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Improving Efficiency in Shipbuilding

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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 objectives today are to, first, provide an introduction to General Dynamics Marine Systems shipyards, and then, as you requested in your invitation letter, comment on the effect the Navy's 30-year shipbuilding plan will have on industrial base capacity, workforce stability, and economies of scale.

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 since 1884, delivered its first ship to the United States Navy in 1893. Since then, BIW has built more surface combatants than any other U.S. shipyard, delivering over 400 vessels, including 242 military ships as well as a variety of commercial vessels and private yachts. BIW has built the lead ship for nearly two-thirds of the non-nuclear surface combatant classes since WWII. Today, BIW is the lead designer for both classes of U.S. Navy Destroyers that are currently in production, and BIW's Planning Yard sustains 80% of the Navy's active surface combatant fleet. Bath Iron Works offers the full range of surface combatant Engineering, Design, Production and Life-Cycle support services. BIW plays a key economic role in Maine as it is Maine's largest single-site private employer with over 5,600 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 and DDG 1000 Class Destroyers.

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 199 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 136 new ocean-going vessels (Navy and commercial) over the last 50 years and is the only remaining private full service shipyard on the West Coast designing, building and repairing large vessels for the US Navy and commercial customers. The shipyard employs approximately 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 for the Navy in 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 provides important ship repair services for the Navy – a vital role as San Diego has the West Coast's largest concentration of Navy ships. NASSCO is currently building the T-AKE 1 LEWIS AND CLARK Class Dry Cargo /Ammunition ships and a series of commercial double-hulled Product Carriers. NASSCO is designing the Mobile Landing Platform, a ship that will provide enhanced sea basing capabilities across the full range of military operations. Production of the MLP will start in 2011.

The primary objective at General Dynamics' three shipyards is to provide the Navy quality ships that achieve fleet performance requirements and are the best possible value to the American taxpayer.

Navy's 30-Year Shipbuilding Plan (FY11)

When I last testified before this committee in July 2009, I mentioned three aspects that have direct and substantial impact on our shipyards' ability to achieve that goal. They are (1) stability of requirements…stable requirements lead to more mature designs, which reduce production risk and promote efficiency; (2) predictability in funding and scheduling…predictability allows time for planning and commitment of resources that enhance shipbuilding processes, and (3) sufficient volume for efficient production...building enough ships to enable investment in processes, people and facilities to lower costs and maximize the value of each ship we deliver.

While assessment of the industrial base impact of the Navy's new 30-year shipbuilding plan is ongoing, it is apparent that the Navy has worked hard to balance available resources among a broad and diverse set of competing demands. Stability of requirements is implicit in this plan and predictability is enhanced because the plan is based on reasonable assumptions and can be executed. With regard to these two aspects, the plan promotes our ability to provide quality ships at the best possible value.

However, the most challenging aspect of the plan is volume. While we credit the Navy for its balance in allocating available resources, the new plan is funded at levels that build 13 fewer surface ships in the near term when compared to the FY09 shipbuilding plan. Internal to our shipyards, this volume challenge will likely trigger shipyard workforce resizing. External to our shipyards, the volume issue will affect thousands of suppliers who provide the components and commodities essential to ship construction, resulting in reduced economic order quantity and reduced vendor performance. In the end, less volume will inevitably lead to higher shipbuilding costs – not the best possible value for the taxpayer.

This simply reflects the principle of "economy of scale." Over the past decade GD made major capital investments in our shipyards to enable production efficiencies, but the return on these investments to the Navy will be limited without sufficient volume. This is not unique to ship construction, but an unavoidable outcome for any manufacturing enterprise facing similar circumstances.

Impact to GD Shipyards

Electric Boat: As a result of receiving Congressional funding for advanced production and accelerating the procurement rate of VIRGINIA Class submarines to two per year starting in FY 2011, this program is clearly a model for defense acquisition demonstrating the benefits to be gained when combining predictability, stability and volume. Electric Boat delivered the fifth ship of the Class, USS NEW HAMPSHIRE, for 25% fewer manhours than the lead ship, USS VIRGINIA. Our goal is to reduce the schedule span and labor hours by 40 percent. We continue to reduce costs and schedule through a process called design for affordability, and through capital investment and continuous improvement initiatives. The stability, predictability and volume of this program have also preserved critical skills and the industrial base, and contributed to reducing the total ownership costs.

Nonetheless, in the longer term the Navy's 30 Year Shipbuilding Plan potentially has a significant negative impact on the industrial base by reducing attack submarines by 10 ships when compared to the FY09 Plan – a 20% reduction. From our perspective, maintaining the VIRGINIA Class Submarine program at a two per year procurement rate will allow us to capture the production and costs efficiencies that are now well within reach.

Bath Iron Works: Building large surface combatants is a complex undertaking that demands significant resources and infrastructure (including highly skilled people, information systems, processes and facilities) that are in many ways different than those required for other types of ships. BIW is optimized to produce surface combatants efficiently and affordably, and possesses modern, world-class infrastructure unique to the industry. The effectiveness of this optimization is evidenced by the substantial labor hour reductions demonstrated on the DDG 51 program, strong early performance on the DDG 1000 program, and continuous innovation in surface combatant shipbuilding, such as that provided by the Ultra Hall facility.

The consolidation of the DDG 1000 Class construction at BIW will maintain an efficient level of volume for the near term. However, the FY2011 30-Year Shipbuilding Plan would sustain procurement at a rate of only 1.5 DDG 51's per year, representing a 50% reduction in volume for the large surface combatant industrial base. For the majority of the DDG 51 program, ships were procured from two surface combatant shipyards at a sustained rate of at least 3-ships per year. This level of volume represented a balance point where the overhead cost of the significant infrastructure

required to efficiently build surface combatants could be reasonably spread across the ships and result in affordable cost. This, coupled with the enhanced stability provided to the shipyards and suppliers by multi-year procurements beginning in FY1998, provided a solid foundation for affordability. The program described in the new 30-year shipbuilding plan reduces the ability to distribute overhead infrastructure costs and will result in increased cost, meaning fewer Destroyers will ultimately cost more per ship. Also, as a flat or declining volume limits the ability to hire and train the next generation of shipbuilders, apprenticeship programs will decline – an adverse impact that will be felt by the shipbuilding industry and the Navy for years to come.

NASSCO: As a full service shipyard, NASSCO strives to reduce the cyclical nature of the ship construction and repair business by participating in both commercial and military shipbuilding markets, which greatly contributes to establishing continuity for the shipyard's labor force. Through its partnership with a world class Korean shipyard, NASSCO is operating a highly successful commercial Product Carrier program, the only tier one shipyard to achieve this in recent times. In its Naval shipbuilding program, NASSCO has taken advantage of the long run of building two T-AKE supply ships each year since 2006. Benefiting from the lessons learned from the Koreans and from an aggressive and comprehensive cost reduction program, NASSCO has reduced the manhours required to build each successive ship at a rate unmatched by any shipyard in the industry. The end result is that it now takes well less than half the labor hours to build a T-AKE today than it took to build the lead ship. This enables us to deliver the Navy a high quality ship at the best possible value to the taxpayer.

The 30 year shipbuilding plan transitions NASSCO from building T-AKEs to building Mobile Landing Platform (MLP) ships. However, the plan represents a change from two ships per year to half a ship per year, resulting in gaps in production between each of the three planned ships. These gaps will result in cyclical workforce resizing involving a significant portion of NASSCO's production personnel during each production gap. Moreover, initiating the T-AO(X) program some five years after the termination of the T-AKE, where the potential exists for using a hull with considerable commonality, will likely sacrifice many efficiencies which might have been realized. The inherent inefficiencies generated by cyclical workforce resizing, coupled with the fact that each ship will have to absorb the entirety of the shipyard's overhead during its lengthened period of construction, will lead to significantly higher costs to the taxpayer for each MLP.

Summary

Our objective remains unchanged. We will deliver high quality, capable ships to our Navy. The Navy's FY2011, 30-year shipbuilding plan is a good baseline. We will work with the Navy and the Congress to address the volume issues. If additional resources can be made available to increase volume, we are best positioned to meet our objective to provide the best value to the taxpayer.

Mr. Chairman, as you know, shipbuilding is a complex and dynamic process. Your committee's support of multi-year procurement for mature programs, advanced procurement, advance construction authority, and commercial shipbuilding with the assistance of Title XI, will continue to reduce costs for both the government and for shipbuilders. 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 this opportunity to testify. I look forward to your questions.