S. HRG. 112–590, PT. 2

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2013 AND THE FUTURE YEARS DEFENSE PROGRAM

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

ON

S. 3254

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2013 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CONSTRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

PART 2
SEAPOWER

APRIL 19 AND 26, 2012

Printed for the use of the Committee on Armed Services

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THURSDAY, APRIL 19, 2012

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVY SHIPBUILDING PROGRAMS

The subcommittee met, pursuant to notice, at 9:30 a.m. in room SR–232A, Russell Senate Office Building, Senator Jack Reed (chairman of the subcommittee) presiding.

Committee members present: Senators Reed, Sessions, and Wicker.

Majority staff member present: Creighton Greene, professional staff member.

Minority staff members present: Bryan D. Parker, minority investigative counsel; and Christopher J. Paul, professional staff member.

Staff assistant Present: Brian F. Sebold.

Committee members' assistants present: Carolyn Chuhta, assistant to Senator Reed; Gordon Peterson, assistant to Senator Webb; Lenwood Landrum, assistant to Senator Sessions; and Joseph Lai, assistant to Senator Wicker.

OPENING STATEMENT OF SENATOR JACK REED, CHAIRMAN

Senator REED. Let me call the hearing to order. I want to welcome and thank our witnesses who have joined us this morning. We're honored to have the Honorable Sean J. Stackley, who's the Assistant Secretary of the Navy for Research, Development, and Acquisition; Vice Admiral Kevin M. McCoy, USN, Commander, Naval Sea Systems Command; Vice Admiral John T. Blake, USN, Deputy Chief of Naval Operations (CNO), Integration of Capabilities and Resources, N8; Vice Admiral William R. Burke, USN, Deputy CNO, Warfare Systems, N9; and Lieutenant General Richard P. Mills, USMC, Deputy Commandant for Combat Development and Integration/Commanding General, Marine Corps Combat Development Command. Thank you, gentlemen, thank you.

We're obviously grateful not only for your appearance today, but for your extraordinary service to the Nation and to the extraordinarily courageous and professional men and women of the Navy

and the Marine Corps that you have the privilege to lead, and we thank you and we hope you thank them, too, on our behalf.

The Navy continues to be faced with a number of critical issues as it tries to balance its modernization and procurement needs against the cost of current operations. The shipbuilding budget remains at a level where it will be difficult at best to field the Navy we want, and indeed even the Navy that we need.

With that in mind, we need to ensure that we are getting good value for every shipbuilding dollar that we spend. We were very pleased to see the Department of Defense's (DOD) original decision to budget for two *Virginia*-class submarines per year, but are troubled by the new shipbuilding plan that would delay one of the two fiscal year 2014 boats until fiscal 2018. We know that the Navy and contractor team are able to drive down costs under the two boats per year plan. We will need to hear more about why the Navy made this change and what options may exist for reinstating the two boats per year plan.

We support the Navy's continuing efforts to drive costs out of the *Ohio* replacement SSBN program. SSBNs will remain a vital leg of the nuclear triad for the foreseeable future. Establishing and achieving cost reduction goals in the *Virginia*-class and *Ohio* replacement programs will yield significant stability to our Nation's submarine industrial base and provide the Navy with a modern, capable submarine fleet for many years to come.

Last month, the subcommittee held a private briefing on issues surrounding the *Ohio* replacement program. But we should get on the record that the Navy continues to try to reduce costs on this program to make it more affordable and potentially less disruptive to the rest of the shipbuilding account.

Also last month, the full committee heard testimony from Secretary Frank Kendall, who agreed that, even with Navy cost reduction efforts of the program, DOD may need to step in and help the Navy pay for this critical program, the SSBN program particularly. We will want to hear from our witnesses about the cost reduction efforts and how DOD might step in to help pay for this program. I think you understand, I have a certain affection and regard for submarines.

The subcommittee met last year and focused primarily on other programs that were experiencing quality control issues or other production issues. It is never a pleasant situation where major programs are having such problems. In receiving last year's testimony from the Navy, it seemed to me that the Navy was making good faith efforts to improve the situation through changes in staffing, training, and organization.

We're eager to hear from Secretary Stackley and Vice Admiral McCoy this morning on the progress they have made on these initiatives since last year.

In our country's fiscal environment, it's very unlikely it will have as much money to spend as the 30-year shipbuilding plan assumes. Fundamentally, that is why this hearing is so important. We need to focus on managing these important programs in ways that are efficient and effective in delivering the capability the country needs from its Navy. We need to improve quality and efficiency in all of our shipbuilding programs, not only because of the direct savings,

but also because we need to demonstrate to the taxpayers that we are using defense dollars wisely.

We look forward to hearing your testimony this morning on these and other issues facing the Navy.

With that, let me recognize Senator Wicker.

Thank you.

STATEMENT OF SENATOR ROGER F. WICKER

Senator WICKER. Thank you, Mr. Chairman. I know you have an affection for submarines, but you also have an affection for defending the country in general, as a whole; and I think in that regard we're very well-served by this very distinguished panel; we have five men with very difficult tasks and responsible jobs. I appreciate them being here at this important hearing.

Vice Admiral Burke is here, I believe, for the first time before this panel. Last month, the CNO assigned Admiral Burke to the new position of Deputy CNO for Warfare Systems, responsible for integration of manpower, training, sustainment, modernization, and procurement of ships, submarines, and air programs. We look forward to seeing him again before this subcommittee.

Let me take a moment to mention that this is a particularly momentous year in our history. It marks the bicentennial of the War of 1812 and the writing of our national anthem, the Star Spangled Banner. Notably, the War of 1812 was the first declared war in our Nation's history. The Battle of Lake Erie, which is depicted in William Henry Powell's beautiful and profound painting in the east stairwell of the Senate, was fought during this conflict and is one of the Navy's greatest victories.

Today, our sailors and marines continue to exemplify the benchmarks of leadership, seamanship, and heroism set by their predecessors 200 years ago.

I also want to recognize the outstanding efforts of the Navy's expeditionary sailors in places like my State of Mississippi. Our Seabees from the Naval Construction Battalion Gulfport have facilitated the fastest combat theater expansion in U.S. Central Command's (CENTCOM) history. In the past year, approximately 2,400 of our Gulfport-based Seabees from two naval construction regiments and nine naval mobile construction battalions deployed to Afghanistan and Kuwait, Okinawa, Guam, Europe, and Africa. Their hard work and dedication reflects the very finest traditions of the Navy.

Mr. Chairman, the Navy's 30-year shipbuilding plan that was submitted to Congress last month projects that for the first time the fleet would remain below 310 ships during the entire 30-year period. The plan also foresees critical shortfalls in cruisers, destroyers, and amphibious ships.

I believe these proposed cuts to our naval capabilities without a plan to compensate for them will place our strategic interests in the Asia-Pacific region and Arabian Sea at greater risk. I'd like to hear from our witnesses on what I consider five key issues that our subcommittee will review this year.

First, viability of the industrial base. The viability of the 30-year shipbuilding plan is essential to the strength of our shipbuilding industrial base. The strength of the skills, capabilities, and capac-

ities inherent to new construction, shipyards, and weapons system developers reinforce the Navy's dominant maritime position. I'd like to hear from our witnesses how they carefully weighed the effects on the shipbuilding industrial base when they balanced resources and requirements in drafting the shipbuilding plan.

Second, balance of the force. I remain concerned about the amount of funding needed for ship construction going forward. With more than half the construction and development cost dollars allocated to build nuclear submarines, submarine construction costs could crowd out funding needed to build large surface ships and to modernize the fleet. I hope our witnesses can tell us what they're doing to reduce the cost of building these submarines and give us their views on the impact of submarine construction costs on surface shipbuilding, including amphibious ships and destroyers.

Third, I'm interested in learning the views of our witnesses on ways we can ensure the Navy's shipbuilding plan meets the demand for amphibious ships from our combatant commanders. This demand has increased more than 80 percent over the last 5 years. I'm particularly pleased that the Navy and Huntington Ingalls signed a Memorandum of Agreement (MOA) last month for LHA–7, the second *America*-class amphibious assault ship to be built in my home State of Mississippi.

As we begin to pivot toward the Asia-Pacific region, the Navy and Marine Corps will serve as the linchpin of American force projection abroad. Amphibious ships such as LHA–7 will help enable our troops to meet any challenges that our country may face in the future.

Fourth, multiyear procurement authority. This subcommittee will carefully consider in the coming weeks the Navy's two shipbuilding multiyear procurement requests included in its budget submission: authority for the *Virginia*-class submarines and the DDG–51 *Arleigh Burke*-class destroyers. I know members of our subcommittee will be interested to learn how these multiyear proposals will offer the best value to the warfighter and the American taxpayers.

Finally, sequestration. The Navy faces significant budget challenges ahead. The Budget Control Act (BCA) passed by Congress and signed by the President last August requires sequestration to be implemented across all the departments, including DOD. Sequestration is not a hypothetical. It is the law of the land, unless changed. On January 3, 2013, a mere 257 days from today, sequestration will happen unless legislation is passed to undo it.

Mr. Chairman, our national defense is solely a Federal responsibility. Defense spending is also a two-fer that supports our national security and our high-tech manufacturing workforce. As such, I hope our witnesses today will elaborate on their assessment of the impact that sequestration will have on our sailors, marines, and our industrial base.

With that in mind, I look forward to the testimony of all these fine witnesses. Also, Mr. Chairman, without objection, at this point I would like to submit the statement for the record of our colleague, Senator Susan Collins, who could not be here due to a scheduling conflict. Thank you, sir.

[The prepared statement of Senator Collins:]

PREPARED STATEMENT BY SENATOR SUSAN COLLINS

Secretary Stackley, I want to thank you and the other witnesses for your public service. The challenges facing our country and our Navy are great. The administration and Congress have a responsibility to establish budget priorities. The Senate has not passed a budget in 2 years, and I am troubled by the priorities established in the budget of this administration, and previous administrations when I look at the historic budget topline for shipbuilding. The annual shipbuilding budget has averaged about $14 billion, which is troubling when I compare that figure to other Federal spending each year.

For example, our country pays as much in interest on the national debt each month as we do for shipbuilding for an entire year. We spend the equivalent of the shipbuilding budget, $15 billion a year, on Federal agency travel and conferences. The Army spent more than a year's worth of shipbuilding—$19 billion—for research and development on the Future Combat System—a program it ultimately cancelled.

Shipbuilding represents a mere 2.2 percent of the $614 billion requested by the Department of Defense (DOD) this year. So, the point I simply would like to make is that Navy ships are a great value for our country. Ships promote U.S. diplomacy overseas. They deter aggression from happening in the first place. They protect the commercial sea lanes that underpin our national economy.

It seems to me that the shipbuilding account punches above its weight in comparison to the small portion of the DOD and Federal budget it represents.

Senator REED. Thank you, Senator Wicker.

Senator Sessions, do you have any comments?

Senator SESSIONS. Thank you, Mr. Chairman, for your leadership. I value that so much. You've been a real asset to the Senate. Senator Wicker, thank you for those good comments.

I'm concerned about the sequester. Senator Reed, he is exactly correct. That is the law. We need to be taking some real action to fix it so we don't end up scrambling at the last minute.

So I thank all of you for your testimony and I look forward to participating.

Senator REED. Thank you very much.

I want to commend my colleagues, too, for their great service in support in a very collaborative and cooperative basis on so many different issues. So thank you, gentlemen.

Secretary Stackley, I presume you will go first; is that correct? Or do you have another preference?

STATEMENT OF HON. SEAN J. STACKLEY, ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION); ACCOMPANIED BY VADM KEVIN M. MCCOY, USN, COMMANDER, NAVAL SEA SYSTEMS COMMAND; VADM JOHN T. BLAKE, USN, DEPUTY CHIEF OF NAVAL OPERATIONS, INTEGRATION OF CAPABILITIES AND RESOURCES (N8); VADM WILLIAM R. BURKE, USN, DEPUTY CHIEF OF NAVAL OPERATIONS, WARFARE SYSTEMS (N9); AND LT. GEN. RICHARD P. MILLS, USMC, DEPUTY COMMANDANT FOR COMBAT DEVELOPMENT AND INTEGRATION/COMMANDING GENERAL, MARINE CORPS COMBAT DEVELOPMENT COMMAND

Mr. STACKLEY. Yes, sir, I'm going to propose that we have a single statement for the Navy and Marine Corps.

Senator REED. That is welcome. Thank you very much, Secretary Stackley.

Mr. STACKLEY. Yes, sir. Thank you, Mr. Chairman, Senator Wicker, Senator Sessions, for the opportunity to appear before you today to discuss Navy shipbuilding. As always, thank you for your

leadership on the many issues that fall under Congress' broad responsibility to provide and maintain our Navy and, perhaps most importantly, for your steadfast commitment to our sailors and marines around the world.

With the permission of the subcommittee, I have a brief opening statement and would propose to submit a more formal statement for the record.

Senator REED. Without objection.

Mr. STACKLEY. Thank you.

Today we are a force of 282 ships, about half of which on any given day are underway, performing missions around the globe, supporting operations in Afghanistan, providing maritime security along the vital sea lanes, missile defense in the Mediterranean and the Sea of Japan, intelligence, surveillance, and reconnaissance (ISR), as needed, global presence at sea and with an embarked marine force, and readiness to move ashore.

They're conducting anti-piracy patrols, global partnership stations humanitarian assistance, and they are quietly, reliably on patrol and providing strategic deterrence. All the while they're training for the next deployment, the next operation.

In support of the defense strategic guidance, we're building toward a force of about 300 warships, ships that will provide the capability and the capacity to maintain our maritime superiority today and for the foreseeable future.

We have reshaped our shipbuilding plan over a year ago to reflect the priorities of the new defense strategy and the reality of fact-of-life top-line reductions consistent with the BCA. This year's shipbuilding plan strikes a balance between capacity, capability, affordability, and the industrial base.

We have important work to do in order to close out-year gaps or risks identified by the long-range shipbuilding plan. In doing so, we need to drive the equation to deliver the full capability and capacity that our warfighters need, at the lowest possible cost.

The Secretary of the Navy remains strongly committed to investing in shipbuilding and we have put that commitment to work over the last year. Since this time last year, two destroyers, a submarine, an LPD–17 amphibious ship, and a T–AKE dry cargo-ammunition ship have joined the fleet. The submarine *Mississippi*, the Littoral Combat Ship (LCS) *Fort Worth*, and the Joint High-Speed Vessel (JHSV) *Spearhead* will deliver this spring. Another half a dozen ships have been christened, keels have been laid for the lead ship of the DDG–1000-class, the mobile landing platform (MLP) class, and the next LCS, *Virginia*, and T–AKE. Construction has begun on another 11 warships.

In total, since December 2010, we've awarded contracts to procure 38 ships, including options, most competitively awarded, all fixed-price contracts, and we're on track to increase that number to 40 this spring with the anticipated awards of the next amphibious assault ship, the LHA–7, and the 11th and final ship of the LPD–17 class. These contracts provide an important degree of certainty to our industrial base in an otherwise uncertain period in defense spending.

We recognize, however, that it is not possible to simply buy our way to recapitalizing our force. We must focus relentlessly on improving affordability in our shipbuilding programs.

This year's 2013 budget request includes funding for 10 ships, including the first year of full funding for the second ship of the *Gerald R. Ford*-class, CVN–79, maintaining aircraft carrier construction starts on 5-year intervals. CVN–79 is required to deliver in 2022, which aligns with the end of service life for *Nimitz*, the ship CVN–79 will functionally replace to maintain an 11-aircraft carrier force structure. This provides schedule flexibility, which is important for this ship for it enables the Navy and the shipbuilder to develop and implement a more affordable build strategy that incorporates the findings and recommendations emerging from lessons learned in the design and construction of the lead ship CVN–78.

We continue with *Virginia*-class fast attack submarine procurement at two boats in fiscal year 2013 and are requesting authorization of a nine-boat multiyear procurement commencing in fiscal year 2014. The *Virginia* program reliably delivers critical undersea capacity affordably and on time, in large part due to multiyear savings resulting from economic order quantity opportunities, improved workforce planning, and workload sequencing, optimized construction scheduling, increased opportunities for facilities investment, and reduced support and engineering workload.

Within this request, however, top-line constraints have forced the Navy to defer a planned second boat from fiscal year 2014 to fiscal year 2018.

We're requesting funding for two Flight 2A DDG–51 *Arleigh Burke*-class destroyers in 2013 in conjunction with the multiyear request for nine ships, projected to save $1.5 billion. This strong-performing, stable program provides much-needed ballistic missile defense (BMD) capability and capacity to the fleet.

Key to meeting the growing ballistic missile threat is our Air and Missile Defense Radar (AMDR) program, which will greatly improve the sensitivity and long-range detection and engagement of increasingly complex threats. In the course of the AMDR competitive development, we've witnessed impressive progress, while assessments of technology maturity steadily improve and estimates for cost steadily decline.

We are continuing to execute the dual-award strategy for LCS. In 2013, we're requesting funds for 4 ships and a total of 16 ships across the Future Years Defense Program (FYDP). Program affordability continues to improve as we ramp up production. Notably, the fixed-price options for the 10th ship of these block buys are about half the cost of their respective lead ships. Likewise, the ships' mission packages are moving smartly forward in developmental testing in support of initial operational capability (IOC) milestones.

With five LPD–17-class ships in various stages of construction and the lead ship of the *America*-class preparing to float off this summer, our shipbuilding program continues to build towards the amphibious lift capability required for the assault echelon of two Marine Expeditionary Brigades in support of joint forcible entry operations. Quality continues to improve with each ship delivered on

the Gulf Coast and we are likewise working closely with the shipbuilder to improve cost and schedule on these critical programs.

While today we are finalizing contract details for LHA–7, we are requesting funding in 2013 to begin design for the fiscal year 2017 assault ship, LHA–8. Although we have shifted our plans to procure the replacement for the LHD–41-class amphibious ships beyond the FYDP, we are pressing on with the LSDX analysis of alternatives (AOA) this year in advance of preliminary design.

We're continuing to increase our logistics lift capability with the 10th JHSV and the first of three MLPs currently under contract. As well, to meet CENTCOM's requirement for an afloat forward staging base, the Navy has requested funding to modify the third MLP and advance procurement toward a fourth fiscal year 2014 MLP for this mission. This highly versatile four-ship MLP-class will then support the two maritime prepositioning squadrons as well as the Afloat Forward Staging Base (AFSB) mission.

In view of fiscal constraints, we are shifting procurement for the lead ship of the *Ohio* replacement program to 2021. This 2-year shift defers $8.5 billion of cost beyond this decade, while providing opportunity to reduce developmental risk by increasing the new ballistic missile submarine's level of design completion and maturity. Equally important, we'll need to employ this time to further our efforts to drive down costs in every stage of development, engineering, construction, operations, and support on this program.

However, the delay will result in a temporary reduction to 10 available SSBNs in the 2030s. With no major SSBN overhauls planned during this period, the risk associated with meeting at-sea present requirements is assessed to be moderate, but manageable.

The strength of our shipbuilding plan is closely coupled with the strength of our shipbuilding industrial base. Over the past several years, the Navy has placed a priority in increasing shipbuilding rates and providing stability for the shipbuilding industrial base, which translates into retention of skilled labor, improved material purchasing and workforce planning, strong learning curve performance, and the ability for industry to invest in facility improvements, all resulting in more efficient ship construction and a more affordable shipbuilding program.

Accordingly, in the course of balancing resources and requirements in the formulation of the shipbuilding plan, the effect of program decisions on the industrial base must continue to be closely weighed.

One of the greatest challenges to our future shipbuilding program and therefore elements of our industrial base is the rapidly increasing cost of our ship programs. To this end, in addition to the emphasis on stability, the Navy is establishing affordability requirements and investing in design for affordability for future ship programs, mandating use of open system design, leveraging competition where it exists in shipbuilding, employing fixed-price contracts to control costs in production, imposing strict criteria, limiting disruptive change to contracts, investing in industry-wide manufacturing process improvements through the national shipbuilding research program, and incentivizing capital investment in facilities where warranted.

Ultimately, we recognize that as we balance requirements, affordability, and industrial base considerations, it is ever more important that our shipbuilding plan closely aligns with the priorities outlined in the new defense strategy. In view of increasing pressure on our top line, it's equally paramount that we, Navy and industry, continue to improve the affordability within our programs in order to build the Navy needed by the future force.

Mr. Chairman, thank you for the opportunity to appear before you today and we look forward to answering your questions.

[The joint prepared statement of Mr. Stackley, Vice Admiral McCoy, Vice Admiral Blake, Vice Admiral Burke, and Lieutenant General Mills follows:]

JOINT PREPARED STATEMENT BY HON. SEAN J. STACKLEY; VADM KEVIN M. MCCOY, USN; VADM JOHN TERENCE BLAKE, USN; VADM WILLIAM R. BURKE, USN; AND LT. GEN. RICHARD P. MILLS, USMC

Mr. Chairman, Senator Wicker, and distinguished members of the subcommittee, thank you for the opportunity to appear before you today to address Department of the Navy (DoN) shipbuilding. The Department is committed to build the fleet that best supports the Defense Strategic Guidance that emerged from collaborative efforts of the Services, combatant commanders, Chairman of the Joint Chiefs of Staff, the Secretary of Defense and the President. The fiscal year 2013 President's budget request for shipbuilding provides for platforms that will evolve and adapt, allowing our warfighters to fight and win the Nation's wars, remain forward and be ready. While the Budget Control Act of 2011 placed new constraints on the DoN budget, which required hard choices and prioritization to address, our shipbuilding plan attempts to balance capacity, capability and the industrial base.

Today's Navy is a Battle Force of 282 ships. As described in the Long-Range Plan for Construction of Naval Vessels for fiscal year 2013, which outlines the DoN's 5-year shipbuilding plan (included in the fiscal year 2013 President's budget request) and provides a projection for new ship construction and planned ship retirements over the following 25-year period, the Navy is building for a 21st century battle force of about 300 warships.

The last year has proven eventful for Navy and Marine Corps operations across the entire spectrum of the Maritime Strategy from building maritime partnerships to executing our core capabilities of forward presence, deterrence, power projection, sea control, maritime security, and humanitarian assistance and disaster response.

As 2011 began, the *Enterprise* Strike Group sailed east from Norfolk, headed out on a penultimate deployment for the carrier. The *Vinson* Strike Group was already operating in 7th Fleet and sailing toward the Arabian Sea where it would join the *Kearsarge* Amphibious Ready Group supporting marines of I Marine Expeditionary Force in theater. *Kearsarge*, in its fifth month of deployment, had left Norfolk in the summer of 2010 with the 26th Marine Expeditionary Unit (MEU) embarked, on a mission to provide disaster relief to the flood stricken people of Pakistan. With relief efforts complete, the 26th MEU moved on to Operation Enduring Freedom in Afghanistan.

Shortly after *Enterprise* deployed, *Reagan*, *Chancellorsville*, and *Preble* would get underway from San Diego to conduct multinational training in the Western Pacific before relieving the watch in the Indian Ocean.

Then, a month later, a fuse was lit in the Middle East—unleashing instability, causing governments to topple, jeopardizing *America*n citizens and interests in this strategic region. As the Arab Spring emerged, *Kearsarge* and 26th MEU would sail to the Mediterranean and *Enterprise* would swing west. Amphibious ships *Boxer*, *Green Bay*, and *Comstock* and the 13th MEU would get underway from San Diego.

Then in March of last year, half the world away, unimaginable devastation swept away whole villages and towns along the coast of Japan, claiming an untold number of lives while leaving the smoldering threat of greater destruction and loss. Before the world fully grasped the situation, marines, stationed in Okinawa, would airlift to the region for disaster response. The *Essex* Amphibious Group, forward deployed to Japan, would get underway and the *Reagan* Strike Group, now in the Western Pacific, would sail north, joining *Essex*, to provide critical supplies, medical services and rescue efforts. Operation Tomodachi would eventually employ 22 ships, 140 aircraft and 15,000 sailors and marines to deliver more than 260 tons of relief supplies to earthquake and tsunami survivors.

Meanwhile, as Muammar Qaddafi launched his army in an assault against his own citizens, guided-missile destroyers *Stout* and *Barry* and attack submarines *Providence* and *Scranton* and the guided missile submarine *Florida*, as well as British ships and submarines, launched their cruise missiles against Libyan air defense, surface-to-air missile sites and communication nodes, demonstrating our extraordinary power projection capability. Over the course of the NATO operation, *Florida* would launch more than 90 Tomahawks of the more than 200 total.

Aircraft of the *Enterprise* and 26th MEU operating from *Kearsarge*, joined by the first deployed EA–18G Growler squadron, would leave Afghanistan and redeploy to the Mediterranean to join coalition forces in establishing a no-fly zone to halt the Libyan army and the bloodshed it threatened.

That same week, *Bataan*, *Mesa Verde*, *Whidbey Island*, and the 22nd MEU would surge from Norfolk to strengthen the coalition Operation "Odyssey Dawn."

Through 2011, carrier air wings embarked aboard *Enterprise*, *Abraham Lincoln*, *Carl Vinson*, *John C. Stennis*, *Ronald Reagan*, and *George H.W. Bush*, on her first-ever combat deployment, would fly nearly 15,500 sorties totaling more than 49,000 flight hours in support of coalition forces on the ground in Iraq and Afghanistan and Operation New Dawn.

What is most remarkable about this story of the first 3 months of 2011 is that it is replayed month after month in Navy and Marine Corps operations. On any given day in any given year, nearly half of our battle force ships are underway, supporting missions around the globe—conducting anti-piracy patrols, global partnership stations, under-ice operations, supporting operations ashore, strategic deterrence, missile defense missions, amphibious operations or humanitarian assistance missions, such as the hospital ship *Comfort* in Operation Continuing Promise. Today, *Enterprise*, commissioned in 1961, is once again on deployment, this time, for the last time.

No other military and no other nation on earth today, has the reach, the presence, the capability, the training and the resolve to maintain this pace or breadth of operations. Global reach, persistent presence, and operational flexibility, the inherent characteristics of U.S. seapower articulated in the Cooperative Strategy for 21st Century Seapower, are demonstrated in all we have done in 2011 and continue to do in 2012. These tenets, along with the Defense Strategic Guidance, guide the priorities and direction of the Department of the Navy's fiscal year 2013 President's budget request.

THE FISCAL YEAR 2013 BUDGET REQUEST

The fiscal year 2013 President's budget request funds 10 ships: 1 *Gerald R. Ford*-class aircraft carrier, 2 *Virginia*-class fast attack submarines, 2 DDG–51 *Arleigh Burke*-class destroyers, 4 Littoral Combat Ships (LCS), and 1 Navy Joint High Speed Vessel (JHSV). In addition, the Department is requesting Multiyear Procurement (MYP) authority for the *Virginia*-class (fiscal year 2014 through fiscal year 2018 ships) and the DDG–51 *Arleigh Burke*-class (fiscal year 2013 through fiscal year 2017 ships).

AIRCRAFT CARRIERS

Our aircraft carriers are best known for their unmistakable forward presence, ability to deter potential adversaries and assure our allies, and capacity to project power at sea and ashore; however, they are equally capable of providing our other core capabilities of sea control, maritime security, and humanitarian assistance and disaster relief. Our carriers provide our Nation the ability to rapidly and decisively respond globally to crises with a small footprint that does not impose unnecessary political or logistic burdens upon our allies or potential partners.

The *Gerald R. Ford* is the lead ship of our first new class of aircraft carrier in nearly 40 years. *Gerald R. Ford*-class carriers will replace aging *Nimitz*-class carriers and are expected to be the premier forward deployed asset for crisis response and early decisive striking power in a major combat operation through the remainder of this century. While the *Gerald R. Ford* aircraft carrier design uses the *Nimitz*-class hull form, it is essentially a brand new ship with new technologies and interior arrangements that improve warfighting capability, operational availability, and quality of life, while reducing crew size (approximately 1,200 sailors including air wing reductions) and total ownership costs (TOC). TOC reduction by hull is expected to result in $5 billion over the 50 year service life of each ship of the *Gerald R. Ford*-class.

The fiscal year 2013 President's budget requests the first year of full funding for the second ship of the *Gerald R. Ford*-class, CVN–79, effectively maintaining aircraft carrier construction starts on 5 year intervals. This is an important benchmark

for sustaining the large vendor base that supports this unique ship class. The build duration for CVN–79, though, has been extended by 2 years. This adjusted profile provides for delivery no later than 2022, which aligns with the end of service life for *Nimitz*, the ship CVN–79 will functionally replace to maintain an 11 carrier force structure. This extended build period will also allow for production efficiencies which are discussed in more detail below.

Inarguably, this new class of aircraft carrier brings forward tremendous capability and life cycle cost advantages compared to the *Nimitz*-class she will replace. However, the design, development and construction efforts required to overcome the technical challenges inherent to these advanced capabilities have significantly impacted cost performance on the lead ship. In the course of this past year, the Navy conducted a detailed review of the *Gerald R. Ford*-class build plan to improve end-to-end aircraft carrier design, material procurement, production planning, build and test. This effort, taken in conjunction with a series of corrective actions with the shipbuilder on the lead ship, will not erase cost growth on *Gerald R. Ford*, but should improve performance on the lead ship while fully benefitting CVN–79 and following ships of the class. The added build duration planned for CVN–79 allows the Navy and shipbuilder to develop and implement a more affordable, optimal build strategy that incorporates the findings of the end-to-end review as well as lessons learned from design and construction of the lead ship. This year's budget request includes prior year completion funding to address increases incurred to date in *Gerald R. Ford* government furnished equipment, non-recurring design, and ship construction.

Among the new technologies being integrated is the Electromagnetic Aircraft Launch System (EMALS) which will support *Ford*'s increased sortie generation rates. EMALS testing continues and has been successful. To date, EMALS has launched more than 1,500 dead loads and 134 aircraft launches from the full scale EMALS production representative unit using 5 different types of test aircraft, including an F–35C Joint Strike Fighter. EMALS' production schedule supports the planned delivery of *Gerald R. Ford* in September 2015.

Advanced Arresting Gear (AAG) is also a new technology planned for *Gerald R. Ford*. This technology will provide the capability to recover all existing and future carrier-based fixed wing air vehicles, including those too heavy or too light for current systems. Testing of a full-scale, land-based installation of AAG is ongoing. It, too, supports the planned delivery of *Gerald R. Ford*.

Dual Band Radar (DBR) will also be introduced on *Gerald R. Ford*. DBR integrates an X-band Multi-Function Radar with an S-band Volume Search Radar to provide a single interface to the ship's combat system. Its active planar arrays enable *Gerald R. Ford* to be designed with an island smaller than those on current carriers, which contributes to the ship's increased sortie generation rate. With the truncation of the DDG–1000 program at three ships and subsequent removal of the S-band radar from the DDG–1000 baseline, *Gerald R. Ford* will be the lead ship for DBR developmental testing. DBR production schedule supports the planned delivery of *Gerald R. Ford*.

Gerald R. Ford's newly designed reactor delivers more core energy and nearly three times the electrical output of the current carrier's plant, yet will need only half as many sailors to operate and will be easier to maintain. *Gerald R. Ford* also incorporates several survivability enhancements to counter current and emerging threats.

With more than half of the service life of the *Nimitz*-class still remaining, the Refueling Complex Overhaul (RCOH) continues as a key enabler for the enduring presence of the aircraft carrier fleet. This year's budget request includes prior year completion funding for the RCOH of the fourth ship of the *Nimitz*-class, *Theodore Roosevelt*, whose availability was extended due to unexpected growth work discovered during execution. In addition, the budget request includes incremental funding to initiate the RCOH of *Abraham Lincoln* and advance procurement funding for the RCOH of *George Washington*.

THE SUBMARINE FLEET

Submarines have a unique capability for stealth and persistent operation in an access-denied environment and to act as a force multiplier by providing high-quality Intelligence, Surveillance, and Reconnaissance (ISR) as well as indication and warning of potential hostile action. In addition, attack submarines are effective in anti-surface ship warfare and anti-submarine warfare in almost every environment, thus eliminating any safe-haven that an adversary might pursue with access-denial systems. As such, they represent a significant conventional deterrent. While our attack submarine fleet provides considerable strike capacity already, our guided missile

submarines provide significantly more strike capacity and a robust capability to covertly deploy special operations force (SOF) personnel. Today the Navy has four guided missile submarines (SSGN). To mitigate the loss of strike capacity when SSGNs retire in the next decade, the Navy has requested Research and Development funding in fiscal year 2013 to begin design of a modification to the *Virginia*-class SSN, the *Virginia* Payload Module. This added capability would contain four SSGN-like tubes for strike and future payloads. Pending the future fiscal environment, modified *Virginia*-class SSNs could be procured starting no earlier than fiscal year 2019. This would permit Navy to sustain undersea strike capacity without requiring the Navy to construct a purpose-built ship to replace the SSGN—an option that would be cost prohibitive.

The fiscal year 2013 President's budget requests funding for two *Virginia*-class submarines in fiscal year 2013 as well as advance procurement and economic order quantity funding for the fiscal year 2014 through 2018 boats. The fiscal year 2013 boats are the last two submarines under the Block III (fiscal years 2009 through 2013 Multiyear Procurement (MYP) contract). Now in its 15th year of construction, the *Virginia* program reliably delivers this critical undersea capability affordably and on time, in large part due to the cost savings and stability provided by the program's multiyear procurement strategy. The Department expects continuation of this strategy to yield similar benefits, and is including a legislative proposal for the authorization of a nine-ship MYP for procurement of the next block of *Virginia*-class submarines (fiscal years 2014 through 2018) with the fiscal year 2013 President's budget request. The Navy estimates 14.4 percent savings on this MYP versus single ship procurement, as result of economic order quantity opportunities, improved workforce planning and workload sequencing, optimized construction scheduling, increased opportunity for facilities investment, and reduced support and engineering workload; all made possible by leveraging the stability offered by the MYP.

The Navy is mitigating the impending attack submarine force structure gap in the 2020s through three parallel efforts: reducing the construction span of *Virginia*-class submarines, extending the service lives of selected attack submarines, and extending the length of selected attack submarine deployments.

Ballistic missile submarines are the most survivable leg of the Nation's strategic arsenal and provide the Nation's only day-to-day assured nuclear response capability. They provide survivable nuclear strike capabilities to assure allies, deter potential adversaries, and, if needed, respond in kind. The *Ohio* Replacement Program inventory is assumed to be 12 ships. The Nuclear Posture Review (NPR) completed in April 2010 determined that the United States would retain a nuclear triad under New START and that, for the near-term, the Navy would retain all 14 SSBNs in the current inventory. The NPR stated that, depending upon future force structure assessments and how SSBNs age in the coming years; the United States will consider reducing from 14 to 12 *Ohio*-class submarines in the second half of this decade. To maintain an at-sea presence for the long term, the United States must continue development of the follow-on to the *Ohio*-class submarine. Due to budget constraints, the Department has shifted procurement of the lead *Ohio* Replacement submarine by 2 years (from fiscal year 2019 to fiscal year 2021). The delay results in a temporary reduction to 10 available SSBNs in the 2030s during the transition period between *Ohio* and *Ohio* Replacement SSBNs. Because there are no major SSBN overhauls planned during this period, an available force of 10 ships will be able to meet the current U.S. Strategic Command's at-sea presence requirements, albeit with increased operational risk that stems from the reduced force levels. The fiscal year 2013 budget requests funding to continue development of the *Ohio* Replacement Program and ensures Common Missile Compartment efforts are on track to support the United Kingdom's Successor Program's schedule. All aspects of the *Ohio* Replacement Program will continue to be thoroughly reviewed and aggressively challenged to drive down engineering, construction, and operations and support costs.

As threats evolve, it is vital to continue to modernize existing submarines with updated capabilities. The submarine modernization program includes advances in weapons, integrated combat control systems, sensors, open architecture, and necessary hull, mechanical and electrical upgrades. These upgrades are necessary to retain credible capabilities for the future conflicts and current peacetime ISR and Indication and Warning missions and to continue them on the path of reaching their full service life. Maintaining the stability of the modernization program is critical to our future Navy capability and capacity.

Modernization is also critical to sustaining the current combat capabilities of the submarine fleet. Through extensive use of commercial off-the-shelf (COTS) equipment, modern submarine Control, Communications, Computers, and Intelligence (C4I) systems are maintained with a minimal industrial logistics tail. Regular re-

placement of electronics through the Tech Insertion process prevents part obsolescence and related impacts to operational availability. This successful COTS model has sustained the submarine fleet for the past decade at a fraction of legacy combat system costs. Maintaining the stability of the modernization program is critical to our future Navy capability and capacity.

LARGE SURFACE COMBATANTS

Guided missile cruisers (CGs) and guided missile destroyers (DDGs) comprise our large surface combatant fleet. When viewed as a whole, these ships fulfill broad mission requirements both independently and in conjunction with a strike group. The demands for increased capability and capacity in Ballistic Missile Defense (BMD), Integrated Air and Missile Defense (IAMD) and open ocean anti-submarine warfare (ASW) have resulted in a shift of focus on the type and quantity of these ships. The Navy's ongoing analysis is influenced by the emerging shift of focus for large surface combatants; the increased demand for capability and capacity in integrated air and missile defense; and open ocean anti-submarine warfare resulting from changing global threats. BMD forward presence is assumed to be "in stride" meaning that a BMD capable ship can transition rapidly between BMD and other operations historically assigned to these classes of ships.

The DDG–1000 *Zumwalt* guided missile destroyer will be an optimally crewed, multi-mission surface combatant designed to provide long-range, precision naval surface fire support to marines conducting littoral maneuver and subsequent operations ashore. The DDG–1000 features two 155mm Advanced Gun Systems capable of engaging targets with the Long-Range Land Attack Projectile at a range of over 63 nautical miles. In addition to providing offensive, distributed and precision fires in support of marines, it will provide valuable lessons in advanced technology such as signature reduction, active and passive self-defense systems, and enhanced survivability features. The first DDG–1000 is approximately 65 percent complete and is scheduled to deliver in fiscal year 2014 with initial operating capability planned in 2016.

The fiscal year 2013 President's budget requests funding for two Flight IIA DDG–51 *Arleigh Burke*-class destroyers as well as advance procurement and economic order quantity funds for the fiscal year 2013 through fiscal year 2017 Multiyear Procurement (MYP). These two ships are planned as part of the fiscal years 2013 through 2017 MYP. The Flight IIA ships will incorporate Integrated Air and Missile Defense (IAMD), providing much-needed BMD capacity to the Fleet. In evaluating the merits of a MYP contract for fiscal years 2013 through 2017 DDG–51s, the Navy projected $1.5 billion in savings for nine ships across that time period and has leveraged these savings in the procurement of the nine ships.

The Navy is proceeding with the Air and Missile Defense Radar (AMDR) program to meet the growing ballistic missile threat by greatly improving the sensitivity and longer range detection and engagement of increasingly complex threats. This scalable radar is planned for installation on the DDG–51 Flight III ships to support joint battle space threat awareness and defense, including BMD, area air defense, and ship self defense. The AMDR radar suite will be capable of providing simultaneous surveillance and engagement support for long range BMD and area air defense. Three Fixed Price Incentive Technology Development phase contracts were awarded in the fall of 2010. AMDR technology development is on track and successfully completed the three System Functional Reviews in December 2011. Prototype development to demonstrate critical technologies is well underway. The program remains on schedule for the Preliminary Design Reviews in the fall of 2012 and the Navy plans to award an Engineering and Manufacturing Development contract in early fiscal year 2013. Pending the successful demonstration of technical maturity and final determination that production risks have been suitably mitigated, the Navy intends to conduct a separate fixed price competition for installation of the AMDR Engineering Change Proposal into DDG–51 ships, commencing in fiscal year 2016.

To counter emerging threats, the Navy continues to make significant investments in cruiser and destroyer modernization to sustain combat effectiveness and to achieve the 35 year service life of the Aegis fleet. Destroyer and cruiser modernization programs include Hull, Mechanical, and Electrical (HM&E) upgrades, as well as advances in warfighting capability and open architecture to reduce total ownership costs and expand mission capability for current and future combat capabilities. The fiscal year 2013 President's budget request includes funding for the modernization of three cruisers (one Combat Systems and two HM&E) and five destroyers (two Combat System and three HM&E). Beyond Aegis modernization, the Navy is continuing development of Hybrid Electric Drive (HED) at the Land Based Engi-

neering Site to mature this promising technology. An initial shipboard demonstration of HED is targeted for installation in a DDG–51 ship in early calendar year 2013.

The Aegis Fleet serves as the Surface Navy's sea-based BMD force. The Advanced Capability Build 12/Technology Insertion 12 (ACB 12/TI 12), also known as Baseline 9, constitutes the most significant combat system upgrade of the Aegis Fleet. In service DDGs will undergo a comprehensive modernization of their combat system, and new construction DDGs starting with DDG–113 will be outfitted with ACB 12/TI 12. ACB 12/TI 12 brings the Integrated Air and Ballistic Missile Defense (IAMD) capability to Surface Combatants. IAMD allows Aegis Destroyers to perform the BMD mission without any degradation to their ability to conduct Anti Air Warfare (AAW) simultaneously through the introduction of the Multi-Mission Signal Processor (MMSP). ACB 12/TI 12 software development is 97 percent complete and on schedule. *John Paul Jones*'s ACB 12/TI 12 modernization will begin in the fall of 2012. *John Paul Jones* will be the first IAMD capable destroyer, paving the way for backfit into existing destroyers as well as forward fit on new construction ships in the restart of the DDG–51-class. ACB 12/TI 12 also provides a platform for rapid introduction of additional BMD capabilities.

As in the past, cruisers and destroyers will continue to deploy with strike groups to fulfill their traditional roles. Many will be required to assume additional roles within the complex BMD arena. Ships that provide BMD will sometimes be stationed in remote locations, away from strike groups, in a role as theater BMD assets. The net result of these changes to meet demands for forward presence, strike group operations and BMD places additional pressure on the existing inventory of surface combatants. In addition, the constraints of the current budget resulted in the Navy having to retire seven CGs (four in fiscal year 2013 and three in fiscal year 2014) before the end of their service lives. While the specific CGs chosen for decommissioning were selected with a view toward minimizing the impact their loss will have on BMD capability and capacity, the loss of these ships will necessitate other ships fulfilling their roles in non-BMD situations—further exacerbating the demands for large surface combatant structure. To support the President's Phased Adaptive Approach for defense of Europe, Navy plans on placing four BMD capable DDG–51 platforms in a Forward Deployed Naval Forces status in Rota, Spain, significantly reducing the number of ships required to source this mission. Further, the Navy will continue to explore alternatives that will redistribute assets currently being employed for missions of lesser priority to meet the missions contained in the updated defense strategy.

SMALL SURFACE COMBATANTS

The Navy remains committed to an inventory of 55 Littoral Combat Ships (LCS). These ships expand the battle space by complementing our inherent blue water capability and filling warfighting gaps in the littorals and strategic choke points around the world. LCS design characteristics (speed, agility, shallow draft, payload capacity, reconfigurable mission spaces, air/water craft capabilities) combined with its core C4I, sensors, and weapons systems, make it an ideal platform for engaging in Maritime Security Operations.

The Navy's fiscal year 2013 President's budget funds four LCSs in fiscal year 2013, with a total of 16 to be procured across the Future Years Defense Program (FYDP). Affordability remains the key factor in acquiring the needed future capacity of these highly flexible and capable ships. The Navy remains on course to deliver these ships in the quantities needed through the execution of the two competitive block buy contracts (for ten ships of each version) awarded in fiscal year 2010. Each ship brings unique strengths and capabilities to the mission and each has been designed in accordance with overarching objectives for reducing total ownership cost.

LCS capabilities address specific and validated capability gaps in Surface Warfare, Mine Countermeasures, and Anti-Submarine Warfare. The concept of operations and design specifications for LCS were developed to meet these gaps with focused mission packages that deploy manned and unmanned vehicles to execute a variety of missions. The first two Mine Countermeasure (MCM) Mission Modules (MM), first two Surface Warfare (SUW) MMs, and the first Anti-Submarine (ASW) MM have been delivered. The fiscal year 2013 President's budget requests approximately $300 million in Research and Development funding for continued development of mission modules, and Procurement funding to buy common mission module equipment and three mission packages (one MCM and two SUW).

AMPHIBIOUS SHIPS

Amphibious ships operate forward to support allies, respond to crises, deter potential adversaries, and provide the Nation's best means of projecting sustainable power ashore; they provide the best means for providing humanitarian assistance and disaster relief. Amphibious forces comprised of sailors, marines, and ships provide the ability to rapidly and decisively respond to global crises without a permanent footprint ashore that would place unnecessary political or logistic burdens upon our allies or potential partners. There are two main drivers of the amphibious ship requirement: maintaining the persistent forward presence, which enables both engagement and crisis response, and delivering the assault echelons of up to two Marine Expeditionary Brigades (MEB) for joint entry operations.

The Chief of Naval Operations and Commandant of the Marine Corps have determined that the optimal force structure for amphibious lift requirements is 38 amphibious ships to support the operations of 2.0 MEBs. Balancing the total naval force structure requirements against fiscal projections imposes risk on meeting this requirement. Based on the footprint of a 2.0 MEB force, the minimum number of operationally available ships necessary to meet the assault echelon requirement is 30: a force made up of ten Amphibious Assault Ships (LHD/LHA), 10 Amphibious Transport Docks (LPD) and 10 Dock Landing Ships (LSD). The DoN can meet this requirement as long as all 10 of each type is operationally available when needed. Historically, the Navy has carried more than this minimum number of ships to mitigate the impact that long-duration maintenance has on their availability when they are tasked to respond during conflict. Planning factors call for a force of 33 ships to achieve this availability. Today, the Amphibious Force Structure stands at 28 ships, which includes 9 LHD/LHAs, 7 LPDs, and 12 LSDs.

The Navy is commencing recapitalization of the large deck amphibious assault ships with the construction of *America* (LHA–6). *America* is now more than 60 percent complete and is scheduled for delivery in fiscal year 2014. The fiscal year 2013 President's budget request includes a funding request to complete construction of *America*, which will cover government liabilities up to the contract ceiling and impacts from the Pension Protection Act of 2006. Beginning with LHA 8, which is planned for procurement in fiscal year 2017, the Navy will reintegrate the well deck into the large deck amphibious assault ships to provide necessary surface lift capacity. Funding to design this reintegration of the well deck is included in the fiscal year 2013 President's budget request.

The *San Antonio*-class LPD (LPD–17) serves as the replacement for four classes of older ships: the LKA, LST, LSD–36, and the LPD–4. Six of the 11 authorized and approved ships of this class have been delivered to the Navy. Lessons learned from the effort to resolve material reliability concerns identified in the early ships of the class are being applied to ships currently under construction. Quality continues to improve with each ship delivered as the Navy continues to work closely with the shipbuilder to address cost, schedule, and performance issues. The utility of this class was best demonstrated by USS *Mesa Verde* (LPD–19) as she recently returned after 19 months of deployed operation over a 25 month period.

LSD(X) will replace the aging LSD–41/49 *Whidbey Island/Harpers Ferry*-class vessels and will perform an array of amphibious missions. An Analysis of Alternatives (AoA) will be conducted in fiscal year 2012. The fiscal year 2013 President's budget requests funds for Research and Development required for technology development and initial design efforts resulting from the AoA. Affordability will be a key factor in acquiring the needed future capacity and operational capabilities of this highly flexible multifaceted ship.

A fully funded LSD mid-life program, to include repairs, is essential for ensuring the LSD–41/49 ships are able to meet their readiness for tasking requirements and meet their expected service life. Funding for LSD mid-life is included in the fiscal year 2013 President's budget request.

AUXILIARY SHIPS

Combat Logistics Support ships fulfill the vital role of providing underway replenishment of fuel, food, repair parts, ammunition and equipment to forward deployed ships and their embarked aircraft, to enable them to operate for extended periods of time at sea. Combat Logistic Support Ships consist of T–AOE fast support ships, T–AKE auxiliary dry cargo ships, and T–AO fleet oilers. The T–AO and T–AKE ships tend to serve as shuttle ships between resupply ports and their customer ships, while the T–AOE tends to serve as a station ship, accompanying and staying on-station with a Carrier Strike Group (CSG) to provide fuel as required to customer ships.

Support Vessels such as the Mobile Landing Platform (MLP) and the Joint High Speed Vessel (JHSV) provide additional flexibility to the combatant commander within the operating area. The MLP enables at sea transfer of vehicles from cargo ships and facilitates the delivery of these vehicles, equipment, personnel and supplies between the sea and restricted access locations ashore. The JHSV provides a high-speed, shallow draft alternative to moving personnel and material within and between the operating areas, and to support security cooperation and engagement missions. Other support vessels, such as salvage ships, fleet tug boats, and submarine tenders serve in various supporting roles, but are not counted as part of the battle force.

The fiscal year 2013 President's budget requests Research and Development funds to mature the Navy's concept for the replacement T–AO fleet oiler in fiscal year 2016. The Analysis of Alternatives (AoA) is nearing completion. The new oilers will have a double-hull design to ensure compliance with the environmental protection requirement for this type of ship.

In support of the enhanced Maritime Prepositioning Ship Squadron (MPSRON) concept of operations, two T–AKE auxiliary dry cargo ships are being allocated to the Maritime Prepositioning Squadrons (MPS) to provide sea-based logistic support to Marine Corps units afloat and ashore. Further, the Navy recognizes the need to provide for at-sea transfer of vehicles from a cargo ship and to provide an interface with surface connectors. The Mobile Landing Platforms (MLP) (support vessels) will provide an enhanced throughput option for the MPS and increase capacity to support combatant commander requirements. It will facilitate delivery of vehicles, equipment, personnel, and supplies between the sea base and restricted access locations ashore. The Navy has awarded a contract for three MLPs. As part of the fiscal year 2013 budget deliberations, the Department will retain two MPSRONs and return the third to U.S. Transportation Command for common sealift support. The first two MLPs will be built to support the two MPSRONs.

During the fiscal year 2013 deliberations, U.S. Central Command submitted a Request for Forces for Afloat Forward Staging Base (AFSB) capability with capacity for Mine Warfare. In the past, the Navy has provided fleet assets to address the AFSB demand. In order to avoid diverting a fleet asset to fulfill this request, the Department has elected to convert *Ponce* to provide an interim AFSB capability until fiscal year 2016. To meet the enduring AFSB mission, Navy plans to modify the MLP 3 (fiscal year 2012 ship) to become a dedicated AFSB asset and will request an MLP 4 in fiscal year 2014 to provide an additional MLP variant for the AFSB mission. This will result in a class of four MLPs—two dedicated to the two MPSRONs and two dedicated to the AFSB mission. The two dedicated MLP/AFSBs are required to provide continuous AFSB support anywhere in the world. Advance Procurement funds for the fiscal year 2014 ship as well as Research and Development funds for AFSB are included in the fiscal year 2013 budget request. MLP 3 is planned for delivery in order to replace *Ponce* by fiscal year 2016.

The fiscal year 2013 President's budget request includes funding for construction of the tenth and final JHSV (support vessel). A Memorandum of Agreement with the Army transferred programmatic oversight and mission responsibility for the entire JHSV program, including operations and maintenance, to the Navy. All delivered JHSV's will be operated by the Military Sealift Command and manned by civilian or contract mariners.

DECOMMISSIONINGS/INACTIVATIONS

As a result of fiscal constraints, the Navy chose to prioritize readiness over capacity. The fiscal year 2013 decision to decommission seven *Ticonderoga*-class guided missile cruisers (CG), four in fiscal year 2013 and three in fiscal year 2014, and two LSDs exemplify our resolve to provide a more ready and sustainable Fleet within our budget constraints. The resources made available by these retirements will allow increased funding for training and maintenance. Both the cruisers and the LSDs were in need of significant maintenance investment and six of the seven cruisers required further investment to install BMD capability. Inactivating the CGs resulted in approximately $4.1 billion in savings across the FYDP, including manpower and maintenance savings and costs avoided by not executing combat system and hull, mechanical, and electrical upgrades. These savings were shifted to other portions of the Fleet. Inactivation of the two LSDs in fiscal year 2014 saved approximately $293 million across the FYDP. These ships will be placed in Mobility "B" category, allowing for re-activation should conditions warrant. The reduction in cruiser and amphibious capacity and shift to a more sustainable deployment model will result in some reductions to the amount of presence the Navy will provide over-

seas in some select areas, or a change in the nature of that presence to favor innovative and lower-cost approaches.

AFFORDABILITY AND THE SHIPBUILDING INDUSTRIAL BASE

The strength of our shipbuilding plan is closely coupled with the strength of our shipbuilding industrial base. The critical skills, capabilities, and capacities inherent to our new construction shipyards and weapon systems developers inarguably underpin the U.S. Navy's dominant maritime position. Accordingly, in the course of balancing resources and requirements in the formulation of the shipbuilding plan, the effect of program decisions on the industrial base must be closely weighed.

Over the past several years, the Navy has placed a priority on increasing shipbuilding rates and providing stability for the shipbuilding industrial base. Stability translates into retention of skilled labor, improved material purchasing and workforce planning, strong learning curve performance, and the ability for industry to invest in facility improvements; all resulting in more efficient ship construction and a more affordable shipbuilding program.

The past *Virginia*-class and DDG–51-class MYPs, the DDG–1000 Swap/DDG–51 Restart Agreement, the LCS dual block buy, the three ship MLP procurement, the continuation of CVN–78-class procurements on constant 5 year centers, and the heel-to-toe CVN RCOH induction-to-delivery cycle have provided critical stable workload for the affected shipyards and their respective vendor base. The fiscal year 2013 President's budget request for the next *Virginia*-class and DDG–51–class MYPs will help to further stabilize the surface combatant and submarine industrial base through this decade. Likewise, the funding requested to procure a fourth MLP, and to configure MLP–3 and MLP–4 as AFSBs will also provide for added workload within the auxiliary shipbuilding sector.

However, the shipbuilding plan submitted with the fiscal year 2013 President's budget request also reflects difficult choices guided by the strategic priorities and fiscal constraints brought with two governing works; the 2011 Budget Control Act and the recently released 'Sustaining U.S. Global Leadership: Priorities for 21st Century Defense.' The decisions to truncate the JHSV program, to delay starting the TAO(X), LSD(X), and SSBN(X) programs, and to defer a destroyer, a submarine, LHA–8, and two LCS ships to later years in the FYDP (or beyond) are decisions which place added stress on the industrial base and on the affordability of the respective programs; yet best match our resources to our requirements.

Any strategy which seeks to improve upon these projections by relying upon increasing investment above the current plan for shipbuilding is, at best, high risk. In fact, the current shipbuilding program calls for significant added investment through the FYDP and beyond (particularly during the period of SSBN(X) procurement). Accordingly, the Navy must continue to explore and implement alternatives to improve upon these projections for shipbuilding and the industrial base through other means.

The strategy going forward must continue to center upon improving affordability. One of the greatest challenges to our future shipbuilding program, and therefore to elements of our industrial base, is the rapidly increasing cost of our ship programs. To this end, in addition to the emphasis on stability discussed above, the Navy is establishing affordability requirements and investing in Design for Affordability for future ship programs; mandating use of open systems design; leveraging competition where it exists in shipbuilding; employing fixed-price contracts to control cost for ships and weapon systems in production; imposing strict criteria limiting disruptive change to contracts; investing in industry-wide manufacturing process improvements through the National Shipbuilding Research Program; and incentivizing capital investment in facilities where warranted. There are additional mechanisms to improve affordability, which have required or will require congressional support:

- Strong industry performance in restarting DDG–51 production has yielded substantial savings for the fiscal year 2011/2012 ships placed under contract. The Navy is targeting additional savings through the competitive fiscal year 2013 to fiscal year 2017 MYP.
- Provision of a Shipbuilding Capabilities Preservation Agreement (SCPA), to improve a Navy shipbuilder's competitiveness for commercial work, is particularly effective for auxiliary shipbuilders that possess the skills and capabilities common to both Navy and commercial shipbuilding. Navy has signed one SCPA agreement in the recent past.

The Navy will continue to aggressively pursue the mutual objectives of improving the affordability of our shipbuilding program and increasing the strength of our shipbuilding industrial base, and is committed to working closely with Congress on these efforts.

SHIPBUILDER PERFORMANCE

The Navy continues to work with the shipbuilders to improve performance on current contracts and to invest in process improvements to maximize affordability on current and future contracts. The majority of the Navy's shipbuilding contracts are now fixed price type contracts, where industry bears a significantly increased responsibility for risk. The Navy, in conjunction with the shipbuilders, has been and continues to identify specific areas in design and build specifications that have the most potential to realize savings across multiple platforms. The four highest priority functional areas being examined are hull and structure, electrical systems, piping systems, and paint and coatings. Some of these will yield near-term cost savings while others will yield even more significant cost savings over a longer period of time.

The Navy's Supervisors of Shipbuilding (SUPSHIP) work closely with the shipbuilders to address cost, schedule, and performance issues while providing on-site oversight of the shipbuilder's quality management systems. There are numerous examples where multiple initiatives were implemented to address quality issues but some specific examples worth highlighting are associated with the construction and delivery of the *San Antonio*-class ships. Welding and production processes were significantly revised to improve quality and the workforce was retrained and recertified to ensure consistency throughout all of the shipbuilder's facilities. More stringent procedures were developed and implemented to improve the removal of contaminants from the ship's lube oil system. In addition, these procedural changes were accompanied by design improvements to the lube oil filters and strainers on all *San Antonio*-class ships. The shipyard also took steps to improve cleanliness in the pipe shop which will improve quality in the installation of pipe on the ships As a result of these and many other initiatives, contractor quality continues to improve with each ship delivered to the Navy.

The Navy is focused on compliance with the fundamental processes of structural, electrical, piping, and paint and coating work. Striving to better understand quality trends, the Navy is engaging earlier with the shipbuilder on potential cost and schedule issues through the use of earned value management and other schedule and cost tools.

Acquisition Workforce

The Navy has embarked on a deliberate plan to strengthen the acquisition workforce over the FYDP. The Navy's position is to continue its current plan as stated in the Department of Navy (DoN) Acquisition Workforce (AWF) Strategic Plan, to rebuild the DoN civilian acquisition workforce. In the past 2 years, the DoN AWF has hired approximately 4,300 full-time equivalents and has improved its education and training programs in shipbuilding program management and contracting.

The Navy continues to emphasize the need for a professional cadre of onsite SUPSHIP personnel co-located with the Nation's shipbuilding industrial base in an oversight role. Over the last year, the number of onboard SUPSHIP staff reached 1,146. This marks a continued growth trend of SUPSHIP staffing from approximately 900 onboard in fiscal year 2007 and marks another successful year of achieving hiring targets, as SUPSHIPs have done every year from fiscal year 2007 to fiscal year 2011. Preserving these staffing gains made over the past 4 years is critically important to ensuring sufficient oversight and management of the Navy's shipbuilding programs.

Summary

The Navy continues to instill affordability, stability, and capacity into the shipbuilding plan and to advance capabilities to become a more agile, lethal and flexible force to address the challenges and opportunities facing the Nation. The carrier force will sustain a 5 year interval for construction starts to better align delivery of the *Gerald R. Ford*-class ships with the ends of service life for the *Nimitz*-class ships while ensuring the Navy maintains an eleven carrier fleet. The submarine force will continue to be preeminent in the world as the Navy continues to invest in *Virginia*-class submarines via multiyear contracts, submarine modernization, and prepare for replacement of the ballistic missile capability. The plan also continues DDG–51 construction via a multiyear contract to leverage a stable design and mature infrastructure to achieve affordable capabilities. LCS will address specific and validated capability gaps in Mine Countermeasures, Surface Warfare, and Anti-Submarine Warfare, and the selection of both LCS designs leverages the unique capability delivered by each platform while providing stability to the shipbuilding infrastructure. The Navy's amphibious force will remain capable with full funding of LSD mid-life upgrades, replacement of the LSD–41/49-class ships with LSD(X), construction of the LHA Replacement Class, and successful deliveries of the LPD–17-class ships. Finally, the Navy is investing in the auxiliary fleet with the procurement of

the last JHSV and four MLPs, with variants supporting the MPS and the AFSB demands.

The Navy and Marine Corps, on the high seas and closing foreign shores, stand ready to answer the call of the Nation. We thank you for your continued support and request your approval of the fiscal year 2013 President's budget request for shipbuilding.

Senator REED. Thank you very much, Mr. Secretary, for an excellent statement.

Mr. STACKLEY. Thank you.

Senator REED. Let me go back to the issues in terms of submarines. As you indicated, we had reached some significant economies, producing the ships under budget, on time and two per year. Now we're in a situation where we're going to skip a year. That will have implications on the ability to maintain these efficiencies in the shipyards and it also will cause some disruption, which usually ends up in paying more ultimately than paying less.

I know you had to make some very difficult decisions, but I wonder if there is a way to restore a second boat to fiscal year 2014 or to mitigate the effects of the delay. Can you describe in more detail, if you feel it necessary, the reasons for the delay and what could be done to fix this issue, and is legislative authority necessary?

Mr. STACKLEY. Yes, sir. Let me just punctuate your assessment of the value of two per year and the efforts that were taken to get to that rate of production and our intent and desire to be able to sustain it. First in terms of force structure requirements, our requirements for attack submarines is laid out fairly well in the 30-year shipbuilding report and states squarely that 48 attack boats is what the Nation needs in order to meet our requirements for the near-term and long-term.

Today we have greater than 48 boats in the force. However, in order to sustain 48 boats, if you do the math, assuming a service life of about 33 years, you need to be building at a rate of 1 to 2 per year sustained. We've endured a long period of submarine construction when, in fact, we were building at one and in certain cases zero submarines. So while today we have a force greater than 48 boats, when you look ahead to the late 2020s and 2030s our force structure will dip down as a result of that past low rate of submarine construction.

So two per year, not only is it beneficial from an industrial base perspective, but it's critical from a force structure perspective that we sustain two per year in the near-term as best as possible to minimize that longer-term force structure gap.

Now, why are we staring at a one-boat year in 2014? This is simply the hard line that came with the new top line. In the Navy's budget submit, and frankly with the Office of the Secretary of Defense (OSD) throughout the budget process, I will state that everything that could be done within the top line was done to hold onto that second boat in 2014. But in the end we had to compromise on that second boat in order to balance, and in doing so we moved it from 2014 to 2018, kept it within the multiyear, which mitigates some of the impact. But it was perhaps one of the harder decisions that the Navy had to deal with.

Let me address the next part of your question, which is what are our alternatives at this point. When we were faced with making

that move, first as it was important to keep it in the multiyear because we want to at least work with industry to level load to the extent possible that dip in 2014, but we also looked at the funding. In order to fully fund a second boat in 2014, it would require, first, advanced procurement in 2013, plus the balance of full funding required in 2014.

That total is north of $700 million. It's approximately $777 million in 2013 that would be required, as well as a balance of greater than $1.2 billion in 2014. We couldn't get there within our top line. We couldn't get there.

When it comes to executing at shipbuilding, the reality is that, while we fully fund ships, our outlay rate is drawn out over a longer period of time. So for a particular program such as aircraft carriers and large-deck amphibs, where there's such a significant spike in the budget in the full funding year, the Navy, working with OSD, the Office of Management and Budget (OMB), and Congress, have adopted an incremental funding approach that smoothes out that spike, because what we need to do is ensure that our outlays and obligation rates are covered by the funding in any particular year. If we go to that alternative funding mechanism, then it smoothes out the spike.

In many respects, we're looking at a similar circumstance here with *Virginia*. That additional boat in 2014 created a spike for us in the budget and, absent the ability to other than fully fund the boat, we had to push it to the right. So we have looked at what it would take to restore the boat within the top line, and a couple of things happened.

First, when you add the boat, in addition to addressing the requirement, you generate savings associated with additional economic order quantity material, savings associated with sustained learning curve performance, as opposed to a potential negative learning curve performance, and savings associated with improved planning.

[The information referred to follows:]

There are two alternative proposals recommended, both using incremental funding, to restore the fiscal year 2014-2 ship making the Block IV contract a 10 ship MYP. One proposal requires $778 million of fiscal year 2013 Advanced Procurement funding and incremental funding authority for the fiscal year 2014–fiscal year 2016 ships. The second proposal is Total Obligation Authority (TOA) neutral and requires incremental funding authority for the fiscal year 2013–fiscal year 2018 ships. As fiscal year 2013 is the last year of the Block III contract and the Navy is currently contractually required to fully fund these ships, a contract modification would be required to amend the Block III contract. In both options, the addition of a second ship in fiscal year 2014 to the Block IV contract will result in an incremental cost of $1,736.7 million across Block IV, which is funded via incremental funding authority and largely TOA neutral. Program of record and both options are depicted in the attached chart.

VIRGINIA Class Submarines
Block IV Multi-Year Options

Program Of Record 9 Ships	10 Ship Proposal Incrementally Fund FY14-16	10 Ship Proposal Incrementally Fund FY13-18
MYP Authority	MYP Authority	MYP Authority
Full Funding	Incremental Funding (FY14-16 SSNs) limited to Block IV	Incremental Funding (FY13-18 SSNs) impacts Block III and Block IV–requires Block III contract modification
Fully Funded in PB-13	$778M Congressional Support (FY13) and modest bill to Navy in FY17.	PB13 TOA Neutral
Increase costs due to loss of learning and inflation	$122M per ship savings across Block IV derived from improved learning at the shipbuilders and vendors, direct labor and material inflation, increased EOQ savings (9 vs 10 SSN MYP) and overhead impacts)	$122M per ship savings across Block IV derived from improved learning at the shipbuilders and vendors, direct labor and material inflation, increased EOQ savings (9 vs 10 SSN MYP) and overhead impacts)

Mr. STACKLEY. Every step along the process you generate savings by having that second boat in 2014. If you then look at the total *Virginia* program and you look at the bottom line for the total *Virginia* program and you assess, without tripping over full funding versus incremental funding discussions, at the bottom line what is the net cost impact of adding a second boat in 2014, it's near neutral.

In other words, the net savings associated effectively adding the boat by pulling it to the left outweigh the upfront costs associated with that. The trouble is that in the budget framework requiring full funding we don't have that top line to do that.

So the long-term savings associated with the second boat balance out the upfront investment required by the second boat, but within the constraints of our budget we were unable to get there.

Senator REED. You might be able to help us help you get there through appropriate legislative language. Is that feasible? .

Mr. STACKLEY. We could work with your staffs to address the total picture and leave that for your action.

Senator REED. That is very fair.

I have many additional questions, but let me recognize Senator Wicker so everyone gets a chance to engage, and then Senator Sessions, and then I'll pick up with the second round.

Senator WICKER. To pick up on some of the questions I mentioned in my opening statement, the Navy's long-term 30-year shipbuilding plan, which indicates we'll build ships at minimum sustaining rates—and I realize there are funding constraints that we all have to work with. But I'm particularly concerned about the proposed construction of new ships that will lead to job reductions, that we're going to have to make up for later on.

I think all five of you agree and all three of us up here agree, it's irresponsible to think that we can lay off skilled workers, engi-

neers for example, and expect them to be available when future contracts are awarded. These are the peaks and valleys that we've talked about. I know the Navy's concerned about employment valleys.

Admiral McCoy, I may just let you go first on this, and I'm sure Secretary Stackley will want to follow up. Is the number of ships currently planned enough to keep the Navy's six major shipyards in business? If we don't keep them in business, what does that do to competition going forward in the medium-term and long-term? Does it make us rely long-term on more sole source contracts because we don't have enough yards competing? What are you gentlemen doing to think of every possible option for avoiding these employment valleys that we can't recover from in a decade when we need those jobs again?

Admiral MCCOY. Senator, thank you for the question. I think if you look out over certainly the next 5 years, I think the answer to your question is yes, there's workload out there in each one of our big six shipyards, except for the actions that Huntington Ingalls is taking relative to their Avondale yard, so big five shipyards. There is that work.

There are peaks and valleys that we do have to manage. I will say that three of our yards—Electric Boat, NASSCO, and Huntington Ingalls-Newport News—are also in the repair business, and we work very closely with those three yards to level load the repair business along with the spikes and valleys in the new construction business. One, for example, is Electric Boat. We are closely coupled on the nuclear submarine repair business with the naval shipyards. Today, for example, on any given day we may have from 200 to 300 Electric Boat employees anywhere around the country in one of our four naval shipyards helping us with peaks and valleys, so that we minimize overtime in naval shipyards and things like that.

We are constantly looking across the industrial base at those peaks and valleys to see where, between post-shakedown availability work, where it makes sense repair work, and those kinds of things, Senator.

Senator WICKER. Let me interject, and I know you haven't given a complete answer yet. Is the repair work at all a possibility for Pascagoula? Is that something you've discussed at all?

Mr. STACKLEY. May I?

Senator WICKER. Please.

Mr. STACKLEY. Yes, sir. First, when it comes to repair work, there is a homeporting policy that we're not going to ship a ship out of its homeport for limited repair availabilities. What that means is for Huntington-Ingalls Industries (HII) on the Gulf Coast, they would only have the opportunity to compete for major repair availabilities that are bid coast-wide. Those are limited in number. But when we bid coast-wide it is an open competition.

So it's up to in this case HII to choose to bid. The back end of that is would they be competitive in the bid? In other words, if you have a ship construction yard that's competing against a repair yard and you look at the total associated with the competitiveness, the rate structure, the overhead costs that you carry with a shipbuilder, they have to assess whether or not they're competitive to determine whether they will compete for those bids.

Senator WICKER. So it's not a conversation you've really had with Ingalls in Pascagoula?

Mr. STACKLEY. Actually, we have talked with regards to major modernization for combatants, and particularly the Aegis modernization program when it was in its formulation stage, whether or not the building yards would have the opportunity to bid. There have been alternatives that we looked at and continue to look at. But today those availabilities are captured within the 6-month timeframe of a homeport policy, and so it's been beyond their reach.

Senator WICKER. Admiral McCoy, I did cut you off in mid-statement. So I want to give you an opportunity to complete your thought.

Admiral MCCOY. That was basically what I had to say. To sum up, I'd say, yes, over the next 5 years we see enough work for the yards. There will be peaks and valleys and we are working with them all the time to see what legitimate other work we have that can help them through that period, where they can be competitive as well.

Senator WICKER. Okay. Let me ask you this, Secretary Stackley. Secretary Napolitano was testifying March 8 before the Senate Appropriations Committee and she was asked by Senator Murkowski about the Coast Guard's future shipbuilding plans. Let me just read her response. The Secretary said this:

> "In light of what DOD is doing with respect to its budget reductions under the BCA, we are coordinating with naval operations, looking at what the Navy is doing with its assets, then really correlating on what 7 and 8"—meaning National Security Cutters 7 and 8—"would do should they be built. We think that, given where we are with the budget and the fiscal environment, before moving on numbers 7 and 8 we want to make sure we're coordinating with the Navy."

The 30-year shipbuilding plan does not mention Coast Guard cutters. Can you explain what coordination there is and what Secretary Napolitano could have been talking about? Is there coordination between the Services, DOD, and the Department of Homeland Security on ensuring that the shipbuilding rate is meeting our commanders' requirements?

Mr. STACKLEY. Yes, sir. There's going to be a two-part answer to this. I'm going to answer the first part and ask Admiral Blake to answer the second part. The two parts have to deal with a MOA between the Navy and the Coast Guard when it comes to force responsibilities, that I'll ask Admiral Blake to address.

The other part of the coordination side is on the procurement side, and there's a very healthy dialogue in place between the Navy and the Coast Guard regarding the national security cutter, as well as the other elements of the Coast Guard recapitalization program.

So we have detailed discussions in terms of how we the Navy can help the Coast Guard in its procurement efforts while separately, at the CNO and Commandant level, there's the larger discussion taking place regarding how the Navy and the Coast Guard operate together, not just in terms of missions and capabilities, but Service to Service.

Admiral BLAKE. Sir, the Navy and the Coast Guard, and the Navy and all the Services, we have a series of meetings, we call them warfighter talks, in which we discuss areas in which we can find commonality. One of the challenges we have is the different requirements that each of the Services have. Where we can find commonality among requirements, then we proceed down that path.

For example, if you look at Coast Guard ships, Coast Guard ships have many of the same systems that we have on Navy ships. But where we have a tendency to diverge as we're heading down that path is because of the differing requirements that each of the Services bring to the table. But for both efficiency and effectiveness, we attempt to find as many common areas as possible and then go down those paths.

Senator REED. Thank you, Senator Wicker.

Senator Sessions.

Senator SESSIONS. Thank you.

Secretary Stackley, the Secretary of the Navy and the CNO testified before our full Senate Armed Services Committee and the Secretary of the Navy has met with me, describing the improvements made with the LCS in its cost and schedule. Recent press articles describe problems with the LCS, including Defense News on April 5 and the New York Times.

What is your assessment? It seems to me these articles are basing their concerns on older data. Maybe we're not getting the word out about the progress that I understand is occurring there. The LCS is such a critical part of the Navy's future. It has fewer sailors, higher speeds, less fuel cost, and remarkable capabilities.

If you would, tell us where you think we are in that system?

Mr. STACKLEY. Yes, sir. I'll look to share this response with Admiral Blake. But let me start with the platform. The history of the startup of this program is well known. I'm not going to replow that turf there. However, as I mentioned in my opening remarks, we have the first follow ships, one near complete. The LCS–3 up north is completing her builder's trials and getting ready for acceptance trials to be delivered this spring.

Near textbook. It's going extremely well in terms of schedule and being on target, and in terms of quality of construction. That's the result of not just plowing in the lessons learned from the lead ship, but the significant investment that was made by that shipyard to support this construction program.

Separate and very similar on the Gulf Coast. Austal, which is 9 to 12 months removed from the construction up north, simply by the sequencing of the contracts. Again, plowing the lessons learned, investing in the facilities, accomplishing the training that needs to be accomplished for the workforce, and cleaning up the design. We're seeing the same rate of improvement on the Gulf Coast.

So both construction efforts north and south are quickly capturing lessons learned from the lead ship, making the investments necessary, and on the production ramp that we need to see to support the 55-ship program. That's the construction side. We see stability, we see steady improvement, and we see good cost returns on the front end of this dual block buy strategy.

Now we have to be talking about mission packages. The mission package development efforts, we have today three-plus mission packages in development: mine countermeasures (MCM), anti-surface warfare, and anti-submarine warfare (ASW). As well we have a search and seize, a small module that we've put to work. They're conducting development testing to support their IOC milestones in the 2014 through 2016 timeframe.

This spring, for example, we conducted the first shipboard demonstration of the MCM mission package on board the *Independence*, working down at the Navy's Warfare Center in Panama City. The first time we brought all the elements that make up the first increment of the MCM package to the ship, and operated with sailors. We learned some things, but we also demonstrated the ability to conduct these mission scenarios using the unmanned and remote operated vehicles that make up a large part of the LCS mission package.

So the development and testing for the mission packages, in that case MCM, separately the anti-surface warfare mission package, testing, and in fact we'll be outfitting the LCS–1 with the first increment of the anti-surface warfare mission package when it deploys next year to Singapore, and then development of the ASW mission package, all moving forward.

So that effort lags the construction timeframe by deliberation so that the ships and mission packages are all IOC-ing in the middle of this decade.

The third important piece is fleet introduction. So we have one lead ship on the West Coast, LCS–1, and LCS–2, right now making its way to her homeport in San Diego. We're on the front end of fleet introduction at the same time. As with any new ship class, we learn a lot. We also train up a sailor force that becomes proficient in this ship class.

We're on the front end of this program. I don't spend too much time studying the reports that come from the press other than to be aware of what information is out there and try to correct any misperceptions. But she's going well. We're learning a lot. We look forward to deploying LCS–1 next year, and we have a lot of work that we have to do to make sure that when she deploys she is well supported and succeeds in all the mission areas that we assign to her.

Senator SESSIONS. You don't see any cost or technical problems of great concern to you at this point?

Mr. STACKLEY. I think cost is under control. I think I've addressed that fairly well.

Senator SESSIONS. I thought I heard you say the 10th ship would perhaps be half the cost of the first ship?

Mr. STACKLEY. Inside of our block buys, each 10th ship, in other words, for each shipbuilder, when you look at the fixed-price option, that's a 2015 ship. When you look at a fixed-price option for those 10 ships, they're at about half of the lead ship's price. You have to take escalation out and put them all in the same base year dollars. But it's a very impressive learning curve that these shipyards have committed to inside of those fixed-price contracts, and that they've put the investment behind to ensure that they hit the numbers.

Senator SESSIONS. The Navy hasn't changed its view of the important role it would play in the future fleet?

Mr. STACKLEY. No, sir, and I think I should allow Admiral Blake to address that.

Senator SESSIONS. Admiral Blake.

Admiral BLAKE. Yes, sir. I would tell you the LCSs are replacing three classes of ships. They're replacing the PCs, they're replacing the MCMs, the minesweepers, and they're replacing the FFGs. I think that alone just gives you an idea of how critical these are to the future of the Navy. We're being able to replace three classes of ships with a single class because of the fact that we are going to modularity.

I'll just anchor for a second on the *Avenger*-class, the minesweeps. They'll be starting to come out of service in fiscal year 2019. When those ships start coming out, we'll be bringing the LCSs on line. One of the big or key transformations in there is that we're going to be able to get the man out of the minefield. In the current technology, we have to put the man in the minefield in order to be able to clear it. When we go to the LCS with its modularity, we will be able to take the man out of the minefield. We'll be able to use unmanned vehicles. We'll be able to use helicopters, which we currently use, but we'll be able to get that individual out of there. So we'll be able to keep our sailors out of harm's way, or out of harm's way as opposed to where they currently are, which is in the field.

You can look at each of the modules that are coming on line, whether it's the surface one or the ASW module, and I think you would see that these are absolutely critical, that we have to fill in for these as those assets come out of the fleet.

Senator SESSIONS. How old is the current minesweeper fleet?

Admiral BLAKE. I'd have to get you the age. But they're coming to the end of their expected service lives, starting with the ones in fiscal year 2019. But I'd have to get you the exact age on all of them.

[The information referred to follows:]

The current minesweeper fleet is between 18 to 25 years old. The USS *Avenger* was the first ship commissioned in 1987, and the USS *Chief* was the last ship commissioned in 1994.

Senator SESSIONS. I was on one a number of years ago. It was pretty old.

Admiral BLAKE. Yes, sir, they are old.

Senator SESSIONS. That was a number of years ago.

Admiral MCCOY. Senator, may I jump in on your question about technical concerns?

Senator SESSIONS. Yes.

Admiral MCCOY. One of the things about LCS was the first two ships, in fact, are research and development (R&D) platforms. They were bought with R&D funds. Normally on a new ship design, we have a fairly robust R&D program ahead of the ship. These were our R&D platforms. In fact, if you look at LCS–1, we went from concept of the ship to deployment in 7 years, which is a record for the Navy.

On every single one of our new classes, even ones that we put R&D money in upfront, we learn technical issues on the first of the

class, that we feed back into the subsequent ships. We've learned on LCS as well. But if we take LCS–1, it did a Fourth Fleet deployment, then took it out to the Rim of the Pacific (RIMPAC) Exercise, took it out to Hawaii, rode it very hard for 25 days out there, most of the time at very high speed, and brought it back.

We've had some technical issues, but nothing that would tell us that the platform itself is fundamentally unsound or will not be a very well performing ship in service. Every time we find something, we fold it back into the construction line, sir.

Senator SESSIONS. Thank you.

Mr. Chairman, thank you. We are concerned about the size of the fleet and that budget-driven fact is a problem and, I think, as you answered, Mr. Stackley, and our chairman here mentioned, sometimes we just have to find the money, Senator Reed, because it costs so much to delay and put off the construction. It has so many ramifications not to stay in track at an efficient level of production. Mr. Stackley, we value your judgment and insight, and I hope you will keep us posted.

Thank you.

Senator REED. Thank you very much, Senator Sessions.

We'll begin a second round. If necessary, we'll do a third round. These are all very good questions.

I think we're focusing on some critical issues in the shipbuilding program. Last year we had a very, very good hearing. Admiral McCoy attended and Captain Galinis from the Gulf Coast was there. Mr. Secretary, you were there also, among others. At that hearing we recognized that there were some serious problems with quality and cost, but that you were seriously engaged, Admiral McCoy and your colleagues, in dealing with the cost issues and dealing with the quality issues, too.

So could you give us an update of the measurable progress we've made going forward in these shipyards and assurances that we've now reached a point where costs are under control and quality is acceptable?

Admiral MCCOY. Yes, sir. Let me start with quality, because if you don't get quality right you're cost isn't going to be right. We've worked very, very hard with both the shipbuilder on the Gulf Coast as well as my Supervisor of Shipbuilding Office. Since 2007 or so, I've increased the staff of my team down there by about 20 percent. One of the things we've done over the last 3 years very hard down there is get the Supervisor of Shipbuilding as well as the shipbuilder focused on fundamental, everyday deckplate compliance.

We look at four key areas: piping, electrical, structural, and coatings, areas where we had the problems with the LPD–17 class, for example. In addition, we took the lessons learned from the fleet introduction of the LPD–17 class and we made a significant number of design changes and we folded those back into the line, and some of those we still have to backfit onto our ships, principally in the area of how do we keep blue oil clean and making smart system design changes there.

Since those efforts, we delivered LPD–22, the soon to be USS *San Diego*, it will be commissioned in about a month. It was delivered in December. That ship went through the most rigorous acceptance trials we've had to date. In fact, we added what I call an

endurance trial, it was actually a third trial after the builder's trial and acceptance trial, and then an endurance trial, where we ran the ship's main propulsion diesels as well as the ship service electrical diesel generators, ran them very hard for a period of time, and then we came back in port, we rolled out bearings, did inspections, and in fact verified the oil was clean, no scoring, that kind of thing.

San Diego just made the transit from the Gulf Coast and reached its port of San Diego about 2 weeks ago. So it was very successful. In fact, the remarks from INSURV in terms of the number of deficiencies in their report was the best ever LPD–17 class.

On top of that, in the last 2 years I've brought an outside audit team in three times—they're going back in this fall—of outside experts, not only to audit the shipbuilder, but also the Supervisor of Shipbuilding.

So I think I am satisfied that on any given day fundamental compliance is happening back down at the yard. We look at those metrics every week, I have my folks intently focused on going out and doing inspections, as well as the yard, and we compare those notes, and I'm satisfied at this point, and we're now in a sustainment mode to make sure we don't lose ground.

I think cost is one area where we still have work to do. The cost of compliance of quality in the yard is still high and the yard is working on that. We are working with the shipbuilder on moving more work to the left in the build cycle, more outfitting, to get the cost down. We're working with them on the material builds in terms of better pricing and that kind of stuff.

We still have a ways to go with costs and along with that schedule. But I'm satisfied right now that quality is where it needs to be. We just need to drive the cost of obtaining that quality, continue to drive that down, sir.

Senator REED. Thank you. Secretary Stackley, who shares those costs? This is part of the contractual arrangements going forward, but also these were bid, there was the presumption that they could deliver quality with the costs that they stated. Those costs are still challenging. So how are we not only reducing costs in the present time, but as we go forward, with our contractual arrangements making sure that we don't absorb costs that should be properly done by the contractor?

Mr. STACKLEY. Yes, sir. Generally speaking, each shipbuilding contract has its own terms and conditions and cost structure. So who pays or what the share is for those costs, it's a contract-by-contract discussion. However, as I mentioned in my opening remarks, the 38 ships that we've put under contract since December 2010 are all fixed-price ships. Some of those are firm-fixed-price, in which case all of the costs of rework or any cost growth is on the shipbuilder's side of the ledger.

Most of those are a fixed-price incentive contract, which means that there is a share line associated with cost growth, and in almost every case it's a 50–50 share line, which states that, regardless of the cause of the cost growth, if the shipbuilder's costs increase we share those costs 50–50 up to a point of total assumption, in which case it converts basically to a firm-fixed-price contract at that point in time.

We believe that's the right cost structure and it's proven very effective over our shipbuilding history to control costs.

The several steps to this are: before going into the contract, make sure your requirements, your design, your specs are all nailed down, so there's not unnecessary churn that's driving cost growth; and then make sure of processes and procedures, the build plan, that contribute to controlling quality are in place; and then in the event of additional cost growth, it does appear on a 50–50 share line up to the ceiling.

In the case of the ships that Admiral McCoy discussed on the Gulf Coast, those ships are at ceiling, in which case the cost growth was the burden of the shipbuilders beyond the ceiling.

Senator REED. Thank you.

Let me turn quickly now to the *Ohio* replacement. As we mentioned, Secretary Kendall was here and he conceptually agreed that, because of the role of the *Ohio*-class replacement in the strategic triad, that this is not strictly a Navy program; this is a DOD program, a national program; and that he seemed to be open to efforts to provide support for the Navy.

It goes back to the question that Senator Wicker posed, too. At some point you could have one class of ships that are necessary, but crowd out other necessary ships without this type of DOD support.

Are you actively working with DOD to develop financial support for the *Ohio*-class replacement?

Mr. STACKLEY. Sir, I'm going to say the answer is yes. You have to recognize that actively working with DOD on a procurement program that's 8 years away, it's hard to nail something down today that when you get out there it will still be in effect.

So for today, we're talking about planning. Inside of the 30-year shipbuilding plan that we submitted as a report to Congress, we lay out today's force structure, the procurement plan over the next 30 years, and what it would cost to support that procurement plan. In fact, OSD has provided for planning purposes some headroom in the years of the *Ohio* replacement construction program to give the Navy the ability to better accommodate it. That's not full headroom. That's simply if you look at the average shipbuilding investment between now and the start of the *Ohio* replacement program and then you look at the period of the *Ohio* replacement program, there's about a $2 billion per year hedge that's been allowed for the Navy for planning purposes.

So today, in the long-term planning phases we provide some room for working with OSD, provide some room for planning purposes. But we have to relentlessly hammer on this issue between now and when that becomes real money inside the FYDP, or what we'll be looking at is a shipbuilding plan that's not executable.

Senator REED. Admiral Blake, please.

Admiral BLAKE. Sir, when we put the 30-year plan together, one of the good-news items that comes out of that is the fact that we highlight issues like the fact that when you're in that second period of 5-year defense plans from the 2019 period out, we highlighted the fact that the Shipbuilding and Conversion, Navy plan at that point will go up over $4 billion. It will go from a $15.1 billion aver-

age, which we're currently in in this FYDP and the next, it'll go up in excess of $19 billion.

So what we end up doing is, as we point that out to DOD, they recognize, as you saw in the plan, that there is a significant challenge for the Navy because that is such a steep curve as we're trying to balance across the entire portfolio, and that there will have to be something done in order to be able to keep a balanced program.

Senator REED. Thank you very much.

We've been joined by Senator Blumenthal. We recognize Senator Blumenthal for his questions and then Senator Wicker. I have other questions and I'll finish up. Senator Blumenthal.

Senator BLUMENTHAL. Thank you. Thank you, Mr. Chairman, and thank you all for your great work in DOD on behalf of our Nation and the men and women under your command.

I want to follow up on the questions that have been asked about the *Ohio*-class, in particular whether the 2-year delay will achieve substantial R&D progress that will in the long run save money as well as advance the superiority of the weapons system. Is that your view?

Mr. STACKLEY. Yes, sir. If I could simply outline what is being done inside the 2-year delay. First, as we look at this we have critical path activities that need to support the start of construction for the *Ohio* replacement program. So when we lay out the timeframe between now and the 2021 procurement, we keep the critical path activities on track.

In total, between now and that start we have increased R&D investments. The R&D budget between now and 2021 is more than a billion dollars above what it would have been for a 2019 start. So there is R&D wholeness that will contribute to continued development, critical path activities, greater design maturity, and overall risk retirement going into the start of construction of the *Ohio* replacement program.

There's also a parallel program with the United Kingdom. They're replacing the *Vanguard*, their strategic deterrent submarine, at about the same timeframe. So we have an effort, referred to as the Common Missile Compartment, which is common to both the United States and the United Kingdom's submarine programs. That is staying on track to the United Kingdom's schedule.

What that means is that is slightly ahead of the U.S. submarine program now. That means that that entire effort and the risk associated with it will be reduced for the United States by virtue of the fact that we'll be staying on the United Kingdom's schedule. So there's direct improvement to risk management associated with the Common Missile Compartment. There's direct improvement to retiring risk in developments through the total of additional R&D investment during the timeframe.

What's absolutely critical is that we manage the money and the time wisely, so that when we get to the start of construction for the *Ohio* replacement program we are at a higher level of design completion, a higher level of technology maturity, and we've taken advantage of this time and opportunity to find those ways to reduce cost in the program.

Senator BLUMENTHAL. My understanding is that this 2-year delay continues our schedule to be in sync with the British; is that correct?

Mr. STACKLEY. As a result of the 2-year delay, the United Kingdom's successor program is ahead of the U.S. *Ohio* replacement program. The parts of the respective programs that are common, the Common Missile Compartment, which is a section of the ship that includes the strategic weapons system, that is staying on schedule to support the U.K.'s successor program.

Senator BLUMENTHAL. Going to the *Virginia*-class submarine, I have followed a number of the questions and your answers in response to Senator Reed's inquiries about it. Number one, I just want to second that I hope that perhaps this subcommittee and the full committee and Congress can work with the Navy in seeking to restore that funding for the boat that was pushed to 2018 because of the potential savings that you have mentioned in connection with building that second submarine in 2014.

If there is a way to avoid the budget spike in cost that right now has caused the delay, if there is some accounting or legislative language that could be devised, I'm very eager to join with Senator Reed on working on that.

Mr. STACKLEY. If I can just state it as squarely as I can, today you are working on the 2013 budget. The options before you include adding money to the Navy's budget to support the advance procurement of a second 2014 budget, and the total there is north of $700 million. If you do that, that leaves the Navy with about a $1.2 billion bill in 2014, which is the same problem that we confronted in building the Program Objective Memorandum (POM) for fiscal year 2013, that we don't have the headroom for that $1.2 billion.

That would be a significant reduction in the bill for the Navy, but it does still leave us with a problem in 2014 that we'd have to address in the POM.

The other alternative, frankly, is incremental funding, which is not in accordance with policy. Policy would dictate that we fully fund each boat in the multiyear procurement. I'm simply going to state that these are extraordinary times. This is an extraordinarily important program and this is a fleeting opportunity. If we don't capture that second boat in 2014, the opportunity cannot be recovered in terms of force structure, in terms of savings potential, and in terms of the industrial base.

Under these extraordinary times, it is perhaps appropriate that the Navy and Congress look at whether or not this is the right time to provide an exception to full funding. It has its drawbacks, going to an incremental funding approach. We explore it and we would welcome a discussion with the Hill in that regard.

Senator BLUMENTHAL. I would welcome a discussion as well. I very much appreciate your putting it so squarely and, I might say, eloquently, and I think that the burden is on us to recognize that we are in extraordinary times. We face extraordinary challenges, but also extraordinary opportunities to make sure that we meet our obligations, take advantage of the opportunities to secure our undersea warfare capability at the least possible cost in the long term.

I welcome your responses to Senator Reed and just now to myself, and I hope to follow up with you.

Mr. STACKLEY. Sir, the only thing I think it's important to add is, the Navy's willingness to have this discussion is underpinned by the strong performance of the *Virginia* program. Otherwise we wouldn't even consider it. It's the strong performance on the *Virginia* program. It's the fact that we, the Navy, DOD, and we look for Congress to follow, are willing to make the long-term commitment associated with multiyear procurement, that that offsets concerns associated with incremental funding during that period.

Senator BLUMENTHAL. I think you've just stated a very critical factor in this discussion, which is that the performance under this program ahead of schedule, under budget, consistently, and reliably is another extraordinary circumstance that has to be part of this discussion to justify incremental funding. So I welcome your responses.

Thank you.

Senator REED. Thank you, Senator Blumenthal.

Senator Wicker.

Senator WICKER. Thank you.

Admiral Burke and General Mills, from an operational perspective, the Navy budget calls for decreases in large amphibious ships, among other categories. In my opening statement, I mentioned the requests from combatant commanders for amphibious ships has increased over 80 percent in the last 5 years, a very dramatic number. What is the reason for that and what will be the impact if these requests are not met?

Admiral BURKE. Senator, thanks for the question. You're right, the combatant command (COCOM) demand signal has gone up significantly, to the point where if we were to meet all their requirements it would take a Navy of greater than 500 ships. I certainly am not here to begrudge the COCOM demand signal because they have challenges that they're trying to deal with. But we can't meet all their demands.

There is a process in DOD, run by the Joint Staff, called the global force management process, by which they take in the COCOM requirements and adjudicate that along with the forces we have to come to a reasonable allocation of force. That's a process we're dealing with today. We've been using that process for a number of years and I would expect we will continue to use that process in the future to bridge the gap between supply and demand.

General MILLS. Senator, if I could just add to that, I would say the increased demand really is testimony to the flexibility, the versatility, the value of our forward-deployed amphibious forces, and what it gives to those COCOMs out there who use those forces across a large range of mission sets. I think it's a testimony to how valuable the forces are to our people out there who are doing the job.

As we look at the inventory of ships, I think we look at it in three ways. We certainly look at it in the ships it takes to maintain that forward presence on a day-to-day basis, and provides those tools to the COCOMs for their engagement, for their crisis response, et cetera. We look at it for the ability to give training opportunities for our homestationed forces who need to train with

those amphibious ships in order to build both our skill sets and our interoperability with the Navy. Of course, we have been relatively clear in our requirement in the event of a major crisis that we need 30 operationally available, ready amphibious ships at the point of action, and that we have worked with the Navy closely as they developed their shipbuilding plan over the next 30 years to take a look at those requirements and plan to meet them.

Senator WICKER. General, when we drop below 30 to 29 amphibious ships, what's that going to do to your capability?

General MILLS. Each time we have dropped the number of our requirement, I think, it's been an acceptance by us of additional risk at each step along the road. I think that we worked very closely again with the Navy so they understand what the requirement is and that they do their best to meet them.

I think in the long range we're poised well to meet those requirements. In the short range, there is risk. There is risk associated.

Senator WICKER. Can you help us understand that risk? Can you be a little more specific?

General MILLS. I think the risk comes in in the event of a major crisis it would be incumbent upon the commander who is moving forward to work, to decide what he could or could not bring along because he didn't have the capability to load it on board the ships. He'd have to seek mitigation through other processes, either other transportation venues or he would have to simply take that risk that he initially on the beach would have less than what he had initially anticipated.

Senator WICKER. I alluded to sequestration, Secretary Stackley, so I'm going to let you comment on that. Has OMB provided the Navy with specific guidance on sequestration? Will you be required to submit a revised plan that takes sequestration into account? Have you initiated contingency planning for sequestration?

Mr. STACKLEY. Yes, sir. I'm going to share this response again with Admiral Blake. But let me describe that the first guidance has not come down regarding sequestration at this point in time. Today, we're literally in the middle of our build for POM for fiscal year 2014, so we're going through establishing the fiscal years 2014 through 2018 baseline, which clearly starts with POM 2013 and makes adjustments and changes associated with the top line and associated with the total program.

We're moving forward with the POM for fiscal year 2014 build, in accordance with a schedule that supports submitting the budget to the Hill next February. We'll complete those deliberations inside the Navy this summer.

At that time, we expect OMB, working with Congress, to make a determination regarding sequestration planning. I can state that, and it's been stated before by the Secretary of Defense and the Secretary of the Navy, that if we have to adjust our top lines to reflect another potentially half trillion dollar reduction to the defense budget over the ensuing decade, we're looking at an entirely different force.

The first half trillion dollars that we reflected in the 5 years of POM 2013 and then the 5 years beyond, that caused a lot of significant change to our program, much of which we've just discussed

here this morning. The notion of doubling that amount of reduction cuts deeply.

Senator WICKER. That takes the minimal risk that General Mills alluded to and just completely blows that up by an order of magnitude at least.

Mr. STACKLEY. You cannot take the force and the operations that we have in place today and are conducting today and try to imagine continuing that with another half a trillion dollar reduction to our defense program over the next 10 years. It's a significant shift and we have not at this point in time put contingencies in place, although we are always looking at opportunities to be able to reduce our programs' costs, and we are also looking at potential builds that will be coming down the path, but nothing to the size of what sequestration would impose.

Senator WICKER. You're going to share that answer with Admiral Blake, I believe.

Mr. STACKLEY. Yes, sir.

Admiral BLAKE. Yes, sir. Just to echo what Mr. Stackley has said, we have not begun any form of formalized looks at the sequestration process. That said, it is always in the back of our minds.

Senator WICKER. I'll bet it is.

Admiral BLAKE. Yes, sir.

But as also Mr. Stackley said, what we are currently doing right now is we are working on our POM 2014 proposal as we go forward in the fiscal year. I would tell you that if, in fact, sequestration were put in place you would have a radically different force for the Navy. It would be extremely different than what you currently see today.

When we were putting the current budget together and we were coming up with the half a trillion dollar cut in the program, we were looking at a couple of fundamentals. We were looking at capability versus capacity. We said do we want to have this capability and, if so, at what capacity. Then we went to the issue of wholeness versus hollowness. We wanted to ensure that the force was whole, as opposed to keeping additional force structure that would lead us to a hollow force.

If you take what we have already done and then you compound it with sequestration, the task ahead of us would be extremely difficult and, as I said, you would not end up with the force that you currently have today in any way, shape, or form.

Senator WICKER. Thank you.

Admiral Burke, go ahead, please.

Admiral BURKE. Just to put the potential cut from sequestration in context, it's about the size of the annual shipbuilding budget potentially, the full amount. It's almost the same amount as our aviation procurement budget, and it's about twice the size of the sum of our maintenance and aviation maintenance budgets. So it is significant.

I think were it to come to pass, I believe we'd have to re-look at our strategy as well.

Admiral BLAKE. Yes, sir. If I can just add to that, we essentially have five pots of money. You have your manpower piece, you have your infrastructure piece, you have your R&D piece, you have your operations and maintenance (O&M) piece, and you have your pro-

curement piece. On the Navy's side of the equation, procurement is our largest account.

When you put something in place, as Admiral Burke was just saying, to the extent that sequestration would do, you can look at those accounts and you would see that it's either in your O&M account, or it's in your procurement account. The only other big account we have is our manpower account. Infrastructure and R&D are relatively small compared to those three. Manpower is a must-pay bill. We have to pay the people. So that takes that one off the table.

Then you end up going to the two accounts. It's either your O&M account or it's your procurement account to cover something like that.

Senator WICKER. Thank you very much.

Let me just observe, Mr. Chairman and Senator Blumenthal, I voted for the legislation that puts sequestration in place. I think, like most of the people who voted yes, I voted for it believing in my heart that we would have the leadership in this city both in the administration and in Congress to come to grips with where the real spending is, to come to grips with the fact that we need a different taxation policy that provides for greater growth, but also that we have 60 percent of the budget plus that's off limits every year. We don't look at it every year in the appropriations process. It's on automatic pilot.

I believed that we would be able to come to grips with that. To date we've not. We've either not had the leadership or the will in this city to come to grips with those issues. While sitting here in this room it's unthinkable that we would get to actually this brinkmanship of sequestration, I don't know if it's any more or less unbelievable than it was last year when I actually voted for it, Mr. Chairman.

I'm not absolutely convinced that we won't face this. I certainly hope we don't. I think it would be the disaster that you gentlemen have described. But it is indeed disappointing that our inability to come to grips with the part of our budget that makes up the majority of taxpayer spending is seemingly still off limits and we haven't been able to address that. I hope we can.

Thank you, Mr. Chairman.

Senator REED. Thank you, Senator Wicker.

Let me continue with some issues regarding the proposed retirement of the Aegis cruisers. Admiral Burke, Admiral Blake, and Mr. Secretary, as I understand it, seven cruisers are going to be retired, and they have a direct impact on our anti-missile capabilities. In fact, there's some suggestion that these retirements might reduce our ability to meet the Navy's objectives in terms of missile defense platforms and missile capabilities.

Has our missile defense-capable ships requirement changed, allowing us to reduce the number of ships that we have? If not, what are we doing to mitigate? Then I'll have a follow-on question.

Admiral BURKE. Sir, as you've heard today in many of our other decisions, the cruiser decommissioning proposal was a very difficult choice, and we find ourselves balancing procurement, readiness, and people accounts to achieve the global force management and avoid the hollow force that Admiral Blake talked about.

No, our missile defense requirement has not abated. It continues. The demand continues to grow. But these were not missile defense ships. These were not BMD ships. These were carrier and strike group defense ships, that would have required significant resources. The numbers are roughly just short of $2 billion to do the maintenance and repairs to get them up to speed. Some of those ships were built with some aluminum that has suffered from significant cracking problems and it's been quite a challenge for us. There's also some maintenance backlog that would need to be addressed there to make them viable for the long run.

In addition, there's the annual O&M dollars that one would have to pay to keep them viable, and that's another just over $1 billion. Then the helicopters, the communications upgrades, and the people is another a little more than $1 billion.

So overall across the FYDP we're talking about $4.1 billion. Then to meet the potential BMD requirements we'd have to put BMD on those ships as well, which is more than another billion dollars. We're talking about a lot of money to keep those ships in the fleet.

Part of the reason we make the decision to do that is because they are not BMD ships yet. But I think over the last couple of years, we have finally found our way on taking care of our surface ships. We need to make sure that we continue down that track and take care of the young ships so they don't get into the condition that these older ships have gotten into, where they have a backlog of maintenance.

The reason I fully support this decision is because if you want to maintain the largest, most sustainable, and most capable fleet you can have, you need to do all of the maintenance and modernization. We have a bunch of ships and we're unable to take care of them all properly, and so we can either choose to continue to do that or we can go down a more righteous and judicious path in my view, which is to maintain the fleet as well as we possibly can, and we'll end up with a better, larger fleet as a result.

Senator REED. Just to clarify that, the short-run operational loss is the protection of the carrier battle groups by these Aegis submarines from missile attack, either land-based missile attack or any missile attack; is that correct?

Admiral BURKE. Yes. We have 22 cruisers today. We have 11 carriers, 10 carriers at the moment, but 11 carriers in the future. We typically will deploy each carrier strike group with one of these cruisers. So it will not have a direct impact on the carrier strike group, sir.

Senator REED. Then the other issue here, too, is there was at least a very theoretical consideration of moving these platforms onto BMD capabilities. That's now essentially off the table, and it raises the question of—and this is perhaps at the Secretary level—has there been discussion within DOD of moving resources from land-based systems into more sea-based systems, where you would get more bang for your buck effectively?

That's, I'm sure, an object of debate within the building, but has that discussion taken place?

Mr. STACKLEY. I would say constantly, sir. There's no single solution or single element when it comes to missile defense. From the Navy's perspective, first we look at force structure. We need to de-

fend the battle group. But at the larger national level, there is constant discussion about what contributions could be made by the sea-based element of missile defense.

There's some tension there in terms of what does that mean regarding the dedication of platforms to that mission, what does that mean to the overall force structure, and how does that affect things? Today we're moving forward with the Phased Adaptive Approach with Europe, and, in fact, the land-based piece of that effort is taking Aegis ashore.

Senator REED. Yes.

Mr. STACKLEY. So we're putting the capability on land, because it has proven effect. The early increments associated with sea-based is bringing Aegis destroyers to the Mediterranean, where they provide a capability for that region. Then to address the impact on force structure, what that means is a part of the solution is forward deploying Aegis destroyers, so that the number of ships that are affected is limited.

There's constant discussion. There are capabilities that have come forward through the Aegis program that have proven extremely effective in the missile defense arena. Throughout those discussions, we have to look at our priorities, the suitability of the capabilities for the respective missions, and then, as Admiral Burke described, managing the total force.

Admiral BLAKE. Sir?

Senator REED. Go ahead, sir.

Admiral BLAKE. If I could just expand on or expound on what Admiral Burke was talking about, when we were putting the budget together one of the fundamentals we had was the issue of hollowness versus wholeness. I don't think anybody in the Navy was pleased when we came forward and said that we were going to have to take both amphibious ships and cruisers out of service earlier than their expected service lives.

But I would tell you that if someone were to direct that those ships be put back in, my real concern would be, all right, I still have a bill to pay and I am probably very likely going to have to put something else on the table which will be considered equally egregious. It was not an easy decision on our part, but we were driven by the fundamental approach that we wanted to ensure at the end of the day our force was whole and that we were not heading down a hollow path.

Admiral MCCOY. Senator, just to complete that thought, both Admiral Blake and Admiral Burke talked about the difficult decision. But for the first time in fiscal year 2013, we have fully funded maintenance, and particularly surface maintenance, which has always been short. So with Overseas Contingency Operations (OCO) funding we have fully funded in our budget surface maintenance, and that goes to that wholeness discussion.

Senator REED. With OCO funding, which is transitory at best.

Admiral MCCOY. About 20 percent of our maintenance budget right now is reliant on OCO, yes, sir.

Senator REED. Okay. Just for the record, the 313-ship target total, is that still under the Secretary's guidance, is that still the requirement for the Navy?

Admiral BLAKE. What we're doing right now, sir, is, based on the new strategy which we have received, we are in the process of doing a force structure assessment, and then we will then brief that to DOD and we will ascertain the requirement for the right size of the fleet.

Senator REED. So it's a work in progress?

Admiral BLAKE. Yes, sir. That is going on even as we speak.

Senator REED. A final question, and then I'll recognize Senator Blumenthal.

We talked about the commitment of both the Navy and the contractors to get ships out on time, under budget, et cetera. One of the things that complicates that is sometimes the Navy changes the plan midway through. There are some examples. I'm told that the MLP program, which just signed a contract for a third vessel, now intends to build a ship in an AFSB configuration, which is new. The Navy wants to sign a multiyear for the DDG–51 destroyer, but plans to shift to a new configuration, new radar, et cetera.

To what extent are those changes adding costs and to what extent can we avoid those kinds of changes so that we can mitigate costs?

Mr. STACKLEY. Yes, sir. I'm going to pound the table on stability. That has to be one of the cornerstones to our program going forward, and that's requirements, design, build plan, et cetera. So throughout our process we do everything we can to maintain stability.

In terms of the MLP, we also have to deal with the real world. When new requirements emerge, you have to address the requirements and you have to look at how can we best meet that in terms of cost and schedule so that the warfighter is getting what he needs, when he needs it, within the fiscal constraints that we have.

Specifically regarding the MLP and the modification associated with the AFSB, we've done a preliminary review in terms of what the impact would be to the MLP technical baseline and the impact is measured in terms of small impact to the base ship, small, single digit percent to the base ship. Effectively, what we're doing is we're adding to it, as opposed to redesigning the interior.

The AFSB brings an aviation capability for basically vertical lift, as opposed to the baseline MLP, which is more of a horizontal lift. So the designs that we're looking at are all very much cost conscious to minimize the impact to the base ship, but deliver the core capability that's been requested by Fifth Fleet.

We see that as a very controlled and measured approach to bring the capability without downstream trying to backfit it or holding up the program and introducing cost and delay otherwise. We'd be happy to share the details with the staff to get a full understanding of what that impact is and what those details are, as they mature.

The other discussion on DDG–51, the fiscal year 2013 multiyear that we've requested is for a Flight 2A baseline multiyear. We're looking at nine Flight 2A ships in the multiyear. But what we need to do is introduce the capability that I described in my opening remarks regarding the AMDR. In parallel with that multiyear, we're completing the development of the AMDR, targeting 2016 DDG–51 ships. We are not making that a part of the contract baseline, but

at the point of maturity when we've completed not just the technology development phase, but the engineering and manufacturing development phase, and we have a firm handle on the details associated with the impacts of AMDR to that ship, then we'll have a decision point downstream in advance of the 2016 ship that tells us, and we share that with Congress, that the technology is mature, that we understand the impacts, and that we have the design complete sufficient to support introduction in the 2016 ships, we understand the costs.

We will be competing this engineering change proposal between the two builders as a fixed price competition to incorporate the cost, so that stability, cost control, and introduction of this key capability that we need can all come together. I believe it's very measured. We are not jumping the gun here. We're not slamming that into the multiyear at the front end. It is a downstream decision, but we believe it's important enough to get that capability introduced to the fleet that we want to do it smartly, but timely as well.

Senator REED. Thank you.

Admiral BLAKE. Sir, just to give you a little more background on the AFSB, we are filling an urgent COCOM demand signal. In the near term, we are going to take the *Ponce*, which was originally going to be decommissioned this past March, and we are now going to do some minor modifications on her, and then we will push that ship out to meet the COCOM demand. That's the near term.

Then the far-term solution is to do the modifications, as Mr. Stackley described, to the MLP in order to be able to meet that COCOM demand signal for the AFSB.

Senator REED. Thank you.

General Mills, I'll see you next Thursday, right? So I'll have a chance to just quiz you in depth. I don't know if you have a quick comment?

General MILLS. Sir, I look forward to next Thursday.

Senator REED. So do I, sir. Thank you. I wasn't ignoring you.

Senator Blumenthal.

Senator BLUMENTHAL. Thank you, Mr. Chairman.

I have a question that is a little bit different than most that have been asked so far, although I missed some at the beginning part of your testimony. I'm very interested in renewable energy, particularly the use of fuel cells. I think the Navy really has been leading the way in this effort, and I want to thank you for what you've been doing.

But I wonder whether you could comment on whether the extraordinary times that we face, to use a euphemism, Secretary Stackley, for these extraordinary constraints and challenges, are in any way inhibiting the drive toward using more renewable energy in the shipbuilding program, whether it is viewed as a means of cutting costs in the long-run, as I believe it should be viewed? If you could comment generally on that?

Mr. STACKLEY. Yes, sir, and I'll probably share this with Admiral McCoy. But as you're well aware, alternative energy has been a top priority for the Secretary of the Navy, and we have been investing across the board—ships, deployed forces, our installations and

sites—to reduce our energy demands so that we're driving up efficiency. So step one is reduce your energy demands.

A very simple example is the development that's going on right now for a hybrid electric drive for our surface combatants. We're looking at employing technologies that are already at sea on other ships and introducing that onto our larger ship class, the DDG–51s, to try to reduce their fuel bill and to get greater legs for those ships.

We see an opportunity there to drive our fuel costs down by simply 5 percent on each of our destroyers, which when you add it up is a fairly significant savings. So we're working that technology. We're going to do a demonstration here in the next year with one ship in service, with a long-term goal of backfit and forward fit that type of technology. That's one simple example.

Separately, I think you're well aware of the efforts that the Navy has been working on the R&D for alternative fuels. So that's biofuels. We're looking at all of our prime movers, gas turbines predominantly, to ensure that they are certified for operating with biofuels. There's been much discussion regarding the economics of that. The economics are probably a long-term issue. But side-by-side with the economics is the operational imperative of trying to reduce our reliance on fossil fuels from offshore.

You specifically asked about fuel cells. Fuel cell technology has been under development for decades. In fact, some other navies are employing fuel cell technology for their non-nuclear submarines. It is a good alternative energy source for non-nuclear submarines. For the Navy, that would not meet our mission requirements. I would say the large-scale application of fuel cell technology doesn't in that case meet our mission requirements.

But for commercial and military, fuel cell is a very promising technology. We're not going to drive that equation in terms of its development, but we are going to look to leverage it.

Admiral MCCOY. Senator, I'll just chime in. Most of the attention in this area has been on the alternative fuels. On the ship side, for example, we've already sailed one of our test gas turbine ships off the coast of California and we don't see any issue with being able to use that fuel. We're going to continue to expand that, including with the RIMPAC exercise this summer.

But an area that really hasn't gotten a lot of air time is what I call dozens of initiatives that we've fast-tracked out there to reduce the amount of fuel, as Mr. Stackley was saying. These are everything from the hybrid motor that Mr. Stackley talked about to simple things like hull coatings.

The good news about the things I'm going to talk about real quickly here is we're not on the leading edge of technology. We're adapting what's already in industry that can be smartly used in Navy ships. Slippery hull coatings that Maersk lines and other folks are using, we have them on a number of ships, and we are testing those. I really think we're talking about really hundreds, if not by the time we're done, initiatives that might get us very small, 1 percent, whatever, a half a percent, but when you think about the number of steaming hours that we have.

LED lighting, we're putting those on our ships and looking for the effect of those. Smart voyage management systems that plot

the course for the weather to minimize the drag on the ship. A hybrid motor, but also efficient motors, compressors, and pumps, and we're putting those on our ships and measuring the effect of those.

So we have a very active program that we're funding, that's getting this stuff out to sea, taking what makes sense, what has a good payback, and going ahead and further deploying it.

Admiral BLAKE. Sir, if I can just add, just from a fiscal perspective, for every dollar that a barrel of oil goes up we end up spending approximately an additional $31 million on the Navy side of the equation in order to get that fuel out there. So we have to do something. We're currently executing the fiscal year 2012 budget and you see the daily fluctuations in the fuel prices, we're having to come to grips with that. Every time you see that price of a barrel go up a dollar, we have to come up with an additional $31 million in order to cover it.

Admiral BURKE. Senator, you've heard a lot about what we're doing afloat. We're doing some of the very similar situations in the air, looking at coatings, engine development, flight profiles, and getting adjustments to air corridors to allow us to fly through those to save fuel.

But also on the shore side, there's a lot of effort going into that. As Admiral McCoy said, we are not on the leading edge of technology there. But the implementation there has wide-ranging impact. For example, we are just beginning to meter all the buildings, and particularly base housing is on the leading end of this. We meter those houses and evaluate how much energy they use relative to other very similar houses, and then charge the occupants if they go over the average, or refund their money if they save money.

The holy grail on this on the shore side is to be able to do this in all our bases, and we are well into installing those monitoring devices, metering, such that we can do that.

General MILLS. Sir, I would offer up from the Marine Corps side several things. First, on the individual bases already in theater, being used by troops downrange, are battery saving and renewables there, along the lines of batteries, green blankets, solar panels, those types of things; very, very successful, to include troops that are in heavy combat.

On the shore side, to mirror the Admiral's comments, for example, up at Bridgeport, CA, which is our Mountain Warfare Training Command, we are soon to be energy neutral because of what we're producing through solar and geothermal energy, and, in fact, in the very near future we'll actually be able to sell some of that electricity to the local power grid because we'll be producing more than what we, in fact, need.

Our warfighting lab down at Quantico is exploring a multitude of projects that we can push out to the fleet quickly to lighten up the individual marine's load and also to save fuel. Fuel efficiency is a major factor in all of our AOA as we look at new vehicles and new equipment to put on line.

It's a multi-fronted effort to really get some fuel savings in order to save those O&M dollars.

Senator BLUMENTHAL. Thank you very much. Thank you for those very impressive answers.

Thank you, Mr. Chairman.

Senator REED. Thank you, Senator Blumenthal.

Gentlemen, thank you for your excellent testimony, and for your service to the Navy and the Marine Corps and the Nation.

We will keep the record open for 1 week. Some of my colleagues might have statements they want to submit or questions they might direct to you. Please promptly respond to the questions.

With no further ado, this hearing is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JACK REED

LITTORAL COMBAT SHIP DESIGN ISSUES

1. Senator REED. Secretary Stackley, USS *Freedom* (LCS–1) has experienced some issues with cracking. As I understand it, after sea trials in February 2011, the Navy found 17 cracks on the ship. I also understand that the Littoral Combat Ship (LCS) program manager issued a memorandum indicating that the cracks represented a risk in operating the LCS–1 at the extreme edges of its safe operating envelope, and directed that the maximum speed for the LCS–1 to be capped at 20 knots in rough water. Additionally, the Navy found cracks in nearly identical locations on opposite sides of the ship. I understand that these cracks may be indicative of some systematic design issue with the LCS–1. What is your view on the reports of cracking in the hull and the limitations it puts on the ship's capabilities?

Mr. STACKLEY. The cracks detected on LCS–1 are not indicative of a systematic design issue on the *Freedom* variant of the LCS.

As was briefed to the Senate and House Armed Services Committees (SASC/HASC) in March and April 2011, respectively, there were 17 cracks discovered on LCS–1 after 30 months of operation (including post delivery test and trials, early deployment, and fleet operations). There was a single crack in the hull and 16 minor cracks in the superstructure.

The hull crack was discovered in February 2011 while LCS–1 was undergoing heavy weather trials off the coast of Northern California. A limitation to the safe operating envelope was implemented until the crack was repaired. The hull crack was attributed to a weld defect and undersized backing chocks, both of which exposed that area to higher than expected stress. The hull crack was repaired during a Continuous Maintenance Availability (CMAV) in February/March 2011 and the safe operating envelope restriction was lifted, allowing the ship to resume all ranges of speeds and operations. During a subsequent post shakedown availability, the undersized chocks were replaced. In addition, design changes were implemented on LCS–3 to ease accessibility to that area of the hull during construction to facilitate welding.

Regarding the 16 superstructure cracks, the investigation found 11 of these cracks coincide with high stress areas discovered in subsequent detailed structural modeling and analysis and 6 of the cracks had some form of workmanship issue during either construction or post delivery. All of these cracks have been repaired. Based on additional analysis, the LCS–3 design was modified to reduce the stresses in the superstructure. Design modifications from LCS–3 have been incorporated into LCS–1 and no further design-related superstructure cracking risk is anticipated for the LCS–1 design.

In summary, the cracks are not indicative of a systematic design issue on LCS–1. The Navy has been proactive in discovering the root cause of the cracks and implementing design and production improvements on all of the follow ships of the *Freedom* variant.

2. Senator REED. Secretary Stackley, are cracks in nearly identical locations on opposite sides of the ship, as apparently were identified in the LCS–1, indicative of a systematic flaw in the design of the LCS–1, and if so, how will the Navy address this issue?

Mr. STACKLEY. The cracks detected on LCS–1 are not indicative of a systematic design issue on the *Freedom* variant of the LCS.

As Navy briefed to the SASC/HASC in March and April 2011, respectively, there were 17 cracks discovered on LCS–1 after 30 months of operation (including post delivery test and trials, early deployment, and fleet operations). There was a single crack in the hull and 16 minor cracks in the superstructure. The small subset of

the 16 superstructure cracks that were mirrored on the opposite side of the ship was also detailed in the congressional briefs.

The hull crack was discovered in February 2011 while LCS–1 was undergoing heavy weather trials off the coast of Northern California. A limitation to the safe operating envelope was implemented until the crack was repaired. The hull crack was attributed to a weld defect and undersized backing chocks, both of which exposed that area to higher than expected stress. The hull crack was repaired during a CMAV in February/March 2011 and the safe operating envelope restriction was lifted, allowing the ship to resume all ranges of speeds and operations. During a subsequent post shakedown availability, the undersized chocks were replaced. In addition, design changes were implemented on LCS–3 to ease accessibility to that area of the hull during construction to facilitate welding.

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In summary, the cracks are not indicative of a systematic design issue on LCS–1. The Navy has been proactive in discovering the root cause of the cracks, and implementing design and production improvements on all of the follow ships of the *Freedom* variant.

3. Senator REED. Secretary Stackley and Admiral Blake, I also understand that during transit from Mayport, FL, to its homeport in San Diego, CA, the LCS–1 experienced a number of equipment failures, perhaps as many as 80 such failures, and at least once the ship lost all electricity, temporarily leaving her adrift at sea. Nevertheless, the committee has received favorable testimony on the LCS, including testimony from Secretary Mabus, who praised the performance of the ship, testifying that: "LCS–1, the *Freedom*, demonstrated some of the things we can expect during her maiden deployment earlier this year," and then-Chief of Naval Operations (CNO), Admiral Gary Roughead, stating: "I deployed the LCS earlier than any other ship class to assure we were on the right path operationally. It is clear to me that we are." Are these two testimonies inconsistent with the LCS–1 performance during that transit?

Mr. STACKLEY and Admiral BLAKE. No, these two testimonies are not inconsistent. Throughout its deployment, USS *Freedom* (LCS–1) safely operated and conducted its mission. Few of the 80 equipment failures cited above were mission critical. The ship did experience a brief loss of power; however, it should be noted that many commercial and U.S. Navy vessels have periods of power loss due to plant set-up and operator control. In the event of power loss, there are specific Navy procedures documented in the Engineering Operational Sequencing System (EOSS) to quickly restore power throughout the ship. To address concerns documented with electric power generation, the LCS Program executed Electric Plant Reliability Improvement Programs on both ship designs to increase reliability of ship service diesel generators and the performance and management of the shipboard electrical systems. This has resulted in changes that have been implemented through post delivery availabilities on LCS–1 and LCS–2 as well as captured for LCS–3 and follow ships. Additionally, sensors were installed to monitor performance trends.

LCS–1 arrived in San Diego on April 23, 2010, successfully completing her maiden deployment having traveled 6,500 miles, including transiting the Panama Canal. Highlights of operations in 3rd and 4th Fleet Areas of Responsibility include theater security cooperation port visits in Colombia, Panama, and Mexico, successful performance of strike group operations with the USS *Carl Vinson* Carrier Strike Group, joint maneuvers with the Mexican Navy, and counter-illicit trafficking patrols which resulted in four interdictions yielding over five tons of cocaine, two seized vessels, and nine suspected smugglers taken into custody. The second phase of the early deployment included LCS–1 participating in the bi-annual Rim of the Pacific (RIMPAC) exercise with 14 other nations, 34 ships, 5 submarines, 100 aircraft, and over 20,000 personnel. The early deployment included the development of a coordinated logistics support plan. The lessons learned from the LCS–1 deployment have provided critical data to inform the permanent support plan for the 55 ships of the LCS class, as well as valuable information used in the construction of both LCS–3 and the block buy ships.

4. Senator REED. Secretary Stackley, does the experience with the cracks and other equipment failures call into question the survivability of the LCS–1 in a hostile combat environment?

Mr. STACKLEY. The cracks and other equipment failures experienced by LCS–1 do not call into question the survivability. These types of issues are not uncommon to first of class ships and the Navy has corrected the underlying technical issues.

LCS ships are built to meet JROC-approved survivability requirements and include OPNAVINST 9070.1 Level 1 Survivability standards. The LCS design specifically includes Level 1 plus additional tailored survivability enhancements ("Level 1+"). LCS survivability depends on a combination of ship design, ship numbers, and ship CONOPS which says LCS will:

- Operate as part of a networked battle force
  - Independent operations in low- to medium-threat scenarios
  - Part of a networked battle force ops in high threat environments
- Create Battle Space/Avoid being hit
  - Reliance on networked battle force for threat attrition
  - Reliance on offboard systems
- Fight and survive if hit
  - Ship design: Accept ship mission kill; keep ship afloat and protect crew after hit
  - Battle force design: Maintain battle force fight-through capability through LCS numbers and mission flexibility
- Withdraw/reposition if hit-LCS is designed to maintain essential mobility after a hit allowing the ship to exit the battle area under its own power. The LCS systems allow ship's crew to navigate and communicate while repositioning after a hit all the while utilizing numbers (of LCSs), and CONOPS as force multipliers. LCS incorporates survivability systems to perform required missions in the littoral with an emphasis on crew survival.

5. Senator REED. Secretary Stackley, can the Navy ensure that these issues with the LCS program will be addressed before follow-on ships are delivered?

Mr. STACKLEY. Yes. The LCS program incorporates lessons learned during construction of the lead ship of both LCS variants. For example, the Navy has implemented design modifications and production process improvements on LCS–3 and follow-on hulls to correct the superstructure cracking experienced. The LCS program has collected data on the lead ships, executed design reviews/design updates, and continues to implement those findings into the follow-on ships as required. In addition, those findings have led to upgrades and changes on LCS–1 and LCS–2 to ensure that these research and development (R&D) hulls are fully operational fleet assets.

6. Senator REED. Secretary Stackley, if you are unable to fix these issues, would that result in a need to discontinue the Navy's dual-source acquisition strategy?

Mr. STACKLEY. As a result the of lessons learned from LCS–1 and LCS–2, the risk of discontinuing the dual-source block buy continues to decrease as the program matures. The Navy has implemented design modifications and production process improvements on LCS–3 and follow-on hulls to correct the superstructure cracking experienced on LCS–1. In addition, the lessons-learned have led to upgrades and changes on LCS–1 and LCS–2 to ensure that these R&D hulls are fully operational fleet assets.

7. Senator REED. Secretary Stackley, I also understand that the Director of Operational Test and Evaluation (DOT&E) may not have released any formal developmental test and evaluation (T&E) reports. Does this lack of releasing reports in any way reflect the fact that the Navy and the DOT&E are not cooperating effectively on the LCS program?

Mr. STACKLEY. No. The LCS Program Office has been working in close coordination with the DOT&E community since the early days of the program. DOT&E has been an active member of the T&E Working-level Integrated Program Teams (WIPT) since 2004 and most recently at the OSD level in the Milestone-related Integrating IPTs (IIPT) and Overarching IPTs (OIPT) that occurred in 2011. The Navy is actively developing the required reports documenting the results of all the developmental testing that has occurred on LCS–1. Once completed, these reports will be delivered to DOT&E.

8. Senator REED. Secretary Stackley, how will you ensure that the Navy works more closely with the DOT&E on the LCS program and better informs the DOT&E and Congress of vulnerabilities with the LCS during the T&E process?

Mr. STACKLEY. The LCS Program Office has been working in close coordination with the DOT&E community since the early days of the program. DOT&E has been an active member of the T&E WIPTs since 2004 and most recently at the OSD level in the IIPTs and OIPTs that occurred in 2011. The Navy provided Draft Detail Design Integrated Survivability Assessment Reports (DDISAR) to DOT&E in the second quarter of fiscal year 2012, in advance of completion of modeling results and shot line selections. DOT&E and the Program Office now are working jointly to complete the DDISARs before planning and conduct of the Total Ship Survivability Trials (TSST) to assess seaframe survivability in fiscal year 2014. Additionally, the LCS Program Office provided a draft of the 57mm Live Fire T&E Management Plan to OSD/DOT&E on March 29, 2012, and received comments on April 3, 2012. Comment resolution is in process.

QUESTIONS SUBMITTED BY SENATOR KAY R. HAGAN

AMPHIBIOUS SHIPS

9. Senator HAGAN. General Mills, in 2009, the Navy identified the requirement for 38 amphibious ships, but accepted the risk of 33 ships due to fiscal constraints. This risk was deemed acceptable based on an assumed fleet readiness rate of 90 percent, which would have 30 operational ships at any given time. The current shipbuilding plan shows an average inventory of 29 ships across the Future Years Defense Program (FYDP) and historical trends demonstrate amphibious ship readiness well below the assumed rate of 90 percent, closer to 80 percent. The shipbuilding plan doesn't get us to the required number of 32 or 33 amphibious ships, depending on the year of the report, until 2022. What impact, if any, has amphibious ship availability had on readiness?

General MILLS. One Marine Expeditionary Brigade (MEB) assault echelon requires 17 operationally available amphibious warships and we require a minimum of two MEBs to meet combatant commander requirements. These ships, along with the requisite number of ship-to-shore connectors, represent the minimum number of ships needed to provide the Nation with a sea-based power projection capability for full spectrum amphibious operations. Fiscal constraints reducing this operational availability down to 30 ships have already required us to assume risk, not only in quantities, but also the speed with which we can respond. As of May 2012, there are 28 ships in the Navy's amphibious fleet, with 3 scheduled for decommissioning and 4 new ships under construction in the yards. Within the coming FYDP, the inventory will decline in fiscal year 2014 before rising to an average of 30 amphibious warships over the next 30 years. The key to meeting amphibious lift requirements with acceptable risk is maintaining a fleet which provides 30 operationally available ships.

Shortfall in amphibious lift remains a concern as we work with the CNO and his staff to mitigate risk in meeting the amphibious lift requirement. We are aggressively reviewing our amphibious concepts, doctrine, and plans and have recently developed an Ellis Group specifically charged with developing innovative solutions to overcome these obstacles and look for new methods given these amphibious ship shortfalls.

10. Senator HAGAN. General Mills, what level of risk is being assumed across the FYDP?

General MILLS. The combatant commanders' cumulative operational demand for amphibious ships falls into three basic categories: forward presence and engagement; crisis response; and operations plans. While operations plans amphibious warship requirements have remained consistent, the demand for the first two categories has dramatically increased in the post-Cold War era. In the past 20 years, U.S. amphibious forces have responded to crises and contingencies well over 100 times, a response rate that approximately doubles that of the Cold War. Furthermore, during the same period, forward-postured amphibious forces have continually conducted sea-based security cooperation with international partners—reflecting the philosophy espoused in the Maritime Strategy that preventing war is as important as winning wars.

An inventory of 33 ships allows the Navy/Marine Corps team to: meet desired presence goals; fully supports our ability to build partnerships through engagement; and respond to crisis. Optimally, deploying 3 forward ARG/MEUs and 2 enhanced

MPSRONs—each with an MLP and T–AKE integrated into the squadron—provides the Nation the ability to respond to small to large scale crisis within 7–10 days. These ships, equipment, marines, and sailors are the same capability used to strengthen our relationships worldwide and provide a strategic "buffer" protecting our interests and a global economy and stability. Rotational Amphibious Ready Groups and Marine Expeditionary Units form together to provide forward deployed naval forces in four Geographic Combatant Command areas of responsibility.

In addition to forward presence and episodic crises response, we maintain the requirement for an amphibious warship fleet for contingencies requiring our role in joint operational access. One MEB assault echelon requires 17 operationally available amphibious warships and we require a minimum of 2 MEBs to meet combatant commander requirements. These ships, along with the requisite number of ship-to-shore connectors, represent the minimum number of ships needed to provide the Nation with a sea-based power projection capability for full spectrum amphibious operations. As of May 2012, there are 28 ships in the Navy's amphibious fleet, with 3 scheduled for decommissioning and 4 new ships under construction in the yards. Within the coming FYDP, the inventory will decline in fiscal year 2014 before rising to an average of 30 amphibious warships over the next 30 years. Fiscal constraints reduce operational availability down to 30 ships, based on an inventory of 33 ships, which requires us to assume risk, not only in quantities, but also the speed with which we can respond. The key to meeting amphibious lift requirements with acceptable risk is maintaining a fleet which provides 30 operationally available ships for the 3 categories described.

11. Senator HAGAN. General Mills, how important are amphibious ships and other amphibious capabilities to your plans to distribute forces throughout the Pacific?

General MILLS. The geographic realities of the Pacific theater demand naval responsiveness. The genesis of the amphibious and power projection capabilities of the Navy and Marine Corps traces back more than 70 years to operations in the Pacific—where today key terrain and strategic chokepoints are separated by large expanses of ocean. The Pacific theater is where 30 percent of the world's population and the same percentage of our primary trading partners reside; where five major defense treaties are focused; where 50 percent of the world's megacities are situated; and where natural disasters over the past decade have required the greatest attention from the international community. The geography of the Pacific has not changed, though our tactics and operations continually evolve with the changing character and lethality of modern warfare. Approximately 24,000 marines already in the Pacific conduct an ambitious, annual training cycle of more than 80 exercises, engagements, and initiatives, in addition to the crises we respond to such as Operation Tomodachi in Japan last year.

Forward presence involves a combination of land- and sea-based naval forces. Our enduring bases and presence have served U.S. National Security interests well for decades. Our rotational presence in locations such as Japan, Korea, Australia, the Philippines, Thailand, and Singapore reassures our allies and partners. Sea-basing, the act of using amphibious warships with support from maritime prepositioned ships with various types of connectors is uniquely suited to provide the geographic combatant commander with the flexibility to deploy forces anywhere in the Pacific region without having to rely on multiple bases ashore or imposing our presence on a sovereign nation. Sea-basing enables forward deployed presence at an affordable cost. Forward-deployed naval forces serve as a deterrent and provide a flexible, agile response capability for crises or contingencies. Maritime prepositioning offers the ability to rapidly support and sustain Marine Corps forces in the Pacific during training, exercises, or emerging crises, and delivers the full range of logistical support those forces require.

12. Senator HAGAN. General Mills, what is the current amphibious ship requirement?

General MILLS. One MEB assault echelon requires 17 operationally available amphibious warships and we require a minimum of 2 MEBs to meet combatant commander requirements. These ships, along with the requisite number of ship-to-shore connectors, represent the minimum number of ships needed to provide the Nation with a sea-based power projection capability for full spectrum amphibious operations. Fiscal constraints reducing this operational availability down to 30 ships have already required us to assume risk, not only in quantities, but also the speed with which we can respond. As of May 2012, there are 28 ships in the Navy's amphibious fleet, with 3 scheduled for decommissioning and 4 new ships under construction in the yards. Within the coming FYDP, the inventory will decline in fiscal year 2014 before rising to an average of 30 amphibious warships over the next 30

years. The key to meeting amphibious lift requirements with acceptable risk is maintaining a fleet which provides 30 operationally available ships.

13. Senator HAGAN. Admiral McCoy, why don't we have these ships now or expect to have them anytime soon for that matter?

Admiral MCCOY. The Navy remains committed to providing 30 operationally available amphibious ships to meet naval amphibious lift demand. Although budgetary pressures have led us to shift priorities elsewhere in the short-term and the future fiscal environment is unclear, the Navy can achieve this goal by sustaining an inventory of about 32 amphibious ships in the mid- to long-term.

The 32-ship amphibious force we are procuring to support this need will optimally be comprised of 11 LHA/D, 11 LPD–17, and 10 LSD. Our proposed delivery/decommissioning profile will meet historical sourcing for Amphibious Ready Groups.

The 30-year shipbuilding plan procures the first LHA(R) Flight 1 amphibious assault ship in fiscal year 2017, 1 year later than originally expected. Current plans call for this ship to include a well deck and a reduced island to improve its surface and aerial assault capabilities. Additionally, the plan delays decommissioning of an amphibious assault ship (LHA–5) from fiscal year 2014 to fiscal year 2015 to maintain large deck amphibious ships in the inventory pending LHA–6 delivery to the fleet. The Navy will continue to procure Flight I LHA(R) amphibious assault ships in the mid-term period. Three of these large, multi-purpose warships will be built every 4 years, starting in fiscal year 2024.

The 30-year shipbuilding plan procures the first LSD(X), the replacement for LSD–41 and –49 dock landing ships, in fiscal year 2018. Three of the 10 planned LSD(X)s are to be procured in the near-term planning period with the remaining 7 ships procured during the mid-term planning period; the last coming in fiscal year 2032. As the first of these legacy ships will not retire until fiscal year 2026, this procurement action is ahead of need; it is being taken primarily to preserve the shipbuilding industrial base and to maintain a long-term total amphibious inventory at or slightly above 32 ships. The additional ships in the inventory will help reduce the risk associated with generating the 30 operationally available amphibious ships needed to meet amphibious lift demand.

14. Senator HAGAN. Admiral McCoy, why, with fewer ships this year than last, are we looking to decommission two more amphibious ships?

Admiral MCCOY. The decision to inactivate certain fleet assets was made to maintain the proper mix of capability in the battle force and provide a fiscal pathway to sustain, modernize, and update the existing and future fleet while maintaining an industrial base.

- The Navy plans to transfer 2 of 12 LSDs to the inactive fleet and delay procurement of LSD(X). This will maintain an adaptable amphibious landing force of approximately 30 ships.

In the short-term, we are accepting risk to aviation and vehicle lift. We may be able to reduce the risk by relying more heavily on carrier tactical aviation for close air support and by delivering additional support vehicles via Mobile Landing Platform (MLP) and/or Joint High Speed Vessel (JHSV) to support ground maneuver. This decision reflects the judicious use of limited resources while balancing operational risk.

QUESTIONS SUBMITTED BY SENATOR ROGER F. WICKER

CVN–78 *FORD*-CLASS AIRCRAFT CARRIER

15. Senator WICKER. Secretary Stackley and Admiral McCoy, it is likely that the cost to complete construction of the USS *Gerald R. Ford* aircraft carrier will overrun significantly. What new approaches will the Navy take to ensure that the *Ford*-class carrier's costs get under control?

Mr. STACKLEY and Admiral MCCOY. The Navy's ongoing efforts to control cost in the CVN–78 class are detailed in the March 26, 2012 letter from the Secretary of the Navy to Senators Levin and McCain. Strategies to incorporate lessons learned from CVN–78 and apply them to CVN–79 are described below.

Improving Cost Performance on CVN–78

Cost growth to date is attributable to increases in design, contractor furnished material, government furnished material (notably, the Electromagnetic Aircraft Launching System (EMALS) and the Dual Band Radar (DBR)), and production labor performance. To achieve the best case outcome, the program must execute with zero

additional cost growth in design and material procurement, and must improve production performance. The Navy and the shipbuilder have implemented a series of actions and initiatives in the management and oversight of CVN–78 that cross the full span of contracting, design, material procurement, government furnished equipment, production planning, production, management, and oversight.

CVN–78 is being procured within a framework of cost plus contracts. Within this framework, however, the recent series of action taken by the Navy to improve contract effectiveness are achieving the desired effect of incentivizing improved cost performance and reducing government exposure to further cost growth.

- CVN–78 design has been converted from a level of effort, fixed fee contract to a completion contract with a firm target and incentive fee. Shipbuilder cost performance has been on target or better since this contract was changed.
- CVN–78 construction fee has been retracted, consistent with contract performance. However, the shipbuilder is incentivized by the contract shareline to improve upon current performance to meet agreed-to cost goals.
- Contract design changes are under strict control; authorized only for safety, damage control, mission-degrading deficiencies, or similar. Adjudicated changes have been contained to less than 1 percent of contract target price.
- The Navy converted the EMALS and AAG production contract to a firm, fixed-price contract, capping cost growth to that system and imposing penalties for late delivery.
- Naval Sea Systems Command is performing a review of carrier specifications with the shipbuilder, removing or improving upon overly burdensome or unneeded specifications that impose unnecessary cost on the program.

The largest impact to cost performance to date has been contractor and government material cost overruns. These issues trace to lead ship complexity and CVN–78 concurrency, but they also point to inadequate accountability for carrier material procurement, primarily during the ship's advance procurement period (2002–2008). These effects cannot be reversed on CVN–78, but it is essential to improve upon material delivery to the shipyard to mitigate the significant impact of material delays on production performance. Equally important, the systemic material procurement deficiencies must be corrected for CVN–79. To this end, the Navy and shipbuilder have taken the following actions.

- The Navy has employed outside supply chain management experts to develop optimal material procurement strategies. The Navy and the shipbuilder are reviewing remaining material requirements to employ these best practices (structuring procurements to achieve quantity discounts, dual-sourcing to improve schedule performance and leverage competitive opportunities, etc.).
- The shipbuilder has assigned engineering and material sourcing personnel to each of their key vendors to expedite component qualifications and delivery to the shipyard.
- The shipbuilder is inventorying all excess material procured on CVN–78 for transfer to CVN–79 (cost reduction to CVN–78), as applicable.
- The Program Executive Officer (Carriers) is conducting quarterly flag-level government furnished equipment summits to drive cost reduction opportunities and ensure on-time delivery of required equipment and design information to the shipbuilder.

The most important finding regarding CVN–78 remaining cost is that the CVN–78 build plan, consistent with the *Nimitz* class, focuses foremost on completion of structural and critical path work to support launching the ship on schedule. This emphasis on structure comes at the expense of completing ship systems, outfitting, and furnishing early in the build process and results in costly, labor-intensive system completion activity during later, more costly stages of production. Achieving the program's cost improvement targets will require that CVN–78 increase its level of completion at launch, from current estimate of 60 percent to no less than 65 percent. To achieve this goal and drive greater focus on system completion:

- The Navy fostered a collaborative build process review by the shipbuilder with other tier-1 private shipyards in order to benchmark its performance and identify fundamental changes that would yield marked improvement;
- The shipbuilder has established specific launch metrics by system (foundations, machinery, piping, power panels, vent duct, lighting, etc.) and increased staffing for waterfront engineering and material expediters to support meeting these metrics;
- The shipbuilder has linked all of these processes within a detailed integrated master schedule, providing greater visibility to current performance

and greater ability to control future cost and schedule performance across the shipbuilding disciplines;

• The Navy and shipbuilder are conducting Unit Readiness Reviews of CVN–78 erection units to ensure that the outfitted condition of each hull unit being lifted into the dry-dock contains the proper level of outfitting.

These initiatives, which summarize a more detailed list of actions being implemented and tracked as result of the end-to-end review, are accompanied by important management changes.

• The shipbuilder has assigned a new Vice President in charge of CVN–78, a new Vice President in charge of material management and purchasing, and a number of new general shop foremen to strengthen CVN–78 performance.

• The Navy has assigned a second tour flag officer with considerable carrier operations, construction, and program management experience as the new Program Executive Officer (PEO).

• The PEO and shipyard president conduct bi-weekly launch readiness reviews focusing on cost performance, critical path issues, and accomplishment of the target for launch completion.

• The Assistant Secretary of the Navy (Research, Development, and Acquisition) conducts a monthly review of program progress and performance with the PEO and shipbuilder, bringing to bear the full weight of the Department, as needed, to ensure that all that can be done to improve on cost performance is being done.

Early production performance improvements can be traced directly to these actions, however, significant further improvement is required. To this end, the Navy is conducting a line-by-line review of all cost-to-go on CVN–78 to identify further opportunity to reduce cost and to mitigate risk.

Improving Cost Performance on CVN–79

CVN–79 advance procurement commenced in 2007 with advance construction activities following in 2011. Authorization for CVN–79 procurement is requested in the fiscal year 2013 President's budget request with the first year of incremental funding. Two years have been added to the CVN–79 production schedule in this budget request, afforded by the fact that CVN–79 will replace CVN–68 when she inactivates. To improve affordability for CVN–79, the Navy plans to leverage this added time by introducing a fundamental change to the carrier procurement approach and a corresponding shift to the carrier build plan, while incorporating CVN–78 lessons learned.

The two principal documents which the Navy and shipbuilder must ensure are correct and complete at the outset of CVN–79 procurement are the design and the build plan.

Design is governed by rules in place that no changes will be considered for the follow ship except changes necessary to correct design deficiencies on the lead ship, fact-of-life changes to correct obsolescence issues, or changes that will result in reduced cost for the follow ship. Exceptions to these rules must be approved by the JROC or designee. Accordingly, the Navy is requesting procurement authority for CVN–79 with the Design Product Model complete and construction drawings approximately 95 percent complete (compared to approximately 30 percent complete at time of lead ship authorization).

As well, first article testing and certification will be complete for virtually all major new equipments introduced in the *Ford*-class. At this point in time, the shipbuilder has developed a complete bill of material for CVN–79. The Navy is working with the shipbuilder to ensure that the contractor's material estimates are in-line with Navy should cost estimates; eliminating non-recurring costs embedded in lead ship material, validating quantities, validating escalation indices, incorporating lead ship lessons learned. The Navy has increased its oversight of contractor furnished material procurement, ensuring that material procurement is competed (where competition is available); that it is fixed priced; that commodities are bundled to leverage economic order quantity opportunities; and that the vendor base capacity and schedule for receipt supports the optimal build plan being developed for production.

In total, the high level of design maturity and material certification provides a stable technical baseline for material procurement cost and schedule performance, which are critical to developing and executing an improved, reliable build plan.

In order to significantly improve production labor performance, based on timely receipt of design and material, the Navy and shipbuilder are reviewing and implementing changes to the CVN–79 build plan and affected facilities. The guiding principles are:

- Maximize planned work in the shops and early stages of construction,
- Revise sequence of structural unit construction to maximize learning curve performance through families of units and work cells,
- Incorporate design changes to improve *Ford*-class producibility,
- Increase the size of erection units to eliminate disruptive unit breaks and improve unit alignment and fairness,
- Increase outfitting levels for assembled units prior to erection in the dry-dock,
- Increase overall ship completion levels at each key event.

The shipbuilder is working on detailed plans for facility improvements that will improve productivity, and the Navy will consider incentives for capital improvements that would provide targeted return on investment, such as:

- Increasing the amount of temporary and permanent covered work areas,
- Adding ramps and service towers for improved access to work sites and the dry-dock,
- Increasing lift capacity to enable construction of larger, more fully outfitted super-lifts.

An incremental improvement to carrier construction cost will fall short of the improvement necessary to ensure affordability for CVN–79 and follow ships. Accordingly, the shipbuilder has established aggressive targets for CVN–79 to drive the game-changing improvements needed for carrier construction. These targets include:

- 75 percent complete at launch (15 percent > *Ford*);
- 85–90 of cable pulled prior to Launch (25–30 percent > *Ford*);
- 30 percent increase in front-end shop work (piping details, foundations, etc);
- All structural unit hot work complete prior to blast and paint;
- 25 percent increase to work package throughput;
- 100 percent of material available for all work packages in accordance with the integrated master schedule;
- Zero delinquent engineering and planning products;
- Resolution of engineering problems in < 8 hours.

In parallel with efforts to improve shipbuilder costs, the PEO is establishing equally aggressive targets to reduce the cost of government furnished equipment for CVN–79; working equipment item by equipment item with an objective to reduce overall GFE costs by $500 million. Likewise, the Naval Sea Systems Command is committed to continuing its ongoing effort to identify specification changes that could significantly reduce cost without compromising safety and technical rigor.

The output of these efforts comprises the optimal build plan for CVN–79 and follow, and will be incorporated in the detail design and construction baseline for CVN–79. CVN–79 will be procured using a fixed price incentive contract.

16. Senator WICKER. Secretary Stackley and Admiral McCoy, one of the many new technologies on the *Ford*-class aircraft carrier is the Electromagnetic Aircraft Launch System (EMALS) and the Advanced Arresting Gear. Please describe how these key programs are doing.

Mr. STACKLEY and Admiral MCCOY. The EMALS is designed for the CVN–78-class aircraft carrier. EMALS System Development and Demonstration (SDD) program is 87.4 percent complete and currently in the T&E phase. T&E status is as follows:

- Highly Accelerated Life Testing (HALT) of trough components completed 13,144 cycles of 18,000 planned cycles.
- High Cycle Testing (HCT) of power equipment completed 32,217 cycles of 40,000 planned cycles.
- Full Scale Catapult System Functional Demonstration (SFD) completed:
  - 5,648 maneuvers, including 1,622 no-load and 2,014 deadload launches
  - Four F/A–18E risk reduction launches in December 2010
  - One F–35C risk reduction launch in November 2011
  - Test site is undergoing reconfiguration until July 2012
- Aircraft Compatibility Testing (ACT) Phase I is complete;
  - 129 aircraft launches including F/A–18E (with and without stores), C–2A, T–45C and E–2D
- Electromagnetic Interference (EMI) tests completed:
  - Weapons (HERO): Electronic Explosive Device response tests

- Aircraft systems: F/A–18E, T–45C and C–2A tested to EMALS emissions levels in the Patuxent River anechoic chamber. F/A–18E, T–45C, C–2A, E–2D, and F–35C tested at the SFD site against actual EMALS emissions
- Personnel (HERP): Component testing complete

The EMALS firm-fixed-price production contract was definitized in June 2010 and production is complete or underway on all major subsystems. EMALS component deliveries to the shipyard commenced in May 2011, and the last component will deliver in April 2014. EMALS component deliveries to date have met CVN–78 Required In-Yard Dates (RIYDs) or have delivered in time to avoid major construction delays. EMALS is on track to meet all future CVN–78 RIYDs.

The Advanced Arresting Gear (AAG) is designed for forward fit in CVN–78-class carriers as well as back fit in *Nimitz*-class carriers. The SDD Program is 80 percent complete and in the T&E phase. Test status is as follows:

- Extended Reliability Testing (ERT) of components has completed 5,610 cycles
- Jet Car Track Site (JCTS) testing has completed:
  - Hardware Commissioning including 13 deadloads
  - Deadload Commissioning including:
    - 80 percent of full operating envelope available for test
    - 125 deadloads representative of F/A–18E/F, EA–18G, F/A–18C/D, E–2C, C–2A, and T–45 recoveries
  - Testing is on hold while system water twisters undergo structural redesign to prevent internal structural failure
  - Estimated return to commissioning is June 2012 with commencement of JCTS performance testing in fiscal year 2013

The AAG firm-fixed-price production effort was definitized in June 2010 as part of a combined contract with EMALS. Production is underway on most major subsystems. The first AAG component deliveries to the shipyard occurred in March 2012. Delivery of most major AAG hardware will be complete by fall of 2012. Final delivery of the production water twisters is under evaluation.

17. Senator WICKER. Secretary Stackley and Admiral McCoy, will these systems meet the required in-yard date for delivery and installation on the *Ford*?

Mr. STACKLEY and Admiral MCCOY. To date, EMALS has delivered 259 hardware end items for CVN–78, including 12 schedule-critical energy storage subsystem (ESS) motor/generators and 70.5 miles of cable to the shipyard. EMALS component deliveries to date have met CVN–78 RIYDs or have delivered in time to avoid major construction delays.

AAG production for CVN–78 is underway on all major subsystems. The first AAG component deliveries to the shipyard began in March 2012. To date, 142 hardware end items have been delivered to the shipyard including 4 of the 8 required electric motors needed to meet 2012 RIYDs and 12.6 miles of cable. The Navy and the shipbuilder are coordinating revision to the delivery dates for AAG water twisters and purchase cable drum assemblies to address component design modifications while ensuring minimal impact to ship's build schedule. The remaining 62 hardware items have either been completed or are in manufacture to meet RIYDs later in 2012 and 2013. Installation of AAG hardware is planned to begin in late summer of 2012.

PROPOSED EARLY RETIREMENTS OF CRUISERS AND AMPHIBIOUS SHIPS

18. Senator WICKER. Admiral Blake, why did the Navy cut seven *Ticonderoga* Aegis-class cruisers early and put two landing ship dock (LSD) amphibious ships in reduced operating status?

Admiral BLAKE. As a result of fiscal constraints, the Navy chose to prioritize readiness over capacity. The fiscal year 2013 decision to decommission the cruisers (CG) and LSDs exemplify our resolve to provide a more ready and sustainable fleet within our budget constraints. The resources made available by these retirements will allow increased funding for training and maintenance. Both the cruisers and the LSDs were in need of significant maintenance investment and six of the seven cruisers required further investment to install BMD capability. Inactivating the CGs resulted in approximately $4.1 billion in savings across the FYDP, including manpower, helicopters, and maintenance savings and costs avoided by not executing combat system and hull, mechanical, and electrical upgrades. These savings were shifted to other portions of the fleet. Inactivation of the two LSDs in fiscal year 2014 saved approximately $293 million each across the FYDP. These ships will be placed in Mobilization Category B allowing for reactivation should conditions warrant. The reduction in cruiser and amphibious capacity and shift to a more sustainable deploy-

ment model will result in some reductions to the amount of presence the Navy will provide overseas in some select areas, or a change in the nature of that presence to favor innovative and lower-cost approaches. This decision supports wholeness of the force by not having more force structure than we can afford to maintain, equip, and man.

19. Senator WICKER. Admiral Burke, how does retiring seven *Ticonderoga* Aegis-class cruisers early and putting two LSD amphibious ships in reduced operating status square away with the Secretary of Defense's new strategic guidance, which puts renewed emphasis on the Asia-Pacific region?

Admiral BLAKE. The Navy can meet the Defense Strategic Guidance with the current and projected force structure provided in Navy's President's budget for 2013 submission. Keeping these ships that are increasingly expensive to maintain and operate, in service, would divert funding from other programs vital to the Navy's mission, including the modernization and procurement of ships critical to fleet needs, and compete for scarce operations and maintenance dollars to sustain fleet readiness.

Consistent with the Defense Strategic Guidance, the Navy will posture continuous, credible combat power in the Western Pacific and the Arabian Gulf/Indian Ocean to protect our vital interests, assure friends and allies, and deter potential adversaries. Naval forces remain flexible and agile, able to swing rapidly in response to emergent high priority requirements in other theaters, as well as to surge from U.S. homeports in the event of crises. The Navy can meet these challenges under our current operational tempo and deployment lengths.

As reported in the Annual Report to Congress on Long-Range Plan for Construction of Naval Vessels for Fiscal Year 2013, all nine ships being retired will be placed in Out of Commission in Reserve Status (OCIR) and not in Reduced Operating Status (ROS).

20. Senator WICKER. Admiral Burke, what is the Navy doing to enable it to reactivate at a later date the seven cruisers it plans to retire early?

Admiral BLAKE. The Addendum to the Report to Congress on the Long-Range Plan for the Construction of Naval Vessels in Fiscal Year 2013 indicates the seven cruisers will be designated to be retained in an OCIR status. The seven cruisers will undergo a standard inactivation program and be placed in a Mobilization Category B status, which includes dehumidification and cathodic protection to prepare them for long-term storage and potential future reactivation. In the future, if a decision to return any/all of the cruisers to service is made, the Navy will have to determine the cost and duration of the activation availability needed to recommission these ships in a meaningful combat status after assessing individual ship material readiness and determining the required warfighting capability upgrades necessary to return the ship(s) to operation.

21. Senator WICKER. Admiral Burke, what are the potential operational implications of these early retirements?

Admiral BLAKE. The primary operational impact will be fewer assets to address geographic combatant commanders' demand. To mitigate the impact of early ship retirements, other employment models have been adopted. For example, relocating Ballistic Missile Defense (BMD) destroyers to Rota, Spain, is one approach to source geographic combatant commanders' demand. Innovative amphibious shipbasing concepts are more challenging since true capability must include Marine Corps resources, training, and embark factors. Nevertheless, Navy will continue to explore new employment models to place more capacity forward in order to maximize responsiveness and readiness of our force.

Overall, the current and planned Navy battle force provides a fleet capable of sourcing combatant commanders' demands with manageable risk. Going forward, our current shipbuilding plan balances the anticipated future demand for naval forces with expected resources.

22. Senator WICKER. Admiral Blake, what would be the cost to keep these ships without retiring them?

Admiral BLAKE. As a result of fiscal constraints, the Navy chose to prioritize readiness over capacity. The fiscal year 2013 decision to decommission the CGs and LSDs exemplify our resolve to provide a more ready and sustainable fleet within our budget constraints. The resources made available by these retirements will allow increased funding for training and maintenance. The reduction in cruiser and amphibious capacity and shift to a more sustainable deployment model will result in some reductions to the amount of presence the Navy will provide overseas in some select

areas, or a change in the nature of that presence to favor innovative and lower-cost approaches. This decision supports wholeness of the force by not having more force structure than we can afford to man, train, and equip.

Based on additional analysis, the cost to retain and fully modernize the following three CGs scheduled for decommissioning in fiscal year 2013 (USS *Cowpens* (CG–63), USS *Anzio* (CG–68), and USS *Vicksburg* (CG–69)), including BMD upgrade and MH–60R helicopter procurement, is:

Fiscal Year 2013: $640 million
Fiscal Year 2014: $590 million
FYDP: $2.7 billion

The cost to retain and fully modernize the remaining cruisers is dependent upon the decisions to be made in fiscal year 2013.

The Navy estimates overall cost to retain and modernize, maintain, man, and equip the two LSDs proposed for decommission is:

Fiscal Year 2013: $63 million
Fiscal Year 2014: $105 million
FYDP: $512 million

23. Senator WICKER. Admiral Blake, the Department of Defense has cited reversibility in connection with its new strategic guidance. What is the Navy doing to enable it to reactivate the seven cruisers at a later date after the ships are retired early?

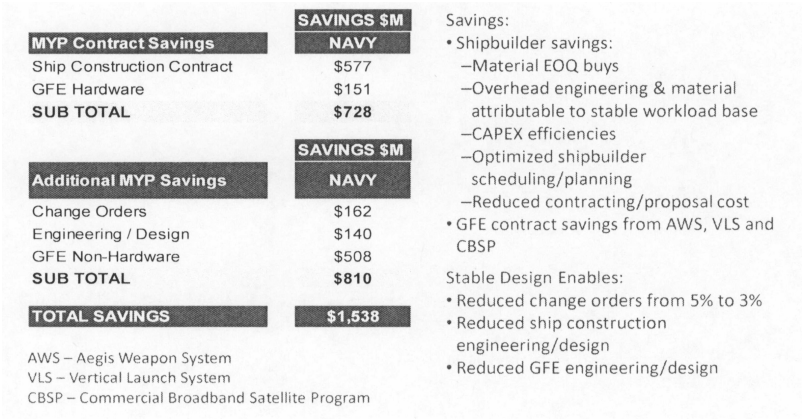
Admiral BLAKE. The Addendum to the Report to Congress on the Long-Range Plan for the Construction of Naval Vessels in Fiscal Year 2013 indicates the seven cruisers will be designated to be retained in an OCIR status. The seven cruisers will undergo a standard inactivation program and be placed in a Mobilization Category B status, which includes dehumidification and cathodic protection to prepare them for long-term storage and potential future reactivation. In the future, if a decision to return any/all of the cruisers to service is made, the Navy will have to determine the cost and duration of the activation availability needed to recommission these ships in a meaningful combat status after assessing individual ship material readiness and determining the required warfighting capability upgrades necessary to return the ship(s) to operation.

QUESTIONS SUBMITTED BY SENATOR SUSAN M. COLLINS

MULTIYEAR PROCUREMENT SAVINGS

24. Senator COLLINS. Secretary Stackley, at a recent House Armed Services Committee hearing regarding Navy ship acquisition, industry officials testified that multiyear procurements (MYP) are incredibly important in terms of stability for the workforce, achieving efficient ship construction compared to annual procurements and reducing overall costs. Please discuss the affordability and possible savings achieved by an MYP for the DDG–51 destroyer program.

Mr. STACKLEY. A MYP achieves affordability for the Navy by enabling industry to maintain a stable workforce which in turn facilitates efficiencies in the shipbuilding process including planning, scheduling, and material purchasing efforts. The MYP also enables the contractor to buy materials in economic order quantities providing for additional savings during construction. In addition, MYP contracts drive a more stable design configuration reducing the amount and cost of engineering changes over the course of the construction cycle. For the DDG–51 fiscal years 2013–2017 MYP, the Navy estimates a cost savings of $1.5 billion during the next 5 years, a net savings of 8.7 percent, in comparison to single year procurements over the same timeframe. A detailed breakdown of the savings is provided below:



MYP Contract Savings	SAVINGS $M NAVY
Ship Construction Contract	$577
GFE Hardware	$151
SUB TOTAL	**$728**

Additional MYP Savings	SAVINGS $M NAVY
Change Orders	$162
Engineering / Design	$140
GFE Non-Hardware	$508
SUB TOTAL	**$810**
TOTAL SAVINGS	**$1,538**

AWS – Aegis Weapon System
VLS – Vertical Launch System
CBSP – Commercial Broadband Satellite Program

Savings:
- Shipbuilder savings:
  - –Material EOQ buys
  - –Overhead engineering & material attributable to stable workload base
  - –CAPEX efficiencies
  - –Optimized shipbuilder scheduling/planning
  - –Reduced contracting/proposal cost
- GFE contract savings from AWS, VLS and CBSP

Stable Design Enables:
- Reduced change orders from 5% to 3%
- Reduced ship construction engineering/design
- Reduced GFE engineering/design

IMPORTANCE TO THE FLEET OF THE DDG–51

25. Senator COLLINS. Admiral Blake, at a recent House Armed Services Committee hearing regarding Navy ship acquisition, you were asked: "what would the Navy have preferred to see stay in the budget if you had more resources?" Your response was, "the DDG and the SSN that we had to give up in 2014." Please elaborate on this answer.

Admiral BLAKE. The projected Navy battle force is fully capable of meeting the strategic guidance found in Sustaining U.S. Global Leadership: Priorities for 21st Century Defense, and as importantly, the construction plan that builds it, sustains the national shipbuilding design and industrial base. In the current budget environment, the Navy must carefully prioritize its commitments in the various areas of responsibility. Removing the DDG and SSN from the budget was purely a financial decision as, over the next decade, the Navy will see a decline in its DDG and SSN inventory resulting from the large number of Aegis CGs and *Los Angeles*-class SSNs reaching the end of their service lives. Buying additional DDGs and SSNs in the near term, provided they are affordable and do not disrupt other priorities, would help address this growing gap between the supply of these multi-purpose warships and the combatant commanders' demands for more assets.

26. Senator COLLINS. Admiral Blake, please describe the importance and flexible capabilities of these additional platforms in the context of the new defense strategy.

Admiral BLAKE. The DDG–51 destroyer operates independently or as part of a carrier strike group (CSG), surface action group, or in support of Marine amphibious task force in environments that include air, surface, and subsurface threats. Fiscal year 2010 and follow on DDG–51s also provide BMD. These ships respond to low intensity conflict, coastal, and littoral offshore warfare scenarios as well as open ocean conflict by providing power projection and forward presence and conducting escort operations at sea.

The *Virginia*-class nuclear-powered attack submarine's high endurance and covert nature make it an ideal platform for anti-access/area denial environments. The complement of sensors, torpedoes, and Tomahawk missiles enable the *Virginia*-class submarine to execute missions including anti-submarine warfare, anti-surface warfare, strike warfare, intelligence surveillance and reconnaissance, and special warfare.

These two multi-mission warships would provide additional capacity and enhance the Navy's ability to accomplish the primary missions set out in the new Defense Strategic Guidance, including deter and defeat aggression, project power despite anti-access/area denial challenges, and stabilizing global presence.

FORCE STRUCTURE AND REQUIREMENTS

27. Senator COLLINS. Admiral Blake, in recent years, I have repeatedly cited the analyses of the 2010 Quadrennial Defense Review Independent Panel and the Center for New American Security that have called for a fleet of 328 ships or more, even

as each CNO since 2005 has said that 313 ships is the minimum number required. You testified last month that the unconstrained combatant command is probably about 500 ships. That is 100 ships more than Admiral Greenert testified before Congress last year when he was still at Fleet Forces Command, and 215 ships more than we will have in our fleet now or we will have in 5 years. This week at the Sea-Air-Space Symposium, the CNO indicated the Navy cannot run at its current pace for much longer, that the pace of operations is unsustainable. In your view, how do we address this problem?

Admiral BLAKE. The Navy is addressing the current unsustainable pace of operations through our fiscal year 2013 budget submission. The Navy plans to prioritize improving readiness over capacity and shift to a more sustainable deployment model by:

- Fully funding ship maintenance and midlife modernization periods, and continuing a series of actions to address surface ship material condition
- Increasing investment in training and adjusting the FRTP to be more sustainable and provide units adequate time to train, maintain, and achieve the needed fit and fill in their manning between deployments
- Forward basing and forward deploying ships to reduce transit time, so that the Navy-Marine Corps team can continue delivering the rapid response our Nation requires of us
- Employing rotating crews on mine countermeasures, patrol coastal class ships, and soon LCSs as the force grows, and further studying the benefits and costs of expanding and using rotational crewing

The Navy is in the process of conducting a Force Structure Assessment (FSA) based on the new Defense Strategic Guidance (DSG). The FSA will evaluate the capabilities needed to execute the DSG, the ships and aircraft needed to deliver these capabilities, and the resulting inventory requirements. Overall, the proper mix of critical capabilities necessary to support the DSG will prove more significant than the exact number of ships in the fleet.

SURFACE COMBATANT SERVICE LIFE ASSUMPTIONS

28. Senator COLLINS. Admiral Blake, the Navy has proposed to retire six non-BMD-capable cruisers, at an average service life of 21 years, because it was cheaper to retire them and buy new than it was to upgrade and modernize them to perform BMD. I understand that the projected service life for these ships was 30 years. I'm concerned that this one case is actually the tip of the iceberg of a significant issue the Navy and Congress must face together, even if we are capable of maintaining ships for more than 3 decades, the prohibitive cost to perform the necessary maintenance may lead us to question whether the maintenance investment is worth the benefit. The shipbuilding plan makes considerably optimistic assumptions that all destroyers will at least reach 35 years of service life and the newer versions will reach 40-year service lives. The actual retirement data for these ships suggests that a more realistic assumption for the service life of these ships is much less than that. Are the Navy's assumptions for estimated service life based upon the Navy's actual experience with those classes of ships or is it based upon a different model the Navy has developed?

Admiral BLAKE. Expected Service Life (ESL) is based in part on previous ship-type platform experience, design, and materials, but is also tied to force capability, ship maintenance funding, ship manning, and recapitalization requirements. An ESL is planning guidance, not a technical limitation. The Navy uses the ESL of ships as an estimate on which to base long-range ship planning, budget development, and force structure for procurement or recapitalization.

Actual service life depends on maintenance, modernization, and operational employment. Additionally, other factors such as design changes or modifications made to the ship, or a design that is not amenable to a subsequent operational system upgrade, may make it infeasible to continue its service. Without ongoing ship maintenance and modernization, ships will not achieve their expected service lives.

For destroyers specifically, the Navy has implemented a DDG Modernization Program to upgrade each ship's systems and extend service life to 40 years. The Navy will closely monitor the material condition of these ships during the various maintenance and modernization periods as they progress through their service lives to enable them to reach a 40-year ESL. The Navy will also utilize spiral upgrades to existing ships to maximize ship operational availability, enable learning curve efficiencies, and perform continuous and emergent maintenance. The Navy will endeavor to operate every ship procured to the very end of its ESL.

The shipbuilding plan takes into account the expected retirement of ships during the 30-year period. By using open, flexible payload bays and open architecture combat systems, the Navy is designing ships that can accommodate capability upgrades throughout their service lives in order to remain operationally and tactically relevant. The Navy policy is to ensure all ships reach their ESL. ESL extensions could, in a span of years, reduce the numbers of ships that must be recapitalized; however, any deferral of shipbuilding costs would be offset by the additional cost of maintenance, system upgrades, and modernization required to keep the ships operational and tactically relevant in their latter years.

[Whereupon, at 11:20 a.m., the subcommittee adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2013 AND THE FUTURE YEARS DEFENSE PROGRAM

THURSDAY, APRIL 26, 2012

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

MARINE CORPS ACQUISITION PROGRAMS

The subcommittee met, pursuant to notice, at 10:05 a.m. in room SR–222, Russell Senate Office Building, Senator Jack Reed (chairman of the subcommittee) presiding.

Committee members present: Senators Reed, Blumenthal, Wicker, and Ayotte.

Majority staff member present: Creighton Greene, professional staff member; and Thomas K. McConnell, professional staff member.

Minority staff member present: Bryan D. Parker, minority investigative counsel.

Staff assistant present: Brian F. Sebold.

Committee members' assistants present: Carolyn Chuhta, assistant to Senator Reed; Ethan Saxon, assistant to Senator Blumenthal; Joseph Lai, assistant to Senator Wicker; and Brad Bowman, assistant to Senator Ayotte.

OPENING STATEMENT OF SENATOR JACK REED, CHAIRMAN

Senator REED. The subcommittee will come to order. I thank our ranking member, Senator Wicker, and my colleagues. We particularly thank Sean J. Stackley, the Assistant Secretary of the Navy for Research, Development, and Acquisition; and Lieutenant General Richard P. Mills, USMC, the Deputy Commandant for Combat Development and Integration and Commanding General for Marine Corps Combat Development Command, for joining us here today. We are grateful for your dedicated service to the Nation, the Marine Corps, and the marines and families who represent us so well and so bravely every day. So thank you, gentlemen, for what you do.

A year ago at our last hearing on this topic, Marine Corps ground force acquisition programs were in turmoil following the termination of the Expeditionary Fighting Vehicle (EFV), amidst the realization that the Marine Corps could not afford either the

cost to procure or to subsequently operate and maintain the portfolio of ground vehicles it had on the books.

In the last year, the Marine Corps leadership has taken action to address this impending bow wave. The target price for the replacement of the terminated EFV, called the Amphibious Combat Vehicle (ACV), is about one-third less than the EFV. This cost reduction is to be achieved mainly by greatly reducing water speed and the complexity associated with transforming a tracked combat vehicle into a speedboat. This procurement cost reduction should directly translate into operations and maintenance (O&M) savings as well.

The Army and the Marine Corps also have dramatically reduced the costs of the Joint Light Tactical Vehicle (JLTV) and the Marine Corps has pared their projected inventories of trucks and other wheeled tactical vehicles by 25 percent.

In the National Defense Authorization Act (NDAA) for Fiscal Year 2012, the committee enacted a requirement for the Marine Corps to conduct a comprehensive vehicle portfolio life cycle affordability study before proceeding further with its modernization plans. That study should be completed soon and we hope that it will show whether the actions that the Marine Corps has taken thus far are sufficient.

For the remainder of my opening statement, I want to focus on what I see as the central planning issue facing the Marine Corps at this time. Since the end of the Cold War and Operation Desert Storm, the size of the assault echelons of the largest amphibious operation that the Navy and Marine Corps could conduct has dwindled from four Marine expeditionary brigades (MEB) to two. The entry assault portion of that force consists of six battalions. The Marine Corps currently has enough Amphibious Assault Vehicle (AAV)–7 Amphibious Assault Tractors to self-deploy all of those battalions ashore plus many more. The supporting tanks, heavy artillery, light armored vehicles, and trucks would be brought ashore with ship-to-shore connectors once the assault infantry has established a secure beachhead.

When the cost of the EFV ballooned in the middle of the last decade, the Marine Corps took two related steps. It cut the number of EFVs it planned to produce almost in half, reducing the number of infantry battalions that could be self-deployed in amphibious assault craft from 12 to 8; and it initiated plans to procure a non-amphibious wheeled armored personnel carrier to lift 4 infantry battalions.

This would appear to represent an erosion of the Nation's amphibious assault capability. Marine Personnel Carriers (MPC), at least as currently envisioned, would require the use of ship-to-shore connectors to enter the battle and cannot conduct an assault against a defended shoreline. These connectors, the Landing Craft Air Cushions (LCAC) and Landing Craft Utility (LCU), are large, expensive, and few in number. To the extent they are used to transport infantry assault forces, they cannot be used to move tanks, artillery, and other critical supporting elements. The rate at which combat power could be built up on shore would be substantially decreased and there would be increased risk to the infantry assault forces themselves.

In addition, whereas one amphibious tractor can lift a rifle squad, it would take two MPCs to do so, which will consume significantly more volume and weight on already stressed amphibious shipping.

When the Marine Corps terminated the EFV and decided to acquire a substantially cheaper substitute, the committee assumed that the Marine Corps would want to return to a strategy of acquiring enough self-deploying amphibious tractors to equip 12 infantry assault battalions. This assumption was buttressed by the likelihood that a slower speed assault vehicle would have the weight margin to support armor protection equal to a prospective armored personnel carrier.

However, the Marine Corps may be headed in the opposite direction, towards a further reduction in the acquisition objective for the ACV. The subcommittee is informed that the Marine Corps is seriously considering an option to limit ACV procurement to four infantry assault battalions and making up the difference with MPCs and other vehicles such as mine-resistant ambush protected (MRAP) vehicles.

Marine Corps staff have stated that there is an independent requirement for a wheeled armored personnel carrier apart from any consideration of ACV cost, mobility, or armored protection, and rather than sustaining the time-honored doctrine that splitting rifle squads in two, necessitated by the small internal volume of wheeled armored personnel carriers, would seriously degrade combat capability, this is being characterized as a potentially positive method of coping with distributed land warfare environments.

We are concerned that substituting wheeled armored personnel carriers for amphibious tractors could erode the Marine Corps' amphibious assault capability, the capability that separates the Marine Corps from the Army in one dimension at least. The Marine Corps is now conducting a so-called fleet mix study to help it decide how many of what vehicle types it should buy in the future.

The Marine Corps also points out that it is possible to postpone a decision on how many ACVs to procure until full-scale development is underway. I look forward to a dialogue about this issue today with our witnesses.

Before I turn it over to Senator Wicker, we are at a critical moment. The Marine Corps has performed magnificently for the last 10 years in a non-amphibious role. In fact, amphibious operations have essentially taken a back seat to the extraordinary and courageous actions in Iraq and Afghanistan, dealing in a counter-insurgency environment, using equipment that's designed for urban warfare, not beach assaults. We're at the point now where doctrinally, operationally, and in terms of acquisition, we have to make a decision, are we getting back into the amphibious business with both feet or are we putting one foot in and still looking back at potential operations that require skill, courage, but they're not amphibious operations.

That's why I think this hearing and the timing of this hearing and your deliberations are so important and I wanted to go at length at some of the concerns that we have. These are concerns I think we all share.

With that, let me recognize the ranking member and apologize for the length of my statement.

STATEMENT OF SENATOR ROGER F. WICKER

Senator WICKER. Thank you, Mr. Chairman, for holding this important hearing, and thanks to our witnesses, very talented public servants, for your participation and continued service to our Nation.

Since our last hearing on the Marine Corps acquisition programs, we've witnessed some significant developments. In August, Congress passed and the President signed the Budget Control Act (BCA), which threatens further, deeper cuts to our military. Meanwhile, the United States is rebalancing its national security strategy and realigning its forces with greater focus on the Asia-Pacific region. However, the President's proposed budget seeks to reduce Marine Corps end strength by 20,000 marines and delay or defer certain weapons system purchases.

I would like our witnesses to elaborate on the Marine Corps' strategy for modernizing its ground combat and tactical vehicle fleet, including the ACV, the JLTV, and the MPC. I'm particularly interested to learn how the Marine Corps plans to meet its ground vehicle requirements within current and projected budget constraints, yet still maintain high operational capability and readiness.

Our Nation's increased emphasis on the Asia-Pacific region underscores the importance of the core competency that distinguishes the Marine Corps from other ground forces, its ability to conduct amphibious assaults against a defended shoreline. However, in today's threat environment the Marine Corps cannot continue to rely on the Vietnam era AAV.

Many supporters of the Marine Corps, including this Senator, were disappointed by the cancellation of the EFV, but we also understood that it was not a financially viable solution. I hope our witnesses can explain how the current program will benefit from the more than $3 billion spent on this EFV. The American taxpayers need to be assured that this program was not a complete loss. As such, I look forward to hearing from our witnesses the specific steps the Marine Corps is taking on the ACV program to ensure the delivery of a vehicle that: one, meets Marine Corps requirements; two, is cost effective; and three, is delivered as quickly as possible.

On the issue of the JLTV, I'm encouraged by the progress that the Marine Corps and the Army have made on this multi-service program. The JLTV Program Office will award prototype development contracts in June. I trust our witnesses will reassure this subcommittee that the Marine Corps JLTV requirements are stable to ensure that the Marine Corps can afford to field this important replacement for our HMMWVs as soon as possible.

With regard to both the ACV and the JLTV, I'm told that the Marine Corps is relying on competition to gauge early on what is technologically feasible and to reduce cost. Secretary Stackley, I commend you and your team for your efforts to pursue competitive acquisition programs for the Navy and Marine Corps. However, competition requires viable competitors, which we do not always

have. So I'd like our witnesses' best assessment of the state of the U.S. industrial base for ground combat and tactical vehicles and what can be done to sustain the vitality of our manufacturing base at the contractor and supply chain levels.

Finally, the Marine Corps faces significant budget challenges ahead. As I have mentioned repeatedly, the BCA passed by Congress and signed by the President last August requires sequestration to be implemented across all departments, including the Department of Defense (DOD). Sequestration is not a hypothetical. It is the law of the land. On January 3rd of next year, 250 days from today, sequestration will take place unless legislation is passed to undo it and signed by the President.

Our national defense is solely a Federal responsibility. Defense spending is also a two-fer, as we all know. It supports our national security and our high technology manufacturing workforce.

The Marine Corps budget accounts for approximately 8 percent of the DOD total budget. I'm gravely concerned that sequestration could disproportionately impact the Marine Corps on everything from modernization to readiness. As such, I hope our witnesses today will elaborate on their assessment of the impact that sequestration will have on our expeditionary Marine Corps and our industrial base.

Thank you very much, Mr. Chairman.

Senator REED. Thank you very much, Senator Wicker.

We'll recognize Secretary Stackley and then General Mills, if he has comments. Mr. Secretary, please.

STATEMENT OF HON. SEAN J. STACKLEY, ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION)

Mr. STACKLEY. Yes, sir. Chairman Reed, Senator Wicker, thank you for the opportunity to appear before you today to address Marine Corps modernization. I will be testifying alongside Lieutenant General Mills and if it's acceptable to the subcommittee, I propose to keep opening remarks brief and submit a formal statement for the record.

Senator REED. Without objection and with great enthusiasm. [Laughter.]

Mr. STACKLEY. Sir, your Marine Corps serves as America's expeditionary force in readiness, a balanced air-ground-naval force, forward deployed and forward engaged. Today, over 30,000 marines are deployed around the world, on the ground in Afghanistan in support of Operation Enduring Freedom (OEF), and at sea deployed aboard amphibious ships operating off coasts from Northern Africa to Japan, conducting air operations and ship-to-shore operations, building partnerships, deterring enemies, and responding to crises and contingencies.

Unequivocally, our top priority is to support these marines, who by their service and sacrifice have placed in the hands of our Nation's leaders the tools and options that they need to respond to today's world events and shape future events, all the while defending those freedoms we hold most dear.

Over the past year, the Navy and Marine Corps have responded to a rapid succession of unpredicted political upheavals, natural

disasters, social unrest, piracy, and emerging threats in various unstable areas of the world's littoral regions. Marines were first on the scene to provide humanitarian assistance and disaster relief in Japan in the wake of that nation's devastating tsunami; the first to fly air strikes over Libya in Operation Odyssey Dawn. They were on scene to evacuate noncombatants from Tunisia and reinforced our embassies in Egypt, Yemen, and Bahrain. Of course, all of these and similar global response operations were conducted against the backdrop of sustained combat and counterinsurgency operations in Afghanistan.

To say that your Navy-Marine Corps team is the best at what they do does not do justice, for among the world's fighting forces, none other can do what they do. Accordingly, we will develop for the current and future force those capabilities that give our marines the ability to respond rapidly and to shape, deter, defeat, and deny our enemies sanctuary.

In readying for its role as the post-OEF expeditionary force in readiness, the Marine Corps will accept risk in extended ground operations while reshaping the force for scaleable crisis response missions such as countermeasures, counterproliferation, disaster relief, protection of U.S. citizens overseas, security cooperation, and support of our allies. We'll rebalance our force posture back to the Pacific, remain postured to the Middle East, yet remain globally responsive, ever mindful of the world's choke points and prepared to respond where needed, as needed, as directed by the President.

The seamless maneuver of marines from the sea to conduct operations ashore, whether for training, humanitarian assistance, or combat operations, remains a key priority as the Marine Corps shapes its future force. To this end, the Marine Corps modernization strategy includes sustainment of amphibious lift capabilities as outlined in the Navy's 30-year shipbuilding plan. Landing craft, air cushion and utility, will be replaced with more capable, more reliable connectors. Recapitalization of critical aviation capabilities, from the short takeoff vertical landing (STOVL) version of the Joint Strike Fighter (JSF) to modernized attack and utility H–1 helicopters to the development of the heavy lift H–53K helicopter.

Modernization of the Marine Corps' expeditionary combat command, control, and communication capabilities with the development of the Ground-Air Task-Oriented Radar, the Common Aviation Command and Control System, and the Global Combat Support System; and modernization of the Marine Corps' ground combat vehicles.

The Navy has developed and is implementing a four-phase strategy, the Ground Combat Tactical Vehicle Strategy, to guide the planning, programming, and investment required to provide balanced maneuver and mobility capabilities to the force. The strategy is focused on achieving the mix of wheeled and tracked vehicles that best balances performance, payload, survivability, fuel efficiency, transportability, and cost.

It is within this construct that the Navy will determine the future capabilities and numbers of the ACV, the JLTV, and the MPC. Within the ground vehicle portfolio, our top priority is the ACV. In the highly complex and uncertain future security environment, the execution of amphibious operations will require a self-deploying

amphibious vehicle. This vehicle is essential to our ability to conduct surface littoral maneuver and seamlessly project ready-to-fight marines ashore from sea to land in permissive, uncertain, and hostile environments.

It allows us to maximize available amphibious lift and increase the rate at which we build power ashore. This capability is key to overcoming access challenges posed by the lack of improved infrastructure or the threat of an adversary.

Throughout 2011, we conducted a comprehensive systems engineering review of amphibious vehicle operational requirements. The review evaluated the requirements for water mobility, land mobility, lethality, and force protection for the future combat environment. It provided well-informed preliminary cost estimates for development, production, and sustainment for the range of capabilities suited for these requirements. The systematic review ultimately provided well-informed analytical data to support the currently ongoing ACV analysis of alternatives (AOA).

Alongside the ACV program, the JLTV addresses shortfalls for select light combat vehicles which perform our most demanding missions. These two critical programs are being developed in concert with the overall integrated vehicle strategy, which includes select upgrade and sustainment of the HMMWV fleet, upgrade of the legacy AAV as a bridge to the ACV, continued research and development (R&D) for the MPC in support of vehicle fleet mix alternatives, and management of the overall vehicle fleet, reduced by greater than 20 percent as a result of the most recent force structure review.

For our entire portfolio and particularly the ACV and JLTV, the Marine Corps has taken a textbook approach to developing these critical combat vehicles, placing priority on getting the requirements right at the front end, employing mature technology where possible to reduce cost and risk in development, establishing affordability as a requirement, conducting comprehensive systems engineering and cost analysis, streamlining the acquisition process where feasible, leveraging competition, and, perhaps most importantly, integrating the requirements and acquisition team to enable effective cost performance trades throughout the requirements definition and systems development process.

Mr. Chairman, thank you for the opportunity to appear before you today. We look forward to answering your questions.

[The jont prepared statement of Mr. Stackley and General Mills follows:]

JOINT PREPARED STATEMENT BY HON. SEAN J. STACKLEY AND LT.GEN. RICHARD P. MILLS, USMC

INTRODUCTION

Chairman Reed, Senator Wicker, and distinguished members of this subcommittee, we are honored to appear here today. We want to thank you for your continued support to our sailors, marines, and their families, and we appreciate the opportunity to address Marine Corps acquisition programs.

As America's Expeditionary Force in Readiness, the Marine Corps' ground modernization investments support our Nation's ability to be prepared for all manner of crises and contingencies. As a "middleweight force," marines do not seek to supplant any Service or "own" any domain. Rather, Marine forces transit in a "lane" that passes through all domains—land, sea, air, space and cyber—operating capably and freely throughout the spectrum of threats, whether they be conventional, irreg-

ular or the uncertain hybrid areas where they overlap. Key is the ability to deploy and employ from the sea in austere environments at a time and place of our choosing—a significant asymmetric, strategic and operational advantage that has been used more than 130 times in the past 2 decades.

Our ground investments allow us to develop and sustain a ready, middleweight force that is easily deployable, energy efficient, and highly expeditionary. Complementary to our ground investment, we are making parallel investments in amphibious ships, amphibious combat vehicles, connectors such as the landing craft air cushion (LCAC) and landing craft utility (LCU), naval surface fire support assets, mine counter measures, radars, command and control, vertical lift, and fixed-wing, short takeoff and vertical landing (STOVL) aircraft, and many other programs critical to maintaining tactical and operational readiness. These investments are designed to provide a full range of complementary capabilities for our Nation's Expeditionary Force in Readiness.

The Department of the Navy and its Marine Corps are fully aware of the fiscal challenges facing our Nation and have critically examined and streamlined our capabilities for the future. We have accepted our share of the additional risk associated with reduced resources; however, we have also sought innovative and practical means to mitigate that risk. We leverage programs, technologies, technical skills and competencies of other Services to ensure we deliver the most effective and affordable combat capability to our marines. We also seek to capitalize on our industrial base to identify and pursue innovative and ground-breaking solutions to meeting the warfighter's needs and to reduce acquisition and sustainment costs of our systems.

OPERATING ENVIRONMENT

During the past year, the Navy and Marine Corps have responded to a rapid succession of unpredicted political upheavals, natural disasters, social unrest, piracy and emerging threats in various unstable areas of the world's littoral regions. Marines were first on the scene to provide humanitarian assistance and disaster relief in Japan in the wake of a monumental tsunami; were the first to fly air strikes over Libya; evacuated noncombatants from Tunisia; and reinforced our embassies in Egypt, Yemen, and Bahrain. While accomplishing all of that, marines continued sustained combat and counterinsurgency operations in Afghanistan.

History has shown that crises usually come with little or no warning; stemming from the same conditions of uncertainty, complexity and chaos continue as risks across the world today. Regardless of the financial pressures placed on governments and markets today, crises requiring military intervention undoubtedly will continue tomorrow. In this environment, physical presence and readiness matter significantly. As a maritime nation, dependant on the sea for the free exchange of ideas and trade, America requires security both at home and abroad. Since the 1990s, America has been reducing its foreign basing and presence, bringing forces back home. This trend is not likely to change in the face of the strategic and budget realities we currently face. There remains an enduring requirement to balance presence with cost. In the past, the Nation has chosen to depend on the Navy and Marine Corps to provide a lean and economical force of an expeditionary nature, operating forward and in close proximity to potential trouble spots. Investing in naval forces that can respond to a wide range of crisis situations creates options and decision space for our Nation's leaders.

ROLE OF THE MARINE CORPS

New strategic guidance issued by the President and the Secretary of Defense provides the framework by which the Marine Corps will balance the demands of the future security environment with the realities of our current budget. The guidance calls for a future force that will "remain capable across the spectrum of missions, fully prepared to deter and defeat aggression and to defend the homeland and our allies in a complex security environment." As America's force in readiness, the Marine Corps provides efficient and effective insurance against the unexpected with an adaptive, multi-capable force that has the reach to defend American citizens, commerce and our vital national interests.

Bridging a seam in our Nation's defense between heavy conventional and Special Operations Forces (SOF), the U.S. Marine Corps is light enough to arrive rapidly at the scene of a crisis, but heavy enough to carry the day and sustain itself upon arrival. Operating in a state of persistent forward presence aboard amphibious warships, your Marine Corps remains the most economical, agile and ready force immediately available to deter aggression and respond to crises. This flexible and multi-capable force maintains high readiness levels and can mitigate risk; satisfy the

standing strategic need for crisis response; and, when necessary, spearhead entry and access for the Joint Force. Given likely future operations set forth in the new guidance—ranging from defeating rogue actors to responding to natural disasters—the Nation should invest in the small premium it pays for high readiness levels within its naval amphibious forces. Because our Nation cannot afford to hold the entire Joint Force at such high rates of readiness, it has historically ensured that marines remain ready, and has repeatedly relied on marines to fill gaps, buy time for decision makers, ensure access, or respond when and where needed.

As a "middleweight force," the Marine Corps is optimized for rapid deployment, versatile employment, and self-sustainment via Marine Air-Ground Task Forces (MAGTF), which are balanced, combined-arms formations under a single commander. All MAGTFs consist of four core elements: a Command Element, Ground Combat Element, Aviation Combat Element, and Logistics Combat Element. MAGTFs are scalable in size and capability.

Both the Secretary of Defense and the Secretary of the Navy have reaffirmed the necessity of the Marine Corps' amphibious assault mission. Accordingly, we must develop an affordable and capable amphibious combat vehicle to project marines from sea to land in permissive, uncertain, and hostile environments. We ask for your continued support to reach this goal.

In order to adapt to the future operating environment and address access challenges, the Navy and Marine Corps are pursuing a number of other programs that leverage operational lessons learned and adopt acquisition best practices.

RESET

Reset is a subset of reconstitution and comprises the actions taken to restore units to a desired level of combat capability commensurate with the units' future missions; and after more than a decade of combat, this will require an unprecedented level of effort.[1] The Marine Corps is resetting its forces "in stride" with fighting the war in Afghanistan and transitioning to the new Defense Strategic Guidance. Unlike previous post-conflict periods, such as after Operation Desert Storm, we do not anticipate taking an "operational pause" to reset as we transition from Operation Enduring Freedom (OEF).

The Marine Corps' Operation Enduring Freedom Ground Equipment Reset Strategy, which was released in January 2012, helps to identify the equipment we will reset or divest. We currently estimate, subject to change, that the ground equipment reset liability is in excess of $3 billion.[2] This forecast is primarily based on the replacement of combat losses, the repair of items to serviceable condition, and the extension in service life of selected items. The Strategy prioritizes reset requirements along with investment and modernization decisions to develop our middleweight force, per the Defense Strategic Guidance.

Our reset effort is already underway and it maximizes the Marine Corps' depot capacity, where we expect the bulk of reset execution to occur for 2 to 3 years after our equipment's return to the depot. The continued availability of our total ground equipment depot capacity at both Barstow, CA, and Albany, GA, is essential for timely reset, our ability to generate readiness, and to surge in response to wartime demand. Continued congressional support to our long-term reset challenge is critical to reset the Marine Corps' equipment.

We are examining future equipment requirements with an ongoing comprehensive review of the Marine Corps' equipment inventories. This effort will validate reset strategies, future acquisition plans, depot maintenance programming, and required modernization initiatives. This review will incorporate the lessons we learned from over a decade of combat to upgrade our tables of equipment to reflect the way we fight today and our warfighting requirements of tomorrow.

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[1] Reconstitution refers to actions beyond reset, taken during or after operational employment, to restore and/or upgrade combat capability to full-spectrum operational readiness. Reconstitution includes personnel, equipment, and training. Force reconstitution includes activities from normal sustainment (rearm, refuel, recover (dwell), repair, and replace), through reorganization and regeneration of units to redeployment. As to equipment, our reconstitution efforts include reset, replenishing tables of equipment, and modernization.

[2] This $3 billion liability is our "strategic" reset—which is the cost to reset our Afghanistan equipment to a zero-hours/zero-miles condition. In addition to strategic reset, we have a $1.3 billion OCO request in fiscal year 2013—primarily to cover cost of war issues; but some of which is slated for strategic maintenance for reset. The precise amount of the $1.3 billion to be used for reset depends on the quantity of equipment that flows out of Afghanistan and our depot capacity.

MODERNIZATION

In conjunction with reset efforts, the Marine Corps is undertaking several initiatives to conduct only essential modernization of the Marine Corps Total Force. This will place the Corps on a sustainable course to achieve institutional balance. We are doing so by judiciously developing and procuring the right equipment needed for success in the conflicts of tomorrow, especially in those areas that underpin our core competencies. As such, we ask for continued Congressional support to modernize equipment and maintain a high state of readiness that will place us on solid footing in a post-Afghanistan security environment. While budgetary pressures will likely constrain modernization initiatives, we will mitigate pressure by continuing to prioritize and sequence both our modernization and sustainment programs to ensure that our equipment is always ready and that we are proceeding in a fiscally responsible manner. Modernization programs that require significant additional funding above current levels will be evaluated for continued operational requirement and capability/capacity modification.

Our force structure, and associated vehicles, are highly leveraged investments. They optimize strategic lift capability and provide aggregate utility across the range of military operations. Our ground modernization strategy is to sequentially modernize priority capabilities, reduce equipment requirements wherever possible, and judiciously sustain remaining equipment. The current baseline budget allows for equipment modernization on a reasonable timeline. Possible future reductions in the baseline budget will result in delay, modification or elimination of key modernization programs. Modernization in the following areas is critical to maintaining operational capabilities and readiness:

- Ground Combat and Tactical Vehicles;
- Aviation;
- Preparing for Future Battlefields;
- Amphibious and Pre-positioning Ships;
- Expeditionary Energy; and
- Intelligence, Surveillance and Reconnaissance.

GROUND COMBAT AND TACTICAL VEHICLE STRATEGY

The programmatic priority for our ground forces is the seamless maneuver of marines from the sea to conduct operations ashore whether for training, humanitarian assistance or combat. The Marine Corps' Ground Combat and Tactical Vehicle Strategy (GCTVS) is the basis for planning, programming and budgeting to provide balanced maneuver and mobility capabilities to operating forces. The GCTVS is focused on achieving the right mix of assets, while balancing performance, payload, survivability, fuel efficiency, transportability and cost. Vehicles comprising the GCTVS include the entire inventory of wheeled and tracked vehicles, and planned future capabilities, including the Amphibious Combat Vehicle (ACV), Joint Light Tactical Vehicle (JLTV), and the Marine Personnel Carrier (MPC).

The current priorities within the GCTVS include the following:

- Develop a modern ACV;
- Develop and procure JLTV;
- Sustain a portion of the High Mobility Multipurpose Wheeled Vehicles (HMMWVs) through 2030;
- Initiate a legacy Assault Amphibious Vehicle upgrade as a bridge to ACV;
- Continue research and development in MPC through fiscal year 2014 to identify the most effective portfolio mix of vehicles; and
- Limit procurement of vehicles to reduced Approved Acquisition Objective estimates as identified.

Our top ground modernization priority is the ACV. Based on our 10-year investment plan, we intend to address our light combat vehicle shortfalls both before and after development of the ACV. Our JLTV strategy depends on procuring those vehicles with the most demanding mission profiles before we turn our focus to ACV. The biggest risk to sequential modernization is schedule—not program schedules but rather decision schedules. If JLTV is delayed, we lose an opportunity that we cannot readdress until after ACV procurement in the late 2020s.

Throughout 2011 and informed by cost, we conducted a comprehensive systems engineering review of amphibious vehicle operational requirements. The review evaluated the requirements for water mobility, land mobility, lethality and force protection of the future environment. The identification of essential requirements helped to drive down both the production and the sustainment costs for future amphibious vehicles.

We are conducting an Analysis of Alternatives (AoA) to review six ACV options. The results of the AoA are expected to be complete in June of this year, and the results will inform the direction and scope of the ACV program. The MPC program is maturing as a wheeled armored personnel carrier that is complementary to the ACV as a solution to the general support lift requirements of Marine Forces operating in the littorals.

We are firmly partnered with the U.S. Army in fielding a Joint Light Tactical Vehicle to replace a portion of our legacy light lift utility vehicles. Our long-term participation in this program remains predicated on development of a cost-effective vehicle, whose payload integrates seamlessly with our expeditionary operations and likely amphibious and strategic lift profiles. The Joint Requirements Oversight Council approved the JLTV Capability Development Document, and the Department of the Navy is working with the Army to establish a program of record at Milestone B in the third quarter of fiscal year 2012. Our approach to JLTV is as an incremental acquisition, and our objective for Increment I currently stands at 5,500 vehicles.

We are focused on developing and procuring Multiple Mission Role Variants of the JLTV family of light vehicles to modernize for the most demanding missions, providing increased payload, energy efficiency, performance and protection. The JLTV will replace 30 percent of the High Mobility Multipurpose Wheeled Vehicle (HMMWV) family. At this time, JLTV is on schedule, affordable, and performing to meet essential validated Marine Corps light combat capability gaps.

Last fall, the Marine Corps conducted an affordability review of the portfolio—which included the process of using Knowledge Points to tailor JLTV cost versus capability decisions. Our end-state is to develop a more relevant and affordable portfolio of combat and tactical vehicles. Through procurement and service-life extension, we will provide the capacity for Marine forces to respond to crises with up to a Marine Expeditionary Force-sized forcible entry operation, address irregular threats, and conduct sustained operations ashore when necessary.

ADDITIONAL MODERNIZATION

To complement future ground and amphibious vehicles, the Marine Corps is investing in other key support areas. For example, the Corps is leading the way to build a next generation medium-range radar system called the Ground/Air Task-Oriented Radar. This system will replace five radars, and will be significantly more advanced in its capabilities. It will improve threat detection and be more deployable, able to be set up in a fraction of the time compared with current systems. In addition, the Corps is investing in the Common Aviation Command and Control System, which will help better network our communications, radars, intelligence, and ultimately our forces. To better protect the marine on patrol, we are also planning to replace electronic jamming equipment with the next-generation, open architecture JCREW 3.3 system. This system will ensure sailors and marines are better able to counter future improvised explosive device (IED) threats. We are also investing in the Ground Renewable Expeditionary Energy System and Solar Portable Alternative communications Energy System. These systems will provide portable power, increasing self sufficiency, and reduce requirements for fuel resupply for small units operating at the forward edge.

Over the last 10 years of near continuous combat operations, the need for fuel and batteries on the battlefield has grown exponentially. Since 2001, the Corps has increased the number of radios infantry battalions use by 250 percent and the number of computers/information technology equipment by 300 percent. The number of vehicles has risen by 200 percent, with their associated weight increasing more than 75 percent as a result of force protection requirements. In the end, the force today is more lethal, but we have become critically dependent on fuel and batteries, which has increased the risk to our logistics trains. Moreover, a 2010 study found that one marine is wounded for every 50 fuel and water convoys.

To reduce risk and increase combat effectiveness, in March 2011, the Commandant issued the "Marine Corps Expeditionary Energy Strategy and Implementation Plan" to change the way the Corps thinks about and values energy. This is a "bases-to-battlefield" strategy, which means all marines will be trained to understand the relationship between resource efficiency and combat effectiveness. Throughout the Navy and the Marine Corps, we will consider energy performance in all our requirements and acquisitions decisions.

FISCAL YEAR 2013 BUDGET REQUEST

The Navy and Marine Corps team is fully aware of the fiscal challenges facing our Nation and has critically examined and streamlined our force needs for the fu-

ture. We continually strive to be good stewards of the public trust by maintaining the very best financial management practices. The Marines are proud of the reputation for frugality and remain one of the best values for the defense dollar. As a force-in-readiness, the Marine Corps must judiciously preserve readiness, manning and modernization with only 8.2 percent[3] of DOD's budget—this amount includes all Marine and associated Navy accounts including amphibious ship construction and operation. Our ground forces modernization comprises only 9 percent of our total budget; and is only about $2 billion a year.[4]

CONCLUSION

Through the support of Congress, our marines and sailors responding to crisis and in the fight have received everything necessary to ensure success over the past decade of near constant combat operations. As we begin to transition to the challenges and opportunities of the post-OEF world and reorient to the Pacific under our new Defense Strategic Guidance, the Marine Corps must begin to rebalance and modernize for the future. We must also keep faith with and provide the right resources for those who have served and sacrificed so selflessly in our All-Volunteer Force since September 11. With the continued support of Congress and the American people, we will ensure amphibious forces are well prepared to secure our national interests in an uncertain future. Thank you for the opportunity to be here today and we look forward to answering your questions.

Senator REED. Thank you very much, Mr. Secretary.

General Mills, do you have a comment?

STATEMENT OF LT.GEN. RICHARD P. MILLS, USMC, DEPUTY COMMANDANT FOR COMBAT DEVELOPMENT AND INTEGRATION/COMMANDING GENERAL, MARINE CORPS COMBAT DEVELOPMENT COMMAND

General MILLS. Sir, I'll just add my personal thanks to both of you for your continued support to our marines, the sailors who support us, and of course our families. Without your support we simply could not do our mission. Thank you.

Senator REED. Thank you very much, gentlemen.

I propose an 8-minute first round, and then we have a long list of questions, so we'll go back and forth after that. I want to ask a few questions and then recognize my ranking member.

General Mills, we've talked about the recent exercise that you conducted, a major amphibious exercise. When we were younger, this used to be an annual operation under various code names. I remember Solid Shield. We got out of that business for about 10 years, frankly, because of the requirements in Afghanistan and Iraq.

Could you give us some details on what you learned, both strengths and the deficiencies of the Marine Corps, from that amphibious operation? One point you mentioned was inserting a Marine Corps unit 150 miles downrange, which raises questions of how to provide support. I'd appreciate any comments on that.

General MILLS. Yes, sir, I appreciate the opportunity to discuss that. That's Exercise Bold Alligator, which was our largest amphibious exercise in the past 10 years. Obviously, over the past 10 years we have been primarily focused on providing well-trained forces to Iraq and Afghanistan and therefore we haven't attempted

[3] This percentage is based on the fiscal year 12 Defense budget authorization and is slightly larger than the 7.8 percent sum cited in the past. The percentage includes $3 billion in fiscal year 2012 funding for amphibious warship new construction as well as Navy funding for chaplains, medical personnel, amphibious warships (operations and maintenance) and Marine Corps aircraft.

[4] The 9 percent figure in this sentence is based on the fiscal year 2012 Defense budget authorization. The percentage includes procurement Marine Corps and RDT&E, and totals $2.3 billion.

an exercise of this scale in a while. It's going to be both an experiment and interesting for us to see how we do it.

Let me preface this by saying, however, there's a myth that we have been ignoring amphibious operations over the past 10 years, and that's really not true. In the past 10 years, we have not missed a Marine Expeditionary Unit (MEU) deployment. We've had three MEUs on the water deployed at all times, working with our Navy counterparts. So we have retained that amphibious capability over the years in which our main focus, of course, has been the war in Afghanistan. But again, I just remind everyone that we have not lost that experience level nor that capability.

For Bold Alligator, it was a very, very aggressive schedule of events. We wanted to see whether we could composite two MEUs into a MEB afloat, work with our Navy counterparts then to plan an amphibious operation ashore in support both of Special Operations Forces (SOF) already operating within the AOA and in order to resolve a series of tactical scenarios which we would face.

The highlight, I think, was our emphasis on distributed operations, realizing that we are going to have to attack through different means to avoid hard spaces and avoid enemy defenses and move and looking for gaps and openings, which requires the force to be spread out further than perhaps when you and I did operations when we were younger. We felt that was very successful. We were able to insert the reinforced company, really a battalion minus, several hundred miles inland and we were able to sustain them over a period of time as they linked up with friendly forces ashore and conducted a series of tactical evolutions.

We were expressly interested in communications and our ability to command and control at those kinds of distances. So, taking some experimental projects that we're working on down at the Marine Corps Laboratory in Quantico, we were able to do that. At the same time, we were able to lighten the load of the force going in and of the individual marines and sailors ashore. Some of the experimental communications equipment that we have takes one radar and replaces three that would normally be carried at the squad, platoon, and company level.

Other areas in which we found some success were in logistically being able to self-sustain them through energy conservation methods, bringing in things like solar blankets and our greens experiments so we wouldn't have to carry as many batteries nor as much fuel to sustain forces at that level. We found that to be very, very successful.

Logistically, we looked at things like being able to purify our own water once ashore, once again to alleviate that logistics burden that's placed on units that are that deep into enemy territory.

We had lessons learned, of course, but we found that staff interaction at sea was very successful. We worked very well with the Navy counterparts at the flag officer level and the staffs that were fully integrated. Our ship to shore movement was done well and was done successfully, and again reinforced many of the things that we've been working at over the past 10 years.

So all in all, a very good exercise, but one in which we didn't simply want to replicate things we had done 10 years ago, but one in which we wanted to stretch the boundaries and take a look at how

we conduct amphibious operations in the future. I think at that level we were successful.

Senator REED. Do you plan to have a similar operation this year and following years? Has this become the new routine?

General MILLS. We do intend to. We're going to have a regular series of exercises, both on the east coast and on the west coast and afloat in the Western Pacific, again to revalidate some of our concepts, to test some of our new concepts out, and as our new equipment comes on line to ensure that that's fully integrated in the amphibious capability.

Senator REED. As I mentioned in my opening comments, we're at a critical juncture here where we're moving from a major focus on ground operations in Afghanistan and counterinsurgency into more of a focus on the Pacific, inherently amphibious maritime operations. Can you, General Mills and Mr. Stackley, but General Mills first, give us a notion of the alternatives or the strategies and doctrines that you're looking at going forward, and also based, of course, on the threats that you perceive? I know this could fill 15 volumes of single-spaced pages, but in as succinct as possible a way, what is the threat-driven doctrine that you're trying to rebuild the Marine Corps to face?

General MILLS. We believe that under the current threat if you look at the high end threat in the Pacific area, that that's going to force us to have, initially at least, more standoff distance of our amphibious forces and more pre-assault operations as you move forward towards the objective area. Those shaping operations that would take place on the ground at the target area would involve such things as long-range air, involve SOFs, and other, more highly classified systems that you could bring to bear on that area in which you were going to attempt to land.

We also believe that distributed operations, both at sea and once we arrive on the ground, will alleviate some of that threat. Working with our Navy partners, we take a look at what the ranges are, what the capability of the enemy threat would be, and once we arrive in the area again to bypass those defended beaches that we spoke about a little bit earlier and by using concepts such as ship-to-objective maneuver to bypass the hard surfaces and move to areas in which we can accomplish our mission without doing an old-fashioned amphibious assault.

It's a combination of new equipment, new tactics, techniques, and procedures, and some new strategy that will allow us to remain relevant. We certainly believe that forward-deployed amphibious forces is a requirement and a price that the United States has to bear in order to be a world power. We provide you with a flexible force, forward deployed, ready to respond to crisis, and ready to give our decisionmakers here in Washington time to make key decisions. We believe that interacting with our allies, especially in the Pacific, reinforcing our old ties with the Australians, looking back at some of our other old allies and again reinforcing them through our training, through our presence, and through our engagement will pay large benefits in the long run.

Senator REED. Let me follow up with one very quick question, then recognize Senator Wicker. Your first exposure to the Marine Corps as a child in the 1950s was watching a landing craft go to

the beach. Do you have in your doctrine a ratio between sealift and airlift for getting marines to the shore? Is that a number that's situationally determined or is it doctrinally we want to have two-thirds landing craft a third lift, or vice versa?

General MILLS. Yes, sir. Doctrinally, the rule of thumb would be two-thirds of the force would land by surface, one-third would go in by air. Of course, there's a lot of other factors that play into that, weather, sea conditions, things like that. But essentially that allows you to get your combat power quickly ashore and then allows you to build up that beachhead, bringing in your logistics trains, bringing in your supporting arms, expanding that beachhead, and then conducting your subsequent operations ashore.

As we look at the portfolio of vehicles, for instance, and decide what mix we're going to have between tracked amphibians and wheeled MPCs, much of that depends on our analysis of what do we need to bring in initially across that beach. But then 90 percent of that time is going to be spent expanding that beachhead, so what's the capability you're going to need for subsequent operations ashore.

Those are the kinds of factors that we're looking at as we balance what that ultimate portfolio mix will be between our tracked amphibians, our MPCs, and our JLTVs.

Senator REED. Thank you, sir.

Senator Wicker.

Senator WICKER. Thank you very much.

General Mills, the Marine Corps and Army were able to reduce the JLTV vehicle cost from a projected $634,000 to $266,000 per vehicle. I understand you're trying to reduce that vehicle cost even further. How did you do this? Describe briefly to our subcommittee the requirements that were eliminated. Were they key requirements, and how will they affect the vehicle performance?

General MILLS. Sir, we believe probably the biggest driving factor in cost reduction will be competition in order to provide that. For instance, currently we have six major organizations that are interested in providing that vehicle to us. So we believe competition within the acquisition process will naturally drive the price down as those companies compete for the business.

Second of all, working with the Army, and the Army has been extraordinarily cooperative and it's been a great team effort to take a look at the vehicle and pare down not what we want, but what we need on board a vehicle. Both of us were very concerned about protection levels and we arrived at a solution set that allowed us to take the protection level that we needed, yet keep the weight down, so that we were able to both transport it on our amphibious ships and—or sling it beneath our heavy lift helicopters and get it ashore quickly.

We also looked at perhaps, rather than buy everything we wanted at one time, have a vehicle that would give us some capability for growth, that would allow us later on to perhaps upgrade the weapons system that might be on board it, take a look at weight growth that could be allowed if we wanted to add armor, and then take a look at kits, if you will, that would allow us to increase the levels of armor based on threat that we would see ashore.

I think it's been a real teamwork effort between the Army and the Marine Corps to lay our requirements on the table and then look for ways in which we could compromise and yet ensure that we were providing our soldiers and our marines with the right level of protection, with the right speed and mobility on the ground, and with equipment that we know would be reliable and available to them for years to come.

Senator WICKER. So we reduce protection levels, weight, and cut back on weapons systems and levels of armor; is that a fair summary?

General MILLS. What I would really say, sir, is we scrubbed our requirements extraordinarily hard. We didn't surrender any of our requirements, but we really studied them and said, what is it that we absolutely needed, what level of protection was needed by our forces on the ground, what weapons system best serves our purpose, and all of which could fold into an affordability matrix.

Mr. STACKLEY. If I can add to that, one of the challenges that the JLTV has had in its history has been taking this joint requirement between the Army and the Marine Corps and arriving at a single family of vehicles. There is a divergence when it comes to mobility, the impact of weight, transportability of the JLTV when you look at what the Marine Corps needs to load these vehicles onto amphibious ships, get them to shore, and to have the maneuverability that it needs ashore, versus some of the requirements on the Army side that drives greater reliance on armor and that drives up weight.

One of the keys to arriving at a more affordable program was to tailor JLTV so that the armor solution could be scaleable, it could be provided by kits, so that the Marine Corps could get the vehicles of the size and weight that it needs for its mobility purposes, and if the situation warrants or dictates an upgrade, the additional armor kits.

That helps tremendously in terms of affordability, transportability, and the mobility requirements for the Marine Corps while also serving the Army. That solution was one of the keys to really getting to a more affordable vehicle, really just hammering out the requirements on the front end between the two Services to stay with the family of vehicles that gives you the benefit of large-volume procurement, not just through competition, but just the large volume helps to drive down the cost.

Senator WICKER. Mr. Secretary, you mentioned in your statement getting the requirements right at the front end. Is it accurate to say that now the requirements of the JLTV are stable?

Mr. STACKLEY. Yes, sir. We went through what's referred to as a Defense Acquisition Board with the joint program, Army, Marine Corps, and Acquisition, Technology, and Logistics, to review the acquisition plan, and with the Joint Staff present and subsequently through the requirements definition process with the Joint Staff; and a lot of good discussion and debate over how much capability was required for the JLTV, and the Joint Staff helped shape some of those requirements to scale back some of those requirements to drive affordability of the program.

Senator WICKER. General Mills mentioned that competition was a key factor. I think I told you in my opening statement that I'd

like some assurances that we're going to continue to have viable competitors. What reassuring words can you give the subcommittee about what you've done to sustain the viability of these competitors in the manufacturing base?

Mr. STACKLEY. Yes, sir. First, General Mills referred to about a half a dozen interested industry members. In fact, what we expect to see is teaming in industry for competition on the program.

One of the keys to keep the industrial base primed in this particular case is time. If this were going to be a long, drawn-out development program, in fact the industrial base would be marching through a valley waiting for JLTV to emerge in production. So again going back to looking at the sweet spot between capability and affordability, the industrial base piece, if you can leverage mature technologies and make this more of an integration effort as opposed to a development effort, you can cut down significantly on the timeline to get to production.

In fact, for the JLTV program we're doing that. We're driving integration of existing capabilities as opposed to a significant development effort, so we can get through the design, into the limited rate initial production phase, more quickly. That helps in terms of meeting the capability gap, it helps in terms of the industrial base, it helps in terms of cost.

We think we have that about right. We've managed the risk in the definition of the requirements and balanced that against the affordability of the program. The Marine Corps and the Army have worked very closely in terms of when the Marine Corps buys its vehicles, when the Army buys its vehicles, looking at respective gaps and also looking at respective budgets in terms of what they can afford, and then adding them together so that the industrial base ramp is nice and stable.

We're working that with industry. There has been very open dialogue with industry in every regard in terms of through the development of the requirements and looking at the ramp in numbers.

Senator WICKER. You two can decide who will take this question. Assuming we prevent sequestration, give us your best guess on the schedule for the Marine Corps to procure JLTV? When will the Marine Corps receive its first delivery of operationally capable vehicles and how many do you expect in that first delivery lot?

Mr. STACKLEY. Yes, sir. The first Marine Corps buy for production units is about 2015. Right now the plan is 2015 and we're on the front end of that procurement process. It goes up in a ramp. So in the Future Years Defense Program (FYDP), through the end of the FYDP, the Marine Corps procures about 400 JLTVs on a ramp between 2015 and 2017, and the delivery timeframe is about a 2-year lag. So until industry gets up into a steady state in terms of production, you'll see a solid 2-year lag between when we procure and when those vehicles are delivered.

Senator WICKER. I wonder if I could squeeze in one more question. General, what did we get out of our $3 billion on the EFV?

General MILLS. Yes, sir. We're taking the lessons learned from that across the board and applying them to our ACV. We still have several of those at Camp Pendleton that we can operate and learn from. But we're looking at things like the stability in the water, habitability, because the marines are going to be in the new ACVs

for longer periods of time. So there were lessons learned that we can apply directly to our AOA as we look at that coming down.

Some of our power train and power requirement lessons learned from the previous vehicle could be applied to the new one as we look at the AOA and decide which vehicle we want to proceed with.

Senator WICKER. What have you learned about habitability? How long can a marine stay in one of those vehicles?

General MILLS. We've done some experiments on the west coast with marines in vehicles, in both the old EFV and our AAVs, and we have found that the rule of thumb is less than an hour. We actually can put marines in them and it can last longer. It depends obviously on a number of things: sea state, for instance; the number of marines you put in the back of these kinds of vehicles.

We just recently completed an experiment off Camp Pendleton, where we put some of our old AAVs in the water at 12 miles, floated them in. Some of those vehicles were in the water for up to 3 hours. Now, they did not have marines in the back. They had crews on board. But the crews landed and were surprisingly fit. We are doing some studies to see what is the time that we could put marines in the back of them, how far can we move them in the water, and what can we expect of them once they land. That's still in the study process.

Senator WICKER. Thank you.

Senator REED. Thank you.

Senator Blumenthal.

Senator BLUMENTHAL. Thank you, Mr. Chairman.

Let me pursue that line of questioning for just a couple of moments, if I may. I understand the lessons learned from the EFV in terms of its capabilities. How about in terms of cost control, General Mills or Secretary Stackley?

Mr. STACKLEY. Let me start. The lessons learned in terms of cost control were extraordinarily fundamental. In fact, they're similar to lessons learned we have picked up in other programs that broke along the way. I stated at the opening, getting the requirements right at the front end. That is so critical. The EFV concept was developed greater than 20 years ago now, and the requirements at the front end were very far-reaching. It was orders of magnitude beyond the fleet's experience and also beyond industry's ability at the time, without an understanding of cost.

One of the things that we have done through the EFV is we've done a complete teardown of cost in terms of development and, equally or more importantly, procurement, and then through that you extrapolate to operating and support cost. One of the things that broke the EFV was operating and support costs.

We've done that teardown, so we have a fairly strong understanding of a cost basis for the alternatives that are being evaluated today through the ACV AOA, a fairly good cost breakdown that we're putting side-by-side during the requirements definition process, so that requirements aren't being written unconstrained or uninformed by costs.

Then that effort is being done jointly between the requirements and the acquisition offices. So they're locked together debating, assessing, and ultimately arriving at a set of requirements for the ACV with a good understanding of what it will cost to procure and

to support, and then that is being overlaid by what the projections are for Marine Corps procurement and budgets, so that you have a good balance between requirements and capability, cost, and then affordability as defined by the budget.

This work has been going on since the decision to cancel the EFV program and it is, frankly, moving pretty smartly forward. I think when we come out of the AOA we'll have a half a dozen alternatives that we'll be well-postured for and be able to make decisions that 3, 4, or 5 years from now the basis of those decisions will still ring true.

Senator BLUMENTHAL. It sounds to me like those are very profound lessons that could be useful not only in the ACV context, but really for many other procurement programs across the Services.

Mr. STACKLEY. Yes, sir. We're struggling to get to a point where we can make affordability a requirement. So while we have key performance parameters that go into our requirements document, that document does not capture what those systems will cost. So in our overall acquisition process we want to be able to tag affordability against those requirements, so we don't end up out of bounds when we're halfway through development or at the front end of production.

Senator BLUMENTHAL. Thank you.

General Mills, I had occasion yesterday to speak with Major General Toolan about the progress and the outstanding performance of our marines in Afghanistan. I know you're very familiar with it. He emphasized the gains that we've made, but the continuing dangers to our troops. We all know that one of the greatest sources of those dangers is the improvised explosive device (IED), the roadside bombs that continue to maim and kill our brave marines there.

I wonder if you could update the subcommittee on the ability of the Marine Corps to equip our troops with the protective gear, pelvic protective gear and biker shorts and so forth, but also what perhaps in the way of new programs might be in the works, because this kind of warfare will no doubt continue in the future. It's asymmetric, extraordinarily damaging, but cost effective for our enemies to use. So any comments you would have, I would appreciate.

General MILLS. Sir, I would thank the Senate and Congress for their support on being able to provide very quickly needed countermeasures to IEDs to the marines in the field. Our urgent needs process, in which we respond very quickly to commanders' absolutely urgent warfighting requirements, has been very successful for us across the board, I think everything from the MRAP program, which was done extraordinarily rapidly, as efficiently, I think, as possible, but bottom line was it saved countless lives on the battlefield, is a great example of that. Everything from that large project down to protective devices that marines now wear across their hips in order to protect vital organs, which was responded to very, very quickly.

Everything in between, when a commander on the ground sees a need and there is either a commercially available solution or a process to rapidly develop to fill that need, it's done extraordinarily quickly and given to those marines. I saw in my time in Afghanistan and in talking to General Toolan during his time, whenever they came up with a new idea that was useful, whether it be the

low metal detectors that were in response to the insurgent capability to fashion these IEDs out of wood and plastic, whether it be the mine clearing equipment that went forward that was needed, everything from boat hook type things to very sophisticated explosive ordnance disposal (EOD) robots, again very, very quickly.

I think the process worked. I think that there was a point there where cost or competition perhaps was not the driving factor, but it was what does that marine need on the ground to save his life, and that was met very, very well.

In the lessons learned, we certainly agree with you that this is a threat that will carry on. It's cheap, it's easy to do, and it has a significant asymmetric effect on the battlefield. We've taken that into consideration. I point to probably the JLTV as a great example. If you look at the HMMWV, which the JLTV will replace, the HMMWV was an unarmored vehicle, it was a Jeep, soft-skinned, and proved itself extraordinarily vulnerable to IEDs and small arms. HMMWVs don't go outside the wire in Afghanistan any more. They're all inside the wire. Only armored protection goes outside the wire.

When the JLTV requirements were put together, armored protection was a significant requirement. Probably 10 years ago, 15 years ago, it wouldn't have been. We would have produced another soft-skinned vehicle.

If you look at our MPC, protection underneath from the IED threat becomes a critical requirement that we have to look at as we go forward. I think the lessons learned both from the self-protection equipment that a marine wears into combat to the vehicle suite that he's going to have access to, all are going to show lessons learned from the war and have IED protection, explosive protection, and mine protection built into it. The ACV is another example of that.

Senator BLUMENTHAL. Thank you very much, General Mills. Thank you both for your excellent testimony this morning.

Thank you.

Senator REED. Thank you, Senator Blumenthal.

We'll initiate a second round, presumably 8 minutes. If my colleagues want to come back and ask questions, I certainly want to give them that opportunity.

General Mills, one of the urgent procurement initiatives because of Afghanistan and Iraq was the MRAP, and the MRAP All-Terrain Vehicles. They don't seem to fit into the amphibious strategy that we're talking about. So it begs the simple question: What are you going to do with these vehicles? Will you park them someplace, or will a portion of them be used? Can you give us some ideas?

General MILLS. Sir, we have a little over 4,000 of them in the inventory right now as we come out of Afghanistan. We're going to do several things with them. Our plan, we're going to keep about 2,500 of them on inactive service. They will be used in countermine operations with our EOD folks, with our combat engineers, with our route clearance units. That is a requirement developed directly out of the war and they'll play an important role in there.

We'll have some available to the operating forces, whether they're pre-staged forward at a location or here in the United States. We'll have some available for training at our various train-

ing locations and some available for training for our maintainers and our operators.

The remainder—we'll work through Marine Corps Systems Command to rid ourselves of. We don't want to maintain an excessive number of those due to costs. So it'll be a split strategy of divesting ourselves of what we don't need for the future, but also keeping that capability and being able to deploy it.

The deployment piece will be an issue we have to work our way through. As you stated, they're heavy. They're big. They do take up an awful lot of footprint if you put them on your forward-deployed ships. However, I will keep them accessible to our forward-deployed forces, able to come forward through a transportation method when needed and when called for by the commander on the ground.

Senator REED. One aspect of both the Navy and the Marine Corps budget which, I think, has huge implications is the F–35B, with the sheer size of the procurement dollars required for that activity. General Mills and Secretary Stackley, your view is that this is critical to your doctrinal approach to the future in terms of amphibious operations, and if you have to pay some of the costs indirectly you're prepared to do that, I presume?

General MILLS. Sir, I believe the F–35 is an absolutely critical requirement for the Marine Corps. The ability to forward deploy with our large-deck amphibs and bring fixed wing aviation, with all the benefits that has attached to it, is critical to the Marine Corps air-ground task force concept in which we fight now and will fight in the future.

Certainly one of the things you want when you're conducting amphibious operations is the ability to put supporting arms ashore to support your landing force in the initial hours of any operation. With the decline in naval gunfire surface support that we've seen, I think the use of Marine Corps aviation becomes even more critical, that you can impact targets well inland. We talk about a threat that has been developed against the amphibious forces which can be launched from well beyond the beachhead. That capability to do that is absolutely critical.

Our Harriers have done a great job for us. They're beginning to run out of life, as we know. General Roebling has done some excellent programs to extend that as far as possible, but they will run out of life in the early 2020s and the F–35, the STOVL capability, is critical to Marine Corps' capabilities going forward into this century.

Senator REED. Secretary Stackley, the cost factor is significant and, despite the best planning, it's going to impact probably every system in the Marine Corps and the Navy. From both perspectives, how do you soften the blow, if you will, in terms of not only what the Marine Corps has to acquire, but what the Navy has to acquire to support the Marine Corps, to complement the emerging doctrine?

Mr. STACKLEY. Yes, sir. With particular regard to the JSF, as you're well aware, two factors come to play inside of this FYDP. First is the program schedule, and the schedule has moved to the right, which has resulted in the product ramp being brought down while we complete the developmental testing and get to a more ma-

ture point in the program where we can ramp up to steady production.

The unit cost on the aircraft has increased as well, and we're battling that through the design and development phase, and also through the way we buy the aircraft. But it does put significant pressure on the overall tactical air (TACAIR) portfolio for the Navy and the Marine Corps.

So we don't try to solve the JSF cost in isolation. The requirement is unchanged, for the Navy 680 JSFs split between a carrier version and a STOVL version. What we are managing in the near- to mid-term is the total TACAIR portfolio, where we're at risk of a TACAIR shortfall. That's more than just the effects of the JSF. We do have the aging Harriers and the F/A–18A through D versions that need to go through a service life extension program (SLEP), as well as completing the production and procurement of the E&F aircraft.

So between those three, we're balancing within the budget to determine how many A through Ds can we afford to SLEP, and what's the right production ramp for JSF that we can sustain within our budget. We count on the E&F in terms of its service life. It's a healthy aircraft for the near- to mid-term. What that leaves us with is managing the amount of risk inside the TACAIR portfolio.

We've briefed the committee over the last several years as that picture has unfolded. This past year we've revised our estimates in terms of the TACAIR shortfall, which peaks in about 6 or 7 years from now. The revision was, frankly, a downward revision, despite the upward pressure on costs on the JSF program, primarily as a result of the revised estimates of fly rates as we have gotten out of Iraq and we look forward to getting out of Afghanistan.

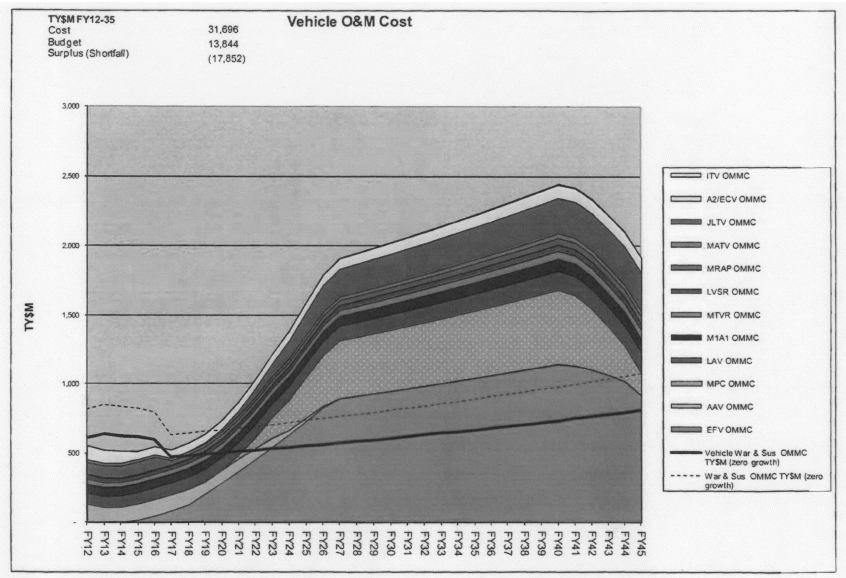
Frankly, it's one of the two things that keeps me up at night. But we're managing it closely. We have to continue to manage the execution of the SLEP. We have to make sure that the F–18 aircraft that go through the SLEP get the upgrades they need to be combat-capable, while we continue to work the introduction of the JSF.

It's a complex problem with many variables. JSF has added some pressure in terms of cost, but what we're managing is total portfolio.

Senator REED. Thank you.

We have a chart. I think you're familiar with it. This is the chart we used last year.

[The chart referred to follows:]



Senator REED. I think it's useful because it's the O&M cost of the vehicles. The bottom orange line is the EFV. That's gone, so you just pull that out. But still the rest of the colored areas representing individual vehicles go above that dark line, which is the steady state without a significant combat operation, and even above the dotted line, which is steady state with combat operations.

If you can give us a notion of, one, how well you're doing to bring those lines underneath your expected budget; and then, two, when you would think because of the wear and tear on vehicles, et cetera, that the cost of O&M would go up. Mr. Secretary, please comment generally on what we're doing.

The final point I'll make is this chart was available last year for the testimony and what I think repeatedly we heard was the way we're going to deal with this is reducing the overall number of vehicles. Is that still the bottom line, what we have to do? So if you can elaborate?

Mr. STACKLEY. Yes, sir. I'll start and then let General Mills finish.

Senator REED. Yes.

Mr. STACKLEY. First, the approach we took on looking at the affordability of ground combat tactical vehicles for the Marine Corps, we're adopting this same approach across the board program-by-program, because we can't afford to look at the individual program. We have to look at its affordability inside of a total portfolio. Then quite often when we do that, we realize in the out-years we're overprogrammed.

I will give the Marine Corps credit for doing a tremendous job of taking a look at the problem—this goes back 2 years ago—and realizing we can't get there from here. We are overprogrammed. The first decision that came out of that was we have to do a scrub

of the fleet mix of vehicles, and in that was the decision to terminate the EFV program.

But by itself—and we were very clear—that's not enough to solve this problem. A part of the ground combat tactical vehicle strategy was taking a look at the total fleet size and mix and determining what can we do to get from what has built up over the years down to what we absolutely need going forward.

The first cut coming out of that strategy was a readiness of about 10,000 vehicles planned for the portfolio for the foreseeable future, greater than 20 percent. That has a direct impact on the O&M projections going forward.

The other half of the equation was looking at what we buy and when we buy it. So while this is O&M, there's a similar picture that reflects the procurement side at the same timeframe. So the vehicle strategy has placed a sequence of what we buy and also has driven affordability into what we buy. As far forward as we can look and project today, our vehicle procurement strategy aligns with our budget projections.

The other aspect that's built into this chart, not immediately apparent, is the front end of that chart, the left-hand side, is augmented by Overseas Contingency Operations (OCO) funding. One of the challenges that remains before us is a post-OCO environment, what does that mean for sustaining our vehicle fleet? We're continuing to work that. We have a near-term reset that we have budgeted, but there is a longer-term strategic buildout there that we've identified to everyone. But that's very much contingent upon when we get out of Afghanistan.

Your specific question regarding why does that tail down. I can't reconstruct the last couple of years of that chart, but I'm going to tell you that that's probably more than anything else a budget peculiarity in terms of how far forward we project certain programs, and since we don't have other programs identified yet, the budget numbers probably took over the chart at that point in time.

Senator REED. Realistically, the chart is accurate, but with the right assumptions the lines would continue to go up, or be level at least?

Mr. STACKLEY. Yes, sir.

Senator REED. Thank you.

I have additional questions, so we'll have another round.

General MILLS. Senator, if I could just add.

Senator REED. Excuse me, General.

General MILLS. He covered very clearly what our procurement piece was. Regarding O&M costs, other things which we're doing to take a look to try to control some of those costs, because we realize that will be pressurized under the new budget system when you look at the budget amounts that are available to us, regarding our older vehicles we do have a plan to do a sustainment package on 81 percent of the vehicles that we're going to retain in the fleet, both our HMMWVs, our ACVs, and our other vehicles. So as they come out of theater, we have a very thorough sustainment package we put them through that will restore them to we think a good, reliable level.

For our newer vehicles, of course, we're looking at raising reliability standards, challenging the builders to give us vehicles that

are more reliable the longer time between major breakdowns. Also fuel efficiency. Fuel is a big piece of O&M costs and we're looking at vehicles that are more fuel efficient, and that becomes a factor that we're going to consider heavily, where in the past perhaps we didn't give it as much set. That's the reset that Mr. Stackley talked about. We want to bring those vehicles that are coming out of theater, that have been used and have been ridden hard, and bring them back to as good a state as we can so they are reliable in the future, driving down future maintenance costs.

We have a pretty comprehensive effort to keep those costs as low as possible, understanding also that O&M costs drive training, and you have to be able to make sure that you keep levels there that you're able to use vehicles, train on them, and keep them in the field for preparation.

Senator REED. Thank you, sir.

With that, Senator Ayotte.

Senator AYOTTE. Thank you, Mr. Chairman.

I want to thank both of our distinguished witnesses for being here and for their service to our country.

Secretary Stackley, I want to follow up on your testimony from last week's shipbuilding hearing and particularly ask you about the *Virginia*-class submarine. First of all, is the *Virginia*-class submarine performing well?

Mr. STACKLEY. Yes, ma'am, absolutely. It's performing well in terms of production, but more importantly performing well in terms of the fleet. If you had one of the fleet sailors on board here talking about when they compare a *Virginia* to even *Los Angeles*-class, it's a leap forward in terms of combat capability. They're very excited about it.

Senator AYOTTE. Terrific.

As you're probably aware, the Chief of Naval Operations has testified that the Navy is only able to meet 61 percent of the combatant commander requirements and requests for attack submarines. Are you familiar with that number?

Mr. STACKLEY. Yes.

Senator AYOTTE. Yet, for budget reasons, the Navy has recommended, because of the numbers that were given in the BCA, that we postpone the procurement of one *Virginia*-class submarine from 2014 to 2018. I wanted to ask you about some of your testimony at the shipbuilding hearing about this issue, particularly the issue of if we were able to move to say that if we were to lower the cost by doing it, the cost to purchase on an incremental basis. I believe that you testified last week about the fact that if you assess the bottom line or the net cost impact of adding a second *Virginia*-class, in other words bringing it back up to 2014, that it's near neutral. In other words, the net savings associated with pulling the boat to the left if we did it on an incremental basis would effectively, adding the boat by pulling it to the left, outweigh the upfront cost if we had to purchase the entire submarine up front.

As I understand it, the House Armed Services Committee (HASC) Seapower Subcommittee did just that and recommended that we actually push back the purchase, but do it on an incremental basis.

Can you help me? Can you comment on this and also explain that if we were to purchase the *Virginia*-class in the incremental way that you described in the shipbuilding hearing, what impact that would have?

Mr. STACKLEY. Yes, ma'am. First, the way the cost analysis works out is we assess the *Virginia*-class program as opposed to individual boats, what the program cost would be, not simply moving a boat from 2018 back to 2014, but literally moving a boat from the end of the program to 2014, because we want to sustain two per year.

Senator AYOTTE. Right.

Mr. STACKLEY. Then when you look at the total program cost for those two different procurement profiles, the upfront cost for that second boat in 2014 is offset by savings across the program in the later years.

Senator AYOTTE. By moving it up, right.

Mr. STACKLEY. Yes, ma'am. So at the bottom line, for the *Virginia* multi-year, 9 versus 10 boats, it is near neutral adding that second boat in 2014. That's independent of how you fund it.

The discussion regarding incremental funding simply reflects the constraints that we have for our top line in 2014. We did not have sufficient head room to fully fund the second boat in 2014. So there is an exception to the full funding policy that's been put in place for carriers and large-deck amphibs that allows you to spread those costs over a number of years to eliminate the spike that it causes in the budget.

In this particular case, that would enable us to fund a second boat in 2014 without giving up the second boat in 2018 and stay near neutral at the bottom line.

Senator AYOTTE. The only reason that you weren't able to recommend that to us is because you didn't have that capacity for the submarine fleet, is that right, in terms of how you could budget?

Mr. STACKLEY. You say "capacity"?

Senator AYOTTE. I mean you didn't have the authority, is what I meant to say.

Mr. STACKLEY. Yes, ma'am. The policy is that we fully fund our capital investments in the year in which we procure them. There are exceptions to that, but we do not have an exception in this case for *Virginia*. So while it works out analytically, policywise we don't have the authority to incrementally fund it.

Senator AYOTTE. Wouldn't it make sense to have an exception for *Virginia*, the way you just described it in terms of how we look at this?

Mr. STACKLEY. When you simply look at the fact that we have this demand for submarine service that exceeds our capacity, and in fact longer-term our number of attack boats in the fleet goes down until we hit a valley in the 2030s.

Senator AYOTTE. Right, the nine-sub valley is by 2030?

Mr. STACKLEY. Our requirement is 48 boats.

Senator AYOTTE. Right.

Mr. STACKLEY. Our force structure out in the 2030s timeframe drops well below 48 boats. So to affect that, to try to improve upon that, you really have to sustain two boats per year as long as you

can, until you get to the point where you have some flexibility in the buy rate. We're not at that point yet.

So it's a budget constraint that drove us to make this reduction in 2014, but the requirement would insist otherwise, that we get back up to two boats and sustain it as best we can.

Senator AYOTTE. This would be something that perhaps would be a very important authority that we could give you with respect to our attack submarine fleet and also making sure if we did what the HASC Seapower Subcommittee just did we could ensure that the two remained constant in a way that would be much better in terms of trying to meet our combatant commanders' requirement for the attack submarines; isn't that true?

Mr. STACKLEY. Let me describe that the President's budget didn't request it, but I think it's important that we discuss and provide the information regarding this alternative to full funding, so that everyone can assess the value to the force, the value to the industrial base, and then the affordability that adding that second boat provides, and weigh that against the importance of the full funding policy.

Senator AYOTTE. Right. But as we're talking about it in the testimony before the subcommittee today, this is a very sensible move, as well as making sure that we meet the requests of our combatant commanders, and we already are not meeting them. We're only meeting 61 percent of those requests now.

Mr. STACKLEY. Getting that second boat in 2014 is the most affordable way to buy another submarine.

Senator AYOTTE. I very much appreciate your providing that insight to us. I want you to know that this is something that I am going to be proposing and pushing with the rest of the members of the Senate Armed Services Committee, and I think it only makes sense in terms of not only the cost, but also making sure that we maintain our attack submarine fleet and given the needs of our combatant commanders, and particularly if we look at our shift in strategy as a focus on the Asia-Pacific region, obviously our naval fleet and the importance of it, that's very, very important that we have a robust attack submarine fleet, and the *Virginia* class is very important to that. I appreciate your testimony today.

Thank you very much. Thank you for being here.

Senator REED. As long as you want to speak about submarines, Senator, you may continue. [Laughter.]

Senator BLUMENTHAL. I'm prepared to speak about submarines.

Senator REED. In that case, we'll recognize Senator Blumenthal.

Senator BLUMENTHAL. Thank you.

I want to thank Senator Ayotte for that line of questioning, which you and I really engaged in at the last hearing. I think Secretary Stackley put it extraordinarily in that hearing, and I don't want to put words in your mouth, but effectively you suggested that the committee should adopt this incremental funding approach, which you said is an extraordinary method of funding, but we live, as you put it, in extraordinary times, and we are facing extraordinary challenges. I agree with you completely.

Senator Ayotte, I'm glad you followed up with those questions, because I've already written to the chairman, and I know others have as well, endorsing the idea of moving that submarine forward

without necessarily funding it up front and doing the incremental funding. I'm glad to see that the HASC has adopted that approach, which perhaps we can follow here.

I want to thank you for the testimony this morning in effect endorsing—that may be too strong a word—but at least suggesting favorable consideration on the part of our committee.

Senator AYOTTE. We may be able to have bipartisan agreement on this. I like that.

Senator BLUMENTHAL. I think we will, and I'm sure that Senator Reed may have favorable things to say about it as well.

Senator REED. I have made a note to myself.

Senator BLUMENTHAL. I would like to just move to another topic if I may, Mr. Chairman. It was really suggested by the testimony making reference to the Commandant's energy efficiency statement. I know there was a more high-falutin term for it, but I want to commend and thank the Marine Corps for focusing on this issue. Secretary Stackley, you and I discussed it a little bit in the last hearing.

But I'm wondering, in light of this chart and other analyses that show, as you put so well, General Mills, the costs of simply running these vehicles using our present source of energy; and certainly I think one of the lessons in Afghanistan has to be the tremendous cost of providing fuel, which when you think about it is really staggering, not only the cost in dollars, but the vulnerability in terms of the Pakistan route that it creates and the cost in human lives in the convoys that is required.

I'm wondering whether there is thought to alternative means of running these machines, so to speak. I don't know whether I can put it in a more sophisticated way, but just alternative sources of energy that can be used in these vehicles.

Mr. STACKLEY. The chart that was displayed regarding the O&M costs for the vehicle fleet, General Mills hit the issue when he described the majority of those vehicles, they are aging; they are going to go through a sustainment program. They'll get modernized. They'll go through improvements so they can serve well beyond their service life.

Regarding your specific question, the point there is that the majority of those vehicles, those drive trains are what they are. If there's an opportunity to improve upon the drive train as we go through the modernization, we're going to explore that and do that to the extent it improves the operation of the vehicle and drives down its operation and support cost.

But there's little opportunity to introduce new technologies for drive trains beyond the programs that we're introducing today. So the JLTV program, in particular, we've discussed whether or not there's an opportunity to look at a more fuel efficient system. In fact, energy is one of the requirements that's being drafted up for that vehicle. But it doesn't drive you to a leap-ahead technology in a drive train when it comes to military vehicles, not yet.

It is something that we have to continue to look at. So while we do development in parallel on the components and the subsystems, at some point downstream we have to explore how do we introduce these more efficient drive trains to the fleet of vehicles. It will be

a slow, slow transition because of the large numbers of legacy vehicles that we start with.

General MILLS. Sir, I would just add two things that we're looking at from the Marine Corps perspective. One, of course, is life in the barracks when you're back, not in the field, not at war, not training, looking at various energy supplements there that we can use. Solar is the one that we're most active in, and we're having success at many of our bases in replacing fossil-driven fuels with our solar capabilities. Our Mountain Warfare Training Command up in Bridgeport, CA, is soon to be a negative energy user. They're going to provide everything they need through solar and through thermo, which they have access to, and may, in fact, be able to sell some of that energy out in town to the local power grid.

We're looking at ways back in the barracks in which we can ensure those barracks are green, for want of a better term, and which we can save power.

Out in the field, in the vehicles, we're looking at ensuring our new vehicles have alternate power units attached to them, so that you don't have to run a 10K generator that uses an awful lot of fuel when you simply want to keep some lights on in the Combat Operations Center (COC). You can use a more efficient method of providing that electricity, looking for more efficiency. Lighting in our COCs and places like that, those aren't huge savings, but they chip away at the requirements.

I found that when I was in Afghanistan, surprisingly, the troops were extraordinarily receptive to energy-saving devices, because they knew what that meant to them as far as the logistics trail they had to drag along and the risks they had to take in moving large quantities of fuel around the country in which fuel trucks were lucrative targets, both for the enemy and for corruption.

We're looking for ways big and small to save power, save energy, reduce that logistics trail, and also to reduce costs, as pointed out by that graph.

Senator BLUMENTHAL. I thank you for those answers. Also, the March 2011 Marine Corps Expeditionary Strategy and Implementation Plan was the report that I was referring to before. I think it's a great step in the basis to battlefield strategy and I hope that it will be updated because technology is moving so quickly that there's a lot of opportunity.

General MILLS. Sir, if I can just add, twice a year we sponsor what we call an expeditionary forward operating base, one at Camp Pendleton and one at Camp Lejeune. The one at Camp Lejeune goes next week and we're going to have a group of staffers accompany us down there. The intent of that is to look at expeditionary ways to save fuel, both through solar and other experimental methods. It will expose us to them, it will allow us to identify some projects worthwhile to take forward to us on our deployments, try them out in the field under real conditions, and then report back as to whether there are things that we want to exploit. It's an ongoing project for us.

Senator BLUMENTHAL. Thank you very much.

Senator REED. Thank you, Senator Blumenthal.

Let me ask some additional questions. General Mills, I want to get a feel for the procurement strategy. We started off with the no-

tion of buying about 1,000 EFVs to replace roughly 1,000 AAV–7s, which you have in your inventory now. The EFV is out and now we're looking at basically dividing your resources between the ACV, which would be the assault craft, and the wheeled armored personnel carrier.

The wheeled armored personnel carrier doesn't swim. It carries only half a squad, so it has some tactical consequences. It's about as heavy to lift as the ACVs, which raises the question, particularly if we're still doctrinally looking at roughly two-thirds of our assault forces going ashore by amphibious vehicle, what is the ratio of investment in the ACV versus the personnel carrier, and why are we buying personnel carriers? Can you comment?

General MILLS. Sir, we feel the portfolio approach is the best one, that both from an affordability perspective, but more importantly for the flexibility it gives the commander on the ground. We don't believe that every marine has to swim ashore in a self-propelled amphibious vehicle, that the forces flown ashore off of the ships will go ashore through a series of means. A third of the force will go in by aviation, for instance, and land and link up with heavy equipment later on ashore. Initial assault waves will go in in our ACVs because of the uncertainty of what they're going to meet once they reach that beachhead.

Once that beachhead is established, however, we can begin to run connectors in there, which are our LCAC and our LCU, bringing in the remainder of our vehicles. They can bring in the MPCs that you spoke of.

Then, once ashore, those vehicles give us great flexibility, give us better speed than the tracked vehicles do in the field, give us efficiencies in fuel, and provide us with, I think, better combat power for that commander as he pushes the beachhead in and proceeds on to exploit the opportunities on the ground.

We currently have a mixture of vehicles. We have a portfolio. It works. It fits into our concept of operations very, very well. We're still doing the study as to what that breakdown should be. We think that the total requirement is the ability to have 12 battalions with some armored protection mobility. Whether we break down to all of them being on ACVs, probably an unaffordable strategy, or what the exact breakdown will be, is an ongoing study and will be a decision that we're going to push down the road a little bit for the Commandant to make. But once the AOA on the ACV is complete, once we have a better feel for the MPC characteristics and costs, we think we will give him an opportunity to make his decision as to how he sees the fleet motored up, if you will.

Senator REED. So you're teeing this up for a decision on numbers based on what you think is the optimal configuration for your doctrine, your tactical operations?

General MILLS. Exactly, sir. Of course, cost has to be a factor.

Senator REED. Let me go back to the point that you have a vehicle that takes half a squad, which complicates command and control. That is a factor which I assume you're going to also consider. My sense, over the last several decades the thrust of buying military equipment for land forces was to at least have a squad size as the minimum organization point carrier, both lift as well as the personnel carriers. This seems to be a diversion from that.

General MILLS. Sir, it is different. But we think that it does also mitigate some risk. It does disperse that unit, so should you lose one of the vehicles, you haven't lost an entire squad. Some of our experience in Iraq, for instance, where we lost some AAVs that had full squads on board, and then you lost an entire fighting unit, so there is some advantage to splitting that squad into units.

There are challenges with command and control as you pointed out. It also gives us some advantage in distributed operations as we begin to spread these units out, fight at greater distances and fight in smaller units. There is some capability there. But we do feel that the MPC will give us some flexibility, some efficiencies, some reliability that a tracked vehicle, which is more complicated and complex, doesn't give us.

Mr. STACKLEY. If I could just add?

Senator REED. Yes, Mr. Secretary.

Mr. STACKLEY. First, sir, you're asking exactly the right questions, and they're the same questions that we're asking ourselves internally. Those are all built into the AOA that's being accomplished for the ACV.

But also, as we look at that portfolio mix, the fleet mix of vehicles, it's very similar to the discussion we had earlier when you laid out the total O&M costs for the fleet of vehicles. It's the same portfolio approach that we're taking when we look ahead through the ground combat tactical vehicle strategy.

Senator REED. Let me raise a question with you, Mr. Secretary, on that. We have communicated back and forth about habitability issues with respect to the assault ships coming ashore. From General Mills' initial comment about the new threat, the new doctrine, that you're going to have to swim a long way to the beach, longer than we thought before, there's been some testing and you responded to the committee that it does not appear that the multihour water movements have degraded the capability of the marines coming ashore.

We understand that this test was done under mild weather conditions, et cetera. I raise the issue because I would presume this is again something that you're going to test again and again and again under a whole series of conditions, because you have to get to the beach, but if you get off the amphibious vehicle in a degraded state, that's not doing your marines any favors. I know you don't want that to happen.

Mr. STACKLEY. Yes, sir. Inconclusive is a good word for this case. We did about a 1-week habitability assessment test and submitted the report to Congress. We did not get the challenging sea conditions that would have provided more meaningful results. But what we did gain from that is we did not find anything in that early testing that said it can't be done. The assessment and the testing of the marines that participated concluded that, at least for these sea conditions and under the 1-, 2-, and 3-hour scenarios, when they got to the beach they were operationally effective.

The report describes that when it comes to cognitive skills and things, there was some marginal degradation, but when it came to marines being able to perform a combat mission, for those conditions everything looked okay. We have to go beyond, though. We have to do further testing. This is important, not just to develop-

ment of the ACV, but it's important to how we operate going forward for amphibious operations.

Senator REED. Do you have a comment, General?

General MILLS. Sir, I would just add one comment to that. We know what the optimum conditions are now. We've been doing it for years; 4,000 yards off the beach and sea state one. You get ashore quickly and you barely know you're in the water.

Our challenge, as we plan to use the exercises that I talked to you about earlier to push those limits, is to find what's the worst case. We know what the best case is, 4,000 yards and sea state one. Now what's the worst case? How many miles off the beach could you be? What kind of sea states could you operate in, and what decisions will that Marine Air-Ground Task Force commander have to make when he looks at amphibious operations in the future?

So we're going to do that. We're going to do it incrementally, we're going to do it safely, because we certainly don't want to put loaded vehicles well out at sea with marines in the back and have a problem. So we're going to do it incrementally, we're going to do it safely, and we're going to use what we've learned to help guide our decisions when we see those results of the AOA.

It is very concerning to us and we are working it.

Senator REED. I have just a few additional questions, but Senator Ayotte, if you would like to do an additional round, go ahead.

Senator AYOTTE. Thank you, Mr. Chairman. I really appreciate it. I just have two areas of questioning. I appreciate it.

General Mills, I wanted to thank you for coming to my office recently to talk about the Navy's proposal to eliminate one of the three maritime prepositioning squadrons and to reduce the number of maritime prepositioning ships in the fiscal year 2013 proposal. We just recently received the report that I had asked for in the 2012 NDAA about this topic and also the risks associated in terms of our readiness with reducing the prepositioned squadrons.

Obviously, this is something that we're looking at. We're reducing status, but in the fiscal year 2013 budget we're eliminating one because of the fiscal pressures that we face. In the report, General Amos consulted with the U.S. European Command and U.S. Africa Command (AFRICOM) commanders. They certified that the risk was acceptable, but still acknowledged that it's going to create capability gaps and influence force closure and crisis response times in terms of some of the gaps we might have.

But the mitigating factor, as you and I also talked about in my office, was the prepositioning program in Norway. In terms of the equipment in Norway, that equipment is not on ships, is that right?

General MILLS. That's correct. It's in caves that are maintained by the Norwegians under an agreement.

Senator AYOTTE. We would probably need to get it on a ship. That's one of the capacities we may need, unless we need it right there. But most likely we'd need to get it on a ship, correct?

General MILLS. Yes, ma'am.

Senator AYOTTE. So that's one additional step we would have to take, as opposed to already having the ship right there, the squad, and what we're eliminating in capacity now; is that right?

General MILLS. That's correct.

Senator AYOTTE. How long will it take to get the equipment on the ships?

General MILLS. That's a difficult question to answer because of the many factors that would play into that. Depending on how much equipment you needed, what that slice was, weather conditions, that kind of thing, a MEU loads out in about a week from Camp Lejeune to Moorehead City and gets on board ships and moves out. I'd have to get back to you with exact planning figures to get out of the caves and get to commercially available shipping. But I think it's a reasonable amount that we could respond to large-scale contingencies.

Senator AYOTTE. If you're able to answer me more specifically as a follow-up, I'd appreciate it.

General MILLS. Yes, ma'am.

[The information referred to follows:]

Surge sealift ships can be activated and sail to Norway in about 2 weeks. An additional option is to call upon U.S.-flagged ships from the Maritime Security Program (MSP). Some of these MSP ships conduct trade in northern Europe, thus can likely respond in days.

It will take 7 to 10 days to load the equipment in Norway onto ships once they arrive. However, Marine Corps Prepositioning Program-Norway (MCPP–N) is versatile, and ground, rail, and air are all possible modes of transportation. Strategic air was used for MCPP–N support of the Russian wildfires in 2011 and humanitarian assistance to Turkey following the earthquakes in 2011, allowing equipment and supplies to be delivered very quickly.

Current MCPP–N on hand, ground and aviation equipment will require two ships, and a fully-attained prepositioning objective will require three ships. It takes 5 days to load each ship, and ships can be loaded concurrently if berths and required personnel are available.

Current MCPP–N munitions on hand, and a fully attained prepositioning objective, will require one ship. It will take 5 days to load the current on hand munitions and 9 days to load a fully attained prepositioning objective. Munitions conduct load out from a different port than ground and aviation equipment.

Senator AYOTTE. Then also, how is the equipment in Norway in the caves different than the equipment that's in a maritime prepositioning squadron? Is it a different type of equipment or is it the same?

General MILLS. It's basically the same. It's a cross-section of Marine Corps equipment. The plan to reload the caves, because we're going to reload them, is to organize them around MEU- or MEB-sized units, which are probably the appropriate size unit you'd want to have respond to something that was going to happen either in Africa or in the Levant.

Senator AYOTTE. Are we going to have to do some modernization and update on the equipment in Norway?

General MILLS. We would have to as we restock it. We have a plan with all of our prepositioning, whether afloat or ashore, to modernize it on schedule at the times it needs to be done. But those caves are going to be restocked. They're low in our priorities, in all honesty, but they are on our priorities to restock them and have them prepared and ready to go.

Senator AYOTTE. One of the factors we're dealing with in terms of just thinking about a difference in capability between the squadron and the caves is not only loading the ships, but also the equipment there isn't as modern as what's in the squadron right now, is it?

General MILLS. I'd say it's comparable. I would say it's comparable.

Senator AYOTTE. It's comparable?

General MILLS. I can get you some information on that, but I would say it's comparable.

Senator AYOTTE. Okay. I would appreciate if you have any additional information on that as well. Thank you very much.

[The information referred to follows:]

The equipment sets within the Maritime Prepositioning Force (MPF) program and the Marine Corps Prepositioning Program-Norway (MCPP–N) are comparable in terms of modernization and maintenance readiness; however, the MPF equipment set includes larger quantities and a wider array of equipment than MCPP–N. The MCPP–N equipment set does not currently have all of the communications and weapons systems prepositioned in the MPF.

The Marine Corps is currently conducting an assessment of MCPP–N to ensure future operational relevance from a capability and capacity standpoint. The Marine Corps is in the process of modifying the composition of prepositioning stocks within MCPP–N as part of an ongoing transformation effort. MCPP–N formerly supported an air-landed Marine Expeditionary Brigade (MEB) with engineering, transportation, aviation support equipment, and various classes of supply. This existing equipment set is being reshaped, with the addition of communications and additional ordnance assets, to support a Marine Air-Ground Task Force built around an infantry battalion task force and composite aviation squadron. MCPP–N will retain its primary role of augmenting up to a MEB-sized force to support the reinforcement of Norway and U.S. Marine Corps expeditionary operations.

Over the course of the next several years, and to the maximum extent possible, MCPP–N will be restocked with equipment that becomes available as a result of the decommissioning of Maritime Prepositioning Ship Squadron-1 (MPSRON–1) and drawdown from combat operations in support of Operation Enduring Freedom. This is essential to increasing attainment levels in Norway and mitigating risk to U.S. European Command and U.S. Africa Command associated with the loss of MPSRON–1. Though MCPP–N will mitigate this risk to some extent, it is not a substitute for the afloat prepositioned capability within MPSRON–1.

Senator AYOTTE. This has just been something I've been very interested in, in terms of our capacity and our ability of eliminating one of these squadrons in terms of response times. So I do appreciate your follow-up on it. We certainly are taking on additional risk by doing this. I think you'd agree with me on that.

General MILLS. Yes, ma'am, there is additional risk. As we discussed earlier, the squadrons that we're going to have are enhanced. They are better than the squadrons that we had. They have newer ships, they have more capacity, and so the individual squadron gives us a better capability.

Senator AYOTTE. But also, location is helpful, too.

General MILLS. Location is very helpful.

Senator AYOTTE. Especially with AFRICOM, yes.

General MILLS. Although those ships will be focused to the Pacific, the advantage they give you is the flexibility of being able to move them should a crisis arise someplace in the European or African theaters. You always have the flexibility with forward-deployed amphibious capability to move it to the point of crisis.

Senator AYOTTE. Thank you, General Mills. I look forward to also continuing to talk with you about this issue.

Secretary Stackley, if we undertake what I think would be foolish, to allow sequestration to go into place, on an annual basis that's about $15 billion to the Navy, which as I understand it would be the equivalent of our entire shipbuilding budget in 1 year

or the equivalent of 2 years of maintaining our fleet, or would be the entire naval air fleet procurement in 1 year. Is that true?

Mr. STACKLEY. In terms of numbers, that's about right, yes, ma'am. The impact of the first $487 billion over the decade to the Navy was about $50 billion over the FYDP, and so the first thing when you talk about sequestration is you have to recognize that we've already carved out $50 billion and the budget that you're looking at reflects those actions.

To consider sequestration and its impact, the next thing you have to recognize is a lot of the budget can't be adjusted. There's some core of O&M that you have to have. So that $10 to $15 billion of additional impact per year really lays on top of a relatively small portion of the overall budget. So its impact will just be devastating.

We don't today plan for sequestration. The first step of planning sequestration would probably have to be arriving at a new defense strategy because the defense strategy that's in place could not be supported if sequestration hit.

Senator AYOTTE. General, I assume that if sequestration goes forward it would be devastating to the Marine Corps as well?

General MILLS. Yes, ma'am, across the board; acquisition, the O&M part of it, and the training piece of it. Assuming the personnel section was excused from it, it would have a devastating effect on our acquisition, our training, and our readiness.

Senator AYOTTE. It is my hope that we will take this issue up very quickly around here, so you don't have to undertake any type of planning for things that would be devastating to our military, as well as for our industrial base, that has to look ahead in terms of planning and the capacity. I think about our shipbuilding capacity. This is a very, very important issue. So I appreciate both of your being here today.

Thank you.

Senator REED. Thank you, Senator Ayotte.

I have two concluding questions. We've talked about the Littoral Combat Ship (LCS), a program that gets a lot of attention. The Marine Corps has expressed some interest in developing and fielding some modules for the LCS that would support Marine Corps warfare missions. Can you discuss, General Mills, what these modules might be and how it would complement everything we've talked about this morning?

General MILLS. Certainly. We have a planning team right now, as a matter of fact, that's out visiting the ships and working with the Navy to take a look at ways in which the Marine Corps could complement the capability of the LCSs. I think one that leaps immediately to mind is there's an overriding requirement out in the combatant commands for amphibious ships. A lot of that requirement is relatively low-level engagement opportunities. I think that, given the fact that we can get some helicopters on board one of the LCSs, we could put a module on board in which marines could live and do some training and get ashore. I think that would be ideal for those kinds of low-level operations.

Second, I think when you look at operations in littorals, in the shallow waters and perhaps the bays and rivers, those ships give you some capability in those areas, small-scale Marine Corps units, that you want to send forward.

I think there's lots of opportunity there. We're going to take a hard look at it. We're going to work with the Navy fleet command to find opportunities to experiment with it. I think that we'll find some use.

Senator REED. Mr. Secretary, the program of record for LCS doesn't have an expeditionary module or a Marine Corps component. How are you beginning to plan for this, or is this in such an early stage that it hasn't reached your attention?

Mr. STACKLEY. No, sir, the program of record has the three mission modules: anti-submarine warfare, mine countermeasures, and anti-surface warfare. But we recognize that that's a starting point. What the LCS brings is flexibility. It's a modular concept, so it brings space, volume, displacement, and margin. It provides power and links. It provides aviation capability and also provides boat-handling capability.

We're looking at missions that that capacity that the LCS brings can neatly support. General Mills just talked about the Marine Corps. We are also in discussions with SOF. We look at some specialty niches associated with humanitarian assistance, as well as search and seizure.

Admiral Harvey has been pounding the table on this: hey, we need to look beyond the first three mission packages. We need to be looking at where else can we employ LCS and get started now on developing the concepts so we can have that capability in hand sooner.

Senator REED. Thank you.

General Mills and Secretary Stackley, you're probably aware that the Chinese have an amphibious vehicle. One version is a tank in which a 105-millimeter gun appears. The other is an infantry fighting vehicle with a 30-millimeter cannon. They're both high speed planing vehicles. They look a lot or something like the EFV might have looked like. They're also building their first set of large amphibious ships that compare to, roughly, the LPD–17 class.

Can you give us an assessment of your view or your take, or is this something that you're still considering?

General MILLS. I think it reflects the interest that China has in overseas areas in which they're very interested in looking for natural resources and things like that, and they begin to have the capability to project power. I think that any country, any world power, has to have that capability, the ability to project power, and I think that amphibious forces are the natural growth from making that assumption. So I think that it's their beginning steps on a way to being able to project power to areas that they're interested in.

Senator REED. Mr. Secretary?

Mr. STACKLEY. I would say that China's not alone. There are several nations around the world that are expanding their amphibious warfare capabilities. I think statistically there's a 200 percent increase when you look globally at investment in amphibious capabilities beyond the United States. More recently, it's been well-advertised that the Russian navy is acquiring a French-designed and built amphibious ship, the *Mistral*-class.

So, as General Mills described, it is a method of power projection, increasing attention in the littorals; I think that simply reflects that.

Senator REED. Thank you very much, gentlemen, not only for your testimony today, but for your service to the Navy and the Marine Corps and to the Nation. Obviously, as always, please commend those that you lead for their extraordinary efforts.

We'll keep the record open for a week, and there may be additional statements or questions submitted by colleagues. We would ask you to respond as quickly as you could to any written questions.

With no further business, this hearing is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR KAY R. HAGAN

MODERNIZED EXPANDED CAPACITY VEHICLE

1. Senator HAGAN. Lieutenant General Mills, until recently, there were plans to modify and upgrade High Mobility Multipurpose Wheeled Vehicle (HMMWV), through the Modernized Expanded Capacity Vehicle (MECV) program, to provide a light tactical vehicle that could be useful in an environment where improvised explosive devices (IED) are prevalent. Now, all efforts are focused towards the Joint Light Tactical Vehicle (JLTV). The decision to move away from the MECV program has impacted the defense industrial base. Industry moved to address HMMWV survivability and crew protection concerns and now they are told the program is terminated. Meanwhile, the JLTV is still in the research, development, test, and evaluation (RDT&E) phase. What is the Marine Corps' plan should the JLTV program's timeline slide?

General MILLS. The HMMWV Survivability Improvement Initiative (HSII) was developed in early 2011 as a complementary effort to JLTV, recapitalizing a portion of our light tactical vehicles and extending their service life. The Army and Marine Corps collaboratively developed JLTV and HMMWV recapitalization requirements and programs (called MECV in the Army) throughout this period. The Marine Corps evaluated, through experimentation, testing, and analysis, a recapitalization approach, HSII, but decided against it. Given the added weight necessary to improve protection, HMMWV-based platforms will not meet Marine Corps requirements in terms of reliability, payload, service life, mobility, ability to fit on Maritime Prepositioning Force (MPF) shipping. The Army does not intend to invest to meet these requirements. Therefore, the Marine Corps will reduce the scope of our 2011 HMMWV competitive survivability initiative and establish a HMMWV sustainment program. The purpose of that effort, through modification to existing platforms, is to extend HMMWV service life out to 2030. Marine Corps collaboration with the Army MECV program will continue to identify successful component designs that may be applied in our HMMWV sustainment program.

2. Senator HAGAN. Lieutenant General Mills, do you see any value in continuing to explore options with the MECV testing, for which approximately $20 million had been budgeted for fiscal year 2012?

General MILLS. No. HMMWV recap does not meet the Marine Corps requirements for light vehicles meeting the full desired mission profile, while remaining transportable and possessing the desired characteristics of our sustainment effort, returning reliability, payload, and mobility.

3. Senator HAGAN. Lieutenant General Mills, what factors were behind the decision to cancel the MECV program and focus on the JLTV?

General MILLS. Last year, we determined that with the added weight necessary to improve protection, HMMWV-based platforms will not meet Marine Corps requirements in terms of reliability, payload, service life, mobility, or ability to fit on amphibious and MPF shipping. Therefore, we reduced the scope of our HMMWV competitive survivability initiative to a HMMWV sustainment program. The purpose of that effort is to extend the service life of our roughly 14,500 light tactical vehicle fleet out to 2030, as a portion is replaced by the JLTV. The focus of the HMMWV sustainment effort will be toward safety and engineering enhancements, a return of mobility and payload, increased reliability, and reduced operating costs for those vehicles for the operating forces.

QUESTIONS SUBMITTED BY SENATOR ROGER F. WICKER

EXPEDITIONARY FIGHTING VEHICLE

4. Senator WICKER. Secretary Stackley, the Expeditionary Fighting Vehicle (EFV) program went through a Nunn-McCurdy breach and recertification in 2007 during which the Department of Defense (DOD) certified to Congress that requirements for an amphibious assault capability were still operationally necessary and that the most cost-effective means to achieve that capability was the EFV. Not much has changed in terms of the need for the Marine Corps to have the capability to carry out an amphibious assault. If anything, the area denial capabilities of our adversaries that would oppose Navy-Marine Corps amphibious operations have increased. What leads DOD and the Navy to believe that lesser requirements for a vehicle like the EFV are adequate to accomplish the amphibious assault mission?

Mr. STACKLEY. The Navy and Marine Corps have conducted/supported campaign analysis and a wargame examining scenarios requiring power projection from the sea using the EFV as well as the legacy Amphibious Assault Vehicle (AAV) and our current and projected suite of air assault connectors. The analysis used official threat assessments and modeled battlespace preparation in order to define threats to landings. Using fielded and planned capabilities to conduct pre-assault battlespace preparation, the Navy assessed that U.S. weapons and sensors will allow amphibious ships to operate at 12 nautical miles from the coast with acceptable risk against any residual threats. This analysis suggests a 25 nautical miles assault range of the EFV may not be required.

For the past 2 decades, both the threats in the littorals and U.S. area and self-defense capabilities against those threats have evolved, enabling discharge of amphibious vehicles at approximately 12 nautical miles from shore. While the tactical advantages of at-sea speed capability provided by the EFV are not dismissed, the principal driving factor leading to the EFV's water speed requirement was the assumption that marines would not be combat-ready after spending more than an hour in the vehicle at sea—a legacy of the current AAV. Initial developmental testing indicated that improvements in habitability (air conditioning and improved vehicle exhaust) permitted marines to ride in the vehicle longer without suffering ill effects associated with the legacy AAV. At-sea speed requirements were a significant system complexity and cost-driver that did not significantly contribute to the operational effectiveness of the vehicle.

5. Senator WICKER. Secretary Stackley, do the Navy and the Marine Corps stand behind the requirement to conduct amphibious operations against a defended shoreline, or can requirements and costs be reduced to support landings in only uncontested areas—in other words, is the amphibious assault mission still relevant for the future?

Mr. STACKLEY. There is absolutely an enduring requirement for the capability to conduct opposed amphibious operations; in simple terms, this gives the United States an assured access capability under any circumstances. America remains a maritime nation with global responsibilities. The majority of the world's population lives within 200 miles of the sea. The Marine Corps-Navy team provides the Nation's only assured access force that can come from the sea to project and sustain power ashore in this environment. Amphibious forces provide a maritime power such as the U.S. significant advantages including the ability to overcome the tyranny of distance and project power where we have no basing or infrastructure. The amphibious capability inherent in the Marine Corps also provides a powerful deterrent that is central to our National Security Strategy.

Forward deployed amphibious forces are capable of conducting security cooperation, building partnership capacity, responding to crises by providing humanitarian assistance and disaster response (HA/DR) or conducting non-combatant evacuation operations, serving as a deterrent to hostility, and conducting forcible entry as either a single force or facilitating the forward movement of a larger force. In all cases, the global presence and rapid response of amphibious forces provide critical options to the Joint Force Commanders, Geographic Combatant Commanders, and the National Command Authority.

Conversely, the risks associated with a lost or diminished amphibious capability present serious threats to our national security from lost influence with our global partners, an inability to develop new partnerships, an inability to counter growing threats from terrorism, an inability to protect our interests in the global commons from piracy threats, and unchecked competition from peer nations. It is imperative that the Navy-Marine Corps team maintains its amphibious capabilities forward de-

ployed and globally postured so that it remains the "most ready" when the Nation is "least ready."

6. Senator WICKER. Secretary Stackley, fundamentally, what has changed since the Nunn-McCurdy certification in 2007 that favored continuing the EFV as the most cost-effective way to meet the amphibious assault requirement?

Mr. STACKLEY. The decision to cancel EFV procurement was not made lightly, as we recognized the importance of the Marine Corps' ability to respond to crisis around the globe as vital to our Nation's security. Two factors were at the core of the decision to cancel the EFV: affordability, both in procurement and sustainment; and the impact of that cost on our ability to reset or modernize other warfighting capabilities after 10 years of combat. Projected costs of EFV grew substantially over the course of the program, and it simply became unaffordable to procure and sustain over time, especially in light of this Nation's emerging fiscal environment and other critical capability needs of the Marine Corps.

7. Senator WICKER. Secretary Stackley and Lieutenant General Mills, when the Marine Corps provided information to Congress in January supporting the decision to end the EFV program, the case for termination was made by citing the affordability of the EFV, not whether the EFV would be reliable and capable of meeting mission requirements. The Marine Corps said that continuing with the EFV would: consume about half the Marine Corps total procurement budget for 2018 to 2025; consume all of the budget that was projected to be available for procurement of ground combat vehicles over that period; and consume about 90 percent of the operation and maintenance (O&M) budget for Marine Corps ground vehicles when the EFV was fully fielded. These cost projections were made against historical cost averages. The affordability concerns raised by the Marine Corps are significant, but should we allow comparisons to historical costs to drive an assessment of what is required to do the mission?

Mr. STACKLEY and General MILLS. One element used to evaluate the affordability of the EFV and all other ground vehicle modernization and sustainment efforts was the 30-year average of vehicle procurement as it related to the Marine Corps warfighting investment account. The last 30 years contained periods of significant investment in ground equipment modernization (LAV, M1A1, MTVR, LVSR, HMMWV, and HIMARS). During that period, vehicle investment averaged 33 percent of total procurement except during modernization peaks, when it approached or slightly exceeded 50 percent of total procurement. A principal consideration of EFV affordability was the measure of cost versus capability delivered. The EFV represented a major expense in combat vehicle modernization, with a great deal of the cost being driven by a high water speed requirement where water mobility constituted only 20 percent of the vehicle's operational mission profile. During the EFV's development, landward threats grew exponentially as evidenced by enemy employment of IEDs in Iraq and Afghanistan but the constraints imposed by the EFV's water mobility requirements did not allow for growth to accommodate armor and other protective systems to make the vehicle more operationally effective in its landward mission. We believe future vehicle modernization should focus investments in more operationally relevant capabilities, procured faster, and—where operational or threat complexity exceed a single vehicle type's capacity—a portfolio approach to modernization mitigates the weakness imposed by overinvesting in specialized mission vehicles.

8. Senator WICKER. Secretary Stackley and Lieutenant General Mills, since almost all new procurement programs are more technically sophisticated than the equipment they replace, is the historical cost of legacy programs relevant to the requirements needed to execute the mission today?

Mr. STACKLEY and General MILLS. To the extent that historical data provides a benchmark from which to begin planning, historical data regarding the cost data of legacy programs is relevant to the requirements needed to execute the mission today.

As to the EFV, the Marine Corps assessed the affordability of EFV along with other key elements of our ground combat and tactical vehicles against several affordability metrics, one of which was based on historical vehicle investments projected into the future. EFV was unaffordable by every metric; however, it is just as important to note that even without EFV, the potential required investment in vehicle modernization and sustainment is also potentially unaffordable when measured against the same metrics. This means that our fiscal trade-space within the vehicle

portfolio is very limited, even for a capability as important as that provided by an amphibious combat vehicle (ACV).

9. Senator WICKER. Secretary Stackley and Lieutenant General Mills, the Average Procurement Unit Cost—the cost of the vehicle not including research and development (R&D) and program-unique military construction costs—of the EFV was estimated to be $16.8 million in fiscal year 2007 dollars while some projections have the cost reaching more than $23 million per vehicle. The cost of the legacy AAV is about $4 million per vehicle. What sort of methodology or analysis of the operational requirements went into making the decision to end the EFV other than concern about its cost?

Mr. STACKLEY. The Navy and Marine Corps conducted campaign analysis and wargames examining scenarios requiring power projection from the sea using the EFV as well as the legacy AAV and our current and projected suite of air assault connectors. The analysis used official threat assessments and modeled battlespace preparation in order to define threats to landings. Using fielded and planned capabilities to conduct pre-assault battlespace preparation, the Navy assessed that U.S. weapons and sensors will allow amphibious ships to operate at 12 nautical miles from the coast with acceptable risk against any residual threats. The closure timeframe for ship to shore movement no longer requires a high speed vessel to ensure combat build-up ashore.

General MILLS. The decision to cancel EFV procurement was not made lightly, as we recognized the importance of the Marine Corps' ability to respond to crisis around the globe as vital to the Nation's security. Three factors were at the core of the decision to cancel the EFV: affordability, both in procurement and sustainment; the impact of that cost on our ability to reset or modernize other warfighting capabilities after 10 years of combat; and cost of the EFV in relation to its overall operational suitability across the range of military operations. Projected costs of EFV grew substantially over the course of the program, and it simply became unaffordable to procure and sustain over time, especially in light of the Nation's emerging fiscal environment and other critical capability needs of the Marine Corps.

The following is a summary of the key operation and sustainment (O&S) ground rules and assumptions in the EFV O&S estimate:

- Total Life Cycle Systems Management Program (Program Manager has cradle-to-grave responsibility for O&S)
- Contractor Logistics Support (Procurement, Marine Corps (PMC) and Operation and Maintenance, Marine Corps (OMMC))
    - PMC will cover these costs until a determined Depot Support Date at which time these costs will be split 50/50 for 1 year; OMMC funding will be used thereafter
- Three Levels of Maintenance (organizational, intermediate, depot)
- Peacetime Operation—437 hrs/yr
    - Engine: 150 hrs/vehicle/yr
    - APU: 287 hrs/vehicle/yr
- Mature System Reliability—21.9 hrs mean time between failure
- Tech Insertion Costs (PMC) are excluded
- Any applicable O&S-related surcharges are not included at this time

Procurement of the EFV was simply no longer affordable; and the projected operation and support costs became too onerous.

10. Senator WICKER. Lieutenant General Mills, the concept of ship-to-shore maneuver supporting the EFV considered anti-ship threats from land-based mobile cruise missiles, air-to-surface weapons, and mines sufficiently serious that amphibious assaults were planned to be launched from over-the-horizon to minimize the chances of loss or damage to Navy ships. In the years since the EFV program was started in 1996, anti-ship ballistic missile capabilities have been added as a potential threat to large Navy ships, including the large-deck amphibious ships, and the sophistication of the other threats has increased. What has changed about the Navy-Marine Corps concept of ship-to-shore maneuver that makes the Navy more willing to bring marines closer to shore to launch the assault phase?

General MILLS. 25 nautical miles was based on keeping the amphibious force beyond the enemy's radar horizon, thereby making it more difficult for the enemy to monitor amphibious force activity and target amphibious warships. The proliferation of anti-ship cruise missiles already allowed most of our adversaries to engage well beyond 25 nautical miles, but the distance made their targeting solution more com-

plicated. The triad of EFV, Landing Craft Air Cushion (LCAC), and MV–22 allowed amphibious warships to project forces ashore and remain beyond the 25 nautical miles.

However, the capabilities of our Aegis capable combatants have always allowed our Navy systems to engage incoming anti-ship cruise missile/airborne threats at distances less than 25 nautical miles, and our analysis continually indicates that these tactics are successful with very few leakers. Ships could go into as close as 10 nautical miles and still be protected from these leakers with organic maritime defense systems. 12 nautical miles was selected as the distance for our revised concept for amphibious operations because it also keeps ships out of range of coastal gun systems.

With the cancellation of EFV, ships of the amphibious force will now have to come in closer than 25 nautical miles to deploy the ACV.

The LCAC and MV–22 still allow most of the amphibious warships to stay outside 25 nautical miles. Only those ships deploying the ACVs need to come into 12 nautical miles and then they only need to remain as long as needed to launch the initial ACV assault force. Once complete, these ships could go back outside 25 nautical miles, and the LCAC with the MV–22 (in concert with other surface and vertical connectors) remain sufficient to sustain the force.

11. Senator WICKER. Lieutenant General Mills, if a 25-knot water speed is no longer required to launch from about 25 miles from the shore, what range of speed and distance from shore are being considered for the EFV's replacement?

General MILLS. The launch distance is not a static position; it's going to be dependent on a number of factors: our tactics, techniques, and procedures of using the sea as maneuver space. Also, there have been significant improvements in the Navy's ability to deal with the threat.

For the past 2 decades, both the threats in the littorals and U.S. area and self-defense capabilities against those threats have evolved, enabling discharge of ACVs at distances beyond the visual horizon (approximately 12 nautical miles from shore). While the tactical advantages of at-sea speed capability provided by the EFV are not dismissed, the principal driving factor leading to the EFV's water speed requirement was the assumption that marines would not be combat-ready after spending more than an hour in the vehicle at sea—a legacy of the current AAV. Initial developmental testing indicated that improvements in habitability (air conditioning and improved vehicle exhaust) more than high speed or longer duration permitted marines to ride in the vehicle longer without suffering ill effects associated with the legacy AAV. At-sea speed requirements were a significant system complexity and cost-driver that did not significantly contribute to the operational effectiveness of the vehicle.

12. Senator WICKER. Lieutenant General Mills, what drives the speed and distance requirement in terms of how long marines can stay in an amphibious vehicle and be effective when they reach shore?

General MILLS. For the past 2 decades, both the threats in the littorals and U.S. area and self-defense capabilities against those threats have evolved, enabling discharge of amphibious vehicles at approximately 12 nautical miles from shore. While the tactical advantages of at-sea speed capability provided by the EFV are not dismissed, the principal driving factor leading to the EFV's water speed requirement was the assumption that marines would not be combat-ready after spending more than an hour in the vehicle at sea—a legacy of the current AAV. Initial developmental testing indicated that improvements in habitability (air handling and improved vehicle exhaust) more than high speed or longer duration permitted marines to ride in the vehicle longer without suffering ill effects associated with the legacy AAV. At-sea speed requirements were a significant system complexity and cost-driver that did not significantly contribute to the operational effectiveness of the vehicle.

13. Senator WICKER. Lieutenant General Mills, can this be improved?

General MILLS. Yes. Improved habitability is a key system attribute defining the ACV. There are various mature, low-risk technologies that can be incorporated that will improve both sea and landward ride quality.

14. Senator WICKER. Lieutenant General Mills, the Marine Corps proposes responding to the EFV termination through a three-phased acquisition policy: upgrade a portion of the legacy AAV inventory through a Service Life Extension Program (SLEP) that will extend their life and add capability; accelerate the Marine Personnel Carrier (MPC) program designed to complement the EFV, AAV, or the re-

placement for the EFV known as ACV; and develop the new ACV building on the lessons learned from the EFV. The wind-up of the EFV is focused on harvesting relevant technology from the EFV program to transfer to the new ACV. The MPC would not be designed to swim ashore, but would be a fighting vehicle on land. Design requirements are being developed. How many of the legacy AAVs now in service will undergo a SLEP?

General MILLS. The SLEP is now referred to as a survivability upgrade which is intended to address the greatest limitation of the current AAV—survivability and force protection against underbelly mines and IEDs. The upgrade will improve overall vehicle survivability for ~392 AAVP7A1s by adding underbelly blast protection, interior spall mitigation, and blast attenuating seating. Anticipating resulting weight growth, the program will also restore vehicle land and water mobility to previously achieved performance levels with power train, track, and suspension upgrades. These vehicles will be phased out of the inventory as the ACV reaches full operational capability.

15. Senator WICKER. Lieutenant General Mills, what capabilities will be added to the AAV?

General MILLS. The survivability upgrade is intended to address the greatest limitation of the current AAV—survivability and force protection against underbelly mines and IEDs. The upgrade will improve overall vehicle survivability for ~392 AAVP7A1s by adding underbelly blast protection, interior spall mitigation, and blast attenuating seating. Anticipating resulting weight growth, the program will also restore vehicle land and water mobility to previously achieved performance levels with power train, track, and suspension upgrades. These vehicles will be phased out of the inventory as the ACV reaches full operational capability.

16. Senator WICKER. Lieutenant General Mills, how old are the AAVs and how much additional life will the SLEP provide?

General MILLS. Today's AAV are built upon the LVT–7 family of vehicles which began fielding in 1971. Over the past 40 years these systems have been service life extended, product improved, rebuilt to standard, upgraded, and continuously maintained at all echelons. Our current survivability upgrade is intended to address the greatest limitation of the current AAV—survivability and force protection against underbelly mines and IEDs. The upgrade will improve overall vehicle survivability for ~392 AAVP7A1s by adding underbelly blast protection, interior spall mitigation, and blast attenuating seating. Anticipating resulting weight growth, the program will also restore vehicle land and water mobility to previously achieved performance levels with power train, track, and suspension upgrades. These vehicles will be phased out of the inventory as the ACV reaches full operational capability by 2030.

17. Senator WICKER. Lieutenant General Mills, how much funding does the Marine Corps estimate will be required—or how much is available—for a SLEP?

General MILLS. The 2013 President's budget supports the initiation of the AAV survivability upgrade program. The total cost estimate is based on an Average Production Unit Cost of $1.65 million for 392 vehicles.

18. Senator WICKER. Lieutenant General Mills, given budget constraints, how confident is the Marine Corps that improvement of the amphibious assault capability may not be limited to a SLEP of the AAV?

General MILLS. Under any future budgetary constraint, the survivability upgrade of the AAV is essential to maintaining an operationally relevant ACV capability until a modern ACV is developed and fielded. We have planned a prioritized, sequenced, and balanced combat vehicle modernization program that is achievable, with moderate risk to other ground combat modernization and within the President's budget fiscal year 2013 levels of investment extended through fiscal year 2030. ACV modernization is our top ground combat investment priority but future budgetary pressures could severely limit our ability to achieve this capability.

19. Senator WICKER. Lieutenant General Mills, in terms of the MPC, how expensive is this vehicle estimated to be in comparison to the EFV or its proposed replacement, the ACV?

General MILLS. In order to better distribute combat power for sustained operations ashore, two MPCs are required to lift the same reinforced rifle squad that is concentrated in a single ACV. Based on responses we have received from industry and our own estimates, the cost to procure an equivalent number of MPC is approximately a quarter of the cost of EFV. Based on a range of cost estimates and afford-

ability predictions, dependent on capability, quantity, and production schedules, MPCs are estimated to cost half or less than that to procure ACV. In terms of total life cycle costs, equivalent numbers of MPC will cost about one-third of EFV and one-half of ACV.

20. Senator WICKER. Lieutenant General Mills, how much money will actually be saved by cancellation of the EFV if the Marine Corps must extend the life of the AAV and design and build two new vehicles, the ACV and the MPC?

General MILLS. The decision to procure MPC and to upgrade AAV was independent of the decision to cancel EFV. The AAV upgrade was necessary to bridge to EFV and will be necessary to bridge to ACV; and MPC was a complementary capability to EFV to address overall tactical lift capacity. Both initiatives pre-dated the cancellation of the EFV program. The principal cost avoidance will be attained by developing an ACV that costs substantially less to procure than the EFV would have. We have done extensive systems engineering cost-to-capability analysis in support of the ACV program in order to prioritize capabilities, ensure a lower risk engineering, manufacturing, and development program, and to control cost from the outset of requirements development.

21. Senator WICKER. Lieutenant General Mills, what is the timeline for designing and building the MPC?

General MILLS. We are working to fully develop an integrated acquisition plan in support of ACV, MPC, and AAV survivability upgrade. Over the last several years, we have conducted extensive market research and technology development in support of the MPC program which we believe will lead to the potential for a lower risk, more rapid acquisition. Still, our acquisition plans are sequenced and are shaped by cost and affordability projections over time and by the necessity to consider other required modernization and sustainment efforts across our warfighting portfolio. Based on these estimates, we will have an initial operational capability in fiscal year 2022.

22. Senator WICKER. Lieutenant General Mills, won't an improved AAV that will be in service for a long time together with the new ACV leave the Marine Corps with two different sets of amphibious vehicles and the associated higher costs of a mixed inventory?

General MILLS. Improvements to the AAV are intended to enable the Marine Corps to sustain its amphibious capability until the ACV is fielded. As with other equipment replacement programs, the transition period between the initial fielding of a new capability and attainment of full operational capability will result in a mixed fleet of vehicles. During this transition period, the AAV inventory will be disposed as the ACV inventory increases.

23. Senator WICKER. Lieutenant General Mills, how will the MPC get ashore if it doesn't swim as the EFV and the ACV would?

General MILLS. Introduction of the MPC into theater is planned as part of a Maritime Prepositioning Force deployment. MPC is a reinforcing capability relative to the self-deploying ACV. MPC will transit to the beach or port via connectors such as the LCAC, conventional landing craft, or via pier-side offload. The ACV will be optimized to support ship-to-objective water and land mobility as the main effort of an amphibious assault, while the MPC is optimized to provide a combat vehicle capable of protected land mobility in support of sustained operations ashore.

24. Senator WICKER. Lieutenant General Mills, does this mean that the Marine Corps will be operating two different combat vehicles during the land phase of an amphibious assault, the ACV and the MPC?

General MILLS. The Marine Corps operates multiple combat and tactical vehicles including AAVs, Light Armored Reconnaissance Vehicles, tanks, and several tactical vehicles. The role of providing tactical mobility in armored personnel carriers would have been fulfilled by a combination of the EFV and the MPC. The ACV will fulfill the role intended for the EFV and it will be complemented by the MPC to achieve our required mobility capacity across the range of military operations.

25. Senator WICKER. Lieutenant General Mills, won't protection from IEDs and other threats necessarily be different in the two vehicles?

General MILLS. Yes. Each system will need to be designed to counter and mitigate the effects of the IED threat. The ACV design will be driven, in part, by its stren-

uous amphibious requirements which will likely mean a different survivability and force protection approach than for the MPC which will be designed for superior land mobility. However, common materials and approaches will be evaluated in order to reduce life cycle costs. ACV protection methodologies, performance, and payload protection trade-space assessments and capability level estimates will be a critical part of early technology demonstration and development efforts just as they were for the MPC.

[Whereupon, at 11:48 a.m., the subcommittee adjourned.]