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TESTIMONY OF

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(INDUSTRIAL POLICY)

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PROJECTION FORCES SUBCOMMITTEE

ON THE U.S. SHIPBUILDING INDUSTRIAL BASE

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Global Shipbuilding Industrial Base Benchmarking Study Part I, Major Shipyards

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(Industrial Policy)

Chairman Bartlett, Mr. Taylor and Members of the Committee:

Thank you for the opportunity to appear before you and discuss the United States shipbuilding industrial base.

Before beginning that discussion, I'd like to summarize the mission of the Industrial Policy organization in the Office of the Secretary of Defense. Fundamentally, the mission of the Industrial Policy organization is to help the Department of Defense (DoD) create and sustain an environment that ensures the industrial base on which it depends is reliable, cost-effective, and sufficient to meet DoD requirements.

DoD research, development, and acquisition, and associated policies and program decisions, play the major role in guiding and influencing the industrial base by focusing market demand across a broad spectrum of industry segments to meet emerging and projected DoD requirements. Specifically, the Industrial Policy organization works to leverage the Department's weapon system acquisition policies and decisions to strengthen needed technological and industrial capabilities; provide advice to the antitrust agencies as they make decisions on defense-related mergers and acquisitions that shape the financial and competitive structure of the industry; conduct and support evaluations and assessments of sectors or specific industry issues to help inform future budgetary and programmatic decisions; and incorporate industrial base policies into acquisition regulations and strategies on an ongoing basis to promote competition and innovation, and in specific cases to preserve critical defense industrial capabilities and technologies.

The Industrial Policy organization normally conducts "DoD-wide" industrial assessments that evaluate and address changes in key system, subsystem, component, and/or material providers that supply many programs; and that affect competition, innovation, and product availability for multiple programs. DoD Components conduct their own assessments when: (1) there is an indication that industrial or technological capabilities associated with an industrial sector, subsector, or commodity important to a single DoD Component could be lost; or (2) it is necessary to provide industrial capabilities information to help make specific programmatic decisions. These assessments generally are conducted, reviewed, and acted upon internally within the DoD Components.

Nevertheless, because of the critical importance of U.S. shipbuilding, the Industrial Policy organization contracted with the world-recognized shipbuilding consultancy firm First Marine International, Limited (FMI) to support a Global Shipbuilding Industrial Base Benchmarking Study (GSIBBS) in early 2004. With the study already underway, Section 1014 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 directed the Secretary of Defense to submit to the congressional defense committees an independent study to assess the cost effectiveness of the Navy ship construction program. Accordingly, the Department adjusted its plans and, in January 2006, submitted First Marine International's findings as the independent study required by Section 1014. This study compared the practices of U.S. and selected leading international commercial and naval shipbuilders in Europe and Asia and identified specific changes to U.S. shipbuilding industry processes and to U.S. naval design and acquisition practices that could improve the performance of the shipbuilding enterprise.

Members of the FMI team have worked on projects in over fifty countries involving some of the largest and most successful shipyards in the world. Members of FMI developed a

benchmarking system first used to support the nationalization of the British shipbuilding industry in the mid-1970s and has since applied the system in over 150 shipyards world wide for several major sector studies. FMI used its proprietary benchmarking system in a 1999/2000 study for the National Shipbuilding Research Program to establish a baseline measure of performance of the U.S. shipbuilding industry measured against international commercial and naval practices. Choosing FMI for the follow-on survey leveraged their demonstrated knowledge and expertise, enabled comparisons with the 2001 study to show how the industry fared over time, and provided the domain expertise of an independent, outside source for the assessment.

The U.S. shipbuilding industry has made significant strides over the past five years to improve shipbuilding practices. The overall benchmarking average for the U.S. shipyards increased from 3.1 in 1999/2000 to 3.6 in 2004 (on a scale of 1 to 5). Industry capital investment also substantially increased from the 2004 Maritime Administration Survey of U.S. Shipbuilding Repair Facilities. Actual industry capital investments more than doubled from just over a billion dollars in the five years preceding the 1999/2000 NSRP study to over two billion dollars in the five years following. Several U.S. shipyards substantially increased capital expenditures, and most made a concerted effort to employ a higher level of technology. The technology gap between the U.S. industry and leading international shipbuilders is closing. However, there still are large technology gaps in some U.S. shipyards that present opportunities to make further substantial improvements, particularly in the pre-production functions which include design, production engineering, and planning.

- Currently, U.S. shipyard core productivity has been estimated to range between 30 and 60 manhours per compensated gross ton (CGT) Higher performing U.S. shipyards are

approaching the core productivity levels of the best international naval shipyards, while still significantly trailing that of high-output international commercial shipyards. If U.S. shipyards realized the full potential of their manufacturing best practices and were able to maintain core productivity, overall productivity could improve as much as 50 percent.

- This study estimated the “customer factor,” the cost premium for doing work for the U.S. government, to be a minimum of 1.10 (in other words, a ten percent “premium” added to cost) for auxiliary vessels, 1.15 for combatants, and likely much higher for complex nuclear combatants. Elements of this factor include instability in the acquisition program, the management of change orders, contract terms and conditions, the design process and oversight. The FMI study recommends the Navy, with input from industry, review the practices and procedures contributing to this cost premium and eliminate non-value added practices and revise others to reduce the cost burden.
- Additional focus in the area of Design, Engineering, and Production Engineering could produce great improvement. With seven new designs (LCS Flight 1, DD(X), CG(X), LHA(R), MPF(F), SSBN(X), CVN 21) to be built in the 2007-2020 timeframe, this area offers the greatest leverage—in terms of cost benefits associated both with state-of-the-art manufacturing practices and new vessel designs that would facilitate a move to 21st century manufacturing processes. Optimizing ship designs to reduce work content in U.S. naval vessels would not only provide the greatest core-productivity benefit, it could substantially reduce the first-of-class performance drop-off specific to each new ship series planned.

Design improvements and the reduction of work content and complexity of naval

combatants is exemplified in the Navy's substantial reduction in unique parts between the Cold-War era SEAWOLF class submarine design and the VIRGINIA class. In a clean-sheet design, industry and the Navy reduced design complexity from about 100,000 unique parts in the SEAWOLF to about 18,000 parts, or one-fifth, in the VIRGINIA design. Through design-for-production techniques that included outfit module-building, significant pre-erection outfitting, and a substantial reduction in parts complexity, the VIRGINIA design will result in hundreds of millions of dollars in cost avoidance over the life of the acquisition program. The Navy has recently taken a significant step toward reducing the customer factor by stabilizing the shipbuilding plan within planned budget constraints. This action, combined with carefully crafted contract incentives as recommended in the study, could reduce the industry risk associated with shipyard capital investment and catalyze continuous improvement and industry cost savings.

We concur with FMI's recommendation for continued industry and government support of organizations that focus on industry improvements, including the NSRP, the Office of Naval Research, MANTECH, and the Center of Naval Shipbuilding Technology. There is strong evidence that NSRP played an important role in facilitating the improvements seen in the industry since 1999.

In a follow-on effort to increase our shipbuilding sector body of knowledge to effect informed Defense Department acquisition decisions, we have commissioned a part two of the Global Shipbuilding Industrial Base Benchmarking Study focused on mid-tier domestic shipyards. In this study, we are particularly interested in the impact on productivity attributable to lower overhead operations in a sector configured to meet market requirements for a variety of customers rather than essentially one customer, the U.S. government, who holds significant

market power.

In closing Mr. Chairman, thank you for the opportunity to testify before the Committee about the shipbuilding industrial base. I would be pleased to answer any questions you and the Members of the Committee may have.