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EFFORTS TO IMPROVE SHIPBUILDING EFFECTIVENESS

HEARING

BEFORE THE

SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

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EFFORTS TO IMPROVE SHIPBUILDING EFFECTIVENESS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE,
Washington, DC, Thursday, July 30, 2009.

The subcommittee met, pursuant to call, at 2:39 p.m., in room HVC–210, Capitol Building, Hon. Gene Taylor (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. GENE TAYLOR, A REPRESENTATIVE FROM MISSISSIPPI, CHAIRMAN, SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

Mr. TAYLOR. I want to apologize to our guests for the delay. We had a series of votes on the $650 billion defense appropriations bill. So since many of you people are in that line of work, you probably won't mind the delay.

For the sake of time because I have kept you so late, I am going to waive my opening statement and submit it for the record.

[The prepared statement of Mr. Taylor can be found in the Appendix on page 51.]

Mr. TAYLOR. I also want to acknowledge that Congressman Akin has been delayed, but he said he is more than ably represented by two of his colleagues here. So I am going to yield to Mr. Wittman for the opening statement on the minority side.

Mr. WITTMAN. Thank you, Mr. Chairman. I will also ask for unanimous consent to have Mr. Akin's comments entered into the record, and I will also bypass the opening statement.

Mr. TAYLOR. Without objection.

[The prepared statement of Mr. Akin can be found in the Appendix on page 54.]

Mr. TAYLOR. We are joined today by the Under Secretary of the Navy for Acquisition. Secretary Stackley, Vice Admiral McCoy, thank both of you for being here. Again, I apologize for the delays.

Secretary Stackley, you are recognized.

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

Secretary STACKLEY. Thank you, Mr. Chairman. I think I will follow your lead and request that my statement be submitted for the record and leave more time for questions.

Mr. TAYLOR. Secretary Stackley, I think we would very much like to hear what you have to say.

Secretary STACKLEY. Very good.

Mr. TAYLOR. Was that politely said?

Secretary STACKLEY. Yes, sir.

Mr. TAYLOR. Okay.

Secretary STACKLEY. Mr. Chairman, distinguished members of the subcommittee, thank you for the opportunity to appear before you today to address shipbuilding and, in particular, to address Navy and industry efforts to reduce acquisition costs of new construction ships.

If it is acceptable, I would propose to keep my opening remarks brief and submit a formal statement for the record.

Mr. TAYLOR. Without objection.

Secretary STACKLEY. Today's Navy is a fleet of 283 battle force ships, as many as half of which may be underway on any given day providing security and assistance for our interests and the interests of our friends and allies around the world. The quality of our force, our ships, aircraft and weapons systems is unmatched at sea. The fact is that your Navy and Marine Corps stand ready to respond to major conflict with the most capable naval warfare systems in the world today.

A group of senior leaders from industry, government and retired military, known as the Business Executives for National Security, released a report this past week titled, "Getting to Best: Reforming the Defense Acquisition Enterprise." The report is rich in lessons, understanding and fundamental recommendations for today's leadership regarding the challenges before us in acquisition.

The task force clearly points out that most of the equipment produced by the U.S. defense acquisition process remains the equipment of choice of most of the world's military forces and as downward pressure on resources for national security generates a sense of urgency in making the acquisition process as efficient and effective as our war fighters deserve and American taxpayers expect, that we need to be careful to focus on fixing what is broken, not what works.

As we all are well aware, ship costs are rising faster than our top line and our ability to build that future fleet, which will guarantee our naval superiority for the next generation and beyond, relies in no small part on our ability to fix what is broken, not what works.

I would like to discuss each of these considerations briefly. At the risk of oversimplification, the causes for cost growth in shipbuilding could be divided into a couple of categories: the environment we are in and the way we manage within the environment we are in.

That environment is characterized by a couple of key factors. First, low-rate production, low rates of Navy shipbuilding production compounded by the long loss of commercial shipbuilding that once helped underpin our industrial base drives many unfavorable economic factors that impact our shipbuilding costs.

It causes overhead cost increases, slows shipyard capital investments, weakens the underlying vendor base, stifles opportunities for shipyards to leverage buying power with the vendors and constantly threatens production gaps, which result in loss of learning and harmful effects of cyclic layoffs, subsequent hiring and retraining.

Second, reduced competition. Reduced competition is somewhat a fallout of low-rate production in the related industry consolidation.

Today we are confronted by a shipbuilding program with limited options for leveraging the benefits of competition while simultaneously we seek to preserve the unique critical skills and capabilities of our already downsized shipbuilding industrial base. As a result, we are continually challenged to compensate for the impacts of reduced and, in certain cases, lack of competition.

Third is increased system complexity. The ships and weapons systems we are delivering today are far more capable and accordingly, far more complex than the systems they are replacing. This increased complexity, however, has raised the stakes regarding risks in development while also causing an upward shift in the system costs and the skills required to develop, build, install, integrate and test these new systems.

These challenges require changes to the way we, Navy and industry, manage our shipbuilding portfolio. And they are compounded when discipline and/or best practice break down in the way we manage our shipbuilding programs.

Perhaps the most commonly cited cause for cost growth is excessive requirements accompanied by unrealistic cost estimates. Troubled programs are typically hamstrung at the outset by estimates and budgets that do not adequately account for risks inherent to the design and development associated with meeting very stressing requirements.

We need to do a better job of informing the process with realistic cost estimates and realistic risk assessments at the front end of programs. This will drive the difficult requirements decisions early when there are true choices and true opportunities to be had.

Then we need to hold to these requirements. For it is well understood that stability is key to the success of major programs. Stable plans, stable budgets, stable requirements, stable design lead to predictable performance and steady improvement. This is perhaps best evidenced by those programs that are performing strongly today, most notably the DDG–51 [*Arleigh Burke*-Class Guided Missile Destroyer], *Virginia*, and T-AKE [Dry Cargo/Ammunition Ship] shipbuilding programs, each of which is capitalizing on a long, stable production line.

It is incumbent on the government, preferably through competition, but as is often necessary in shipbuilding, through negotiation, to structure contract terms and conditions that protect our interests and properly incentivize industry's performance. And it is necessary for us to be diligent in overseeing execution of the contracts.

And this brings me to shipyard performance. For in the end, having arrived at a contract, we look to the shipbuilder and systems integrators to perform to standard and to deliver a quality product in accordance with the terms of the contract.

The reality is that we are pressing a large number of initiatives, practices and standards across the board to improve shipbuilding cost performance. As noted, we are beginning with requirements and ensuring that our requirements are informed by realistic cost estimates and balanced by our resources. And we are seeking to impose stability.

We do not have a good track record here, but I can assure you that from the Secretary right down to the individual shipbuilding

program managers, we understand the importance of this stability. And we are intent on holding the line.

We look to more effectively employ competition at all levels of shipbuilding from prime contractors to individual equipment vendors and to continue the current trend toward greater use of fixed price contracts. We have employed and continue to explore indirect and direct investments to sustain and improve upon the capabilities of our industrial base.

And we have increased our focus on design producibility. And through initiatives employing the national shipbuilding research program, we are making progress and driving costs out of our specifications and standards.

Similarly, working with industry, we need to continue to leverage our automated design and manufacturing capability to gain the benefits that that brings to the process.

We are instilling greater discipline to ensure our designs and production planning are mature prior to starting construction in order to minimize the costly rework associated with out-of-sequence work.

To meet these objectives, we must be smart buyers. The acquisition workforce has been—over the past decade to the extent that our professional corps has been stretched too thin and we have outsourced too much of our core competencies.

Accordingly, we are rebuilding our Navy acquisition workforce. For example, the Navy has conducted a comprehensive bottom-up analysis of our on-site supervisors of shipbuilding organization and identified shortfalls are being addressed by augmenting the on-site waterfront capability of these supervisors in the areas of engineering, project management and earned value management.

These strategic moves, properly executed, will enable necessary tactical changes in our shipbuilding processes as we pursue multiyear procurements, block buys, greater leverage of commonality, design, portability, more effective contract incentives, capital improvement programs, software reuse and other related cost-reduction initiatives.

Over the past decade we have introduced 11 new designs, 11 lead ships, each a highly complex prototype bringing its own unique challenges.

Compounding these issues, particularly in the case of these lead ships, where there is greater risk and uncertainty, we fell short on our ship cost estimates or in certain cases on our willingness and ability to fully fund the estimate.

All these factors led to inefficient ship production and cost growth.

We have learned, or in certain cases relearned the lessons of this experience. Accordingly, the Navy understands and agrees with the objectives of the Weapon Systems Acquisitions Reform Act, and we strive to meet the spirit and intent and the ongoing initiatives I have described to raise the standards, to improve the processes, to instill necessary discipline, and to strengthen the professional corps that manages our major defense acquisition programs.

All of this with the ultimate objective of delivering the fleet the war-fighter deserves at the cost the taxpayer expects.

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

[The joint prepared statement of Secretary Stackley and Admiral McCoy can be found in the Appendix on page 55.]

Mr. TAYLOR. Thank you, Secretary Stackley, for a great opening statement.

The chair now recognizes Vice Admiral Kevin McCoy, commander of Navy Sea Systems Command.

STATEMENT OF VICE ADM. KEVIN MCCOY, USN, COMMANDER, NAVAL SEA SYSTEMS COMMAND, U.S. NAVY

Admiral MCCOY. Good afternoon, Mr. Chairman and members of the subcommittee. Thank you for the opportunity to be here and discuss our strategies for reducing the rising costs of building ships in the 21st century.

My written comments are included along with those in the joint statement that Mr. Stackley requested be submitted for the record. I do have a short opening statement, though, sir.

Mr. TAYLOR. Without objection, your statement will appear in the record. Please proceed.

Admiral MCCOY. As the commander of Naval Sea Systems Command, I am the technical authority for Navy ships, weapon systems and infrastructure. It is critical that we hold ourselves to the highest standards in our engineering and decision-making as we have the responsibility to ensure we buy, equip, build and maintain and modernize the Navy fleet now and well into the future.

Our technical authority responsibility is about making sure our ships and weapon systems operate safely, effectively and reliably. Our technical responsibility is also about making sure that ships and weapon systems are affordable and that we specify only those requirements that support war-fighting needs and no more.

First and foremost, NAVSEA [Naval Sea Systems Command] is a technical organization and our credibility and value to the Navy start with technical discipline and rigor.

In the written statement, we outline the challenges to achieving our goal of 313 ships. There is no single fix, but we are working hard with our industry partners on several fronts to decrease the costs of new construction, improve first-pass quality, and ensure our ships and weapon systems operate safely, effectively and reliably.

We are working hard to address these 21st-century challenges in order to keep America's Navy number one in the world.

Mr. Chairman, thank you again for the opportunity to be here with you today. I would be happy to take any questions you may have.

[The joint prepared statement of Admiral McCoy and Secretary Stackley can be found in the Appendix on page 55.]

Mr. TAYLOR. I thank the admiral.

And I would be remiss if I did not mention that towards the goal of reaching the 313-ship Navy we are very grateful for the Appropriations Committee. We thought we put together a good package on the authorization side, and I am very happy to announce that in today's package was $15.8 billion and 10 ships.

And so I want to thank Mr. Murtha, Mr. Lewis and all the appropriators on taking a good package and I think making it even better.

I now want to recognize my ranking member, Mr. Akin.

STATEMENT OF HON. W. TODD AKIN, A REPRESENTATIVE FROM MISSOURI, RANKING MEMBER, SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

Mr. AKIN. Thank you, Mr. Chairman.

This is the second time today I have gone to the Longworth Building to try to get to the meeting. Some of us rats are hard to train, but we have got three panels of witnesses so I don't want to take too much time, but I just want to toss out something that I am not totally satisfied or settled on.

And I appreciate both of your gentlemen's expertise. And my own concern is around the idea of project management. And there are many of the different things that are in our different written testimonies that are common to manufacturing and common sense that are all things we know that we have got to manage and pay attention to.

The concern I have, and it is maybe because I am not familiar with it, but I have an intuitive sense, and that is the way the Navy is organized in terms of the idea of the people that develop the requirements and then you move that over to the people who do the purchasing.

I am still not comfortable that that system is as seamless as it might be, and particularly in making it clear that there is a very clean chain of command and that one person is responsible for a project and that they have a team that is on top of those things and keeping us from having problems.

And I think you gentlemen know, because of your expertise, you could take very, very good people and put them in the wrong system and end up with problems.

So that is something that, if you would like to comment on, I don't want to take a lot of time on it, but it is something I would like to look at in the future. Which it is not so much some of the things about upgrading the size cranes or the layout or different buildings or being smarter, making sure we have the design done before we start building something, all those kind of go without saying. But that organizational structure is still something that is a little bit I am hung up on, if you would like to comment.

Thank you.

Secretary STACKLEY. Yes, sir. Let me describe a few things. One, your concerns are well placed because inside of a large organization where you have separate requirements, budgeting and acquisition processes, there is plenty of opportunity for things to go wrong, and there is plenty of history to show examples of where that has occurred.

What the Department of the Navy has done to try to make this more seamless is take a look at the process that we use and bring requirements, budgeting and acquisition together inside of what we refer to as a gate review process.

The gate review process is co-chaired by myself and the CNO [Chief of Naval Operations] or the Vice Chief on the OPNAV [Office

of the Chief of Naval Operations] side of the house, and depending on what phase of the program, the front-end requirements governs the process. So in that case, the CNO or his representative chairs the gate review process. When it gets handed over to acquisition, I would chair, but the membership is the same regardless of where we are in the process.

And gate reviews are conducted for every major milestone and at least once per year for every major program on top of that where we ensure that the programs, as the requirements are being developed, we are ensuring that the costs and technical aspects of the requirements are being informed so that those tough decisions that need to be made can be made.

And then the budgeting process, financial management is at the table. When we transfer over to the budgeting process, the burden is on the FM [Financial Management] side of the house or the programmers, depending on where we are in the budget cycle, to ensure that the requirements that were defined and estimated are budgeted.

And then when we move into the acquisition process and it gets handed over to the program manager for execution, he now has a requirements baseline as he puts together the Request for Proposal to go to a contract, before he goes to contract, the RFP [Request for Proposal] is brought back to the table at the gate review process and reviewed.

So now we have each member of the requirements, budgeting, acquisition process in step as we move into acquisition and execution of the contracts. And then changes to the contract are brought back on that annual basis, or otherwise as required, to a version of the gate review referred to as a configuration steering board, to ensure that, again, each voting member has insight into the decisions that need to be made and the information is provided so that healthy decisions can be made.

Mr. AKIN. The way you describe it, it sounds very organized and logical. Have we not done it that way in the past?

Secretary STACKLEY. That is correct.

Mr. AKIN. Is there any help that Congress can be or do you have all the authority you need to set that up, that process, the way you want without us? You don't need us particularly to pass any law or anything?

Secretary STACKLEY. I think we have all the authority that we need. Yes, sir. I appreciate that. In fact, we have also invited OSD [the Office of the Secretary of Defense] to the table. This isn't just an internal Navy discussion because the configuration steering board requirements, these blow down from the Under Secretary of Defense, Acquisition, Technology and Logistics, so we have brought his representative to the table as well to partake in certain cases where the milestone decision authority is AT&L [the Under Secretary of Defense for Acquisition, Technology and Logistics] himself.

Mr. AKIN. So you have everybody on board then?

Secretary STACKLEY. Yes, sir.

Mr. AKIN. Yes. Go ahead, please.

Secretary STACKLEY. I was going to say, it has been in place for just about a year, a year-plus. So on paper, it is ideal. In practice,

we continue to work out the bugs, but it is a significant step forward in terms of elevating visibility and basically bringing everybody to the table to address the issues before major decisions.

Mr. AKIN. So you won't bring us as many surprises that way.

Secretary STACKLEY. That is the intent.

Mr. AKIN. Yes. Thank you very much.

Thank you, Mr. Chairman.

Mr. TAYLOR. The chair thanks the gentleman from Missouri.

The chair now recognizes the gentleman from Connecticut, Mr. Langevin—Rhode Island, Mr. Langevin.

Mr. LANGEVIN. Connecticut is a nice place, too, Mr. Chairman. We are neighbors. [Laughter.]

Thank you, Mr. Chairman.

Gentlemen, thank you for your testimony and for your service to our country.

Secretary Stackley, let me just start with you, if I could. I am sure you agree that to increase schedule efficiencies and cost-savings in major programs, it is very critical to begin work as early as possible. However, I understand that despite the instructions in the fiscal year 2009 budget, the Navy has not yet contracted a third *Zumwalt*-class destroyer. If my understanding is incorrect, please let me know that, but if it is correct, why is the Navy delaying the award of the ship? And are there any cost savings if the contract were to be awarded now?

Secretary STACKLEY. Let me describe that. We are not delaying the award of the ship. What we have done, and we brought forward in the springtime was what I refer to as a "swap." It is the business agreement between the Department of the Navy and the two shipbuilders that are involved in the DDG–1000 [*Zumwalt*-class guided missile destroyer] program.

So the third DDG–1000 is being allocated to Bath Iron Works as a part of that business agreement. And we have been very steadily in a focused fashion marching through the execution of that business agreement between Bath Iron Works, the Department of the Navy, and Northrop Grumman, who is the other shipbuilder involved.

So as we line up contracts in terms of material procurement and we look at work-flow at the shipyards, addressing the concern that you raise regarding most efficient scheduling, we believe that we are on track to support that.

Now, two weeks ago, about two weeks ago in a joint industry-Navy DDG–1000 review, we also brought in the systems integrators, Raytheon, and BAE, who provides the ordnance systems for the ship. Raytheon raised the potential for savings if we could accelerate the award of the third DDG–1000 systems. And we are taking a hard look at that right now.

Mr. LANGEVIN. There are some that estimate that we could save about $120-plus million if those contracts were signed sooner rather than later, so I hope you can take a look at that. Do you have, you know, kind of a ballpark estimate, in terms of timeframe, when you believe that your due diligence would be completed and those contracts would be signed?

Secretary STACKLEY. Sir, I would like to take that question for the record, if I could.

[The information referred to was not available at the time of printing.]

Secretary STACKLEY. I will describe that that significant figure you just offered was put on the table. And my first question was: That is $120 million savings to what baseline? We just completed negotiations for the combat system for the DDG–1000 for the first two hulls. Perhaps two to three months ago was when negotiations wrapped up.

So having gone through that effort, we have a pretty solid technical baseline. We are not proposing any significant changes to that technical baseline. So I think the 1½- to 2-year effort to complete those negotiations, we should be able to wrap up in a fairly streamlined fashion, here, when we get going in earnest.

Now, I have to work the—decision authority for DDG–1000 is the under secretary of defense. And I will be working with him to clear that package, in terms of going forward on the negotiation process.

So we are aware of the opportunity; we are pursuing the opportunity; and I will get you back a more specific response in terms of notional timeline.

It is a two-party negotiation, which is why I can only address my willingness to start, and then we will get into negotiations accordingly.

Mr. LANGEVIN. Fair enough. Well, I look forward to hearing from you on that. And I know the committee will look forward to hearing back from you on that as well.

Thank you, Mr. Chairman. I yield back.

Mr. TAYLOR. The chair thanks the gentleman for a great line of questioning. Because we have three panels and because there are other things going on on the House floor, we are going to try, to the greatest extent possible, to adhere to the five-minute rule.

The chair now recognizes the gentleman from Virginia, Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman.

Secretary Stackley, in your written testimony, you point out a number of different points, but I want to focus on three of them. First you say we need healthy competition. The other, you say we need aggressive cost reduction programs; and, next, we need to invest in facilities and training for our shipbuilding industrial base.

In looking at those three elements of your suggestions, it seems like, to me, that all of those are related, in some relationship or other, to scale, and if we don't have a large enough scale of production, that some of those things might be hard to obtain.

And I know we always look at foreign shipbuilders and say, "How come they can produce ships at a lower rate than we can?"

And I think, if you look at that, these are admirable objectives, but all of them are related to scale. Can you talk a little bit about how you would look at achieving this within the current scale of production?

And then, are there things that we should be doing, maybe with Title XI and the Jones Act that could help this industrial base be able to achieve some of these efficiencies that you seek through competition, aggressive cost reduction programs and investing in facilities there at these shipbuilding facilities?

Secretary STACKLEY. Certainly. Let me start with competition. We do have very limited competition in shipbuilding. Basically, we have two large corporations that own what we refer to as the "big six" shipyards. And the competition across those two corporations is limited.

We don't have competition at the prime level on carriers. We have teaming submarine programs. Most of our amphibious and auxiliary programs are singled up, at least after the initial down-select.

And then we have the DDG–51 program, where we have had very successful competition in the past. And after this front-end re-start, we look forward to continued competition in that program.

And then when you get to the second-tier shipbuilders and the programs there, in fact we have more shipbuilders involved, and so we have had competition, and we have to continue to work some of the challenges of sustaining that competition over the longer haul in that tier.

That is at the prime level. What we have to be more steadfast on is driving that competition down below the prime level. And we will be working with the shipbuilders, where they are now the prime contractor, to leverage the competition, whether it is major components or otherwise, and then it will be an intellectual assessment that needs to take place between where do you leverage competition or where do you leverage commonality.

Because sometimes we will be going down a commonality path, where we prior had competition. And those are going to have to be evaluated on a case-by-case basis.

There is a separate universe that comes to the ship associated with combat systems and C4I [Command, Control, Communications, Computers, and Intelligence]. And again, we find ourselves quite often in the situation where, after the down-select for the prime contract, now we are largely in a sole source at the prime level, and we have to continue to drive competition below that.

On the combat system side, what we are investing heavily in is going toward open architecture, where, in open architecture, we do a couple things. We decouple the heavy software from the components to allow the hardware to be competed, and then we are going to the hard part, now, which is going inside of the software and buffeting that up into modular construct so, in fact, we can bring small businesses into the game and compete for some of the software development.

Shifting over to cost reduction, I believe every program, in effect, today, virtually every program needs to launch a very focused cost-reduction program that is program-specific.

Let me start with the front-end design. After you have awarded the contract, from day one we need to be focusing our engineering efforts on producibility, on ways that we can bring the costs down.

I turn to Admiral McCoy, who owns the technical authority and the specifications to identify ways that, within our specifications, we can enable the shipbuilders to design a more affordable ship.

And then, once the ship is built, we need to continue to identify opportunities, based on the as-built condition, to drive down the costs.

And as I said, I think every program, right now, has some element of a cost reduction program, and we need to keep a focus on it.

The third area, regarding facilities and training, we have a number of initiatives, in terms of incentives, working across the shipbuilders, largely focused on their specific needs and our ability, within the contracts, to provide those incentives, as well as terms and conditions within our contracts that allow for investment in their facilities to be borne, either in terms of depreciation in the overhead or cost of money issues.

Training is a little bit harder, but I think it is equally important. We do not have the ability to directly fund training for the workforce, but I look forward to exploring opportunities to provide similar incentives, or at least working with the states to where, across programs, we can build that workforce.

Mr. TAYLOR. The chair thanks the gentlemen.

The chair recognizes the gentlemen from Connecticut, Mr. Courtney.

Mr. COURTNEY. Thank you, Mr. Chairman.

And thank the witnesses for their thoughtful testimony. The description that Mr. Stackley was just giving about how you get to that path toward affordability sounds familiar, because really the *Virginia* class is, I think, a concrete example of how you can actually make those efforts all come together and get to that point.

My question is just very simple. At the opening part of your statement, you again cited the 313-ship Navy target that CNO has emphasized. And the last time I had heard, the Navy was projecting 2019 to get to that number. And I—where are we with that? I mean, what is your best take in terms of when are we going to reach that floor, that the CNO calls it?

Secretary STACKLEY. The honest answer, sir, is we are going—we are right now in the midst of building the 30-year shipbuilding report. That did not come with the 2010 budget. We are building that report, commensurate with the QDR [Quadrennial Defense Review] that is being worked with the OSD.

So for me to give you a better time frame than your reference 2019, which is going back to the 2009 submission of the 30-year report, I cannot give you a better estimate. And I am not likely to be back here six months from now and explaining why the estimate I gave you today has changed.

The numbers you have are from the 2009 report. That is probably a good starting point. That is our starting point as we work the QDR and the 2011 submission of that report.

Mr. TAYLOR. The chair thanks the gentleman.

The chair now recognizes the former chairman of this committee, the gentleman from Maryland, Mr. Bartlett.

Mr. BARTLETT. Thank you very much.

Mr. Secretary, you mentioned very early that the fundamental problem here is a lack of competition. And this reality is reflected in a number of things.

One is the problem of modernizing. The officers that run our shipyards have a fiduciary responsibility to the stockholders. We understand that in this country. It is not the responsibility to us; it is not the responsibility to the taxpayer.

And the reality is that because the volume is so low and because it is—these contracts are largely cost-plus contracts, there is little—essentially no—business incentive—there may be a patriotic incentive, but no business incentive to modernize.

Now, we could—the government could provide this new equipment, like laser cutting and welding and so forth, but if we did that, then we would make sure there would never, ever be any competition in the commercial world, because then they couldn't use that equipment for building commercial ships, so there would certainly be a WTO [World Trade Organization] suit for that.

There are two solutions to the problem of competition. One is to reduce the infrastructure. If we have half the infrastructure building the same amount of the ships, then we would have some competition. I don't think we are going to do that. I don't think I would want to do that, because there may be a time when we would need this infrastructure so we would build more ships.

So then the only other way to increase our competition is to build commercial ships, so that we have more throughputs for the yards. But we are just not competitive, and we cannot build commercial ships.

We are kind of like in the situation of a power production plant which can only do a—where they can't do a black start. And that is kind of where we are. I don't know how to get from where we are, in a essentially noncompetitive position for commercial shipbuilding. We represent 25 percent of the world's economy, and we build essentially 0 percent of the world's large commercial ships.

And it is clear, if we are ever going to get shipbuilding costs down for our military ships, we have to do that on the back of a big commercial shipbuilding program.

How do we get there?

Now, you guys are doing the best you can. The yards are doing the best they can under these circumstances.

You know, once you get around the problems of being overly optimistic and requirements creep—and we have got to solve those problems. Everybody understands that. But how do we get from where we are to commercial shipbuilding, so we have real competition?

Secretary STACKLEY. Yes, sir, let me—I have been working on that for 25 years. And I don't say that in jest.

Let me first say that commercial shipbuilding in this country is virtually 100 percent associated with Jones Act shipbuilding.

Mr. BARTLETT. And that—they are not really competitive, sir, because the only place they can be built is in this country. No matter what they cost, we are going to build them here, because that is what the law says, right?

Secretary STACKLEY. Yes, sir. And it is—what I am providing for you is what the base work looks like in terms of commercial shipbuilding in the country today. And even in Jones Act shipbuilding, the downturn in the economy has virtually dried that up. There are minimal Jones Act shipbuilding orders coming our way, in terms of shipbuilding.

The last of U.S. Navy—or, I am sorry, U.S. commercial shipbuilding virtually ended with the elimination of the differential subsidies that went away during the 1980s. During the 1980s, the

build-up of naval ship construction, the administration determined that we are going to invest in Navy warships. We are going to remove the differential subsidies for commercial shipbuilding. The U.S. industry moved to naval warship construction.

After the Wall comes down, naval warship construction drops off. Differential subsidies are gone. And we haven't been competitive in the international commercial market since.

So in considering what would we need to do to get back into that business, I can tell you that we have done benchmarking. We had a company by the name of FMI that came in and benchmarked our shipbuilding industry.

Mr. BARTLETT. If I might, my time has run out. We have a few more panels, and this is a huge subject. And you can't in the one second remaining do justice to it. But thank you for your concern about it.

And I hope that we can have a dialogue in the future. This is a really, really challenging problem. And it is not going to be easy. But unless we do that, I think we are forever going to be stuck with huge costs for our ships, and the 313-ship Navy is going to be a real challenge.

So thank you for your testimony.

And I yield back, Mr. Chairman.

Mr. TAYLOR. Thank you, Mr. Bartlett.

And I would like to remind all the members of this subcommittee that there will be a tour of what I consider to be some of the best shipyards in the world beginning a week from Saturday. It will end up on the West Coast at the yard in San Diego. But we want to encourage those of you who can find the time, to please do so.

Mr. Bartlett got this program started when he was the chairman, and we have learned a lot from it. This one is going to be a little bit different in that we are inviting both Northrop Grumman and General Dynamics to meet us there—obviously, they can't travel with us on the government's nickel—because we want to reinforce the point that we do build the world's greatest ships. I am not so sure we have the world's best tools to build those ships, but I think we can get better.

Having said that, I want to recognize the gentleman from California, Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman.

And to play on Mr. Bartlett's theme, could you really quick go into when it comes to competition, the way that NASSCO's been partnering with Daewoo in South Korea? I believe that the CODEL [congressional delegation] is going there to look at South Korean shipbuilding and NASSCO is trying to get into that commercial market to be competitive for non-Jones Act ships.

Secretary STACKLEY. Yes, sir. You are looking for a comment?

Mr. HUNTER. Yes, please.

Secretary STACKLEY. I will comment, and the second panel, I think Mr. Heebner would probably be able to outdo me on this. But from the Navy's perspective, we are very impressed with the efforts by NASSCO to team with Daewoo. That has helped them in terms of not just competing for and winning the PC [Product Carrier] contract, but in terms of their success in building the PC class.

That is interesting to the Navy, but what is more important to the Navy is that the lessons that they have learned from the Koreans and that they are applying to that commercial contract we are getting equal benefit on the T–AKE program. They are being very aggressive about it. It is yielding strong results in terms of sustained learning on the T–AKE program that we are both getting the benefit from.

Mr. HUNTER. Playing on the T–AKE program, which you just mentioned, the last two are going to be built in fiscal year 2010. And I was wondering if you could comment on what the Navy is looking at. Another specific question, maybe the only specific question that has been asked so far regarding the company, but what are you looking at regarding keeping a production gap out of there, out of NASSCO, which is the only kind of shipbuilding company like it on the West Coast? What are you looking at there as those two get built? The last one got pushed off indefinitely. MLP [the Mobile Landing Platform] is 2012, and that is still iffy. Is the Navy looking at that?

Secretary STACKLEY. Let me start with the T–AKE program. As you are aware, the 14th ship of the program is under consideration right now in the department as we put together both the QDR and the 2011 budget. And when you look beyond that at Navy shipbuilding programs, the MLP, there was advanced procurement in the prior year, and the MLP is a part of that QDR discussion and debate. We recognize, frankly, the value and strength of NASSCO as a part of our industrial base.

So as we debate the future force structure, size and shape, and the impact on shipbuilding, NASSCO's role in that debate is very prominent. And that is—I can't give you much details beyond the fact that the debate is taking place, but that characterization of not just NASSCO, but the industrial base centerpiece of that discussion is matter-of-fact.

Mr. HUNTER. Thank you, Mr. Secretary.

Mr. Chairman, I yield back the balance of my time.

Mr. TAYLOR. I thank the gentleman.

Secretary Stackley, there was a line of what I hope were well-intended amendments to the defense bill today, and several of the proponents of those amendments were making a point that it felt like how do we know if we are getting a fair value for something, particularly if it is a single-source.

And one of the things that we know—we hope have corrected in this year's defense authorization bill was the language we included for the Littoral Combat Program—ship program—that offered the vendor, which you at the amount that you determined was a fair price, gave them a take-it-or-leave-it offer, but also specified that if they chose not to build the ship for that price, that approximately $80 million of that money would be taken out so the nation would have the technical data package, in effect the specifications for that ship so we could put it out for bid and see if someone else would build it for that price.

Using that analogy and using the frustration of some of our colleagues that we weren't getting a good price on some things, is it going to be now as you reconstitute your acquisition force, is it going to be one of the goals of your group to see to it that, in clear

language, that every time we buy something as a part of that contract, we let it be known that we are—"we," the United States of America—are going to own that technical data package, so that for follow-on purposes—we want to respect the right of the inventor to have his investment rewarded—but for follow-on purposes, for follow-on purchases, that we are going to own that technical data package in order to get the best price we can for the taxpayers, and hopefully the best ship for the Navy as we do so.

Secretary STACKLEY. Sir, that is a straightforward question, but it is a difficult question because of the number of variations on that theme.

Mr. TAYLOR. Okay.

Secretary STACKLEY. Our intent is to pursue the technical data package for future competitions, but there will be cases and examples whether either components or specific system designs or elements of that technical data package are owned by the bidder, either because they were developed separately for some other purpose, some other competition that didn't involve the government, and then we would have to choose between paying what is often a very high price for that technical data package, or taking government purpose rights that gives us significant amount of liberty in terms of how we employ that technical data package for future competition.

And, sir, what I could commit to you today is when we run into those exceptions, we will ensure that Congress is aware of them before we go to contract, so that there are no surprises on the back end of such a contract award.

Mr. TAYLOR. I appreciate that, Secretary Stackley. But I want to give you, you know, a for instance. Without owning the technical data package for the LCS [Littoral Combat Ship], one is off of Somalia. It is a very crude mine in the water, and is significantly damaged. I would think without the technical data package, that would preclude you from taking that ship to the nearest shipyard and having it repaired to the original spec.

Again, that is just one for instance, and I realized that is a larger than average package, but I think for a lot of reasons, again I am very grateful the appropriators upped our budget to $15.8 billion, but we still have 313 ships to build with that, hopefully, 10 to 12 of them a year with this amount of money.

And we have just got to do better, and I would think that—I understand where you are coming from, but to the greatest extent possible, we have got to own the rights to those things we bought.

Secretary STACKLEY. Yes, sir. For that example, let me start by saying that we do own the technical data package for the LCS to the extent that we either own outright or we have government purpose rights. So for the example you just described, we absolutely have what we need to conduct any repair on that ship.

When it comes to structural details, system details, I cannot envision a scenario where we don't own the technical data package unless we were buying—right now, I can envision that. Where you start to get into some difficulty are commercial items that might be a part of a ship design, reuse of software that is commercial. These elements that were developed for a commercial market that

we are bringing to bear inside of the ship design, we typically would not pursue those data rights.

Mr. TAYLOR. Okay. Again, I am going to ask of the Navy's legal team for them to draft language so we can spell this out either in this year's defense authorization bill or at the very latest, next year's, that that is what we as a nation want to make our standard practice.

Secretary STACKLEY. We will work with your staff on that, sir.

Mr. TAYLOR. Thank you, sir.

Admiral McCoy, we didn't need to—we did not mean to leave you out. If there is anything you wish to say, again this is more working on the acquisition side and so that is why we have kind of spoken to the civilian end of it, rather than the folks who follow up on it.

I—again, as we reconstitute that force, we are counting on the people that work for you to see to it that, on a day-to-day basis, we get the best bargain for the nation, best—more ship for the money. And I would also hope that you would empower those people who work for you on a day-to-day basis, if they see a better way to do something, that they would get back—they would feel like they could speak freely to this committee as to what we are missing, what opportunities are we missing, to get a better bargain for the taxpayer.

I don't fault the people in corporate America for trying to get the most money for the ship. That is their job. It is our job to get the most ship for the money. And so I would encourage you to encourage your people, to whatever extent you can do so, to encourage them to keep us aware and to try to find a better way in everything we do.

Admiral MCCOY. Yes, sir. As we work to rebuild that acquisition workforce, and it is in many areas, it is—we have hired over 200 new supervisors of shipbuilding folks in the last year-and-a-half. And I am not sure that that is the end-state. We are taking a pause right now. We just added another 30 because we weren't happy with the lay-down, and we may add some more. But it is also contracts people. I am trying to do a 50 percent increase in my contracts expert because we have had a pretty good drain.

And cost estimators—we are re-growing that part. But also in my engineering staff, and Mr. Stackley probably said it best, you know, we want every engineer to be a cost engineer and a cost estimator. And one of the things we are doing across our engineering codes is trying to drive that mentality, and in fact forcing them, you know, every one of the technical warrant holders, to do what I call put things in the hopper, that are teed up in terms of what our specs currently require and what is out there in terms of best practice anywhere around the world—commercial, foreign—and tee that up for Is that a possible inclusion for incorporation in the contract?

So on both littoral combat ships right now we have got numerous items in that hopper that we are working with on with the shipbuilders that really take a different look at how we are doing business. And we have a big part, along with the shipbuilders, in taking costs out of our ship and that is a mentality as we rebuild the acquisition workforce that is going into that rebuilding.

And in fact, one of the things I am doing here in two weeks with my executive director is we are going to be approving next year's national security personnel system objectives for our engineers, along this line of How do we systematically take costs out of our ships? We have had a number of projects this year that have shown huge benefit, and that when we really look at our specs and our standards in a systematic way, there is stuff in there that we don't need and that we can work with the shipbuilders to take costs out.

So as we follow your line of questioning, sir, yes, sir, we, as we rebuild this acquisition workforce, it is a great opportunity for us to inject that culture in there to get the most bang for the American dollar.

Mr. TAYLOR. Admiral, with the—Secretary Stackley was very patient to walk us through a couple of things last week, one of which was the loss within your acquisition force of those people who tell us what something should cost, those experts. And that is incredibly important for everything we purchase.

When do you feel like it is a reasonable amount of time that you can at least for major programs, like EMALS [the Electromagnetic Aircraft Launch System], like an LPD [Landing Platform Dock Amphibious Warfare Ship], like an LCS, when do you feel like you are going to have the expertise in-house to say what something should cost so that we know we are getting a good deal for the taxpayer?

Admiral MCCOY. I think there is probably two parts to the answer. The first thing, I will tell you we started this year with about 40 people in our cost estimating branch. We concluded we need 100. I am going to be at 62 by the end of this year. And as you probably know, you don't just find these people out there. You have to grow them. And in fact, because of the complexity of what we do, our cost estimators are in high demand throughout the government—Homeland, Defense—and so we have suffered losses.

I would tell you on our major acquisition programs, we are not perfect, but we are pretty good, but we have got some more work to do there. Where we are not hitting it, in my opinion right now, where we really have the deep rebuilding to do is more on the weapons system side, unmanned vehicles—those new technologies. And right now, I am going to hit about 100 by about 2012.

So I think we are—I still think we are about three years away from being able to tell you across our portfolio that we are where we need to be. We are much better on the major programs because that is where we have put our people, but again there we still have lots of work to do because, as you know, periodically we get a surprise that we shouldn't get.

So I think we are on a path. Unfortunately, I can't go anyplace. I will tell you, we have gone to Detroit and we are actually hiring some cost estimators that have been laid off from the auto companies. And they are particularly good at things like unmanned vehicles and things like that.

So we are trying to get some mid-career professionals, as well as, as we build from the bottom up with new graduates.

So I think, sir, we are about three years off, and we are on a plan to get there.

Mr. TAYLOR. Okay.

Gentlemen, I thank you. I hate to—I hope I have given you the opportunity to say what you wish to say. We have two other great panels. I would like to at least let the second panel have their say before we break for the votes.

So without—hopefully without objection from the committee, the first panel is dismissed.

The chair now recognizes Lieutenant General Dave Heebner, executive vice president of the Marine Systems group with General Dynamics.

And I believe Admiral—or is it—and Mike Petters, president of Northrop Grumman Shipbuilding. Okay.

Gentlemen, thank you for coming. Again, we apologize for the delays. If you wish, you may submit your statement for the record and feel free. Who would like to go first?

Mr. HEEBNER. Mr. Chairman?

Mr. TAYLOR. General Heebner.

Mr. HEEBNER. Mr. Chairman, Congressman Akin, members of the subcommittee, thank you for the opportunity to participate in this hearing and for your committee's support of United States shipbuilding.

I would like to ask that my statement be added for the record, and I will make a brief opening statement.

Mr. TAYLOR. Without objection.

STATEMENT OF DAVID K. HEEBNER, EXECUTIVE VICE PRESIDENT, MARINE SYSTEMS, GENERAL DYNAMICS CORPORATION

Mr. HEEBNER. My name is Dave Heebner, and I am the executive vice president of General Dynamics Marine Systems. My business segment includes Bath Iron Works, Bath, Maine; Electric Boat in Groton, Connecticut, and Quonset Point, Rhode Island; and NASSCO in San Diego, California.

Our shipyards employ nearly 22,000 people who design, build and support submarines, surface combatants, and auxiliary ship for the U.S. Navy and commercial ships for U.S. flag customers.

In line with the committee's interest, we in General Dynamics are continually focused on improving shipbuilding efficiency and affordability. Three key factors that have direct and substantial impact in our shipyards are volume, stability requirements and predictability in funding and scheduling.

Volume is the most obvious factor. The more ships we build, the more we can learn and improve our processes, leading to greater efficiency and lower cost.

Just as important, increased volume affects thousands of suppliers who provide the components and commodities that comprise over half of ship construction costs. Economic order quantities improve vendor performance and lower shipbuilding costs.

Stability of requirements is the second factor. Setting requirements early facilitates a more mature design before construction begins and enables more effective production planning, design for producibility, risk reduction and improved maintainability for reduced total ownership costs.

The third factor is predictability in funding and scheduling. Ships are large, complex capital assets, requiring years to design

and build. Frequently, production plans must adapt to changing external factors. Minimizing these changes allows more effective cost control.

Your committee's support of advanced funding and multi-year procurement has been extremely helpful in this regard.

We shipbuilders are responsible for the efficiency of our shipyards. We know that we must sustain our culture of continuous process improvement. I will briefly address four areas that have significant impact on shipyard efficiency: early collaboration, capital investment, workforce training, and applying lessons learned.

First, by early collaboration, I mean conduct an open and crisp selection process, either through direct competition or negotiation, then down-select and immediately begin collaboration between industry and Navy stakeholders.

We support the fact that the government must preserve the benefits of competition, but we urge acceleration of the selection process, because early and continuous collaboration is where substantial efficiency benefits can be gained.

Second, capital investment and facility improvements lead to cost reductions. These investments are more justifiable when there is reasonable assurance of a sustained and predictable workload that supports the business case for return on invested capital.

Third, workforce training and knowledge transfer highlight our most important asset, that is, our people.

Many family generations have proudly worked in the same shipyard. Worker skills are learned and honed, often through deck plate interaction and passed on to the next generation of shipbuilders. We also transfer knowledge using formal training, like our strong apprenticeship programs.

Fourth, once we apply lessons learned from each ship we build, a continual process of improvement is now engrained in our shipyard cultures.

We encourage our workers to look for safer, better, faster, and less costly ways to build ships. And they take pride in the fact that their good ideas are valued and applied.

We share lessons learned across General Dynamics' business units and work closely with our partners to promote improvement across all classes of ships.

We also seek best practices through interaction with foreign shipyards, like high-volume shipyards in South Korea that Mr. Chairman mentioned earlier.

A few examples may be helpful to illustrate our commitment to process improvement, increased efficiency and reduced shipbuilding costs. For the *Virginia*-class submarine, the Navy invested $600 million in the design for affordability program to develop design changes essential to price reduction.

Congress provided advance funding and accelerated the production to two submarines per year. These collaborative efforts improved the design, increased the build rate and reduced the total ownership costs of the program by nearly $4 billion.

At Bath Iron Works, investment in the Land Level facility and the Ultra Hull outfitting building reduced direct labor hours by more than 20 percent compared to the last DDG–51 built on the old inclined ways.

And at NASSCO facility investments, workforce training and lessons learned reduced T–AKE's labor hours by over 50 percent. Additionally, our partnership with South Korea's Daewoo Shipbuilding increased efficiency and reduced costs in our commercial ships. And many of those improvements have carried over to our Navy programs.

Mr. Chairman, your subcommittee's initiatives have also contributed to more efficient and affordable shipbuilding. Your support of multiyear procurement, advance procurement and advance construction authority will continue to reduce costs for both the government and for shipbuilders.

And thank you for your efforts with regard to Title XI loan guarantees. Your support will help revitalize the U.S. commercial shipbuilding, sustain a modern U.S.-flagged merchant fleet, and lower the cost of Navy shipbuilding.

Mr. Chairman, as you know, shipbuilding is a complex and dynamic process. Much has been done to improve efficiency, yet more can be done.

We will work together with the Congress and the Navy to achieve this common objective. I am proud of the high-quality ships General Dynamics shipbuilders are delivering to our Navy, and I invite the committee to visit our shipyards, so that our workers can show you the magnificent ships that they build.

Thank you for the opportunity to testify. I look forward to your questions.

[The prepared statement of Mr. Heebner can be found in the Appendix on page 66.]

Mr. TAYLOR. The chair thanks the gentleman.

The chair now recognizes Mr. Mike Petters.

I would remind the members that there are approximately five minutes to the vote. Out of respect for these gentlemen, who have waited all day for us, I am probably going to miss that first vote.

But I would encourage you to try to make the votes and get back. It is a total of four votes.

I would like to ask unanimous consent, given that Secretary Gates is also coming over to speak to some members of Congress, I would like to ask unanimous consent that after these votes, we go ahead and continue the briefing with those members who are here.

Without objection.

Mr. Mike Petters.

STATEMENT OF C. MICHAEL PETTERS, PRESIDENT, NORTHROP GRUMMAN SHIPBUILDING

Mr. PETTERS. Thank you, Chairman Taylor, Ranking Member Akin, distinguished members of the Seapower and Expeditionary Forces Subcommittee. Thank you for this opportunity to appear before you today to discuss what I believe will enable the shipbuilding industry to become even more efficient.

Mr. Chairman, your invitation to testify asked me to address challenges in maximizing the efficiency of shipbuilding. And I will limit my oral remarks to a brief summary of my written testimony, which I ask to be submitted for the record.

Mr. TAYLOR. Without objection.

Mr. PETTERS. For the next few minutes, I would like to emphasize a few key points. First, I think it is important to note that the shipbuilding industry is not broken, but it is also not as healthy as it should be. And the healthier we are as an industry, the better we can serve the needs of our Navy and the American people.

At the heart of our difficulties in shipbuilding, in my view, is that most of the time the Navy must buy ships one at a time, and it must pay for each of them up front. These funding and procurement requirements result in significant challenges in creating a healthy and efficient shipbuilding industry.

I define a healthy shipbuilding industry as one that attracts capital investment, talent and technology. Buying one ship at a time stifles that investment and forces us to struggle as we try to capture the talent, the technology and the capital that we need to remain healthy.

And if the shipbuilders who build for the U.S. Navy choose to invest in equipment or processes that benefit the Navy, they must break even with that investment on the first ship where it is applied.

This discourages investment in machinery, tools, designs and people. Even when we believe that making an investment is the right business decision, most of the time the return on investment does not support our shareholders' requirements for the use of their capital.

Now, all is not lost. There are a few examples of things that have been done to encourage this kind of investment, and I would like to briefly highlight one of those.

It has been discussed some today, but in the *Virginia*-class submarine program, the Navy is buying more than one submarine at a time, using multi-year and multi-ship contracts. The Navy also has incentivized both Northrop Grumman and General Dynamics to make capital investments neither of us might otherwise be able to make if we looked at it on a one-ship basis.

They have done that by taking a look at how the investment would play out over the entire class of the ships. And these would be ships that are not even in the appropriations yet.

These incentives do require an up-front use of the shipyard's capital, with an opportunity to earn back an incentive if the anticipated improvements result.

This program has been a very important part of delivering on the "Two for $4 billion" goal we have discussed in this chamber on previous occasions and even earlier today.

But it is just one part of a broader effort. So as mentioned, the *Virginia*-class program has benefited greatly from multiyear procurements the Congress and this subcommittee in particular has supported and funded. And that is a very critical point.

Now, I have been in this industry for more than two decades, and I am often asked why American shipbuilders are not as efficient as foreign shipyards.

I have visited many of these yards, and I am always struck by the size and the nature of their order books. You know, one yard I visited last fall had orders for over 300 ships.

In that environment, the shipbuilder has a lot of incentive to be innovative and to invest capital to lower their costs. And this is in

stark contrast to the environment in which U.S. shipyards must operate where ships are procured at low rates of production.

Now, one ship at a time clearly runs counter to this idea of serial production, which is the most efficient way to build ships.

Shipbuilding, although it is a technologically complex industry, still relies heavily on our talented craftsman. Labor cost savings are achieved when craftsmen move down a learning curve by working a task frequently enough so they improve their performance ship over ship.

Once again, we can look to *Virginia* class for a glimpse of what the future could hold. This program is now in serial production and is benefitting from solid learning curve improvements both in cost and schedule.

And achieving learning curve savings on ships which have longer construction times, such as aircraft carriers, is tough. And the longer the gap between the start of construction of one of these complex ships and the completion of the preceding ship, the more difficult it is to achieve those savings.

Now, I am well aware that these problems are not easy to solve. The industry is doing much to become more efficient, including modernizing our facilities with whatever capital we are able to find and investing heavily in our workforce. But we can't do it alone, and we need to work together, all of us.

And by "we," I mean shipbuilders as well as the acquisition professionals, Navy program managers, fleet customers and Congress. We need to continue to work on changing the funding of procurement practices if we ever hope to break the cycle of buying one ship at a time.

And until then, however, we must focus on negotiating good contracts that are based upon realistic cost estimates and more complete understanding of the risks within each program and true recognition of the difficulties the shipbuilding industry faces as a result of the processes we have in place today.

I welcome the attention of the Congress and this subcommittee in particular to the needs of our industry. Shipbuilders are skilled men and women who choose this difficult occupation because of their strong belief in America and a desire to contribute to the nation's security.

All of us are working hard to build the most cost-efficient and highly capable ships for the world's greatest Navy. It is work that we are very privileged to perform. And I look forward to your questions.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Petters can be found in the Appendix on page 85.]

Mr. TAYLOR. The chair thanks the gentleman.

I am going to declare a recess, subject to the call of the chair. This should take approximately 20 to 25 minutes.

Thank you very much.

[Recess.]

Mr. TAYLOR. The meeting will come to order.

The chair recognizes the gentleman from Virginia for five minutes.

Mr. WITTMAN. Thank you, Mr. Chairman.

I want to thank both Mr. Heebner and Mr. Petters for joining us today.

I wanted to follow with Mr. Petters and talk about the idea of building ships in series and the earlier question I asked about the scaling of our ship manufacturing and the impact that that has on us being able to control costs. And I just wanted to get a little more, I guess into depth about your thoughts about where we are and what we can do to help with that whole aspect of shipbuilding.

How can we get better at it? Is it merely a matter of doing more than purchasing one ship at a time? Are there things that we can do in decisionmaking here that makes the issue of scaling better for the shipbuilders?

Mr. PETTERS. Thank you, Congressman, for the question. I highlighted the idea that we are building one ship at a time as a principle that we should try to assault. And I don't think that it is necessarily going to happen by ordering more ships. But I think we have to create mechanisms that will allow us to behave in the same way that we would behave if we were ordering more ships.

And so I highlighted the extraordinary capital investment program, the CAPEX [Capital Expenditure] program. That is a recognition that these are investments that probably could not be justified if you had to break even on the very first ship.

On the other hand, if you think you know you are going to have a class of ships that is going to extend to 30 ships, and we can find a way to incentivize and capture and calculate the return on an investment over the whole class of 30 ships, then we can create these outside of the normal course of business kinds of incentives that allow the investments to be made.

I have seen a few different approaches to this. I have seen the CAPEX program, the *Virginia*-class program. I saw this in the design program for the carriers and, I mean, you talk about a ship that is built one at a time, an aircraft carrier is built one at time.

But we were able to refacilitize or create some facilities in our facility in Newport News by looking at the value of upgrading a crane, for instance. Upgrading our crane allows us to lift bigger modules.

By putting incentives in our design and planning contracts, we were able to make that investment pay for itself, even inside of the one ship.

And so there are ways to do that, but you have to be very deliberate about saying, "I am going to think about this in terms of—I am going to think about this mechanism as being a mechanism that is going to overcome the fact that we are building one ship at a time."

Mr. WITTMAN. Mr. Heebner, I know you had referred to your partnering with Daewoo. And when I was out there to visit the yard I was very impressed about the whole process that you are undertaking with the T–AKEs.

Can you maybe shed a little more light about what you have learned from Daewoo and maybe those applications on the defense shipbuilding side, maybe lessons we could learn or things that we could do better based on your lessons from Daewoo?

Mr. HEEBNER. Yes, thank you, Congressman Wittman.

It has been a very productive relationship for us right from the beginning. I think the first concession I have to make to the South Koreans in this case was that they would not provide us with the design for the ship until they were completed with it.

And that simple fact that we had a completed design when we began the construction of the ship reduced the rework requirements throughout the production of the ship substantially.

So there is certainly a significant element in something like that.

A second point is the point I made in my opening statement, and others have echoed here today, and that is volume matters. When you look at what NASSCO as a shipyard will deliver this year, five ships, that is a good year. Our partners, Daewoo, will deliver 85 ships this year.

That differential allows them to make significant investments in their yard that not just shave off tens of thousands of production hours, but down into the single-digit hours. They pay attention to that level of detail.

And we have noted that in our processes, and we have looked at it ourselves, and we pass that down to the deck plate level, empowering our workers to identify those types of things to improve shipbuilding.

So our productivity has increased dramatically from that perspective. And a third aspect of it is the benefits of large production runs where you can get supply chain economies of scale, and we have been able to tag onto some of their buyers in that sense to be able to reduce the cost of U.S. ships substantially because of it.

Mr. WITTMAN. Thank you, Mr. Chair.

Mr. TAYLOR. The chair recognizes the ranking member, Mr. Akin, five minutes.

Mr. AKIN. Thank you, Mr. Chairman.

I just wanted to kind of jump on that same talk that you were on and that theme of volume being very critical in terms of being able to reduce costs and all.

And knowing, Dave, of the fact that you have some excellent engineering background under your belt as you come to us here today, I was just wondering in the area of hull design and architecture, particularly just the way it works in the water, is it possible to basically sort of design small, medium and large size hulls that you could just exchange, or are the missions of the different Navy ships so different that you almost have to have specialized hulls, or are there some ways that we could basically do something for the Coast Guard and maybe do something for the Marines and do something for the Navy all on the same basic platform?

Mr. Petters, I am going to give you a shot at the same thing, too, so you both get fair treatment.

Mr. HEEBNER. Thank you, Congressman Akin.

I would like to have sitting here with me on the panel today a marine draftsman like the president of Bath Iron Works, Mr. Jeff Geiger, who could give you a more detailed answer to that, and we could certainly discuss it or provide that to you later.

But the basic issue is that ship performance depends on the hull design, and different mission ships have different requirements, so you end up getting, or having an interest in producing different designs. I think in the context of what this hearing is about, looking

at the importance of taking costs out of shipbuilding, that identifying hulls that serve multiple purposes over the course of their lives helped to continue this notion of serial production that Mr. Petters and others have mentioned in their comments.

And we see, for example, in the T–AKE hull that NASSCO builds, that hull has multiple purposes. It could build the LCS ship. It could build the T–AOs [Fleet Replenishment Oilers]. This is a platform that has great flexibility and proven design and efficiency in the building process now. So let's look at every opportunity that we have to be able to continue those runs and gain the efficiencies that are possible from that.

Mr. AKIN. So I think what you are saying is, yes, there are tradeoffs in design, but yes, probably there are some commonalities so we could do some piggybacking.

Mr. HEEBNER. Well, there certainly are differences, and there are those commonalities. For instance, with the new DDG–1000 program, the tumblehome hull that is associated with that serves the purposes of that ship very well, and the significant topside radar capability that you want to put on that ship helps by having more of the ship underwater.

So those are things that you have to consider—the ultimate missions of the ship and how the rest of the geometry of the ship will be designed. But we may find, in the future, as we look at future surface combatants, that the DDG–1000 hull has certain advantages over some other hull types. We find that the DDG–51 hull type is advantageous, and so on.

But it is important that the green architects take a good, hard look at that, based on the overall mission of the ship and how its mission packages have to be loaded onto the ship.

Mr. AKIN. Thank you very much.

Mr. Petters, too?

Mr. PETTERS. Congressman, I think your question actually gets at a very, very important point that I think we have to wrestle with, and that is, can we, as we sit down to design the ship, can we move from an environment where we try to optimize every aspect of the ship design and move to an environment where we decide on what are the critical aspects that we need, and make sure we optimize those, and then where else can we live with "good enough"?

And I will be the first one to tell you that "good enough" is not something that the war fighter wants to hear a lot about. And so that is, I am not going to argue what "good enough" might be, but what I do see is I see some recognition of this issue in the Navy.

The Navy leadership, now, is talking about a common hull design to go from the LPDs all the way through into the LSDs [Dock Landing Ships], as a potential way to do some of what you are talking about there.

And I think that, whether it is hull design or system design, piping design or electrical design, I think the real test is going to be how do we start to think our way through not optimizing this particular part of this system in this particular part of this ship but how do we optimize the mission of the ship and then accept some pieces that may not be optimal in that particular aspect?

I think that is a tough challenge for engineering, our technical community to come through. And I think it is going to take some pretty strong leadership to do that.

Mr. AKIN. Would it be helpful—I would think that where you would want to start with that would be when you are actually coming up with your initial design, and you nail down—these particular parameters are what we are very concerned with. And the other ones, we are going to give you a bracket that you can hit anywhere.

Does that make sense that you would start that way?

Mr. PETTERS. Sir, I would argue that it actually goes back to the mission of the ship.

Mr. AKIN. That is what I meant. You start with the mission of the ship and say, rather than that, though, these ranges of speed are okay and this maneuverability is okay.

Mr. PETTERS. Precisely what was done on *Virginia* class. At the very beginning the idea was, okay, we are not going to try to build the fastest submarine we can build. We are going to build a submarine that is fast enough. And then that allowed us to make some decisions on the hull design that we then went forward with. And so we have done that.

Mr. AKIN. Thank you very much. I think I would turn into a pumpkin if I talk any longer here.

Mr. TAYLOR. The chair thanks the gentleman.

The chair recognizes the gentleman from Virginia, Mr. Nye, for five minutes.

Mr. NYE. Well, thank you, Mr. Chairman.

Mr. Petters, I have had an opportunity to visit Northrop Grumman's facility at Newport News a number of times.

Mr. Heebner, hope to have the same chance to visit your facilities.

But, Mr. Petters, we recognize obviously the value in shipbuilding efficiency of having a good skilled labor force. And I was wondering if you could just comment please on the status of your apprenticeship program and the challenges in maintaining that skilled workforce and things that we could keep in mind, a way to be helpful in helping you maintain that labor force.

And then, Mr. Heebner, I will give you an opportunity to comment on the same thing.

Mr. PETTERS. Thank you, Congressman.

We are very proud of the apprentice program that we have in Virginia. The apprentice school at Newport News was founded in 1919. It is a four-year program—or five years now—where we have some design, even some design apprentices.

We have linked that with our community college system in the state of Virginia, and we are heavily invested in the entire workforce development pipeline that runs from the governor's office all the way down to our waterfront. We have representation at every level of that activity in Virginia.

We have been making the same kind of commitment and investment in the state of Mississippi and in the state of Louisiana, to the point where the governor of Mississippi has taken the lead on helping to create an apprentice training program, basically a shipbuilding school located outside of the shipyard in Pascagoula,

which would be not just for the shipbuilders of Northrop Grumman, but for all of the shipbuilders on the Gulf Coast, again, connected to the community college system and connected to the entire workforce development pipeline.

I think that is a tremendous understanding by Governor Barbour, how important that workforce development pipeline is to our future success.

You know, this is a business where we can't just go grab people off the street. Nobody graduates from high school with a degree in shipbuilding. I mean we have to make our own shipbuilders. And the programs that we have, we are very proud of and we continue to invest in them.

Mr. NYE. Mr. Heebner.

Mr. HEEBNER. Thank you, Congressman Nye.

We also have apprenticeship journeymen and supervisory training programs as well in General Dynamics. For example, at Electric Boat, I just recently visited a graduation ceremony where a class that had been in session for literally years was graduating. And while I was impressed with the curriculum, I was more impressed with the commitment of the workers to the program.

This is their red badge of courage, it is a demonstration of the competence of the company and them as shipbuilders. And it is also a recognition for them among their peers that they have done the rites of passage to become qualified in whatever their trades are.

So we have these programs where we partner with community colleges in the area, that we provide degree-producing courses for them. And I was just out visiting National Steel and Shipbuilding in San Diego, and while visiting them, I learned that we have just completed a journeyman program for over 800 of their shipyard workers.

It involved more than 700 hours of committed training for each one of those employees. That yard is one example that commits to over 300,000 training hours a year for its workforce, and it is paying off in the productivity improvements within the yard.

Mr. NYE. I appreciate your responses. Obviously, we recognize and we are proud of the work that our skilled shipbuilders are doing in keeping our Navy strong and recognizing that it is helpful, I think, if we can give you as far as possible a good way to plan ahead of time on what is coming up.

If there are any other ways that you think we could be helpful or things that we ought to think about, I would be happy to hear it, or of course we would be happy to have you follow up in writing with us.

Thank you very much.

I yield back, Mr. Chairman.

Mr. TAYLOR. The chair thanks the gentleman.

The chair now recognizes the former chairman, Mr. Bartlett, for five minutes.

Mr. BARTLETT. Thank you very much.

There are three classes of actors in this drama. One is the Industry, second is the Navy, and the third is the Congress. And none of the present cast of actors is responsible for how we got to where

we are today, so we can talk very frankly because none of the present actors are to be faulted for how we got here.

But here we are, undercapitalized, too few ships to build, and so you have employment gaps. So now you are faced with retraining. You have too few subcontractors. That means too little competition there, and therefore the costs go up there. And so that makes us even more non-competitive. And since we are more non-competitive, we build fewer ships. Now, we are building no commercial ships except the Jones Act ships.

And of course this now is a vicious cycle because when you are in that position where you are building fewer ships, then there is little incentive to capitalize, and you have more employment gaps. So we are in a vicious cycle. We have been in that down spiral for quite a while now.

What do you do to reverse that thing, because we have got to do it?

Mr. HEEBNER. Chairman Bartlett, thank you for the question.

It is an appropriate one. It is a difficult one to answer in a short time, but I will make a few observations on it. One is that we have to demonstrate that within the resources we have been given that we can become as efficient as we can possibly be. Now, we have that obligation as shipyard management, and that is a central issue to our day-to-day operations within the shipyards.

That can be facilitated, though, by what I referred to earlier as collaboration. We found, for example, in our collaboration with the Congress and with the Navy on the *Virginia*-class program, that we have been able to find money to invest in design for affordability, design for producibility and design for maintainability.

Now, in the course of doing that, we established the procedures that allowed us to improve the efficiency of our shipbuilding.

Armed with that kind of incentive, the Congress has elevated production to two *Virginia*-class submarines a year. That has further rippling effects on the cost efficiency of building these ships.

So what is the lesson in that?

What we have is a mature program that we have collaborated on. We have a steady run going now, and we will become even more efficient in that. The *Virginia*-class program, first ship, started out as an 86-month construction project. The most recently delivered ship, the USS *New Hampshire*, earlier this year, was delivered with 71 months of production.

And in the Block-3 contract that we just were able to build, based on this collaboration that we have gone through with the government and the Navy, we will build these ships out at an average of 66 months. And the workers in Electric Boat in Groton, Connecticut and Quonset Point have told me that their objective is to get it to 60.

So we can tee up the issue for these shipyard workers. They understand their contribution to national defense, but they also understand that, by giving them work, we are entrusting the national treasure to them and they have to perform.

And I am happy to report that we are seeing that the workers on the deck plates have accepted that task and they are responding to it.

Mr. BARTLETT. Sir, I have been there, and I was very impressed with the commitment that your people had to do it better, in spite of the fact they didn't have to because we are going to build those submarines whether they are doing better or not, and I was very impressed with that.

But nobody is buying commercial submarines. How do we transfer this to where people are buying something commercial, and that is ships?

Mr. HEEBNER. Well, if I can continue, I will go back to my first point, and that is finding ways to become the most efficient producers of ships in the world. If you look at the rates, at the labor rates for building ships today in the United States, we are cheaper for labor rates than any of the developed nations building ships in the world today, labor rates.

The equation for the cost of ships are those labor rates times production hours, so it is incumbent on us to be more efficient and bring down the number of labor hours it takes to build those ships.

And as we demonstrate that facility to do it, which we are doing today on the long runs that Secretary Stackley mentioned today the *Virginia*-class ship, the DDG–51, the T–AKE program, we are hitting terrific strides in efficiency of those programs. And there are lessons in those shipbuilding programs that will carry over to the rest of our industry.

Now, as far as the commercial ship business, we build commercial ships at NASSCO. The product carrier today is our ship in residence. We partnered with a Korean shipyard to build this ship. We were able to use a Korean design to start with, modified somewhat for our customer's needs. What we demonstrated through that process is that we can build the first ship of the class six months sooner than the plan and under budget.

Who has ever heard of doing that in a shipbuilding program? Why did it happen? It happened because we had the design completed and instruction. We locked it in and we held it. We wait for the next block improvement before we make a lot of change for the program. And we encouraged the workforce to go out and find ways to be more efficient, and they are doing that for us.

Mr. BARTLETT. Thank you very much, Mr. Chairman. Obviously, in the few minutes we have, we can't pursue this, but you know, how we get out of this downward spiral which we have been in for years and start back up again is a huge challenge.

Thank you.

Mr. TAYLOR. The chair thanks the gentleman.

The chair now recognizes the gentleman from Rhode Island, Mr. Langevin, for five minutes.

Mr. LANGEVIN. Thank you, Mr. Chairman.

Gentlemen, I want to thank you for being here today. It is good to see you both again, and I appreciate your patience as well with all our votes and all that, trying to get this hearing done at the same time.

My question is for you, Mr. Heebner, if I could start with you.

The Navy has programmed funds starting this year for the *Ohio* Replacement Program, which is obviously very important for our national security to start thinking about that now. But can you, for the committee would you talk about some of the details of why it

is so important that this funding be included this year when construction isn't scheduled to commence until 2019?

And along with that, what would be the impact on the shipyards in the program if the funding was reduced below the president's request?

Mr. HEEBNER. Thank you, Congressman Langevin.

It is an important issue and a timely topic. Thank you for raising the issue. The first point I would make is that the *Ohio*-class submarine program, sometimes referred to as the "boomers," is a national security treasure. It is a terrific program, but its first ships are now almost 30 years old.

It has a useful lifetime that has to be addressed, and this program has been approached in a disciplined way that recognizes that we want to take the appropriate amount of time to do it right, to build the requirements, to take time to iterate the design to make sure we get that right, do the collaboration between the shipbuilder and the Navy customer, not just the acquisition community, but also the user to make sure that we get that design exactly right.

We do the tradeoffs to control the costs in the proper way and make that ship all it can be. It takes time to go through that process. In that program, happily, we have a partner in the United Kingdom which also is at a stage where they are replacing their nuclear deterrent force submarine in the Vanguard Program. And it is a convenient time for both of us to be proceeding so that we can share costs in building this next line of ships.

If you look at the recent RAND study on nuclear deterrence and that make reference to their comments on the strength of the United States nuclear submarine capability, design capability, what they say in that is that this program, the *Ohio* Replacement Program, is essential to retaining the skills that are necessary to maintain our nuclear submarine capability and to be able to respond in all the ways that are necessary to be able to make that next program a success.

It is a critically important program, and I can't say enough about the engineers and designers in residence who have been working on this program. It is already under way. And the committee has strongly supported this program, and I thank you for that. I commend you for your attention to that detail in this important program.

Mr. LANGEVIN. I agree. Well, obviously the *Ohio* program has been vital to, as you point out, our national security in keeping that leg of the triad, nuclear triad robust. And I think it is very important that we do now think about how we get to the replacement, and we do so while we have the time to do this the right way.

In your testimony, you outlined a number of measures to increase efficiencies in cost and production. I know we have had some of those discussions here already, such as adopting the multiyear contracts with sufficiently mature programs.

What are some of the measures that can be enacted at the supplier and the customer level? And what opportunities are there for the yards to work more closely with their customers?

Mr. HEEBNER. Would you like me to——

Mr. LANGEVIN. For either, for either. Mr. Petters, you want to take a crack at that?

Mr. PETTERS. Well, obviously, at the supplier level, one of the challenges that we face today is that, as the rates of production have gone down, the competition in the supplier base has gone down as well.

And so if we are able to work through the issue we talked about a little bit earlier, which is not trying to optimize every aspect of every ship, but trying to figure out what we really need to get the mission done, that leads to commonalities across hulls. And if you can get commonality of systems or piping or valves or pumps across hulls, you can create more opportunity for competition in the supplier base.

And I think that that is probably the biggest challenge that we have, is trying to find a way to create more of that kind of competition in the supplier base.

In the *Virginia*-class program that we share, the supplier base is 80 percent sole source or noncompetitive. And so it creates a real—we have to put people in shops to make sure we get our money's worth when we go to them, in the same way that the Navy does that with us.

And so finding ways to create common systems, common components across the different classes of ships I think would be a way to create more leverage in the supplier base.

Mr. HEEBNER. Congressman Langevin, if I could add to Mr. Petters' comments on that, if you were to dissect the *Virginia*-class program today, I suspect that you would find that 70 to 80 percent of the suppliers are sole-source suppliers for components of that ship.

And going to two *Virginia*-class submarines a year has been a critically important step for many, many reasons, but not the least of which is sustaining that supplier base.

We need to make sure that we are looking for ways to provide incentives to our suppliers to stay in the defense business and to be there when we need them. And seeing a program like the *Ohio* class coming down the pike is an incentive for them to understand that there is more work out there and making their investment to maintain their workforce and their capability with these supply requirements is an important signal that we can send from the Congress as well as from us in industry.

Mr. LANGEVIN. Mr. Heebner, Mr. Petters, thank you for your answers, for your testimony here today. And I look forward to having you back again.

Thank you, Mr. Chairman. I yield back.

Mr. TAYLOR. The chair thanks the gentleman.

The chair now recognizes the gentleman from California, Mr. Hunter, five minutes.

Mr. HUNTER. Gentlemen, the same question for both of you. We have talked about how we can make our own yards more efficient and productive. What gives the other guys the edge?

Why are they more efficient? Why do they have less production hours?

Because this almost sounds like when the Japanese came back and started competing with our big three automakers, they were

more efficient; they were more productive; they had better processes, and they whipped up on us for awhile; then we, kind of, caught back up, and some would say that they are whipping up on us again, here, but we are going to catch back up again.

But what do you see the other guys doing much better than us and around the world?

Why aren't we as productive as they are?

Mr. PETTERS. Well, sir, Congressman, thank you.

My view of that is what they have done is not unlike what happened in the automotive industry 25 years ago when my wife and I went to buy our first car. We looked at an American car. You could pick out the seats, the covers, the windshields, the mirrors, but you had to pick them all out, and the manufacturing process was so tailored that every car that came off that assembly line was a different kind of car.

The competition from overseas basically had the standard model and a deluxe model, and they had an assembly line that basically made standard models, and they put a few things on it to make it deluxe. And those were your choices.

I would liken the same situation we have today between naval shipbuilding and commercial shipbuilding. I think it does American naval shipbuilders a disservice to talk about the efficiencies of commercial shipbuilders around the world, because we are not doing the same thing.

It would be like comparing English football with American football. If you go to the foreign shipyards, what you see is they might have four or five welding processes that everybody learns to use, and they do single pass welding on very thin plate.

The welders in Northrop Grumman shipbuilding master several hundred welding processes, and we handle all thicknesses of plate, from thin plate to plate in excess of five inches. We spend a lot of time training our craftsmen to go do those things.

And so they have very different businesses. I think that the challenge is——

Mr. HUNTER. Let me interject really quick. If you are that good at the complex processes, why aren't we just as good then at the simple ones?

Mr. PETTERS. What we found, sir, is that the technologies and investments that have been made in foreign shipyards to do like assembly lines and panel lines and things like that, when we bring those here we use them for the small stuff. We don't do a lot of small stuff.

For the big stuff, it usually breaks. It is not able to handle the big stuff.

And so from my view, the challenges there are things that we can learn from this, and I think that getting at the issue of what is good enough in the design, I think a robust commercial design process to balance against the technical requirements that we put in our warships would be very healthy for our industry today.

From the manufacturing side of this, you are starting from a place where people have order books that are, as we talked about, you know, one order book that I saw was in excess of 300 ships on order, and they were all exactly the same.

So the question is, how do I go and capitalize myself to not get to the point where my price point is—I mean, how do I get 300 ships on my order book so I can compete on the 301st ship?

That has gotten away from us. And I don't know that I have a really good answer for how I make up 300 ships of learning in one fell swoop.

I will hand it to my partner here, I do think that what NASSCO did with the partners, with Daewoo, and what Fred Harris and his team did there stands out as one of the most significant things that American shipbuilding has done in the last 20 years. It is a testament to the builders at NASSCO that they were able to make that work.

And I think what we can all learn in the industry is the things that they learned. Completeness of design. Discipline in the process. Making sure that you don't have a plethora of crafts practices to go work through.

And I think those are all things that we can work with.

Mr. HUNTER. Mr. Heebner, I think you have, like, 30 seconds.

Mr. PETTERS. Yes, I am sorry for that.

Mr. HEEBNER. The first and foremost issue is—remember the beginning of the discussion: volume, stability, predictability. Those are all significant factors for shipyards. And to the degree that we can support each of these notions, we can have a dramatic effect on shipbuilding.

As I mentioned before, though, remember that the labor rates in the United States shipbuilding business are less than they are in those developed countries. That is an important point to recognize initially.

You do get significant hours advantages on long production runs. And so we are seeing that benefit.

But I would suggest that Chairman Taylor and the delegation he will lead to South Korea next month will have an opportunity to see and discuss with some of the Koreans their military shipbuilding as well.

And you might find, in that discussion, that their learning curve—it looks a lot like our learning curve for military ships. And again, it is because of the complexity of those ships and the time it takes to complete the military ship.

Mr. HUNTER. Thank you, gentlemen. Thank you, Mr. Chairman.

Mr. TAYLOR. The chair thanks the gentleman. The chair now recognizes the gentleman from Connecticut, Mr. Courtney.

Mr. COURTNEY. Thank you, Mr. Chairman.

Mr. Heebner, when you were describing the steady progress in terms of the reduced number of man hours on the *Virginia* class, it reminded me, I was at a briefing back home in Connecticut where, again, that tremendous progress was being described, and there was a state legislator in the room who raised her hand and said, "Don't you think you guys ought to slow down a little bit, because you are going too fast and because people are worried that you are getting too good at it and you are going to have—you know, we are going to be the victim of our own success, which obviously is not in the genes, now, of the workforce."

I mean, they really have got the culture of class containment now, just in every aspect.

Back in January, when the stimulus bill was being discussed, there was a lot of talk, certainly amongst some circles, about FDR in the 1930s, when they came out with the National Industrial Recovery Act, actually focused on shipbuilding as a way of trying to revive the economy at that time.

It was one of the areas that got resources in that measure. And after it was ruled unconstitutional by the Supreme Court, the Vinson-Trammel Act was enacted, which, again, was not tied to NIRA [the National Industrial Recovery Act] and was focused, again, on industrial strategy that was based on spending more in shipbuilding.

We have a situation right now where the fleet is 283. We have a target of 313. God knows when we are going to get to that, based on the sort of patterns that we are looking at right now.

But I was just curious. If there was a change of heart in the administration and that there really was a willingness to try and accelerate toward that goal and do it, frankly, as not just a national security strategy, but also as an industrial policy, would the yards be capable of absorbing or handling a more aggressive schedule to get to 313?

And I am not talking about one type of vessel versus another, but it is probably an easy question to ask you, but, obviously that was something that people were talking about back in January as part of a stimulus plan.

Mr. HEEBNER. Well, that is the best softball I have seen in a long time. And frankly, absolutely bring it on. The point I would make is that we have capacity in our yards. Each one of our yards has the capacity to build more ships and build them, you know, even more efficiently as we get that volume.

We have been encouraged by the discussion of the possibility of doing that, but we have to take it in pieces. My compliments to the committee for supporting Title XI. That is a start for us in the commercial world, by making funding available in these difficult times for shipowners and buyers to have the money to buy funds, you get a 20-times return on that money. So it is an important thing to do to put up front to make commercial shipbuilding viable again in the United States.

And I am not stating that simply on behalf of the big six. It certainly could have some effect on us, but it has an effect throughout the country on all of our coasts for the little shipyards that make important things happen in the maritime business. So our merchant fleets need to have that kind of access to capital to be able to keep their programs alive and keep their shipyards going.

From the perspective, though, of being able to build more ships, our workers have always been skilled. Our workers have always built quality ships. But our workers may not have always understood the business equation, but they get it today. They understand that they have to build ships affordably to be competitive. And if we don't show that we can build affordable ships, then you here in Congress are not going to be inclined to go to us to build more ships.

We have to demonstrate that efficiency. And one of my messages here today is that we have had a great run on several ship pro-

grams that demonstrate in each one of our yards that we know what efficiency is.

We know how to do it. We are building it. We have a great workforce up there in Groton and up there in Quonset Point building submarines. And we need to load them up, give them the opportunity to show what they are capable of doing.

The comment I made earlier that said not—we have a contract that says 66 months average in the Block-3 *Virginia*-class ships. I didn't ask the question. They came to me and said, "We are going to build that ship in 60 months."

Okay, so they have got a program in place in their own minds that looks for ways from the bottom up to be able to build that efficiency.

Mr. TAYLOR. The chair thanks the gentleman.

A couple quick questions. I am curious to what extent do either of you gentlemen ever approach the Navy and say, "My economic order quantity on" fill in the blank, whether it is engine shafts, propellers, steel, "My economic order quantity is this. Why don't you let me make you a price on a buy of 3 or 5 or 10 in a multiyear?"

And I know we did it for DDG–51, but if I am not mistaken, it was the Congress and the Navy that said go do this.

We are hoping at some point we will be able to do that on the LCS program.

But to what extent do you interface with either Secretary Stackley, Secretary Mabus, his predecessor, Secretary Winter, and say, "You know what? I can get you a better price if you will just let me guarantee that I will have this much work."

You want to start, General?

Mr. HEEBNER. Thank you, Mr. Chairman.

First of all, my compliments to Secretary Mabus, who on almost his first day in office visited us at Bath Iron Works. And in that he made clear to us that he is committed to making shipbuilding in the United States a stable, productive environment, and he is looking through his staff and from us for ways to do that.

Now, we are in discussions with the Navy today on a number of different programs that help to do that. The CNO [Chief of Naval Operations], CNO Roughead, has made it clear that the cost of building ships is only one component of operating our naval security forces. Total ownership costs really matter. He has established five IPTs [Integrated Product Teams]. We have joined those IPTs to assist from the industry's perspective on identifying ways to make the total ownership costs more effective.

We can design that operational efficiency into the ships. We have to collaborate with the Navy at both the acquisition level and at the operational level to make sure they understand that if we trade two knots in a ship's speed, we can gain a significant advantage in the price of the engines that power that ship.

And it is important that we keep that dialogue open. And it is one of the reasons that in my own testimony that I submitted to you, I make the point on how important this collaboration is and getting to it early in the process to make sure that we can continue to find ways to make shipbuilding more efficient.

Mr. TAYLOR. Mr. Petters.

Mr. PETTERS. Mr. Chairman, thank you.

I would say, echoing all of my colleague's comments here, but I would go on to say that we have done it at a couple of levels. One is at a ship program level, and on virtually every class of ship that Northrop Grumman is involved in, we have had robust discussion with the Navy about does a multi-year make sense, or are there ways to phase it, and we have talked a lot about how do you take most advantage of the things, the mechanisms that have been put out there to improve the efficiency in the buy program of the ship.

But at another level, we have gone even further. We go into the design and we have, in several cases, we have come back and pushed back on requirements in the design, and said, here is a requirement that, you know, we understand that it is a requirement. We will build to that, but you could actually relax that particular requirement and it would not affect, in our opinion, would not affect the overall capability of the ship and would significantly change the acquisition cost of the platform.

We did that in a pretty robust way on the CVN–78, where we had a very, very steady dialogue of here are some things that we can actually not change the mission functionality of the ship, but change some of the local requirements inside the ship that would save some acquisition costs.

We talked earlier about the design for affordability that was done on the *Virginia*-class program, which was a very, very close contact sport, if you will, on what are the things that are really driving the costs of this ship, and how can we apply a little bit of design and planning to go and take some costs out of the ship.

I still fundamentally believe that the things that we have to do are the things that will attack the problems created by low-rate production, whether it is capital investment or design commonality.

Those are ways to attack the problem that we have when we are buying ships at such low rates.

Mr. TAYLOR. To that point, Mr. Petters, we have got the world's largest navy. We are on track again, thanks to some action that took place in the House today, to get back to that 313-ship fleet that the CNO says we need.

And so I think it is fair, in anyone's mind that, if you are going to get your numbers back, part of it has got to come from commercial shipbuilding, to get the volume put through your yard, as folks out in San Diego are doing.

To what extent are the folks at Northrop looking at some private-sector opportunities?

And I will give you one example. I happen to have been here when we passed the Oil Pollution Act in 1990. One of the many benefits of that was we thought we would see significant action in the building of double hulls, first for the coast-wide trade, the Jones Act, but also for—if there was some serious production at a yard, then the opportunities might be there to be competitive worldwide.

And one of the things that really struck me, going to Hyundai, I went over there thinking a bunch of guys, filthy dirty, being paid low money and making up for it by low wages, building a ship competitively.

I was awestruck that I saw an extremely well-financed yard, people walking around in virtually spotless uniforms, being paid very well, extremely low turnover of their staff, and yet they are kicking out a 1,000-foot ship every week.

So the question is, if they can do it, what are we as a nation doing wrong that is not allowing you to do it?

And what suggestions would you have for this committee—and, again, I don't want to limit this to Northrop Grumman—what suggestions would you have so we take advantage of some of those opportunities?

And I realize that the world economy is temporarily down, but at some point it is going to recover. At some point, I think 2015 is the target date where every single hull tanker that calls on the United States of America has to be double-hulled. So there are opportunities right out there.

What steps, if any, should we be taking to help you and you and anyone else who wants to participate in this go after that business?

Mr. PETTERS. Well, Mr. Chairman, we have talked about this a few times.

Our excursions into trying to restart the commercial business in our shipyards, and this is both Virginia and on the Gulf Coast, in addition to be financially challenging, I think that the piece that strikes me the most is that in each of those cases when we stepped back and looked at the cost to build the ship in our shipyard and the market price on the international market space, what we found, and this was about 10 years ago when we were going through this, what we found at that point in time was that the cost of the material in the ship itself, international material, we were using international buyers to buy that material, the cost of that material was higher than the price.

And so there was some discussion earlier today about the—Secretary Stackley talked about the cancellation of the subsidies in the early 1980s. I believe that there are a lot of those hidden subsidies around the world that help those shipbuilders around the world, that help make it tougher for us to be competitive with them.

I will grant that the situation has changed in the last 10 years in terms of the value of the dollar and some of those things, and so I can't say with certainty that that would be exactly the case today.

But then what I would tell you is that what we have come through is a period of time where we have been focused on building—I believe the number was 11 lead ships for the U.S. Navy. Those have been exceptionally challenging across all of our shipyards.

And as we have come through that, the focus that we have at Northrop Grumman is to get ourselves narrowly focused in on series production of ships.

Now, if there is an opportunity to take what I learn in series production of the ships that we have, if we have an opportunity to translate that capability to another marketplace, then I am in favor of doing that.

An example of where I have done that and where my corporation has done that is that we have entered into a partnership to do nuclear power modules for the Areva French nuclear power company,

and we are going to build a factory in Virginia right next to the shipyard where we will use the skill base of the shipbuilders to manufacture heavy components, 500-ton components, because we have to be very careful about what are we good at. We are really good at high rate—high weight, high pressures, high voltage kinds of systems. Those are things that American shipbuilders are really, really good at.

And so where marketplaces are able to take advantage of those particular skills, I am interested in taking a look at those marketplaces.

The operational stability that I am in pursuit of on the Gulf Coast, though, is all about getting to series production in the programs that I have.

And so the swap arrangement that was talked about earlier was a way for us to help the Navy with their destroyer program, but also was a way for us to make sure that we were able to focus on getting into series production.

Mr. TAYLOR. General, would you like to comment on that?

Mr. HEEBNER. I believe the issue that we are addressing here is what can be done to make us competitive in commercial ship production for worldwide markets? When I first looked at the relationship between NASSCO and Daewoo Shipbuilding in Korea, the question that I had the most difficulty with is: What is motivating them? Why are they being so forthcoming in showing us ways to be more efficient in our shipbuilding?

And it became apparent fairly soon thereafter that the reason is that, A, they don't compete in the Jones Act market; and B, that they don't produce U.S. warships. But importantly, C is they don't see us as a threat anytime in the foreseeable future in the commercial market worldwide. That is just the way it is.

Now, do I believe that I can solve that problem as a shipbuilder? The answer is no. I don't think I can solve it. I can contribute to the solution and I am an optimist. I think there is a way in the future to do it. In part, it is a financial equation that Mr. Petters alluded to here, that there are things that are going to have to be done from the government perspective.

Mr. TAYLOR. For example?

Mr. HEEBNER. Well, look for ways to—perhaps one way is to subsidize the shipbuilding, or to provide attractive loan guarantees, or to do something that makes the financing on the part of U.S. commercial shipowners more attractive. That is not something that I can help them with.

The second part of it, though, the thing that——

Mr. TAYLOR. I hate to interrupt, but since you are speaking specifics, has anyone—has a potential shipowner or a shipowner approached you and said this is the problem? I mean, let's face it. Whether you like the president or not, he has been very aggressive in a number of fields. And a lot of other industries are saying, hey, we need some help. Why has there been a reluctance on the part of shipbuilders? And I think that is a fair question.

Mr. HEEBNER. First is I don't know that there has been a reluctance, number one. We have made statements, for instance, in the economic stimulus, that, in shipbuilding, we believe that we can, with money available, we can build ships quickly; we can add that

money to the economic equation in this country fairly quickly, because we have established yards and we have established workforces.

And if there is a need for ships, we can build them and we can start immediately.

So we have made that capability known. But the things that we control, the variables that are our input are becoming more efficient. We simply have to do that.

It contributes, certainly, to our Navy ships and our Coast Guard ships, as we make those. And we are motivated to become more efficient. Our workers are motivated to do that.

But you have to have that part of the equation in place when the financial equation fits together.

The simple fact is, though, that I cannot build a ship competitively today—the next ship that I build will not compete competitively, price-rise, with a ship that is built in a Daewoo shipyard. I just cannot do that. And it is going to take some time before we are able to do that.

Mr. BARTLETT. Mr. Chairman?

Mr. TAYLOR. Yes, sir?

Mr. BARTLETT. If I might, we have a catch-22 when it comes to the subsidy thing. You certainly could be more efficient if you had better equipment, but then you couldn't build—my understanding is you couldn't build ships competitively on the world market because you would be sued by WTO because we are subsidizing you, so we have kind of a catch-22 here that we have got to get around, do we not?

Mr. HEEBNER. Well, Chairman Bartlett, I have to defer at this stage, because it is beyond my knowledge base, at this point in time. My focus has been on efficient shipbuilding, and I have not looked at these issues. I know some people have and there are others who would be more effective in responding to that.

Mr. PETTERS. Congressman, I guess what I would—what I would offer is that I think you are probably right.

I think that you can look to the Boeing-Airbus situation and the WTO and those—that situation where there are charges going both ways in terms of what is subsidized and what isn't.

I don't know where the subsidies are in the international marketplace. Could be in health care. Could be in pension. It could on any number of things, and it may not be in tooling.

But as I said, our experience has been that they are real and that it is a big challenge. And the order book that I saw last fall was for 300 ships. If we started today, you could say we are 300 ships behind that particular shipyard, but we are really 10 years of 300 ships behind that shipyard, so trying—one of the questions that I ask my guys all the time when they bring ideas to me is, what is it that would distinguish us from any of the other commodity kinds of producers that are out there that would give us an opportunity to compete in this marketplace?

In the commercial shipbuilding business, the kinds of things that are important to that business is not something that is terribly distinguishable to American shipbuilding. It is prevalent everywhere. When you go to Korea you will see anybody who has half a parking lot, they will be building a unit in that half of a parking lot to be

selling to the shipbuilder down the road, because it is a commodity kind of business. And that is not the businesses that we have created to support the United States Navy.

Mr. TAYLOR. Mr. Petters, just as a matter of curiosity, when was the last time the board of Northrop Grumman contemplated building a commercial ship other than the two cruise ships with the Alaska trade—I mean, does the subject ever come up?

Mr. PETTERS. Well, I am not always at the board meeting, so I don't know that I could say that it comes up or doesn't come up. I know that I am not——

Mr. TAYLOR. When was the last time you were aware of it?

Mr. PETTERS. I haven't been.

Mr. TAYLOR. Okay.

Gentlemen, we are a few minutes out from a vote on the food safety bill, and so unless anyone—if we could get everyone to agree that if there are any further questions, if you would submit them for the record.

We do have one last panel, and we would at least like to give that gentleman an opportunity to say his piece.

We do want to thank both of you gentlemen for being with us today, and we are—I know that committee is always open to suggestions as to ways we can help build a better ship for our Navy for a better price.

We thank you very much for coming. We especially thank you for the long delays that you had to put up with in order to give your testimony.

With that, this panel is relieved.

Chair now recognizes Mr. Ronald Ault, the president of the Metal Trades Department of the AFL–CIO.

Mr. Ault, if you don't mind, because of the lateness of the hour and the fact that there will be other votes, we are going to allow you to make your statement.

When the vote is called, we will probably have to call it for a day, but we will give every member the opportunity to submit questions to you for the record, and hopefully you will respond.

The gentleman is recognized.

STATEMENT OF RONALD E. AULT, PRESIDENT, METAL TRADES DEPARTMENT, AFL–CIO

Mr. AULT. I will defer and ask that my statement be entered into the record; also, a statement of Brett Olson, who had to leave to go back to the West Coast.

Mr. TAYLOR. Without objection.

[The prepared statement of Mr. Olson can be found in the Appendix on page 114.]

Mr. AULT. I would like to address just a couple of issues that have come up today, particularly the Jones Act and commercial shipbuilding. We at one time in the metal trades department had contracts that had 1.7 million American shipbuilding workers building the ships that plied the seas. We were the largest shipbuilding nation on Earth, but we are no longer.

And, Mr. Bartlett, we also represent the Coast Guard's only shipyard in Baltimore, Maryland, and we represent the four naval shipyards, including the shipyard in Portsmouth, Virginia. And Admi-

ral McCoy spoke earlier today, we represent all the Naval Sea Systems Command workers at all of those four shipyards where we do overhaul and conversions of naval ships and submarines.

One of the things that strikes me is our experience at Aker Philadelphia Shipyard with our unit there that builds commercial ships, the product tankers. Those ships are flagged as Jones Act ships. However, we have sued the Coast Guard for their interpretation of that because they are mostly South Korean HMD [Hyundai Mipo Dockyard]-built ships brought over in 320 containers per ship. We build a barge and on that barge, the bow is built in South Korea and the stern is built in South Korea and everything inside that ship is built in South Korea.

So we have about 580 workers in our bargaining unit there. Had we built that ship American, we would have over 4,000 American workers working there. So we would adamantly say that we are not really supportive of that type of build American Jones Act ship. However, that experience has been limited exclusive to Aker and hopefully it won't go anywhere else.

Gentlemen, the best thing that we can do for lowering the cost is build commercial ships. And I think everybody here agrees. We also agree and the Metal Trades Department. You can lower the cost per ship enormously with the ability to build commercial ships.

One of our problems has been the subsidies. When we lost the subsidies, we lost the commercial shipbuilding. And I keep hearing folks complain about the number of suppliers going out of business, but we put them out of business. We have lost 200 American suppliers in the last 10 years that is gone under because they cannot make a profit making the few products they make for the American shipbuilding industry.

So we are in a death spiral. And unless we do something to revive the American shipbuilding industry, we are dying. And I can tell you that no major seapower in the world can exist as a major power without shipbuilding. And our Russian counterparts know that. Our Chinese counterparts know that. Everybody knows that and they subsidize their—their shipbuilding. We don't.

Unless we get a national maritime policy that subsidizes or otherwise supports the American shipbuilding industry, you know, we are just fooling ourselves. It is not going to happen. Petters said it, everybody said it up here, if they can't make a profit they are not interested in doing it. And I understand how that works.

So we can keep talking a good game, but unless we are willing to pony up and make it work, it is not going to happen.

We would love to build ships. We know how to build ships. Our people build ships that nobody else's does. We had the USS *San Francisco* at flank speed hit a mountaintop, lost 30 foot of its bow, and came to the surface because of American shipbuilders. They built such a ship that nobody else builds.

So we know how to build ships. We know how to build them right. We build them under cost.

You heard that we don't make the kind of wages they make in South Korea. We don't make the kind of wages they make in Japan. But we also don't have the monopoly loss that they have in South Korea and Japan. We don't have health care that they have in South Korea and Japan.

Congressman Taylor, we were on a 4-week strike over health care costs at Northrop Grumman in Pascagoula, Mississippi. If we could get a national health care product we would cut approximately 40 percent of the cost of doing business in America. So we could be more competitive.

There are lots of things we have got to do, but it is going to take a national policy. And the shipbuilders can't do it alone, and neither can the shipbuilding labor. It is going to require a national consensus to do these kinds of things, and it is a very difficult thing to do. And nobody is saying it is easy.

But the other thing is, is that Admiral McCoy and the Metal Trades Department has a wonderful cooperative relationship in our apprenticeship programs.

And by the way, apprenticeships are a trade union product, and I am glad to see that the commercial interests have taken off with our apprenticeship programs. But in everyone you heard today, those are joint labor-management apprenticeship programs that we designed and we helped build. So we know how to train folks, too.

So with that, I will hush and take any kind of question anybody has got on the panel. So thank you very much for inviting me today.

[The prepared statement of Mr. Ault can be found in the Appendix on page 105.]

Mr. TAYLOR. Mr. Ranking Member, do you have a question?

Mr. AKIN. I appreciate your comments, and understand the tensions.

And you are right about it. This is one of those national priorities.

If you are going to do it, you are going to have to get into it in a whole—it is going to affect all kinds of policies everywhere, and I don't think it is a simple kind of thing. So I agree with you entirely. But I don't have any questions, but I think you are right.

Thank you.

Mr. TAYLOR. Mr. Nye of Virginia.

Mr. NYE. Thank you, Mr. Ault, for your comments. I just wanted to ask if you wouldn't mind elaborating a little bit on the apprenticeship program. And I ask the two gentlemen from the shipbuilding management to talk a little bit about it, and I would like to have—give you at least a minute or two to expand a little bit on your role and talk about what you think the challenges are from your perspective, and do you think it is working well, or where we need to be, or what we need to be doing better.

Mr. AULT. I am an apprentice graduate from the Norfolk Naval Shipyard in Portsmouth, Virginia. I wouldn't be here today if it wasn't for the apprentice program. I owe everything I am to being an apprentice. So I take it very seriously.

Brett Olson from Puget Sound works at the—at the IBEW [International Brotherhood of Electrical Workers] at Puget Sound—brought a very wonderful new program that is taken off like wildfire with the IBEW for returning veterans, where they are bringing the veterans in and they are working them into an apprentice utilization program, and I would ask that his remarks also be entered into the record.

Mr. TAYLOR. Without objection.

Mr. AULT. No, we are nowhere near where we need to be in the apprenticeship program. The problem we have got is catch-22. We have more people my age still employed. I am 63 years old. We have people still at my age employed in the shipbuilding industry that are not retired and allowing new people to come in.

And we lost an entire generation in the 1970s where we had—the young people didn't come in and the shipyards stayed where they were. We have mostly mechanics and we don't have the apprentices to put with the mechanics. The 30-year veterans are mostly in the shipyards today. They are in their 50s, late 40s, early 50s, and we are getting ready to see a tidal wave of retirements, and we don't have the people to replace them in the pipeline.

The problem we have, Congressman Nye, is that we don't have the orders and we don't have the work to support the number of apprentices that we need to bring on. So it is another catch-22. We are going to see a massive number of retirees in the next 10 years in the shipbuilding industry, and we do not have the people in line to replace them.

Mr. TAYLOR. Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman.

Mr. Ault, I think you bring up some good points. I am curious, and we talked today with a number of folks in the industry about where do you think we need to be as far as the magnitude of shipbuilding? In other words, how many commercial ships do you think we ought to be building to get to the point where we have maximum capability for both building naval ships and commercial ships?

And I think we are missing out on some opportunities. We see what is going on in South Korea. It would be nice if we could capture some of that business.

What do you think the magnitude of that business could be if we utilized the capacity that we have existing, right now, in the people that you talk about that we could bring in, could train, and could put to work?

Mr. AULT. Thank you very much for that question. We are missing opportunities in replacing the Jones Act fleet. The Jones Act fleet will give us about 50 hulls, just to replace what is out there with the Jones Act fleet.

One of the problems we are having is with the DOD [Department of Defense]. The DOD is not buying Jones Act ships or American-built ships under Title 10. They are leasing foreign ships. So we are missing opportunities to do commercial-type work there.

We are also missing a lot of commercial work on the double-hull product tankers. We could—if we could get just the ones in the Jones Act to begin the American shipbuilding in the commercial vein, I believe that we could start the program back up and start training the next generation of American shipbuilders.

We have the facilities. You heard Mr. Petters talk, a little bit, about the—building the Areva reactors. There is nothing that cannot be built in an American shipyard. We are the arsenal of defense.

Whether it is bridges or whatever, we could build it—anything heavy. One of the things that I spoke about earlier this year, at the right-sizing reactor technology at MIT [Massachusetts Institute of

Technology], was using the modular construction techniques at Electric Boat to build modular nuclear reactors for the power industry.

And there is a lot of discussion right now in the green power industry, of using the smaller nuclear reactors and build them in our commercial shipyards.

That would be another way of bringing people in and training them, because those skills are readily transferable to shipbuilding. So there are lots of opportunities. We just have to have the jobs to place the people in to get the training to start.

Mr. WITTMAN. So what you are saying is we need to make sure that the Jones Act is in force for those ships that are aging out of the Jones Act fleet?

Mr. AULT. Absolutely.

Mr. WITTMAN. Okay.

Mr. Chairman, one additional question, and that is, it appears as though more and more components that go into the commercial ships—just as you point out, I think it is a great, great point, where you talk about the containers coming in from components built elsewhere, and then the ship is constructed here.

Of the few domestic ships that are produced here, you tell me what portion of those are manufactured from foreign components, and what do you think we need to do to make sure that the component element of those ships—or that we encourage or—let's see—incentivize those components to be built here so that we can broaden the base of domestic shipbuilding?

Mr. AULT. Well, all of the low-speed diesel engines are imported. We don't have any in the United States at all. So all of the engines are imported from either Spain or other—South Korea or Japan or, now, China. China is going to be the next world shipbuilder. Nobody else is going to be close.

If you are going to South Korea, I would go to China. Because they are going to be the world's shipbuilders.

But to make the point is most of those components are now foreign-sourced, almost all. We have very few. One of the things to bring them back is to have customers. The BWXT and a lot of the other manufacturers have approached me and pretty much told us that, if we had the customer, if we had the orders, we would open those factories.

Most of those factories are still in the United States and could be reopened with just the promise of a definite quantity order. And we see that across the board, in all the shipbuilding, whether it is Navy shipbuilding or other.

Every year we lose more and more ship component manufacturers, even in the Navy realm. And one of the things those ship component manufacturers are asking us to give them is a definite quantity order.

If they could get three pumps ordered instead of a bit on one pump and maybe you will get two more, you would get a substantial savings on those three pumps over the fact that they may get three. A bird in the hand is worth two in the bush.

Mr. WITTMAN. Thank you, Mr. Chairman.

Mr. TAYLOR. Thank you. There is a vote on the floor. There are approximately 12 minutes remaining on that vote, and most of us

have not had an opportunity to see the motion of recommit that we are going to be voting on.

So if someone has a question that they definitely want to ask, we will make that available.

Mr. BARTLETT. Mr. Chairman, if I could make one comment. When we toured those shipyards—you went to all of them with me—we specifically asked them if they were subsidized. They all denied it.

Now, they either are or they aren't. And who do we go to to find out who is telling the truth here?

Mr. AULT. One thing for sure, when we can't buy the components for what they are selling the ship for and buy the components from them for what they are selling the ship for, we can't buy the steel to build a ship that they are building in China for the price the Chinese are charging for the ship.

Mr. BARTLETT. But if they were subsidized, Mr. Chairman, I think there would be WTO suits, and I don't see any WTO suits, so I am skeptical that they are—or else they are doing it in such a clever way that nobody can find it out.

And if that is true, then we ought to send some spies over there to find out how they do it so we can do it.

Mr. TAYLOR. Okay. I appreciate the gentleman's observations, and he knows that I am in total agreement.

Mr. Courtney.

Mr. COURTNEY. Well, one place we do know that there is a competitive disadvantage—and you mentioned it, Mr. Ault—is in the area of health care costs.

Mr. AULT. Absolutely.

Mr. COURTNEY. And, I mean, you know, that is not a WTO violation for a country to have a national health plan that doesn't put the burden on employers to pay for it and that obviously, not just in shipbuilding, but a whole array of manufacturing has really hurt this country.

We are obviously in the middle of health care mania, right now, but I think your words are something that people really should think about when we talk about trying to revive manufacturing in this country.

And quickly, I mean, loan guarantees, though, is that—I mean, there was a mention, maybe, that that becomes a WTO violation, but that is—it would seem like that is a pretty safe area for public policy.

Mr. AULT. Well, under Title XI, it is the loan guarantees under Title XI are for domestic shipbuilding. So I don't know about export in the worldwide commercial market.

So I am not one of those persons that would be qualified to really speak on that.

Mr. TAYLOR. Again, we want to thank all of our witnesses. We, again, apologize for the delays. All of your time is valuable. We have had a series of votes on the floor today, some of which we did not anticipate.

All members will have five working days, since we are wrapping up tomorrow, five working days to submit questions for the record. And again, we want to thank all of our witnesses.

Mr. AULT. Thank you.

Mr. TAYLOR. The panel is adjourned.
[Whereupon, at 5:33 p.m., the subcommittee was adjourned.]

A P P E N D I X

JULY 30, 2009

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

JULY 30, 2009

Opening Statement of Congressman Gene Taylor
Chairman, Subcommittee on Seapower and Expeditionary Forces
Committee on Armed Services
U.S. House of Representatives

The subcommittee will come to order.

Good morning and welcome to our temporary hearing room here in the Capital Visitors Center. I trust everyone was able to find their way without too much trouble. As many of you are aware, the committee hearing rooms in the Rayburn building are in renovation and full committee and subcommittee hearings will be conducted in this room until at least December.

Today we meet in open session to receive testimony on a very important issue; an issue that is threatening to cripple our national maritime power, and by definition our national security. The issue of course is the cost of building Navy warships. Our ships are simply too expensive. In my time serving on this subcommittee, I have heard official after official explain the problems of the past, and promise better performance in the future. There is always some new plan or program to control requirements growth, or stabilize the acquisition plan. Industry leaders roam the halls of Congress and explain why it's not their fault and bemoan a system that is unstable in requirements, quantity, and schedule. And all the while, shipbuilding costs continue to skyrocket.

This hearing is not about finding someone to blame. All parties, including the Congress, have brought about this crisis. I would hope that with hearings, such as this, we can discuss realistic options to control shipbuilding costs. For me, all options are on the table. I believe the Navy needs to look very hard at their requirements process to determine if marginal extra capability is worth significant construction or integration costs. I believe the Navy must stop changing the number and type of ships they intend to acquire. I believe the shipbuilders need to modernize and build these ships in the most efficient manner they can. And I firmly believe that we should not build any ship in any shipyard that is not optimized for construction of that ship. This last belief should be obvious to all. Our full committee Chairman and Ranking Member are doing great work in attempting to reform the overall acquisition process, this subcommittee needs to support that work by insisting on reform at the deck-plate level of the acquisition process; the actual construction of the ships. I have been to the very efficient shipyards of the world; I have seen what can be done. Our shipyards are not even close to matching the efficiencies of the foreign yards.

If I might, I would like to make an analogy of how we build ships compared to how the efficient shipyards in the world build ships. To make this analogy, I'll use the example of building a house. The inefficient contractor digs the foundation by hand using shovels and picks, the efficient contractor brings in a Caterpillar backhoe and finishes the job in minutes. The inefficient contractor then hand builds the foundation framing and mixes cement in a wheelbarrow; the efficient contractor uses pre-fabricated and reusable foundation framing and brings in a cement truck to pour the foundation. The inefficient contractor then frames the house by hand, one stud at a time, with workers swinging framing hammers to drive nails, the efficient contractor uses pre-fabricated joists, interior and exterior walls, and roofing trusses, all made at a

factory to a specific plan, quality checked for squareness, and delivered to the job site exactly when needed and then assembles them using pneumatic framing guns. Both methods build a house, the inefficient method relies on brute labor hours, the efficient method relies on advances in technology and construction methods, and requires highly skilled labor. The inefficient contractor justifies his higher costs by describing the hours spent in construction. The efficient contractor is off building another house.

We are the inefficient contractors. When I ask how much a ship should cost, no one can tell me. Why? Because it depends on how you build the ship. If you build it by hand, it will cost a lot more. If every weld is done by hand, it takes longer and costs more money. If you do welding robotically in the earliest stages of fabrication, you save cost in setup time. If you maximize outfitting in the assembly or module stage, you save cost because the work can be done faster and more efficiently. Some of our yards are working to improve in these areas; some are farther along than others. My point is that we should not build the ship until the production process in the shipyard is optimized. In my story above, the efficient contractor invested in the equipment needed to build efficiently. What we need to do here today is discuss how the Navy, our shipbuilders, and the Congress can work together towards the goal of proper investment to lower total cost.

Two years ago, this House passed a provision that would have granted the Secretary of the Navy significant authority to use government funds to improve infrastructure and workforce training at our shipyards. We included that provision after testimony from both government and industry officials that investment was essential to overall cost reduction. Unfortunately, we were unable to clear that provision through conference with the Senate and the final bill signed by the President only required the Navy to report back to the Congress on potential shipbuilding efficiency improvements. That report is before the Members today, included in the briefing material prepared by staff. It is a good report, but shipbuilding costs are still going up.

Today I want to hear some ideas. I want to work with the Navy, I want to work with the industry, and I want to work with the labor force. This is important to our national security. If we cannot get these ship construction costs under control we will never again have the number of ships the CNO needs to perform all the tasks that we as a nation ask.

We have the right witnesses to discuss this issue, I thank them all for coming and I look forward to both their testimony and the question and answer period. Our first panel is composed of the two gentlemen in charge of buying ships and overseeing the construction of ships. We are honored to have the Assistant Secretary of the Navy for Research, Development, and Acquisition, the Honorable Sean Stackley, along with the Navy's Commander of the Naval Sea Systems Command, which has technical and oversight authority over ship construction, VADM Kevin McCoy.

Our second panel is composed of the two gentlemen who run our major shipyards: Mr. Mike Petters is the President of the Northrop Grumman corporation shipbuilding sector and Mr. David Heeber is an Executive Vice President of the General Dynamics Corporation and is in charge of the Marine Systems division of that company.

Our final panel is composed of representatives from the trade unions whose membership actually does the construction of these ships. From the International Brotherhood of Electrical Workers we welcome Mr. Brett Olson, and from the Metal Trades Department of the AFL/CIO we welcome Mr. Ronald Ault.

I thank all our witnesses, I trust we will have a free exchange of ideas today, and I now turn to my friend from Missouri, our Ranking Member for any comments he may wish to make.

Akin Opening Statement for Hearing on Cost Reduction Efforts for Naval Vessel Construction

July 30, 2009

"Thank you, Mr. Chairman. Good afternoon, ladies and gentleman. It's a pleasure to be here with you today to learn more about the Navy and industry's efforts to control costs for naval vessel construction.

"In many respects, the keys to cost reduction are well understood, such as commonality of design at the component and system level, stability in the shipbuilding program, sufficient volume to optimize workloads, and shipyard facility modernization. I gather that these are the lessons the most competitive and efficient yards in the world, especially those in Europe and Asia, have long since embraced. Yet, despite our understanding of what it takes to control costs in naval shipbuilding, it is less clear what role Congress can play to facilitate the implementation of best practices in the U.S. What also remains unclear is the level of commitment within both the Navy and industry, to adhere to these principles.

"For example, how much effort has been made to date to increase commonality at the component and system levels? Similarly, has the Navy made a real commitment to stability within the shipbuilding program? Given the significant changes in the annual shipbuilding plans, it would appear not. Although we did not receive the required shipbuilding plan this year, the changes we do know about, such as the change to the aircraft carrier build cycle, do not provide reassurance to this committee that the fiscal year 2010 budget provides greater stability. Additionally, what are the shipyards doing about improving workforce skills and productivity? How much rework are we currently experiencing and what are the shipyards doing to recruit more people into these highly skilled trades?

"In spite of these questions and observations, I also acknowledge that the practices adopted by commercial yards cannot be fully transferred to naval ship construction yards. First and foremost, these yards benefit from economies of scale derived from large orders. We will never see this volume in military orders -- particularly with shrinking defense budgets. In addition, commercial yards create value by producing standardized offerings at low cost. But the Navy is not likely to need commoditized ships. Instead, our yards must strive to create value for the Navy and their stockholders through a balance of strategies, such as industrial efficiency, network services, and knowledge application. I would be interested to learn if there are opportunities to make our naval shipyards world experts in design services and customized ship construction. We might find that other nations and other customers would be interested in coming to U.S.' yards for their most challenging, high performance ship needs – as they do for aircraft and other defense systems.

"I am hopeful that we'll learn more about these various possibilities in today's hearing. I'd like to conclude by thanking our witnesses, from both the Navy and industry, for their service to our nation and for being here with us today. I truly look forward to your testimony."

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RELEASED BY THE HOUSE ARMED
SERVICES COMMITTEE
SUBCOMMITTEE ON SEAPOWER AND
EXPEDITIONARY FORCES

STATEMENT

OF

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

AND

VICE ADMIRAL KEVIN M. MCCOY
COMMANDER, NAVAL SEA SYSTEMS COMMAND

BEFORE THE

SUBCOMMITTEE ON SEAPOWER AND EXPEDITIONARY FORCES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

SHIPBUILDING EFFECTIVNESS

JULY 30, 2009

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON SEAPOWER AND
EXPEDITIONARY FORCES

Mr. Chairman, Ranking Member Akin, and distinguished members of the Subcommittee, thank you for the opportunity to appear before you today to address the methods in which government can reduce and is reducing overall acquisition cost of new ships.

The Chief of Naval Operations has outlined requirements for the future force, often referred to as the 313-ship Navy. In fact, the CNO has emphasized that 313 ships represents "the floor", if we are to meet the full range of missions confronting the Navy in the next decade and beyond. Today's Navy is a fleet of 283 battle force ships, well short of the future requirement. Inarguably the underlying challenge – indeed, the pressing requirement – before us today in shipbuilding is affordability.

The fact is that ship costs are rising faster than our topline, due to such factors as low rate production, reduced competition, increased system complexity, frequent changes to our shipbuilding plan, changes to requirements and design, and challenges with introducing new technologies into new platforms. To this list I need also add performance, for on even our most mature programs, we have experienced cost growth as a result of performance shortfalls and quality escapes.

The reality is that there is no single fix to turn around this trend, but rather a large number of initiatives, practices, and standards that we need to attack across the board.

We need to begin with requirements.

We need to ensure that our requirements are balanced by our resources. The Secretary and CNO have been particularly instructive guiding the requirements process towards the "80 or 90 percent solution," and away from exquisite capability that extends beyond the reach of our budget. Norm Augustine got it right: "the last 10 percent of performance generates one third of the cost and two thirds of the problems." The key here is to inform the process with realistic cost estimates and realistic risk assessments at the front end. This drives the difficult decisions early, where there are true choices, and true opportunities.

Once the requirements are set – and properly budgeted – stability becomes the watchword: requirements stability, budget stability, and design stability. We do not have a good track record here, but I can assure you that from the Secretary right down to the individual shipbuilding program managers, we understand the importance of stability. We are intent on holding the line. Perhaps most notably, over the past decade we introduced eleven new designs – eleven lead ships – each a highly complex prototype bringing its own unique challenges, each disrupting our shipbuilding programs and industrial base. By contrast, the fiscal year 2010 President's Budget request for shipbuilding builds on programs that are currently in production. This is our opportunity to leverage stability.

To do so, we need to effectively employ competition at all levels of shipbuilding – from prime contractors through individual equipment vendors. We need to continue the current trend toward greater use of fixed price type contracts. We need to ensure our designs and production planning are mature prior to starting construction in order to minimize the costly rework associated with out of sequence work. We must resist the constant pressure to introduce change mid-course in production, yet develop methodologies to incorporate necessary changes without disruption. We need to sustain and improve upon the capabilities of our industrial base, through indirect and direct investments, while at the same time we need to seek to match capacity with our needs. To

meet these objectives, we must be smart buyers. The acquisition workforce has been downsized over the past decade and a half to the extent that our professional corps has been stretched too thin and we have outsourced too much of our core competencies. Accordingly, we must rebuild our Navy acquisition workforce.

These "strategic" moves, properly executed, will drive necessary "tactical" changes in our shipbuilding processes, such as multiyear procurements (MYP), block buys, commonality, and cooperation with industry for industrial processes, design portability, contract incentives, capital improvement programs, software reuse, and other related cost reduction initiatives.

Many ship ownership costs, both for new construction and in-service, are determined upfront as a result of the operational requirements definition process. Within those bounds, however, there is significant latitude to explore variations in how operational requirements are flowed down to technical solutions via a robust systems engineering process. We are working to determine where operational requirements can remain flexible throughout the early design stages and to explore variations in ship and Fleet architectures that can provide desired deployed capabilities at least cost. This is how Commander, Naval Sea Systems Command (NAVSEA) is implementing the Capabilities Based Assessment (CBA) process, which is tied to the Navy's Acquisition Review process. For a given program, multiple ship configuration options are explored via analytical techniques such as "set-based design." This allows us to make cost versus capability trades and indicate which solution sets are optimal from the standpoint of cost. The Navy has further formalized and institutionalized this process by establishing a requirement to document the results of such trades in a System Design Specification (SDS) for approval by the senior Navy leadership at a formal Gate Review. These activities lead to a "design lock-down" for our programs that will not occur before the cost impacts of design trades are understood.

We need quality cost estimates.

Our ability to correctly predict the cost of our future shipbuilding programs has atrophied significantly over the past decade. We have been focused on projecting costs rather than developing "should cost" estimates. Projections accept and institutionalize inefficiencies while "should cost" estimates find and drive out these unnecessary costs. Our ability to estimate costs has been further eroded by instability in the factors comprising shipbuilding costs. The cost of shipbuilding labor continues to outpace general nationwide inflation by 60 percent in the post-Cold War construction period. Labor costs increased more than 45 percent between 1999 and 2008 at the major shipyards. Shipbuilding labor demand, general cost of living, health care, workmen's compensation and pension costs all contributed to this growth. Given the projected competition for skilled labor on the Gulf Coast due to Katrina reconstruction efforts and overall nationwide upward trends in the cost of benefits, this upward movement is forecasted to continue.

The global commodities market (steel, copper, etc.) has fluctuated wildly in the past five years. The period 2004 through 2008 represented a period of extraordinary worldwide growth, fueled by Chinese expansion. Prices for raw metals and commodities experienced unprecedented increases during that timeframe. After hitting record highs in summer 2008, prices have declined sharply. By March 2009, steel prices had dropped almost 40-percent from the August 2008 highs. Other metals such as aluminum, copper, and nickel have seen similar declines. Higher equipment/machinery prices in 2008 were driven by skyrocketing metal prices, as well as higher manufacturing and shipping costs. However, the global economic downturn has drastically reduced construction and manufacturing worldwide, and the resulting decreased demand for all

commodities has led to lower prices and surplus conditions. This volatility has increased the difficulty in estimating material costs for Navy ships.

We need healthy competition.

Over the last three decades, the shipbuilding industry has gone through extensive consolidation resulting from declining commercial and Government demand. As a result, there exist only six major shipbuilders, located in Groton, CT; Bath, ME; Newport News, VA; Pascagoula, MS; New Orleans, LA; and, San Diego, CA. Two corporations own all six of these shipyards. This narrowed industrial environment challenges the Navy to maximize competition. The Competition in Contracting Act (CICA) requires the Government to compete all procurements except if one of seven exceptions applies. For shipbuilding, prime and sub-tier contracting competition is pursued to the maximum extent practicable. When sole source ship construction contracts must be utilized, they include provisions that require shipbuilders to seek competition at the subcontract level to the maximum extent practicable. For instance, the majority of major subsystems procured for the new GERALD R. FORD (CVN 78) Aircraft Carrier were subcontracted through competition.

Serial production in a competitive environment benefits the shipyards and suppliers. Serial production allows the shipbuilders to optimize their shipyard(s) for a particular product line. In the case of the VIRGINIA Class Block III MYP, the shipbuilder can enter long term relationships with suppliers for the next eight submarines. The Navy invested $600M in related MYP cost reduction efforts and as a result has reduced the VIRGINIA Class total program cost by $4B. The DDG 51 program successfully used MYP contracts during fiscal years 1998-2005 to realize over $1B in program savings. In addition to cost savings, MYP offers several additional benefits. The long term commitment stabilizes shipyard employment levels and the industrial base; justifies capital investment for productivity improvements that benefit future Navy shipbuilding; allows for economic order quantity procurements of shipbuilder material and subcontractor effort; decreases hardware costs through large lot procurements; and reduces disruptions in vendor delivery schedules. The Navy will continue to explore use of block buys and multi-year procurements for other ship classes as programs mature.

To further stabilize the industrial base, the Navy revisited the acquisition strategies for the DDG 1000 and DDG 51 programs, and negotiated Memoranda of Agreement (MOAs) between the Navy and the affected shipbuilders. These MOAs allocated the building of all three DDG 1000s at General Dynamics Bath Iron Works, and the first two new DDG 51 Class ships (DDG 113 and DDG 114) to Northrop Grumman Shipbuilding. The MOAs are designed to ensure shipyard workload stability at both yards, leverage learning, stabilize and minimize cost risk for the DDG 1000 Program, efficiently re-start DDG 51 construction, facilitate performance improvement opportunities at both shipyards, and maintain two sources of supply for future Navy surface combatant shipbuilding programs.

Focusing on material, there are opportunities that exist to increase competition to drive down costs in the near term. Current material sourcing by the two parent shipbuilding corporations (Northrop Grumman and General Dynamics) could be improved to better coordinate leveraged material buys within the six shipyards that they own. Economic order quantity savings on material purchases could be realized by inducing regional and multi-product material buys within individual shipyards, within corporations, and across the two parent corporations.

Ownership of technical data rights is a key enabler for healthy competition. This allows the Navy to solicit ships, ship systems, and maintenance and modernization from a wider selection of potential shipbuilders and suppliers.

We need to design for producibility.

The Documents for Ship Cost Reduction (DSCR) program is an outgrowth of NAVSEA's Strategic Initiative to Build an Affordable Future Fleet. In DSCR, NAVSEA's Warranted Technical Authorities work with industry vendors and the shipbuilding community (through the National Shipbuilding Research Program) to drive costs out of specifications and standards. Specification costs are driven by three main factors: specification content, how the content is tailored and invoked on contract, and how those contract requirements are interpreted during implementation. Costs are avoided through the elimination of unnecessary requirements and simplification of specification language. NAVSEA objectives include removing/correcting technical content that adversely impact cost, ensuring specifications are properly invoked in contracts, and clarifying specification content. Early results from program implementation indicate potential cost savings from changes for the following guiding specifications: 1) Shock: Alternative land-based qualification test machine instead of a Floating Shock Platform; 2) Vibration: Vendor self-certification of testing, in accordance with established procedures; 3) Motors: Revised Motor specification has streamlined requirements; 4) Welding: Deleting the requirement for uncoated pipe joints for hydrostatic testing.

The Navy has long recognized the savings potential derived from direct collaboration with the shipbuilding community. The National Shipbuilding Research Program (NSRP) is a Navy-led collaboration of 12 major U.S. shipyards focused on industry-wide implementation of solutions to common cost drivers. The program targets solutions to industry's priority issues, in concert with the Navy shipbuilding community, and undertakes research and development efforts that exhibit a compelling business case to increase warship affordability by improving U.S. shipbuilding and ship repair efficiencies. Solutions include leveraging commercial best practices and creation of industry-wide initiatives that promote aggressive technology transfer to multiple U.S. shipyards. Nearly 150 companies from 34 states have collaborated on NSRP-funded activities.

Detailed accounting of NSRP payback revealed a greater than four-time return on the Federal investment. The NSRP collaboration vehicle continues to respond to Congressional concerns on shipbuilding affordability and contributes to the Navy's strategy to realize the 313-ship Fleet. Navy Program Executive Offices (PEOs) (Ships, Submarines, and Carriers) are involved in NSRP and have provided funding for specific projects over the last three years. The NSRP has enabled the shipbuilding industry to speak with a unified voice to provide sound technical input to new regulations under consideration by OSHA, the EPA and others. This reduces the potential costs associated with the new regulations, while preserving adequate personnel safety and environmental protections.

Properly executed technical oversight conducted by fully competent technical authorities is integral to the success of Navy ship construction programs. Engineering excellence is a necessary enabler for cost control and cost reduction. This effort has three key components: making sure ship designs are amenable to an efficient build strategy, making sure shipbuilding specifications facilitate least cost solutions, and ensuring that the design is "locked down" before start of construction. These facilitate modern modular construction techniques utilizing well engineered process, including flow lanes and pre-outfitting of hull modules (i.e., design for producibility),

while also supporting development of engineering requirements which do not go beyond the minimum performance criteria necessary for safe and effective operation in a military environment. Not having design completion prior to construction caused significant rework on first-of-class ships, and this lesson learned has been a major successful focus area for both the CVN 78 and DDG 1000 programs.

We need to continue to leverage our automated design tools.

All shipbuilders and shipbuilding programs have some level of two or three dimensional Computer Aided Design system (2D/3D CAD) available. These are used for ship design, in many instances translated into production, and less often to ship maintenance and life cycle support. Use of fully capable, common CAD tools and extending their use throughout the shipbuilding spectrum through life cycle support will increase the economic effectiveness of our up-front investment in these systems, while simultaneously affording the opportunity to reduce both shipbuilding as well as life cycle support costs.

Use of automated design tools greatly reduces rework in production. For example, changes on the lead VIRGINIA Class submarine were less than half of the changes on the lead Seawolf. Coupling CAD systems with Integrated Master Schedules (IMS) further enhances cost reduction opportunities for the Navy and the shipbuilding industry. Effective CAD and IMS implementation can tell us when we are truly ready to start production. We recently increased our emphasis on Production Readiness Reviews (PRR), to the point that some shipbuilding programs have not been allowed to start production when originally planned because of lack of design maturity.

Schedule flexibility is a little appreciated cost reduction tool. Allowing our shipbuilders to most-efficiently schedule their short and long term workload by allowing variations to contractual dates enables workforce stability and proper material flow rates in our shipyards. Properly used, IMS allows for tremendous visibility into the details of shipyard labor and material usage, enabling bi-lateral schedule adjustments that can yield tremendous efficiencies.

We need to improve performance oversight.

The Earned Value Management System (EVMS) is a proven tool that measures actual industrial performance in a standardized, objective, fact-based manner. We have not always used EVMS as we should, or when we should, in shipbuilding. EVMS enables reality-based cost control dialogue between Navy and industry. We are expanding use of this valuable tool.

Poor shipbuilder performance can derail even the best shipbuilding processes. EVMS enables timely, clear, and effective identification of shipbuilder production-related problems, providing the entire shipbuilding team with valuable insights. Corrective actions can be targeted sooner, allowing our shipbuilders to quickly recover cost and schedule.

Navy on-site oversight of shipbuilding is essential for the Navy to ensure shipbuilders comply with the contract requirements of vessels. This role is filled by the Supervisors of Shipbuilding in Bath, ME; Groton, CT; Newport News, VA; and on the Gulf Coast. From 1990 to 2006, the Supervisors of Shipbuilding experienced a 54-percent decrease in manning. By the end of fiscal year 2007, the Supervisors of Shipbuilding were funded to a level of manning significantly lower than both the (then) current workforce size and the requirement, and facing a 10 percent shortfall to current staffing over the next five years.

Following the challenges experienced during construction of LCS 1 and LCS 2 in fiscal year 2007, NAVSEA conducted a comprehensive, bottom-up analysis of the Supervisors of Shipbuilding

organization. In the nearly two years since then, we have augmented the on-site waterfront capability of the Supervisors of Shipbuilding in the areas of engineering, project management, and earned value management.

We are also focusing on the implementation of common business processes and practices across the Supervisors of Shipbuilding. Examples include consistent vessel progressing methods, and compartment completion processes. By the end of fiscal year 2009, all four Supervisors of Shipbuilding will use the same discrepancy-management software. Consistency will allow us to provide contractor oversight with comparable metrics and methodology, and support cross training of employees across the Supervisors of Shipbuilding community.

First pass quality is critical to containing costs, and the Navy is working closely with its shipbuilders to standardize criteria, implement proper training, and ensure compliance. Recent problems the Navy has seen in shipbuilding are associated with poor weld execution and inspection, significant rework (driving up costs), and an inexperienced workforce have caused us to increase our focus in these areas. Many of the smaller shipyards lack sufficient access to adequate skilled labor, and the robust processes and practices required in building Navy ships, and thus struggle with the same issues. The Supervisors of Shipbuilding work with the shipbuilder to identify where quality improvement is needed and to maintain focus on improvement. The Supervisors of Shipbuilding have an ongoing focus on developing and standardizing robust Quality Assurance procedures. This will ensure better detection of shipbuilding issues early in the process, and focus attention toward correcting root causes to improve first time quality.

Supplementing both our technical community and our waterfront organizations, we have established a relationship with the American Bureau of Shipbuilding (ABS) in some programs. ABS provides valuable independent technical review for design products for both LCS and DDG 1000 Classes. We have also found their waterfront quality assurance services to be valuable and have worked to ensure a good partnership with the Supervisors of Shipbuilding.

We need aggressive cost-reduction programs.

The Navy has initiatives and processes to capture economic benefits from commonality. These include commonality addressed at the ship level, at the system level, at the material level, and in processes. In the current Navy, commonality is enhanced through commodity contracts across multiple platforms; parts commonality; common processing and display systems; modularity; Open Architecture; and software reuse. The commonality initiative focuses on defining solutions for reducing variation for systems, sub-systems and components. Total Ownership Cost (TOC) analysis has indicated that some variation is needed in Navy systems to provide the lowest Total Ownership Cost, because competition is maintained and complexity is reduced. Examples of variation reduction study results include: Fluid systems with a reduction from 240 to 116 different centrifugal pumps, machinery control systems with a reduction in work stations from 24 to 8, and climate control systems with a reduction in vane axial fans from 192 to 43. These results indicate significant opportunities exist for further variation reduction in other fleet systems.

The Navy is increasing commonality by analyzing current hull designs for use in future ships. The Navy is also utilizing existing Navy systems on new designs; using adaptive infrastructures to allow technology to evolve without a physical impact to the ship; leveraging commercial technology; increasing modularity; increasing Open Architecture; adopting Class Common Equipment; and developing a common specification for an integrated product data environment. The goal of all these initiatives is to minimize variance within the systems to reduce cost, schedule,

and risk. Overall, the Navy is moving towards a warfighting capability-based approach rather than platform-centric approach. This means that the Navy develops specific capability and functionality for use Enterprise-wide vice expending additional resources developing multiple systems that provide the same capability but are targeted to one class of ships only.

Combat and weapons systems related costs are often the largest cost drivers in shipbuilding, even if costs of the weapons themselves are excluded. Weapons systems are approximately 40 percent of the total cost of naval warships over a five year period. Software development; systems engineering, integration, and test; sensors, such as radars; and weapons systems are the major elements of this cost.

To reduce weapons systems costs, the Navy is pursuing the fielding of open, modular, and extensible systems. This strategy enables the Rapid Capability Insertion Process (RCIP) and the integration of new technology without costly software changes, helps manage Commercial Off-the-Shelf (COTS) obsolescence, and encourages commonality and reuse. The Open Architecture approach to development allows new business models, reduced manning and training, test and evaluation efforts, combat system certification efforts, and operating and support infrastructure.

Another opportunity for generating savings is combat systems baseline consolidation. The Navy has 12 combat system baselines in the fleet reflecting the Aegis Combat System, Advanced Combat Direction System (ACDS), and Surface Ship Defense System (SSDS). By 2010, the number of combat systems baselines will increase to 15, reflecting the introduction of AEGIS, SSDS, and LCS Open Architecture Common Environment (OACE) baselines to the fleet while legacy baselines are still employed. Following the submarine example with Acoustic Rapid COTS Insertion/Advanced Processing Build (ARCI/APB), the Navy is examining a modular architecture that will facilitate commonality and reuse in order to keep combat systems current while at the same time dramatically reducing the number of baselines. Ultimately, the Navy's goal is to have two combat systems, one for combatants and one for support ships. This will result in optimized cross-class/ platform systems instead of class specific requirements.

This vision will require time and investment dollars to develop, implement, and integrate the new technologies for new platforms, and to ensure interoperability on legacy platforms and systems. The reduced number of unique systems will result in common specifications and modular integrated ship and system designs. This can lead to procurement strategies that will ultimately reduce risk and life cycle cost. The desired effect is a greater number of vendors able to compete to design and build the common modules resulting in increased competition.

The ability of the shipbuilders to reduce overhead costs is tied closely to workload, stability and predictability of that workload. U.S. shipbuilding has declined nearly 40 percent from 1992 to 2002. This reduced quantity of work at our major shipyards has resulted in a reduction in direct labor workload over which overhead costs must be spread. While our private shipyards have been actively engaged in reducing overhead costs, some quite successfully, increased focus is needed in this area. "Fixed" overhead must be driven into "variable" overhead, then controlled as a function of workload. As an informed, engaged customer, the Navy can assist the private shipyards in this area by stressing cost control, creating (or sustaining) a robust competitive environment, and allowing for innovation in overhead processes that enable reduction of fixed overhead costs.

Lastly, the Navy can adjust the standard payment schedule for collecting Progress Payments. This can be a powerful incentive for shipbuilders to meet selected cost reduction benchmarks, especially if applied early in the design/build process.

We need to invest in facilities and training for our shipbuilding industrial base.

Government shipbuilding contracts are routinely structured with incentive fees and/or award fees, both for cost reimbursable and fixed price type contracts. Incentives and award fees are tools or mechanisms through which the government encourages specific behavior or performance. The Navy has recently implemented a number of different shipbuilding facilities investment incentives. By setting aside ship construction funds to be allocated based on business case justification, these special incentives allow shipbuilders the potential to earn additional fees toward capital and process improvements when proven to be mutually beneficial to both contract parties.

As outlined in the March 2007 Report to Congress on *Assessments of Naval Vessel Construction Efficiencies and of Effectiveness of Special Contractor Incentives*, several ship construction contracts have utilized such contract incentives with demonstrated success, including VIRGINIA Class Block II and DDG 51 Class programs. In the case of the VIRGINIA Class Block II contract, the shipbuilder is funded up to 50 percent of the incentive at the start of the improvement, with the remaining 50 percent available upon satisfying criteria defined in contract. Other ship programs utilizing special incentives toward capital expenditure include the CVN 78 and DDG 1000 Class programs.

Another notable way in which contract incentive fees have been used to finance improvements is through the renegotiation of the contractor share line in an under-run scenario. Fixed price incentive and cost plus incentive fee contracts contain "share lines" for when the costs attributed to the contract come in above or below the negotiated "target cost." When the contractor is below the target cost, the excess funds set aside are shared at the ratio negotiated. When the negotiated share ratio is 50/50, each dollar that the contract cost is below the target cost is split evenly. However, through contract re-negotiation only when the business case demonstrates overall savings to the Navy, that ratio can be adjusted more favorably for the contractor, provided the contractor commits to investing that extra profit toward financing improvements, as has been done successfully on the DDG 51 ship construction program.

Private shipyards must maintain a sustainable and capable work force in order to be competitive and meet their respective contractual requirements. Further, five of the six major construction shipyards have apprentice programs registered or affiliated with their respective state governments. Both Austal and Marinette Marine have or will have apprentice programs as well. However, there is not a standard training regime or protocol across the shipyards, even for those with the same parent company (i.e., General Dynamics and Northrop Grumman). This is an area where the Navy intends to increase focus.

Facilities Capital Cost of Money (FCCM) is an imputed cost which is an allowable charge to government contracts to recognize costs of contractor capital for facilities investments. This allowance directly recognizes "costs" associated with deploying capital assets for performance under government contracts for which the contractor will be paid. Therefore, the more the contractor invests in facilities or capital improvements, the higher the net book value. The higher the net book value, the higher the resulting imputed costs allowed to be charged to government contracts. This provides monetary incentive for the contractor to increase productivity and cost reductions through modernization of production facilities.

We need to explore available financing tools to ensure the most efficient construction of our ships. In many cases, how we are required to finance our ship construction programs constrains how we

build our ships. We will work within the executive branch and with the legislative branch to ensure we maximize the financing flexibilities that we are afforded.

We need to test only what needs to be tested.

We are reassessing our formal Developmental and Operational Testing processes and are working with our Office of the Secretary of Defense counterparts to find ways to streamline testing. Developmental and operational testing for a large shipbuilding program takes several years and adds substantial cost, both to execute the testing program as well as funding production changes generated by late test results. Early testing results can be easily incorporated into ship designs at reasonable costs; late testing drives high-cost changes into production and post-production ships. Testing is a critical and necessary component of our shipbuilding process, but innovation in this area can help to reduce shipbuilding costs while keeping operational effectiveness high. Both DDG 1000 and LCS have active initiatives in progress to review testing requirements and testing processes with an eye to reducing cost and increasing operational availability, while still meeting core operational validation requirements.

Test and Evaluation savings could also be realized in production, if common products were tested once vice on every platform. The Navy has devised an Enterprise Test and Evaluation strategy to eliminate redundant testing of common systems, which is being implemented. We need to control our appetite for change.

ASN(RD&A) has a long standing policy which restricts the program manager's ability to approve changes. The Navy recognizes that change is disruptive and therefore limits change to safety, statutory adds, obsolescence, fixes from testing, and areas which reduce cost. As a result of this policy, changes have been reduced.

We need a strong, properly sized Navy acquisition workforce.

Personnel staffing reductions since the early 1990's have increased risk to acquisition program success and harmed the ability of the Navy to perform critical systems engineering, program management, cost estimating, contracting, and naval ship construction oversight. We are working to improve the quantity and quality of the Navy's acquisition workforce. We have long-established systematic career development programs for DoD personnel serving in designated acquisition career fields, with clear requirements for filling critical acquisition positions. These professional requirements are now being rigorously enforced. We are filling all existing vacancies across the acquisition community. Through use of Section 852 authority granted by Congress in 2008, we are "jump-starting" billet growth in targeted career fields. We are also growing our core acquisition workforce through an aggressive, DoD-sponsored "in-sourcing" process. These two initiatives, Section 852 and in-sourcing, are expected to add at least 5,000 new Navy acquisition personnel, and billets, across the FYDP. These new people will not just be interns and entry level personnel; we are hiring at all experience levels across the full experience spectrum. Those specialized acquisition management functions, such as program management, contracting, and systems engineering, we consider critical and are now being closely managed as Congress intended. We have targeted our most critical programs and acquisition skill shortfalls. Specifically, we have substantially augmented the on-site waterfront capability of the four Supervisors of Shipbuilding, and are in the process of growing our shipbuilding program office staffs, in some cases by as much as 30 percent.

We need continued commitment to building force structure required to meet the Maritime Strategy.

Armed with a stable requirement, properly budgeted ships, and stable serial production, all inside a competitive market, the Navy can enter into long term contractual relationships, including multiyear and block buys. Volume and long term stability, in turn, enables industry to invest in cost-reducing facilities, processes, and training programs. Vendors can compete, further reducing costs. As industry focuses on reducing cost through optimizing industrial processes, the Navy can focus on eliminating internal Navy processes that drive out-of-cycle change and instability. Combined, these forces will decrease ship costs, allowing for increased force structure across the shipbuilding budget.

The Navy has come through many difficulties associated with lead ships and sustained production is proceeding. The fiscal year 2010 President's Budget request, which focuses on improving performance in the production of follow ships of each class, reflects the Navy's emphasis on stabilizing the shipbuilding plan. All of our efforts in support of that plan are focused on improving our shipbuilding cost performance.

David K. Heebner
Executive Vice President – Marine Systems
General Dynamics Corporation

Testimony before the
House Armed Services Committee
Seapower and Expeditionary Forces Subcommittee
111th Congress, First Session

Improving Efficiency in Shipbuilding

Washington, D.C.
July 30, 2009

**NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE ARMED SERVICES COMMITTEE –
SUBCOMMITTEE ON SEAPOWER AND EXPEDITIONARY FORCES**

Chairman Taylor, Congressman Akin, members of the subcommittee, thank you for your invitation to testify today and for the committee's long history of support for United States shipbuilding.

My objective today is to provide an introduction to General Dynamics Marine Systems shipyards, followed by a brief discussion of factors driving efficiency gains. I will then discuss examples of challenges and successes we have experienced, and close with recommendations.

Introduction to General Dynamics Marine Shipyards

General Dynamics Marine Systems business segment comprises Bath Iron Works, located in Bath, Maine; Electric Boat, located in Groton, Connecticut and Quonset Point, Rhode Island; and National Steel and Shipbuilding Company, or NASSCO, located in San Diego, California. Combined, these shipyards employ nearly 22,000 people. The group designs, builds and supports submarines, surface combatants, and auxiliary ships for the United States Navy, and commercial ships for U.S.-Flag customers.

BATH IRON WORKS

Bath Iron Works, located on the Kennebec River in Bath, Maine, delivered its first ship to the United States Navy in 1893. Since then, BIW has delivered over 400 ships, including 242 military ships and more than 160 commercial vessels and private yachts. Today, 80% of the Navy's active surface combatant fleet was designed by BIW and is being sustained by BIW Planning Yard personnel. BIW plays a key economic role in Maine as it is Maine's largest single site private employer with over 5,500 highly skilled engineers, designers and shipbuilders having, on average, over 20 years of ship design and construction experience. BIW is currently building DDG 51 Class Destroyers, the DDG 1000 Class Destroyers and the Littoral Combat Ship (LCS).

ELECTRIC BOAT

Electric Boat Corporation, headquartered in Groton, Connecticut, and with major facilities at Quonset Point, Rhode Island, has been designing and building submarines for the U.S. Navy since 1899. Starting with the first nuclear submarine, the USS NAUTILUS, Electric Boat has delivered 101 of the U.S. Navy's 198 nuclear submarines. Electric Boat designed and built the lead ship for 16 of the 19 classes of nuclear submarines, and has designed the propulsion plant for all but one class. Today at

Electric Boat there are over 10,000 engineers, designers, and craftsmen, focused on the design, construction, and life cycle support of nuclear submarines for the U.S. Navy and its allies. Almost 1000 more employees are engaged in various other shipbuilding work, including aircraft carrier propulsion plant design and naval combatant design and engineering. Electric Boat is currently building VIRGINIA Class submarines.

NASSCO

NASSCO in San Diego has designed, built and delivered 135 new ocean-going vessels (Navy and commercial) over the last 50 years, and is the only remaining private shipyard on the West Coast capable of building large, ocean-going vessels. NASSCO includes 4,500 engineers, designers, and skilled shipbuilding craftspeople, plus 1,000 long-term on-site subcontractor partners supporting the shipyard. This makes NASSCO the largest industrial manufacturer in the San Diego area, and a strategic resource to both the Navy and Southern California. NASSCO personnel provide critical skills for the design and construction of US Navy Auxiliary ships as well as modern commercial ships for US domestic trade. In addition, NASSCO also provides important ship repair services – a vital role as San Diego has the largest US Navy fleet concentration on the West Coast. As a full service shipyard, NASSCO strives to reduce the cyclical nature of the ship construction and repair business by participating in several markets, an effort that greatly contributes to establishing continuity for the shipyard labor force. NASSCO is currently building the T-AKE Class dry cargo/ammunition ships, as well as commercial Product Carriers.

Factors Driving Efficiency Gains

In line with the committee's interests, we in General Dynamics Marine Systems are continually focused on improving shipbuilding efficiency and affordability. Three key factors that have a direct and substantial impact on our shipyards are: Volume, Stability of Requirements, and Predictability in Funding and Scheduling.

Volume is the most obvious factor. Simply stated, the more ships we build, the more we can learn and improve our processes, leading to greater efficiency and lower cost. Just as important, increased volume affects thousands of suppliers who provide the components and commodities that comprise over half of ship construction costs. Economic order quantities, facilitated by Congressional support of multi-year procurements, improve vendor performance and lower shipbuilding costs. And with greater volume, there is increased incentive and latitude for making business decisions on capital investments and other facility improvements.

Stability of requirements is the second factor. Setting requirements early facilitates a more stable design before construction begins, and enables more effective production planning, design for producibility, risk reduction, and improved maintainability for reduced total ownership cost. Furthermore, with modern electronic modeling, simulation and planning tools at our disposal, a new design can be virtually built – even re-built many times -- before any construction actually commences.

The optimum scenario for reducing risk and cost on a shipbuilding program comes with the serial production of a mature design. In such an environment, more opportunities for cost and schedule reduction can be pursued and cost growth can be minimized. Major ship construction activity should not begin until a detailed design is substantially complete and critical equipment and material is available. With an integrated design-build approach, some prototype construction units can be manufactured and then incorporated into ship production units.

Once requirements are defined, "requirements churn" must be minimized. Otherwise, the flow of changing requirements will frequently result in various unforeseen and unintended costs. Stability of requirements, when supported by early involvement of industry in a ship design, maximizes the impact of design for producibility efforts. When risk is reduced, we are able to match investment decisions with program requirements in ways that improve our productivity and increase our efficiency.

The third factor is predictability in funding and scheduling. Ships are large, complex capital assets requiring years to design and build. Frequently, production plans must adapt to changing external factors. Minimizing these changes allows more effective cost control. Over the past few years, Congress has been most supportive in this respect, providing advanced funding and approving multi-year procurements, especially with mature programs. This is very helpful and should be continued to maximum extent possible.

We shipbuilders are responsible for the efficiency of our shipyards. We know that we must sustain our culture of continuous process improvement. I'll briefly address four areas that have significant impact on shipyard operating efficiency.

1. Early collaboration
2. Capital investment
3. Workforce training and,

4. Applying lessons learned

First, by "early collaboration" I mean conduct an open and crisp selection process, either through direct competition or negotiation, then down-select and immediately begin collaboration between industry and Navy stakeholders. We support the fact that the government must preserve the benefits of competition. But we urge acceleration of the selection process, because early and continuous collaboration between the shipbuilder and customer that occurs after down-select is where substantial efficiency benefits are to be gained.

To elaborate, through Navy and industry collaboration we have developed a Design/Build approach to shipbuilding. The ship is designed with a focus on how a shipyard with a given set of facilities and equipment could most effectively and efficiently build the ship. Also, life cycle costs are addressed early in the development cycle for new ship design. Typically, sixty to seventy percent of the total cost for a Navy ship is associated with operations, support and disposal of the vessel. Thus, with early collaboration at the design stage, improvements and accommodations can be made to the design that will allow maintenance cost savings over the life of the ship. Early collaboration between the shipbuilder and the government customer also permits the shipbuilder to work with vendors to optimize the supply chain and further reduce costs. All together, this Design/Build/Maintain approach yields significant savings by reducing Total Ownership Costs.

Second, capital investment and facility improvements are a key enabler of cost reductions. These investments are more justifiable when there is reasonable assurance of a sustained and predictable workload that supports the business case for return on invested capital.

Third, workforce training and knowledge transfer highlight our most important asset – people. Many family generations have proudly worked in the same shipyard, and the average worker today has over 20 years of experience. Worker skills are learned and honed, often through "deck plate interaction", and passed on to the next generation of shipbuilders. We also transfer knowledge using formal training, like our strong apprenticeship program, and we invest in other formal workforce training at every opportunity. At NASSCO, to just pick one example, we have invested an average of 280,000 hours per year in trade training over the last five years.

Fourth, we apply lessons learned from each ship we build. Continuous process improvement is now ingrained in our shipyard culture. We encourage our employees to

look for safer, better, faster, and less costly ways to build our ships. They take pride in the fact that their good ideas are valued and applied. We share lessons learned across General Dynamics' business units and work closely with our partners to promote improvement across all classes of ships. We also seek best practices through interaction with foreign shipyards, like the high-volume shipyards in South Korea.

Examples

I think a few examples may be useful to illustrate our commitment to process improvement, increased efficiency and reduced shipbuilding costs.

First, regarding collaboration and predictable funding, Congress and the Navy have collaborated closely with us on the VIRGINIA class submarine program, and the results have been extremely positive. The Navy invested $600 million dollars in the "Design for Affordability" program to develop design changes essential to price reduction. Congress provided advance funding and accelerated the production of two submarines per year. These collaborative efforts improved the design, increased the build rate, and reduced the total ownership cost of the program by nearly $4 billion dollars.

Second, regarding the importance of facility modernization, we knew that the degree of ship completion before launch was a key factor to reducing ship costs. Work performed in a controlled outfitting shop environment is estimated to cost less than half than that of similar work done after a ship is waterborne. At BIW, the significant investment in the Land Level Transfer Facility and the Ultra Hall outfitting building has reduced direct labor hours by more than twenty percent compared to the last DDG 51s built on the inclined ways. When combined with the Design/Build approach and other advances in the modular construction process, these facilities have allowed us to build larger ship sections in a covered, controlled environment. This permits a much higher degree of completion prior to hull integration on the ways, and the ship becoming waterborne. The larger the ship module that can be constructed, the more efficient the assembly effort, meaning increased productivity, saved direct labor time, and reduced cost.

A final example is at NASSCO, where facility investments, workforce training, and lessons learned reduced T-AKE's labor hours by over 50%. Additionally, our partnership with South Korea's Daewoo shipbuilding increased efficiency and reduced cost on our commercial Product Carrier ships, and many of those improvements have carried over to our Navy programs.

Recommendations

We are committed to increasing efficiency and removing cost from shipbuilding. We are improving every day, but we are also convinced that more can and will be done.

Mr. Chairman, your subcommittee's initiatives have contributed to more efficient and affordable shipbuilding, and to a more stable industrial base. Your support of multi-year procurement for mature programs, advanced procurement and advance construction authority will continue to reduce costs for both the government and for shipbuilders. Also, I want to thank you for your efforts with regard to Title XI loan guarantees. Every dollar of these loan guarantees can conceivably support $20 of new American commercial shipbuilding. This sustains and modernizes the U.S.-flag merchant marine fleet making them more economically and environmentally efficient while simultaneously lowering the costs of Navy shipbuilding. Title XI is a win-win for American ship operators and shipbuilders, while allowing other positive benefits to American consumers.

Mr. Chairman, as you know, shipbuilding is a complex and dynamic process. Much has been done to improve efficiency, yet more can be done. We will work together with the Congress and the Navy to achieve this common objective.

I am proud of the high quality ships General Dynamics' shipbuilders are delivering to our Navy. I invite the committee to visit our shipyards so that our proud workers can show you the magnificent ships they build.

Thank you for the opportunity this opportunity to testify. I look forward to your questions.

DISCLOSURE FORM FOR WITNESSES
CONCERNING FEDERAL CONTRACT AND GRANT INFORMATION

INSTRUCTION TO WITNESSES: Rule 11, clause 2(g)(4), of the Rules of the U.S. House of Representatives for the 111th Congress requires nongovernmental witnesses appearing before House committees to include in their written statements a curriculum vitae and a disclosure of the amount and source of any federal contracts or grants (including subcontracts and subgrants) received during the current and two previous fiscal years either by the witness or by an entity represented by the witness. This form is intended to assist witnesses appearing before the House Armed Services Committee in complying with the House rule.

Witness name: David K. Heebner

Capacity in which appearing: (check one)

___Individual

X Representative

If appearing in a representative capacity, name of the company, association or other entity being represented: General Dynamics Marine Systems

FISCAL YEAR 2009

Electric Boat

Federal Grant(s)/Contracts	Federal Agency	Dollar Value	Subject of Contract or Grant
4500294414	NGSB-NN	$33,624	CVN-78 Detail Design
P.O. 186168	Dresser - Rand	$57,759	Magnetic Bearing Engineering Model
P.O. 1322	SCRA	$25,100	DoD Phase II SBIR Effort
S0005-B2PCOE	ACI	$47,818	Shipbuilding Affordability Study
4500294414	NGSB	$93,719	Steam Cat LOE Tasks
2007-511	SCRA	$86,000	Rapid Response for Ltwght. Bow Access Cover Plates
P.O. 4400306028	Raytheon	$15,000	Electro-Optical Assembly
P.O. 4500370708	Raytheon Technical Services Company, LLC	$38,000	TI-08 SIM/STIM System
SP-08-002	Superpower Inc.	$445,000	High Temperature Superconducting Generator
2004-388	ATI	$1,116,871	Automating the Install of Studs
P.O. 700204282	GE Global Research	$127,500	Phase 3 Solid State Power Substation Program
4500294414	NGSB-NN	$35,773,139	CVN-78 Detail Design

4500294414	NGSB-NN	$15,574,867	CVN-78 Detail Design
TDL-08-01-2	NAVSEA	$5,000	IME Shipbuilding Production Planning Initiative
N00024-07-C-2103	NAVSEA	$7,627,887	Moored Training Ship Support Yard
N00024-07-C-2103	NAVSEA	$424,703	SPEROS - Design and Support Yard
N00024-07-C-2103	NAVSEA	$9,571,097	Submarine - Reactor Plant Planning Yard
N00024-07-C-2103	NAVSEA	$1,417,940	Submarine - Reactor Plant Planning Yard
N00030-08-C-0031	SSP	$4,385,000	US/UK Trident Technical Support Services
N00024-09-C-2101	NAVSEA	$285,943,240	Design Engineering Life Cycle Support OMNIBUS VII
N00024-09-C-2101	NAVSEA	$36,123,861	Design Engineering Life Cycle Support OMNIBUS VII
7100009460	Lockheed Martin	$721,892	Mod 12 - 15 SWFTS
N00024-05-C-2103	NAVSEA	$33,822,919	Virginia Class R&D & FSLYS
N00024-96-C-2100	NAVSEA	$1,443,866	Virginia Class Construction and Support
N00024-03-C-2101	NAVSEA	$3,505,198	Virginia Class Construction and Support
N00024-09-C-2104	NAVSEA	$13,533,765,329	VIRGINIA Block III Construction
P.O. 3020146	Bechtel Marine Propulsion	$22,750	Radcon Training
6011956	BMPC-KAPL	$3,805,413	KAPL GFE Repair:
6012733	BMPC-KAPL	$11,562,123	KAPL S8G/MARF: S8G/MARF Eng Design Services
N00024-09-C-2100	NAVSEA	$75,654,118	Common Missile Compartment System Definition and Design
PO 184027	Northrop Grumman (NGES-MS) Sunnyvale CA	$250,000	Common Missile Compartment Launcher Test Stand
N62789-07-G-0001	SUPSHIP	$5,819,434	Nuclear Support Agreement
N62478-07-D-2300	NAVFAC HAWAII	$277,300	Ford Island Bridge Maintenance and Repair
N00024-06-C-4003	NAVSEA	$25,163,908	Nuclear Regional Maintenance Department (NRMD)
N00024-07-C-4005	NAVSEA	$40,447,532	New England Maintenance Manpower Initiative (NEMMI)
N00024-02-C-4063	NAVSEA	$6,587,710	SHIPPINGPORT (ARDM 4)

N00024-07-C-4401	NAVSEA	$2,650,000	Navy Certified Dry Dock Availability
N00024-09-C-4404	NAVSEA	$33,582,001	SSN719 DSRA
N00024-04-D-4408	NAVSEA	$684,266	SSN751 DSRA
N00024-04-D-4408	NAVSEA	$1,131,280	SSN753 DSRA
N00024-05-G-4417	SUPSHIP	$21,579,551	Operational Sub Program Support
N00024-08-G-6321	NAVSEA	$38,886,681	Maintenance Facilites & Naval SY Support
N00104-06-G-A751	NAVFAC HAWAII	$330,039	SPM – Secondary Propulsion Replenishment
83W005716	L-3	$1,032,167	Re-price SLIN 0025AF to delete requirement for OTL Boots

Bath Iron Works 2009

Federal Grant(s) / Contracts	Federal Agency	Dollar Value	Subject(s) of Contract or Grant
N00024-09-C-2302	NAVSEA	$403,290,937	LCS FLIGHT 0+ SHIP Construction (LCS-4)
N00024-06-C-2305	NAVSEA	$58,682,027	DDG 51 & FFG Planning Yard Services Option Year 03 Incremental Funding
N00024-06-C-2303	NAVSEA	$52,000,000	DDG 1000 class services and integrated logistics support
N00024-06-C-2307	NAVSEA	$30,970,190	Lead Yard Services Option Year 03 Exercise
N00024-05-D-2301	NAVSEA	$19,000,000	East Coast PSA Order DDG 103
14-0995-300	NAVSEA (BAE Systems Prime)	$6,000,000	Leased Labor to BAE Hawaii Shipyards
PO 4500307108	NAVSEA (NGNN Prime)	$3,300,000	Electricians Leased Labor to Newport
09-C001-300	NAVSEA (BAE Systems Prime)	$1,450,000	SBX Welders and Shipfitters Leased Labor
14-1113-300	NAVSEA (BAE Systems Prime)	$480,000	Lake Erie Leased Labor
2005-339 Task # 12	NSRP (ATI Prime)	$8,000	Preservation Coating
2009-308 Task # 1	NSRP (ATI Prime)	$8,000	Remote Climbing Robot
2005-339 Task # 13	NSRP (ATI Prime)	$5,000	Shipbuilding Eng. Consortium

NASSCO 2009

Federal Grant(s)/Contracts	Federal Agency	Dollar Value	Subject(s) of Contract or Grant
WO-2009-7100	CSC	$270,012	Notional Command Ship Concept Studies
WO-2009-7234	ATI	$99,720	Panel Project – Rigging Planning Guide
WO-2009-7235	VT Halter Marine	$20,000	T-AGM FO Service Fill, Transfer, & Purification System Diagram
WO-2009-7236	ATI	$99,876	Panel Project – Scantling Design & Approval Process for Complex Vessel
N00024-09-C-2229	NAVSEA	$3,500,000	MLP System Design Part 1 (SD1)
N00024-02-C-2300	NAVSEA	$464,220,411	Fully exercise T-AKE 11 option
N00024-02-C-2300	NAVSEA	$474,083,851	Fully exercise T-AKE 12 option
N00024-02-C-2300	NAVSEA	$100,000,000	Exercise T-AKE 13 LLTM option
N00024-02-C-2300	NAVSEA	$100,000,000	Exercise T-AKE 14 LLTM option

FISCAL YEAR 2008

Electric Boat

Federal Grant(s)/Contracts	Federal Agency	Dollar Value	Subject of Contract or Grant
N62789-07-G-0001	SUPSHIP	$4,329	SSN751 Provide Temporary Piggy Back Diesel
N62789-07-G-0001	SUPSHIP	$11,940	NR-1 Repair And Test Manipulator
4500273727	Westinghouse	$15,300,000	Engineering Services
P.O. 080300158	CTC	$45,430	Steel Casting Optimization
P.O. 080300158	CTC	$5,249	Steel Casting Optimization
N00030-08-C-0031	Strategic Systems Prog.	$4,654,613	US/UK Trident SWSS and AWSS Technical Services
N00030-08-C-0031	Strategic Syst. Prog.	$9,078,492	US/UK Trident SWSS and OHIO Class AWSS Tech, Serv.
N00167-99-D-0073	NSWC - Carderock	$15,294	Submarine Design Studies
N00167-99-D-0073	NSWC - Carderock	$199,198	Submarine Acoustics Modifications
RS08-100	Rite-Solutions Inc.	$1,775,695	Naval Warfare Capability-Human Systems Integration
2004-388	ATI	$459,038	Alternative Attachment and Protection Methods
2004-388	ATI	$401,791	Paperless Deckplate MIP OQE Data Capture
2004-388	ATI	$422,078	Design for Production: Process Improvement Studies

2007-511	SCRA	$621,547	DURA Material Uniform Compression Project
MRTS-07	Global Maritime Transportation School	$213,079	Multipurpose Reconfigurable Training System (MRTS)
S07-1003	EWI	$103,830	EWI Hull Fabrication Welding Proposal
S07-1003	EWI	$102,429	EWI Structure Fabrication Welding Proposal
2005-340	ATI	$35,000	Navy Common Parts Catalog Pilot Support
2008-329	ATI	$100,000	Improving Design - Analysis Data Management
N00167-99-D-0073	NSWC	$202,468	NSWC Acoustic Silencing and Testing Support
P. O. 180265	NGMS	$189,540	SSGN MAC Spare Parts (16109)
P. O. 180255	NGMS	$51,200	Sub. Launched GSM Support Study
2004-388	ATI	$418,390	Design for Production (DfP) Knowledge Tools
2004-388	ATI	$372,003	Design for Production Process Improvement Studies
2007-388	ATI	$378,922	Design for Production Process Improvement Studies
P.O. 180109	NGMS	$98,238	SSGN MAC Spares Procurement Program
N00014-08-C-0085	ONR	$3,995,937	ONR Development and Assessment of Emerging Ship
N00024-04-C-2100	NAVSEA	$92,105,292	OMNIBUS VI – Design, Engineering, Life Cycle Support
N00024-04-C-2100	NAVSEA	$27,257,863	OMNIBUS VI – Design, Engineering, Life Cycle Support
N00024-07-C-2107	NAVSEA	$59,966,798	CONFORM Eng/Design Services
N00024-07-C-2107	NAVSEA	$410,000	CONFORM Eng/Design Services
7100009460	Lockheed Martin	$1,331,073	Mod 6 - 11SWFTS
N00024-05-C-2103	NAVSEA	$556,206,467	Virginia Class R&D & FSLYS
N00024-96-C-2100	NAVSEA	$8,731,186	Virginia Construction and Support
N00024-03-C-2101	NAVSEA	$56,664,519	Virginia Construction and Support
N62789-07-G-0001	SUPSHIP	$870,736	Nuclear Support Agreement
N62478-07-D-2300	NAVFAC HAWAII	$218,400	Ford Island Bridge Maintenance and Repair
N00024-06-C-4003	NAVSEA	$21,096,197	Nuclear Regional Maintenance Department (NRMD)
N00024-07-C-4005	NAVSEA	$37,291,802	New England Maintenance Manpower Initiative (NEMMI)

N00024-02-C-4063	NAVSEA	$5,722,086	SHIPPINGPORT (ARDM 4)
N00024-07-C-4401	NAVSEA	$1,300,000	Navy Certified Dry Dock Availability
N00024-04-D-4408	NAVSEA	$23,267,292	SSN751 DSRA
N00024-04-D-4408	NAVSEA	$55,787	SSN753 DSRA
N00024-04-D-4408	NAVSEA	$600,336	SSN757 DSRA
N00024-05-G-4417	SUPSHIP	$69,359,888	Operational Sub Program Support
N00024-08-G-6321	NAVSEA	$2,018,048	Maintenance Facilities & Naval SY – Support
N00104-06-G-A751	NAVFAC HAWAII	$1,912,213	Secondary Propulsion Motor Refurbishment
83W005716	L-3	$21,977	Paint four Outboard Transducer Array Assemblies

Bath Iron Works 2008

Federal Grant(s) / Contracts	Federal Agency	Dollar Value	Subject(s) of Contract or Grant
N00024-06-C-2303	NAVSEA	$1,149,000,000	DDG 1000 Construction and mid forebody Construction, class services
N00024-06-C-2305	NAVSEA	$46,923,317	DDG 51 & FFG Planning Yard Services Option Year 02 Incremental Funding
N00024-06-C-2307	NAVSEA	$19,437,667	Lead Yard Services Option Year 02 Exercise
N00024-04-G-2400	NAVSEA	$9,500,000	ER 14 PSA 04 Hull 7518 DDG 106
N00024-04-G-2400	NAVSEA	$9,300,000	ER 12 PSA 04 Hull 7517 DDG 104
N00104-08-D-ZD00 DO 01	NAVICP	$7,900,000	DDG 51 – Refrigeration Contract Logistics Support Order 01
N00024-06-C-2222	NAVSEA (Northrop Grumman Ship Systems Prime)	$6,800,000	Subcontract for LPD 24 Unit Construction
N00024-08-C-2218	NAVSEA	$3,000,000	Joint High Speed Vessel Preliminary Design
N00104-08-D-ZD00 DO 02	NAVICP	$1,400,000	DDG 51 – Refrigeration Contract Logistics Support Order 02
14-0415-300	NAVSEA (BAE Systems Prime)	$900,000	Aluminum Welders Leased Labor
N00024-04-G-2400	NAVSEA	$456,000	ER 13 PSA 04 Hull 7487 DDG 103
2005-339 Task # 10	NSRP (ATI Prime)	$10,000	NAVSEA Specification Review
2005-339 Task #11	NSRP (ATI Prime)	$3,000	Electrical Working Group

NASSCO 2008

Federal Grant(s)/Contracts	Federal Agency	Dollar Value	Subject(s) of Contract or Grant
WO-2008-7104	AMSEC	$85,840	Diagram Work – T-AGM 25
WO-2008-7105	ATI	$16,887	NAVSEA Specification Review Team
WO-2008-7225	DDL Omni	$13,674	Integrated Ramp Technology Study
WO-2008-7228	ATI	$153,153	Shipbuilding Industry Working Group
WO-2008-7230	Fraser's Boiler Service	$14,975	Naval Architect Services for USNS *Kilauea* Decommissioning
WO-2008-9703	ATI	$1,392,003	Large Scale Computer Modeling System for Shipbuilding Study
N00024-08-C4410	NAVSEA	$109,813	LSD 41/49 Class Modernization
N00024-02-C-2300	NAVSEA	$458,789,527	Fully exercise T-AKE 10 option
N00024-02-C-2300	NAVSEA	$100,000,000	Exercise T-AKE 11 LLTM option
N00024-02-C-2300	NAVSEA	$100,000,000	Exercise T-AKE 12 LLTM option

FISCAL YEAR 2007

Electric Boat

Federal Grant(s)/Contracts	Federal Agency	Dollar Value	Subject of Contract or Grant
N62789-07-G-0001	SUPSHIP	$17,949	NR-1 Repair & Test Manipulator
N62789-07-G-0001	SUPSHIP	$1,377	SSN768 Provide Temporary Diesel
N62789-07-G-0001	SUPSHIP	$3,733	SSN761 Back Up Diesel
N00167-99-D-0073	NSWC	$30,294	Support Development of UUV Integration on Subs
S. C. 6269-001-EB	Oceaneering, Inc.	$54,171	Dry Deck Shelter Planning Yard Services
S. C. 6269-001-EB	Oceaneering Inc.	$209,454	Dry Deck Shelter Planning Yard Services
700161926	GE Global Research Center	$1,103,451	WBST - HPE Phase 3 Solid State Power Substation Development
P. O. 179499	NGMS	$492,665	SSGN MAC Umbilical Cable Stop/Restart Effort
N00014-07-C-0409	ONR	$1,820,382	Rim Jet Demonstration Program
N00167-99-D-0073	NSWC	$14,409	Seal Delivery Vehicle Vertical Storage Feasibility
2004-388	ATI	$892,683	Material Mgmt.
2004-388	ATI	$800,000	Outfitting Process Improvement

SC 6269-001-EB	Oceaneering Inc.	$177,435	Planning Yard Services
2007-381	ATI	$799,951	Generator Full Ship Simulation Phase I
2007-511	SCRA	$405,837	Reduced Cost Impeller
P. O. 179173	NGMS	$100,000	NGMS KEI Support
N00167-99-D-0073	NSWC	$42,277	Submarine Design Synthesis Model
QPR1287	Lockheed Martin	$81,879	Sensor Engineering Support
070200200		$39,772	CTC/MANTECH Alloy 625 additional scope
2007-379	ATI	$1,900,000	ISE interoperability modules
N00167-99-D-0073	NSWC	$293,998	Submarine Design Synthesis Model
SP-07-002	Superpower, INC.	$174,587	HTS Generator Development
2007-001	Step Tools	$10,000	Manufacturing Model Study
NIIIP SPARS 601	NIIIP	$150,000	NIIIP Spars 601
178386	NGMS	$5,893	SSGN MAC Alignment Pin
2007-370		$80,000	Improved Rules for Painting US Navy Ships
N00024-07-C-2103	NAVSEA	$1,179,817	Submarine-Reactor Plant Planning Yard
2007-369	ATI	$50,000	Application to Full Ship Analysis Process Improvements
S. C. 6269-001-EB	Oceaneering Int. Inc.	$69,740	Dry Deck Shelter Planning Yard Services
N00167-99-D-0073	NSWC Carderock	$937,380	NSWC Engineering Analysis Support
177872	NGMS	$44,764	SSGN MAC Clamp and Screw Assembly Program
TC20300	Delex Systems	$231,134	Foreign Submarine Platform Assessment
P.O. 177830	NGMS	$58,518	NGMS MAC Umbilical Cable Upgrade Support
N66001-07-C-2002	DARPA/SPAWAR	$25,933,518	SPECTRE Underwater Express
N00024-07-C-2103	NAVSEA	$555,626	SERPOS - Design and Support Yard
N00024-07-C-2103	NAVSEA	$8,322,822	Submarine-Reactor Plant Planning Yard
N00024-07-C-2103	NAVSEA	$6,339,361	Moored Training Ship Support Yard
N00024-07-C-2103	NAVSEA	$2,580,853	Submarine - Reactor Plant Planning Yard
N00024-07-C-2103	NAVSEA	$140,225	Moored Training Ship Support Yard
N00024-07-C-2103	NAVSEA	$6,730,067	Moored Training Ship Support Yard
N00024-07-C-2103	NAVSEA	$1,862,121	Submarine-Reactor Plant Planning Yard
N00024-07-C-2103	NVASEA	$820,826	Moored Training Ship Support Yard
N00024-07-C-2103	NAVSEA	$566,223	SPEROS Design & Support Yard
N00024-07-C-2103	NAVSEA	$8,598,542	Submarine-Reactor Plant Planning Yard

N00024-07-C-2103	NAVSEA	$1,647,275	Submarine-Reactor Plant Planning Yard
N00024-04-C-2100	NAVSEA	$158,217,414	ONMIBUS VI Design, Engineering, Life Cycle Support Services
N00024-04-C-2100	NAVSEA	$52,154,622	ONMIBUS VI Design, Engineering, Life Cycle Support Services
N00024-07-C-2107	NAVSEA	$17,984,583	CONFORM Eng/Design Services
N00024-07-C-2107	NAVSEA	$1,300,000	CONFORM Eng/Design Services
7100009460	Lockheed Martin	$381,193	Through Mod 5 SWFTS
N00024-05-C-2103	NAVSEA	$196,881,869	Virginia Class R&D & FSLYS
N00024-96-C-2100	NAVSEA	$36,388,288	Virginia Construction and Support
N00024-03-C-2101	NAVSEA	$745,094	Virginia Construction and Support
P.O. 8200097015	NGES	$77,276	ASDS Eng Services
N62789-06-G-0001	SUPSHIP	$39,633	Nuclear Support Agreement
N62789-07-G-0001	SUPSHIP	$301,212	Nuclear Support Agreement
N00024-03-C-2102	NAVSEA	$90,852	SSN 761 DMP
N62478-07-D-2300	NAVFAC HAWAII	$243,558	Ford Island Bridge Maintenance and Repair
N00024-06-C-4003	NAVSEA	$40,379,999	Nuclear Regional Maintenance Department (NRMD)
N00024-07-C-4005	NAVSEA	$34,782,000	New England Maintenance Manpower Initiative (NEMMI)
N00024-02-C-4063	NAVSEA	$5,312,652	SHIPPINGPORT (ARDM 4)
N00024-07-C-4401	NAVSEA	$1,300,000	Navy Certified Dry Dock Availability
N00024-04-D-4408	NAVSEA	$48,785,450	SSN753 DSRA
N00024-04-D-4408	NAVSEA	$193,835	SSN755 DSRA
N00024-04-D-4408	NAVSEA	$42,458,965	SSN757 DSRA
N00024-05-G-4417	SUPSHIP	$676,616,326	Basic Ordering Agreement for Operational Sub Program Support
N00104-06-G-A751	NAVFAC HAWAII	$330,039	Secondary Propulsion Motor Refurbish
BUOVN-0000009028	Ocean Engineering	$10,080	Provide services to support BMC
N00406-07-P-2308	Puget Sound Naval Shipyard	$4,932	Electronic Modules to Puget

Bath Iron Works 2007

Federal Grant(s) / Contracts	Federal Agency	Dollar Value	Subject(s) of Contract or Grant
N00024-06-C-2303	NAVSEA	$257,500,000	DDG1000 Detail Design
N00024-06-C-2305	NAVSEA	$47,675,448	DDG 51 & FFG Planning Yard Services Option Year 01 Incremental Funding
N00024-06-C-2307	NAVSEA	$21,171,946	Lead Yard Services Option Year 01 Exercise
N00024-04-G-2400	NAVSEA	$9,270,000	ER 10 PSA 04 Hull 7510 DDG 102
N00024-04-G-2400	NAVSEA	$3,000,000	ER 11 PSA 04 Hull 7486 DDG 99
2005-339 Task #5	NSRP (ATI Prime)	$1,500,000	Mobile Hybrid Laser Arc Welding
N65540-07-D-0002	NSWC	$458,000	Mafo Door Construction
2005-339 Task #4	NSRP (ATI Prime)	$440,000	Alternate Mounting Methods
BP 07-027 Task #1	ONR (CTC Prime)	$96,000	Weld Seam Facing
BP 07-027 Task #2	ONR (CTC Prime)	$77,000	HSLA 80 T-Beam Project
S07-1001 BOA 0001-06	EWI	$53,000	Weld development PVLS
N00014-07-02763	ONR (MAPC)	$41,000	High Speed Sea Lift (HSSL) R&D
N00024-98-9-2310	NSRP (ATI Prime)	$35,000	Std Supply Chain Project R&D
N00024-98-9-2310	NSRP (ATI Prime)	$28,000	SDRL Guidebook Project R&D
N00014-05-D-0521	ONR (Oceaneering Prime)	$19,000	High Capacity at Sea "HICASS" R&D
2005-339 Task #9	NSRP (ATI Prime)	$5,000	Environmental Panel Vice Chair

NASSCO 2007

Federal Grant(s)/Contracts	Federal Agency	Dollar Value	Subject(s) of Contract or Grant
WO-2007-7209	ATI	$629,000	Nested Material Manufacturing technology improvement study
WO-2007-7213	ATI	$28,000	Navy Product Data Initiative
WO-2007-7214	CSC	$794,000	MPF(F) LMSR Phase II Studies
WO-2007-7215	ATI	$8,000	T-AKE CAMM Assessment
WO-2007-7216	Materials Science Corp	$17,290	Pultruded Composite Structures
WO-2007-7221	ATI	$60,014	SUSD High Rate Vertical Material Movement Phase 1B
N00024-07-C-4013	NAVSEA	$62,776	LHA/LHD Phased Maintenance Contract
N00024-07-C-4415	NAVSEA	$63,107	FFG Multi Ship Multi Option Phased Maintenance
N55236-07-C-0004	SWRMC	$3,383,276	USS Thach (FFG 43)

N00024-02-C-2300	NAVSEA	$100,000,000	Exercise T-AKE 10 LLTM option

Federal Contract Information: If you or the entity you represent before the Committee on Armed Services has contracts (including subcontracts) with the federal government, please provide the following information:

Number of contracts (including subcontracts) with the federal government:

Current fiscal year (2009): 65
Fiscal year 2008: 71
Fiscal year 2007: 98

Federal agencies with which federal contracts are held:

Current fiscal year (2009): See Contract List
Fiscal year 2008: See Contract List
Fiscal year 2007: See Contract List

List of subjects of federal contract(s) (for example, ship construction, aircraft parts manufacturing, software design, force structure consultant, architecture & engineering services, etc.):

Current fiscal year (2009): Ship Design, Construction, Maintenance and Conversion
Fiscal year 2008: Ship Design, Construction, Maintenance and Conversion
Fiscal year 2007: Ship Design, Construction, Maintenance and Conversion

Aggregate dollar value of federal contracts held:

Current Fiscal Year (2009)	$15,959,146,626
Fiscal year 2008	$2,920,869,546
Fiscal year 2007	$1,837,765,738

Federal Grant Information: If you or the entity you represent before the Committee on Armed Services has grants (including subgrants) with the federal government, please provide the following information:

Number of grants (including subgrants) with the federal government:

Current fiscal year (2009): None
Fiscal year 2008: None
Fiscal year 2007: None

Federal agencies with which federal grants are held:

Current fiscal year (2009):	N/A
Fiscal year 2008:	N/A
Fiscal year 2007:	N/A

List of subjects of federal grants(s) (for example, materials research, sociological study, software design, etc.):

Current fiscal year (2009):	N/A
Fiscal year 2008:	N/A
Fiscal year 2007:	N/A

Aggregate dollar value of federal grants held:

Current fiscal year (2009):	N/A
Fiscal year 2008:	N/A
Fiscal year 2007:	N/A

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICE COMMITTEE
SUBCOMMITTEE ON SEAPOWER AND
EXPEDITIONARY FORCES

STATEMENT OF

C. MICHAEL PETTERS

CORPORATE VICE PRESIDENT AND PRESIDENT,

NORTHROP GRUMMAN SHIPBUILDING, INC.

BEFORE THE

SUBCOMMITTEE ON SEAPOWER AND EXPEDITIONARY FORCES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

IMPROVING SHIPBUILDING EFFECTIVENESS

JULY 30, 2009

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICE COMMITTEE
SUBCOMMITTEE ON SEAPOWER AND
EXPEDITIONARY FORCES

Chairman Taylor, Ranking Member Akin, distinguished members of the Seapower and Expeditionary Forces Subcommittee, thank you for inviting me to appear before you to discuss what I believe the shipbuilding industry needs to be successful.

In several previous appearances before this subcommittee, I have discussed at some length the particulars of work that has been and is being performed at Northrop Grumman. Our skilled craftsmen and women continue to do what they have always done building the ships our Navy and Coast Guard need to perform their national security missions. We are proud of our shipbuilders and the ships we build.

Since my last appearance before this subcommittee, Northrop Grumman has merged the two sectors within the corporation where shipbuilding is performed – formerly Newport News and Ship Systems – into one sector, Northrop Grumman Shipbuilding. It is my distinct honor to lead this new sector of some 40,000 men and women who are designing, building, repairing, refueling and maintaining ships of nearly every class in the fleet at four shipyards and three other industrial sites in the US. We are now the largest industrial employer in the state of Virginia and the largest private employer in the states of Mississippi and Louisiana.

With the creation of the Shipbuilding sector, we now build ships for both the Navy and Coast Guard. I will focus in the remainder of my testimony on the Navy given the dominance of Navy programs in our shipyards, but the same points could generally be made regarding our Coast Guard programs.

We Need a Healthy Shipbuilding Industry

Let me begin my discussion of shipbuilding issues with a few assertions that I believe to be true and with which I expect you would agree. First, even in this age of "overnight delivery" and instantaneous and continuous communications, the United States remains a maritime nation. It always has been and, I expect, always will be. Most of our imports and exports, as well as much of the oil which fuels our industrial strength, come to us by sea. This leads directly to my second assertion – to ensure unhindered transit in the global sea lanes, the United States needs a healthy

Navy. We have only to consider the case of our good friend and ally, the United Kingdom, to see what can happen when a great power allows its mastery of the sea to deteriorate. Third, a healthy Navy requires a healthy shipbuilding industry. In June of this year at the Naval War College's Current Strategy Forum, the Chief of Naval Operations, Admiral Gary Roughead responded to a criticism that "American shipbuilding is broken" by saying simply, "I really take exception to that." He went on to say that a broken industry could not build ships like *Virginia*-class submarines or nuclear aircraft carriers. I share the CNO's views on this point. The shipbuilding industry is not broken, though it is not as healthy as it could and should be. The healthier we are as an industry, the better we can serve the needs of our Navy and the American people.

So what then does a "healthy shipbuilding industry" look like? In more than 25 years in this business, I've experienced the "highs" of answering the call to build a 600-ship Navy and the "lows" of having good ship programs truncated after we had invested our shareholders' dollars to be prepared for the work, but before we ever realized a return on our investment. These experiences, and everything in between, have taught me that a basic definition of a healthy shipbuilding industry is one that is able to attract capital, talent, and technology. Without these three key elements, no amount of good intentions or expenditure of effort will produce the kinds of results we, and the Navy, need.

Nor should we forget that a healthy shipbuilding industry depends heavily on a robust supplier base for the many thousands of components, parts and pieces which eventually become what makes these great ships run. When suppliers can not attract capital, talent and technology, just like we must do, we find ourselves having to locate new suppliers, requalify vendors, and provide assistance to suppliers in many different ways both technical and commercial. The shipbuilding industry must be considered in its totality. Shipyards are key parts of this important industry, but there are many other parts that are also critical to its health and success.

You may have noted that my definition does not require or expect a completely stable, unchanging shipbuilding plan from our customer. While the ability to have a good idea of what is coming down the road is important, we must recognize that the Navy's requirements are not

static. In fact, the milieu in which our Navy must operate today is one of the most dynamic and changing environments we have seen in almost a century. The Navy needs a shipbuilding industry which can respond to changes in their requirements by being flexible and healthy. With the right mix and the appropriate levels of talent, technology and capital, the shipbuilding industry can support the Navy as it responds to changes in threat and mission. None of us want to have to manage a shipbuilding plan that is continuously changing and lacks a fundamental vision of the kind of Navy the nation wants, but our nation's adversaries are not locked in to a 30-year plan and we cannot afford to be either. We should balance the need for flexibility with the reality of long durations for design, facilitization, procurement of material from an already fragile industrial supply base, and, ultimately, ship construction.

Buying One Ship at a Time

The core of our difficulties in shipbuilding, in my view, is that, because of the nature of our political process and the acquisition regulations that guide ship procurement, the Navy generally must buy ships one at a time and it must pay for each of them up front. These requirements cause difficulties in at least two respects. First, who among us has the resources to pay the entire bill up front to buy assets which will last at least a quarter century and many half a century? We don't buy our houses that way and most people don't even buy a new car that way. Yet our system of procuring military hardware demands that the Navy do just that. Given this and budget realities, we wind up buying one ship at a time and this is the second significant difficulty we face as shipbuilders. The process of buying one ship at a time stifles investment and forces us to struggle to capture the talent, technology and capital we need as an industry. I will elaborate on the reasons for this in a moment.

All is not lost, however, for there are a growing number of ship programs where the Navy, with the support of the Congress, and especially this committee, makes multi-year, multi-ship procurements. The highly successful *Virginia*-class submarine program is an example of how we can lower costs and improve schedules by breaking the mold of one ship buys. I will return to the submarine program as an example of other things that can be done to ensure the health of our industry later in my statement.

Comparisons are often made between American shipbuilding for the US Navy and foreign commercial shipbuilding and the question is asked, "Why aren't you (the American shipbuilder) more like them?"[1] I have visited some of these shipyards and was struck by the size and nature of their order books. In one yard I visited, they had orders for 300 ships. In an environment like this, the shipbuilder has an incentive to be innovative and to invest capital to lower their costs. Imagine, for example, that a shipbuilder with an order book of 100 ships decides that installing a new crane can improve the efficiency of production by one-tenth of one percent. When that savings is applied across the entire 100 ships, the shipbuilder's new crane can be paid for completely. In my terms, capital is "free" to the shipbuilder in this instance. This is in stark contrast with the environment in which shipbuilders for the US Navy must operate.

Shipbuilders building ships for the US Navy who choose to invest in equipment or processes which would benefit the Navy by improving the ship or reducing construction costs must break even with this investment on the first ship where it is applied. This is not our choice or preference, but it is the harsh reality of working with government procurements. Allow me to give an example. On one of our recent aircraft carrier refuelings, several of our craftsmen developed a machine that could accurately drill the thousands of holes that must be drilled as part of the refurbishment of the catapult troughs in the carrier's aircraft launch system for fewer man-hours than the existing, labor-intensive system where each hole must be sited and drilled by hand. Building this machine required the shipyard to invest some of its capital, but the anticipated reduction in man-hours required to perform this work on each successive ship was expected to be considerable. In fact, the tool did save us man-hours and the cost savings were applied toward the development of this new tool. Acquisition regulations, however, required us to bid the cost of doing this same work on all subsequent carrier contracts at the new, lower cost which resulted from using the machine. Thus, the only opportunity to recoup any of this investment we made was on that first ship even though our customer, the Navy, reaps the benefit of the savings on all remaining ships where the tool is used.

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[1] The General Accounting Office addressed this issue in their May 2009 report, "Best Practices: High Levels of Knowledge at Key Points Differentiate Commercial Shipbuilding from Navy Shipbuilding." The report points out many important differences in areas such as completeness of design at the start of construction, the amount of risk in contracts, and discipline, or the lack of it, in the change process. The report's discussion of the business environment is also useful in setting the context of my comments which follow.

If the cost of the tool just equaled the cost savings achieved, we would break even on the first ship and the Navy would get a lower price on all future ships where this work was performed. If the tool had cost more than the first application savings, we, the shipbuilder, would absorb the difference in accordance with our contractual shareline with the Navy. If the tool cost less than the savings, the difference in savings would again be shared with the Navy according to our shareline. In none of these cases is there any subsequent benefit to the shipbuilder for taking a chance, being innovative, and making an investment. All the gain on future contracts goes to the Navy. Where then is the incentive for any US shipbuilder to make an investment such as this?

This lack of incentive stymies investment in machinery, tools, designs and people. Even when a shipbuilder believes making an investment is the right thing to do, the return on investment generally does not support shareholders' requirements for the use of their capital. Fortunately, in recent years we have seen increased recognition of this problem by the Navy's acquisition community as well as members of Congress. With the support of the Congressional defense committees, both the *Virginia*-class submarine program and the CVN 78 program, which is building the first of the *Ford*-class nuclear aircraft carriers, have benefited from new capital investment incentives the Navy has added in our shipbuilding contracts.

In the *Virginia*-class CAPEX program, the Navy has incentivized both shipbuilders to make capital investments we might not otherwise be able to make. These incentives require an up-front use of shipyard capital with an opportunity to earn an incentive if the improvement resulting from the investment actually delivers the savings that the shipbuilder has estimated over the life of the 30-ship class. As teammates in the *Virginia*-class program, both Northrop Grumman Shipbuilding and General Dynamics Electric Boat have proposed capital projects to the Navy and funded them from corporate resources. When the Navy agrees that the anticipated savings are being achieved, the incentive is paid by the Navy and split equally by the two shipyards. As a result, we are able to improve the expected return on investment for these capital projects – a requirement of both parent corporations for the use of shareholder dollars. This is also an example of the unique teaming arrangement between GDEB and NGSB which has worked so successfully building *Virginia*-class submarines. By splitting the incentive between the two yards, each team member's success is tied to the other team mate's giving both good

reason to share their ideas and find creative ways to improve the program together. At Newport News, the CAPEX program has played an important role in helping us prepare the facilities we need as the team increases production to two submarines a year beginning in 2011.

The CVN 21 program, which is completing design of the *Ford*-class carriers, the follow-on to the ten *Nimitz*-class carriers, was also provided incentives for the shipbuilder to make capital investments. We and the Navy have known that building aircraft carriers on uncovered platen areas and in the drydock allows the weather to impact worker productivity. We had no alternative, however, and had to accept these inefficiencies because we could not justify, in terms of return on investment, the cost of building new, covered facilities. By adding investment incentives to the CVN 21 design contract, the Navy helped improve our return on investment and supported a business case to spend our capital to build the new facilities. Today, thanks to these incentives, we have two new, large, covered assembly buildings at the head of our carrier construction dry dock which are being used in an improved and lower cost construction process for the CVN 78. We are now assembling and outfitting larger carrier units in these buildings and then using our 1050 ton crane to lift the units through the retractable roofs directly into the dry dock.

Serial Production is Key

Buying ships one at a time is the antithesis of serial production, which is the most efficient way to build ships and, in fact, most other manufactured products. While shipbuilding employs a considerable degree of automation, it is ultimately craftsmen who assemble the ship, route hundreds of miles of power and communications cables, groom and test its thousands of systems, and bring the ship to life. Labor cost savings are achieved when craftsmen are able to "move down a learning curve" by performing a task frequently enough that they improve their learning and performance with each recurrence. In serial production, management can ensure that workers – especially those performing more unique or difficult tasks – perform the same work on each ship they help to build thus accelerating their movement along the learning curve.

Thanks to the multi-year procurements Congress has supported and funded, the *Virginia*-class submarine program today is essentially in serial production and solid learning curve performance has been experienced for the last several ships. As the program ramps up to two submarines per year, or one submarine per year for each of the two teaming partners, cost savings and schedule improvements from serial production will be even more evident. At the beginning of the program, however, we were given a vivid reminder of what happens when a specialized workforce is disbanded because of the absence of work. At Newport News, delivery of *Texas*, the second submarine of the *Virginia*-class, in June 2006 was our first submarine delivery in ten years and required the reconstitution of our submarine work force. This was a difficult process and our cost and schedule performance on that ship was disappointing. With each successive ship, however, cost and schedule performance has improved dramatically. *New Mexico*, our third submarine delivery, is on track to deliver well before its contracted delivery date and some two years quicker than *Texas*. We are now working toward delivering submarines on a schedule closer to sixty months. The *Virginia*-class program is a text book example of the benefits of stabilizing a work force in serial production of a ship with a mature design.

Achieving learning curve savings on ships which have even longer construction times, such as aircraft carriers, is more difficult. Here a worker may do a complicated task on one ship and not do it again for another four years, depending on when the follow on ship began its construction. The longer the gap between the start of construction of these complex ships, the more difficult it is to achieve learning. In effect, ships such as carriers begin to look like "one of a kind" ships or a series of successive "lead ships." Given the demographics of skilled shipyard craftsmen, this problem will be exacerbated as older workers with the experience of multiple ships over long careers begin to retire at an increasing rate.

The Paradox of Lead Ships

Every shipbuilder is faced with the challenge of lead ships. A "formal" lead ship is a good thing for shipbuilders since it means that a new type of ship has entered into production. If that ship is one of many of the same type over an extended period, working through the difficulties of building the lead ship will pay dividends when the other ships in the class enter production. At

Northrop Grumman Shipbuilding, we have built many lead ships in the last several years. I've already discussed how we had to reconstitute our submarine work force in order to build *Texas,* our first submarine in ten years. It is worth noting that because of the teaming arrangement with Electric Boat, we actually had two lead submarines – modules built at Newport News for *Virginia*, Electric Boat's lead ship, and *Texas*, our first delivery. I have also discussed CVN 78, lead ship of the *Ford*-class which is currently under construction at Newport News. In our Gulf Coast shipyards, we have built LPD-17, lead ship of the *San Antonio*-class expeditionary warfare ships; we are building LHA-6, the first LHA amphibious assault ship built since *Peleliu* was commissioned in 1980; NSC-1, *Bertholf*, the lead National Security Cutter for the US Coast Guard; and some commercial ships over the years.

In recent years we have seen an increase in what I will call "unofficial" lead ships. These are ships of the same general type as their predecessors which should, therefore, be able to benefit from learning and process improvements. But either because of major design changes or the extended period between the completion of one ship and the start of the follow ship, the second ship takes on many of the characteristic difficulties of a lead ship. We have worked through these issues in all our shipyards.

In the Gulf Coast yards, LHD 8, *Makin Island*, is one recent example of how the eighth ship in a class of ships can become a "lead ship." This LHD amphibious assault ship followed construction of seven of the *Wasp*-class ships built in Pascagoula from 1985 to 2001. LHD 8, however, went through a series of major design changes that included replacing the steam powered propulsion system with a totally different type of propulsion system, all electric auxiliaries, an advanced machinery control system, new fire protection systems, and the Navy's most advanced command and control and combat systems equipment . Whatever learning had been established over the preceding 15 years was all but lost as LHD 8 became a "one of a kind" lead ship.

Similarly at Newport News, the aircraft carrier program experienced a continual opening of the gap between ship construction starts. Shipbuilders tend to focus on the relationship of launching one ship – christening it and moving it out of the dry dock to finish its outfitting at testing on the

water – and keel laying for its successor. With the laying of the keel of a carrier, the intensity of assembly of units in the dry dock accelerates dramatically and the ship begins to take form. When these two events are in proximity to each other, we are able to move our steel trades who are most involved in joining units together and erecting the ship from one hull to the next and benefit from learning and minimized disruption. As that gap widens, however, we must move these workers to other projects or, in the worst case, temporarily lay them off. There is an inefficiency that comes from moving people on and off similar work that hurts learning and risks increasing costs.

At two points in our recent history, the Navy engaged in a "two-ship" carrier procurement buying CVN 72 and 73 as one package and then, later, CVN 74 and 75 as another. This method of procurement enabled our shipbuilders to plan construction of the two vessels so that labor moved from one hull to the next in an efficient manner, facilities and footprint were used wisely and material was purchased at the best possible price by buying two sets at once. Procurement of CVN 76 in the mid-1990s created a gap of almost two years from CVN 75's launch to CVN 76's keel. CVN 77 followed with a significant amount of redesign and insertion of new technologies. The gap had now increased to three years. The combination of gap, new design and movement to a shipyard-wide enterprise resource management tool set the stage for CVN 77 to be our most difficult carrier in many years.

As CVN 77 was being built, the Navy found itself in the position of having to delay procurement of CVN 78, lead ship of the next class of carriers, twice. The original schedule called for an FY 2006 award for a October 2013 delivery. It was then slipped to FY 2007 for a 2014 delivery and again to an FY 2008 award and a September 2015 delivery. To mitigate the impact of significant loss of learning and redesign of the entire ship (except for the hull), the Navy has worked with us to provide capital incentives for new facilities which support improved methods of building the ship as I discussed earlier. The Navy also funded designing the ship in a computer-based "product model" environment. Using state of the art software, we are designing the ship in a virtual environment that depicts all the arrangements of the ships equipment and systems. Thanks to visualization techniques, this data can be used to generate a three-dimensional representation of the ship that allows engineers and designers, construction staff,

management, and our Navy customer to "walk through" the ship. In this way, we can identify interferences among systems that one might not have found previously on two dimensional drawings, review post-delivery maintenance practices, and rehearse the execution of build sequences and component installation. The result on CVN 78 has been levels of coordination and cooperation between designers and builders and between the Navy and the shipbuilder that had not occurred in the past. We believe the combination of these initiatives will help us overcome some of the inefficiencies which have resulted from the gap which now exists in carrier construction.

It is worth noting that different people view "gaps" in different ways – some focus on launch to keel comparisons, others on start to start, and others on delivery to delivery. Ultimately, each comes down to the same point: stretching the time between the construction of two ships of the same type which have lengthy build durations must be managed carefully to ensure all the implications of the stretch out are understood. Everything in a shipyard is interrelated and change in one area generally impacts other areas, particularly other ships.

Overcoming the Problems of Buying One Ship at a Time

The actions taken by the Navy on CVN 78 in close coordination and cooperation with the shipbuilder are excellent examples of things that can be done to help shipbuilders overcome the harmful effects of procurement delays, one of a kind ships, and lack of serial production. Given the fiscal environment we all must operate in today, shipbuilders, acquisition professionals, Navy program managers, Fleet customers and Congress must continue to look for opportunities to write "good" contracts that are based on realistic assessments of costs, a full understanding of risks, and recognition of difficulties imposed on shipbuilders with regard to capital investment, technological innovation and workforce development because we are buying ships one at a time.

In this brief testimony I have attempted to provide you with my perspective on the core problems that confront American companies building ships for the US Navy today. The shipbuilding industry is fundamentally sound. Collectively we have responded to the changing needs of our Navy throughout the modern era. We are not an industry that seeks handouts or special

treatment. We have modernized our facilities, provided our craftsmen the most up to date training possible, and put the most appropriate tools available into the hands of our engineers, craftsmen and support workers.

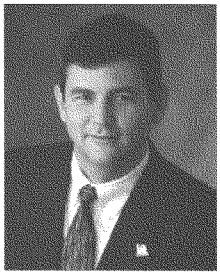
The shipbuilding industry is doing its part in sustaining the conditions in which we can serve the needs of our Navy and Coast Guard customers. What we ask in return is:

- Understanding of the issues which confront us;
- "Straight talk" about costs and the risks of programs – between shipbuilder and customers and with the American people;
- Willingness to change funding and procurement practices to break the cycle of "buying one ship at a time;" and
- Help in creating valid business cases that enable us to attract capital, talent and technology by providing incentives, cost sharing arrangements or other appropriate vehicles.

As a shipbuilder, there is no sight more satisfying than to see a great ship we have been working on for years sail away from one of our shipyards to begin its journey of millions of miles and thirty, forty or fifty years of service to the country. Working together, we can continue to ensure that when our sons and daughters are called upon to go to sea in defense of the nation, they will do so on the finest ships in the world built by the finest shipbuilders in the world.

MIKE PETTERS

Corporate Vice President and President
Shipbuilding
Northrop Grumman Corporation



Mike Petters is corporate vice president and president of Northrop Grumman Shipbuilding, the world's leading military shipbuilder.

In this role, Petters is responsible for the design, construction and overhaul of conventionally-powered surface combatants, amphibious and auxiliary ships and nuclear-powered submarines and aircraft carriers. Northrop Grumman Shipbuilding has approximately $5.5 billion in revenues and nearly 40,000 employees. Petters is also a member of the company's corporate policy council.

Prior to this appointment, Petters was president of the company's Newport News sector. His responsibilities included the Virginia-class submarine program; George H. W. Bush (CVN 77) and CVN 21 aircraft carrier programs; aircraft carrier overhaul and refueling; submarine fleet maintenance; commercial and naval ship repair; and business and technology development.

A native of Florida, Petters graduated from the U.S. Naval Academy in 1982 with a bachelor's degree in physics. After completing nuclear propulsion training, he was assigned to the USS George Bancroft where he held progressively responsible leadership positions, including reactor controls assistant, communications officer and refueling officer. After joining the Naval Reserve in 1988, he participated in three NATO exercises as submarine control officer. In 1993, Petters earned a master's in business administration from the College of William and Mary.

Petters joined the company's Newport News sector in 1987 in the Los Angeles-class submarine construction division. He has held a number of increasingly responsible positions throughout the organization. These include production supervisor for submarines, marketing manager for submarines and for carriers, vice president for aircraft carrier programs, and vice president for contracts and pricing.

Petters was appointed by Virginia Governor Tim Kaine to serve on the Advisory Council on Revenue Estimates. He serves on the board of directors for the Naval Submarine League and is a member of both the board of directors and the board of trustees of the Naval Aviation Museum Foundation. He also serves on the distinguished advisory board for the Dolphin Scholarship Foundation.

Northrop Grumman Corporation is a leading global security company whose 120,000 employees provide innovative systems, products and solutions in aerospace, electronics, information systems, shipbuilding and technical services to government and commercial customers worldwide.

ATTACHMENT 1
FEDERAL INFORMATION REQUEST
NORTHROP GRUMMAN SHIPBUILDING

The data herein are for the Northrop Grumman Shipbuilding sector, which includes Northrop Grumman Shipbuilding, Inc. and its subsidiaries Continental Maritime of San Diego, AMSEC, Newport News Industrial, Newport News Nuclear, and Newport News Energy.

FISCAL YEAR 2008 FEDERAL CONTRACTS

Federal Contract (Including Subcontracts)	Customer/Federal Agency	Dollar Value		Subject of Contract or Subcontract
		Award	Mod	
113	Epsilon System Solutions /Naval Surface Warfare Center Carderock	103,000		Engineering and Maintenance Support Services
2101506	Bettis/Naval Sea Systems Command		115,885,125	Engineering Design & Support
2101507	Bettis/Naval Sea Systems Command		4,298,155	Engineering Design & Support
4500011400	General Atomics - NAVY	47,538		Naval Vessel Mockups
4500015008	General Atomics - NAVY	220,857		Naval Vessel Mockups
0275-SC-20151-0186	Penn State University/Office of Naval Research	152,000		Engineering Design & Support
0461-1395	Aptima, Inc./Office of Naval Research	60,000		Research and Development
2004-399	Advanced Technology Institute/Office of Naval Research	103,517		Engineering Design & Support
2005-338	Advanced Technology Institute/Office of Naval Research	43,000		Research and Development
2005-341	Advanced Technology Institute/Office of Naval Research	3,000	29,684	Engineering Design & Support
2007-501	South Carolina Research Authority/Office of Naval Research		126,584	Engineering Design & Support
2007-503 TO#3	South Carolina Research Authority/Office of Naval Research	1,070,065		Research and Development
2008-336	Advanced Technology Institute/Office of Naval Research	90,000		Engineering Design & Support
2008-396	Advanced Technology Institute/Office of Naval Research	1,082,847		Research and Development
2008-537	Advanced Technology Institute/Office of Naval Research	24,463		Engineering Design & Support
512596-323	D.C. Fabricators - NAVY	399,742	183,948	Naval Vessel Equipment
BOA-NMC-NN-070300017	Concurrent Technologies Corporation/Office of Naval Research		7,314	Engineering Design & Support
BOA-NMC-NN-070300112	Concurrent Technologies Corporation/Office of Naval Research		252,254	Engineering Design & Support

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NORTHROP GRUMMAN SHIPBUILDING

FISCAL YEAR 2008 FEDERAL CONTRACTS

Federal Contract (Including Subcontracts)	Customer/Federal Agency	Dollar Value		Subject of Contract or Subcontract
		Award	Mod	
BOA-NMC-NN-070800394	Concurrent Technologies Corporation/Office of Naval Research	265,577	38,881	Engineering Design & Support
BOA-NMC-NN-080200229	Concurrent Technologies Corporation/Office of Naval Research	164,468		Engineering Design & Support
CDDX500201	Bath Iron Works/Naval Sea Systems Command	3,164,910		Engineering Design & Support/Mfr, Test, Inspect LLTM
DAAB07-03-D-B012	VSE / Commander, Naval Surface Forces	2,754,000		Engineering and Maintenance Support Services
DE-AC09-08SR22470	Department of Energy	272,000,000		Management/Operation of Savannah River Site
DE-AC09-08SR22470	Department of Energy		34,000,000	ARRA Funding for Savannah River Site/MO of SRS
EB-03-C-2101	Electric Boat/Naval Sea Systems Command		63,746,391	Submarine & Aircraft Carrier New Construction
EB-05-C-2103	Electric Boat/Naval Sea Systems Command		102,567,972	Submarine & Aircraft Carrier New Construction
EB-96-C-2100	Electric Boat/Naval Sea Systems Command		53,641,498	Submarine & Aircraft Carrier New Construction
EB-NPD0005380	Electric Boat/Naval Sea Systems Command		1,472,887	Submarine & Aircraft Carrier New Construction
EWI 06-0452	Edison Welding Institute/Office of Naval Research		(35,000)	Engineering Design & Support
GS-10F-0091L	SAIC		4,413,000	Engineering and Maintenance Support Services
HSCG23-04-J 2DW206	Integrated Coast Guard Systems (USCG)		361,395	Coast Guard New Construction
HSCG23-04-J-2DW200	Integrated Coast Guard Systems (USCG)		6,978	Coast Guard New Construction
HSCG23-05-J-2DW056	Integrated Coast Guard Systems (USCG)		35,298	Coast Guard New Construction
HSCG23-06-J-2DW016	Integrated Coast Guard Systems (USCG)		1,984	Coast Guard New Construction
HSCG23-06-J-2DW037	Integrated Coast Guard Systems (USCG)		50,000	Coast Guard New Construction
HSCG23-06-J-2DW195	Integrated Coast Guard Systems (USCG)		361,250	Coast Guard New Construction
HSCG23-06-J-2DW411	Integrated Coast Guard Systems (USCG)		34,465	Coast Guard New Construction
HSCG23-08-J-2DB031	Integrated Coast Guard Systems (USCG)	79,845,895		Coast Guard New Construction
HSCG23-08-J-2DD401	Integrated Coast Guard Systems (USCG)	570,673		Coast Guard New Construction
Letter Contract	BAE / Naval Sea Systems Command	195,000		Engineering and Maintenance Support Services
MES-07-AMSEC	BAE / Naval Sea Systems Command		516,000	Engineering and Maintenance Support Services
N00014-04-C-0444	Office of Naval Research		(630)	Engineering Design & Support
N00024-00-C-2104	Naval Sea Systems Command		333,807	Submarine & Carrier Overhauls & PSAs
N00024-00-C-2217	Naval Sea Systems Command		4,033,986	LHD Construction and Long Lead Time Material

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FEDERAL INFORMATION REQUEST
NORTHROP GRUMMAN SHIPBUILDING

FISCAL YEAR 2008 FEDERAL CONTRACTS

Federal Contract (Including Subcontracts)	Customer/Federal Agency	Dollar Value		Subject of Contract or Subcontract
		Award	Mod	
N00024-01-G-2300	Naval Sea Systems Command		25,381,987	DDG Construction and Long Lead Time Material
N00024-01-G-2902	Naval Sea Systems Command		23,582	Hardware and Support Services for Naval Ship Construction & Repair
N00024-02-C-2302	Naval Sea Systems Command		1,890,126	Detail Design
N00024-02-C-2304	Naval Sea Systems Command		46,801,528	DDG Construction and Long Lead Time Material
N00024-02-C-2905	Naval Sea Systems Command		286,141	Engineering Design & Support
N00024-02-C-4004	Naval Sea Systems Command		863,884	Submarine & Carrier Overhauls & PSAs
N00024-02-G-2909	Naval Sea Systems Command		(64,550)	Hardware and Support Services for Naval Ship Construction & Repair
N00024-03-C-2116	Naval Sea Systems Command		23,247,031	Submarine & Carrier Overhauls & PSAs
N00024-04-C-2101	Naval Sea Systems Command		2,550,308	Submarine & Carrier Overhauls & PSAs
N00024-04-C-2105	Naval Sea Systems Command		(3,770,288)	Submarine & Carrier Overhauls & PSAs
N00024-04-C-2118	Naval Sea Systems Command		628,280,534	Submarine & Aircraft Carrier New Construction
N00024-04-C-2204	Naval Sea Systems Command		405,517,270	LPD Construction and Long Lead Time Material
N00024-04-D-4409	Naval Sea Systems Command		30,856,909	Submarine & Carrier Overhauls & PSAs
N00024-04-G-2301	Naval Sea Systems Command		8,055,690	DDG Post Shake Down Availabilites, Emergent, CPS G
N00024-05-C-2217	Naval Sea Systems Command		37,515,202	LPD Planning Yard Services and material Procurement
N00024-05-C-2221	Naval Sea Systems Command		15,920,873	LHA Construction and Long Lead Time Material
N00024-05-C-4409	BAE Systems San Diego Ship Repair /Naval Sea Systems Command	8,853,283	1,756,307	Hardware and Support Services for Naval Ship Const
N00024-05-D-2300	Naval Sea Systems Command		15,359,493	DDG Post Shake Down Availabilites, Emergent, CPS G
N00024-05-G-2112	Naval Sea Systems Command		302,029	Hardware and Support Services for Naval Ship Construction & Repair
N00024-05-G-4418	Naval Sea Systems Command	288,253	912,251	Hardware and Support Services for Naval Ship Construction & Repair
N00024-06-C-2104	Naval Sea Systems Command		5,147,535	Engineering Design & Support
N00024-06-C-2105	Naval Sea Systems Command		78,586,565	Engineering Design & Support
N00024-06-C-2115-EXEC	Naval Sea Systems Command		44,385,806	Submarine & Carrier Overhauls & PSAs
N00024-06-C-2222	Naval Sea Systems Command	978,836,573	2,435,775,213	LPD Construction and Long Lead Time Material
N00024-06-C-2304	Naval Sea Systems Command	1,024,770,354	100,339,408	Detail Design
N00024-06-C-2306	Naval Sea Systems Command	143,766,330	58,021,784	CG Class Planning Yard Services and Material Procu
N00024-06-C-4402	General Dynamics NASSCO /Naval Sea Systems Command	14,263,598	1,348,437	Hardware and Support Services for Naval Ship Const
N00024-07-C-2104	Naval Sea Systems Command		7,890,663	Engineering Design & Support

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NORTHROP GRUMMAN SHIPBUILDING

FISCAL YEAR 2008 FEDERAL CONTRACTS

Federal Contract (Including Subcontracts)	Customer/Federal Agency	Dollar Value		Subject of Contract or Subcontract
		Award	Mod	
N00024-07-C-2116	Naval Sea Systems Command		16,977,437	Engineering Design & Support
N00024-07-C-2117	Naval Sea Systems Command		190,704,758	Submarine & Carrier Overhauls & PSAs
N00024-07-C-2200	BAE Systems San Diego Ship Repair /Naval Sea Systems Command	7,440,837	2,391,577	Hardware and Support Services for Naval Ship Const
N00024-07-C-2302	Naval Sea Systems Command	10,784,358	11,073,935	DDG Follow Yard Services
N00024-07-C-4013	General Dynamics NASSCO /Naval Sea Systems Command	12,840,420	978,402	Hardware and Support Services for Naval Ship Const
N00024-07-C-4404	Naval Sea Systems Command	4,945,581	80,202,308	Submarine & Carrier Overhauls & PSAs
N00024-07-C-4407	BAE Systems San Diego Ship Repair /Naval Sea Systems Command	6,034,516	257,762	Hardware and Support Services for Naval Ship Const
N00024-07-C-4415	General Dynamics NASSCO / Naval Sea Systems Command	176,047	9,707	Hardware and Support Services for Naval Ship Const
N00024-07-R-3245	McKean Defense Group /Naval Surface Warfare Center Carderock	1,273,000		Engineering and Maintenance Support Services
N00024-08-C-2110	Naval Sea Systems Command	5,502,949,944	33,697,235	Submarine & Aircraft Carrier New Construction
N00024-08-C-2300	BAE Systems San Diego Ship Repair /Naval Sea Systems Command	404,713	312,758	Hardware and Support Services for Naval Ship Const
N00024-08-C-4401	BAE Systems San Diego Ship Repair /Naval Sea Systems Command	2,891,714	341,737	Hardware and Support Services for Naval Ship Const
N00024-08-G-2112	Naval Sea Systems Command	2,033,000	85,266	Hardware and Support Services for Naval Ship Construction & Repair
N00024-08-R-3170	GDIT / NSWC Carderock	196,000		Engineering and Maintenance Support Services
N00024-08-R-3297	McKean Defense Group/Naval Surface Warfare Center Carderock	575,000		Engineering and Maintenance Support Services
N00024-95-C-2106	Naval Sea Systems Command		25,438	Submarine & Aircraft Carrier New Construction
N00024-97-C-2202	Naval Sea Systems Command		262,675,086	LPD Construction and Long Lead Time Material
N00024-98-C-2104	Naval Sea Systems Command		153,028,405	Submarine & Aircraft Carrier New Construction
N00024-98-C-2307	Naval Sea Systems Command		77,634,327	DDG Construction and Long Lead Time Material
N00024-98-C-4064 / R78854	BPMI /Naval Sea Systems Command	284,000		Engineering and Maintenance Support Services
N00024-99-G-2909	Naval Sea Systems Command		177,342	Construction & Repair
N00033-08-D-8022	Military Sealift Command	17,556,000		Engineering and Maintenance Support Services
N00167-00-D-0006	Naval Surface Warfare Center	374,424		Hardware and Support Services for Naval Ship Construction & Repair

ATTACHMENT 1
FEDERAL INFORMATION REQUEST
NORTHROP GRUMMAN SHIPBUILDING

FISCAL YEAR 2008 FEDERAL CONTRACTS

Federal Contract (Including Subcontracts)	Customer/Federal Agency	Dollar Value		Subject of Contract or Subcontract
		Award	Mod	
N00167-00-D-0088 / PO10006981	SAIC/Naval Surface Warfare Center Carderock	1,286,000		Engineering and Maintenance Support Services
N00178-04-D-4012 / NSWC-FD08-SC-0001	GDIT/Naval Surface Warfare Center Carderock	214,000		Engineering and Maintenance Support Services
N00178-04-D-4027	CDI Marine/Naval Surface Warfare Center Carderock	1,235,000		Engineering and Maintenance Support Services
N00178-04-D-4027 / PO # 2348080040	CDI Marine/Naval Surface Warfare Center Carderock	134,000		Engineering and Maintenance Support Services
N00178-04-D-4048	Epsilon System Solutions/Southwest Regional Maintenance Center	7,360,000		Engineering and Maintenance Support Services
21623-123	MANTECH/Naval Surface Warfare Center	7,358,000		Engineering and Maintenance Support Services
N00178-04-D-4091	Naval Undersea Warfare Center Newport Division		28,567,753	Hardware and Support Services for Naval Ship Construction & Repair
N00178-04-D-4091	Naval Undersea Warfare Center - Keyport	13,795,199		Engineering and Maintenance Support Services
N00178-08-P-1172	Naval Surface Warfare Center	56,571		Engineering Design & Support
N00189-02-D-0037	Fleet & Industrial Supply Center		7,638,000	Engineering maintenance services for aircraft carr
N00189-08-M-PT29	Portsmouth Naval Shipyard	42,624		Naval Vessel Equipment
N00406-08-D-8011	Fleet & Industrial Supply Center Puget Sound	612,785		Naval Vessel Maintenance
N00604-08-P-0255	Fleet & Industrial Supply Center Pearl Harbor	2,400		Engineering Design & Support
N4523A-07-D-0004 / 410085S	Pacific Ship Repair	3,196,000		Engineering and Maintenance Support Services
N62793-03-G-0001	Supervisor of Shipbuilding - Newport News	3,760,000	20,798,307	Hardware and Support Services for Naval Ship Construction & Repair
N62793-07-C-0001	Supervisor of Shipbuilding - Newport News		53,036,077	Submarine & Carrier Overhauls & PSAs
N62793-94-G-0001	Supervisor of Shipbuilding - Newport News		82,093,951	Submarine & Carrier Overhauls & PSAs
N65540-01-D-0025 / D.O. 0001	Naval Surface Warfare Center Carderock		9,297,000	Engineering and Maintenance Support Services
N65540-02-D-0042	Naval Surface Warfare Center Philadelphia		9,200,000	Engineering and Maintenance Support Services
N65540-08-D0010	EHS /Naval Surface Warfare Center Carderock	11,749,000		Engineering and Maintenance Support Services
N65540-09-D-0003 / 03C5003	Epsilon System Solutions/Naval Surface Warfare Center Carderock	11,524,000		Engineering and Maintenance Support Services

ATTACHMENT 1
FEDERAL INFORMATION REQUEST
NORTHROP GRUMMAN SHIPBUILDING

FISCAL YEAR 2008 FEDERAL CONTRACTS

Federal Contract (Including Subcontracts)	Customer/Federal Agency	Dollar Value		Subject of Contract or Subcontract
		Award	Mod	
N68335-07-P-0136	Naval Air Systems Command		64,724	Naval Vessel Mockups
PO 070200148	Concurrent Technologies Corporation/Office of Naval Research		(53,022)	Engineering Design & Support
PO 070300025	Concurrent Technologies Corporation/Naval Surface Warfare Center		16,000	Engineering Design & Support
PO 070900180	Concurrent Technologies Corporation/Office of Naval Research	10,000		Research and Development
PO 07-0935-DRS	DRS Technologies/Naval Undersea Warfare Center	49,999	20,001	Engineering Design & Support
PO 080100056	Concurrent Technologies Corporation/Office of Naval Research	10,000	29,479	Engineering Design & Support
PO 080700094	Concurrent Technologies Corporation/Office of Naval Research	37,125		Engineering Design & Support
PO PH16817	Kingsbury/Naval Sea Systems Command	87,000		Engineering and Maintenance Support Services
PO SNU154-111	Electric Boat/Naval Sea Systems Command	100,000		Engineering Design & Support
S07-1002	Edison Welding Institute/Office of Naval Research	453,820		Engineering Design & Support
S07-1005	Edison Welding Institute/Office of Naval Research	416,347		Research and Development
S-9247	Computer Sciences Corporation/Office of Naval Research	1,877,252		Research and Development
SEG-SC-05-002	ALION/Naval Sea Systems Command	1,016,855	1,016,855	DDG Construction and Long Lead Time Material
SNU 168-088	General Dynamics - Electric Boat	240,000		Engineering and Maintenance Support Services
SP701-02	Nat'l Industrial Info Infrastructure Protocols/Office of Naval Research	549,000		Research and Development

ATTACHMENT 2
FEDERAL INFORMATION REQUEST
NORTHROP GRUMMAN SHIPBUILDING

Federal Contract Information:

Number of Federal Contracts:

Fiscal Year 2007	164
Fiscal Year 2008	131
Fiscal Year 2009	97

Federal Agencies:

Fiscal Year 2007	ARMY, NAVY, DHS/US COAST GUARD
Fiscal Year 2008	NAVY, DOE, DHS/US COAST GUARD
Fiscal Year 2009	NAVY, DOE, DHS/US COAST GUARD

List of Subjects of Federal Contracts:

Fiscal Year 2007	Naval Vessels New Contstruction, Naval Vessels Overhaul & PSAs, Naval Vessels Fleet Maintenance & Ship Repair, Engineering & Design Support, Research & Development, Coast Guard New Construction, Naval Vessel Long Lead Time Material,
Fiscal Year 2008	Naval Vessels New Contstruction, Naval Vessels Overhaul & PSAs, Naval Vessels Fleet Maintenance & Ship Repair, Engineering & Design Support, Research & Development, Coast Guard New Construction, Naval Vessel Long Lead Time Material, DOE Site Management
Fiscal Year 2009	Naval Vessels New Contstruction, Naval Vessels Overhaul & PSAs, Naval Vessels Fleet Maintenance & Ship Repair, Engineering & Design Support, Research & Development, Coast Guard New Construction, Naval Vessel Long Lead Time Material, DOE Site Management

*** Aggregate Dollar Value of Federal Contracts:**

Fiscal Year 2007	$8,865,198,947
Fiscal Year 2008	$13,572,915,023
Fiscal Year 2009	$7,949,256,236

*Face value at price of all active contracts and modifications thereto held during each respective fiscal year excluding physically complete contracts.

Federal Grant Information: Northrop Grumman Shipbuilding does not have any Federal Grants.

Testimony

Subcommittee on Seapower and Expeditionary Forces for the House Armed Services Committee
Recommendations for Reducing Overall Acquisition Costs
July 30, 2009

Good afternoon. My name is Ronald Ault. I am President of the AFL-CIO Metal Trades Department, representing thousands of skilled trades workers in shipbuilding, petrochemical processing, manufacturing, mining, nuclear energy and nuclear remediation. Thank you for this opportunity to share our organization's views on recommendations for improving shipbuilding effectiveness.

The U.S. shipbuilding industry has been caught in what some have called a death spiral for more than a generation as a result of policies of not-so-benign neglect. In the 1970s, with few exceptions, politicians of every stripe embraced the notion of unfettered world trade and disparaged concerns over the loss of domestic manufacturing capacity as "archaic" or "quaint." The steepest drop came during the Reagan Administration with cuts in operating and construction differential subsidies. As a result of this continuing trend, the U.S. shipbuilding industry and the network of industries that provided components began to wither along with the tens of thousands of jobs that network provided. The result today is a shipbuilding base that includes a mere six yards capable of producing large vessels supported by four U.S. Navy shipyards that perform repairs. As a point of comparison, China has one shipyard with a larger capacity than all U.S. yards combined.

Virtually the only customer that the nation's six private shipyards have is the U.S. Navy and, today, we are down to delivering around eight Navy vessels a year. The current situation is not sustainable.

For me personally and on behalf of the unions affiliated with the Metal Trades and the five million members of those unions—we are confident that given the right policies, the shipbuilding industry can revive and ultimately thrive.

Our recommendations focus on four areas:

• Valuing the skills and training of the shipyard workforce by investing more in apprenticeship training, proper utilization of apprentices and opening up new opportunities for career growth in the industry.

It will be impossible to recruit and train a sufficient supply of apprentices into the industry without some affirmative policy that will spur genuine growth in the industry. With the average age of the current shipbuilding workforce around 45, we can anticipate massive attrition in the coming decade. Out of the 89,000 workers currently employed in the U.S. shipbuilding industry, about half, or 44,000, are employed in the major private yards, about one-third, or 23,000 are employed as Navy civilian personnel in the four remaining Navy facilities.

We categorically reject the suggestion that some have made to expand the H2B visa program as a means of augmenting the U.S. shipbuilding workforce. The industry's experience with this alternative has been abysmal. Two recent examples of the shoddy workmanship that is characteristic of this program are available in the amount of re-work that was involved after the Navy authorized outsourcing for segments of work on four hulls of the LPD 17 class to Signal International Corp. which supplied H2B visa workers for the project. Our work units at Avondale were overwhelmed with rework issues as those vessels prepared for launch. There are some hard-headed economic concerns related to the H2B alternative because it simply glosses over the long-term issue of recruiting, training and retaining an adequate domestic workforce. There is also a fundamental human rights issue related to the program. Witness the multitude of verified complaints of exploitation, abuse, miserable working and living conditions that have emanated from the Signal H2B contract.

Contrast the Navy's experience with the four hulls of the LPD 17 class to the construction record of Avondale in building the USS New York, which was launched a year ago by Ingalls. The New York recently returned from sea trials flying three brooms from the mast—indicating a successful clean sweep for all the ship's systems. As you know, the New York contains 20 tons of steel recycled from the debris of the World Trade Center.

Sustaining a dependable, productive workforce requires commitment, not just from the employer, but from the nation as a whole. Three years ago, some 7,000 shipyard workers at Ingalls went on strike for a little over a month. Their fundamental problem was not really with the employer, but with the frustration over living conditions in a region where the ravages of three major hurricanes had wiped out schools for their children and the full range of basic services that the rest of America takes for granted. Because of balky and inadequate federal response to these catastrophes, the workers and their families were gouged for food, fuel, insurance and rent—and forced to endure substandard healthcare and housing. Our biggest employer in that area, Northrop Grumman, had come to us to seek help in recruiting more workers and we collaborated with them in that effort.

Shipyard workers sit at the apex of the hierarchy of skilled crafts. Their training and experience enables them to perform the most complex welding and metal working tasks under the most difficult conditions, in small spaces and while working with a variety materials. When a pipefitter or a welder or a carpenter is working on a building, that worker can be certain that the dimensions of a project will be the same today and the next day and for years to come. When that same craft is on a ship, there are many more variables to consider—hull pressures, distortion from vibration, the effects of moisture, and so on—that must be taken into account.

Although the skills of shipyard crafts are readily transferable into construction and skilled manufacturing work, the converse is not true. Skilled construction and manufacturing craft workers cannot move seamlessly into the shipbuilding industry without substantial additional training.

My point: as opportunities for steady employment in shipbuilding continue to erode, we see an out migration of these skilled workers into construction and manufacturing. That trend will continue; and—equally disturbing—young people who are considering career options are far less likely to enter arduous training for shipyard work as they see it as an ever shrinking universe of employment security.

• Broadening the horizons for the U.S. shipbuilding industry by living up to the letter and the spirit of Buy American regulations, enforcing the Jones Act, adequately funding Title XI, and imposing realistic limits on leasing foreign ships by the Department of Defense.

The knock that economists put on the U.S. shipbuilding industry is no longer focused on labor costs, but on inefficiencies. It's not hard to understand why those inefficiencies exist—the basic infrastructure of U.S. shipyards dates back to World War II and earlier as they try to compete with spanking new yards built in Korea, China and Eastern Europe. That being the case, it is time for the U.S. to live up to the commitments it has on the books to the industry. In other words, walk the walk.

The Department of Defense has routinely issued waivers for Buy American requirements, rendering the regulations virtually worthless over the past ten years. Moreover, the DOD continues to engage in long-term foreign leases for vessels—effectively circumventing Buy American requirements and undermining the viability of the industry. We are encouraged to see that Congress is considering imposing stricter time limits on this practice and we encourage members of this committee to support such limits.

Likewise we are supportive of actions by Congress to appropriate an adequate base of funding for Title XI loan guarantees—$48 million in the House of Representatives this year, the first substantial appropriation since 2003, and we urge the Senate to concur. That action has apparently spurred new interest among ship owners—with Title XI applications pending for 76 new vessels, including ships, barges and drilling rigs.

• Looking to the future of maritime transportation as a growth industry that will help America improve our energy efficiency and independence. Transportation Secretary Ray LaHood has broached an interesting idea for reviving America's maritime industry with a marine highway that would divert a lot of cargo off of clogged U.S. highways and onto container ships to move among U.S. ports. His proposal is thoughtful and could provide substantial benefits in energy efficiency, clean air and expanded demand for new, more modern cargo vessels built in U.S. shipyards as required by the Jones Act.

Secretary LaHood's idea is all the more timely when you consider the fact that the Maritime Administration's compilation of available merchant vessels reads more like a museum archive—most of those vessels were built in the 1970s and a

significant number are 50 years or older. Three were built in 1995—the newest in the entire fleet.

However, a word of caution—we reject and we will relentlessly oppose the continued disastrous interpretation of the Jones Act that permitted the virtual importation of a dozen foreign-built Kit ships, built virtually from hull to mast out of parts imported from foreign sources as has been done by Aker Shipyard in Philadelphia.

• Improving the Navy's strategic planning and coordination in shipbuilding.

In the labor movement, we are constantly reminded of the stark difference between value and cost. It's been my experience that at the highest levels of management, the distinction between the two terms becomes blurred. When dollar signs replace qualitative analysis, poor decisions follow.

We often hear that institutions of government are like enormous aircraft carriers—so large that it is impossible to turn them on a dime. I wish someone would tell that to the U.S. Navy. Over the past 20 years, the Navy has spent some $14 billion to research and develop technologies for Zumwalt Class littoral ships—a series of ships known as DDG 1000. Now, after all that expense on planning and design, a new Chief of Naval Operations comes in and reverses the program—instructing the industry to produce no more than three ships for this series.

A number of members of Congress have winced when they see the unit costs for those three ships, and who could blame them.

Now, if General Motors took the same approach, they might still produce a Corvette, but the unit cost would be astronomical. Neither Mr. Gates of the Department of Defense, nor even Mr. Gates of Microsoft—could afford to buy one. Not only do you not get any economy of scale, you cannot develop adequate experience to develop tricks of the trade that might further reduce overall production costs.

Contrast that to the Navy's experience with Virginia Class submarines where we have experienced a dramatic decline in unit prices as the numbers increase. Yet, despite that record, we came perilously close to closing the Portsmouth NH Navy Shipyard two years ago, not because of considerations of productivity or efficiency but because the BRAC Commission felt that it would be the easiest political target. Thanks to an active coalition between the communities surrounding that area and the yard's 3,300 workers, and several of our strongest supporters in Congress—including Maine's Sen. Susan Collins—that notion was eventually quashed.

Summary

Faulty decision-making at the highest levels of the Navy and the Pentagon have also reduced the value and driven up costs for Navy shipbuilding, but the Congress and the Executive Branch must also shoulder some responsibility for the lack of coordination, failure of vision and inattention to the big picture, which has plagued our industry. Ultimately, what we are lacking is a singular policy that says, yes, America needs a viable, healthy shipbuilding industry in the interest of both national defense and a healthy national economy.

America's experience in World War II is highly instructive. Both Germany and Japan enjoyed substantial superiority over America in technology, but America had a huge manufacturing capacity. Today, the reverse is true. If our nation had to engage in a shooting war today and just one strategic production facility were to be put out of action for any reason, we would not have the ability to recover. It is time, way past time, to recognize that our shipyards are national treasures that can be lost if we continue to take them for granted.

# # #

DISCLOSURE FORM FOR WITNESSES
CONCERNING FEDERAL CONTRACT AND GRANT INFORMATION

INSTRUCTION TO WITNESSES: Rule 11, clause 2(g)(4), of the Rules of the U.S. House of Representatives for the 111th Congress requires nongovernmental witnesses appearing before House committees to include in their written statements a curriculum vitae and a disclosure of the amount and source of any federal contracts or grants (including subcontracts and subgrants) received during the current and two previous fiscal years either by the witness or by an entity represented by the witness. This form is intended to assist witnesses appearing before the House Armed Services Committee in complying with the House rule.

Witness name: Ron Ault

Capacity in which appearing: (check one)

___Individual

X Representative

If appearing in a representative capacity, name of the company, association or other entity being represented: Metal TRADES Department AFL-CIO

FISCAL YEAR 2009

federal grant(s) / contracts	federal agency	dollar value	subject(s) of contract or grant
N/A			

FISCAL YEAR 2008

federal grant(s) / contracts	federal agency	dollar value	subject(s) of contract or grant
N/A			

FISCAL YEAR 2007

Federal grant(s) / contracts	federal agency	dollar value	subject(s) of contract or grant
	N/A		

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Number of contracts (including subcontracts) with the federal government:

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Fiscal year 2008: _____;
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Congressional Testimony of
Brett M. Olson

Executive Secretary, Puget Sound Metal Trades Council
International Brotherhood of Electrical Workers, Seattle Local 46

United States House of Representatives
House Armed Services Committee
Seapower and Expeditionary Forces Subcommittee

2:00 p.m.
Thursday, July 30th, 2009
Room 2212
Rayburn House Office Building

Good morning,

I want to thank the subcommittee for the opportunity to deliver testimony on how our country can most effectively and efficiently meet the pressing manpower needs of our nation's military shipyards.

My name is Brett Olson. I serve as executive secretary of the Puget Sound Metal Trades Council. I began my career in the shipyards about 20 years ago. After working a little more than 12 years in the yards, I changed over to working as a construction electrician. When I entered the yard, I was privileged to work side by side with a large core group of skilled marine electricians. These mentors were the heart and soul of a marine industry on the West Coast that provided solid employment and upward mobility to 75,000 workers in the 1970s and 1980s – a work force that proudly built and maintained our nation's military superiority on the high seas.

How things have changed. Today only 2,500 shipyard workers are employed on the West Coast in private shipyards. Their average age is approaching 50 years of age. Veteran workers are retiring at a rapid pace. Each month two to three members of my union, the International Brotherhood of Electrical Workers Seattle Local 46, hang up their tools and take their pensions. We are faced with nothing less than a manpower emergency. But I am pleased to be here today to tell you that we have developed a plan for not only dealing with that emergency, but for avoiding deeper crises down the road.

Our Apprenticeship Utilization plan, launched at our shipyard, mandates strong ratios of apprentices to journeymen on the construction and repair of all state ferries. This allows our dedicated and skilled workers who have not yet retired to pass their skills on to freshly-hired workers. And because apprenticeship training is funded by our union—not the military—and since apprentices progress from lower rates of pay to higher scales incrementally, costs are kept down, even while training is expanded.

A recent study by professors at the Universities of Texas and Utah shows the value of using apprentices in the construction sector. The report compares joint apprenticeship programs – which have the backing of both labor and management – to non-joint programs, where workers are effectively on their own. In comparing the nearly half-million workers in both types of apprenticeship nationwide, employees with union backing boast a 13-percent lead over the nonunion side when it comes to completing training programs. Minority workers and women also fare better on the joint apprenticeship side, enhancing a skilled work force that reflects the diverse makeup of our military and our nation.

Our Apprenticeship Utilization program will not succeed without access to a stable pool of potential journeymen, men and women who have the capacity to absorb training. We are answering that need every day through the development of a complementary program that is providing a thriving pool of enthusiastic workers. Our Veterans in Construction Electrical (VICE) program is actively recruiting military veterans to fill the labor gaps created by retirements with disciplined and well-prepared applicants.

The success of using apprentices and the promise of VICE can be seen on the faces of workers like Ken McMillan. After seven years in the Marines and Army, Ken joined the IBEW in 2006. McMillan is currently working on wiring a ship that rescues crews in boats that get stranded at sea. Ken says that, career-wise, his move into the marine trades is a no-brainer. He is proud to be helping increase the readiness of our military as a civilian while advancing up the skills ladder.

I am proud to report that our Apprenticeship Utilization and VICE programs have spread from Seattle to Oregon, northern California and Nevada, and they will be soon be presented to the rest of California.

The needs of veterans are close to my heart. My concern for our nation's military security is part of my very upbringing. My father had a career in the Navy. I remember all too

well the disgrace of hundreds of thousands of Vietnam veterans who returned home to dead-end jobs or no jobs at all.

Rather than reliving the painful plight that faced Vietnam veterans, we have within our hands the ability to reward our nation's heroes with the future that they deserve.

As a military brat, it is in my DNA to be concerned about our nation's military readiness. I am concerned about China and Russia vastly expanding their naval fleets.

And I remember what happened in 2006 when the USS Lincoln, an aircraft carrier, needed a massive infusion of skilled labor to put the vessel back on the seas. Managers summoned up all available labor at Bremerton Naval Shipyard and Todd Shipyard, including all nonunion and union subcontractors at the Puget Sound Naval Station. But we were alarmed to find that we were still 500 workers short of what was needed to put the USS Lincoln back to sea during a time of conflict.

That's just not good enough for a proud nation that still faces the prospect of serious military challenges.

We can do better. We must do better. And we are making progress. But a national apprenticeship utilization program – along with VICE – is necessary to keep our shipbuilding capacity up to date in the face of a huge shortage of manpower while giving men and women from our fighting forces a step-up in a critically needed, well-paying industry. This will ensure a thriving future for our shipyards, our national defense and our veterans.

Thank you.

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Witness name: Brett Olson

Capacity in which appearing: (check one)

___ Individual

X Representative

If appearing in a representative capacity, name of the company, association or other entity being represented: IBEW Local 46

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federal grant(s) / contracts	federal agency	dollar value	subject(s) of contract or grant
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