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**SHIP AND SUBMARINE MAINTENANCE:  
COST AND SCHEDULE CHALLENGES**

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HEARING

BEFORE THE

SUBCOMMITTEE ON READINESS

OF THE

COMMITTEE ON ARMED SERVICES  
HOUSE OF REPRESENTATIVES

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FIRST SESSION

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## **SHIP AND SUBMARINE MAINTENANCE: COST AND SCHEDULE CHALLENGES**

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HOUSE OF REPRESENTATIVES,  
COMMITTEE ON ARMED SERVICES,  
SUBCOMMITTEE ON READINESS,  
*Washington, DC, Tuesday, October 22, 2019.*

The subcommittee met, pursuant to call, at 2:00 p.m., in room 2118, Rayburn House Office Building, Hon. John Garamendi (chairman of the subcommittee) presiding.

### **OPENING STATEMENT OF HON. JOHN GARAMENDI, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, SUBCOMMITTEE ON READINESS**

Mr. GARAMENDI. The committee will come to order. We note that we have guests from other parts of the Armed Services Committee. They will be coming in. And as they come in, without objection, they will join us and ask questions at the—I know. Everybody here is.

But there are others that will be coming in a little later. And when they come in—

Mr. LAMBORN. It depends on who they are.

Mr. GARAMENDI. Are you objecting, Doug? Are we going to have one of those days? Good.

Good afternoon. I would like to welcome everyone here including anybody that shows up from the other committees that would like to join us.

This subcommittee has conducted multiple inquiries into the damaging consequences of failing to sufficiently maintain our ships, our aircraft, and ground vehicles. A series of alarming mishaps in recent years and subsequent committee investigations into the surface Navy readiness revealed how degraded material conditions of ships and poor maintenance practices adversely impacted readiness and put our sailors at risk. Ship and submarine maintenance is particularly high stakes as the Navy's fleet is the foundation of global power projection. Rigorous and timely maintenance means we can have more ships at sea and it is necessary to preserve our ships' availability for their expected service life.

Unlike other platforms, major ship maintenance work is complex, enormously expensive, and relatively infrequent, so it is critical that we get this right. Yet we have seen troubling delays in recent years. Perhaps most infamously, the USS *Boise*, an attack submarine, has been idling pierside in Norfolk for over 5 years and it lost its dive certification and it still awaits maintenance. I might even ask you when it is going to find its turn in line.

Even our aircraft carriers have not been spared. The USS *Dwight D. Eisenhower* recent maintenance period tripled its intended length, and the USS *George H.W. Bush* is starting an anticipated 28-month maintenance availability that should take just 10 [months]. Indeed, since 2012, the Navy has completed only 30 percent of its ship and submarine maintenance availability on time, leading to 27,000 lost operational and training days. If the Navy has difficulty maintaining its current fleet, this raises serious questions about its ability to support a 355-ship fleet in the future. So maybe we ought not build any more until you guys get it right. Where is Joe? Oh, he is not here yet. Well, I will repeat that when he shows up.

If we look forward to hearing about the Navy's efforts to address this problem—we do look forward to that and I understand there are several initiatives underway to improve the Navy's maintenance operations: a ship hiring and modernization plan, implementation of new contracting strategies, and analytical efforts to better forecast maintenance needs among other projects underway.

But the solution should also involve grappling with the broader systemic cause. For years, the Navy has operated at an untenable pace, sustaining global presence it maintained 25 years ago with a much smaller fleet. Leadership has prioritized building new ships over directing resources and management attention to maintaining the current fleet, and the Navy has struggled to honestly assess the amount of maintenance its ships need and how much that maintenance will cost. A holistic strategy must be put in place to confront these issues.

We should applaud the Navy, and I will do so, for its efforts to create a culture of excellence and accountability in the surface community after the devastating collisions in the Pacific in 2017. A similar mindset is essential to ensure the Navy elevates ship maintenance. A similar mindset is necessary to elevate ship maintenance. I will repeat it for a third time. A similar mindset is necessary to elevate ship maintenance to be on par with shipbuilding. The success of our Navy depends upon it.

With that I would like to turn to our ranking member, good friend, who never has seen an ocean from his front window, Doug Lamborn of Colorado.

[The prepared statement of Mr. Garamendi can be found in the Appendix on page 37.]

**STATEMENT OF HON. DOUG LAMBORN, A REPRESENTATIVE FROM COLORADO, RANKING MEMBER, SUBCOMMITTEE ON READINESS**

Mr. LAMBORN. Thank you, Chairman Garamendi. We had the opportunity to meet last week with Secretary Geurts and Admiral Moore to discuss the important issue that is in our hearing today, and I look forward to a productive hearing today as well.

What strikes me most about the challenges with ship and submarine maintenance is that it took several years to get us to this point, but it will likely take decades to get us to where we need to go. From my perspective, the scheduling aspect of ship and submarine maintenance is the key driver to whether the Navy succeeds or fails. Failure to strike the balance between today's oper-

ational requirements and sustainment will diminish strategic depth within the fleet, undermine investment in private shipyards, and cause industry to suboptimize its workforce of skilled artisans available to do this work.

Candidly, I see it as a national issue when the Navy cancels an availability, and it should only be done in the direst of circumstances. The Navy is not on this journey alone. It already utilizes 21 certified private dry docks for maintenance availabilities. Our private partners want more Navy contracts, but past contracting and scheduling practices prevented them from seeing a steady stream of work. This caused them not to make the necessary capital investments to modernize their facilities and resulted in them suboptimizing their workforces.

I look forward to hearing from our witnesses about how the Navy plans to structure maintenance contracts going forward and that we provide the requisite level of certainty to our industry partners. Our witnesses updated the chairman and me last week regarding their efforts to expand the number of private shipyards through their efforts to reduce the administrative burden for certifying a yard for Navy work. This is a positive step that I believe will foster additional competition. It will expand capacity and it has the potential to benefit both the government and the private sector.

The state of the Navy's four public shipyards in Portsmouth, Norfolk, Puget Sound, and Pearl Harbor is so serious that Congress directed the Navy to develop a Shipyard Infrastructure Optimization Plan in 2018. These shipyards do most of the Navy's nuclear maintenance. GAO [Government Accountability Office] has categorized most of them as being in poor condition. The 20-year, \$21 billion investment plan would overhaul the antiquated facilities, recapitalize equipment, and optimize the workflow to reduce wasted time and effort.

While I am satisfied with the personnel investments being made in our public sector, this investment plan will fail if it is not supported by an adequate facility recapitalization plan. Candidly, gentlemen, my view is that the fiscal year 2020 budget request did not demonstrate a serious enough commitment to this plan. We expect to begin seeing a significant commitment to the investment plan in the budget request each year and we want to see it funded across the FYDP [Future Years Defense Program]. One to two billion dollars per year is probably about right.

From my perspective, we also need to send enough of the submarine availability work to private shipyards so that they can build the capacity to do that work efficiently. This would seem to be the way to avoid future issues like those we experienced and was mentioned earlier with the USS *Boise* which lost its dive certification in 2016 and has yet to begin depot-level maintenance. The Navy is now sending some of its attack submarine works to General Dynamics Electric Boat and to Huntington Ingalls Industries. I am encouraged by this development, particularly given that we will likely need some industry capacity while we recapitalize the public yards.

As with everything associated with this problem set though, the key is predictability. Finally, we must do a better job of forecasting the work that will be performed for each maintenance availability.

My understanding is that approximately 40 percent of the work to be performed during each availability is unknown. The Navy and their industry partners will never meet schedule and cost objectives with that level of fidelity, particularly with the additional supply chain challenges that this creates.

I look forward to hearing from our witnesses regarding their efforts to better leverage data and testing to reduce uncertainty before the availabilities even begin. Our two witnesses are fully engaged to address the myriad of problems facing this system of systems, as Secretary Geurts likes to call it. I appreciate the continued service and experience that you both bring to the nation and thank you for being here today.

Mr. Chairman, I yield back.

[The prepared statement of Mr. Lamborn can be found in the Appendix on page 39.]

Mr. GARAMENDI. Thank you, Mr. Lamborn. We will now turn to our witnesses. Mr. Geurts, Vice Admiral Moore, have you decided which will go first?

Secretary GEURTS. Sir, if it is all right with you, I will have an opening statement for the both of us.

Mr. GARAMENDI. Very good.

Secretary GEURTS. And then submit a written testimony for the record.

Mr. GARAMENDI. Please continue.

**STATEMENT OF HON. JAMES F. GEURTS, ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT AND ACQUISITION, DEPARTMENT OF THE NAVY, AND VADM THOMAS J. MOORE, COMMANDER, NAVAL SEA SYSTEMS COMMAND**

Secretary GEURTS. Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the subcommittee, thanks for the opportunity to appear before you today so we can discuss the Department of the Navy's ship and submarine maintenance. I am joined today with Vice Admiral Tom Moore, commander of the Naval Sea Systems Command.

The Navy faces a high-tempo operation, significant budget pressures, and a fragile industrial base. All those together have resulted in a maintenance backlog and reduced maintenance, or reduced readiness for our Navy ships. Through our focused efforts over the last 2 years and with the great support of Congress, we have begun to reverse those negative trends. While recent on-time performance trends in both the public and private yards are improving, we have a lot of work to go to meet the ultimate goal of delivering every ship and submarine for maintenance on time and in full. The Navy fully understands the on-time delivery of ships and submarines out of maintenance is a national security imperative. The Navy has undertaken a comprehensive approach to address these challenges at both the public and private yards and we are starting to see the tangible benefits from these initiatives. We look forward to discussing those with the subcommittee today.

Last year, Congress changed title 10 to place sustainment as a core responsibility under my office. It has enabled the Navy to better focus on this issue with clearer lines of accountability. Now I



have since established a Deputy Assistant Secretary of the Navy for Sustainment to improve our ability to plan, budget, and execute the Navy's sustainment mission. I am proud to announce today that I have selected our first Deputy ASN for Sustainment, Mr. Sean Burke, who will be starting next week and will have this as his primary responsibility.

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

[The joint prepared statement of Secretary Geurts and Admiral Moore can be found in the Appendix on page 41.]

Mr. GARAMENDI. Well, we do have a lot of questions and hopefully we see some answers out ahead of us that will solve them.

Could you describe, as you did last week in a preliminary briefing, how you intend to go about the scheduling issues?

Admiral, you, or Mr. Geurts, whichever you would like to do.

Secretary GEURTS. Sir, maybe I will kick it off and then Admiral Moore can join in. I think, you know, a key to this whole maintenance activity is getting the planning right. If we don't get the planning right, then it is really hard to make that up in execution, particularly when we have got to plan a budget cycle or two in advance.

And so, I think we have a couple of initiatives that are really starting to improve that planning and that will carry all the way through contract execution and then execution of the maintenance period. And the first is working really closely with the fleet, and I will ask Admiral Moore to kind of discuss how he has worked with the fleet commanders so that we get the input into the system regulated and balanced. And so we input ships into the maintenance cycle in a way we can best absorb them and that is both a macro issue in terms of in the private yards, ports and port loading, as well as micro issue for each individual availability.

The other key is Admiral Moore's team has really worked hard on the modeling so that we estimate the actual availability more accurately. We have a new model there at the last, I think, five availabilities; we have used that model and I have delivered on time. And those two things help us, I would say, at that macro level at planning. And then working closely when we get into execution with either the contracts or in the public yards maintaining our baseline, not adding work in late in the system, having the discipline similar that we do in new construction so that we work the work planned.

There will always be some variability because, you know, as you open up a ship you learn things. But we are seeing already kind of that positive trend, being kind of a leading indicator is better planning, better planning means better budgeting, and then better budgeting leads to better execution.

But, Tom, if you want to add in.

Admiral MOORE. Yeah, if I could add on top of that just to the ranking member's comment about the importance of predictability and stability in the work. Our past practice has been to—the fleet would give us a demand signal when they needed the ship back, and then we would build schedules, in many cases unrealistic

schedules, to get the ship back, more work than we could handle based on the capacity, and we would deliver late.

For the first time, both Admiral Grady and Admiral Aquilino have come to us and said, okay, as an input, please come to us with a realistic length for the availability based on the capacity you have in the yard, the work that you have to do on the ship, the modernization, the concurrency, how many other avails, and tell us how long you think you would like to have. Then we will take that, and we will input that into our fleet schedules, and we will come back and tell you whether that schedule will support what we need from a deployment standpoint.

And so that back and forth between the fleets and NAVSEA [Naval Sea Systems Command] has been critical to doing two things. One, it allows us to get lengths which are executable lengths. And the other thing is, importantly, it has allowed us to do is to actually move these availabilities and create stable, predictable work in both the naval shipyards and probably even more importantly in the private sector for the private sector shipyards. That stable work is exactly what they need to hire and exactly what they need to make the investments.

And so, as the Secretary alluded to, under the new system, the last five private sector surface ship availabilities, where we were able to work with the fleet to get the length right and put the place at the right time, they have all delivered on time. So I think that has probably been the key step is this working with the fleet in an integrative fashion to build a maintenance schedule that supports operations, but also supports the maintenance, the capacity that we have in the ports.

Mr. GARAMENDI. I want to get into this in great detail. It seems to me that this is one of the foundational problems. You have 290 ships. Do you know when those ships need to be maintained?

Admiral MOORE. We do. Each one of them has a class maintenance plan and so we have a very good idea when they need to be maintained. There is a class maintenance plan. They all have, you know, I would say they have some—because of redundancy there is an ability to surge them if we need them operationally and then put them back in later. But, in general, we know exactly when we would like to have them go into maintenance availabilities in accordance with the class maintenance plan.

Mr. GARAMENDI. You just used the word that I think is the problem, “like to have.” The ship maintenance is secondary to the demand for the ship by the COCOM [combatant command] commander; is that correct?

Admiral MOORE. Well, in most cases if the ship can operate, you know, we will send it forward. There are red lines that we operate to. The fleet commanders are working very closely with us to try and make sure that we don’t pass those red lines.

Mr. GARAMENDI. Well, again you just answered the question and the problem. There is, you know at the outset when a ship needs to be maintained, there is a schedule. It can vary somewhat, but that maintenance requirement to get it back into the shipyard is subject to the demand of the COCOM commander and in recent years they have had sway. They have said it, and therefore your scheduling in the yards is dependent upon their sense of need.

You have indicated that you have been able to find some accommodation on this conflict with, I think that is the Pacific Fleet, and that is great as long as you have communication and I guess some sort of camaraderie, but that can end over a bad cup of coffee and—which I hope I didn't give you. It seems to me this is the heart of the problem.

Secretary GEURTS. Yes, sir. Maybe from a macro perspective, so we are doing a couple things. One, last year for the first time, we published a 30-year maintenance plan to go along with the ship-building plan. Now that was a first-generation product, we need to mature that over time. But that started laying out your earlier point in your opening comment that we were—we have got demand now we are having a hard time satisfying. That demand will grow.

Mr. GARAMENDI. Now that Mr. Courtney is here, I will repeat my comment that you cannot take care of a 290 fleet, and therefore we ought to stop building new ships until you can take care of what you have.

Sorry, Joe, but do we have a conflict?

Please continue.

Secretary GEURTS. Yes, sir. The other thing that we are measuring now, so we have this kind of a performance plan where the Navy is getting together to really look at the balance between operations and maintenance. And as Admiral Moore says, you know, if there is an operational need, we will understand that. Give the options.

What that looking at the whole system allows though is it gives us measures of performance like how many ships are behind on their annual maintenance plan. Where have we deferred work, where do we have—where are we putting ourselves in the hole, and then understanding that and then creating a plan to bring back that deferred work. Over the last 2 years we have been working very hard, particularly in the destroyer fleet, to bring all those destroyers back up to their maintenance standard, to get rid of—through sequestration and a lot of other things, we built a hole of deferred work.

And so, it is not only getting the system working, whether it is getting that deferred work so everybody is back on their class maintenance schedule, that is an important measure that gives us looking at the entire system an indication that we haven't made, you know, a number of small tactical decisions on a ship-by-ship basis which has created a strategic shortfall.

Mr. GARAMENDI. I am going to stay with this. Not this series of questions, but over the rest of this hearing and in future hearings, because I perceive this scheduling issue to be fundamental. And it is basically a power issue. Who has the power to determine where that ship is, and until that is rationalized in a way that deals with this maintenance backlog and therefore the unavailability of critical ships because they simply are not able to be at sea, we are not going to get very far.

So I am going to drive this issue insofar as I have power here to try to bring about some rationalization between the demand of the COCOM commanders and the need for the ships to be maintained, and so we are going to have to deal with that over time.

I am going to put one more issue on the table, but I am not going to deal with it, I am going to pass over to Mr. Lamborn in a second, and that is the yards themselves.

Mr. Lamborn, you raised this issue rather well in your opening remarks. It is the second foundational issue, so your turn.

Mr. LAMBORN. All right. Yeah, thank you. And maybe we should have a second round of questions, too, if you weren't already planning on that.

In reading your joint statement, I am not yet convinced that it fully reflects your actions. In the case of the SIOP, the Shipyard Investment Optimization Plan, the first 2 years of investment have underfunded the overall requirement. Now while I appreciate that large investments take time to plan, the slow start needs to be reversed. For example, GAO detailed that today the Norfolk Naval Shipyard's equipment was retained in operation more than twice the expected service life of that equipment. Additionally, the facility condition there and at Pearl Harbor Naval Shipyard and Portsmouth Naval Shipyard are all considered in a poor condition.

When will the Navy's investment strategy match the required recapitalization requirement?

Admiral MOORE. Yes, sir. Well, thanks for the question. So, two things. One, we are ramping up significantly. I will tell you I have been in the Navy now going on 38-plus years, been doing the maintenance business for the last 25. We have gotten twice in funding what we have had in my history in both MILCON [Military Construction] and FSRM [Facilities Sustainment, Restoration and Modernization], MILCON in the naval shipyards than we had in the previous years. So, we have probably gotten about 90 percent of what we asked for being a forward program manager and that is not a bad life to lead.

Your opening statement said the investment should be in the one to two billion-dollar range. You are spot on, but we have to do some planning up front. So what you are seeing now is a ramp-up. We got a little over \$500 million in fiscal year 2019. I think the PB20 [President's budget] request is in that order. I think you will see as we head towards fiscal year 2021 it is going to continue that ramp-up. And the major projects that we are going to be doing, dry docks, moving things around the shipyards, will start in the 2022, 2023 timeframe and we are making those investments today to get the planning done and buy the materials so that we are ready to go to execute.

So, you are absolutely right, we have to do this. I think we have a good integrated plan across the four naval shipyards and I think you are going to see, starting in fiscal year 2022–2023, a substantial uptick. And we are going to get to a period between about '23 and about '30, 2030, where we are at a stable funding level in the order of about \$1.5 billion per year.

Secretary GEURTS. Sir, one other thing to note in terms of our kind of seriousness and dedication to this, one of the things as we started this it is a \$20 billion program. In the past we would probably attack that with a collection of small efforts led independently and maybe not as synchronized as they could.

So, one of the things Admiral Moore and I have done is stood up as we would a regular program. We have put an accountable leader

in charge of that program. We have given that leader all the authority from the program management side, from the facility side, from the equipment side, and that integrated team, I think it is the first time ever we have had an integrated, I will say program management, civil public works team held accountable to deliver that entire enterprise to us.

Now it is being executed by each of the shipyards, but we have one accountable team that we are looking forward and we meet with them once a month to go through and make sure we are executing on plan. And I think that will help us. I mean, one will be putting the resources in place, and then the second will be executing on time and on schedule with those resources. That is the way we are attacking the second piece of it.

Mr. LAMBORN. Okay, now that annual amount, will that be protected in future fiscal years and how, even under times of extreme stress on the budget?

Admiral MOORE. Well, I can tell you in the last couple years, as we work our way through the budget at the corporate level, up at the senior level that money has because it is now a program, it is looked at differently than the way we have done it in the past where we kind of competed against everything else. In fact, the problem in the past is the four naval shipyards were competing against each other. They would all independently submit programs. They had their local constituencies that would support those, but it wasn't an integrated plan. It would go into the mix with every other bit of other MILCON that were going and it would get ranked and it would compete against other needed things, but barracks and base and piers.

And so, what we have been able to do is fence this off and look at it as its own program. As the Secretary said, it is an established program under NAVSEA. I report to the Secretary on it. We have regular quarterly drumbeats at his level, they brief me monthly, and we are briefing this from the budget standpoint as a total program with both capital expenditures, MILCON and FSRM, which we have never done before.

Mr. LAMBORN. Okay, thank you. And to finish up on this subject, in your joint statement you highlighted several recent improvements at public shipyards to add new capabilities or to replace failing infrastructure. Has the Navy made these investments in concert with the overall investment plan or is there risk that some of these investments will be found to be suboptimized as the investment plan matures?

Secretary GEURTS. Sure. All those are part of the integrated plan. We may have mentioned them separately in the statement, but they are all, they are just evidence that that plan is off and running. So, we are not waiting 5 or 6 years for the perfect plan, we are already moving out and synchronizing. In some cases, we had preexisting MILCON projects we brought into the program. A lot of really good work on capital equipment in terms of machines and tooling. And the other piece I am very optimistic on is, I will call it deckplate innovation, using 3D printing, using new training techniques, using other ideas. So I kind of view it as a living plan and we always want them to be trying to bring anything they can left. If there is a new innovation, we can do that. We can, you

know, change a plan to go take care of an opportunity. That is what we are expecting out of this integrated team.

So those things listed in the plan weren't in addition to, they were just what has occurred as part of that plan to date.

Mr. LAMBORN. Okay. Thank you, Mr. Chairman. I yield back.

Mr. GARAMENDI. I thank you, Mr. Lamborn, and I thank you for raising those issues. We are going to go to the 5-minute clock now.

Ms. Horn, you are next.

Ms. HORN. Thank you, Mr. Chairman. And thank you for being here. It is a critical issue. I am going to put a few of my questions through the lens of, I have Tinker Air Force Base, which is clearly a depot in Oklahoma, and some of the challenges they are different yet similar, right, of maintaining aircraft which are 70-plus years old. We do the complete depot maintenance for the KC-135s. And from years ago having a very long overhaul time, they have been able to significantly reduce it to play catch-up and there is significant need for playing catch-up here.

So, my first question is, in this plan with the funding, with the needs and how far behind you have gotten is, how realistic do you think your projection is for growing the capacity of the public shipyards? Let's start there with the public shipyards.

Secretary GEURTS. Yes, ma'am. Maybe I will start for a bit and then turn it over to the admiral.

So, coming from a former Air Force guy, so I am very familiar with that and actually they have done an incredible job, which we have on the aviation side and not a subject of this hearing, we are learning a ton from them and collaborating with and have a good relationship with them. I think we have been very careful, back to this integrated team, that we have one team accountable for executing the whole program.

Where I struggled in past lives was where it was 10 different teams or all reporting through different chains with different priorities and then we didn't get the synergy we wanted. So, I am confident in the plan. We will continue to update the plan.

Admiral Moore can talk about some of the simulation we have done to ensure we have got the right plan, but we are learning from everyone, whether it is out there in other depots or other folks doing this in the commercial world.

Admiral MOORE. Yes, thank you for the question. We have actually been able to grow the capacity of the naval shipyards. In 2010 we were down around 29,300. Today we are at 36,100. That is where we need to be, so we got there, actually, a year ahead of schedule. So, the public yards have been able to hire and we are at the capacity we are going to need to be at given where we are with our nuclear ships, the number of carriers we have, and actually the number of nuclear-powered submarines for maintenance is actually going to slightly go down here over the next 10 years. So, I am satisfied where we need to be.

On the private sector side, I think that is the challenge, is in surface ships, which is really going to be the bulk of the growth as we go to 355 is on the surface ship side of the house, how do you grow that capacity? And so back to the initial comments, the way you get the private sector to grow capacity is you provide them a stable, predictable plan that they can see and believe and they will hire.

And we have started to see that in particular in San Diego and Norfolk where they have started to grow the capacity.

What you can't do is have the sawtooth plans that we have had in the past which does not incentivize them because they are trying to make a reasonable profit to hire. So, to the extent, back to even to the original question that the chairman asked, this stable, predictable plan that we have been able to accomplish working with the fleet commanders, I think, can give us a chance. We need to go at about 2 to 3 percent per year. Industry tells me that is reasonable, they can accommodate that if necessary.

Ms. HORN. So that following up on that, I think there is a couple things here that I am noticing. One is the schedule. I think Chairman Garamendi hit on that, an anticipatory maintenance schedule to reduce the significant degrees of maintenance, and also understanding that getting back on that schedule seems to me to be critical but without the capacity.

So, my question is in terms of public versus private and where that is, it strikes me that the maintenance of all of these ships is in our overall national security interest and should be inherently something that is our responsibility. So, if the—and I agree with you about the predictability, but if the ships are not coming in, if we are having to push and they are not coming in on a regular maintenance schedule that also impacts the schedule and the predictability. So, is it a question of going to support more private shipyards or is it enhancing the capacity of public shipyards or some other combination to ensure they are getting back in and not getting pushed back out when they really should be in maintenance?

Secretary GEURTS. Yes, ma'am. I think the biggest issue is not operational pull. I know that is an issue we have had in the past. We have to get ships out on time. If I can't get ships out on time, it creates the demand signal and causes all these stacked effects. The challenge for us in the public yard are a little different than I think where Tinker faced is we are executing. We have reduced backlog by 50 percent over the last 2 years. Our challenge is we have to completely upgrade our infrastructure while we do maintenance. So, in the public yards that is going to be the critical element is while we maintain it, be able to feather in the infrastructure upgrades without causing a disruption.

Ms. HORN. Thank you. I yield back.

Mr. GARAMENDI. I might add that you have got a 20-year plan to upgrade the infrastructure. I don't know how you can meet today's demand with a 20-year plan for updating the infrastructure. We will get into that in much more detail, but I do want to turn to Mr. Scott. I will just let my question hang out there for a while.

Mr. Scott.

Mr. SCOTT. Thank you, Mr. Chairman.

Gentlemen, I, too, represent a depot, an Air Force depot. And in depot maintenance you have got parts, supplies, and facilities. You have a process and you have people. And my question gets to the constraint that has left the USS *Boise* sitting at the dock for 3 years. What is the constraint that has kept that ship sitting where it is?

Admiral MOORE. Well, at its most basic element, the problem with *Boise* is we did not have the capacity in the public shipyards to do the work and we were slow to see that coming.

Mr. SCOTT. From a facility standpoint, Admiral, or from a——

Admiral MOORE. No, just from a workforce, the ability to——

Mr. SCOTT. From a workforce.

Admiral MOORE. Yes, sir.

Mr. SCOTT. Okay.

That brings me to another question then. When is the last time the Navy has done a study with regard to the workforce and I guess the need for improvement there as—the balance of the workforce, I guess, is the word that I am looking for.

Secretary GEURTS. Yes, sir. And again, I will ask Tom to jump in. I think the challenge in the public yard is we didn't have the numbers and so we have actually accelerated our plan and gotten to our target number of workforce a year early. Our new challenge now or, you know, the next challenge is how do we train that workforce as fast as we can and make them as productive as they need to be. And again, a little bit different than in the Air Force side, we have a nuclear, for our nuclear ships they are maintained primarily in the public yards so there is a limited ability to offload that work.

Mr. SCOTT. Sure.

Secretary GEURTS. And so the real initiative we are taking right now is we have got the workforce we need, now we need to get them trained and productive to the level we need them to be when the public, when the nuclear shipbuilding demand grows in the out-years. We have got a little time until that grows, that is our primary challenge right now.

Mr. SCOTT. How did we not see this coming?

Admiral MOORE. Well, I wish I had a good answer for you. Back in 2016 when I took the job over, one of the first decisions I had to face was looking at the fact that we did not have the capacity in the naval shipyards to induct *Boise*. That led to a series of decisions about using the private sector to reduce some of the surge volume, but I don't have a good answer for you on that. Our past practice would have been stuff them in there and have them be 500 or 600 days late like we did with USS *Asheville* and *Albany* and that was just bad news for the crew, and so I think we made a conscious decision not to do that in going forward in the future. It was probably the right decision, but we should have seen this coming. And we have practices in place today to make sure that doesn't happen again.

Mr. SCOTT. So we have 30 percent of the ships' maintenance is done on time. If we are doing a major depot overhaul does that 30 percent hold true or do we see a lower number there?

Secretary GEURTS. Yes, sir. So I think a couple things we are doing. One, you have got to reduce the backlog, right, and so we have reduced the backlog by 50 percent from the last 2 years. We are two-thirds less of maintenance mandate, so that backlog is burning off. The second thing we have got to do, and as you look at the number of nuclear ships, we are going to time out. A lot of *Los Angeles*-class submarines are going, so the demand signal is actually going to go down a little bit.



So, that is why we are feathering in that depot infrastructure with that reduced demand signal. Then when we have the infrastructure updated, we have got now an experienced workforce, we can pick up as submarine demand picks back up again in the 2030s.

Mr. SCOTT. If I can, Mr. Secretary, I guess what I am getting at is, there is simple maintenance and then there is depot overhauls and two totally different animals here. Does that 30 percent hold true in both fields?

Admiral MOORE. No, actually, if you look at just kind of the work we do pier-side and emergent work to get ships deployed that are not in depot, 100 out of the last 103 have delivered on time. So, we have a pretty good track record there.

Mr. SCOTT. Okay.

Admiral MOORE. That tends to take the priority, obviously. And then to your question on do I expect the avail—the number is going to go up from 30 percent. My commitment to the CNO [Chief of Naval Operations] is we will deliver them all on time starting in 2021. And we have factored in this work in the SIOP to make sure that we can do the work and work at the shipyard at the same time. It is also another reason why we would like to grow some surge capacity in the private sector to provide kind of an outlet if we need that.

Mr. SCOTT. I have just a couple of seconds and just a general comment. The total DOD [Department of Defense] budget number is higher than it has ever been in the past. I know you talk about constraints from a fiscal standpoint. I recognize that the CRs [continuing resolutions] are on us on this side, that is our fault for not getting them done and I know that causes problems for you. But I do think it is important that the people at the Pentagon and the DOD recognize that the actual budget number is higher than it has ever been, and it is going up at a pretty good pace. And I am not sure that that increased pace continues, so as you forecast into the future, I would not think that it would continue to increase at the same pace that it has.

Secretary GEURTS. Yes, you are absolutely—and we have got to drive down the cost per unit readiness because it is unaffordable at the current one. That is an absolute true fact.

Mr. SCOTT. Mr. Chairman, I am done.

Mr. GARAMENDI. Mr. Scott, very good series of questions.

Ms. Houlihan, it is your turn.

Oh, by the way, can I now ask permission for outsiders to join us? Is that okay, Mr. Lamborn, without objection?

Mr. LAMBORN. Didn't we already do that proactively?

Mr. GARAMENDI. Without objection, we will allow others not on the subcommittee to join us.

Ms. Houlihan, your turn.

Ms. HOULAHAN. Thank you, sir. And thank you, gentlemen, for joining. My grandfather and father were career naval officers. I was the black sheep and was an Air Force person. But I happen to represent the suburbs of Philadelphia, so the Philadelphia shipyard is an important asset to me and to my community and so most of my questions will be about the private shipbuilding plan.

So I understand that the Navy is working to implement the PSO or the private shipyard optimization and PSI, private sector improvement, initiatives to enlist our private shipyards to greater support and meet our readiness needs. Could you—there is three parts to this question, so hang on. Could you elaborate on the work that these initiatives and any guidance or recommendations that you have to better utilize our private shipyards?

And I also understand that we have language in the Senate-side bill, \$1.2 billion in naval operations maintenance funds and other procurement account to contract with private shipyard maintenance. What is your perspective on that, your perspective on this pilot program? And finally, what obstacles, if any, are preventing the Navy from better utilizing our private shipyards and is there anything that we can do here in Congress to be helpful with that?

I would assume that you would be probably the best person to answer those questions?

Secretary GEURTS. Yes, ma'am, I will start, certainly. And we could have, you know, hourly, you know, an hour session on this alone. Here is where I think—here is where I'd like to go and we have talked a little bit about we have been doing a lot of pilot programs, and so I am fully supportive of looking at a multiyear appropriation as long as we have got the flexibility as work adjusts between those to kind of work between ship accounts. But I am fully supportive of the pilot, to answer your second question.

What we are really trying to do in the private side, is give a much better, and hold much more stable a site picture of the total demand and get that out in time that allows folks to make investments, to hire the right workforce, and to not have to hire and fire workforce because we have shown that that hasn't been stable.

So, we are looking to both increase our capacity—so Philly shipyard now is doing maintenance. They are doing some maintenance work for MSC [Military Sealift Command] and they are doing by all accounts a great job there, so they are a new partner kind of in that. That is an exciting—we have opened up some other capacity. And then we are working hard on our side to be as efficient as possible so we get the requirement out there early enough so folks understand it, and then minimize or make sure that everything we are doing on the Navy side in terms of inspections and checkpoints are adding value and not creating inefficiencies.

So, I think if we show the demand, keep it stable, better contractor options, more players, and then steady and reliable work, all that will play together to bring new players in and have them feel like they can be a contributor and be profitable in the private yard. Because as Admiral Moore said, that is where the huge demand signal as we get to 355 ships.

Ms. HOULAHAN. My other question has to do with the workforce that is required for this both on the private and public side. Some of the reading that you prepared in your statements had to do with the fact that our workforce, I think demands have been met largely or are being met largely, but with a younger or less skilled force. What kinds of things can we be doing to be flexible and creative with bringing those folks up to speed?

Admiral MOORE. Yeah, I think that is a great question. And we are fine in that the millennials and centennials learn differently

and so investments in the infrastructure and IT [information technology], the way we do work is completely different. We have a—it used to take us typically in the public shipyards about 5 years to train an apprentice. They would just basically follow the old hand around and learn his trade from there. So we are going to state-of-the-art learning centers, basically, where they are safe to fail, away from the actual work, and we have been able to cut the time down to make them somebody that we could put on the deckplate work cut by half, and so we are going to have to continue to do that.

The other thing we are going to have to continue to embrace is understanding the way the new, you know, the way this generation thinks about work and not be afraid of IT and some of the new technology that is out there, which, you know, if you go talk to some of the older folks they don't quite get it. But, you know, the kids today, they want an iPad in their hand. They want to be able to work that way. And I think we are worked in position that way to do well in both the public and private sector, which will help the workforce out.

Ms. HOULAHAN. More virtual reality goggles or——

Admiral MOORE. Absolutely.

Secretary GEURTS. I am actually really excited. I mean, a lot of folks will say that is an impediment. I actually think we are at a generational level between construction and sustainment, bringing a workforce on that will drive a lot of the things this country needs. And I am actually really excited, because when we have gotten the right tools in their hands, their ability to accelerate learning and be productive has exceeded our, I would say, fairly optimistic expectations.

Ms. HOULAHAN. Thank you, gentlemen. I have run out of time and I yield back.

Mr. GARAMENDI. Thank you, Ms. Houlahan.

I have heard the word “plan” multiple times here. I want to hear more about actual implementation of whatever plan is in place. I will now turn to Ms. Stefanik.

Ms. STEFANIK. Thank you, Chairman Garamendi.

Mr. Geurts, Vice Admiral Moore, great to see you here today. Thank you for your testimony. While I do not represent a depot in my congressional district, I have a number of ship and ship—submarine building suppliers in and around my district, so we understand the need and necessity for skilled laborers. I also serve, in addition to this committee, on the Education and Workforce Committee, so we spend a lot of time thinking about future of work and what that qualified workforce looks like.

So, for the long-range plan for maintenance and modernization of naval vessels for fiscal year 2020, you mentioned training the workforce several times. And my question to you is, do you anticipate expanding training opportunities with simulators and models similar to those used by naval operators such as the facility like Kesselring, which I represent? I see you guys nodding your heads, so I am looking forward to the answer.

Secretary GEURTS. Yes, ma'am. It is already occurring. We talked, Admiral Moore talked about training safe and so, hey, if I can 3D print a facsimile of a piece of equipment so we can train

somebody on it and not have to use an actual asset and put that at risk in training, we are seeing astronomical improvements in both the training curriculum kind of hands-on, as well as training speed on there. But I think as a further, you know, for all of us it is an important, how do we level this talent that is available and bring it into these kind of more manufacturing jobs? We have some of the most complex digital models in the world. We are making digital models now of legacy ships. And so, our ability to marry that digital model of the work and put that with digital native workforce, I think, is going to give us a way that we don't have to wait 20 years to get a 20-year experienced worker. Otherwise, you know, if that is what we are relying on, just time, we are not going to get there. And so, I think there is great opportunity.

Tom, I don't—

Admiral MOORE. Yeah, I will just give you two additional examples. We talked about virtual training. Today, you can go to the naval shipyards and you can put a helmet on and paint and weld, and they can, basically, you can qualify, you know, a lot of your qualifications in terms of being a painter and a welder can be done in a virtual environment, which we haven't been able to do before, and that is a technology that the new generation understands well.

So, exactly to your point, while I think we are working all of those initiatives, there is probably more work to do in that area. Obviously, the aviation community, through simulators, is kind of a step ahead of us, but we are certainly leveraging off a lot of that.

Ms. STEFANIK. Great, thank you. Yield back.

Mr. GARAMENDI. Ms. Stefanik, thank you. We really need to look and work on that issue of the training of the workforce. There are many opportunities. Your experience on labor and ed is important. I think there are others around that can share with that. Fully implementing all of those training programs that are out there that may or may not have ever been connected to the public yards is something that we want to make sure happens. I thank you for that series of questions.

Mr. Kim, I noticed that the chair of the committee that is causing all this problem with all these new ships has deferred the opportunity to ask questions and he continues to defer. So, Mr. Kim, it is your turn.

Mr. KIM. Well, I just wanted to take a moment to just, you know, reiterate some of the points. I don't necessarily have a question myself. But, you know, I came here understanding just the sheer complexities of what it is that you are faced with. I understand how difficult this is and I have gotten a better sense of the vision you are trying to set forward, but I do reiterate the different concerns that some of my colleagues have mentioned on the staffing, on the personnel side of things as well as the maintenance component of this. I certainly leave this hearing with a better understanding myself of some of this, but there is still some areas where I either need greater knowledge and learning on my own end or just more information from you on how we can fill this.

But I just start by saying, you know, I appreciate the work that you are doing in helping set the course for this vision. I know how complicated it is and I hope to be able to continue to work with you to try to make sure it is done in as responsible way as possible for

our armed services men and women who are fighting the fight, so thank you so much. I yield back, Chairman.

Mr. GARAMENDI. Mr. Bergman, your turn.

Mr. BERGMAN. Thank you, Mr. Chairman. Gentlemen, thanks for being here.

Mr. Geurts, you mentioned in your testimony—if I copied this right—a fragile industrial base. Could you elaborate on that?

Secretary GEURTS. Yes, sir. In the, you know, in the 1990s into the early thousands as we reduced new ship construction as, quite frankly, as the country reduced a lot of its manufacturing capability, we went from many suppliers, many shops, many trained tradesmen to very few. You know, if you look at new construction on submarines, on aircraft carriers, the number of suppliers have gone from tens of thousands to thousands and in more cases than we are comfortable with we only have one supplier.

Mr. BERGMAN. Okay, so basically we reduced the number of facilities building ships, so therefore less capability, if you will, because you are not doing day to day. Given the fact that we are still going to have to maintain ships, is the best way to create that maintenance and re-workforce of the future given that we have fewer shipyards, is that best left to the people who actually make the ships or, really, what is the Navy's role in determining that? Because it is one thing to tell an entity what you want done; it is another thing to tell them how to do it.

Secretary GEURTS. Yes, sir. I don't think it is our role to tell everyone exactly how to do the work. There is a fairly, you know, there is lot of folks doing commercial ship repair. Part of our challenge is making sure on the private yard side that we have contracting vehicles, that we don't have barriers that would prevent them from working.

So a way we got after that, for instance, we solicited anybody who has a dry dock, we will come out and look at it and certify it in advance of you having a contract so that you could compete for our contract should you want to. In the past we would say, well, only if you have a certified dry dock can you compete for our contract, and we kind of, we created barriers where we didn't need to create barriers.

We have now seen new players, Philly Shipyard, doing ship maintenance. There is plenty of others coming into the marketplace creating a more robust marketplace.

Mr. BERGMAN. If we had the folks doing the maintenance sitting at the table instead of you all, what would they say the barriers that are still there?

Secretary GEURTS. So I was last Thursday with three of our big ship, private shipyard maintainers in Norfolk: BAE, NASSCO, and Colonna's [Shipyard]. What they told me was, hey, we are happy with the trajectory you are going, we are seeing change, getting, you know, non-value-added inspections out of the way, awarding contracts earlier, giving us more stable workload, is all good.

We just need to do it at scale and repeatably. If we can do it at scale and repeatably, then they will have the business ROI [return on investment] to start making the investments we need to grow this capacity. One thing I think we have opportunity to do which we haven't, I would say, figured out how to do yet or want to work

with the committee on it, are what are the incentives, can we cost share in increasing capability on our new construction.

We have mechanisms where we will invest in a shipyard, so that they will build the ships, future ships, cheaper. There are probably some of those we call CAPEX [capital expenditure] opportunities. We have to figure out how to do that and I think I would like to work with the committee on that because that would help perhaps incentivize and accelerate investments which will then give us return on cheaper prices. As Congressman Scott said, we can't afford, you know, to just pay more and more as we go forward. We have to get more productive and reduce the cost.

Mr. BERGMAN. Okay, thank you.

Mr. Chairman, I yield back.

Mr. GARAMENDI. We now turn to the fellow that is creating all the problems, adding more and more ships to the backlog. Mr. Courtney.

Mr. COURTNEY. Thank you, Mr. Chairman. So, I want to again salute the subcommittee for holding this hearing. Actually, if you read the GAO report and the CBO [Congressional Budget Office] report that came out last year, the problems, actually, as Mr. Geurts said, the deterioration of maintenance actually almost occurred in tandem with sort of the deterioration in construction, and it is really an overall, you know, sort of sector question that we are all faced with.

And I think actually trying to find ways to sort of blend together is the way we get out of this. So, for example, I mean the 30-year ship repair plan, really terrific, I mean, and it is really, you know, a really important, you know, innovation that I think you all can certainly take credit for. But one thing that I think some of us struggled was when the 2020 budget came over, you know, the funding for private shipyard repairs for *Boise*, *Hartford*, and *Columbus* was not included in the baseline of the budget and was an unfunded priority.

Again, Mr. Garamendi's subcommittee as well as the other three defense committees stepped up and, you know, are going to once we get—knock on wood—you know, completion of the conferences, you know, we are going to have some help going out there to do that. So I guess, you know, one way again of creating that stable signal that you just described is really just to, you know, sort of give your—I mean, if you could sort of share what your perspective is in terms of just moving forward in future budget years, you know, whether we are going to see that sort of funding for awards to private yards that again helps smooth out workforce cuts that again help both sides of the equation, both construction and maintenance.

Secretary GEURTS. Yes, sir. Sending over, you know, a hundred million-dollar or billion-dollar offer is not a way to create stability or advance planning. We were there for a variety of reasons. I think one of the biggest ways we are going to improve that is by getting our planning model right. And we went from, I would say, a fairly simplistic model on how we planned how long an availability was and made that a much more complex model, and on the surface side we are having some success there. On the submarine private side, we don't yet have that level of planning and we didn't

have the workforce available and that created challenges because we just didn't have the sets and reps in on the Electric Boat and Newport—and good folks trying to do great work. We just didn't have a workforce established that knew how to do that repeatably. So, yeah, I think we will look on the submarine side is what is the capability we want in the private yards for either surge or for, you know, doing, you know, and then not overload it. We overloaded it by dumping too many submarines in there too quickly and that is what I think caused the condition. So we are working much more closely with them. We have at some times had some great initiatives to share everything we have in the public yards to them so they don't have to learn something if we already know it. We just need to professionalize that private yard maintenance of nuclear submarines to the degree we need that capacity.

Admiral MOORE. Yeah, I would say, you know, what we have learned from the private sector submarine work is if you have 4 or 5 years between doing the work, you know, to his comment on sets and reps, it is different than building new and you lose a little bit of proficiency. So, we want the surge capacity in the private sector, so working with Naval Reactors and the Secretary, we need to build a, you know, a plan that puts the right amount of work in there in a predictable way that they can manage.

You know, in this particular case, I think in hindsight, you know, we pushed too much work into Newport News and they were unable to execute multiple availabilities at one time, which is, you know, one of the reasons we have had some challenges with *Boise*. So, we owe a longer-term plan. We are working on that which would really give us the ability to go provide that surge capacity. It would also, as we get into SIOP and if we have to go work a dry dock at a shipyard, we have some options. So, I think that is certainly something we need to have as a long-term plan going forward.

Mr. COURTNEY. I mean one thing, certainly, I have heard is that as this work hopefully starts to flow in, and again I think it really helps, it is a win-win across the board. You know, early identification of the requirements and, frankly, even maybe sharing of some parts, you know, it is just a way of just shortening the whole effort so that you are getting the boats out faster. So, I mean, I don't know if you would comment on that.

Secretary GEURTS. Yes, sir. Again, I think we need to professionalize it and create the right model where we are leveraging the strengths of both sides to achieve outcome. We, you know, we had to put a bunch of work there quickly. We learned some things. So, our challenge now is going forward, taking those lessons learned and applying them to the work. And in particular making sure we have enough planning time and so that we can plan the work right, so when the submarine gets here, we can get it in and out on time in full.

Mr. COURTNEY. One just sort of slightly different sort of angle or topic is just the, your international shipyards, you know, in terms of Rota, Spain, and Yokosuka, Japan. You know, the feedback we certainly got from GAO and staff is just that they seem to be outperforming the folks domestically. And I am just sort of wondering

whether you sort of have any comment about ways, you know, we can sort of match that domestically.

Admiral MOORE. Well, they have a couple of advantages. First, we send them ships that are fully maintained, so basically, we make pretty much a big upfront investment before we send them forward. We haven't done that all the time in Yokosuka. That was I think some of the challenges we had previously. We are committed now that they are only going to stay over there for 8 years, so they are going to go fully maintained when they get there.

The other thing is, we do the maintenance at very short-focus maintenance periods. You have the same maintenance team working on the ship every year. For instance, the ships in Rota get maintenance every year, every, for 4 months and then they go operate for 4 months, similar to the carrier in Yokosuka. That is a very good model for the forward-deployed ships because they are already over there and we have a rotational force. It doesn't quite work quite as well at home, but there are certainly things we are learning from Rota and Yokosuka we want to fold back into the maintenance we are doing at home. Sir.

Mr. GARAMENDI. Joe, thank you for joining us. You bring extraordinarily important experience and knowledge to the whole thing.

Joining us is Elaine Luria who represents a shipyard.

Mrs. LURIA. Hi. Well, thank you, Admiral Moore and Mr. Geurts, for being with us today. Unlike Mr. Courtney, I want to focus mostly on aircraft carrier maintenance. And when we developed the class maintenance plans for the *Nimitz*-class carrier, are there specific times, durations for the availabilities that were developed into the class maintenance plan when we, you know, first brought the *Nimitz* class online?

Admiral MOORE. Yeah, when we first built the class maintenance plan, the incremental maintenance plan as it is called today, the plan was developed with a 24-month cycle and we expected to have ships in availability every six, you know, every 2 years. At the time that included—

Mrs. LURIA. Okay, so was the first DPIA, docking planned incremental availability, in the ship's life, what was the duration intended to be for that?

Admiral MOORE. At the 24-month cycle it was at 10½ months.

Mrs. LURIA. Okay. And so currently, the *George H.W. Bush* [CVN 77] is in a DPIA, the first in its life cycle. What is the duration of that availability?

Admiral MOORE. The notional duration for the *Nimitz* class today in the 36-month cycle is 16 months based on—

Mrs. LURIA. Okay, so the notional is shifted based off of a 36-month, I assume, the OFRP [Optimized Fleet Response Plan] model that we have gone to now. However, you say it is notionally 16 months?

Admiral MOORE. That is correct.

Mrs. LURIA. And the *Bush*'s availability is planned for 16 months?

Admiral MOORE. No. *George H.W. Bush*, because of a unique work on that ship and because of other work in the shipyard, is going to execute at 28 months.



Mrs. LURIA. Okay, so 28 months versus the 16 months that it should be planned.

Admiral MOORE. That is correct.

Mrs. LURIA. Well, you say unique work. I visited the shipyard myself. The shipyard CO [commanding officer] told me that shafting and propellers was the limiting path work. I don't find that to be too unique over the class of ships, so can you explain the limiting work also going on in the shipyard, MTS [moored training ship] conversion, other submarine work? Have we prioritized that ahead of aircraft carrier maintenance?

Admiral MOORE. Well, I think it was a balanced approach. I don't want to disagree with the shipyard commander, but there is a number of other things on that ship that is driving the length of that availability.

Mrs. LURIA. Okay, I am familiar with the other things, but I was told it was shafting and propellers which seems unlikely to me to be the——

Admiral MOORE. I would agree with you there.

Mrs. LURIA. To move on, just to talk about successful completion of availabilities within timeframes, we usually use that as a milestone. And so, coming out of this avail, are you going to say it is successful if we complete it in 28 months or is it already a failure because it is 28 instead of 16 which it should have been?

Admiral MOORE. Oh, no. Based on the work that we have to do and based on the work on the *Wyoming* to deliver a strategic asset and the work that we have to do on the moored training ship *San Francisco*, which is critical to training our nuclear workforce, it is a balanced plan, and if we finish in 28 months it will be successful. Obviously, we are trying to get that done earlier.

But back to some of the earlier conversations, based on the available capacity we had and the work, we tried to lay out a realistic plan that we can deliver to, so 28 months for *Bush* will be successful based on the work and the other work that was in the shipyard at the time.

Mrs. LURIA. So then if you are saying that only 30 percent complete on time, they are completing on time to a much-extended duration above what the class maintenance plan originally subscribed when we invested in the *Nimitz*-class carriers; is that correct?

Admiral MOORE. Well, no. That is not correct. *Bush* is at 28 months, but 9 out of the last 10 carriers have delivered on time.

Mrs. LURIA. On time per the duration in the class maintenance plan per the ship's design?

Admiral MOORE. Yes. Yeah, on time and in accordance with the class maintenance plan.

Mrs. LURIA. Nine out of the last 10?

Admiral MOORE. Nine out of the last 10.

Mrs. LURIA. Okay, so I just happen to frequently look around the waterfront in Norfolk and it appears to me that there are currently six carriers in Norfolk that are not deployable? I can go down the list. We have the *Eisenhower* not deployable in its training cycle. We have the 73, the *GW* [USS *George Washington*], which is in its RCOH [refueling and complex overhaul]. The 74 [USS *John C. Stennis*] not deployable, it is waiting for several years before its RCOH starts.

The 75 [USS *Harry S. Truman*] has an emergent casualty, is not able to deploy and relieve in the Gulf, approximately 2 months behind schedule. [CVN] 77, we have discussed and its 28-month availability which seems excessive based off of the lifecycle maintenance plan. And then 78, the *Ford*. We have basically invested \$13 billion in a nuclear-powered floating berthing barge that is not deployable because of the aircraft elevators and the yet untested dual-band radar, catapults, and arresting gear.

Is that an adequate assessment that 6 out of our 11 carriers are sitting in Norfolk and nondeployable?

Admiral MOORE. Well, I mean *Eisenhower* is in a work-up cycle like all carriers are. She will be ready to deploy right after the first of the year.

Mrs. LURIA. Okay. I will give you a by for that one. But.

Admiral MOORE. *Truman*, will have her fixed here shortly. It is not unusual that we would have two carriers at any one time in depot maintenance. You always have one carrier in refueling. *Gerald R. Ford* is new, obviously new construction; there is four. Once we get *Truman* back—

Mrs. LURIA. So, the taxpayers have made a good investment to currently have 6 carriers on the east coast, plus I understand 1 on the west coast, 7 of our 11 carriers in a nondeployable status, and we are having to extend the *Lincoln* on deployment because of 1 emergent casualty on 1 carrier. And that is where you desire to be in our readiness status for the aircraft carrier fleet?

Admiral MOORE. Well, it is obviously not where we desire to be. We certainly would have liked *Truman* to have deployed on time. There are three other carriers ready to go right after the first of the year that came out of maintenance. So yes, I think the taxpayers have made a good investment.

Mrs. LURIA. So, we were supposed to, by OFRP, develop a new surge capability, but that doesn't seem to be the case when the one carrier we have deployed can't be relieved on time. So, is the OFRP actually generating that surge capability that we need to maintain presence?

Admiral MOORE. Well, I think that question is probably best left to the fleet commanders, but in general the 36-month OFRP provides a lot more surge capacity than the previous models that we operated under. You basically get the carrier after you consider 6 months' maintenance and 12 months' work-up, the carriers deploy—

Mrs. LURIA. Are we ever doing just 6 months' maintenance?

Admiral MOORE. Sure.

Mrs. LURIA. Is 6 months still the PIA [planned incremental availability]—

Admiral MOORE. Six months is the notional for a PIA, sure.

Mrs. LURIA. And how many PIAs have we completed in 6 months over the last 5 years?

Admiral MOORE. Every one of them. Every one of the PIAs in the 3 years I have been in this job have completed on time, every single one.

Mrs. LURIA. But not the DPIAs?

Admiral MOORE. No, not the DPIAs. But we just finished *Nimitz*, our oldest carrier, on time. In fact, 4 days early out of a DPIA, going to——

Mrs. LURIA. And what was the duration of that DPIA?

Admiral MOORE. That was at 14 months.

Mrs. LURIA. Okay.

Admiral MOORE. And *Carl Vinson* is in the yard right now at 17 months because of some unique work we have to do on the ship, but notionally 16 months is where we are trying to head with the carriers in the 36-month——

Mrs. LURIA. So then this seems endemic just on the east coast, because you are listing the west coast carriers being much more successful.

Admiral MOORE. Well, no. I mean, I think the *Bush* is at the 28 months because of the issues I told you before. That is a unique thing. We certainly——

Mrs. LURIA. So, I mean we want to be here for readiness to provide you the tools to get the carriers out to deploy on time, so what else do you need to do that? I have been thinking a lot about, you know, the situation we have with why the *Nimitz*-class carriers are not successfully regenerating for deployment, and there seems to be some point in time when we went to an all-nuclear fleet we were just no longer able to keep up with the capacity for the maintenance anymore.

You know, I think about my first deployment on *Truman*. I did their first deployment. We came back. We did their first PIA. We finished a few days early and that was a resounding success. And over the course of time when we were doing the 24-month cycle we were successfully completing the availabilities on time, deploying within that timeframe. But then there was some point when the conventional carriers went away, when you lost *Kitty Hawk*, when you lost *Independence*, and all of the work only relied on two nuclear-capable shipyards.

So, do we have the capacity we need between Norfolk Naval Shipyard and Puget Sound to do the work that we need?

Admiral MOORE. Absolutely, yes. We absolutely do.

Mrs. LURIA. Well, then why do we have six carriers sitting in Norfolk that can't deploy?

Admiral MOORE. Well, you have two carriers in maintenance which are scheduled to delivering on time. We are going to fix the *Truman*. You have three other carriers which are——

Mrs. LURIA. Well, explain to me 74. Why do we bring 74 back 2½ years before *GW* is going to be done with their refueling and not deploy them? I was just there the other day and it appears to me that they actually have enough fuel to deploy again, at least a limited deployment. So why are we not deploying them——

Admiral MOORE. *Vinson* is available if we want to use it.

Mrs. LURIA. Well, they told me they weren't. The ship's CO specifically told me that they have already started down the path of what they need to do to prep for the RCOH. They only have two more underways and those are just, you know, VACAPES [Virginia Capes], OPAREA [at-sea operating area], carrier quals [CQ] underways. So, are you telling me that we are going to get the rest of the use out of the fuel that we have in 74, or changing the plan?

Admiral MOORE. We are going to use 74 as a CQ carrier over the course of the next year before she goes into RCOH. That is the plan and we will make as maximal use of the fuel that is available on that ship.

Mrs. LURIA. Well, they told me they only have two more underways. Should I refer to the operational fleet commander about that?

Admiral MOORE. Well, I think you should. Yes, ma'am.

Mrs. LURIA. Okay. So, you are telling me that you have all of the resources that you need to maintain our carriers?

Admiral MOORE. We do.

Mr. GARAMENDI. This committee has been blessed with folks that know the ins and outs of much of the military, and you just heard an example of one of our knowledgeable new members of the committee. The issues of the carriers are extremely important to all of us. I have asked Ms. Luria to join us on these committee hearings as much as possible, particularly when we are dealing in an area of which she has significant history and experience.

I don't believe she is satisfied with your answers, Admiral. You worked very, very diligently and I think completely, but I think you were talking past each other on a couple of things along the way. And I want to make sure that we hone in on this because it is an extraordinarily major, valuable part of the total naval assets that were under discussion just a few moments ago.

So, we will circle back on this. I am going to ask Ms. Luria to hone in on her particular questions. She does represent the shipyard in which most of this activity occurs. We are going to do a second round of questions. I am going to defer my questions and go to Mr. Lamborn and then I will come back and see where we go on it.

Mr. Lamborn.

Mr. LAMBORN. Okay, thank you. The Congressional Budget Office has assessed that overhauls conducted at private shipyards were 31 percent less expensive, on average, than in the public sector. How can we make the public sector more cost efficient? Are there options that we could pursue like public-private competitions that were previous practices of a cost-conscious government?

Secretary GEURTS. Sir, maybe I will start in a time—I think, you know, the Navy is on record of perhaps not agreeing with all the assumptions in that report and our recent experience in our private yard availability of submarines would probably indicate the model isn't exactly right. Having said all that, I think we need to absolutely leverage the power on both sides of things. I am wide open to any ideas that would allow us to fully leverage the strengths of both the public yard and the private industry. I think there is a lot we need to do on the private nonnuclear side which doesn't, you know, necessarily impact the shipyards, the public shipyards. But there is, probably, also things we can look at in the public shipyards to make sure we are maximizing those resources and ensuring we are doing only the work that is absolutely critical that has to be done there.

As Rep. Luria said, we need to make sure we are getting ships in and out on time, and anything we can do to partner with the private industry to help that I think is a strength. I am not sure

just sending the nuclear work to the private yard is going to be the panacea. We demonstrated the challenges with that with the submarines we sent there previously.

Mr. GARAMENDI. Doug, could I just intervene for a moment?

Mr. LAMBORN. Sure.

Mr. GARAMENDI. I agree. Nuclear power plants, public—excuse me—private shipyards may be a problem. Is there some work on these nuclear vessels that can be done in the private yards and we might be able to split, do the nuclear piece in the government yards and the others in the other yards and maybe half and half during one—

Admiral MOORE. Yeah, we have that model in San Diego where we do maintenance on the carrier down there. In that case, Puget Sound Naval Shipyard comes down to San Diego to do the work in the propulsion plant and then we have an integrator for the topside work. In general, though, once it is in the naval shipyard in Puget and Norfolk Naval Shipyard it is probably less efficient to kind of split the work up. We do have private sector work on all of our carriers in the naval shipyards. A lot of the non-skid on the flight deck is done that way, a lot of the tank work, some of the—but in general, the most efficient way is to let the workforce of the naval shipyard execute that work, the complicated work that we do on the carriers once she is in the yard.

Mr. LAMBORN. Okay, I am going to shift gears and ask about the level load working schedule that we were talking about last week as well as it pertains to the private shipyards. Can you walk us through the vertical and horizontal approaches to grouping availabilities, the relative pros and cons of each approach and how they work with the contracting system to provide a more consistent demand signal to private industry?

Secretary GEURTS. Yeah, I will start maybe at the macro level and then Admiral Moore can jump in. So, you know, a long time ago we had kind of long-duration cost-plus contracts. They were not terribly effective in either cost or schedule. We went, I think, probably a little too far to the other direction where every ship was an individual fixed-price contract and awarded very close to execution.

That didn't allow us to leverage the strength of the shipyards and caused them a lot of work, rework, hire folks, fire folks, you know. I was down at the private shipyards at Norfolk and listening to the, you know, going from a 2,000-person workforce to an 1,800-person workforce to a 1,500-person workforce in a course of 2 years, and that is just not an effective way to use business.

So, what we strive to do is not—is pick the right tool for the job, break the work up a little bit more thoughtfully, and then where possible leverage the strength of grouping maintenance activities together, yet still retaining competition and getting competitive pricing. And so that is kind of where you hear this vertically or horizontally bundling contracts is bundle the work so it can be done most efficiently, but also competitively, because we do see about a 40 percent difference in cost if it is a competitive award versus a sole-source award. So, competition works, but competition too often and just-in-time competition, where I would say we were over the last 18 months is not terribly effective.

Admiral MOORE. Yeah, they are part of our—really, part of the strategy in particular on private sector maintenance as the Secretary explained. Horizontal bundling is basically we take a bunch of avails that are going to happen at about the same time in the port and we have the contractors all bid on those. And what that allows us to do then is to lay the bids out, see who has the capacity to do the work, and arrange the ships at the yards in the way that it is going to best guarantee that we deliver them on time. The classic example at Norfolk is we were able to allow Colonna's, who was teaming with MHI [Mitsubishi Heavy Industries], a chance to get amphibious work. The Secretary was down on [USS] *Gunston Hall* last week. They would never have been able to get in the market before, only BAE and NASSCO could do it. MHI said, I have a dock, and NASSCO and Colonna's said, I have the workforce. They teamed up and we were able to give them the work. The horizontal, what that meant is we are going to take three heel-to-toe ships and we are going to let you bid on those. And so, if you win that award you basically know you have got now stable, predictable work over the next 3 to 4 years and then you can plan and grow the workforce, make the investments.

So, it is a mix between both of them that will allow us to, I think, optimize and get to what the industry is looking for in terms of stable, predictable work, but also allows the Navy to make some good decisions about where the work goes in a competitive environment so that you don't end up stacking too much work in one yard, which is not executable.

Mr. LAMBORN. Thank you, Mr. Chairman. I yield back.

Mr. GARAMENDI. I thank you, Mr. Lamborn.

The issue of scheduling continually comes up. I am very, very concerned that all of the best intentions that you may have, Secretary Geurts and Admiral Moore, are going to be pushed aside by the COCOM commanders that want to hang onto a ship or multiple ships for whatever purpose. And as I look at the structure you are going to have to endure, the COCOM commanders are going to take the ships and that is that and therefore your schedules are going to come unglued or won't work.

You are talking about heel-to-toe, three or four ships, excellent idea, all the things you described, all of which are dependent upon the ships actually coming back for maintenance. And if they don't come back on within, say, 2, 3, 4 weeks or months, suddenly everything is out the door and you have got a problem.

I am going to have a long, serious, longtime conversation with the COCOM commanders and the Secretary. I am going to look at the decision-making structure within the Department of Defense because I think the best of plans that you have are going to be overridden because the President wants to go out and see the PACOM fleet at work. He doesn't want to do it in June, but is available in September and therefore 3 months are gone and now we have got a problem.

So, I want to really focus on that because I am convinced that the scheduling is one of the two or three critical issues here. If we don't have a clear schedule, if those ships are not coming back on schedule, then the best of intentions are just simply aren't going to work. So be aware, I am going to drive this insofar as I can and

we are going to take it all the way up, Mr. Esper and down, and it will eventually land on your desk and you will either have a schedule or you won't. Otherwise it isn't going to work, in my view.

The other thing—and I see Mr. Lamborn left, and I just wanted to poke him a bit. We have talked about upgrading the public yards. You mentioned MILCON as a mechanism we have used before. We are looking at perhaps another mechanism, this 20-year plan, which by the way I think ought to be like a 5-year plan and we, you know, we need to, again back to scheduling. So, we are going to go into in-depth, look at your scheduling and then look at the money you need to make those public yards capable of carrying out that schedule. There is, also, the private yards. I want to talk to our colleagues over in Transportation and Infrastructure, the Maritime Committee, the money that they have available for shipyards to be upgraded, and then your certification process, I want to go into that in detail. You are quite correct we don't need a catch-22 here, but I want to know what you are doing reaching out to yards to get them certified and/or at least informing them on what they need to do to be certified so that that competition is in place. And I think that is very, very important and therefore this committee thinks it is very important, so we want to drive that in some specific details.

I see the notetakers behind you taking notes. Gentlemen, please, come back at us with regard to that.

Now, [section] 2808, your shipyards. Portsmouth, do we know where that is? I think we do. Twenty-two-and-a-half million dollars of high-priority hazardous material warehouse, gone, not going to be done; \$26.1 million for ship maintenance facility at Portsmouth, gone; \$18½ million for hazardous material warehouse at Norfolk, gone; all to build a border wall. I took this committee to Poland, 2, 3 weeks ago now, and asked the Army, what are you going to do, and asked the Air Force, what are you going to do since you are not going to build your runway anytime soon?

So, gentlemen, what are you going to do since some \$70 million just disappeared from what you thought were priority infrastructure programs at Portsmouth and Norfolk? And don't tell me we are going to backfill.

Secretary GEURTS. Yes, sir. I mean, obviously, all those important projects are still important and the fact they were put on that list does not mean they are not important nor do they add value to us. You know, the Department as you know went through a process of racking and stacking those and made a decision. What we are going to do is, you know, continue to plan for those projects where it goes back as we get them in the budget. They are not core in terms of SIOP, you know, core dry dock kind of infrastructure, but they are important activities that we will continue to pursue as we go forward.

Mr. GARAMENDI. You know your answer isn't sufficient.

Secretary GEURTS. Yes, sir.

Mr. GARAMENDI. So why don't you think about a sufficient answer?

Secretary GEURTS. Yes, sir.

Mr. GARAMENDI. Something is not going to be built soon, \$70 million of work at Portsmouth, Norfolk isn't going to happen soon. So,

what is going to take place? You are going to restack. I suspect when you said the Department, you were not asked what was important. Is that correct?

Secretary GEURTS. Sir, we were—we provided our input back up to the SECDEF [Secretary of Defense] for the decision. We have obviously those things in legacy facilities, so it is not an immediate mission stoppage.

Mr. GARAMENDI. I would be remiss in saying that the power of the purse lies with the Congress, not with the President, and what the President did for \$5.6 billion is contrary to the Constitution. It is something we are going to wrestle with on the power that we must maintain as an equal branch of government and particularly the power to appropriate money. We are not going to let it go.

Ms. LURIA, you had another set of questions?

Mrs. LURIA. Well, thank you again. Thank you again, Chairman Garamendi, for allowing me to participate today. I wanted to go back to aircraft carriers; specifically I wanted to talk about the *Ford*.

And I know, Admiral Moore, dating back to 2011 you were PEO Carriers before your current position. And, you know, over the course of the *Ford* there are four particular technologies that have been the most challenging: the dual-band radar, the catapults, the arresting gear, and the aircraft elevators. Can you give us a brief summary of where each of those are?

I am most interested in the aircraft elevators because my understanding—not the aircraft elevators, the ammunition elevators, because my understanding and my most recent visit there were only two that were operable. None of those go to the magazines. If you can't put ammunition in the magazines, you can't deploy the ship and it is not really an asset that is available for warfighting. And in addition to that, what is the long-term focus for getting that work done? I have asked several times from the Navy to have a specific schedule that takes into account the shock trials, the eventual deployment, and all of the other pieces that need to go into place, so I would really like to focus on the *Ford* for a few minutes.

Secretary GEURTS. Yes, ma'am. Maybe I can take that question. So, I am happy to provide you a specific schedule that works in all the timelines we will have the ship after it goes on its PDT&T [post-delivery test and trials] over the next 18 months.

Mrs. LURIA. So, is there an actual schedule?

Secretary GEURTS. Yes, there is.

Mrs. LURIA. Because I got the update to the Senate Armed Services Committee and it didn't have an actual schedule that included the deployment and all the other timelines.

Secretary GEURTS. Yes, ma'am. I have got it here. I am happy to sit down with you and share with you or schedule an office call and go through that in whatever detail you would like. Over the weekend we certified our third elevator, so that is turned over to the crew.

Mrs. LURIA. Right, but that only goes from the flight deck to the hangar bay. You are still not putting anything in or out of the magazines.

Secretary GEURTS. Yes, ma'am. Yes, ma'am. So, we are on track for the upper elevators. We have three of the lower elevators in



construction and test. They are moving. They are going down. I am happy to run through the schedule with you. We are ferrying in the completion of those with the need dates for the crew for training certification when they start flight ops in the calendar year and working in how we are going to finish up those elevators in tandem with availability of the ship when it is over at the naval station.

Mrs. LURIA. Okay, so it is going to deploy on time? What is on time? It should have already deployed by now, right? So, are we looking at 2023? Are we looking at 2024? Is even that optimistic?

Secretary GEURTS. In terms of operational deployment we are working that right now with the CNO and we should have that in the next 30 days online.

Mrs. LURIA. So, you do or you don't have a full schedule?

Secretary GEURTS. We are re-looking at that full schedule in lieu of shock trials and working with the CNO to make sure we have got alignment between the CNO, the fleet, and myself in delivering all the elements of the ship for deployment. So, we should have that available to you. When it is available, I am happy to come over and brief.

Mrs. LURIA. Okay. I look forward to talking about that.

Secretary GEURTS. Yes, ma'am.

Mrs. LURIA. And I am not sure if Mr. Geurts or Admiral Moore would like to provide the update on the dual-band radar, catapults, and arresting gear and where we are with those systems in testing and operability.

Secretary GEURTS. So, we are working all those. We will go test those in a PDT&E [post delivery test and evaluation] session, so we have completed the work we had planned to do over the PSA [post shakedown availability] with those. We will, when the ship goes to—after PSA we will verify the maintenance activities and we will in this next 18 months fully exercise all those systems as we train and certify crew and get those systems up and running. And our intent is to get, you know, and we have had, you know, 787 or 747, I think, traps and launches. Our intent is to put that in the thousands to fully check out all those systems, shake them all out, make sure they are ready to go to war.

Mrs. LURIA. So, in that 700 or so launches and recoveries, did we meet the operational design requirements for successful launches and recoveries, or I believe there was a higher than anticipated failure rate during that first set of testing, and what have we done to—

Secretary GEURTS. Yes, ma'am. The biggest issue is just sheer numbers to get any confidence and reliability that we don't have a sample size large enough. And so our intent working with the fleet and the captain in this next 18-month cycle is to get thousands of reps and sets on those cycles, make sure we are comfortable, that we understand the reliability, confidence in their performance, and that we can train and certify the crew to operate those in a wartime environment.

Mrs. LURIA. Okay. And my last question is, and maybe Admiral Moore since you have a lot of history with this program going back to 2011 as PEO Carriers, when was the ship originally planned to deploy when construction started?

Admiral MOORE. The original delivery was in the 2013 timeframe and so I think the original deployment date would probably be in the 2018 timeframe, if you look back based on what the schedules that were built for the original delivery plan.

Mrs. LURIA. So, the original deployment should have been 2018.

Admiral MOORE. That is correct.

Mrs. LURIA. A year ago. And best estimates we are looking at 2024?

Admiral MOORE. I think we will beat that, but—

Mrs. LURIA. Six years past that?

Admiral MOORE. I think the Secretary will come give you the details. And we are working to pull it as far back to the left as we can, but I think we are going to beat 2024 for sure.

Mrs. LURIA. I just truly don't feel like this is a great investment as a taxpayer, \$13 billion in a ship that is going to deploy 6 years past its original design timeline. And have we incorporated any of the lessons learned from the construction of the *Ford* and the 79 [USS *John F. Kennedy*]?

Secretary GEURTS. Yes, ma'am. We have. Two things ongoing, one is for those four systems also done an independent review to make sure we have got the sustainment and all the things we need to sustain those systems, not just operate them. Secondly, we are seeing right now in *Ford* and 79 about an 18 percent reduction in the man-hours to construct that ship. On the contract we have for [aircraft carriers] 80 and 81 there will be another 18 percent reduction. So yes, we have lots of lessons learned from first-in-class of that ship. We are incorporating even in elevators those lessons learned into the future ships.

Mrs. LURIA. So, we chose not to prototype some of these systems on shore-based prototypes before building the *Ford*, specifically the aircraft elevators. Is it my understanding that we are now actually going to build a shore-based prototype in order to test these and make sure they are fully operational, functionable in the next-of-class?

Secretary GEURTS. Yes, ma'am. For the weapons elevators we are building both a digital twin. We have a software version of that. We are doing a hardware and a loop version of that as well as a full shore-based standalone system up at Philadelphia, which will allow us to both test anything we need as well as ensure we can support those as we work through the N-class [next of class] of ships. It is a lesson learned obviously.

Mrs. LURIA. So I think I am out of time, but specifically, you know, look forward to in the future talking about those types of lessons learned on other ship construction programs either currently underway—I had the opportunity to visit the *Zumwalt* recently when I was out on the west coast—and then also some of the planned classes that we have, the frigate, the large surface combatant, the unmanned surface vessels, and, you know, how we plan to avoid some of these pitfalls in those newer programs that we have experienced in, say, the last five ship construction programs that we have had.

Secretary GEURTS. Yes, ma'am.

Mrs. LURIA. Thank you.

Mr. GARAMENDI. That was excellent. That was really, really well done by both of you. Your questions, Ms. Luria, are right on and, Mr. Geurts, you answered the questions completely or at least as complete as I could understand. Part of it is some of that is over in Joe Courtney's turf and, you know, I don't want to get into his way, but thank you. It was a very, very good exchange and we will make use of it.

The last question asked is lessons learned and applied to the future. Again, this is in Joe's turf, but some of that is going to come back. The sustainment question that was asked, the answer is blowing in the wind. You answered it, but the proof of sustainment is our turf here. And I had not even really thought about, okay, you are building these marvelous aircraft carriers and it is only going to be a matter of days or months before Ms. Luria is going to come in here and ask us about sustainment on the *Ford* or whatever ship it is. So, I want to pick that sustainment issue up and carry it forward.

I am going to ask Ms. Luria to continue to work with us on this committee on the things that are pertinent to us and whenever she wants to jump into Joe's turf, as long as Joe is okay with that we are good.

Mrs. LURIA. Well, I am on his subcommittee.

Mr. GARAMENDI. I know you are. I know you are. You are on his subcommittee, so we are obviously going to work together on these things. We have had, I think, a very, very good hearing here. I am going to stay on this scheduling issue because we are scheduling across two different very important parts of the Department of Defense, the COCOM commanders out there who see the world that they have got to address and then the sustainment piece of it which is Admiral Moore and Mr. Geurts, your turf, and there is definitely a conflict. And we should expect that conflict forevermore. How do we rationalize it? How do we deal with that conflict and overcome what will, which could create an impossible sustainment?

Mr. Geurts, you seem to want to answer that question.

Secretary GEURTS. Yes, sir. I completely agree with you. The one piece that we control—I can't control the combatant commanders and their needs; I can control getting ships back out on time and getting them out in full. And so, my part of the deal that I have got to, that we have, Admiral Moore and the private yards and the public shipyards have got to focus on to Rep. Luria's observations is we have got to get ships out on time and in full. That is an element we control that we have got to do. That will help balance the challenges of the COCOM.

Mr. GARAMENDI. I respectfully disagree.

Secretary GEURTS. Yes, sir.

Mr. GARAMENDI. You think you can do it only if the ships are meeting your schedule, that is the ships are available by your schedule. You don't control that and we have seen in the past and I am absolutely certain we are going to see it again and again that the COCOM commanders are going to delay and ruin your schedule.

Secretary GEURTS. Yes, sir.

Mr. GARAMENDI. And they will be gone before that ship that didn't get deployed. It is the next COCOM commander that will pay the price. That is the way things work here. We have got two folks out in the west, out in the Pacific that are coordinated. They are good buddies. Everything is good. Everything is fine. One or the other of them will be gone in the next year or so and maybe the personalities don't match. This is something that the top brass has to understand and this committee will help them understand.

The other thing that I want to bring to your attention, we touched on it just briefly here, we are going to spend more time on it, and that is the supply train. It is, you mentioned one supplier. That may be the only supplier in the world that deals with your shaft that isn't working on your aircraft carrier, Ms. Luria, or maybe it is some other critical element. We want to deal with that. I am not going to bring up the energizing the shipbuilding industry bill here. I have talked to you guys about it. We need to build commercial ships also, big oceangoing commercial ships for the supply train as well as for delivering fuel and supplies across the ocean. Another issue. This has been very good, very, very helpful.

Admiral Moore, thank you very much for all of your work and for staying on top of these issues. And, Secretary Geurts, thank you very much. We are adjourned. Thank you.

[Whereupon, at 3:40 p.m., the subcommittee was adjourned.]

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# **A P P E N D I X**

OCTOBER 22, 2019

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**PREPARED STATEMENTS SUBMITTED FOR THE RECORD**

OCTOBER 22, 2019

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**Statement of the Honorable John Garamendi**  
**Chairman, Readiness Subcommittee**  
**“Ship and Submarine Maintenance: Cost and Schedule Challenges”**  
**October 22, 2019**

Good afternoon. I’d like to welcome everyone to this hearing of the Readiness subcommittee on ship and submarine maintenance.

This subcommittee has conducted multiple inquiries into the damaging consequences of failing to sufficiently maintain our ships, aircraft, and ground vehicles. A series of alarming mishaps in recent years, and subsequent committee investigations into surface Navy readiness, revealed how degraded material condition of ships and poor maintenance practices adversely impact readiness and put our sailors at risk. Ship and submarine maintenance is particularly high-stakes, as the Navy’s fleet is the foundation of global power projection. Rigorous and timely maintenance means we can have more ships at sea and is necessary to preserve our ships’ availability for their expected service life. And unlike other platforms, major ship maintenance work is complex, enormously expensive, and relatively infrequent. So it is critical that we get this right.

Yet we have seen troubling delays in recent years. Perhaps most infamously, the USS Boise, an attack submarine, has been idling pierside in Norfolk for over five years and lost its dive certification as it still awaits maintenance. Even our aircraft carriers have not been spared—the USS Dwight D. Eisenhower’s recent maintenance period tripled its intended length, and the USS George H.W. Bush is starting an anticipated 28-month maintenance availability that should take ten months. Indeed, since 2012, the Navy has completed only 30 percent of its ship and submarine maintenance availabilities on time, leading to 27,000 lost operational and training days. If the Navy has difficulty maintaining its current fleet, this raises serious questions about its ability to support a 355-ship fleet in the future.

We look forward to hearing about the Navy’s efforts to address this problem. I understand there are several initiatives underway to improve the Navy’s maintenance operations: a shipyard hiring and modernization plan, implementation of a new contracting strategy, and analytical efforts to better forecast maintenance needs, among others.

But the solution should also involve grappling with the broader, systemic causes. For years, the Navy has operated at an untenable pace, sustaining the global presence it maintained twenty-five years ago with a much smaller fleet. Leadership has prioritized building new ships over directing resources and management attention to maintaining the current fleet. And the Navy has struggled to honestly assess the amount of maintenance its ships need and how much that maintenance will cost. A holistic strategy must confront these issues.

We should applaud the Navy for its efforts to create a culture of excellence and accountability in the surface community after the devastating collisions in the Pacific in 2017. A similar shift in mindset is essential to ensure that the Navy elevates ship maintenance to be on par with shipbuilding. The success of our Navy depends on it.

With that, I would like to turn to our Ranking Member, Congressman Doug Lamborn of Colorado, for any remarks he may have.

**Statement of the Honorable Doug Lamborn**  
**Ranking Member, Readiness Subcommittee**  
**“Ship and Submarine Maintenance: Cost and Schedule Challenges”**  
**October 22, 2019**

Thank you, Chairman Garamendi. We had the opportunity to meet with Secretary Geurts and Admiral Moore last week to discuss this important issue and I look forward to a productive hearing today. What strikes me most about the challenges with ship and submarine maintenance is that it took several years to get us to this point, and it will likely take decades to get us where we need to go.

From my perspective, the scheduling aspect of ship and submarine maintenance is the key driver to whether the Navy succeeds or fails. Failure to strike the balance between today’s operational requirements and sustainment will diminish strategic depth within the fleet, undermine investment in private shipyards, and cause industry to sub-optimize its workforce of skilled artisans available to do this work. Candidly, I see it as a national level issue when the Navy cancels an availability and it should only be done in the direst circumstances.

The Navy is not on this journey alone—it already utilizes 21 certified private drydocks for maintenance availabilities. Our private partners want more Navy contracts, but past contracting and scheduling practices prevented them from seeing a steady stream of work. Otherwise they will not make the capital investments required to modernize their facilities and optimize their workforces. I look forward to hearing from our witnesses about how the Navy plans to structure maintenance contracts going forward so that we provide the requisite level of certainty to our industry partners.

Our witnesses updated the Chairman and me last week regarding their efforts to expand the number of private shipyards available to compete for work through their efforts to reduce the administrative burden for certifying a yard for Navy work. This is a positive step that I believe will foster additional competition, expand capacity, and has the potential to benefit both the government and the private sector.

The state of the Navy’s four public shipyards in Portsmouth, Norfolk, Puget Sound and Pearl Harbor is so serious that Congress directed the Navy to develop a Shipyard Infrastructure Optimization Plan in 2018. These shipyards do most of the Navy’s nuclear maintenance and GAO has categorized most of them as being in poor condition. The 20-year, \$21 billion investment plan would overhaul the antiquated facilities, recapitalize equipment, and optimize the work flow to reduce wasted time and effort. While I am satisfied with the personnel investments being made in our public sector, this investment plan will fail if it is not supported by an adequate facility recapitalization plan. Candidly gentlemen, my view is that the Fiscal Year 2020 budget request did not demonstrate a serious commitment to the

plan. We expect to begin seeing a significant commitment to the investment plan in the budget request each year and we want to see it funded across the FYDP—\$1–2 billion per year is probably about right.

From my perspective, we also need to send enough of the submarine availability work to private shipyards that they can build the capacity to do that work efficiently. This would seem to be a way to avoid future issues like we experienced with the USS Boise, which lost its dive certification in 2016 and has yet to begin its depot-level maintenance. The Navy has begun to send some its attack submarine work to General Dynamics Electric Boat and to Huntington Ingalls Industries. I am encouraged by this development, particularly given that we will likely need additional industry capacity while we re-capitalize the public yards. As with everything associated with this problem set though, the key is predictability.

Finally, we must do a better job of forecasting the work that will be performed for each maintenance availability. My understanding is that approximately 40% of the work to be performed on each of these availabilities is unknown. The Navy and their industry partners will never meet schedule and cost objectives with that level of fidelity, particularly with the additional supply chain challenges this creates. I look forward to hearing from our witnesses regarding their efforts to better leverage data and testing to reduce uncertainty before the availabilities even begin.

Our two witnesses are fully engaged to address the myriad of problems facing this “system of systems” as Secretary Geurts likes to call it, and I appreciate the continued service and experience that you both provide to the nation.

Thank you, Mr. Chairman, I yield back.

NOT FOR PUBLICATION UNTIL RELEASED BY  
THE HOUSE ARMED SERVICES COMMITTEE  
SUBCOMMITTEE ON READINESS

STATEMENT OF

THE HONORABLE JAMES F. GEURTS  
ASSISTANT SECRETARY OF THE NAVY FOR  
RESEARCH, DEVELOPMENT AND ACQUISITION

AND

VICE ADMIRAL THOMAS MOORE  
COMMANDER, NAVAL SEA SYSTEMS COMMAND

BEFORE THE

SUBCOMMITTEE ON READINESS

HOUSE ARMED SERVICES COMMITTEE

ON

SHIP AND SUBMARINE MAINTENANCE

OCTOBER 22, 2019

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THE HOUSE ARMED SERVICES COMMITTEE  
SUBCOMMITTEE ON READINESS

Mr. Chairman, Ranking Member Lamborn, and distinguished members of the Subcommittee, thank you for the opportunity to testify on ship and submarine depot maintenance. The Department of the Navy (DON) recognizes the need to deliver lethal ships and submarines to the combatant commanders on time. The Department approaches ship and submarine maintenance with a sense of urgency knowing our forward deployed warships are critical to dissuading aggression and responding to hostile actions and natural disasters.

The Navy faces high-tempo operations, budget pressures, and a fragile industrial base that has resulted in a maintenance backlog and reduced readiness of Navy ships. In the 1980s, the Navy had nearly 600 ships in the Fleet and kept roughly 100 – or 17 percent – deployed at any one time. Today, our Battle Force stands at 290 ships, of which 81 – 28 percent of the Fleet – are at sea, increasing readiness challenges. Though our warships are more capable and more mechanically reliable than those of previous generations, maintenance and sustainment are critical to ensure that those Fleet assets remain ready to deploy.

To address these challenges, the Navy has undertaken a multipronged approach in both public and private shipyards. In our public yards, we are growing the capacity of the shipyards to meet the workload demand, improving the training and productivity of the workforce, and making the needed investments in our shipyards to ensure they can support our growing needs. In the private shipyards, we have focused on improving planning (completeness, accuracy, and timeliness), working with the Fleet to adjust maintenance schedules to level load the ports, revising acquisition strategies to improve stability and predictability, and streamlining Navy inspection points to improve efficiencies.

While recent on-time performance trends in both the public and private sectors are improving, challenges remain. Maintenance delays are generally driven by a mismatch between the maintenance workload and the available resources (personnel) to execute the work. This mismatch is exacerbated when contracts are awarded too close to the start of an availability, which could delay the delivery of required materials to the shipyard. Further, workload models and acquisition strategies are undermined by fiscal uncertainty and unexpected growth work, limiting predictability and proper advanced planning, and our public and private shipyards are challenged to hire and retain a skilled workforce or make capital investments to support increased productivity. The Navy is attacking these maintenance delay drivers through a number of initiatives.

The Navy is preparing the second Long-Range Plan for Maintenance and Modernization of Naval Vessels to forecast maintenance workloads for all in-service ship classes over the next 30 years. This plan complements the Navy's Annual Long-Range Plan for Construction of Naval Vessels and establishes the framework to effectively sustain our investments in today's fleet. The intent is to build a culture of continuous evaluation of the industrial base capacity and capability and provide the industrial base with stable and predictable workloads; enabling the Department to support the shipbuilding plan, and adapt to any surge demand if the situation arose.

Finally, the Department has established a Deputy Assistant Secretary of the Navy (DASN) for Sustainment to improve our ability to plan, program, budget and execute the Navy's sustainment mission. DASN Sustainment will have oversight of sustainment funding across the DON and will oversee and manage Navy and Marine Corps sustainment and life-cycle management policies. This will allow the Department to improve and align the complex drivers of maintenance and modernization completion – that in turn will increase our output to the Fleet.

#### PUBLIC SHIPYARDS

In the four public shipyards, the Navy is focused on several key lines of effort. These include growing the capacity of the shipyards to match the workload demand, improving the training of the workforce, improving the productivity of the workforce through innovation and improvements to our business processes in both planning and execution, and making needed investments in our shipyards to ensure a 21<sup>st</sup> century shipyard to match our 21<sup>st</sup> century workforce.

The Navy's four public shipyards have seen a 25 percent increase in their planned workload since 2010. To match the growth, the Navy has increased the size of our public shipyard workforce by more than 9,000 people, going from 27,368 employees in 2010 (measured in End-Strength) to 36,696 employees in 2018. This growth was achieved about one year ahead of schedule and is allowing us stop the growth in the backlog of work and begin to work off that backlog earlier than planned. However, the rapid growth of the workforce has resulted in a less experienced workforce where 50 percent have less than five years of experience. To get new hires trained, the shipyards have transformed how they train their new employees through learning centers that use both virtual learning tools and hands-on work. The Navy has carried that innovative concept to the waterfront by developing "safe-to-fail" areas where artisans can experiment with new and innovative techniques to improve throughput or save time during an availability. The net result of these learning centers is that the shipyards have cut the time to create a productive worker from the time they are hired by more than 50 percent over the past four years.

To improve productivity, the Navy is testing innovative processes for improving maintenance like cold spray and hull crawling robots. Cold spray is a technology in which metal powders are accelerated at high speeds and sprayed through a nozzle, impacting and mechanically bonding to a surface. This produces high performance coatings that can extend the life of legacy weapon and hull mechanical systems. Hull crawling robots are able to carry a variety of test equipment to conduct hull inspections, non-destructive testing and biofouling removal. This obviates the need for scaffolding or lifting equipment and is estimated to reduce dry docking periods by up to two weeks while improving worker safety.

The Navy is also leveraging the recent successes of the Naval Sustainment System (NSS)–Aviation that has increased the mission capability rates of its F/A-18 E/F fleet by creating a NSS – Shipyards. Similar to NSS-Aviation, the NSS-Shipyards has brought in outside business process experts to improve productivity and identify areas for long term improvement at Norfolk

Naval Shipyard and Puget Sound Naval Shipyard. The Navy will expand that effort to all four public shipyards in Fiscal Year 2020.

The Navy is now in its second year of the planned 20-year, \$21 billion Shipyard Infrastructure Optimization Program (SIOP) that will fully transform shipyards originally designed and laid out to support building ships of sail and coal into 21<sup>st</sup> century shipyards dedicated to executing complex maintenance availabilities on the Navy's nuclear-powered aircraft carriers and submarines. Fully executed, SIOP will deliver required dry-dock repairs and upgrades to support both current and future classes of ships, optimize workflow within the shipyards through significant changes to their physical layout, and recapitalize obsolete capital equipment with modern machines that will dramatically increase productivity and safety.

In two years the Navy has delivered or started a series of projects and begun the delivery of new capital equipment across the four shipyards:

For Pearl Harbor Naval Shipyard & Intermediate Maintenance Facility (PHNSY&IMF), the Navy has delivered 150-ton heavy lift transporters to support Virginia Class availabilities. More importantly, the Navy and its industry partner tracked every aspect of the recent USS Asheville (SSN 758) maintenance availability to build a "digital twin" of the shipyard. This dynamic virtual shipyard will enable the Navy to manipulate data and measure the impact of moving certain shops and workspaces to different areas within the existing footprint. Once the full capability is delivered in February 2020, the Navy will use this data to reimagine the shipyard to improve productivity, safety, and the quality of life of our shipyard personnel. PHNSY&IMF will also be the first shipyard to receive a Dry Dock Production Facility (DDPF) which, as currently envisioned, will enclose multiple dry docks and move much of the production work to the waterfront.

Puget Sound Naval Shipyard & Intermediate Maintenance Facility (PSNS&IMF) will be the second naval shipyard to have a digital twin built. To ensure the Navy properly understands the complex workflow, it will track both aircraft carrier and submarine availability. Work started on this effort on October 14, 2019 and final delivery is expected in fall 2020. PSNS&IMF received the first 55-ton mobile crane this year which will allow the shipyard to more effectively execute maintenance work.

Portsmouth Naval Shipyard (PNSY) replaced an obsolete and maintenance-intensive lathe with a computer operated Horizontal Turning Center. The center will improve productivity at PNSY and reduces the maintenance burden on our workforce. Work has also begun on Dry Dock #1 in preparation for refueling selected Los Angeles Class submarines. Efforts include building a super flood basin and P1074 which will be dedicated to the Los Angeles Class Service Life Extension. The Navy anticipates starting PNSY's digital twin study in early 2020.

Norfolk Naval Shipyard (NNSY) has seen a number of military construction efforts begin or deliver in the past year. On July 1, 2019, the renovated Waterfront Operations Support Facility (Building 1735) located near Pier 3 re-opened. This two-story structure houses 15 shop spaces and allows for work to be executed near to the ships, reducing travel time and increasing efficiency. On the same day, the Navy broke ground on a new Production Training Facility



which will host most of the training classes and shops for the entire shipyard. Further, the Navy awarded a contract in September to build a new defueling and inactivation complex that will replace a 25-year old facility. The new M-140 Complex will alleviate frequently required repair work and support the increase in submarine inactivations planned for the 2020s. The Navy also awarded a contract for a horizontal boring mill for NNSY's Navy Foundry and Propeller Center in Philadelphia, PA, to support Columbia Class (SSBN) and Virginia Class (SSN) propulsor manufacturing. NNSY took possession of a Bridge Mill which replaces two obsolete and less effective machines to support aircraft carrier and submarine shaft, rudder, and fairwater plane work. The Navy plans to begin NNSY's digital twin effort in early 2020.

The net result of all these integrated efforts is that the Navy is seeing positive results across the naval shipyard enterprise. This includes, completing eight of the last nine CVN availabilities on time or early including the recent early delivery of USS NIMITZ (CVN 68), the Navy's oldest combat ship, from a docking availability at Puget Sound Naval Shipyard. Additionally, the Navy has reduced the days of maintenance delay at our naval shipyards by more than 40 percent since 2016.

#### PRIVATE SHIPYARDS

Similarly, the Navy is focusing on several lines of effort in private sector maintenance. This includes improvements in planning, improvements in forecasting availability durations, working with the fleet to adjust maintenance schedules to level load the ports, and acquisition strategies that are designed to improve the long term stability and predictability of private sector surface ship maintenance planning and execution – a key ask of our private sector industry partners.

Successful execution of complex ship maintenance and modernization availabilities requires solid planning. Accurate assessment of the ship's maintenance needs, early identification of the scope of modernization, and timely procurement of Long Lead Time Material are all key tenants of solid planning. The Navy is accelerating its planning milestones to drive earlier identification of availability scope, ordering material earlier and soliciting contracts earlier that ultimately leads to earlier contract awards – a key enable for the private sector. The migration to earlier milestones is enabled by improvements in the Navy's ability to use maintenance data coupled with engineering analysis to determine lifecycle maintenance requirements and accurately estimate the scope of future repairs. The earlier award of the contract (from 60 days prior to 120 days prior to start) gives industry double the time they previously had to develop their planning products and buy required material. This initiative was informed by industry's feedback.

The Navy understands the importance of workload stability to a healthy and efficient industrial base. The method of contracting that workload is evolving from a complete one ship availability at a time strategy that did not provide long term workload predictability to a strategy that groups ship availabilities both horizontally and vertically to provide longer term predictability to incentive industry to grow the needed capacity. Vertical groupings for ships with similar start dates will include multiple overlapping availabilities within a single solicitation. The Navy awarded the first three-ship vertical grouping contract in February 2019

for USS Arleigh Burke (DDG 51), USS Bulkeley (DDG 84) and USS Gunston Hall (LSD 44). Horizontal groupings for ship availabilities occurring in a series will include multiple sequential availabilities within a single solicitation. The first horizontal grouping contract was awarded on September 25, 2019 for USS Chosin (CG 65) and USS Cape St. George (CG 71). Based on industry feedback on ways to improve, the Navy also recently awarded a double docking availability for the USS Stethem (DDG 63) and USS Decatur (DDG 73). By awarding multiple availabilities, industry gets a backlog of work that creates confidence in hiring and retaining a skilled workforce and investment in infrastructure.

Informed by strong dialog with the ship repair industrial base, the Navy has implemented multiple initiatives that are improving performance in available execution. Initiatives include utilizing pre-priced changes to eliminate previously-required approvals for small dollar changes, which typically account for 70 percent of growth work schedule delays and reducing the quality assurance checkpoints by 50 percent. The Navy has worked to improve forecasting of ship availability durations and port industrial capacity. With better estimates of projected availability durations and capacity to accomplish the work, the Navy has been able to reduce workload peaks and valleys at each port to create a more balanced and executable schedule for the industrial base.

#### CONCLUSION

The Navy fully understands that the on-time delivery of ships and submarines out of maintenance availabilities is a national security imperative. The Department is taking a holistic approach to ensure both our public and private yards have the information, people, and equipment needed to maintain the world's greatest Navy. The Navy will continue to work with Congress and our industry partners to address our challenges and to efficiently maintain and modernize the Navy's growing fleet by growing the capacity and capability of the industrial base.

**James F. Geurts**  
**Assistant Secretary of the Navy**  
**(Research, Development and Acquisition)**  
**12/5/2017 - Present**

On Dec. 5, 2017, Mr. James F. Geurts was sworn in as Assistant Secretary of the Navy for Research, Development & Acquisition (ASN (RD&A)), following his confirmation by the Senate November 2017. As the Navy's acquisition executive, Mr. Geurts has oversight of an annual budget in excess of \$60 billion and is responsible for equipping and supporting the finest Sailors and Marines in the world with the best platforms, systems and technology as they operate around the globe in defense of the Nation.

Mr. Geurts previously served as the Acquisition Executive, U.S.. Special Operations Command (USSOCOM), at MacDill Air Force Base (AFB), Florida, where he was responsible for all special operations forces acquisition, technology and logistics. In this position his innovative leadership and technological ingenuity provided rapid and affordable acquisition that positively impacted the USSOCOM acquisition work force and the special operations forces capability on the battlefield. These contributions were recognized by both private and public institutions during his tenure to include earning the Presidential Rank Award, USSOCOM Medal, William Perry Award and Federal Times Vanguard Award for Executive of the Year.

Prior to Senior Executive Service, Mr. Geurts began his career as an Air Force officer where he served as an acquisition program manager with engineering and program management leadership positions in numerous weapon systems including intercontinental ballistic missiles, surveillance platforms, tactical fighter aircraft, advanced avionics systems, stealth cruise missiles, training systems and manned and unmanned special operations aircraft.

He has over 30 years of extensive joint acquisition experience and served in all levels of acquisition leadership positions including Acquisition Executive, Program Executive Officer and Program Manager of Major Defense Acquisition Programs.

Mr. Geurts is a distinguished 1987 ROTC graduate from Lehigh University where he received a Bachelor of Science in Electrical Engineering. He holds a Master of Science in Electrical Engineering from Air Force Institute of Technology, Wright-Patterson AFB and in National Security Resourcing from Industrial College of the Armed Forces, National Defense University, Washington, D.C. Mr. Geurts also attended executive leadership and international studies programs at Harvard Kennedy School and George Washington Elliot School.

Updated: 19 December 2017

**Vice Admiral Thomas J. Moore**  
**Commander , Naval Sea Systems Command**

A second generation naval officer, Vice Adm. Thomas Moore graduated from the United States Naval Academy in 1981 with a Bachelor of Science in Math/Operations Analysis. He also holds a degree in information systems management from George Washington University and a Master of Science and an engineer's degree in Nuclear Engineering from the Massachusetts Institute of Technology.

As a surface nuclear trained officer for 13 years, he served in various operational and engineering billets aboard USS South Carolina (CGN 37) as machinery division officer, reactor training assistant and electrical officer; USS Virginia (CGN 38) as main propulsion assistant; USS Conyngham (DDG 17) as weapons officer; and USS Enterprise (CVN 65) as the number one plant station officer responsible for the de-fueling, refueling and testing of the ship's two lead reactor plants during her 1991-1994 refueling complex overhaul (RCOH). Additionally, ashore he served two years as a company officer at the United States Naval Academy.

In 1994, he was selected for lateral transfer to the engineering duty officer community where he served in various staff engineering, maintenance, technical and program management positions including, carrier overhaul project officer at the Supervisor of Shipbuilding, Newport News, Virginia, where he led the overhaul of the USS Enterprise (CVN 65), USS Theodore Roosevelt (CVN 71) and the first year of the USS Nimitz (CVN 68) RCOH; assistant program manager for In-Service Aircraft Carriers (PMS 312) in the office of the Program Executive Officer, Aircraft Carriers, Aircraft Carrier Hull, Mechanical and Electrical (HM&E) requirements officer on the staff of the chief of Naval Operations Air Warfare Division (OPNAV N78); and, five years in command as the major program manager for In-Service Aircraft Carriers (PMS 312) where he was responsible for the new construction of the George H.W. Bush (CVN 77), the RCOH of the USS Dwight D. Eisenhower (CVN 69) and the USS Carl Vinson (CVN 70) and the life cycle management of all In-Service Aircraft Carriers.

In April 2008, he reported to the staff of the chief of Naval Operations as the deputy director, Fleet Readiness, Office of the Chief of Naval Operations (OPNAV) N43B. From May 2010 to July 2011, he served as the director, Fleet Readiness, OPNAV N43.

Moore commanded the Program Executive Office for Aircraft Carriers from August 11, 2011 to June 1, 2016. Over this five year period, he led the largest ship acquisition program in the U.S. Navy portfolio; was responsible for designing, building, testing and delivering Ford-class carriers; led the Navy's first-ever inactivation of a nuclear-powered aircraft carrier, USS Enterprise (CVN-65); and was the lead in the U.S.-India Joint Working Group Aircraft Carrier Technology Cooperation.

Moore became the 44th commander of Naval Sea Systems Command (NAVSEA) June 10, 2016. As NAVSEA commander, he oversees a global workforce of more than 73,000 military and civilian personnel responsible for the development, delivery and maintenance of the Navy's ships, submarines and systems.

Moore's personal awards include the Distinguished Service Medal, Legion of Merit (three awards), Meritorious Service Medal (four awards), and the Navy and Marine Corps Commendation Medal (three awards).

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**QUESTIONS SUBMITTED BY MEMBERS POST HEARING**

OCTOBER 22, 2019

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#### QUESTIONS SUBMITTED BY MS. HOULAHAN

Ms. HOULAHAN. Many studies have shown that America's four public shipyards are overwhelmed—their workload far surpasses their current capabilities. That problem isn't going away any time soon, and in fact it will only get worse as our existing public yards need infrastructure improvements to handle the latest additions to the Navy fleet. For example, Norfolk Naval Shipyard will need upgrades just to be able to maintain the new *Ford*-class aircraft carriers. Likewise, Portsmouth Naval Shipyard will have a difficult time handling the new *Virginia*-class subs without new investment in infrastructure. Given these harsh realities, does it make sense to incorporate more private shipyards into the Navy's long-term repair plans?

Secretary GEURTS and Admiral MOORE. The Navy considers both the public and private industrial base when scheduling maintenance and modernization of its ships and submarines. As such, the Navy values and leverages the capabilities and capacities at our four public shipyards and the two private sector nuclear capable shipyards, Electric Boat and Huntington Ingalls Newport News, to support readiness requirements. While modernization is needed at the public shipyards, the current repair and maintenance industrial base represented by these six shipyards provides sufficient capacity to dry dock and maintain the Navy's aircraft carriers and nuclear submarines. The Navy is currently engaged in multiple lines of effort to enhance productivity and optimize Naval shipyard infrastructure to ensure delivery of this capability. With the upcoming retirements of LOS ANGELES Class submarines as they reach the end of their service lives, the Navy does not foresee a need for additional nuclear-capable private shipyards.

Ms. HOULAHAN. Is the ship dry-docking and maintenance capacity impacted by the growing needs of commercial vessels or the cruise industry?

Secretary GEURTS and Admiral MOORE. The Navy's current dry-docking and maintenance capacity is not directly impacted by the needs of the commercial industry.

Ms. HOULAHAN. The Senate Appropriations Committee is recommending a pilot program for ship maintenance that would transfer \$1.2 billion in Operations and Maintenance, Navy funds to the Other Procurement Navy account in order to contract for private shipyard maintenance of our Navy's Pacific Fleet. I would like to get your perspective on the record. Are you in favor of this Senate provision becoming law? Further, assuming that we do reach agreement and enact appropriations for the Department of Defense for fiscal year 2020, I would like to ask you both about the ground rules for this potential funding and how the Department of the Navy would go about executing the pilot program. What ship classes would you consider for maintenance? The pending Senate report language calls for the pilot project to address Pacific Fleet vessels only—would you be in favor of amending the Senate language to include maintenance for ships on the east coast as well? Would any competitions for availabilities be limited to homeports and/or fleet concentration areas? Do you foresee any impact on the public naval shipyards as a result of the pilot?

Secretary GEURTS and Admiral MOORE. The Navy supports a pilot effort to explore the use of OPN funding vice O&M, Navy (OMN) to mitigate challenges associated with single year funding of multi-year ship maintenance availabilities for ships in Pacific Fleet.

- The following ships that have maintenance in private sector shipyards would be considered:
  - Cruisers (CG)
  - Destroyers (DDG)
  - Littoral Combat Ships (LCS)
  - Landing Helicopter Assault (LHA)
  - Landing Helicopter Dock (LHD)
  - Landing Platform/Dock (LPD)
  - Landing Ship Dock (LSD)
  - Mine Countermeasure (MCM)
  - Patrol Ship (PC)

- Pending the results of this pilot, the Navy would support expanding the authority to the east coast.
- The Navy must comply with 10 United States Code §8669a which restricts short-term availabilities (less than 10 months long) to the homeport. However, competition can be expanded if there is insufficient capacity and/or competition in the homeport. Availabilities over 10 months long are competed coast wide.
- The Navy expects no impact to the public shipyards.

