Written Testimony of

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"Addressing the challenges to America's military shipbuilding industrial base in an era of strategic competition with the Chinese Communist Party"

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Chairman Moolenaar, Ranking Member Krishnamoorthi, and members of the Committee, thank you for the opportunity to testify about the multifaceted challenges facing America's military industrial base in an era of strategic competition with the Chinese Communist Party (CCP).

This is the third time I have offered testimony to the U.S. House of Representatives on the military-economic dimensions of the U.S. – CCP competition. Previously, I served as the Deputy Assistant Secretary of Defense for Industrial Policy and the Chief of Staff to the U.S. Defense Secretary. While in this capacity, and in direct response to the threats to the U.S. industrial base from the CCP's strategy of investment-driven technology transfer, I worked with Congress to modernize the Committee on Foreign Investment in the United States (CFIUS) through the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA).[1,2]

Per the direction of Presidential Executive Order 13806, I also led a multi-agency risk assessment of the manufacturing and defense industrial base. This assessment, which was delivered in October 2018, outlined a series of recommendations to ensure a robust, resilient, secure, and ready manufacturing and defense industrial base.[3]

I currently proudly serve as an Executive Vice President at HII, America's largest military shipbuilder. Each of our three divisions play a critical role in the generation of seapower in service of U.S. national security interests.

Our Newport News Shipbuilding (NNS) division is the sole designer, builder, and nuclear refueler of U.S. Navy aircraft carriers and one of only two U.S. shipyards capable of designing and building nuclear-powered submarines.

Our Ingalls Shipbuilding division is the only shipyard simultaneously building four classes of ships for the U.S. Navy and Coast Guard.

Our Mission Technologies division is the largest producer of underwater unmanned vehicles (UUV) in the world. Given the rapidly evolving role of uncrewed systems on the multi-domain battlefield, we capitalize upon and accelerate the adoption of disruptive commercial solutions to deliver warfighting advantage. A very current example of this transition of commercial technologies for the nation's benefit is the Lionfish UUV program, where HII, in partnership with the Defense Innovation Unit (DIU), was the first to successfully transition a prototype Other Transaction Authority (OTA) into a FAR-based production contract, effectively pathfinding this accelerated acquisition tool for the Navy.

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[1]Evaluating CFIUS, Administration Perspectives: U.S. House of Representatives Subcommittee on Monetary Policy and Trade, 115th Cong. (2018) (Testimony of Eric Chewning) https://financialservices.house.gov/uploadedfiles/hhrg-115-ba19-wstate-echewning-20180315.pdf

[2] Military Technology Transfer: Threats, Impacts, and Solutions for the Department of Defense: U.S. House of Representatives Committee on Armed Services, 115th Cong. (2018) (Testimony of Eric Chewning) https://www.congress.gov/event/115th-congress/house-event/LC64148/text

[3]Deputy Secretary of Defense delivers Defense Industrial Base Report to President Trump. *U.S. Department of Defense,* Oct. 2018. https://www.defense.gov/News/Releases/Release/Article/1655781/deputy-secretary-of-defense-delivers-defense-industrial-base-report-to-presiden/

The challenges facing today's shipbuilding industrial base are the result of a series of decisions made over decades. During our last period of great power competition, as represented by the Reagan administration's Navy-build up, U.S. industry was striving towards a 600-ship fleet.

As the geopolitical context changed in the post-Cold War period of the 1990's and 2000's, U.S. policy makers reduced spending on shipbuilding and pursued trade policies that encouraged the de-industrialization of the American economy and promoted manufacturing growth in lower cost countries like the People's Republic of China. As a direct result, the domestic manufacturing supply base and workforce so critical to military shipbuilding declined significantly as the U.S. Navy's fleet shrank to 271 ships in 2015.

The industrial base impact was profound and severe. Six of the 12 major shipyards closed, triggering a cascading reduction on investments in supply chain, workforce, and technology modernization.[4] The supply base for submarines shrank by over 80% and 40% of the private sector shipbuilding jobs that existed in 1980 ceased to exist. Capital expenditures to upgrade manufacturing technologies at shipyards were simply cast aside so that the shipyards could stay afloat. A once vibrant national asset was brought to its knees.

Following this hollowing out in the 1990's and early 2000's, the geopolitical environment reverted and subsequently the industrial base faced a rapid rise in demand with procurement of the *Ford* aircraft carrier in 2008, the doubling of *Virginia* Class SSN procurements in 2011, and *Columbia* Class SSBN procurement starting in 2020. This upswing in demand generated efforts to revitalize the shipbuilding industrial base, and they showed measurable progress, with *Virginia* Class submarine throughput reaching 1.8 submarines per year in 2019. Unfortunately, these initial gains were subsequently halted by the global supply chain and workforce disruptions caused by the COVID-19 pandemic, immediately followed by a surge in inflation.

To put this decline into context, between 1981 and 1998, NNS delivered five Nimitz-Class aircraft carriers in a 17 year period or one every 3.4 years. In contrast, between 1998 and when USS John Kennedy (CVN 79) is scheduled to deliver, NNS will construct four CVNs in a 28 year period or one every 7 years.

The submarine industrial base has similarly atrophied. Between 1981 and 1995, NNS and Electric Boat delivered 59 *Los Angeles* Class SSNs, an average of 4.2 per year. Today the build rate for *Virginia* Class SSNs is averaging just over 1.2 per year.[5]

While the pandemic disrupted every sector of our economy, its impact on the shipbuilding industry was particularly traumatic. The pandemic accelerated retirements of many of our most experienced 4th and 5th generation shipbuilders, thinning the yard of this critical knowledge base and in many cases breaking a chain in families that had made shipbuilding their tradition.

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[4] "Decline in U.S. Shipbuilding Industry: A Cautionary Tale of Foreign Subsidies Destroying U.S. Jobs." *The Eno Center for Transportation*, Sept. 2015. https://enotrans.org/article/decline-u-s-shipbuilding-industry-cautionary-tale-foreign-subsidies-destroying-u-s-jobs/

[5] Wilson, Nick. "Navy 'finishing up' contract negotiations for FY-24 Virginia subs despite $1.95B funding shortfall." *Inside Defense,* Nov. 2024. https://insidedefense.com/daily-news/navy-finishing-contract-negotiations-fy-24-virginia-subs-despite-195b-funding-shortfall

Attrition rates jumped to double that of previous years and altered the demographic complexion of the shipbuilding workforce. Supplier lead times also increased up to 5x what they were in 2019. Shipbuilding material costs have increased 30% since January 2020, with similar inflationary pressures affecting the supply chain and workforce.

Military shipbuilding is a uniquely long cycle, capital intensive activity in support of one dominant customer – the U.S. Navy. Unlike other industries where market forces will spread inflationary costs between suppliers and customers, the economics of shipbuilding are determined by just a small handful of Navy contracts. For HII, the vast majority of its shipbuilding contracts were priced and negotiated pre-COVID. These long-term agreements locked in assumptions around material and labor costs that are significantly out of cycle with the current post-COVID reality. Unless there is retroactive support to adjust these contracts for the current inflationary environment, shipyards will not have sufficient financial capacity to make the necessary workforce and capital investments to support the elevated build rates necessary meet our national security goals and mitigate competition risk with the CCP.

To strengthen our shipbuilding industrial base and support the elevated build rates to compete with the CCP, we are focused on five actions:

- Grow and retain a world class workforce
- Invest in new technologies to drive deck-plate performance
- Modernize infrastructure and expand shipyard capacity
- Rebuild our supply chain
- Integrate the allied industrial base

To be clear, this is a true government and industry team effort that will require sustained focus. Reversing the decades-long industrial base decline will not be easy and will take dedication and time. Success requires continued partnership, support, and alignment across the Congress, the U.S. Navy, state and local governments, and industry.

Grow and retain a world class workforce

HII employs over 35,000 shipbuilders across multiple states. Shipbuilding requires a broad range of engineering and tradespeople, like welders, mechanics, pipefitters, plumbers, machinists, and electricians. Proficiency in these skills takes many years. HII recruits and trains its shipbuilding workforce through a network of internal and external development programs. For example, The Apprentice School at NNS was founded in 1919 and is the country's preeminent apprenticeship program. The school offers four-, five-, and eight-year apprenticeships in nineteen shipbuilding disciplines and eight advanced programs of study.

HII hires from over 80 trades schools and has partnerships with organizations, such as the Hampton Roads Workforce Council and Marines Trades Training Program, to improve training and increase interest in maritime industries. Federal and state efforts to increase funding for, and expand access to, trade skills programs are critical to growing the shipbuilding workforce.

But growing the workforce is not enough. We also need to retain the talent. Our shipbuilding **workforce is currently suffering double-digit attrition** due to our inability to increase wage

rates to keep pace with inflation. Manufacturing wages have increased by 22% in the post-COVID economy and retail and service industry jobs now offer comparable starting pay to many shipbuilding trades[6]. Because the vast majority of HII's contracts for nuclear-powered ships were priced and negotiated pre-COVID, they do not reflect current economic realities and lack the mechanisms for dealing with the external supply shocks from the pandemic.

This is why an alternative contracting approach is critical. Specifically, implementation of the Shipbuilder Accountability and Workforce Support (SAWS) initiative. The SAWS approach will empower both nuclear shipyards to increase wages in order to improve workforce recruitment and decrease workforce attrition. It will also hold shipyards accountable for accelerating capital investments. The ability to increase wage rates though a mechanism like **SAWS, is the single biggest industrial base enabler for meeting the U.S. Navy's goal of producing 2.3 nuclear-powered attack submarines per year.** And as noted in a recent U.S. Naval Institute article, "the future of undersea warfare is likely to be a major determinant of the long-term military balance between China and the United States."[7]

Invest in new technologies to drive deck-plate performance

Tighter labor markets and higher attrition result in both labor shortages and less experienced workers. The magnitude of the issues simply cannot be addressed with hiring alone. With 2.1 million U.S. manufacturing jobs expected to go unfilled by 2030[8], industry needs technology investments to increase productivity with a less experienced workforce.

HII is implementing technologies such as automated welding, AI-assisted scheduling, and additive manufacturing, which will increase shipyard throughput. However, because of underinvestment in the post-Cold War period and challenges making technology leaps during continual production of existing ship designs (e.g., upgrading to digital design), the digital baseline of the shipyards is far behind other heavy manufacturing industries. To accelerate digital transformation, HII has embarked on a broad set of external partnerships. For example, earlier this year HII signed a strategic agreement with Amazon Web Services to collaborate on digital shipyard transformation and augment existing capabilities in the areas of AI, machine learning, edge computing, and cloud migration and modernization, to drive improved first-time quality in manufacturing.[9] In addition, HII is pursuing partnerships with new digital engineering and manufacturing technology providers who can help bring "Industry 4.0" to the shipyard.

Even with such partnerships, it will take additional shipbuilder investment to fully realize these benefits. **Again, SAWS offers the solution.** This contracting approach provides a creative mechanism to immediately offset some of the inherent economic challenges of shipbuilding,

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[6] BLS Data Viewer. *Bls.gov*, November 2024. https://data.bls.gov/dataViewer/view/timeseries/CEU3000000008

[7] Sweeney, Mike. "Submarines Will Reign in a War with China." *U.S. Naval Institute*, March 2023. https://www.usni.org/magazines/proceedings/2023/march/submarines-will-reign-war-china

[8] Walsh, Steve. "New Navy ships are years behind schedule, because manufacturers can't find workers to build them." *Texas Public Radio*, 1 May 2024. https://www.tpr.org/military-veterans-issues/2024-05-01/new-navy-ships-are-years-behind-schedule-because-manufacturers-cant-find-workers-to-build-them

[9] HII Signs Strategic Collaboration Agreement with AWS to Fast-Track Mission-Critical Capability Development - HII

enabling the shipyards to invest in manufacturing automation, shipyard digital twin, additive manufacturing, and generative AI.

Modernize infrastructure and expand capacity

Increasing throughput over 5x from post-Cold War lows requires expansion and modernization of shipyard infrastructure. Underinvestment during low-rate production and increasing demand on existing assets has resulted in suboptimal production flows and a high portion of assets nearing the end of their useful life.

HII has invested over $4.1B in expanding and modernizing shipyard capacity in the last 11 years.[10] More recently, HII invested 53% of its cash flow into shipyard-related capital between 2019 and 2023. However, military shipbuilders have the highest capital costs and lowest operating profit in the defense industry, limiting the ability for shipyards to reinvest. For example, between 2021 and 2023, shipbuilders reinvested 4.7% of shipbuilding revenues into capital expenditures while other defense primes only reinvested 2.8% of their sales into their manufacturing base. Contrast that against an average shipbuilding profit margin of 6.8% between 2021-2023 compared to 10.2% average profit margins for the other defense primes. In a market-based economy, as opposed to the CCP's state-driven economy, private investment flows to the areas of highest return and shipbuilding's poor structural economics make it challenging for industry to respond despite the emergent need.

HII and the Navy have identified critical capital investments required to expand capacity, streamline production flow, and modernize existing infrastructure. Remediating this imbalance requires collaboration between industry and government to prioritize capacity shortfalls through contract incentives, maritime industrial base funding, and SAWS.

Rebuild the supply chain

Since the end of the Reagan-era build up, there has been an 80% reduction in the submarine supplier base.[11] As a result, the shipyards are increasingly dependent on one supplier for critical components. Approximately 70% of HII's material spending on sequence critical items is to sole-source suppliers. In a post-COVID environment, this has manifested in increasingly longer and more uncertain lead times for equipment.

To rebuild the supply chain, Congress appropriated $3.3B in Submarine Industrial Base (SIB) funding with the FY24 Emergency Supplemental (Public Law 118-50), and the White House has requested a further $3.9B in FY25 and $11B across the FYDP in the FY25-29 President's Budget Request.[12] Submarine industrial base commitments have been coupled with nearly $1B in investment in the Surface Combatant Industrial Base (SCIB) since 2020. As Assistant Secretary of the Navy for Research, Development and Acquisition, Nickolas Guertin, testified

[10] HII Investor Day Materials. March 2024. https://s29.q4cdn.com/772422961/files/doc_presentation/2024/24-03-20-_HII-Investor-Day-Final.pdf

[11] Salisbury, Emma. "The Sinking Submarine Industrial Base." *War on the Rocks*, October 2023. https://warontherocks.com/2023/10/the-sinking-submarine-industrial-base/

[12] https://www.secnav.navy.mil/fmc/fmb/Documents/25pres/DON_Press_Brief.pdf

before the Senate Appropriations Committee Subcommittee on Defense on May 15, 2024, "The unprecedented demands on the SIB requires a whole-of-nation effort."[13] Accelerating the deployment of this funding to the supply base is critical to strengthening the supply base in the near and long term. In addition to accelerating the deployment of this funding into the supply base, new technologies like additive manufacturing are necessary to address bottlenecks in the supply chain.

Beyond this direct support, HII will outsource over 1 million hours of work to its supply base and plans to grow outsourcing by over 30% from 2024 to 2025. This strong demand signal will give small- and medium- sized businesses improved confidence to invest in their own capacity and workforce, contributing to supply base revitalization.

Integrate the allied industrial base

To meet our national security goals and compete with the CCP, we must successfully integrate the allied industrial base. The enhanced trilateral security partnership of AUKUS has provided a generational opportunity to integrate and expand supply chains in Australia, the UK, and the U.S. Uplift and integration of Australian and UK suppliers into the U.S. supply chain is critical to achieving the AUKUS Optimal Pathway, addressing U.S. supply chain gaps, and supporting capability uplift, security, quality, and resilience of the shipbuilding industrial base. Immediate action is needed in identifying, developing, and qualifying Australian and UK Suppliers into the U.S. system. However, there are significant cost and resourcing requirements associated with this activity.

HII has proactively self-invested in significant efforts to uplift and integrate Australian and UK suppliers into the U.S. submarine industrial base. This year, HII kicked off Supplier Uplift and Training (SUAT) pilots in South Australia and Western Australia to accelerate uplift of Australian Suppliers that are best suited to help *Virginia* Class submarine supply chain delivery, performance, and risk areas. Earlier this year, HII made a historic purchase of Australian steel which marked the first integration of an Australian company into the NNS supply chain. To strengthen efforts, HII established a joint-venture, H&B Defence, with UK shipbuilder, Babcock International, in Australia to focus on workforce development, infrastructure and supply chain uplift. Through its corporate parents, H&B Defence leverages over 100 years of collective naval nuclear experience across the U.S and UK to support Australia and AUKUS.

These first steps are the start of a much larger undertaking as Australia plans to invest USD $3 billion into the U.S. shipbuilding industrial base over the next five years. Direct government funding to expand key programs like SUAT is essential to successfully integrate the industrial base. In addition, continued pursuit of broad regulatory reform is imperative to enabling interchangeable capability among the tri-lateral partners.

Beyond AUKUS, HII is looking at opportunities to share lessons learned with commercial shipbuilders in Japan and Korea. While the size of their operations and strategic geographic

[13] Subcommittee on Defense of the Senate Appropriations Committee on Industrial Base Challenges (2024) (Testimony of Nickolas Guertin)
https://www.appropriations.senate.gov/imo/media/doc/download_testimony62.pdf

positioning offer potential opportunities, it is important to calibrate these insights, given the differences in commercial and military ship design and construction.

What's more, because of CCP industrial policy, there is global over-capacity in the commercial shipbuilding sector. While the three largest shipbuilding firms in China, Korea, and Japan account for 75% of world shipbuilding capacity, as the Congressional Research Service points out, "even the most successful shipbuilding firms in Korea and Japan often operate at a loss…Korean shipbuilders have repeatedly required large government bailouts, which have prompted World Trade Organization disputes from Japan and Europe."[14]

In Conclusion

The nation's ability to rapidly scale the shipbuilding industrial base requires new approaches to old problems. Innovative solutions, like SAWS, are necessary to enable industry to invest in new infrastructure and process technologies as well as increase manufacturing labor salaries to retain talent and achieve necessary operational efficiencies. Contracting reforms like SAWS have bipartisan support in Congress and represent government and industry partnership to advance American security interests in its competition with the CCP.[15][16]

I want to thank this Committee and its previous Chairman, Congressman Mike Gallagher, for your collective leadership on this issue. I want to thank our warfighters for all that they do to keep us safe. And I thank America's shipbuilders. They are American men and women behind the scenes, building the ships that serve as sovereign U.S. territory – protecting our military, our allies, and our way of life.

[14] Frittelli, John. "U.S. Commercial Shipbuilding in a Global Context" *Congressional Research Service*, Nov. 2023 https://crsreports.congress.gov/product/pdf/IF/IF12534

[15] U.S. Senator Roger Wicker (R-MS). "Statement on Nuclear Shipbuilding Contract Reform Proposal." Sept. 2024. https://www.wicker.senate.gov/2024/9/senator-wicker-statement-on-nuclear-shipbuilding-contract-reform-proposal

[16] U.S. Senator Tim Kaine (V-VA), U.S. Senator Chris Murphy (D-CT), U.S. Senator Richard Blumenthal (D-CT). "Kaine, Murphy & Blumenthal Lead Colleagues in Asking Administration to Carefully Assess Proposal to Address Submarine Production Delays." Oct. 2024. https://www.kaine.senate.gov/press-releases/kaine-murphy-and-blumenthal-lead-colleagues-in-asking-administration-to-carefully-assess-proposal-to-address-submarine-production-delays