Senator ROUNDS. That is fine. But I think what is important here is, is that there is a need for additional resources and that our peer adversaries are not sitting still. They are developing their systems. They are continuing to move with new technologies.

What this open session is an opportunity to do is to highlight our need to continue to move forward with those new technologies. It is really difficult to be able to share with the American public unless you are prepared to lay out in some pretty clear terms just how serious the threats are from our near-peer competitors.

I am going to ask on Russian side, and then we are going to go into China. But on the Russian side, can you visit a little bit about how serious this is, or is this just day-to-day operations?

Vice Admiral MERZ. So the capabilities that Russia brings is very serious. They are tremendous engineers. We have been sparring with them for quite a long time as they are our old Cold War adversaries. The technologies they develop are often leading in whatever field they desire to—

Senator ROUNDS. So I am going to lead you down the road a little bit. So the 1990s technology that we have today, are they capable of handling the technologies that are being deployed today by the Soviet Union with regard to submarine warfare?

Vice Admiral MERZ. So, are we capable of handling the 1990s technology that Russia has fielded?

Senator ROUNDS. Or the ones that they are fielding today, with our 1990s technologies?

Vice Admiral MERZ. Sir, I really cannot get into how we are going to deal with the Russian capabilities from a United States capability standpoint. We will have to take that to a different forum.

Senator ROUNDS. Okay. How about on China? I am going to ask this of both Secretary Gertz and you, Admiral Merz.

The former Indo-Pacific Command commander has testified that only half his requirement for attack submarines in the Pacific theater was being met. This challenge will only grow worse in 2020s as attack submarines retire at a faster rate than they are planned to be built. How is the Navy planning to mitigate the attack submarine shortfall in the 2020s, and what are you doing right now to make sure that you do not have additional attack submarines sitting at dry dock, such as what we had with the *Boise* and several others as well?

Secretary GEURTS. Yes, sir. Again, I think if you ask Admiral Merz and I, you know, that is probably the most looming shortfall ahead of us in terms of capability is in attack subs. And so, I think we are attacking that in several different courses of action.

One is ramping up the *Virginia* production to two, potentially more than two down the road, submarines per year and getting those submarines—new submarines out into the fleet. The second area is where can we do some service life extensions. Some of our existing submarines, using the seven cores we have available to extend the life of some of our existing submarines and push—mitigate some of the bathtub that is coming up. And then the third piece is attacking availability, and so that we have very submarine as available and in the fight as we can.

Senator ROUNDS. How many submarines do you have in dry dock right now waiting to get in? How many of them are tied up at dock waiting to get into dry dock today?

Secretary GEURTS. Sir, I will have to get you the exact number on that. What I would say is where we are looking is both how do we improve performance in the public shipyards? So that is part of our shipyard optimization plan. And then how do we move, work, and leverage the private capability so that we do not have ships waiting to get into the public yards?

Currently, we have four ships in the private submarine yards doing their availability repairs. We are going to contract for an additional two coming out. And so, the NAVSEA commander and I are looking very closely at the future throughput we need both in the public yards and in the private yards to balance that out, so we do not get back into the state where we have submarines waiting for years to get into the yard.

Senator ROUNDS. Just, Mr. Chairman, I just think the point being that it is pretty tough to ask the private boatyards to be able to be ready to go, not knowing whether or not we are going to have

the resources available to fund those systems on a timely basis. That is part of the reason for the discussion today is not only looking at the technology necessary, but just to maintain the existing fleet on our way to a 355, we have got to have consistent funding in the mix that you can count on in order to make those long-term contractual obligations with the folks who actually do the repair work.

Secretary GEURTS. Absolutely, sir. The steady and predictable funding is the key. We have got to convert that into deliberate plans with enough lead time so that those private yards are ready and equipped to take that input as we come in.

When I look at the future, I think there is always going to be a future of both public and private submarine maintenance that makes sense from having a balanced skill set that gives us flexible options depending on the repairs we need to do and attacks this throughput so that we maximize the availability of every asset we have.

Senator ROUNDS. I will ask for the record the numbers that you got right now that are waiting to get into dry dock that you can get back to me on.

Secretary GEURTS. Absolutely, sir.

Senator ROUNDS. Thank you. Thank you, Mr. Chairman.

Vice Admiral MERZ. Senator, I would like to follow up just one comment on your larger question of the total number of submarines and what are we doing to get there? I think this is just a tremendous case study and a lesson for everybody that if you walk away from your industrial base, there is no graceful recovery. There is nothing we can do to minimize the trough other than selectively picking years that we can potentially build a third submarine per year. And even that will not fill in that trough.

We are going to extend submarines the best we can, but we are not going to reach 66 submarines until the very end of this shipbuilding plan. And it is simply a result of delivering—and the number is close, I think it is two submarines in the 1990s. That is an industrial base that is just not sustainable. This is the long-term impact.

Thank you.

Senator ROUNDS. Thank you, Mr. Chairman.

Senator WICKER. Senator Kaïne?

Senator KAINE. Thank you, Mr. Chair, and thanks to the witnesses for being here today and for your service.

I have questions about four kind of discrete issues that I will just address, and whoever can deal with them, please do.

First, Secretary Geurts, your opening statement—written statement talked about the possibility of the two CVN buy, and the quote was, “Navy is continuing to negotiate the significant savings associated with the two CVN buy, should the Department choose to pursue the option.”

The NDAA that we passed requires The Secretary of Defense to certify to the defense committees not later than 30 days before entering into a contract if you decide to go the two-buy route. Can you give me a status report on those discussions? Are we likely to have some certification of that kind soon, or just give me the status?

Secretary GEURTS. Yes, sir. Since we spoke last, we have been working closely with the shipyard and negotiating what savings would look like should we go into a two-carrier condition. We think those savings will be better than the \$2.5 billion number that quoted I think the last time we spoke.

We are in, as you know, the 2020 budget process right now. So we have not made a final decision on whether to pursue that or not. I would expect that decision sometime by the end of this calendar year. Obviously, then we would have—should we go down that path, the SecDef would certify that and submit that to Congress, per the NDAA.

Senator KAINE. Great.

Senator WICKER. What is your drop-dead date on having to make that decision?

Secretary GEURTS. Sir, I am not sure there is a drop-dead date, per se. We are aiming to have that decision by the end of the calendar year. If that decision were to move out much longer than the calendar year, the savings achievable will start to erode, given that we currently have CVN 80 on contract.

Senator KAINE. A second issue that deals with the submarine supply base, Admiral, you were talking about. There was \$450 million in the fiscal year 2018 and 2019 NDAA's and approps for submarine supplier base expansion. We have heard from some suppliers that the Navy has yet to release any of those funds. I do not know whether that is true or not, but that is what we have heard. Is that the case, and if so, can you tell us what you are likely to do to release those funds and start to do the—

Vice Admiral MERZ. I am going to pass that to Secretary Geurts.

Secretary GEURTS. Sir, let me take that one for the record. I believe we have obligated all the fiscal year 2018 funding in there. But let me take that for the record and get you a full accounting of that action obligations to date, and then for the things we have not obligated, both the timing and where we plan to obligate those.

Senator KAINE. Actually, we will submit that for the record. There have been challenges with the advanced weapons elevators on the CVN. Some of the technical difficulties seem similar to those that were experienced earlier on both the launch and arresting systems. I think that the Navy put together independent review teams to tackle those issues and provide solutions.

Are we at a point where that may be needed on the weapons elevators, or are we in a position where we think the progress on the weapons elevators is satisfactory?

Secretary GEURTS. Yes, sir. So there are 11 weapons elevators. Each one of them we have to produce, test, and then certify. The first two of those have been produced. The first one has been through test and certification. The second one is about 94 percent through test. We are making progress to get through all the elevators during this availability.

I am likely to do an independent review team, not on the immediate construction for CVN 78, but looking at the longer-term sustainability, resilience, reliability, to make sure we are in a position to support those elevators for the long term, that we have got all the training, all the reliability built into those. We have done some mini independent reviews for the 78 elevator design as they are.

So we will not do one on the current efforts on 78. We have got a dedicated team working our way through those issues.

Senator KAINE. And is your timing on that testing and certification on 78, you have this 12-month period where you are testing, do you think you will get through the testing and certification of all the 11 elevators in a yearlong period?

Secretary GEURTS. My current assessment is we will get through all the production and much of the testing. We may have some of the certification issues to go. I am watching that very closely, and we will keep you and your staff informed on progress there.

Senator KAINE. Excellent. This last one is very—it is kind of a minor and technical thing, and yet it may portend a larger problem. We have got a company in Virginia called Collins Machine Works. They are in Portsmouth, and they have raised an issue that I think this kind of an interesting one, and the Committee has become aware of this.

There is an issue affecting production of propeller shafts for the *Virginia*-class sub. This is a contractor that has used a commercial off-the-shelf product for which there was no military specification in terms of welding flux. The subcontractor then changed the mixture of the welding flux. It turns out now that it now does not really meet the requirements, and I think Collins has let the Navy know about this.

I am assuming we sort of promote use of off-the-shelf technologies when we can, and yet in this instance, there was not a mil-spec for the off-the-shelf technology. And so there was a change of it by the supplier that ended up affecting the production of the propeller shafts for the CVN. Is that just kind of a normal kind of thing that you work through as it comes up, or does it portend something larger about use of off-the-shelf commercial products?

Secretary GEURTS. I am not sure it portends to a specific issue with commercial off-the-shelf products. I think what it does show us is how fragile our supplier base is and how, if you have an issue with one supplier, it can cause larger programmatic issues.

So, you know, one of the things that was in the industrial base report we did as part of the executive order, some of the work we are doing with the funding that this Committee has provided is really looking at the fragility of that supplier base, how do we bolster that up, where do we have single-source suppliers that we can bring on—you know, bring additional sources on to give us flexibility? One, so we are not caught with only one supplier in certain conditions; two, so we can grow at the production rate we need to grow at.

Senator KAINE. I think that the point, Mr. Chair, just about the fragility of the supply base. If you have a supplier and they just change the mixture on the welding flux, and then that leads to the inadequate delivery of propellers for the subs, which then means the subs cannot do what they are supposed to do, I mean, it is pretty fragile when the changing of the mixture on welding flux ends up potentially blocking your ability to get propellers.

Secretary GEURTS. Absolutely.

Senator KAINE. So I think using those—the funds that I asked about earlier to expand the submarine supply base is important to

make sure that we are not leaning too heavily on something that is as fragile as you point out.

Secretary GEURTS. Absolutely, sir.

Senator WICKER. The \$450 million that you asked about earlier—

Senator KAINE. Yes. Yes, I think that that can be used to address some of these challenges, I think.

Senator WICKER. And you agree with that?

Secretary GEURTS. Yes, sir. We certainly agree. I mean, we have done a lot of work looking at common suppliers across our nuclear aircraft carriers and submarine programs and, actually, the support of the Committee here, both making sure that they are—the suppliers are ready to go and that we can take advantage of doing common buys across those programs so that supplier sees a more steady stream of planned and predictable work.

It is challenging enough at the prime level when programs start and stop and move around. It gets really challenging in the second- and third- and fourth-level suppliers to be able to deal with changing profiles and changing requirements. So the efforts the Committee has done here to help us in that regard will pay off big as we continue along on these important programs.

Senator KAINE. Thank you so much. Thanks, Mr. Chair.

Senator WICKER. Mr. Secretary, you answered Senator Kaine's question about the troubling issue of the advanced weapons elevators. Let us get your thoughts on three others that are significant risks in the *Ford*-class. The electromagnetic aircraft launching system, the advanced arresting gear, and the dual band radar—how are we coming on those?

Secretary GEURTS. Sir, I would say of all of the technologies on the CVN 78, of which there were many we have proved out on this lead ship, the weapons elevator is the one that is last one for us to get tied up and work our way through. I think we have got a path there.

On both the EMALs program, both the launcher and the arresting gear, we have had over, I think, 747 both catapults and traps on the CVN 78 during its 81 days—

Senator KAINE. I hope the numbers were equal of the launches and the—

Secretary GEURTS. Yes, they were. They were, sir.

Senator KAINE. Relatively, you know—

Secretary GEURTS. Relatively, 24,000 cycle events of that equipment on our shore-based test site there. So we are feeling pretty confident on both of those systems, both on catapults and the arresting gear there. Dual band radar, again, making good progress there. I do not see any major technical issues with that system as well.

And then, as we look toward CVN 79, we are seeing fairly drastic reductions in labor hours. HI has proven that once we get this design nailed down, their ability to be efficient in producing those, we are seeing 16 percent less production labor hours on the second carrier in that class than the first one. And so, as we get that design locked down, the efficiencies that we expected to see are bearing out in the production phase.

Senator WICKER. Are we going to be glad we went with the EMALs and advanced arresting gear?

Secretary GEURTS. Yes, sir. The challenge with the legacy systems, one, are, you know, parts and being able to produce those, but for the carriers of the future to be able to launch everything from fairly heavy fighter craft and some of the others to very light systems like the MQ-25, you need these systems to have the range of capability you need to launch that different kind of air wing of the future. And so, while, yes, there certainly have been technical challenges we have had to work through, it really opens up our ability to operate a wider variety of aircraft from the deck, both manned and unmanned, which I think is going to be critical to those carrier effective operations as we look to the future.

Senator WICKER. Thank you.

Let us talk about frigates. We are supposed to do a competitive award in 2020. Please update the Subcommittee on the Navy's acquisition strategy for the new frigate. Is the intent still to award the contract based on full and open competition?

Secretary GEURTS. Sir, absolutely. We are marching right along the schedule that we briefed earlier. And recently, the CNO and I both validated the frigate requirements. So we have got those requirements now locked down. That was per the schedule we have. We are drafting the RFP, which we will—request for proposal, which we will get out to industry here this spring. That will give us time to get additional feedback from them. We have been interacting them throughout this whole design process as we have looked at all the requirements to make sure the requirements were affordable.

That draft RFP will then lead to an RFP we plan to release at the end of this fiscal year, which will give us a full year then to award that competitive contract, a full and open competition for the frigate program. So that program remains on track, and I am confident we will execute that to plan.

Senator WICKER. Now, on the LCS, the Congressional Research Service noted that the Navy did not perform a formal rigorous analysis to determine the right approach to addressing the set of capability gaps and mission needs with regard to the LCS. How are we going to keep from repeating this experience with the new frigate, and do you challenge to CRS in their conclusion?

Secretary GEURTS. Go ahead, Bill.

Vice Admiral MERZ. Sir, I will take that one. So, regarding the CRS Report on the LCS, no, we do not challenge it. We took some lumps on the LCS. We learned a lot. I am personally a fan of that ship and that ship class. I think it has tremendous utility, and we will come through all of that.

I will tell you a lot of lessons learned we rolled into the frigate process. The frigate process is a new process for us. We brought industry in early to discuss how these requirements may play out, using their expertise to really discover the art of possible before we set the requirements.

It created some anxiety up front, a lot of give-and-take. I think in the end, industry is happy. We are getting, at least all the vectors are, a much more lethal ship for the price point, and simply because instead of just levying requirements on industry, we are

working with them as partners ahead of the requirements process. So I think all of that is a much healthier approach to avoid some of the pitfalls we had with some of the earlier classes.

Senator WICKER. Can you describe the Navy's vision for the future surface combatant force, Admiral? To what extent does extending the service life of the *Arleigh Burke*-class destroyers affect the timeline for procuring the next large surface combatant?

Vice Admiral MERZ. Yes, sir. I touched on that a little bit earlier when I was talking about the spectrum of things we can influence over time. And the piece about the large surface combatant, about making it as an adaptable platform as we can to take advantage of these much more quickly churning capabilities that we are going to have to field. And really, adapt it in the timeframe of one maintenance cycle. Not a dry dock, not an overhaul, but we can do these pier side, we can outfit these ships and move them out.

The *Arleigh Burke* is a fantastic ship. Matter of fact, the Flight III that we are delivering soon is going to be pretty much the most capable warship on the seas. The problem with the *Arleigh Burke* is she is full. We really do not have much room to expand or modernize her much beyond her current platform.

Matter of fact, she is capable to the point now that the next large surface combatant is probably going to pick up right where we left off with the *Arleigh Burke*. So there is this very nice evolution between the two ships. When we are testing out the technology on the *Arleigh Burke*, the adaptability concept of the next generation of large surface combatant, I think we are going to be in a much better position to be a lot more agile, both on industry side and on the warfighting side with this.

Senator WICKER. What would be the timeframe, generally speaking, of this next generation?

Vice Admiral MERZ. It is a two-phased approach. The first one, early 2020s—2023, 2024—and then a follow-on version in the late 2020s, really depending on how this first phase goes.

Senator WICKER. Senator Shaheen?

Senator SHAHEEN. Thank you, Mr. Chairman.

Earlier today, the Full Armed Services Committee heard from the National Defense Strategy Commission on their report about the NDS. And one of the comments that Admiral Roughead made was that it had taken 15 months to get the *John McCain* back into operation, and it was in the context of suggesting that we cannot afford to have that kind of an asset down for that long a period of time.

If we look at history, at the Portsmouth Naval Shipyard during the 5-year span of World War II, they produced over 70 submarines. Four of them were launched on one day in 1944. So I appreciate that we are in a totally different time, and technology is different, but what are we going to do about that concern that we cannot have that major an asset down for that period of time and expect to be competitive?

Secretary GEURTS. Yes, ma'am. I think—I agree with the concern that we have got to be able to not only have the assets to start the fight or withstand the first day of the fight, but withstand the sustained fight. Part of what we are looking at as we relook at both our public shipyards and how we do private repairs is to get more

stability into those yards and get them all to the point where they are capitalized to be able to operate at the pace we need them to operate with.

Without even a wartime scenario, just looking at the amount of ship repair work we are going to have to do, I mean, that is going to continue to accelerate at the same pace as we are in the shipbuilding. So one of the things we are going to do this year is a 30-year ship repair sustainment plan so we can really look at where do we have any limitations in the system, whether that is capabilities like dry docks. Are we maximizing use of all the capacity we have? And then are there things we could do better on the acquisition strategy side that would enable some more stability in those both public and private yards so they could stabilize their workforce?

Our biggest challenge—you know, facilities is a challenge. Our largest challenge is in the workforce—

Senator SHAHEEN. Right.

Secretary GEURTS.—end of business. And if we cannot get stability, both in new construction and in repair, then we will really struggle to attract the workforce and retain the workforce we need.

Senator Kaine had a great session down in the Norfolk area just on workforce, and if you look at the numbers that we have to hire, it is a pretty staggering number. Now, if we can get to a sustainable infrastructure, both on the public side and on the private side, that can handle that load, that gives a lot more flexibility to handle unplanned work and work that in.

Senator WICKER. Will that—

Secretary GEURTS. Right now, we are right along the edge. I am sorry, sir.

Senator WICKER. Tell us about that number. Since we are talking about that, what information did Senator Kaine elicit there about the staggering number—

Secretary GEURTS. So Senator Kaine had a great session just between public yards and the private yards and the local community. I would say it is the same in all of our shipbuilding towns of how do we work together to attract, train, and retain the workforce? Whether it is in the public yards or in the private yards, whether it is new build or repair, we have got to look at that in aggregate.

Our biggest challenge in terms of achieving velocity is in workforce. I think over 50 percent right now, 56 percent in the public yards in terms of workforce have less than 5 years' experience. So not only do we have to attract those workers and get them in the system, then we have got to figure out how to more effectively train them.

I would say Portsmouth is leading—

Senator SHAHEEN. Right. The challenge is there.

Secretary GEURTS.—leading the fleet in terms of some really progressive ways to rapidly train. The challenge is, circling all the way back to BCA, drastic cuts where we have to turn that whole pipeline off. And to Admiral Merz's point, you do not just a year later turn that back on. That is a decade—you are going to create a decade problem that will cause another decade to turn around.

My hope is, unless we address this growing need, we will not handle the current workload, much less emergent work that comes out of, heaven forbid, an accident or wartime repair.

Senator SHAHEEN. I agree. Thank you.

Vice Admiral MERZ. Ma'am, I will just—

Senator SHAHEEN. Thank you, Mr. Chairman.

Vice Admiral MERZ.—pile on to say I have a lot of personal experience with Portsmouth Naval Shipyard. It is a very solid citizen as far as repairing our ships. On their behalf, I would tell you the *McCain* is a tough test case. She is not a typical repair. She is not a—

Senator SHAHEEN. Yeah, I was just—I was not suggesting that *McCain*—

Vice Admiral MERZ. Yes ma'am.

Senator SHAHEEN.—was an issue for the Portsmouth Naval Shipyard, but just that it reflects the challenge that we have got.

Vice Admiral MERZ. The *McCain* was somewhere between reconstruction, twisted steel. She was a mess, and she took a lot of bit—a lot of bit of work.

Senator SHAHEEN. Thank you.

Senator WICKER. Senator Kaine?

Senator KAINE. Well, if I could, I would just like to thank Secretary Geurts because he, at my invitation, came down. And just to kind of share, after we got the NDAA done and we had the commitment to 355 ships, I think everybody in my shipbuilding community was feeling great. I am sure your communities were feeling the same way.

But we kind of needed a scared straight moment where these will not build themselves. And so, we had, you know, the workforce needs of a 355-ship Navy, and we pulled together public and private shipyards, both the builders and repairers, and then all of the K-12 systems. There is probably about 10 jurisdictions with K-12 systems, community college, 4-years. Secretary Geurts and others came down and said if we are going to do this, let me tell you what the need will be.

The head of the Huntington Ingalls shipyard said, “Well, the shipbuilders that will be building these are in pre-K right now, but if we are not equipping with the skills or having guidance counselors kind of position them in this direction, then we will not meet the challenge in Hampton Roads, and we might not meet the challenge as a Nation.”

Senator WICKER. Do you agree, Secretary, that around Senator Shaheen's shipyard is really very, very cold there a lot of the time?

[Laughter.]

Senator WICKER. At Senator Kaine's place, the traffic congestion is just awful trying to get to and from work. You do not have to answer that question.

[Laughter.]

Secretary GEURTS. Sir, my family is from Green Bay. So those are both very warm places.

Senator KAINE. Well, and I would just say, it turned out to be just what my community needed. That June 8th symposium has generated a follow-on collaboration, and I am attending the opening of a new technical institute connected to Tidewater Community

College next Monday? Yes, I think next Monday, where they will be training a lot of people in the trades that would be relevant to this, but I think the workforce needs are going to be massive.

And to balance—the other thing I will give Secretary Geurts real compliments on, the notion of a 30-year ship repair plan. It is one thing to do a 30-year shipbuilding plan. That is fantastic. But the notion of ship repair, which was quite affected by sequester, all the readiness stuff—“We will defer maintenance on this for a while.” And it really put the workforce in a position where they did not know what was coming and when it would come and how would sequester affect them.

The idea of trying to do a ship repair plan over the same time horizon you are doing new construction makes perfect sense. And that was also really music to the community’s ears to hear a degree of foresight going into the repair side. I think all of our communities would benefit from that.

Last thing I will say, too, is I do not mean to throw a competitor into the mix, but I toured the Navy base in Rota on November the 9th, which was a Friday morning. In Rota, a lot of American ship repair is done by Navantia. The Navy leadership at the Rota base talked about, you know, we see our ships repaired in public yards and by private shipyards in United States and even by Navantia, and they were giving Navantia a lot of props and saying, “Hey, they built the Nina, the Pinta, and the Santa Maria. They know what they are doing.”

So there are good ideas out there if you are trying to do a 30-year ship repair plan, and all the good ideas are not necessarily all ours. So we ought to be trying to take good ideas from wherever we can find them.

Secretary GEURTS. Absolutely, sir. And again, I think if we can clearly show that demand signal with some stability, then we will get a number of players interested in that. Where we are doing a lot of work on our side is really looking at how we contract for those ship repairs and making improvements to that. Both for a stability standpoint, we are already seeing some of our improvements having a drastic impact on reducing timeline and allowing more players to come in to create a competitive and capable field. Because again, there is plenty of work coming.

We struggled a little bit over the last several years with the current amount of repairs. That is going to—as we talked about, that is going to continue to grow. So we have got to pay very close attention to that.

Senator Kaine. Excellent.

Senator WICKER. General Berger, thank you for listening to us for an hour. The minimum Navy requirement for amphibious ships is 38. Combatant commanders need more than 50 amphibious ships on a day-to-day basis. The current inventory includes only 32 amphibious ships, with just 10 to 15 operationally available on a given day.

What is being done to close this gap? And let me ask you about either a multiyear or block buy of LPDs.

Lieutenant General BERGER. A couple of parts of the answer to your question, Senator. First, the 38 ships, as you mentioned, is the agreed number based on a capacity to land two Marine expedi-

tionary brigades. The National Defense Strategy requires us to compete and deter and then fight if we need to, which is why the combatant commanders, as you state, say it is higher than 38. Without—if it is not going to go any higher than that, then that means some risk somewhere in the globe that the Secretary and the Chairman have to balance.

What we are doing to close it, what the Navy is doing to close it on the big decks is the next LHA follow-on to the American Tripoli, absolutely critical, and earlier is better from a Navy/Marine Corps standpoint because we need 12 big decks. They are an incredible platform, and anything we can do to move that, accelerate that, is a good thing.

On the smaller end, the LPD Flight IIs, which is a follow-on, of course, to the *San Antonio*-class, absolutely brilliant use of a hull form that both the Marine Corps and Navy are happy with, we are comfortable with in taking advantage of that hull form to replace the LSDs, which are 35, 40 years old. Absolutely critical.

Senator WICKER. Maybe, Mr. Secretary, on the Flight II—does the Navy plan to buy one ship at a time or block buy, and is multiyear procurement an important tool in cutting costs and stabilizing supplier base? Does the Navy plan to use the \$350 million to buy multiple sets of long lead time material?

Secretary GEURTS. So, generically, we have used block buys and multiyears extremely effectively here with the support of the Committee to both accelerate production and save costs. On DDG 51, we will save \$700 million on that multiyear.

In terms of the LPD one, it is a little early right now, pre-decisional in terms of what we will do with that funding until we sort out our 2020 budget. I will be happy to come brief the Committee once we get the 2020 budget locked down, and we will describe the strategy we have when we get the President's budget over here in February.

Senator WICKER. Okay. Senator King?

Senator KING. Thank you, Mr. Chairman.

I apologize for being late. There is no effort around here to schedule hearings in any rational way. If you have a computer system that can do that, let us know.

Admiral Merz, the *Zumwalt* is being armed, if you will, combat system activation in San Diego. I guess my first question is how is that going?

Vice Admiral MERZ. It is going well. As you know, we did a review of the complete requirements of the DDG 1000, the advanced weapons system, the advanced gun system, and then the combat system, and in the end, we decided to split the two programs.

Senator KING. Can you—is your mike on?

Vice Admiral MERZ. Yes, sir, it is. I will lean forward here.

Senator KING. Thank you.

Vice Admiral MERZ. We determined that the best future for that ship is to get it out there with the capability that it has and separate out the advanced gun system, leaving everything else in place, very capable platform with or without that gun. We will be developing either that—the round that goes with that gun or what we are going to do with the space if we decide to remove that gun in the future.

The rest of the ship is doing fine. It is still on track to be operational in 2021 to the fleet. And then in the ensuing cycle to get it on deployment thereafter.

Senator KING. I understand it has basically been re-missioned from land attack to strike—sea-based strike. Is that—can you define that?

Vice Admiral MERZ. It has been re-missioned to a strike platform, whether sea-based—sea targets or land targets. It can handle both, and that takes advantage of its tremendous arsenal of VLS cells. The other benefit of the *Zumwalt*-class is those VLS cells are larger than any other surface ship VLS cells. So it opens up an aperture of more weapons options for that ship.

So this is—this was thrust that drove us to, hey, let us get the ship out there. Let us not hold it back because of the projectile challenges. And it is a science and technology challenge. It is not an engineering problem. We just cannot get the thing to fly as far as we want. So we are going to continue to work on that and take advantage of the strike capabilities with the combat system of that ship.

Senator KING. If my next question is getting into a classified area, please tell me. Given the power capabilities of that ship, is this—do we see this long term is an opportunity for directed energy or other kinds of nonprojectile or non-expensive projectiles?

Vice Admiral MERZ. Yes, sir, we do. Before you arrived, I talked about how we are moving to an era of new ship adaptability. I would tell you *Zumwalt* is kind of the case study for that. She has the balance of what we call SWAP-C, the space, weight, power, and communications that allows us to expand the ship over time. So she is going to be a candidate for any advanced weapons systems that we develop.

Senator KING. Particularly given the power generation.

Vice Admiral MERZ. Exactly right. Exactly right.

Senator KING. General Berger, do you have any concerns about this re-missioning? Does this is undermine the land strike capacity that the Marines might have been counting on from this ship?

General BERGER. Senator, I do not think it replaces it at all. I think any forward commander is going to ask for all the capability he can have, and the *Zumwalt* adds to an arsenal that is already there. I do not look at it as a challenge or a competitor at all. It is—if you were in PAC Fleet or PACOM, this is more tools in your toolkit.

Senator KING. Secretary Geurts, talk about combatants—surface combatants. There is always a trade-off between industrial base and absolute lowest price. Describe you and Secretary Spencer's view of how do you make that trade-off to be sure that we are maintaining the industrial base that is necessary going forward.

Secretary GEURTS. Yes, sir. I mean, obviously, there are all the things we consider as we look at different systems and look at the industrial base. We aim to put together strategies that enable us both to keep cost competitiveness, as well as a predictable, stable industrial base.

So I think, as you saw, we adjust—by using the example of the DDG 51, we adjusted from what used to be kind of a pro-based approach to, okay complete for quantity, but each will have enough

quantity guaranteed to have a stable production line. Then over time, we will compete. So, in our case, we did not put the option ships into that 10 multiyear because depending on when the timing was, depending on the situation, we may make different choices on each of those option ships. So that was—

Senator KING. But is this kind of calculus going to be applied to the option ships?

Secretary GEURTS. Sir, we will always look at both pieces of that. I have flexibility depending on—depending on the situation to make determinations along any of those lines.

Senator KING. That me ask about the frigates. You have taken a different approach rather than a blank sheet of paper. I cannot remember the term. “Parent craft” I think is the term. Do you anticipate significant savings from that approach? It makes sense to me. I will preface the question, but—

Secretary GEURTS. Yes, sir. I think two things that are unique in that acquisition strategy that I think will bear fruit for us. One is specifying that we needed to have a parent design to then reduce the risk in the timeline associated with testing.

Senator KING. The timeline is very aggressive.

Secretary GEURTS. Yes, sir. The second piece, which I think has been paying big dividends for us, is having an interactive—an iterative requirements process. And so, the CNO and I just slapped the table on the requirements for the frigate.

Senator KING. You have closed the door?

Secretary GEURTS. We have closed the door, but that was after almost a year of iterative conversation with all the industrial competitors where we looked at the cost, the risk, the schedule impacts of any of these potential requirements changes.

So between the requirements side and the acquisition side, which included the industrial partners, we had a great back-and-forth dialogue so that everybody understood going into the competition exactly what was expected. And we understood, with much more precision than we have in the past, the cost and risk to any of our requirements. So that we, in the end, created the best balance of affordability, achievability, and operational effectiveness. That was a joint effort between the requirements and the acquisition side.

Senator KING. I compliment you on that. I think closing the door on the requirements at some point is one of the ways that we can defeat the problems of procurement and cost. How many of these is the bid going to be for? How many frigates?

Secretary GEURTS. So the initial bid will be for the lead ship and then nine additional ships. So the first 10 of what is currently a requirement of 20. That requirement may get revisited over time.

Senator KING. I understand that is winner-take-all. Out of the five bidders, one yard is going to get all that business.

Secretary GEURTS. That is the current acquisition approach. Yes, sir.

Senator KING. Why that approach? I mean, you are having five yards, highly qualified, a lot of work, a lot of intellectual input, why not some kind of division of those—of that buy in order, again, to get back to the question we were discussing about industrial base?

Secretary GEURTS. Yes, sir. It is certainly a trade-off. I think the challenge is with the production rate that we currently have laid into the shipbuilding plan, one would have to really look hard is do we have—is there enough work to sustain two yards in parallel with that?

Now, obviously, if we revisit that production rate and production ramp, there are certainly opportunities to have more than one yard produce that. Part of our strategy will be to produce a data package that would allow, should we want to go down that path, additional producers of the ship. We will have to balance that. So that will be a cost-effective—

Senator KING. Plus, for the second round, you would have additional competition. You would have additional competition plus industrial base maintenance. I hope that is at least in the discussion.

Secretary GEURTS. Yes, sir. We will continue to look at that as we go forward. Our current focus right now, and I am happy to report we are on track in terms of locking the requirements down. We will have a draft RFP out this spring. We will have a final RFP out by the end of this fiscal year, which will put us in conditions to effectively award that initial contract in October of 2020.

Senator KING. All right, thank you. Thank you, Mr. Chair.

Senator WICKER. Senator Blumenthal?

Senator BLUMENTHAL. Thank you, Mr. Chairman. Thank you for having this hearing, and thank you, each of you, for your service to our Nation and for being here today.

I was very pleased, Secretary Geurts and Admiral Merz, to see in your written testimony that the *Columbia*-class program remains the Navy's number-one acquisition priority and is on track to start construction at the beginning of fiscal year 2020 to 2021. I assume you would agree with me that it is vitally important that that program remain on track.

Secretary GEURTS. Yes, sir. That is my number-one priority.

Senator BLUMENTHAL. That is the reason that I championed an additional \$237 million in this year's NDAA in advance procurement above the President's Budget to address the long lead time that is required for this kind of program, adding capacity and capability to sufficiently prepare the submarine industrial base for that very substantial increase in work. You cannot hire people necessary for that kind of program just by putting an ad in the newspaper. Correct?

Secretary GEURTS. Yes, sir. The supplier base will be one of the pacing items for that program, particularly as we look at that program, two *Virginias* and four aircraft carrier. We are looking across that base all the time.

Senator BLUMENTHAL. Would you support increased advance procurement funding for that program?

Secretary GEURTS. Sir, I would say in advance procurement funding and anything we can do to help the supplier base will drastically reduce risk going forward. What we are seeing in most of our construction programs is a key risk is supplier fragility, either single sources or single producers where we have to ramp up production.

Senator BLUMENTHAL. Thank you.

I am sure that you have read repeatedly and carefully the GAO report entitled, "Actions Needed To Address Costly Maintenance Delays Facing the Attack Submarine Fleet." I know Senator Shaheen asked you about maintenance issues, and others may have as well. The report concluded, "The Navy has not effectively allocated maintenance periods among the public and private shipyards to limit attack submarine idle time."

As you are well aware, the GAO estimates that since fiscal year 2008, 14 attack submarines have spent a combined 61 months, 1,891 days, idling while waiting to enter shipyards for maintenance. Meanwhile, Electric Boat, which has additional capacity to take on maintenance availabilities, is being underutilized, which harms our industrial base because it means that those idle workers will go elsewhere.

In fact, without additional work, Electric Boat's workforce will decline just as it needs to ramp up the workforce for *Columbia*-class production. They need to hire an additional 15,000 new employees over the next 10 years.

So we need action now to address the backlog that is bad for our national security and the harmful impact on our industrial base. We have been talking about this maintenance backlog for over a year with no clear solution in sight. When will the Navy release a plan to provide maintenance work to Electric Boat in order to help manage their workforce and the maintenance that needs to be done?

Secretary GEURTS. Yes, sir. Attack submarine availability is a critical issue for us, particularly as we have the bathtub approaching. And so, it is one of the primary focuses for myself and Naval Sea Systems Command.

Currently, we have four submarines in maintenance availabilities at a combination of Electric Boat and Newport News. We are going to award at least two additional availabilities into the private yards to better balance that out. But going forward, you know, under the new role this Committee provided me to oversee sustainment readiness, that is really—I am really focusing on getting predictability and advanced planning in the readiness area for ship repair, with a particular focus on submarines.

And not only look at making sure we have got the public and the private yard balance correct, but we do it in a predictable manner so that the private yards can facilitate and be prepared for it. Ideally, my hope would be that we would have an enduring capability at both the public yards and the private yards for submarine maintenance repair.

Senator BLUMENTHAL. Can you tell us when you will be making those awards?

Secretary GEURTS. So the first four are currently underway. We will be, I believe, this summer releasing, this spring/summer the RFPs for those next two maintenance availabilities. Then we are going to continue to look out over time. I can give you—if you like, I will take a question for the record on the exact timing of each one of those.

But my strategic approach to this is balancing out that work and getting predictability into the maintenance planning so that we have capacity to get those ships both in and out of those availabil-

ities on time to give the combatant commanders the capability they need.

Senator BLUMENTHAL. Two of those awards will be for private and two for public? Is that the—

Secretary GEURTS. Of our upcoming availabilities, at least two of them will be to the private yards.

Senator BLUMENTHAL. And will one of those yards be Electric Boat?

Secretary GEURTS. We are still sorting out exactly our strategy, whether we are going to compete those two private availabilities or award those sole source.

Senator BLUMENTHAL. And you would be able to provide more information in a question for the record?

Secretary GEURTS. Absolutely, sir.

Senator BLUMENTHAL. I appreciate your—

Secretary GEURTS. Absolutely.

Senator BLUMENTHAL.—responding in that way. As you know, often the cost is lower in private yards like Electric Boat than it is in the public yards. The GAO concluded that private shipyards were 24 percent less expensive from 2010 to 2017 for overhauling *Los Angeles*-class subs. Has that been your experience?

Secretary GEURTS. That has not been my experience, per se. But I guess what I would say is not taking on which is cheaper than the other, every one of them will benefit through better planning, more advance planning, and having a strategy everybody can plan to and then execute, versus right now, we do not—we have not provided the planning horizons, which then drives up the cost on either side.

Senator BLUMENTHAL. I think that strategic change in direction will be welcome to everybody on this Committee because we are all concerned about the maintenance backlogs that have occurred, which pose a danger to our national security as well as our fiscal health. And I appreciate your providing any additional information.

Secretary GEURTS. Yes, sir. And we are going to absolutely need those private yards as we look to service life extend some of the *Los Angeles*-class ones by re-coring those. That will put additional pressure on the public yards. And so, again, my intent is to with this 30-year ship repair plan, get more ahead—get ahead of these looming availabilities and repair cycles so that we can put the right strategy in place, which then enables us to more cost effectively deliver those availabilities and get those ships back in the fleet.

Senator BLUMENTHAL. Thank you, Mr. Secretary.

Thank you, Mr. Chairman.

Senator WICKER. General Berger, let us talk ship to shore. Tell us how we are doing on the Marine air/ground taskforces, and with regard to the ship to shore maneuver and the vision for the future, what are our gaps and shortfalls?

General BERGER. Senator, the connectors that you spoke of, as important as they are right now, they are going to be more important in the future. In a peer competition world which you alluded to in the beginning, the concept for the Navy's operations and the Marine Corps naval force forward, we are going to be more distributed. The more distributed we are, the more important connectors are.

The LCACs we have right now that have been SLEP'ed once already need to be replaced, and they are being replaced. They have to be. The LCUs that are 45, 50 years old have to also be replaced. Both are going to be critical to move the naval force, the Marine MAGTFs around the naval force, both from ship to shore, shore to shore, and shore back to ship.

So those two—the programs for the LCAC replacement and for the LCU replacement, absolutely essential.

Senator WICKER. Okay. Well, let me move to A2AD, General Berger, and Admiral, you may want to join in here. Much have been made of emerging anti-access and area denial, A2AD, capabilities of certain countries. To what extent are existing and emerging A2AD capabilities a concern for the amphibious assault?

General BERGER. I think the A2AD threat, which is well publicized, drives you toward a place where amphibious forces, the amphibious capability is even more important. And the reason for that is you are going to need—in the layered offense and defense, you are going to need forward forces, inside forces that are survivable and lethal both.

So the ability to project power from a sea base, a sovereign ship, a platform from the sea, onto either an advanced naval base or to secure a commons area—a strait, for example, that might be contested—any of those are possible missions that the maritime component commander might need to do. I mean, his job one is to keep the commons open for friendly use and perhaps deny them from a threat.

So the ability to—if you did not have an amphibious force, said another way, Senator, if you lack that capability, then your only option is to bring it from some other land, some other place.

Senator WICKER. Are we talking—is our assumption 5 miles, 25 miles? What is the distance?

General BERGER. It is going to be completely threat dependent. It is going to be dependent on the operating environment that that commander sees in front of him.

Senator WICKER. Admiral, do you have anything to add?

Vice Admiral MERZ. I would only add that A2AD is one of those peer competitor capabilities, both ours and theirs, that we track closely. This will rapidly go to a higher classification, but it is probably less range dependent than sector dependent. That is kind of how we look at it. And the ability to operate in those environments creates advantages and disadvantages, depending on how you are outfitted to deal with it.

Senator WICKER. Senator King?

Senator KING. Thank you.

We are doing multiyear procurement block buys for combatants, maintaining industrial base. Do we have a plan on recapitalizing ready reserve force? We can have great combatants, but if we cannot get the supply to them, that is a problem. Where does that stand?

Secretary GEURTS. I will talk about it. I will say generically, and then Admiral Merz can talk about it from a requirements standpoint. I would say, yes, that is absolutely something we are going to have to work our way through in the coming years.

Right now, we are looking at it in a combination of extending some service life extension of our current assets through the authorities given and through the Committee, some potential procurement of some used assets, and then looking at a future ship Common Hull—CHAMP program that could potentially provide some new build assets going into the future. And so, we are looking at all three of those lines of operation.

On CHAMP, specifically, we are preparing by the end of the year to put an RFP out and bring on multiple potential builders to do similar to what we have done with frigate and get into an iterative requirements kind of solution space to try and, you know, lock down more of the specific requirements for that hull.

Admiral Merz's team has been working on the requirements from a warfighting standpoint. This would enable us to do the same thing we did in frigate, bring in the industry team early and then get into some iterative design requirements trade-offs so that we could then set our final requirements for what a CHAMP program would look like in the outyears.

Senator KING. This is sort of a parenthetical, but we go home and are asked to defend the defense budget and the cost. And one of the things that I have tried to get across is we are recapitalizing a lot of—and the submarine is the biggest example and in the nuclear area, the number. It would be helpful, I think, if you guys could quantify that to some extent. In other words, what is ordinary cost of operations, and what is recapitalization? The *Columbia*-class would be the prime example.

Because I think those are two different subjects that the public needs to understand that we are, in a sense, paying bills that have not been paid because some of these platforms are 40, 50 years old. And the Air Force, of course, we have got all kinds of situations where the planes are a lot older than the pilots. So that would be helpful, for the record, if you could—

Secretary GEURTS. Yes, sir. I would be happy to both answer that and then talk in those terms as we are going forward.

Senator KING. What is operation and maintenance versus what is recapitalization?

Couple of other questions. On the cruiser, we are talking about—we are talking about the frigate. Are you thinking of following a similar program on the new cruiser that it might be a pre-existing design and rather than a clean sheet of paper?

Secretary GEURTS. Sir, I think we are on the early end of defining all of the parameters around that. Admiral Merz can talk from the requirements side. Their team has been working the initial requirements. We are starting to engage industry.

Senator KING. It just seems to me to the extent that we have hull designs, that we do not have to necessarily modify. That is a much more—that is better for the taxpayers. It is faster. I hope that is in the plan.

Secretary GEURTS. There are advantages to the degree that we have hulls that can meet the requirement.

Vice Admiral MERZ. Yes, sir. I mean, we were very pleased with how the frigate requirements definition phase went.

Senator KING. Can you come up a little closer?

Vice Admiral MERZ. That will certainly—

Senator KING. That will inform the process?

Vice Admiral MERZ. That will certainly inform the large surface combatant process. It really just comes down to the SWAP-C that we spoke about on the DDG 1000, whether or not in the requirements definition phase on whether or not we can generate a hull that is going to give us enough volume to evolve over time.

Senator KING. I hope that one of the requirements for all these new platforms is that they be easily modifiable.

Vice Admiral MERZ. Yes, sir.

Senator KING. That is a 50-year hull, but you might have 10 years of software and then—

Vice Admiral MERZ. Sir, the way we say it is we cannot help that we make great ships that are around for 50 years, but what we can help is the ability to evolve them very quickly. And this whole adaptability piece is driving requirements.

Senator KING. I would think that would be a design criteria.

Vice Admiral MERZ. Yes, sir.

Senator KING. There was some testimony—not testimony. There was a question in the full Committee meeting this morning about the *John S. McCain*, and it is about to come back into service. It has taken a long time. Why did that take so long to get a ship—I mean, you could practically have built a new ship in the year plus that it took to repair that ship.

Secretary GEURTS. Yes, sir. And I think that points to our need for stable and predictable funding and programming that allows us then to build both the industrial base and the repair base that can handle the needs—

Senator KING. Was with a problem with—was there no place to fix it, or did it—it was just a yard that—

Secretary GEURTS. I think it was a—I think some of those repairs are more complex than they first appear looking at them from the outside. You know, Fitz has had some—you know, it is a pretty tremendous job to repair some of it. There are some modernization that is also occurring ongoing with it. And then you have got to work it into a fairly constrained right now either new build or repair yard workforce and capacity.

And so, my intent over time is as we look at this 30-year ship repair plan and 30-year shipbuilding plan, if we can provide stability in those efforts, we can get the workforce and the capacity built up, which then would allow us more quickly to address emergent work than we currently have right now with the—

You know, if you look at the industrial base report we submitted to the President on the executive order, one of its findings was we do not have a lot of excess capacity either in new build or in repair. And so, when an emergent repair comes out that you were not planning for, you do not have a lot of assets to immediately throw in that without having impacts down the road.

Senator KING. One follow-up question, if I might, Mr. Chair? A more general question is availability, generally. I would appreciate it if you could supply for the Committee by class of ships what percentage of the fleet of that class is available at any given moment? In other words, is it 50 percent, 60, 70, 80? I do not know.

I would think would be interesting to know and important to know because if we are better—if we are able to keep our ships in

better repair, it can be a savings in the long run. You could end up with the same combat power for less dollars if we maintain and life extend. So I would just like to know fleet availability along the various types of ships and any thoughts you have on it.

Secretary GEURTS. Yes, sir, happy to provide that for you, and we will provide it by each class of ship. Obviously, a key—

Senator KING. Do a comparison with the cruise lines ship.

Secretary GEURTS. Yes, sir. Lots of different—

Senator KING. Lots of differences.

Secretary GEURTS. Lots of differences, but there are certainly—and one of the things we have doing last year both, and particularly in aviation readiness, is taking best lesson learned out of that and bring them. We have had—we have relationships—

Senator KING. My sense is the private sector does a better job of their capital assets being online. I do not know, but that is the impression.

Secretary GEURTS. There are certainly opportunities to learn from all that. We have relationships with—in fact, we have got a team that is going to go down and has a relationship with Carnival Cruise Lines to look at that very notion.

Senator KING. So my question was not completely stupid?

Secretary GEURTS. No, sir. Absolutely not.

Senator KING. I was worried.

Secretary GEURTS. We will—

Senator WICKER. Can you put a percentage on how stupid the question was?

Senator KING. Yes, that is right.

[Laughter.]

General BERGER. Could I just add one thought? Because we talk about this all the time—the snapshot, whether it is aviation or ships, that we provide to you is going to be skewed because we deferred maintenance for years.

Senator KING. Yes.

General BERGER. So the snapshot will look not—we will not be happy with that snapshot because we knew—when we ran those ships and planes hard for a decade, we knew we were going to play a price on the backside.

Senator KING. Thank you. Thank you, Mr. Chairman.

Senator WICKER. Just a follow-up, Mr. Secretary, your written statement describes corrective measures being taken to address recent issues of welding quality and inadequate testing of missile tubes for the *Columbia*-class. Can you provide your assessment of the root causes and program impact?

Secretary GEURTS. Yes, sir. The challenges we had with *Columbia* were on the missile tubes. We had similar issues on missile tubes on the *Ohio* program decades ago. So we had moved those missile tubes very early in the program to prove out the fabrication welding of those assets.

When we got into looking at the first set of tubes that were manufactured, there were issues with improper inspection of welds, which led to missile tubes that did not fully meet all of the specifications in terms of those weld designs. So that was an issue at a supplier. The supplier did not inspect properly the welds. Those then got shipped to the production facility.

Senator WICKER. What were the consequences to that supplier?

Secretary GEURTS. So that supplier is on a fixed-price contract. So that supplier—subcontract to EB. So that supplier now is repairing all of those missile tubes.

Fortunately, we had programmed those mission tubes with a lot of margin in terms of our schedule. So we currently assess we still have 12 to 13 months of schedule margin even with all of the missile tube repairs. And so, we do not assess that will impact the *Columbia* build schedule, which is critical for us. But again, it is a very important issue.

One of the issues that points to, and we have had a couple—we have talked about the Collins shaft issue as well—is the criticality of the supply base. In the industrial base report, I think since 2000 it documented over 20,000 they call them establishments that have disappeared from the shipbuilding industrial base, really pointing to that fragility in the supply base. And so, that is one of the areas we are really focused on ensuring, one, we have got suppliers that are the building the quality products we need, and two, anywhere we have some of these single-point suppliers we try and build up their robustness.

Senator WICKER. You guys are in the building business and hardware business, not so much in the personnel business, except that you really are. What quality of young Americans are stepping forward now, General and Admiral? And we are asking them to handle some pretty state-of-the-art, sophisticated stuff. Am I correct?

Vice Admiral MERZ. Yes, sir. Our talent is eye-watering. And I do a lot of public speaking—

Senator WICKER. Eye-watering, yes.

Vice Admiral MERZ. Sir. And whenever the question comes up of the quality of American youth, I just simply say come to sea with us and see them. Keeping them from getting bored is probably the biggest challenge. I mean, they are very active. They are very multi-task. They grow up in an environment to communicate across multiple domains simultaneously. In a long story, I can tell you about my daughter that I use as an example, but they truly are just top-shelf individuals.

The challenge is it is only 1 percent of Americans qualify to serve in the military. All services are competing for that talent. It is often the same talent pool that the engineering companies are competing for. So attractive pay, benefits, the training, those are the things we continue to press forward to draw on the talent we need. It is an all-volunteer force, and that makes it a competition.

Senator WICKER. General, anything to add?

General BERGER. I think Secretary Geurts spoke earlier about not taking the industrial base for granted. He did not say it in those words, but that was what he inferred. And I think you can say the same thing about the recruiting effort that the services have to do. That is an every day, every hour of every day effort. Because just like the Admiral said, there is a lot of competition out there for the same talent.

I agree with him that the caliber of high school graduates and college students that come into the service, we have never seen

anything at that level. But it is also something you cannot take for granted. It is an everyday battle.

And I think in my personal experience—I will not speak for anyone else. My personal experience, the only time we are going to have to worry about that really is if they ever sense that the country is not behind them, is not supportive of them in some way, then we ought to be worried. But as long as that is the case, we will find enough patriots, and they are very well-qualified.

Senator WICKER. Well, thank you very much, gentlemen. We appreciate your service, and we appreciate your information to us today.

And if there is nothing else—are there some magic words that I am supposed to say?

Oh, let me just add, Senator King is right about the scheduling. Senator Hirono, in spite of her best intentions, is not going to be able to make it to the hearing at all. I will just submit my opening statement for the record.

[The prepared statement of Senator Wicker follows:]

#### PREPARED STATEMENT OF ROGER F. WICKER

##### INTRODUCTION

The Senate Armed Services Subcommittee on Seapower convenes this afternoon to examine Navy shipbuilding programs.

We welcome our three distinguished witnesses:

- The Honorable James F. Geurts (GERTS), Assistant Secretary of the Navy for Research, Development, and Acquisition;
- Vice Admiral William R. Merz, Deputy Chief of Naval Operations for Warfare Systems; and
- Lieutenant General David H. Berger, Deputy Commandant of the Marine Corps for Combat Development and Integration.

This is the first appearance for General Berger before this Subcommittee, so let me extend a special welcome and thanks for your decades of service to our Nation.

##### NAVY SHIPBUILDING

In 2016, the Navy increased its minimum requirement to 355 battle force ships, a reflection of the strategic shift to great power competition. This Subcommittee takes that requirement seriously. In fact, every Member of this Subcommittee co-sponsored legislation that I introduced last year—the SHIPS Act—to make achieving 355 ships the official policy of the United States. The SHIPS Act was included in the Fiscal Year 2018 National Defense Authorization Act and signed into law by President Trump.

However, the Navy currently stands at only 286 battle force ships. I look forward to hearing from our witnesses about the Navy's plans to meet the 355-ship requirement and options that could enable acceleration of this timeline.

Additionally, I would like to review a number of other shipbuilding-related topics, including the following:

- The new Force Structure Assessment, including the factors that have led the Navy to conduct a new Assessment;
- The *Columbia*-class submarine program, including greater clarity on the long-term funding plan and the corrective action plan for missile tube manufacturing defects;
- The *Ford*-class aircraft carrier program, including the Department's intentions regarding the block buy of the next two carriers (CVNs 80 and 81) and Advanced Weapons Elevator development;
- The Frigate program, including the path to awarding the lead ship contract in fiscal year 2020;
- The Future Surface Combatant program and the path to establishing the associated programs of record; and
- The Navy's plan to recapitalize the Nation's sealift, including the Military Sealift Command surge fleet and Ready Reserve Force.

## CONCLUSION

Secretary Mattis testified earlier this year that “we are moving toward a more maritime strategy in terms of our military strategy to defend the country.” To this end, there is no question that a larger fleet comprised of more capable ships is urgently needed to implement the new National Defense Strategy. This Subcommittee will continue looking for new ways to partner with the Navy to build the 355-ship fleet faster, while at the same time demanding the best use of every taxpayer dollar.

I look forward to our witnesses’ testimony. I now recognize Senator Hirono.

Senator WICKER. Do we need to leave some time open? Let us leave it open for a week for questions for the record.

Senator WICKER. Anything else, Senator King?

Thank you, sir, and thank you, gentlemen.

This hearing is adjourned.

[Whereupon, at 4:04 p.m., the Committee adjourned.]

[Questions for the record with answers supplied follow:]

## QUESTIONS SUBMITTED BY SENATOR MIKE ROUNDS

## ATTACK SUBMARINE QUESTIONS

1. Senator ROUNDS. Vice Admiral Merz, how is the Navy planning to mitigate the attack submarine shortfall in the 2020s?

How will the implementation of this mitigation plan change the current projections for attack submarines in the 355-ship plan submitted to Congress?

Understanding the degradation of the industrial base Admiral Merz described in our discussion during the 27 November hearing, what outside the box thinking can be applied and how can Congress assist the Navy with resources to address this shortfall PRIOR to the estimate of “towards the end of the current shipbuilding cycle” that Admiral Merz provided at this hearing?

Vice Admiral MERZ. Similar to other shipbuilding lines, Navy is partnering closely with industry in applying the three enduring principles discussed in the fiscal year 2019 Shipbuilding Plan. First, steady growth—staying absolutely committed to steady procurement profiles, which for the SSNs is two per year; deviating only deliberately, and only in concert with other industrial base activity. Second—aggressive growth—taking advantage of additional industrial capacity when available. Based upon the challenges related to expanding the workforce for the new *Columbia*-class SSBN and the ongoing delays in private shipyard maintenance, Navy is cautious regarding adding new-construction projects, but has targeted the “gap years” in SSBN production to add additional SSNs to reach the force structure requirement of 66 earlier. Third—service life extensions—perhaps the most actionable option, Navy has identified seven candidate *Los Angeles*-class submarines for refueling, two of which are funded in the FYDP which will mitigate the near term SSN shortfalls in the late 2020s.

Regarding resources, Congress’ support to Navy shipbuilding accounts has been superb. But introduction of continuous production of *Columbia*-class SSBN represents Navy’s single largest fiscal challenge for upcoming budgets and may constitute the biggest threat to the other lines, including SSNs. As we continue to probe the limits of the industrial base, and we’re able to more aggressively drive production, we’ll coordinate closely on resourcing opportunities.

Additionally, consistent annual funding in the shipbuilding account is fundamental to sustaining steady growth (capacity). Equally important as the new ships are delivered is the properly phased, additional funding in operating, maintenance, and sustainment, which accounts for a much larger fiscal burden over the life of a ship. The burden on these accounts is growing, and will continue to grow until equilibrium is reached at the desired higher inventory, when deliveries match retirements and all resourcing accounts reach steady-state. For perspective, the current budget, among the largest ever, supports a modern fleet of approximately 300 ships. Sustaining a much larger 355 ship fleet must be coordinated with Congress as we continue to grow.

2. Senator ROUNDS. Vice Admiral Merz, how many attack submarines are in dry dock right now?

How many attack submarines are in the queue for dry dock?

How long will it be for each of these submarines to get to dry dock?

What is the average wait projected for other attack submarines that will be moving to this queue in the next year? Two years? Five years?

What can congress do to, with respect to providing resources, to improve the situation?

As of today, how many attack submarines are non-operational and awaiting dry dock?

Vice Admiral MERZ. There are nine attack (SSN) submarines currently in dry dock in public and private shipyards. Seven other SSN submarines have undocked and are nearing completion of their maintenance availability, but have not yet returned to operational status. There are 13 SSN submarines currently in the availability planning window. As of today, three of the 13 (USS *Charlotte* (SSN 766), USS *San Juan* (SSN 751) and USS *Boise* (SSN 764)) are restricted to surface operations awaiting dry docking (in the queue). Based on a data date of 22 January 2019, of the three SSNs restricted to surface operations, SSN 766 is scheduled to enter dry dock in June 2019; SSN 751 in February 2019; and SSN 764 in May 2019. In the next year (22 January 2019 to 1 February 2020), three other SSN submarines will be restricted to surface operations awaiting dry dock with an average wait time of approximately 9 months. In the next two years (22 January 2019 to 1 February 2021), a total of seven SSNs (four more in addition to the three cited above in the first year) will be restricted to surface operations awaiting dry dock with an average wait time of approximately 7 months. In the next five years (22 January 2019 to 1 February 2024), a total of nine SSNs (two more than the seven cited above in the first two years) will be restricted to surface operations awaiting dry dock with an average wait time of approximately 6 months. Continued Congressional resource support for the Navy's depot maintenance improvement initiatives, including the Shipyard Infrastructure Optimization Plan, as well as continued support for Navy's efforts to balance our public sector workload, maintain a healthy industrial base, and reduce idle time by contracting selected SSN availabilities to the private sector will help to improve the situation.

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QUESTIONS SUBMITTED BY SENATOR RICHARD BLUMENTHAL

SUBMARINE MAINTENANCE

3. Senator BLUMENTHAL. Secretary Geurts, last week, GAO released a report titled, "Actions Needed to Address Costly Maintenance Delays Facing the Attack Submarine Fleet." The report concluded, "[the] Navy has not effectively allocated maintenance periods among the public and private Shipyards to limit attack submarine idle time." Transferring a few backlogged availabilities from the public yards to the private yards should be explored as a short-term solution for the backlog. It would help grow private yard workforce and help mitigate the workforce decline. I am concerned that we have been talking about the maintenance backlog for over a year—with a clear solution in sight—and there is not enough urgency in addressing the issue. When will the Navy release a plan to provide maintenance work to private shipyards in order to help manage their workforce? When will the Navy decide whether to sole source or open competition these availabilities? How many maintenance availabilities do you anticipate awarding to private shipyards, particularly Electric Boat?

Secretary GEURTS. A report to Congress on Submarine Maintenance was signed on December 27, 2018, and provides a five-year plan for submarine maintenance that restores operational availability and fully utilizes both public and private nuclear-capable shipyards. The Navy plans to outsource two availabilities to the private sector in fiscal year 2020 and fiscal year 2021. The acquisition strategy is currently being formulated for these availabilities. General Dynamics Electric Boat and Huntington Ingalls Industries—Newport News Shipbuilding are the two qualified private shipyards in the United States to perform nuclear work.

4. Senator BLUMENTHAL. Secretary Geurts, CBO released a report in September titled, "Comparing the Costs of Submarine Maintenance at Public and Private Shipyards," and found private shipyards, on average, were less expensive than public shipyards. In fact, CBO concluded private shipyards were 24 percent less expensive from 2010 to 2017 for overhauling *Los Angeles*-class Subs. In your hearing testimony, you indicated that this has not been your experience. Please provide the Navy's cost estimate for private versus public shipyard maintenance and an explanation for any discrepancies in cost analysis.

Secretary GEURTS. Based on our analysis, the cost between the public and private shipyards are competitive.

The Navy met with CBO to review their analysis and determine how they arrived at their conclusions. As part of those discussions, the Navy determined that CBO had been provided data directly from the Visibility and Management of Operating and Support Costs (VAMOS) system which has been known to have incomplete information. After correcting for the known data errors, the Navy ran an analysis using much of the CBO methodology. The results are discussed below.

| Analysis  | Public SY Cost (\$M) | Private SY Cost (\$M) | % Delta |
|---|----------------------|-----------------------|---------|
| Comparison of DSRA Avails in the same FY                  | \$53.84              | \$51.88               | 3.6%    |
| Comparison of DSRA *CONUS Avails in the same FY           | \$46.66              | \$51.88               | 10.1%   |
| Comparison of multiple year DSRA Avails                   | \$53.38              | \$51.88               | 2.8%    |
| Comparison of multiple year DSRA * CONUS Avails (FY08-13) | \$47.40              | \$51.88               | 8.6%    |
| Comparison of multiple year DSRA * CONUS Avails (FY08-16) | \$51.84              | \$51.88               | 0.08%   |
| Comparison of EOH Avails                                  | \$324.03             | \$443.70              | 51.8%   |

DSRA - Drydock Selected Restricted Availability

EOH – Engineered Overhaul

\*CONUS Availabilities do not include Pearl Harbor Naval Shipyard DSRA

- The Navy’s analysis shows that both sectors—public and private—are competitive with the cost of performing an availability. It is important that the public and private shipyards continue to price their availabilities to be cost efficient and maintain capabilities.
- CBO analysis relied on cost alone which is not sufficient to reach an accurate conclusion. Duration of the availability, which was not addressed by CBO, plays a significant role in the Navy’s ability to meet National Defense Strategy requirements. The Navy’s analysis shows the private shipyard availabilities experience significantly longer duration times with more days of maintenance delays which combined, has a larger negative impact on operational availability.

| Shipyards         | Total Availability Duration | Days of Maintenance Delay |
|-------------------|-----------------------------|---------------------------|
| Public Shipyards  | 145–165 Days, (Range)       | 45–60 Days, (Range)       |
| Private Shipyards | 323 Days, (Average)         | 147 Days, (Average)       |

- This study revealed the limitations of using VAMOS as the sole source for availability information.
- Navy recognizes the private shipyards are strategic partners and will continue to consider the entire public/private industrial base as it assesses workload requirements and seeks to mitigate workload peaks within any given year.
- The limitations and assumptions considered in calculating the cost between the private and public shipyards, and due to proprietary business decisions made by private shipyards, an apples-to-apples comparison is extremely challenging. Based on this analysis and two current private shipyard EOH avails which are expected to cost over \$440 million each (an average \$115 million over current public shipyard costs), we conclude that cost savings between public and private shipyards is marginal, at best.

5. Senator BLUMENTHAL. Secretary Geurts, in last year’s NDAA, I required the Navy to submit a report on how it plans to address this maintenance backlog. The report delivered in February stated, “The Navy intends to execute all the workload programmed at the Naval Ship Yards, with no availabilities moving from the public to the private sector.” Yet at a House Armed Services hearing in March, Secretary Spencer acknowledged that private yards will be more involved with maintenance. In your testimony, you also alluded to plans to distribute work among private shipyards. Please provide an explanation for these discrepancies and the plan to proceed.

Secretary GEURTS. Each year, the Navy holds a Fleet Scheduling Conference intended to establish a plan for executable depot maintenance schedules that maximizes operational availability of the submarine fleet. The dynamic nature of submarine operations and maintenance requires refinement of this plan on an annual basis. Navy always considers the importance of balancing the workload across the public and private sectors to support future maintenance and modernization requirements, as well as ensuring new ship construction efforts in the private sector are adequately supported. Based on our most recent analysis of the workload, the Navy plans on outsourcing two availabilities to the private sector; one in each of fiscal years 2020 and 2021.

#### ATTACK SUBMARINE STRIKE CAPACITY

6. Senator BLUMENTHAL. Secretary Geurts, as our guided-missile submarines—the SSGNs—begin to retire in fiscal year 2026 to 2028, the Navy will face a reduction in strike capacity. To meet this need, the first *Virginia* Payload Module boat will be begin construction in fiscal year 2019. In the 30-Year Shipbuilding Plan, the Navy notes that *Virginia* Payload Module is a “mid-term” strategy for replacing the SSGN strike capacity. The plan then signals that the Navy is considering adding up to five more modified *Columbia*-class submarines in the 2030s and 2040s, similar to current SSGNs that provide significant cruise missile payload power. This would help address the “boom and bust” build cycles and stabilize the build rate to help maintain workforce rates. What can you tell us about the Navy’s desire to continue building additional *Columbia*-class submarines beyond the 12 boats to be completed in the 2030s?

Secretary GEURTS. There are two governing documents that identify the need for a payload-based large diameter submarine, the Nuclear Posture Review and the fiscal year (FY) 2019 Long Range Plan for Construction of Naval Vessels. The Nuclear Posture Review directed the need for a minimum force of 12 total *Columbia*-class SSBNs. The Navy could potentially procure additional *Columbia*-class SSBNs or similar platforms if necessitated by changes in the strategic environment.

The four SSGNs now in service retire in the mid-2020s. The Long Range Plan for Construction of Naval Vessels for fiscal year 2019 identified the need to build a payload-based large diameter submarine that will follow Block V *Virginia*-class attack submarines with *Virginia* Payload Modules in accordance with the Tactical Submarine Evolution Plan. The Navy is evaluating the continued production of the *Columbia*-class Hull Form to serve as SSGN(X) with future payloads and capabilities.

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#### QUESTIONS SUBMITTED BY SENATOR MAZIE HIRONO

##### PUBLIC SHIPYARD MODERNIZATION

7. Senator HIRONO. Secretary Geurts, we are all aware of the Navy’s new plan for modernizing the public ship yards. I consider this to be a major improvement after years of neglect of this important infrastructure. Certainly, there have been military construction projects and various upgrades over the years, but the Navy has pursued these without a comprehensive plan. The Navy told us earlier this year that the Navy would issue a master plan for modernizing the 4 public shipyards in the fall of 2018. That master plan was intended to guide Navy investment over the next 20 years. Secretary Geurts, has the Navy released that master plan? If not, when do you expect to release the master plan?

Secretary GEURTS. The Navy has not yet finalized a master plan for modernizing the four public shipyards. We intend to release the plan in the second quarter of fiscal year 2020 after we complete our next phase of modeling and simulation.

The Department of the Navy has released a Shipyard Infrastructure Optimization Plan (SIOP), as required by the fiscal year 2018 National Defense Authorization Act. The SIOP provided a framework of the requirements for recapitalizing the infrastructure at the four public nuclear shipyards to include critical dry dock repairs, restoring needed shipyard facilities and optimizing their placement, and replacing aging and deteriorating capital equipment. Sustained funding in these three areas will ensure that the public shipyards have the capability and capacity to execute the projected nuclear maintenance workload. The estimated cost and schedule for this effort is \$21 billion over 20 years.

The plan for recapitalization of the Naval Shipyards involves modeling and simulation with industrial consultations to ensure the optimal placement of facilities and completes the SIOP’s Phase II. Initial modeling and simulation at Pearl Harbor Naval Shipyard is planned to start February 2019, with the target date for final-

izing the master plan (the recapitalization of all four shipyards) in the second quarter of fiscal year 2020.

8. Senator HIRONO. Secretary Guerts, given the backlogs of current ship maintenance and the likely growth in ship maintenance to support a 355-ship fleet, how much should we expand the capacity of the public yards to support our Navy?

Secretary GEURTS. The Shipyard Infrastructure Optimization Plan (SIOP) was developed to recapitalize dry docks and capital equipment and to optimize the facility layout at the four Naval Shipyards. These efforts will improve the performance at Naval Shipyards by increasing dry dock capacity, providing shipyard workers with new industrial equipment and by reducing total personnel and material travel and movement. The SIOP is expected to account for the new force structure of the nuclear fleet by recapitalizing the four existing Naval Shipyards.

CVN-78 ADVANCED WEAPONS ELEVATORS (AWE)

9. Senator HIRONO. Secretary Guerts, the CVN-78 program has been subject to a number of problems during its construction. We are all too familiar with the testing and development problems of the Dual Band Radar (DBR), the Electromagnetic Aircraft Launch System (EMALS), and the Advanced Arresting Gear (AAG) programs. Now the program is experiencing further problems with the Advanced Weapons Elevator (AWE) program. The ship delivered nearly 3 years behind schedule, and it now seems likely that the ship will not complete post shakedown availability on time due to slips in the AWE program. Are the problems with each of these four developmental programs in any way attributable to a problem with systems engineering expertise or discipline within the Naval Sea Systems Command (NAVSEA)? *Virginia*-class production

Secretary GEURTS. No, Naval Sea Systems Command's systems engineering expertise is not the problem. The problems the CVN 78 program encountered with the four developmental programs (DBR / EMALS / AAG / AWE) are attributable to: 1) a lack of fully ship representative land-based test facilities; and 2) fielding developmental systems in a concurrent design and construction environment. Limited land-based test infrastructure delayed discovery of first of class design and ship integration issues. Resolution of identified challenges in many instances required CVN 78 shipboard hardware and software changes which drove schedule delays.

10. Senator HIRONO. Secretary Guerts, we understand there may be delays in projected deliveries of *Virginia*-class submarines, particularly from Newport News. Some of these relate to production in general, and some relate to problems in welding shafts. Can you give us the latest status on resolving the welding problems for attack submarine shafts?

Secretary GEURTS. Shafts procured for *Virginia*-class Submarine (VCS) Block IV ships are 4.5-to-12 months late to the shipbuilder required in-yard dates. Collins Machine Works (Collins) informed the Navy of an issue with shaft construction on August 23, 2018. An assessment team was formed consisting of Navy, shipbuilder, and vendor representatives to evaluate the situation, identify alternative design options and qualify new products and procedures.

The shafts are procured by Huntington Ingalls Industries-Newport News Shipbuilding (HII-NNS) and there have been issues with satisfactorily applying cladding during manufacturing of main propulsion shafts. This is the result of changes in the formula of the welding flux and that numerous welding parameters were incorrectly set, which was not recognized until a new flux vendor—Bohler—provided technical support to Collins in early November 2018. The Navy has approved Collins' weld procedure for production and Collins will use their new flux in production by the end of February. Additionally, the Navy has taken action to expedite refurbishment of previously used VCS in-service shafts. By a combination of the use of Bohler flux for new construction shafts and the expedited refurbishment of in-service shafts, impact is minimal to Block IV ship deliveries. The issue is limited to one new construction hull with a four-month delay to need date and not in the critical path of delivery.

11. Senator HIRONO. Secretary Guerts, what is causing delays in Newport News' ability to produce *Virginia*-class submarine modules on time for themselves and for Electric Boat?

Secretary GEURTS. *Virginia*-class Submarine (VCS) Block IV submarines are under construction at both General Dynamics Electric Boat (GDEB) and Huntington Ingalls Industries—Newport News Shipbuilding (HII-NSS). Compared with the Block III contract, which contained contracted delivery spans of 66 months and

began the ramp up to two-per-year submarine deliveries, the Block IV contract contained reduced contract spans of 62 months for the first three and 60 months for the remaining submarines. Block IV module delays from HII–NNS, coupled with previously existing performance issues relating to labor and material, will likely cause Block IV submarines to be between 3-to-12 months late to contract delivery date.

Performance issues with module construction have been noted at HII–NNS across Blocks III and IV. During Block III construction, these issues were exacerbated as the shipyard was challenged to ramp up to two-per-year VCS construction while experiencing a reduction in work force, a hiring freeze, and quality issues impacting both modules and final assembly and test. Early performance on Block III was impacted by HII–NNS Structural Fabrication and Assembly (SFA). As a result, HII–NNS submarines (SSN 787, 789, and 791) have construction spans of ~70 months versus contract span of 66 months.

Block IV module construction performance has experienced a degradation resulting from early material availability issues and associated non-optimal work sequences, reduction in work force, a hiring freeze, and SFA workforce efficiency. The two-per-year VCS construction has continued to stress labor resources at both HII–NNS and GDEB.

A Navy led assessment team was assembled to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans. In addition to Navy participation, the team also includes an experienced representative from GDEB and HII–NNS. Based on the assessment team's recommendations, the shipbuilders have evaluated the recovery options after performing a detailed product review of every module. This review has allowed the shipbuilders to determine which modules may need work offloaded between shipbuilders to enable a recovery construction sequence. To address enterprise issues, greater oversight and key workforce additions are being implemented. Both the government and shipbuilders will employ forward looking metrics, a focus on early construction and critical modules/assemblies, and improved schedule tools to support and track recovery efforts. Currently the Navy is expecting a return to on schedule delivery by the end of Block IV.

#### AIRCRAFT CARRIER BLOCK BUY

12. Senator HIRONO. Secretary Guerts, section 121 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 provided the Navy the authority to purchase two aircraft carriers (CVN–80 and CVN–81) under a block buy contract, subject to certification of certain facts by the Secretary of Defense. As a matter of policy, why should we be rewarding Newport News for mediocre performance on building the CVN–78 and on building attack submarines with a new contract valued at more than \$20 billion?

Secretary GEURTS. Shipbuilder performance on CVN 79 has shown substantial improvement over CVN 78, which was the lead ship of the first new design of nuclear aircraft carriers in 40 years. CVN 79 is performing at nearly a 19 percent recurring manhour reduction when compared to CVN 78 actuals, and is on track for an early launch. This reduction in manhours was made possible through continuous process improvement that included design modifications that improve manufacturing efficiency and maximize the use of facilities. Production efficiencies are being realized through the use of unit families, pre-outfitting, and complex assemblies which move work to a more efficient workspace environment; reduction in the number of super-lifts; and facility investments which improve the shipbuilder trade effectiveness. In addition, the CVN 79 single ship contract is a Fixed Price Incentive Firm Target (FPIF) type contract and contains the steepest shareline in any carrier construction contract to date, offering the greatest incentive for the contractor to contain costs and improve performance.

The Navy is committed to reducing and controlling the cost of *Ford*-class aircraft carriers. The two CVN buy achieves maximum value for taxpayer dollar, with savings expected to exceed \$4 billion when compared to the Navy's original estimate of the cost of buying these CVNs separately. The \$15.9 billion contract the Navy has negotiated for the CVN 80 and CVN 81 ensures continued FORD Class cost reduction by enabling the shipbuilder to build two ships to a single technical baseline which allows it to maximize economic order quantity for material, level load its shops and rollover engineering products. The contract agreement for CVN 80 and CVN 81 includes an overall manhour target that is a 22 percent reduction from CVN 79 including a production manhours reduction equivalent to an 82 percent learning curve. The FPIF contract type limits the Navy's liability and incentivizes the shipbuilder to execute to the contract's aggressive targets. Additionally, the con-

tract includes special incentives beyond the shareline that motivates the shipbuilder to control cost in the areas of construction labor performance, material procurement and through capital investments. CVN 81 will be a separate contract line item under the same contract as CVN 80, which allows the Navy to monitor performance on a per hull basis. The contract structure will create a direct link between contract performance and realized cost savings for each ship.

COLUMBIA-CLASS MISSILE TUBES

13. Senator HIRONO. Secretary Guerts, the *Columbia*-class program has experienced difficulties with welding the missile tubes. You have been working through possible mitigation plans to assess the impact on the schedule for this important program. Could you give us your current best assessment of the impact of these welding problems on the overall *Columbia*-class program?

Secretary GEURTS. Our current recovery plan reduced the schedule margin to 11 months ahead of construction need date for *Columbia*. To date, the contractor has executed to this recovery plan.

14. Senator HIRONO. Secretary Guerts, what is the likely impact for our British partners on the program?

Secretary GEURTS. We currently estimate an eleven-month delay to missile tube delivery to the United Kingdom. The United Kingdom continues to evaluate potential impacts such a delay would have on their construction schedule.

15. Senator HIRONO. Secretary Guerts, is this an example of the Navy and contractor team giving insufficient attention that is symptomatic of a larger problem with oversight of subcontractor programs, such as was the case with the electric motors for the *Columbia*-class earlier?

Secretary GEURTS. Yes, the Navy agrees these are indicators of insufficient oversight of subcontractors. The Navy and Industry teams are addressing this through corrective actions with subcontractors and throughout the supplier base. Subcontractor management and conduct of comprehensive supplier oversight are key focus areas for the Navy and industry teams. Supplier readiness efforts, which began within the framework of the Integrated Enterprise Plan efforts, were expanded in late 2018 based on lessons learned from supplier engagements and the Missile Tube (MT) issue. In response to the MT issue, the shipbuilders performed a critique and developed a revised shipbuilder supplier oversight and quality model based on a risk management framework which will be fully implemented in 2019. As a short term corrective action, both shipbuilders conducted Interim Supplier Assessments on MT related suppliers and a portion of 20 other critical non-MT suppliers in late 2018. Additionally, the Navy's Supervisor of Shipbuilding teams in Groton and Newport News, and Navy program offices conducted re-evaluations of the government oversight processes and have identified plans of action and milestones to improve processes in 2019.

DDG-51 AWARD/SPLIT

16. Senator HIRONO. Secretary Guerts, the Navy recently awarded the multiyear contract for 10 ships, with 6 ships award to Ingalls and 4 ships awarded to Bath. Was this division of the 10-ship program related to delays in production at Bath of the DDG-1000 and the DDG-51 programs?

Secretary GEURTS. No, the award of the competitive fiscal year 2018 to 2022 DDG 51 Multiyear Procurement (MYP) was not related to production delays at General Dynamics Bath Iron Works (GD BIW). The fiscal year 2018 to 2022 MYP ships were procured using a limited competition between the current DDG 51 class shipbuilders, GD BIW and Huntington Ingalls Industries, Ingalls Shipbuilding (HII Ingalls), in order to generate the best price for the government and its taxpayers while also helping to maintain the critical surface combatant shipbuilding industrial base.

The MYP ships were competed using a combination of historically successful competitive strategies primarily through Compete for Quantity, with one Profit Related to Offer outcome also possible. Outcomes included the potential for both shipbuilders to be awarded an equal number of ships or for one shipbuilder to be awarded a larger share of the workload. The minimum quantity awarded to each shipbuilder was four ships. Possible award patterns included a 5/5, 6/4, or a 4/6 ship award. The award quantity of the 10 MYP ships was based on the pricing scenario that provided the lowest total evaluated ceiling price to the Government.

This overarching strategy continues the competitive environment that the Navy has successfully fostered to contract for the procurement of 77 (DDG 51-DDG 127)

previous ships in the class and aligns with the Department's priorities to deliver capacity and capability affordably while strengthening an industrial base that is critical to achieving increased lethality and resiliency.

17. Senator HIRONO. Secretary Guerts, according to many Navy studies, we need to keep two yards building large surface combatants. With that in mind, what should be done to improve the performance at Bath? What steps are being taken by the Bath shipyard to improve their performance? What steps are being taken by the Navy to help Bath improve its production performance?

Secretary GEURTS. The Navy continues to work across the shipbuilding industrial base to most efficiently produce Navy ships on or ahead of contract schedules in order to meet Fleet requirements. At any shipyard, including General Dynamics Bath Iron Works (GD BIW), the Navy and shipbuilder need to work together in order to focus on contractor cost performance, improve hull-to-hull learning and the application of continuous improvement processes, hold to contract milestone and delivery schedules, and provide procurement demand stability.

To meet these objectives, GD BIW has focused on improving worker safety and product first-time quality. Additionally, GD BIW has made capital investments in its fabrication facilities to increase throughput and better meet schedules. To ensure that shipbuilder best-practices are communicated and process learning is maintained, GD BIW has also focused on its hiring, training and apprenticeship programs to enable the success of its construction workforce.

The Navy has also worked with GD BIW to enable the shipbuilder to most efficiently execute its construction contracts. The Navy has provided funding for Capital Expenditure (CAPEX) projects at the shipyard in the past, and most recently in conjunction with the award of the third fiscal year 2016 ship (DDG 127) and the Flight III change on the fiscal year 2017 ship (DDG 126). The recently awarded MYP includes provisions for future CAPEX projects. The Navy is supporting GD BIW in its efforts to improve its production efficiency by implementing Class II changes (shipbuilder corrections/improvements) in its Flight IIA production design baseline and provided funding in fiscal year 2017 to help ensure these changes were also captured in Flight III products.

#### SHIP-TO-SHORE CONNECTOR (SSC)

18. Senator HIRONO. Secretary Guerts, under the Ship-to-Shore Connector (SSC) program the Navy has been developing a replacement for the landing craft, air cushion vessels, or LCACs. This looked like it would be a relatively straight forward development effort, but this program is also behind schedule. Can you tell what is wrong with the contractor's effort to produce these craft on time?

Secretary GEURTS. SSC is behind schedule due to:

- A factory fire at a subcontractor's facility (GE Dowty). This subcontractor produces the propellers. Reconstitution of their manufacturing capability slowed craft propeller production.
- Unexpected vibrational concerns in the propeller test stand slowed testing and required equivalency testing on the craft. Continued testing of the Electrical and Command, Control, Communications, Computers & Navigation (C4N) system revealed stability issues, delaying testing completion while C4N software updates are developed and implemented.
- During testing, Craft 100 lost power and drifted into a bridge. The subsequent grounding caused damage to the craft and delayed operational testing and delivery.
- Longevity issues associated with certain gearbox bearings were identified during craft-level testing of the gearboxes and are the most significant contributor to the current craft delays. Textron Systems, Marine and Land Systems (TSMLS) is working with their vendors to update the bearing design on certain gears to resolve this issue.

The U.S. Navy has a Fixed Price Incentive Fee contract with TSMLS. TSMLS is working diligently to overcome the challenges stated above and delivery of the first craft is anticipated to occur in mid-2019.

19. Senator HIRONO. General Berger, will the delays in the SSC program have any effect Marine Corps' ability to conduct amphibious assault operations?  
General BERGER. No.