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Seapower and Expeditionary Forces
Subcommittee

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John P. Casey became President of General Dynamics Electric Boat on Oct. 1, 2003.

He assumed his current position after serving as Vice President - Operations, with responsibility for all construction activities at the Groton shipyard and the Quonset Point, R.I., Facility.

Before that, he was Vice President – Programs, overseeing existing submarine construction programs as well as strategic planning, business development and materials acquisition functions.

He also completed an assignment as Site Manager for Electric Boat’s Quonset Point Facility, with responsibility for all facets of nuclear-submarine construction and manufacturing. These activities included steel processing and fabrication, machining, piping, sheet metal and electrical component assembly, and major unit packaging and outfitting to 1400-ton ship sections.

Mr. Casey joined Electric Boat in 1979 and has held several positions including General Superintendent – Machine Shop, Foundry and Electrical Trades; Director of Estimating and Contract Changes; Manager of 688-Class Ships Management; SSN-751 Ship Manager; and Superintendent – Pipe Coverers.

Currently, Mr. Casey is a member of the Board of Directors of the American Shipbuilding Association, the Naval Submarine League, the Connecticut Business and Industry Association and The Westerly Hospital.

A graduate of Worcester Polytechnic Institute where he earned a BS in Civil Engineering, Mr. Casey also holds an MBA from Rensselaer Polytechnic Institute and an MS – Management from MIT’s Alfred P. Sloan Fellows Program.

Introduction

Good afternoon. I'm John Casey, President of General Dynamics Electric Boat Corporation.

I want to thank the committee for conducting this hearing on submarine force structure and acquisition policy. My testimony will address each of the specific areas identified in the Chairman's invitation to testify.

VIRGINIA Class Acquisition – Historical

In 1996, Congress directed that VIRGINIA Class submarines be constructed by the two shipyards capable of constructing nuclear warships, Electric Boat (EB) and Northrop Grumman Newport News Shipbuilding (NGNN). Subsequent to this direction, EB and NGNN entered into a unique co-production team arrangement. Under this arrangement, construction work is split evenly between the two shipbuilders and the yards alternate final assembly and delivery. The Design/Build process established for the VIRGINIA Program as well as advances in modular construction techniques were critical factors in enabling the successful implementation of the co-production plan. Modules and hull cylinders are fabricated at Electric Boat's Quonset Point facility and shipped by barge to the two assembly yards. Northrop Grumman Newport News fabricates modules and installs them into hull cylinders for final assembly in their shipyard or ships them by barge to Groton for final assembly. Each shipyard produces the same designated sections for each ship with the exception of the reactor compartments which are produced by both yards for ships they deliver. This approach maximizes the production learning curve with repetitive module fabrication, and preserves nuclear submarine construction capability at both builders. Alternating ship deliveries between the shipyards also permits each yard to retain unique submarine test, sea trial, and delivery experience.

Looking back to the early 1990s clearly shows how dramatically the Navy’s submarine procurement plan has fluctuated. Over the eight-year period from 1990 through 1997, the Navy procured only three submarines; SSN773, the last Los Angeles Class, and the second and third SEAWOLFs, SSN22 and SSN23. And there was a four-year gap between the authorizations of the two SEAWOLFs. As the chart below indicates, we have seen 10 changes to the VIRGINIA acquisition profile in as many years, with the start of two ships per year postponed by a decade, from 2002 to 2012.

Changes to VIRGINIA Class Procurement

	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	TOTAL
DEC 95	1	0	1	0	2	2	2	2	2	2	2	2	2	2	2	24
DEC 96	1	1	0	1	1	0	1	2	2	2	2	2	2	2	3	22
NOV 97	1	1	0	1	1	0	1	2	2	2	3	3	2	3	2	24
FEB 98	1	1	0	1	1	0	1	2	2	2	3	3	2	3	2	24
OCT 98	1	1	0	1	1	0	1	1	2	2	3	3	3	3	2	24
MAR 99	1	1	0	1	1	1	1	1	2	2	3	3	2	3	2	24
JUN 00	1	1	0	1	1	1	1	1	1	2	2	3	3	2	3	23
JUN 01	1	1	0	1	1	1	1	1	1	2	2	3	2	2	3	22
APR 02	1	1	0	1	1	1	1	1	1	1	2	2	2	2	3	20
MAY 03	1	1	0	1	1	1	1	1	1	2	2	2	2	2	3	21
MAR 04	1	1	0	1	1	1	1	1	1	1	1	2	2	2	2	18
JAN 05	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	15
JAN 06	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	15

VIRGINIA Class Acquisition – Current

The Office of the Secretary of Defense established the requirement for 48 fast attack submarines to support Combatant Commander Requirements. The Navy’s recently submitted long-range shipbuilding plan supports the attack submarine force level at 48 ships. The current VIRGINIA acquisition plan calls for VIRGINIA procurement to

continue at a rate of one ship per year through fiscal year 2011 and ramp up to two ships per year in fiscal year 2012. Despite this increase, the plan will leave the Navy short of its attack submarine force level requirement for 14 years, starting in 2020 and going through 2033. Understandably, the Navy is evaluating several options to mitigate this shortfall including the shipbuilders' efforts to reduce overall construction span times.

This shortfall was a key discussion item in several hearings held by Congress last year. It was noted at one of those hearings that the low point in force structure will occur just as the converted Ohio Class SSGNs will be leaving service. Starting procurement of two ships per year earlier than the current Navy plan would mitigate the risk posed by the SSN force level shortfall by making it less deep and over a shorter span. Accelerating 2/yr VIRGINIA procurement was also a consideration for the 2006 Quadrennial Defense Review. The report recommended "a return to steady-state production rate of two attack submarines per year not later than 2012 while achieving an average per-hull cost objective of \$2 billion" in FY2005 dollars.

The lead ship of the VIRGINIA Class, USS VIRGINIA, was delivered in October 2004, within four months of the original schedule established a decade earlier. The ship completed its first deployment in September 2005, and in the words of the commanding officer, "performed remarkably." The second ship, USS TEXAS (SSN775) was delivered at NGNN on June 20, 2006. This was the first submarine delivered at NGNN after a ten-year hiatus in submarine construction. The third ship in the program, USS HAWAII (SSN776), was delivered by Electric Boat on December 22, 2006, ahead of its original contract delivery schedule and built for two million labor hours less than VIRGINIA. The fourth ship of the class, the last of the Block I contract, is over 80% complete and is scheduled to deliver from NGNN near the end of the year. Six additional ships, at various stages of construction at Electric Boat and Northrop Grumman Newport News, are under contract in the Block II Multi-Year procurement. Electric Boat and the Navy are planning for the next Multi-Year procurement for the ships to be procured between FY09 and FY13. This Block will include ramping up to a procurement rate of two ships per year in FY12, an essential step in lowering per-ship costs. By all standards

– cost, schedule and technical performance - the VIRGINIA Program is well on its way to being a benchmark for other DOD and Navy shipbuilding programs.

Ability to Meet CNO's Cost Challenge

Submarine procurement costs are comprised of material and labor. Of the total material and labor cost of each ship, the shipbuilders, along with the supplier base, manage approximately 70 per cent. The remaining 30 per cent is material that is procured by the Government and provided to the shipbuilder. This Government furnished equipment consists largely of nuclear propulsion plant equipment that is bought one to two years in advance of full ship funding.

Electric Boat, working with its shipbuilding partner and the Navy, has developed an aggressive plan to attack all elements of shipbuilder labor and material costs in order to achieve the CNO's target cost. Our plan focuses on four key initiatives:

1. Construction Schedule Reduction: Reducing the construction schedule from 84 months to 60 months, facilitated by improved construction and material planning systems, with enhanced manufacturing, modular assembly, and final assembly and test. We are already forecasting approximately 66 months for the later ships of the Block II procurement. This schedule reduction has been facilitated by increasing degrees of modular outfit and test prior to launch. This has enabled us to reduce the afloat period of test and trials from 14 months on the USS VIRGINIA (SSN774) to 8 months on HAWAII (SSN776).

2. Improving Labor Efficiency: Maximizing workforce stability of the shipbuilders as well as across the submarine supplier base. This effort includes a major emphasis on the application of Lean Six Sigma and lessons learned across all processes at the shipyards and suppliers. We are in our 5th year of applying Lean Six Sigma tools to the entire submarine design, construction, test, and repair process. To date, we have trained over 500 Electric Boat employees in Lean Six Sigma. Lean Six Sigma at Electric Boat is

deployed enterprise wide with a strong focus on leadership development, process management and, most importantly, employee engagement. In 2006, Electric Boat completed 131 Lean Six Sigma projects producing a net hard savings of \$16.2M. We also have 223 more projects in process. This resulted in a program return on investment of over 6:1. The VIRGINIA CAPEX program is also a major enabler of infrastructure projects to support this effort.

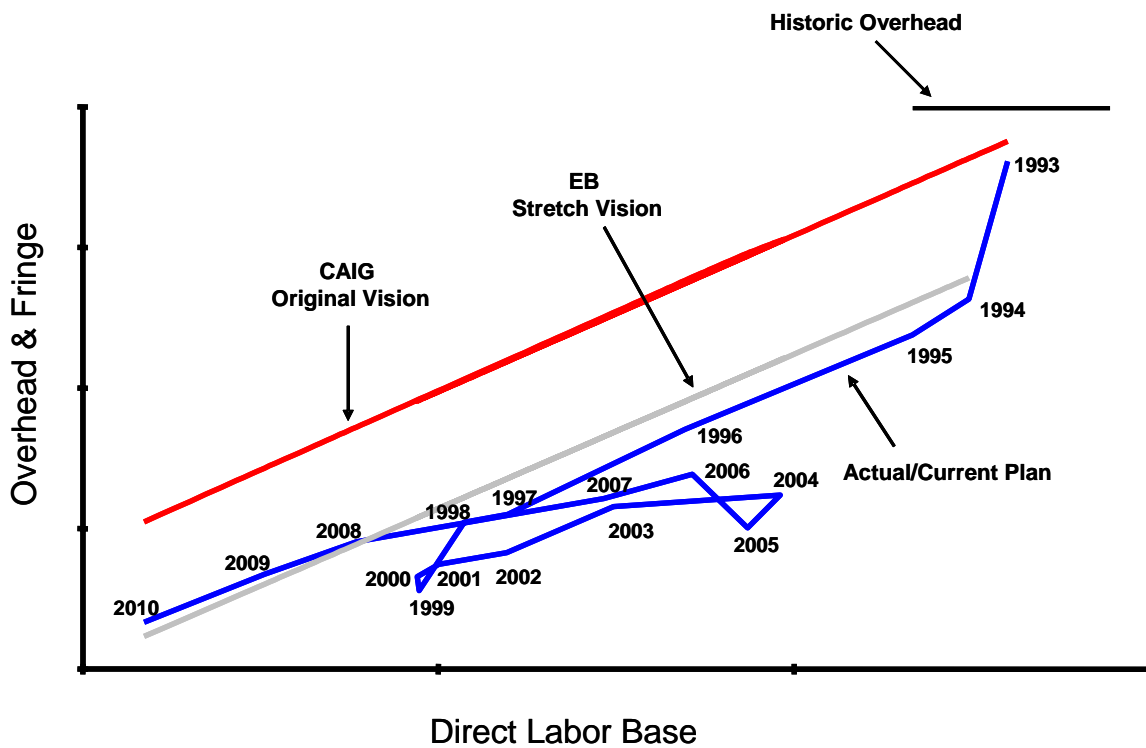
3. Design For Affordability: A key part of our approach to reduce ship construction cost involves integrating new technology and affordability initiatives in high cost areas of the ship design. More than fifty-five cost reduction initiatives are being evaluated for development under Design For Affordability. Some examples of the major cost reduction efforts include:

- Redesign of the bow section of the ship to simplify the ship's structure and systems, resulting in reduced construction cost while maintaining performance requirements
- Simplification of propulsion plant systems design
- Development and integration of low-cost, low-maintenance quiet permanent magnet motors and controllers to replace the existing complex of hydraulic piping and systems
- Leveraging the advancement of high solid and epoxy paint technology for application in construction

4. Acquisition Strategy: Implementing a Multi-Year acquisition plan that supports efficient material procurement and construction, utilizing Advance Procurement (AP) and Economic Order Quantity (EOQ) funding to reduce material costs and achieve construction schedule reduction. Our effort to procure a spare Main Propulsion Unit in FY08, and the resulting cost reduction estimated by the supplier on the Block III units, is just one example of the savings achievable through creative acquisition strategies. Moreover, expanding the use of AP to allow the shipbuilders to accelerate construction

will greatly enhance our ability to level load production facilities, further enabling reduced construction costs.

In addition to this comprehensive plan, Electric Boat continues to tightly control its overhead costs. At the outset of the VIRGINIA program, Electric Boat was provided an overhead cost target by the government’s Cost Analysis Improvement Group (CAIG). It was suggested by the CAIG that Electric Boat dramatically reduce its overhead costs as volume declined in order to maintain affordable labor rates. The CAIG provided a forecast for this reduction.



Electric Boat responded to this challenge by implementing even deeper cuts in overhead. Today, the “CAIG Line” has been institutionalized at Electric Boat and continues to be used today to monitor our overhead costs. More importantly, we have beaten our “Stretch Vision” every year. Our commitment to this plan will result in overhead savings of \$2.7B over the period 1993 – 2010 – with greater than 95% of these savings being returned to the government.

Aggressive overhead management alone cannot assure competitive labor rates; sufficient business volume is essential to absorb this overhead cost, as well as to sustain our unique skills and capabilities. Electric Boat's forecast today shows a dramatic fall-off in our Groton production workforce as we complete the SSGN conversion program and reduce our participation in the maintenance and repair business. In our Engineering business outlook, for the first time in the history of the nuclear submarine program, there is no new design in the Navy's plan.

Meeting our cost challenge will require the commitment of all stakeholders. Shipbuilders and suppliers must continue to work to reduce costs, while meeting schedule commitments, and, most importantly, ensuring an unyielding commitment to quality. The Navy must maintain a stable shipbuilding program with increased procurement to 2 ships per year not later than FY2012; and they must achieve cost reductions to government furnished material and equipment. The shipbuilders and the Navy must work together to negotiate a fair and equitable Multi – Year contract for Block III ships. Finally, we will look to the Congress to provide the necessary funding and support of this vital submarine program.

Working together, and only by working together, we can meet the VIRGINIA cost challenge!

Shipyard Improvements

Since 2000, Electric Boat has invested almost \$200M for capital improvements to its Groton shipyard and Quonset Point manufacturing facility. Recently, Electric Boat invested \$70M to repair and modernize its Graving Dock #3, the supporting dock structure for the Groton Land Level Construction Facility. Currently, Graving Docks #1 and #2 are also being refurbished. The total project cost for these graving dock repairs is \$65M and is being partially funded by the State of Connecticut through property tax exemptions and low rate loan packages.

In addition, the Navy has entered into a long-term agreement for access to the company's Graving Docks. Entering into this agreement allows the Navy to retire their current floating dry dock at the Submarine Base in Groton and avoid the drydock overhaul estimated to be at least \$20M.

At Quonset Point, the facility investments to improve the VIRGINIA Class submarine construction process include a new \$12.4M steel processing facility, which was dedicated December 17, 2001. This 45,000 square foot, state-of-the-industry facility has reduced the time required to process a batch of steel by greater than 50%. The machinery includes: automated blast machine; laser marker for increased accuracy; water jet, which cuts plate up to eight inches thick; high definition plasma cutter for double-bevels to 1.5" thick; laser cutter for plates to ¾" thick.

VIRGINIA CAPEX Program

The overarching vision for the VIRGINIA Class Improvement Initiative is to provide greater value to the Navy by reducing the cost of VIRGINIA Class construction. To achieve this vision, it is our intent to establish a more affordable and sustainable VIRGINIA Class co-production build plan by leveraging the strengths of respective facilities to realize greater production efficiency; achieve a reduction in total shipyard labor hours for construction; achieve a reduction in cycle time for final outfit, test, and delivery; and improve the combined learning curve efficiency. This initiative is enabled through the VIRGINIA Class Capital Expenditure or CAPEX Program.

The Block II VIRGINIA submarine construction contract ties \$231M of profit to five specific incentives: labor cost control; material cost control on 35 major components that drive CFE material cost; schedule performance on key construction events; total cost performance; and CAPEX. CAPEX provides profit incentives of up to \$91M to the shipbuilders to invest in facilities and process improvement projects that provide cost savings to the program. The contractors prepare a business case analysis for potential projects which is then presented to the Navy for review and approval. Approval is at the sole discretion of the Government and based upon the Government's determination that the proposed project is in the best interests of the VIRGINIA program. Within thirty days after approval by the Government and commencement of a project, a Special Incentive not to exceed 50% of the estimated investment cost is paid to the shipbuilder. Upon successful implementation of the project, an additional Special Incentive not to exceed 50% of the original estimated investment cost is then paid to the shipbuilder.

To date, \$36M of the potential \$91M CAPEX incentive payments have been earned by Electric Boat and Northrop Grumman Newport News. Three infrastructure improvement projects at EB have been completed with CAPEX funding:

Light Metal Fabrication Facility



Module Transportation & Facilitization Project



Coatings Facility

Over 3 million manhours of savings for ships in the VIRGINIA submarine program through these three initiatives.

The Light Metal Fabrication Facility project is designed to achieve a step change in cost, accuracy, expanded capabilities, and performance of light metal fabrication and structural assembly of VIRGINIA Class components. The savings will be accomplished by the reduction in labor hours performed during the manufacturing and assembly process for light metal assemblies. The scope of light metal fabrication and assemblies work includes ventilation assemblies, joiner type work, stowage & lockers, consoles and special fittings. Ground breaking for the facility took place in November 2004. The

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facility achieved full on-line capability in November 2005. The state-of-the-art technology and machinery, with its sorting, cutting, punching, bending and shaping capability, is considered the most advanced facility of its kind in the United States. The forecasted gross total VIRGINIA Class cost saving for the \$10M investment is \$31M. In addition to the cost benefits, the new machines and process flow will help to improve worker safety as well as the quality of the parts, and ultimately the final product, through greater accuracy and precision.

The VIRGINIA Class Submarine Coatings Facility is a self-contained, environmentally controlled building with requisite systems and equipment to support cost-effective application of coatings associated with submarine construction in both axis-horizontal and axis-vertical orientations. These coatings include tile and mold-in-place (MIP) special hull treatment (SHT), high solids and traditional epoxy paints, sound-damping, anti-sweat, and various other coatings. The Coating Facility includes equipment for complete surface preparation of internal ship structures and tanks, main ballast tanks, hull cylinders and ship sections, and a mechanized blasting system for exterior hull surfaces. The Coatings Facility will accommodate improved construction sequence and shorten final assembly time. The Coating Facility Project will enable a total savings of approximately \$139M for the VIRGINIA Class through the investment of ~\$9.4M.

The Module Transportation & Facilitization Project will increase the level of submarine modular construction efficiency by developing a transport system and infrastructure that transports modules up to 2,000 tons, versus the previous 1,580-ton system. This project will reduce VIRGINIA Class construction cost by enabling maximum submarine modular construction. Implementation of this project permits the creation of four essentially complete modules that are shipped to the final assembly facility. The completion of this additional work in a shop environment enables a reduction in construction risk by enabling earlier testing and alignment of critical systems and components. Increased module outfitting increases module weight from 1,580 tons (the heaviest module currently shipped) to ~2,000 tons. Overall module lengths will also increase to a maximum of 120 feet. To accommodate the heavier, longer modules, capital

improvements were required to the existing support and transfer / transport system. This increase in efficiency results in approximately \$12M in cost savings for Block II and approximately \$99M over the VIRGINIA Class for an investment of \$13.1M.

There is a balance of approximately \$55M remaining in the pool of funding available for Block II CAPEX. Several other capital investment efforts are planned at both Electric Boat and Northrop Grumman Newport News. Electric Boat plans include upgrades to the Groton shipyard's Land Level Ship Construction Facility (LLSCF) built in the early 1970s specifically for OHIO Class construction. The purpose of this CAPEX project is to create a manufacturing environment that facilitates the most efficient and cost-effective VIRGINIA Class Final Assembly & Test approach. The proposed upgrades and modifications to the LLSCF are part of a plan that re-engineers the overall Final Assembly & Test process and leverages other ongoing lean manufacturing initiatives in Groton operations.

Ability to support acceleration of 2 ships per year

Infrastructure

Key facilities are in place to support the higher throughput of VIRGINIA Class submarines planned for FY12. Electric Boat made significant facility investments during the 1970s and 1980s to efficiently support the Cold War submarine procurement rate and to accommodate new methods of construction. These improvements included the Land Level Ship Construction Facility (LLSCF) at Groton to replace the traditional inclined building ways hull erection and launch, and automated pressure hull section construction at the Automated Frame and Cylinder (AFC) facility in Quonset Point. The LLSCF enabled modular construction with larger, heavier, and more completely outfitted hull sections, a dramatic improvement over the traditional inclined building ways. The AFC enabled Electric Boat to reduce associated structural trade manhours by approximately 75 percent and produced units with greater dimensional accuracy to enable the more extensive and efficient modular outfit of the SEAWOLF and VIRGINIA Classes.

During the Cold War, Electric Boat had sized its production facilities to the prevailing workload, with capacity based on a throughput of two 18,750-ton ballistic missile submarines (SSBNs) and three 6,900-ton attack submarines (SSNs). In the early and mid 1990s Electric Boat re-engineered and re-aligned its production facilities to affordably operate in a Low Rate Production environment of approximately one submarine delivery every other year. Obsolete and redundant equipment was eliminated, almost half of the leased property at Quonset Point was returned to the State of Rhode Island, and over 45 buildings were demolished at Groton. Some decisions were fairly easy to make, either because the equipment in question was easily replaceable (e.g. portable welding machines), or because the facility was already approaching obsolescence (e.g. the sliding ways on which the attack submarines had been built). In some cases, such as the massive fixtures used to assemble pressure hull cylinders in the Automated Frame and Cylinder Facility (AFC) at Quonset Point, there were redundant fixtures so that a few of each kind could be removed from production, reducing capacity but not diminishing capability.

At Quonset Point, the manufacturing shops such as steelwork, sheetmetal, pipe, electrical, and machining all have the capacity required, especially as many currently operate on essentially a single-shift basis. As already noted, the AFC, even with some fixtures removed, can accommodate increased production, and we have the space to outfit and test complete modules. At Groton, the LLSCF was originally sized to produce two SSBNs per year, and can handle up to three SSNs per year, or three times the expected increase. The “COATS” (Command & Control System Module, Off-hull Assembly and Test Site) Facility is a unique land based integration and test facility for Virginia Class combat systems modules and electronic equipment. This facility is already capable of handling up to two ships per year and would not require duplication, but would require some modification to accommodate the additional volume. The bottom line is that with minimal investment, Electric Boat would be fully facilitated and equipped to produce up to three attack submarines per year. The facility costs to increase production would include increased quantities of tools and equipment, including such items as certain unique jigs, fixtures, and facilities associated with the VIRGINIA Class.

People

Increasing the production workforce will be challenging, but recent experience demonstrates that we can accomplish the build-up satisfactorily. Along with the facility reductions during the 1990s, the production workforce also shrank significantly. From over 12,000 individuals directly supporting construction contracts in 1992, only around 4,000 were similarly engaged when LRP was reached in 1998. The reduction of construction personnel coupled with a similar reduction in engineering, submarine maintenance, administrative, and overhead personnel took Electric Boat from a total employment of around 18,000 in 1992 to just over 8,000 in 1998. Despite the drastic reductions, care was taken to ensure that all critical production knowledge and skills were retained in the down-sized workforce, and that we would have the correct cadre of individuals to serve as mentors when the workforce had to grow again.

Starting from a low of approximately 1,500 in 1999, the Groton Operations workforce increased from its LRP level to approximately 3,000 by the end of 2003. The increase over this timeframe was driven by a combination of work on the first VIRGINIA Class SSN, completion of the Multi-Mission Platform (MMP) modification and delivery of the USS Jimmy Carter (SSN-23), and resumption of submarine maintenance activity to accommodate overflow from the naval shipyards that increase represented a more complex workforce management problem than the future VIRGINIA Class ramp-up.

This doubling of the workforce, in four years, is significantly more (and faster) than the 500 total employment increase (starting from around 1,300 on roll) required over 3 years to accommodate the VIRGINIA Class 2-per-year production rate.

Similarly, over the years 2000 through 2004, the Quonset Point facility increased its workforce from a low of approximately 1,300 to 2,000 employees, with the increase attributable to work on the MMP and on manufacturing for the SSGN conversions performed at the Puget Sound and Norfolk Naval Shipyards. This growth rate exceeds

the less than 30% increase, from 1,400 to 1,800, which will be required in 2012 through 2015 for the VIRGINIA Class ramp-up.

Our primary concern is not so much the ability to ramp up, but rather the ability to avoid the cyclic labor demand manifested by Low Rate Production. The Groton waterfront trades face workload swings of 50% per year until the ramp up to 2 ships per year is felt. These cycles challenge our ability to retain our critical skills and create labor inefficiency. As noted above, these swings were previously mitigated by work on SSGN conversions, SSN23 special hull section design and construction, and submarine maintenance work. Continued participation in future maintenance work will preserve key skills and capabilities as well as ensuring lower labor rates.

During our earlier build-up, we continued to deliver quality products, affordably, and on schedule, and we intend to do the same as the VIRGINIA program ramps up.

Funding Alternatives

Alternative funding approaches could provide the means to further reduce the cost of ships. In exploring possible alternatives, we must ensure that the requirements of all constituents are considered. Industry objectives focus on ensuring business stability, an ability to manage risk, and delivering value to all business stakeholders: customers, shareholders, and employees. Customers intend to meet all funding requirements, acquire quality products and services at affordable prices, and to maintain necessary program and contract oversight and control. Finally, Congress weighs the benefits of various funding approaches and potential cost savings.

To date, VIRGINIA ship acquisition has been funded with the traditional “full funding” policy. Specifically, each ship is funded through the use of Advance Procurement (AP) funding in each of the two years prior to full funding. This AP funding is used to purchase long lead time components and material. In the case of the Block II ship

construction contract, the customer utilized a Multi – Year contract, with Economic Order Quantity (EOQ) funding to purchase multiple ship sets of material to achieve cost reductions. This approach is also planned for the upcoming Block III ship construction contract.

Electric Boat recommends two changes to the Navy’s FY08 VIRGINIA funding plan.

First, we recommend that Congress add \$70M in SCN AP funding to the FY08 budget for the FY09 ship. This additional AP will be used to procure additional material and components. Additionally, we would look to use a portion of this funding to allow advance construction activity at the shipyard, a key step to achieving schedule improvements and cost reductions.

Second, we recommend that Congress authorize the Navy to procure a spare main propulsion unit in FY08 and approve an additional \$115M in OPN funding for this component. Ordering a shipset of this machinery with OPN funds in FY08 sustains the workforce for the vendor and results in significant cost savings for the next Multi-Year ship procurement. Ordering and having this shipset of machinery available to the shipbuilder ensures that material will be available to the shipbuilder on time, enabling us to further reduce VIRGINIA construction schedules. Absent the need during program production, the ship set would be available for installation on the last ship of the class or remain a spare at the Government’s discretion.

Looking to the future, we continue to look to new and innovative means to fund major ship programs in an effort to drive out cost. Some alternatives include:

1. Maintaining the current full funding approach, but providing AP for shipbuilders to accelerate construction start in advance of full funding in order to achieve more efficient construction schedules and maintain a more level-loaded and efficient workforce.

2. Increasing the use of EOQ funding, within Multi-year contracting, will help to achieve greater cost savings in the procurement of material and engineered components.

3. Alternatives to Full Funding where funding is allowed to be spent as appropriated rather than phased over several years for each individual ship.

The Navy, last month, issued their “Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for FY2008”. In their report, the Navy identified several specific efforts aimed at maintaining control of requirements growth and ship costs. Within this list was the following:

“The Navy plans that make greater use of contract incentives, such as steep share lines combined with performance incentives, Multi-Year procurements, fixed price contracts (when and where appropriate), are expected to contribute to real cost containment in future shipbuilding plans.”

We look forward to working with the Navy and the Congress in the pursuit of new and innovative funding and contracting strategies, toward the goal of delivering the highest quality and most affordable ships to the Navy.

Summary

The VIRGINIA Class Program is well on its way to becoming a benchmark DOD acquisition program in terms of cost, schedule and performance. With three ships delivered and construction progressing smoothly on the remaining ships under contract, VIRGINIA is a mature program with demonstrated success. As a mature program, it is not subject to the risks inherent in new development programs and it is incumbent on the shipbuilders to focus our efforts on program execution and unit cost reduction. To this

end, Electric Boat and Northrop Grumman Newport News are sharply focused on achieving the VIRGINIA cost challenge.

Procurement of VIRGINIA Class submarines can be more efficient. Your understanding and ability to change the acquisition approach for future ships will be a key factor in helping us deliver the lowest cost submarines. Your continued support for submarine programs is critical to our success. I sincerely appreciate your efforts to visit our shipyards and understand the issues we are facing and welcome you to return to Electric Boat in the future.