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Liberty Yards: The Case for Public Shipbuilding

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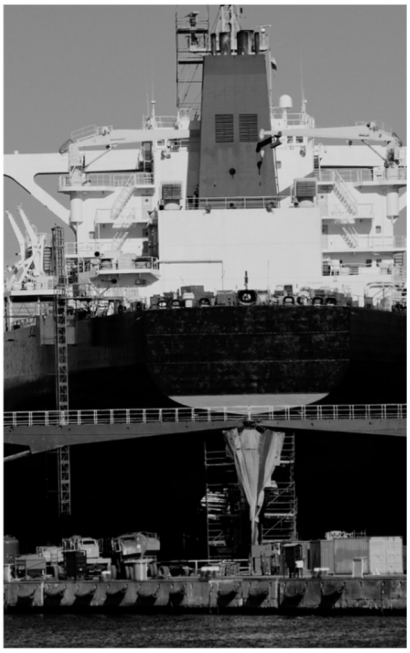

ABOUT THE VANDERBILT POLICY ACCELERATOR

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Executive Summary

The United States now builds less than 1% of the world's oceangoing commercial vessels.[1] China outproduces the United States in shipbuilding by roughly 200 to 1.[2] The workforce crisis in submarine construction is so dire that the Navy resorted to painting recruiting ads on the University of Alabama's football field.[3]

This is not a market failure. It is a policy failure—and it is fixable.

For decades, Washington has considered half-measures to address the industry's problems: subsidies meant to bridge cost gaps, calls for private capital to conjure up a turnaround, and scattered grants to sustain struggling shipyards. Current proposals—whether tariffs in the SHIPS Act or hopes that South Korean capital alone can spark a renaissance—confuse "signals" with "structure." Worse, they risk squandering the rare bipartisan recognition that a collapse of U.S. shipbuilding poses a national-security threat.

Liberty Yards offers a different path: not a single program, but a three-pillar strategy for sector-wide transformation.

First, build four modern public shipyards—Liberty Yards—in the nation's major maritime regions. Second, create a Maritime Infrastructure Bank to aggregate demand, finance modernization, and buy down transitional costs. Third, establish a Maritime Workforce Reserve with three components: a standing industrial workforce, training academies and apprenticeships, and a reserve corps that preserves surge capacity.

Together, the policies provide what U.S. shipbuilding needs and deserves: patient capital invested in strategically essential sectors where the United States retains real comparative advantages; high-quality jobs with stable benefits; and institutions that

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[1] Matthew P. Funaiole, Brian Hart, & Aidan Powers-Riggs, *Are U.S. Policies Eroding China's Dominance in Shipbuilding?*, CSIS (Sep. 24, 2025), https://www.csis.org/analysis/are-us-policies-eroding-chinas-dominance-shipbuilding.

[2] Laura Bicker, *China's navy is expanding at breakneck speed - and catching up with the US*, BBC NEWS (Aug. 31, 2025), https://www.bbc.com/news/articles/c4gmnpg31xlo.

[3] Press Release, University of Alabama Athletics, The University of Alabama and U.S. Navy Partner to Build Maritime Workforce Through 'Build Giants Alabama' Initiative (Sep. 3, 2025), https://rolltide.com/news/2025/9/3/general-the-university-of-alabama-and-us-navy-partner-to-build-maritime-workforce-through-build-giants-alabama-initiative.

endure beyond election cycles. Not subsidies for whoever can lobby hardest. Not private-equity fees extracted before a single plate of steel is welded. Not scattershot grants that dissipate across disconnected projects.

The United States has already proven it can out-build the world when it matters. Liberty Yards shows how it can do so again—not through wartime desperation, but through deliberate, civilian-led renewal that restores the industrial capacity our competitors never let atrophy.

Introduction

The future of U.S. shipbuilding is in crisis. Shipbuilders abroad have adopted advanced manufacturing, automation, and new digital technologies that have transformed production. However, at home, obsolete machinery hobbles U.S. production.[4] Workforce attrition remains high.[5] And output has cratered.[6]

U.S. shipyards currently build less than one tenth of one percent of total global commercial capacity. Singapore—a country roughly the size of Atlanta, Georgia—produces more such ships than the entire United States.[7] Alongside declining output, U.S. shipyards' labor productivity also lags. In the time required for a U.S. yard to weld a single lifeboat enclosure, a Chinese yard could build a full containership.[8]

These shortfalls stem not from inherent deficiencies, but rather underinvestment and political choices. U.S. shipbuilding epitomizes the larger decline of the nation's

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[4] Todd S. Weeks & Wilson Grossman-Trawick, *How Technological Innovation Is Key to Shipbuilding Capacity*, 151 U.S. NAVAL INST. PROCS. (2025); DIANA MAURER, U.S. GOV'T ACCOUNTABILITY OFF., GAO-22-105993, NAVAL SHIPYARDS: ONGOING CHALLENGES COULD JEOPARDIZE NAVY'S ABILITY TO IMPROVE SHIPYARDS 2 (2022), https://www.gao.gov/assets/gao-22-105993.pdf.("The average age of capital equipment has continued to increase. More than half the equipment at the shipyards is past its expected service life.").

[5] Katherine Kuzminski & Laura Schmiegel, *A Workforce Strategy for America's Shipbuilding Future*, WAR ON THE ROCKS (July 3, 2025), https://warontherocks.com/2025/07/a-workforce-strategy-for-americas-shipbuilding-future/.

[6] Megan Eckstein, *Del Toro aims to reinvigorate US shipping to strengthen fleet*, DEFENSENEWS (Dec. 5, 2023), https://www.defensenews.com/outlook/2023/12/04/del-toro-aims-to-reinvigorate-us-shipping-to-strengthen-fleet/; Raw data available at The Decline of U.S. Shipbuilding, SHIPBUILDINGHISTORY., http://shipbuildinghistory.com/statistics/decline.htm, (last visited Dec. 5, 2025).

[7] Colin Grabow, *Protected US Shipbuilding Continues to Sink*, CATO INST. (June 17, 2025), https://www.cato.org/blog/protected-us-shipbuilding-continues-sink.

[8] Based on interviews with industry experts and insiders.

industrial base. Neglect of the industry has become so dire that a bipartisan coalition of lawmakers has recognized the problem's urgency.

"Fix the damn rust" was the mandate Navy Secretary John Phelan received from President Donald Trump. In April 2025, President Trump issued the executive order *Restoring America's Maritime Dominance*, underscoring the need to overhaul the nation's aging fleet.[9] The effort echoes a bipartisan push in Congress to shore up the domestic industry.[10] The point of contention is not whether to act, but how. Proposals range from subsidies to tariffs on foreign-built ships to tax credits to buying warships from allies.

This report proposes a different path. It proposes that the United States create a set of publicly owned shipyards—four Liberty Yards—supported by a dedicated Maritime Infrastructure Bank and a comprehensive workforce rejuvenation strategy to build the Maritime Workforce Reserve. The aim is to create a durable foundation for investment and construction, rather than a patchwork of short-lived incentives.

The scope focuses on commercial shipbuilding because naval and commercial production—despite their superficial similarities—are not interchangeable. Naval yards are specialized facilities to produce combatant vessels and conduct repairs. They cannot be toggled to build tankers or containerships at scale. Yet at the ecosystem level, the two sectors depend on a shared industrial spine: welders, fitters, steel suppliers, propulsion specialists, and advanced manufacturing capacity. A competitive navy requires a healthy commercial base—not as a substitute for warship construction, but as the industrial commons that sustains it. By rebuilding commercial capacity,

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[9] Jeff Schogol, *Navy Secretary Says Trump Told Him to 'Fix the Damn Rust' on Warships*, TASK & PURPOSE (Apr. 9. 2025), https://taskandpurpose.com/news/navy-trump-fix-rust-ships/; Jeff Schogol, *Navy Secretary Says Trump Told Him to 'Fix the Damn Rust' on Warships*, TASK & PURPOSE (Apr. 9. 2025), https://taskandpurpose.com/news/navy-trump-fix-rust-ships/; Restoring America's Maritime Dominance, Exec. Order No. 14269, 90 Fed. Reg. 15635 (Apr. 15, 2025).

[10] *See* Neal Urwitz, *Trump Has a Plan to Create More Jobs – and It's a Win for Democrats*, US NEWS & WORLD REP. (May 2, 2025), https://www.usnews.com/opinion/articles/2025-05-02/jobs-trump-congress-democrats-shipping; Kenneth Rapoza, *At Senate Commerce, Bipartisan Support for Shipbuilding Industry. So What is Congress Waiting For?*, PROSPEROUSAMERICA (Oct. 29, 2025), https://prosperousamerica.org/at-senate-commerce-bipartisan-support-for-shipbuilding-industry-so-what-is-congress-waiting-for/; Press Release, Mark Kelly, Senators Kelly and Rubio, Representatives Waltz and Garamendi Release National Maritime Strategy Report (May 8, 2024), https://www.kelly.senate.gov/newsroom/press-releases/senators-kelly-and-rubio-representatives-waltz-and-garamendi-release-national-maritime-strategy-report/.

Liberty Yards, the Maritime Infrastructure Bank, and the Maritime Workforce Reserve can strengthen the foundation on which U.S. strategic preparedness will rest.

After all, shipbuilding plays a vital role in securing U.S. national defense. Fighting an overseas war is impossible if a nation cannot move troops and supplies by water. Roughly 90% of the U.S. military's supplies and equipment are delivered by ship.[11] In times of conflict, having a robust shipbuilding industry can convey decisive military advantages. Nations typically requisition ships that are flagged—or legally registered—under its laws during wartime. History illustrates the risks of maritime dependence: when World War I began, less than a tenth of U.S. exports were shipped by U.S.-flagged vessels. As European powers reclaimed their commercial fleets for war, the cost of shipping grain from the United States to the United Kingdom increased tenfold.[12]

China's naval expansion over the past two decades has fundamentally altered the maritime balance of power and heightened policymakers' urgency to tackle U.S. maritime shortfalls. The PRC already operates more modern warships than the United States, and its plans for naval expansion call for a 435-vessel fleet by 2030, compared to roughly 290 currently in the U.S. fleet.[13] Moreover, much of the existing U.S. fleet is aging and in need of repair or retirement.[14] In this geopolitical landscape, ensuring U.S. competitiveness requires a maritime-revival strategy that is carefully calibrated to new technologies, rivalries, domestic constraints, and opportunities.

A second national priority for shipbuilding is safeguarding economic security. Nearly 80% of U.S. trade by weight moves by sea. However, the maritime infrastructure supporting the nation's trade overwhelming falls under foreign ownership.[15] Shocks

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[11] GAO, *The Surge Sealift Fleet—Shipping Military Supplies For Any Major Event* (Oct. 10, 2017), https://www.gao.gov/blog/2017/10/10/the-surge-sealift-fleet-shipping-military-supplies-for-any-major-event; Arnav Rao, *How America Lost Control of the Seas*, ATLANTIC (May 28, 2025), https://www.theatlantic.com/economy/archive/2025/05/american-shipbuilding-decline/682945/.

[12] MORGAN RICKS ET AL., NETWORKS, PLATFORMS, AND UTILITIES: LAW AND POLICY (2nd ed. forthcoming 2026) (manuscript at ch. 12) (on file with author).

[13] Brent D. Sadler, *America's Navy Is Falling Behind. This Plan Could Fix It*, NAT'L INT. (July 3, 2025), https://nationalinterest.org/feature/americas-navy-is-falling-behind-this-plan-could-fix-it; NAVAL VESSEL REGISTER, *Fleet Size* (Accessed Dec. 3, 2025) https://www.nvr.navy.mil/nvr/getpage.htm?pagetype=fleetsize.

[14] Brent D. Sadler, *America's Navy Is Falling Behind. This Plan Could Fix It*, NAT'L INT. (July 3, 2025), https://nationalinterest.org/feature/americas-navy-is-falling-behind-this-plan-could-fix-it.

[15] ARNAV RAO, OPEN MKTS. INST., CHARTING A NEW COURSE: STEERING U.S. MARITIME POLICY TOWARDS SECURITY AND PROSPERITY (2025), https://www.openmarketsinstitute.org/publications/charting-a-new-course-steering-us-maritime-policy-towards-security-and-prosperity; Rao, *supra* note 11.

like the COVID-19 pandemic showed how such dependence can become a vulnerability. The prices to transport a container from China to the U.S. West Coast increased tenfold by 2021, as compared to pre-crisis pricing. The incentives to prioritize Asian exports caused shippers to scramble to maximize higher profits from eastbound routes, even transporting empty containers rather than idling in U.S. ports, which left U.S. exporters—especially farmers—struggling to secure space.[16] The volatility cost U.S. agricultural exporters an estimated $10 billion in losses.[17] Expanding domestic shipbuilding would not erase global price swings, but it would give the United States more of its own capacity and more leverage when foreign carriers set the terms.

Finally, reinvigorating the U.S. shipbuilding industry can support industrial diversification. Without a vital defense industrial base, the United States has no foundation of labor, construction capacity, and technological expertise from which it can seize on commercial and strategic opportunities. For decades, U.S. shipping languished as a stagnant, low-margin industry that did not generate fresh industrial capability. But emerging geopolitical trends—such as new Arctic shipping routes,[18] the global liquefied natural gas (LNG) trade boom,[19] and demand for new green shipping technologies[20]—show how dynamic maritime sectors can be, if a nation has the

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[16] Matt Leonard, *Why the empty container math doesn't add up in US exporters' favor*, SUPPLYCHAINDIVE (Feb. 3, 2021), https://www.supplychaindive.com/news/empty-container-ports-ocean-supply-chain-explained/593493/.

[17] Colin A. Carter et al., *Global Shipping Container Disruptions and U.S. Agricultural Exports* (Int'l Agric. Trade Rsch. Consortium, Working Paper No. 320397, 2022); *Issue Brief: Supply Chain Resilience*, WHITE HOUSE (Nov. 30, 2023), https://bidenwhitehouse.archives.gov/cea/written-materials/2023/11/30/issue-brief-supply-chain-resilience/.

[18] Andrey Todorv, *Arctic Shipping: Trends, Challenges and Ways Forward*, BELFER CTR. FOR SCI. & INT'L AFFS. (Aug. 23, 2023), https://www.belfercenter.org/publication/arctic-shipping-trends-challenges-and-ways-forward; ARTIC COUNCIL, *Arctic Shipping Update: 37% Increase in Ships in the Arctic Over 10 Years* (Jan. 31,2024), https://arctic-council.org/news/increase-in-arctic-shipping/.

[19] Jonathan Mingle, *It's a 'Golden Age' for U.S. LNG Industry, But Climate Risks Loom*, YALEENVIRONMENT360 (Sep. 23, 3035), https://e360.yale.edu/features/trump-europe-china-lng; Fraser Carson, *The great LNG shipping reset: how geopolitics is rewriting maritime energy rules,* WOODMACKENZIE (Sep. 12, 2025), https://www.woodmac.com/news/opinion/great-lng-shipping-reset-how-geopolitics-is-rewriting-maritime-energy-rules/; Mike Schuler, *Alternative Fuel Vessel Orders Slow in 2025 Despite Strong LNG Demand*, GCAPTAIN (Dec. 1, 2025), https://gcaptain.com/alternative-fuel-vessel-orders-slow-in-2025-despite-strong-lng-demand/.

[20] INT'L MAR. ORG., *IMO's work to cut GHG emissions from ships* (Accessed Dec. 8, 2025), https://www.imo.org/en/mediacentre/hottopics/pages/cutting-ghg-emissions.aspx; INT'L MAR. ORG., *Future Fuels & Technology Project* (Accessed Dec. 8, 2025), https://futurefuels.imo.org; JAMESON ET AL., BCG, THE $10 BILLION OPPORTUNITY IN GREEN SHIPPING (2025), https://www.bcg.com/publications/2025/the-10-billion-opportunity-in-green-shipping.

resources and foundational strength to capitalize on the opportunities. Investing in the industry can rebuild that potential.

A healthy shipbuilding sector depends as much on people as on facilities—arguably even more so. Modern yards require a mix of skills, from welding to project management to supply-chain logistics. These professions require training pipelines that can adapt as technology changes. Building that capacity means widening and diversifying the labor pool and drawing from a broad range of communities and backgrounds. It also means sustaining the universities, apprenticeships, and regional networks that undergird industrial work. In this way, the ability to build ships reflects the health of the larger industrial ecosystem. Reinvesting in that ecosystem is not only about meeting today's maritime needs; it is about preserving the capacity to take on complex projects in the future, whatever form they take.

I. Why the United States Stopped Building

If shipbuilding serves three major national priorities—national defense, economic security, and industrial diversification—why did the U.S. industry suffer such neglect and decline in the first place? Answering this question requires considering both domestic pressures that have shaped the U.S. industry as well as the rise of foreign competition.

A brief glance at U.S. twentieth-century history reveals that the United States clearly can build ships—lots of ships, built well, and built quickly. In surges associated with World War I and World War II, U.S. production rose to meet the nation's military and commercial needs.[21] In the postwar era, however, U.S. shipbuilding followed a more erratic path, shaped by policy choices and changing global conditions.

A. The End of Subsidies

On the domestic front, the United States retains a fenced-off shipbuilding market, protected by the Jones Act—a piece of post-World War I legislation that requires that vessels moving goods between U.S. ports be U.S.-flagged, owned, crewed, and built. [22]

[21] ARTHUR HERMAN, FREEDOM'S FORGE: HOW AMERICAN BUSINESS PRODUCED VICTORY IN WORLD WAR II (2012).
[22] More formally, the Jones Act means Section 27 of the Merchant Marine Act of 1920, Pub. L. No. 66-261, 41 Stat. 988, 999 (codified as amended at 46 U.S.C. § 55102). Precursor statutes and policies go back to the late 18th century. *See* RICKS ET AL., *supra* note 12.

The Jones Act and its associated regulations have helped sustain a market supporting hundreds of small and medium-sized yards. According to the Government Accountability Office, the United States has 145 such yards engaged in shipbuilding and more than 300 in repair, but the industry's contours are boutique.[23] Orders are concentrated in river-going and coastal vessels, dredges, and offshore service craft rather than the oceangoing carriers that dominate world trade. The Jones Act has succeeded in preserving a baseline of U.S. construction, but the policy framework has not generated the scale, capital investment, or technological upgrading needed for the U.S. industry to compete internationally. In effect, it has kept a floor under domestic production but has not generated the lift needed for international competitiveness.

Another historic pillar for U.S. shipbuilding came from the Construction Differential Subsidy (CDS), established during the New Deal to offset the higher costs of U.S. production compared to international competitors. The CDS sustained a modest but viable commercial shipbuilding industry through the 1960s and 1970s. Its elimination in the 1980s—part of a broader deregulatory wave under the Reagan Administration—marked the beginning of a "death spiral" for the U.S. industry.[24] Removal of the subsidy caused shipbuilding orders by tonnage to fall by more than 80% in less than five years.[25] In the 1950s, U.S. output averaged roughly 60 oceangoing vessels per year; by 2016, that figure had dropped to seven.[26]

B. The Rise of Foreign, State-Backed Shipyards

While domestic policies faltered, foreign competition surged. Shipyards in Asia—particularly China, South Korea, and Japan—now claim the lion's share of the global market. Today, they produce more than 90% of the world's ships.[27] Each nation uses different forms of government support to keep shipbuilding competitive. In China, more than 60% of ship tonnage built in recent years came from government-owned or

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[23] U.S. GOV'T ACCOUNTABILITY OFF., GAO-25-107304, COMMERCIAL SHIPBUILDING: MARITIME ADMINISTRATION NEEDS TO IMPROVE FINANCIAL ASSISTANCE PROGRAMS (2025) [hereinafter COMMERCIAL SHIPBUILDING: MARITIME ADMINISTRATION NEEDS TO IMPROVE FINANCIAL ASSISTANCE PROGRAMS].

[24] RAO, *supra* note 15.

[25] David K. Henry & Richard P. Oliver, *The Defense Buildup, 1977-85: Effects on Production and Employment*, 110 MONTHLY LAB. REV. 3 (1987).

[26] Megan Eckstein, *Del Toro Aims to Reinvigorate US Shipping to Strengthen Fleet*, DEFENSENEWS (Dec. 5, 2023), https://www.defensenews.com/outlook/2023/12/04/del-toro-aims-to-reinvigorate-us-shipping-to-strengthen-fleet/.

[27] JOHN FRITTELLI, CONG. RSCH. SERV., IF12534, U.S. COMMERCIAL SHIPBUILDING IN A GLOBAL CONTEXT (2023).

government-controlled yards.[28] In South Korea and Japan, private firms dominate but rely on sustained public backing, from loan deferments to subsidies to bailouts.[29]

Throughout the 1990s and early 2000s, U.S. traders and policymakers were largely content to let other nations lead in shipbuilding.[30] Foreign yards could satisfy most commercial and even some military procurement needs.[31] At times, U.S. complacency occasionally collided with reality: after Iraq's 1990 invasion of Kuwait, the United States lacked sufficient vessels for its military campaign and had to charter more than 100 foreign ships.[32] Likewise, pandemic-era supply shocks revealed how dependent the U.S. economy had become on the maritime capabilities of other nations, from ocean carrier fleets to the ship-to-shore cranes that move goods through U.S. ports. However, these wake-up calls did not generate the necessary support to produce policy changes that would help revitalize the U.S. industry.

C. Workforce Attrition and Industrial Decline

Even without such aggressive foreign competition, a quick turnaround for U.S. industry would be complicated, due to labor pressures, costs, and supply-chain constraints. The Navy's recent efforts to expand shipbuilding capacity have been plagued by workforce shortages, delays, and cost overruns. A range of initiatives—from the 2018 Shipyard Infrastructure Optimization Plan to the beleaguered Constellation-class frigate program—have fallen behind schedule and exceeded budget expectations.[33]

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[28] *Id.*

[29] *Id.* at 2.

[30] The capacity of foreign yards accelerated during this period, such that building a ship in the United States required four times the labor hours as doing so in Japan. TIM COLTON & LAVAR HUNTZINGER, CNA, NO. CRM D0006988.A1, A BRIEF HISTORY OF SHIPBUILDING IN RECENT TIMES (2002); Agis Salpukas, *After a Long Slump, World Shipping Is Embarking on a Modest Recovery*, N.Y. TIMES (May 6, 1990), https://timesmachine.nytimes.com/timesmachine/1990/05/06/234090.html?pageNumber=201.

[31] An exception arose during the Gulf War when the Maritime Administration chartered foreign ships to meet the 51% shortfall in "readiness objectives" of vessels in the Ready Reserve Force. WILLIAM E. CURTIS, NAVAL WAR COLLEGE, STRATEGIC SEALIFT: MANAGEMENT OF THE RESERVE READY FORCE 2 (1992), https://apps.dtic.mil/sti/tr/pdf/ADA249958.pdf; JOHN P. MORSE, NAVAL WAR COLLEGE, THE RRF IN OPERATION DESERT STORM: A FIRST LOOK 2 (1991), https://apps.dtic.mil/sti/tr/pdf/ADA240271.pdf; Rao, supra note 15.

[32] Rao, *supra* note 15 at 36.

[33] DIANA MAURER, U.S. GOV'T ACCOUNTABILITY OFF., GAO-23-106067, NAVY READINESS: ACTIONS NEEDED TO ADDRESS COST AND SCHEDULE ESTIMATES FOR SHIPYARD IMPROVEMENT 28 (2023), https://www.gao.gov/products/gao-23-106067; Brad Lendon, *US Navy axes frigate program in another blow to efforts to keep up with China's fleet*, CNN (Nov. 26, 2025), https://www.cnn.com/2025/11/26/us/us-

Labor shortages are a common theme. In the next decade, the Navy wants to add 100,000 workers to the submarine industrial base,[34] but staffing shortfalls on some programs have reached as high as 25% of employment needs.[35] As early as 2012, industry leaders noted that more than half the submarine industrial base workforce was on track to retire by 2020.[36] The Navy hopes to increase submarine construction from 1.2 vessels per year today to *five* times that tonnage-equivalent volume, measured in terms of Virginia-class submarines, in the coming years. A production surge cannot succeed without an accompanying workforce transformation to construct the vessels in the first place.[37]

Commercial yards face similar challenges. Welders, machinists, and pipefitters are in short supply, and starting pay often fails to offset the physical demands and hazards of the work.[38] Entry-level wages hover around $21 per hour, comparable to pay scales for new baristas or retail positions. While $20-25 per hour might pay a retail clerk to work in the climate-controlled comfort of Starbucks or Arby's, shipyard workers endure

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navy-constellation-class-frigate-cancelled-intl-hnk-ml; Justin Katz, *Navy kills four ships in Constellation-class frigate program in 'strategic shift'*, BREAKINGDEFENSE (Nov. 25, 2025), https://breakingdefense.com/2025/11/navy-killing-last-four-ships-in-constellation-class-frigate-program-in-strategic-shift/; Alistair MacDonald & Gordon Lubold, *The Warship That Shows Why the U.S. Navy Is Falling Behind China*, WALL ST. J. (Mar. 20, 2025), https://www.wsj.com/politics/national-security/warship-shows-why-u-s-navy-is-falling-behind-china-94cb9a87.

[34] Press Release, Naval Sea Systems Command, US Navy Submarine Industrial Base Team Launches 2023-2024 Defense Trade Skill Pipeline Programs (Nov. 17, 2023), https://www.navsea.navy.mil/Media/News/Article-View/Article/3592595/us-navy-submarine-industrial-base-team-launches-2023-2024-defense-trade-skill-p/; Steve Walsh, *New Navy ships are years behind schedule, because manufacturers can't find workers to build them*, AM. HOMEFRONT PROJ. (Apr. 17, 2002), https://americanhomefront.wunc.org/news/2024-04-17/new-navy-ships-years-behind-schedule-manufacturers-cant-find-workers-to-build-them.

[35] U.S. GOV'T ACCOUNTABILITY OFF., GAO-23-106059, WEAPON SYSTEMS ANNUAL ASSESSMENT PROGRAMS ARE NOT CONSISTENTLY IMPLEMENTING PRACTICES THAT CAN HELP ACCELERATE ACQUISITIONS 165 (2023).

[36] Alexander Grey, *The Submarine Workforce Crisis: Admitting Realities and Restructuring Long-Term Strategy*, WAR ON THE ROCKS (Apr 4, 2024), https://warontherocks.com/2024/04/the-submarine-workforce-crisis-admitting-realities-and-restructuring-long-term-strategy/.

[37] ERIC J. LABS, CONG. BUDGET OFF., AN ANALYSIS OF THE NAVY'S 2025 SHIPBUILDING PLAN (Jan. 6, 2025), https://www.cbo.gov/publication/60732. Naval plans for the coming years include two SSNs—with Virginia payload module—and one SSBN per year. With AUKUS, plans call for 2.33 SSNs and one SSBN, which, in tonnage terms, is equivalent to five Virginia class submarines today (without the Virginia Payload Module).

[38] Josh Luckenbaugh, *Navy, Industry Try to Reverse Course on Workforce Woes*, NAT'L DEF. (Mar 31, 2025), https://www.nationaldefensemagazine.org/articles/2025/3/31/navy-industry-try-to-reverse-course-on-workforce-woes.

extreme temperatures, operate heavy machinery, and face demanding production timelines.[39] As General Dynamics Bath Iron Works president Charles Krugh bluntly put it: "It's about the workforce—that's all it's about. Our workforce is not where we need them to be."[40]

These three factors—domestic policy limitation, international competition, and workforce erosion—have combined to create deep structural obstacles to rebuilding U.S. commercial shipbuilding. Related challenges plague naval shipbuilding, in addition to defense-sector specific problems such as monopoly-monopsony dynamics. The next section examines current proposals to reverse the decline and explains why narrow, short-term fixes are not enough to revive the industry at scale.

II. The Limits of Narrow Policies

A. Leaning on Naval Shipyards

One possible strategy for rebuilding the industry involves leaning on the public shipyards the U.S. government already owns. The Navy operates four yards with drydock capacity, secure perimeters, and a skilled workforce.[41] They are taxpayer-funded institutions with long traditions of building and maintaining the Navy's fleet. On paper, they might look like the perfect foundation for a commercial shipbuilding revival. But the resemblance is deceptive: these Navy yards are repair facilities, not construction yards. Their primary purpose is to maintain and overhaul nuclear submarines and aircraft carriers, not to produce new tonnage for trade. The last public yard devoted to naval shipbuilding, Mare Island, ceased production in 1996.[42]

Specialization is the most immediate obstacle to leveraging existing public yards for commercial construction. Naval repair yards are optimized for highly technical and

[39] Interview with Eric Labs, Analyst, Cong. Budget Off. (June 6, 2025). On the general precarity of the US manufacturing workforce, see also Chao Deng & Te-Ping Chen, *Will Anyone Take the Factory Jobs Trump Wants to Bring Back to America?*, WALL ST. J. (May 19, 2025), https://www.wsj.com/economy/jobs/will-anyone-take-the-factory-jobs-trump-wants-to-bring-back-to-america-f6cd377b.
[40] Luckenbaugh, *supra* note 38.
[41] *Hearing on the State of U.S. Shipbuilding Before the Seapower & Projection Forces Subcomm. of the H. Armed Servs. Comm.* (Mar. 11, 2025) (statement of Ronald O'Rourke, Specialist in Naval Affairs), https://armedservices.house.gov/uploadedfiles/03.11.25_spf_state_of_shipbuilding_orourke_statement.pdf [hereinafter "O'Rourke Statement"].
[42] Rich Pedroncelli, *Good-Bye Mare Island*, 10 U.S. NAVAL INST. NAVAL HISTORY 5 (1996).

often classified tasks. They extend the life of nuclear submarines, overhaul combat systems, and handle reactor work. Commercial shipbuilding operates according to a different logic and utilizes a different mix of skills and inputs. It relies on modular hull fabrication, production runs of standard carrier types, and supplier networks designed for scale rather than customization to support high-tech weapons systems.[43] While the labor and tooling requirements overlap for some aspects of yards' workflow, the balance of skills, equipment, and security requirements are not interchangeable. As Bath Iron Works discovered when it attempted a commercial pivot in the 1990s, reconfiguring yards from naval to commercial was not a simple toggle of equipment but, instead, required a major workforce adjustment.[44]

Even if specialization could be bridged, there is the problem of capacity. The Navy's public yards are already years behind on their repair schedules.[45] Submarine overhauls routinely stretch years past deadlines, and the Shipyard Infrastructure Optimization Program is struggling to modernize outdated facilities. Recent Government Accountability Office (GAO) assessments point to workforce shortages and deferred capital investment as the main bottlenecks.[46] In this environment, diverting yards' capacity to focus on commercial construction would only compound delays for the fleet and undercut national security.

The difficulties facing naval shipyards are often conflated with the Navy's troubled new-construction programs, but these are distinct problems layered on top of one another. Public yards are repair facilities stretched thin by deferred investment, while programs such as the Constellation-class frigate have faltered for different reasons. In the case of the Constellation, it was not public yards that failed but, instead, problems with the Navy's acquisition system and its collaboration with private contractors. Subsequent naval, governmental, and administrative reviews resulted in 511 changes to the original European design—a frigate designed to be versatile, modular, and off-the-shelf. The resulting "Franken-FREMM"—the European vessel is called the FREMM—is now over budget, 500 tons heavier, and at least three years behind schedule. Its production problems are further compounded by high attrition of labor in the Wisconsin yard

[43] O'Rourke Statement, *supra* note 41 at 31-34; David M. Upton & Bowon Kim, *Daewoo Shipbuilding and Heavy Machinery*, HARVARD BUS. SCH. CASE 695-001, (1994); Interview with Eric Labs, *supra* note 39.
[44] *Id.* at 32.
[45] LABS, *supra* note 37.
[46] SHELBY S. OAKLEY, U.S. GOV'T ACCOUNTABILITY OFF., GAO-25-108136, NAVY SHIPBUILDING: A GENERATIONAL IMPERATIVE FOR SYSTEMIC CHANGE (2025); U.S. GOV'T ACCOUNTABILITY OFF., GAO-24-106546, NAVY FRIGATE: UNSTABLE DESIGN HAS STALLED CONSTRUCTION AND COMPROMISED DELIVERY SCHEDULES (2024).

constructing them.[47] These parallel failures reflect mismanagement and procurement problems rather than inherent flaw in public ownership.

The struggles of naval shipyards should not be mistaken as evidence that public ownership is doomed to fail. Instead, they show that chronic underfunding and unstable requirements will derail production in any setting, whether public or private. Repair yards will remain essential for sustaining the fleet, and private contractors are indispensable to a range of naval efforts, from constructing specialized warships to maintaining conventional surface ships. But U.S. shipbuilding has withered for lack of steady capital,[48] modern facilities,[49] and a stable demand base[50]—especially in the face of growing international competition.[51] The case for Liberty Yards is not about diverting scarce resources vital to national security, but instead catalyzing public support for a sector long left to atrophy. Unlike other narrow proposals, it seeks to create the conditions for scalable production with spillover defense benefits.

B. Bolstering the Jones Act

Another idea is to bolster the Jones Act—perhaps by expanding its protections and increasing barriers to entry to foreign producers—to rejuvenate the industry. Supporters claim the Jones Act has protected a functional U.S. shipbuilding sector, and

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[47] Emma Salisbury, *Franken-FREMM: How the Constellation Class Became a Monster*, BEHIND THE FRONT (July 20, 2024), https://behindthefront.substack.com/p/franken-fremm-how-the-constellation; Richard Thomas, *GAO: USS Constellation Frigate Construction "at a Standstill"*, NAVAL TECH. (May 30, 2024), https://www.naval-technology.com/news/gao-uss-constellation-frigate-construction-at-a-standstill/.

[48] John Konrad, *US Navy Shipbuilding is Failing Because Admirals Avoid Wall Street*, GCAPTAIN (Mar. 15, 2023), https://gcaptain.com/us-navy-shipbuilding-failing-wall-street-marad/; Sam Lagrone, *SECNAV Phelan to Navy, Shipbuilders: 'Change is Coming'*, USNI NEWS (Apr. 9, 2025), https://news.usni.org/2025/04/09/secnav-phelan-to-navy-shipbuilders-change-is-coming.

[49] Brent Ramsey, *The Dire State of Our Shipbuilding Infrastructure*, REALCLEARDEFENSE (Nov. 20, 2025) https://www.realcleardefense.com/articles/2025/11/20/the_dire_state_of_our_shipbuilding_infrastructure_1148537.html; Justin Katz, *Navy's shipyard revamp strategy evolves amid obstacles, years into $20B effort*, BREAKINGDEFENSE (July 18, 2025), https://breakingdefense.com/2025/07/navys-shipyard-revamp-strategy-evolves-amid-obstacles-years-into-20b-effort/.

[50] COMMERCIAL SHIPBUILDING: MARITIME ADMINISTRATION NEEDS TO IMPROVE FINANCIAL ASSISTANCE PROGRAMS, *supra* note 23.

[51] Stuart Nicoll, *Opinion: China's Shipbuilding Dominance and Global Trade Competition in Context*, GCAPTAIN (Apr. 25, 2025), https://gcaptain.com/opinion-chinas-shipbuilding-dominance-and-global-trade-competition-in-context/; Miyeon Oh & Michael Cecire, *Why the United States, South Korea, and Japan Must Cooperate on Shipbuilding,* RAND CORP (May 6, 2025), https://www.rand.org/pubs/commentary/2025/05/why-the-united-states-south-korea-and-japan-must-cooperate.html.

to extend the logic, its wider application could increase production within the U.S. industry.[52] The problem is that the Jones Act's protected market cannot drive the industrial resurgence needed for global competitiveness without major overhaul and public investment.

The challenges facing the Jones Act market reflect mutually reinforcing problems of structural insulation, economic realities, and policy imperatives. The Act requires vessels moving goods between U.S. ports to be U.S.-built, which effectively bars operators from purchasing cheaper foreign ships.[53] This requirement changes the calculus between buying new vessels versus repairing old ones. When U.S.-built vessels cost three to eight times more than foreign equivalents—$190-250 million versus $30 million for comparable, foreign-built ships—operators are more likely to opt for lifespan extension than new orders.[54] This price gap creates a vicious cycle: low demand prevents economies of scale. The lack of scale maintains high costs, and high costs further suppress demand.

The numbers bear this out. After a century of Jones Act protection in the United States, China's merchant shipbuilding capacity now exceeds the U.S. by a margin of 200 to one.[55] Meanwhile, domestic fleets are aging. The average Jones Act vessel is five to ten years older than the economically viable lifespan of most ships.[56] These statistics reflect predictable responses to a market structure that makes replacement

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[52] Mike Ezell & Salud Carbajal, *Opinion Republicans and Democrats agree: We must defend the Jones Act*, WASH. TIMES (Mar. 26, 2025), https://www.washingtontimes.com/news/2025/mar/26/republicans-democrats-agree-must-defend-jones-act/; Michael Roberts, *Staying Afloat: Why America Needs the Jones Act to Compete with China and What to Do Next*, HUDSON INST. (May 30, 2024), https://www.hudson.org/defense-strategy/staying-afloat-why-america-needs-jones-act-compete-china-what-do-next-michael-roberts.

[53] 46 U.S.C. § 55102(b).

[54] Colin Grabow, Inu Manak & Daniel J. Ikenson, *The Jones Act: A Burden America Can No Longer Bear*, CATO INST. (June 28, 2018), https://www.cato.org/publications/policy-analysis/jones-act-burden-america-can-no-longer-bear.

[55] Kate Farmer, *The Navy at 250 Faces New Challenges*, WALL ST. J. (Oct. 13, 2025), https://www.wsj.com/opinion/the-navy-at-250-faces-new-challenges-52b1d326; Mark Montgomery, *China's kicking our butts in warship-building — here's how we can catch up*, N. Y. POST (Nov. 14, 2025), https://nypost.com/2025/11/14/opinion/chinas-kicking-our-butts-in-warship-building-heres-how-we-can-catch-up/.

[56] This figure excluding tankers, which were federally mandated to modernize. Colin Grabow, *Rust Buckets: How the Jones Act Undermines U.S. Shipbuilding and National Security* 8, Cato INST. (Nov 12, 2019), https://www.cato.org/policy-analysis/rust-buckets-how-jones-act-undermines-us-shipbuilding-national-security.

prohibitively expensive for any vessel other than one offering transformational efficiency gains.

At the same time, repeal of the Jones Act offers a short-term gain, while increasing longer-term fragility. Without domestic protection requirements, operators would simply buy cheaper foreign-built (and state-subsidized) ships, leaving the U.S. without a manufacturing base. The political landscape around the Jones Act reflects these tensions. A diverse coalition of protectionism opponents,[57] energy producers and reformers,[58] and regional interests[59] have called for repeal. Nonetheless, the law maintains substantial support among labor groups,[60] maritime interests,[61] and lawmakers.[62] Indeed, some studies demonstrate the benefits of the Act. One found that Jones-Act ocean carriers offered freight-rate stability and reliability during the COVID supply chain disruptions as compared to non-Jones Act routes.[63] Others have cited the national security benefits of preserving even a minimal U.S. production capacity and insuring regular service for Hawaii and Puerto Rico.[64] The debate

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[57] Colin Grabow, *Should Congress Repeal the Jones Act Protections on Domestic Shipping?*, CATO INST. (Mar. 21, 2025), https://www.cato.org/commentary/should-congress-repeal-jones-act-protections-domestic-shipping; Andrew Hale, *Up for Debate: The Jones Act,* HERITAGE FOUND. (Nov. 17,2023), https://www.heritage.org/trade/commentary/debate-the-jones-act.

[58] Alec Laurent, *Obsolete Laws Impede a Clean Energy Future: The Case Against the Jones Act*, PROGRESSIVE POLICY INST. (Aug. 2, 2025), https://www.progressivepolicy.org/obsolete-laws-impede-a-clean-energy-future-the-case-against-the-jones-act/.

[59] Joshua Polk, *The Jones Act: A disastrous legacy for the U.S. economy and security*, PACIFIC LEGAL FOUND. (Feb. 21, 2025), https://pacificlegal.org/the-jones-act-a-disastrous-legacy-for-the-u-s-economy-and-security/.

[60] *Congressional and Military Leaders: Jones Act Vital to National Security*, SEAFARERS INT'L UNION (May 23, 2023), https://www.seafarers.org/congressional-and-military-leaders-jones-act-vital-to-national-security/

[61] AM. MAR. P'SHIP, *Jones Act – Cornerstone of US Maritime Safety & Security* (Accessed Dec. 5, 2025), https://www.americanmaritimepartnership.com/u-s-maritime-industry/jones-act-overview/; Jennifer Carpenter, *Op-ed: America First requires the Jones Act*, WORKBOAT (Oct. 23, 2025), https://www.workboat.com/op-ed-america-first-requires-the-jones-act.

[62] OFFSHORE MARINE SERV. ASS'N, *Support for the Jones Act* (Accessed Dec. 5, 2025), https://offshoremarine.org/page/SupportfortheJonesAct; Rapoza, *supra* note 10; Ezell & Carbajal, *supra* note 52.

[63] TRANSP. INST., SHIPPING PERFORMANCE AND ECONOMIC CONTRIBUTIONS OF JONES ACT ROUTES IN THE CARIBBEAN (2022), https://transportationinstitute.org/wp-content/uploads/2022/08/Transportation-Institute-Jones-Act-Study-18-Aug-2022.pdf.
Stas Margaronis, *Ernst & Young Says Jones Act Carriers Provided Reliable Peurto Rico Service During COVID*, AJOT (Aug. 29, 2022), https://www.ajot.com/insights/full/ernst-young-says-jones-act-carriers-provided-reliable-puerto-rico-service-during-covid.

[64] John McCown, *Commentary: Cato's Jones Act Numbers Wrong*, FREIGHTWAVES (July 23, 2019), https://www.freightwaves.com/news/commentary-catos-jones-act-numbers-wrong; *The Jones Act: Fact vs.*

underscores that, while the Jones Act may provide stability in certain markets, by itself, the law as it stands cannot serve as the foundation for rebuilding U.S. shipbuilding at scale.[65]

What's needed is a broader, more comprehensive strategy, including the kind of direct public investment and strategic coordination that has enabled foreign shipbuilders to emerge as the dominant players in global markets.

C. Friend-Shoring

Friend-shoring from trusted allies appears attractive on the surface and indeed represents a vital part of U.S. maritime revitalization. However, relying on foreign firms and partners cannot substitute for investing in domestic capacity. South Korea, Japan, and several European allies have shipyards that produce at world-class levels, and in many cases can deliver vessels faster and more cheaply than any U.S. facility could for the foreseeable future.[66]

Foreign partnerships already sustain what much of what remains of U.S. shipbuilding. In the last decade, Australia's Austal has invested heavily in its yard in Mobile, Alabama, to build ships for both the U.S. Navy and commercial customers.[67] Hanwha, a South Korean conglomerate, has acquired and committed millions to modernizing the Philly

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Myth, INT'L LONGSHORE & WAREHOUSE UNION LOC. 142 (Apr. 21, 2025), https://www.ilwulocal142.org/news-item/jones-act-fact-vs-myth; AM. MAR. P'SHIP, *The Jones Act and Hawaii* (Accessed Dec. 8, 2025), https://www.americanmaritimepartnership.com/hawaii-economy/.

[65] For examples on the debate, see Joe Greco, *What is the Jones Act?*, 150 U.S. NAVAL INST. PROCS. (2024).; *Labor and Maritime Industry Leaders Urge Action, Support for Jones Act at MTD Meetings*, AM. MAR. OFFICERS (May 14, 2025), https://www.amo-union.org/labor-and-maritime-industry-leaders-urge-action-support-for-jones-act-at-mtd-meetings/; Grabow, Manak & Ikenson, *supra* note 54; John D. McCown, *If It Sounds Like Jones Act Critics Are Singing From the Same Songbook…*, MEDIUM (Oct. 4, 2021), https://john-d-mccown.medium.com/if-it-sounds-like-jones-act-critics-are-singing-from-the-same-songbook-62e9ebe6b9cf.

[66] *Top 20 Shipbuilding Companies in the World (2025)*, MAR. ENG. & TRADE SERVS. (Aug. 20, 2025), https://mets.co.in/shipbuilding-companies-in-the-world/; *Top 10 Biggest Shipyards In The World*, DREDGEWIRE (Feb. 24, 2025), https://dredgewire.com/top-10-biggest-shipyards-in-the-world/; Armelle Chavanet, *Revamping Shipbuilding In Europe*, DASSAULT SYSTEMES (Sep. 18, 2025) https://blog.3ds.com/industries/marine-offshore/revamping-shipbuilding-in-europe/.

[67] Indeed, Austal's investment has increased in recent months. *See Austal USA to Add 1,000 More Jobs to Build Submarines*, BUS. VIEW (Oct 24, 2024), https://thebusinessview.com/austal-usa-to-add-1000-more-jobs-to-build-submarines/.

Shipyard.[68] Fincantieri, the Italian shipbuilding giant, owns Wisconsin-based Marinette Marine yard, which produces vessels for the U.S. Navy.[69] These partnerships bring foreign expertise to U.S. yards and strengthen international partnerships without sacrificing domestic production.

Friendshoring excels as a strategy for sourcing specialized vessels where the U.S. production capabilities lag acutely. Icebreakers demonstrate this gap: while China and Russia have modernized their fleets, the United States operates just three aging vessels. A 2019 program to build new cutters is running 100% over budget and six years behind schedule.[70] In 2024, the United States formed a pact with Finland and Canada to pool expertise to accelerate icebreaker construction, and President Trump has announced plans to buy Finnish ships to kickstart capacity.[71] The United States could also look to allies such as Korea to increase its fleet of liquified natural gas carriers—a highly specialized, technologically demanding vessel type that hasn't been built in the United States in a half-century.[72]

Yet friendshoring—in the narrow sense of buying ships from overseas allies—cannot wholly replace U.S. investment in domestic capacity. Geography is one reason: reliance on the Indo-Pacific exacerbates strategic vulnerabilities, as Korean and Japanese yards sit within China's strike range. In the event of regional conflict, dispersed supply chains would falter precisely when speed matters most.

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[68] Similarly, Hanwha has demonstrated its recent commitment to US-based construction. *See* Mike Schuler, *Hanwha Philly Shipyard Lands First U.S. LNG Carrier Order in Decades From Hanwha Affiliate*, GCAPTAIN (July 21, 2025), https://gcaptain.com/hanwha-philly-shipyard-lands-first-us-lng-carrier-order-in-decades-from-hanwha-affiliate/; Mike Schuler, *South Korea's Hanwha Cleared to Boost Control of U.S. Navy Shipbuilder Austal*, GCAPTAIN (June 9, 2025), https://gcaptain.com/south-koreas-hanwha-cleared-to-boost-control-of-u-s-navy-shipbuilder-austal/.

[69] Gregrory Scruggs, *Turning the tide: The shipbuilding company reviving a small Midwest town*, MONOCLE (Apr.23, 2025) https://monocle.com/business/fincantieri-ships-marinette-lake-michigan/.

[70] Isaac LaLonde, *Close the Icebreaker Gap with ICE Pact*, 151 U.S. NAVAL INST. PROCEEDINGS (2025); MARIE A. MAK, U.S. GOV'T ACCOUNTABILITY OFF., GAO-23-105949, COAST GUARD ACQUISITIONS: POLAR SECURITY CUTTER NEEDS TO STABILIZE DESIGN BEFORE STARTING CONSTRUCTION AND IMPROVE SCHEDULE OVERSIGHT (2023).

[71] Line Omholt-Jensen, *Trump Wants to Buy 15 Icebreakers from Finland: 'You Make 'Em Good'*, SHIPATLAS (June 26, 2025), https://maritimeoptima.com/maritime-news/trump-wants-to-buy-15-icebreakers-from-finland-you-make-em-good.

[72] According to a July 2025 agreement, Hanwha Shipping ordered the first U.S.-flagged LNG carrier in 50 years in an agreement that will import most of the vessel from its Korea-based Hanwha parent company, train U.S. workers from Philly Shipyard in the South Korean shipyard, and flag the vessel in the United States. Lisa Baertlein, *Hanwha Entities to Build US-flagged LNG Carrier*, REUTERS (July 22, 2025), https://www.reuters.com/business/energy/hanwha-entities-build-us-flagged-lng-carrier-2025-07-22/.

Supply chains brittleness further complicates U.S. reliance on friendshoring. Already, 70% of critical parts for submarine production come from single-sourced suppliers.[73] Supply chain problems extend beyond submarine components: the entire maritime supply chain depends on a fragile network of specialized vendors, many operating at minimal capacity with little redundancy.[74] A factory fire, labor dispute, or geopolitical disruption can halt production across multiple yards for months. The global shipbuilding industry needs to become more resilient, and a U.S. strategy that depends entirely on offshore capacity, even from close partners, risks being upended at precisely the moment it is most needed.

Finally, the United States labor force has the skill and knowledge base to advance the overall resilience and capacity of allied shipbuilding, but its current industry is not drawing on that potential. Because the U.S. industry has lagged in terms of capital investment and labor development, a disruption in allies' output—whether due to attack, production upheaval, or shifting priorities—would leave the United States scrambling to develop capacity where none existed. By contrast, investing in the U.S. industry can contribute to a more resilient international ecosystem of allied shipbuilding.

The atrophying of workforce and knowledge represent a strategic vulnerability that friendshoring alone cannot solve. Without maintaining domestic shipbuilding expertise, the United States loses the institutional capacity to scale production when needed. If an ally's yards face disruption, whether from natural disaster, labor disputes, or military threat, the United States would lack the technical foundation to compensate. By contrast, revitalizing U.S. shipbuilding can support redundancy and resilience within the allied network. Distributed capacity across multiple nations makes the collective industrial base more resilient: if Korean yards face regional threats, U.S. and Australian capacity can absorb critical orders; if U.S. yards encounter disruptions, allied partners provide backup. This is not a zero-sum competition for market share but a strategic diversification that strengthens what all allied democracies can accomplish together.

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[73] RONALD O'ROURKE, CONG. RSCH. SERV., RL32418, NAVY VIRGINIA-CLASS SUBMARINE PROGRAM AND AUKUS SUBMARINE (PILLAR 1) PROJECT: BACKGROUND AND ISSUES FOR CONGRESS (2025).

[74] Piera Centobelli, Roberto Cerchione, Amedeo Maglietta, & Eugenio Oropallo, *Sailing through a Digital and Resilient Shipbuilding Supply Chain: An Empirical Investigation*, 158 J. BUS. RESEARCH 113686 (2023). George Whittier, *How Companies Can Help Strengthen U.S. Shipbuilding Supply Chains*, FORBES (Nov. 8, 2024), https://www.forbes.com/councils/forbesbusinesscouncil/2024/11/08/how-companies-can-help-strengthen-us-shipbuilding-supply-chains/.

A more expansive model of friendshoring should include allied investment in U.S. production facilities, and South Korea's recent announcement of a $150 billion commitment to the U.S. shipbuilding sector is an encouraging start.[75] But foreign capital—especially if managed opaquely and without transparent oversight—cannot substitute for a coherent U.S. strategy. Overseas dollars can accelerate modernization and bring valuable technical expertise, but they can neither guarantee stable demand nor reconstitute the institutional capacity that only the U.S. government can provide.

If the United States wants a durable, scalable commercial shipbuilding sector, it must pair allied investment with its own long-term planning, financing, and public commitments. The aim is not to displace allied industries but to enhance a shared maritime industrial base in which every country's capacity reinforces the others. Done right, friendshoring is a bridge—not a replacement—for rebuilding U.S. shipbuilding at meaningful scale.

D. Reinstating Subsidies

Subsidies are a familiar lever in the U.S. policy toolkit, and their appeal is obvious: they seem like a politically viable, known entity that could support U.S. production without requiring industry overhaul. The trouble is that U.S. production is too far behind for subsidies alone to ignite a turnaround. South Korean yards can deliver equivalent vessels at roughly one-fifth the price of their U.S. counterparts.[76] The price differences are not marginal calculations that a government check can simply offset; instead, they represent a structural chasm.

That chasm is both financial and technological. Over the past four decades, leading shipbuilders overseas have incorporated advanced manufacturing, automation, and digital integration systems. South Korea transformed its shipbuilding starting in the 1970s from labor-intensive to technology-driven by investing in modernizing facilities and reimagining production practices—changes that allowed the nation's yards to

[75] Heekyong Yang, Joyce Lee & Hyunjoo Jin, *South Korean firms pledge $150 billion in US investments at summit*, REUTERS (Aug. 26, 2025) https://www.reuters.com/business/aerospace-defense/south-korean-firms-pledge-150-billion-us-investments-summit-2025-08-26/.

[76] Peter Eavis, *U.S. Ships Championed by Trump Cost 5 Times as Much as Asian Ones*, N.Y. TIMES (May 27, 2025), https://www.nytimes.com/2025/05/27/business/economy/trump-shipbuilding-china.html.

remain cost-competitive, despite rising wages.[77] Likewise, Japanese yards invested in modular construction techniques and project management such that, even as early as the 1980s, they could produce ships faster, more reliably, and using less than half the material input costs of U.S. yards.[78]

Today, many U.S. facilities operate in a bygone era of production, relying on outdated machinery and inefficient techniques. According to one industry expert, the welding cost per foot of steel in the United States is roughly seventy times more expensive than in China.[79] The differences stem from a combination of higher U.S. wages, technological neglect, procedural inefficiencies, and lack of project optimization. Studies from the early 1980s found that Japanese shipyards could produce ships using just 25-35% of the labor hours required by U.S. yard.[80] By the 2000s, U.S. shipbuilders required two to four times more labor hours than European or Korean yards for equivalent work.[81]

These foundational conditions exacerbate other problems. U.S. commercial shipyards build so few vessels that they cannot justify upgrade expenses and redesigns that might pay off over dozens of ships—the output levels of some Asian yards, for example—but not over one or two.[82] Without modern robotic welding, digital design systems, and modular construction techniques, U.S. yards remain uncompetitive; without competitiveness, they cannot secure the order volume needed to justify modernization. This trap—where low volume prevents the investments needed to increase volume—freezes the industry in a technological-obsolescence bind.

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[77] HENRY H. CARROLL & CYNTHIA R. COOK, CSIS, IDENTIFYING PATHWAYS FOR U.S. SHIPBUILDING COOPERATION WITH NORTHEAST ASIAN ALLIES (2025), https://www.csis.org/analysis/identifying-pathways-us-shipbuilding-cooperation-northeast-asian-allies. Upton & Kim, *supra* note 43.

[78] Brian Potter, *Lessons from Shipbuilding Productivity, Part II*, CONSTR. PHYSICS (Mar. 10, 2022), https://www.construction-physics.com/p/lessons-from-shipbuilding-productivity-4b9.

[79] Interview with industry experts. This comparison aligns with Office of Naval Intelligence data suggesting that China has 232 times the shipbuilding capacity of the United States: Matthew Hipple, *China's Navy is Using Quantity to Build Quality,* THE MARITIME EXECUTIVE (Feb. 18, 2024), https://maritime-executive.com/editorials/china-s-navy-is-using-quantity-to-build-quality.

[80] *Id.*

[81] Colton & Huntzinger, *supra* note 30.

[82] On how the industry's small size constrain its development, see MICHAEL ROBERTS & BRYAN CLARK, HUDSON INST., SHORING UP THE FOUNDATION: AFFORDABLE APPROACHES TO IMPROVE US AND ALLIED SHIPBUILDING AND SHIP REPAIR (2024), https://www.hudson.org/supply-chains/shoring-foundation-affordable-approaches-improve-us-allied-shipbuilding-ship-repair-bryan-clark-michael-roberts; Whittier, *supra* note 74.

Global experience shows that shipbuilding subsidies cannot catalyze a step-change in industrial production. Even in periods when the United States offered robust construction subsidies, those subsidies preserved a small industry but did not drive modernization or match the productivity gains of global leaders. The Construction Differential Subsidy program, which operated from 1936 to 1981 and covered up to 50% of ship costs, failed to close the productivity gap—Japanese yards still delivered ships months or years faster using a fraction of the labor hours.[83]

The most recent country to transform its shipbuilding sector, China, did so not through subsidies at the margin, but through expensive and expansive investments in prioritizing maritime power as a political goal. China's state-owned yards operated at chronic losses: they generated an estimated negative 82% return on government investments in shipbuilding. Nonetheless, the yards have been foundational to the nation's broader industrial policy goals.[84] While the finances of Chinese shipbuilding would horrify a commercial investor, the policies have aligned with strategic capacity and political agendas.

Reviving the Construction Differential Subsidy to meet today's challenges would amount to an open-ended financial transfer to private firms without delivering the institutional architecture, capital base, technological modernization, or production scale needed for a genuine revival. At best, it would buy a handful of orders; at worst, it would delay the hard choices about rebuilding capacity. Treating subsidies as the solution mistakes a tourniquet for a transplant.

E. Summoning Private Equity

Private equity is sometimes presented as a way of "unlocking" private investment for U.S. shipbuilding and sidestepping the political hurdles of large, upfront appropriations. On paper, it looks like a way to spare taxpayers and substitute private funds for government spending. In practice, however, it's an accounting conceit that still relies on public money, albeit routed through obscure, time-deferred, and convoluted channels. Relying on a private-equity solutions will still leave U.S. taxpayers

[83] U.S. DEP'T TRANSP., *The Maritime Administration's First 100 Years: 1916 – 2016* (Accessed Dec. 8, 2025), https://www.maritime.dot.gov/history/historical-documents-and-resources/maritime-administration's-first-100-years-1916---2016; U.S. GOV'T ACCOUNTABILITY OFF., Office of the Comptroller General, CED-82-2, MARITIME SUBSIDY REQUIREMENTS HINDER U.S.-FLAG OPERATORS' COMPETITIVE POSITION 24 (1981).
[84] Panle Jia Barwick, Myrto Kalouptsidi & Nahim Bin Zahur, *Industrial Policy: Lessons from Shipbuilding*, 38 J. ECON. PERSPS. 55 (2024).

footing the bill, though the bill will take shape as tax breaks, long-term payment structures, and other incentives instead of direct allocations. Moreover, the bill will likely be larger and will lack the benefits of long-term ownership.

By design, private equity firms siphon off percentages of investment funds: before any money reaches a shipyard, financiers and professional money managers take substantial cuts in management and performance fees—typically 2% of committed capital each year, plus a share of profits.[85] On a $1 billion fund, that can mean $20 million annually will enrich the asset managers, before any steel gets welded, and they'll earn tens of millions more if the investment is successful. That basic fee structure means that, inherently, less capital is available to develop physical capacity. Further, what does arrive tends to prioritize short-term revenues rather than long-term, patient returns the industry requires.[86]

The gap points to a structural mismatch between how private equity operates and what shipbuilding needs. The U.S. industry needs steady, decades-long investment in capital equipment, dry docks, automation, and skilled labor. Private equity funds are built around quicker turnaround cycles with exit timelines, and their financial models reward the early extraction of cash rather than holding assets for long-term productivity. Even when the investors involved are motivated by genuine concern—and some are, including former naval officials and shipbuilding veterans frustrated by congressional delays, political grandstanding, and red tape—the structure of the deal means the public ends up paying more and owning less in the long term.

The hidden mechanics reveal how tapping private capital to lead a shipbuilding turnaround would still depend on public subsidy. Private equity investments in shipyards typically layer multiple forms of government support into deals. They use government incentives such as Opportunity Zone designations, tax deferrals, direct Navy contracts, and federal loan guarantees, among other financial tools.[87] When

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[85] Elvis Picardo, *Two and Twenty: Explanation of the Hedge Fund Fee Structure*, INVESTOPEDIA (Nov. 25, 2024), https://www.investopedia.com/terms/t/two_and_twenty.asp; David J. Phillips, *Understanding the Two-and-Twenty Fee Structure*, FOUNDERJOURNAL (May 12, 2025), https://www.fondo.com/blog/two-and-twenty-vc-fee-structure.

[86] Charles W. Mahoney, Benjamin K. Tkach & Craig J. Rethmeyer, *Defense Contractors, Private Equity Firms, and U.S. National Security*, 7 J. GLOBAL SEC. STUD. 1 (2022).

[87] Sam Lagrone, *Navy Taps Private Equity Fund to Build New Alabama Sub Module Facility, Austal Awarded $152M to Support Effort*, USNI NEWS (Sep. 22, 2024), https://news.usni.org/2024/09/22/navy-taps-private-equity-fund-to-build-new-alabama-sub-module-facility-austal-awarded-152m-to-support-effort; Guy A. Bracuti, *Two if by Sea: The Role of Tax in the U.S. Shipping Revolution*, 188 TAX NOTES FED. 47 (2025).

these subsidies combine, what appears to be private investment is substantially underwritten by public resources. The government provides the capital foundation and bears the risks, and private equity collects management fees and retains ownership of the improved facilities.

This arrangement creates a raw deal for the U.S. public: taxpayers bear the downside through loan guarantees and foregone tax revenue, while private investors capture the upside through management fees and long-term asset ownership. If the goal is to rebuild shipbuilding, public funds should go to building and modernizing yards, paying workers, and reaping the long-term benefits of those investments, rather than rely on financial intermediaries that do not strengthen shipyard productivity. Directly allocating public funds eliminates unnecessary costs and creates a more transparent path to restoring the nation's maritime industrial base.

F. The SHIPS Act

The proposed 2025 Shipbuilding and Harbor Infrastructure for Prosperity and Security for America (SHIPS) Act marks the most visible congressional effort in decades to confront the erosion of U.S. shipbuilding.[88] The legislation calls for a 250-ship strategic fleet, establishes a Maritime Security Trust Fund, and directs new resources toward domestic yards and mariner training. It marks a political breakthrough: for the first time since the Merchant Marine Act of 1970, shipbuilding has returned to the center of national industrial strategy.

Advocates of the legislation hail it as a much-needed "demand signal" to stimulate the market and draw in private investment. The logic is straightforward: inconsistent demand and erratic business cycles have made investors wary of committing the capital that U.S. yards desperately need. A long-term pipeline of orders could, in theory, give private financing the confidence to return.

The challenge is that U.S. shipbuilding needs far more than a signal—it needs an ecosystem. After decades of neglect, the industry is brittle and fragmented. The nation still has skilled designers, capable yards, and a navy-grade industrial tradition, but these strengths operate in isolation—too few shipyards, too little patient capital, and no institution to connect the various needs. In a system this sclerotic, even the most

[88] Shipbuilding and Harbor Infrastructure for Prosperity and Security for America Act of 2025 (SHIPS for America Act of 2025), H.R. 3151, 119th Cong. (2025).

ambitious "demand signal" cannot generate sustained momentum. Without structure and coordination, new funding risks simply dissipating into the cracks of an already broken system.

The first challenge is precarious funding. The bill's proposed Maritime Security Trust Fund would be financed through tariffs and fees on Chinese-linked vessels and cargoes. This funding source ties the entire effort to an unpredictable revenue stream, because these fees often become bargaining chips in trade disputes.[89] Just a few weeks after the fee regime began, the White House froze duty collection as part of larger trade negotiations with China, thereby raising questions about the funding stream on which SHIPS Act programs would depend.[90]

Korea's recent announcement of major investments in U.S. shipbuilding are also promising, but industrial revitalization cannot hinge on financing streams that the United States does not ultimately control. Investors are likely to read such policy pivots as evidence of risk and uncertainty.[91]

A second issue involves administrative fragmentation. While the SHIPS Act gestures toward government coordination, it stops short of creating the dedicated financial or administrative entity that would translate appropriations into capacity. It lacks a financial or administrative entity that could translate appropriations into capacity. The industry has made clear that shipyards require steady series orders, centralized planning, and standardized procurement. [92] Instead, the Act disperses $250 million for construction and $100 million for small-yard grants without sequencing or oversight mechanisms. Without an institutional home to aggregate orders and credit, these funds risk dissolving into isolated projects.

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[89] *Id.*; *What's in the SHIPS for America Act? Key Provisions to Restore U.S. Maritime Power*, GCAPTAIN (Apr. 30, 2025), https://gcaptain.com/whats-in-the-ships-for-america-act-key-provisions-to-restore-u-s-maritime-power/.

[90] Peter Eavis, *Halt in Fees on Chinese Vessels Endangers U.S. Shipbuilding Efforts*, N.Y. TIMES (Nov. 11, 2025), https://www.nytimes.com/2025/11/11/business/commercial-shipbuilding-us-china.html.

[91] Mike Schuler, *Xeneta: SHIPS for America Act Adds New Layer of Complexity to US Maritime Trade*, GCAPTAIN (May 6, 2025), https://gcaptain.com/xeneta-ships-for-america-act-adds-new-layer-of-complexity-to-us-maritime-trade/.

[92] *Hearing on Sea Change: Reviving Commercial Shipbuilding Before the Coast Guard, Mar., & Fisheries Subcomm. of the S. Com., Sci. & Transp. Comm.* (Oct. 28, 2025) (statement of Jeff R. Vogel, Vice President, Legal Tote Services, LLC), https://www.commerce.senate.gov/services/files/FADE12DA-EE39-4F4F-A2EB-B517734EEC9E.

Third, the proposal lacks a vision for workforce renewal. While the SHIPS Act mariner-training and credentialing provisions are relatively detailed, it lacks a more comprehensive strategy for supporting the broader industrial workforce. For U.S. shipyards, the labor crisis extends beyond licensed mariners to welders, fabricators, and project managers—and that revitalization depends on diversifying recruitment pipelines, investing in apprenticeships, and stabilizing mid-career skill retention.[93] Absent parallel commitments to industrial-workforce development and community investment, the SHIPS Act builds ships on paper without rebuilding the people and networks needed to construct them.

It is tempting to look to the CHIPS and Science Act as a model for shipbuilding legislation. But semiconductors operate on radically different economics. A single $15 billion fab can produce hundreds of thousands of chips annually, with rapid turnover and high-margin sales—conditions under which subsidies quickly generate returns.[94] Shipbuilding is low-volume and long-cycle: a $2 billion yard may produce five to ten vessels over several years, each requiring 18 to 36 months to build. Economic payback unfolds over decades, not quarters.

Moreover, semiconductors face a genuine emergency that subsidies can address: Taiwan's dominance creates an acute single-point-of-failure risk.[95] U.S. shipbuilding's challenges are more diffuse and layered. While CHIPS could tackle a specific technical gap for semiconductors, U.S. shipyards face a seventy-fold cost disadvantage in

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[93] Natalie Hayek, *All Hands On Deck,* G.I JOBS (Feb. 2021), https://mydigitalpublication.com/publication/?m=60085&i=691642&p=12; Kuzminski & Schmiegel, *supra* note 5.

[94] Katie Tarasov, *How Micron is building the biggest chip fab in U.S. history despite a China ban and smartphone slump*, CNBC (Oct. 23, 2023), https://www.cnbc.com/2023/10/23/micron-building-biggest-chip-fab-in-us-history-despite-china-ban.html; Katie Tarasov, *TSMC says first advanced U.S. chip plant 'dang near back' on schedule. Here's an inside look at the Arizona fab*, CNBC (Dec. 18, 2023), https://www.cnbc.com/2024/12/13/inside-tsmcs-new-chip-fab-where-apple-will-make-chips-in-the-us-.html.

[95] Gregory Arcuri & Samantha Lu, *Taiwan's Semiconductor Dominance: Implications for Cross-Strait Relations and the Prospect of Forceful Unification*, CSIS (Mar. 22, 2022), https://www.csis.org/blogs/perspectives-innovation/taiwans-semiconductor-dominance-implications-cross-strait-relations, Martin et al., *Supply Chain Interdependence and Geopolitical Vulnerability,* RAND CORP (Mar. 13, 2023), https://www.rand.org/pubs/research_reports/RRA2354-1.html; Crawford et al, *The World Is Dangerously Dependent on Taiwan for Semiconductors*, BLOOMBERG (Jan. 25, 2021), https://www.bloomberg.com/news/features/2021-01-25/the-world-is-dangerously-dependent-on-taiwan-for-semiconductors.

welding alone.[96] This gap reflects a broader systemic collapse that subsidies cannot remedy without institutional architecture. Rebuilding complex industrial ecosystems takes more than capital—it requires the coordinated public investment in demand, supply, and workforce that Liberty Yards, the Maritime Infrastructure Bank, and the workforce revitalization provide.

In sum, these shortcomings mean the SHIPS Act signals political will but not yet a commitment to transforming institutional capacity. Momentum around the legislation could represent a first step, but without durable financing, a coordinating institution, and a comprehensive workforce strategy, it cannot carry the weight of a genuine maritime renaissance. The risk is that the SHIPS Act will squander a rare bipartisan moment on fragmented projects too small, underfunded, and disconnected to spark a true maritime revival.

III. Policy Solution: Public Shipyards

If the United States is serious about restoring its shipbuilding capacity, it cannot rely on marginal fixes. It must commit to large-scale, purpose-built public investment in a system designed from the outset for both commercial and naval needs. This investment should be in three areas: supply, demand, and workforce.

A. Supply Side: Create Four Liberty Shipyards

First, the United States should establish four publicly owned Liberty Yards—national shipyards, each with a regional specialization, that have the scale, focus, and staying power to match global competitors. Just as the Liberty ships of World War II proved the United States could outbuild the world in wartime, the Liberty Yards would show it can do so again in peacetime—this time with a sustained, modern industrial strategy.

These yards would benefit from flexible operational models, including government-owned, contractor-operated—or "GOCO"—arrangements that use foreign expertise from allied nations. One model is Philly Shipyard's recent acquisition by South Korea-based Hanwha Ocean.[97] Rather than a one-size-fits-all approach, Liberty Yards could

[96] Interview with industry experts.
[97] Evie Steele & Adam Reiss, *A flagging U.S. industry looks for new life in a Philadelphia shipyard,* NBC NEWS (July 17. 2025), https://www.nbcnews.com/business/business-news/flagging-us-industry-looks-new-life-philadelphia-shipyard-rcna219059.

use GOCO and GOGO (government-owned, government-operated) formats, depending on local needs and capacities. The key, however, is long-term public investment and a focus on capacity building and workforce development.

To avoid the pitfalls of top-down industrial siting, Liberty Yards would be selected based on regional fit and existing industrial strength. In project implementation, locations would be identified through a competitive, criteria-based process. Communities, workforce partners, allied firms, and private operators would have to demonstrate alignment, co-investment, and long-horizon commitment. In other words, Liberty Yards succeed only where local and regional stakeholders want them—and where the industrial ecosystem can genuinely sustain them. The federal role is not to dictate geography, but to create the financial, organizational, and technological scaffolding that lets the best-positioned regions rise to the opportunity.

A possible configuration of Liberty Yards would include the following characteristics and geographic distribution:

1) The Eastern Liberty Yard would target a niche of the market where the U.S. can realistically compete: LNG-powered, mid-sized containerships optimized for speed rather than scale. Industry experts note that U.S. yards while struggle to best Asian competitors in building massive post-Panamax containerships.[98] The United States could, however, carve out a position in faster, cleaner ships suited for transatlantic routes where speed premiums and environmental regulations create competitive advantages.[99] These vessels could also serve domestic routes under Jones Act provisions—particularly on corridors where no existing U.S. operators currently compete, thus expanding rather than cannibalizing the domestic market.

   The Eastern facility—potentially co-located with existing infrastructure in Philadelphia, Newport News, or Groton—would be an ideal candidate for GOCO partnerships that bring cutting-edge LNG propulsion expertise. The

[98] On the low competitiveness of U.S. shipybuilding, see also: Brian Potter, *Why Can't the U.S. Build Ships?*, NOAHPINION (Sep, 5,2024), https://www.noahpinion.blog/p/why-cant-the-us-build-ships.
[99] On EU environmental regulations for shipping, see RUDY TELLES JR, U.S. INT'L TRADE COMM'N, NEW MARITIME DECARBONIZATION REGULATIONS: BACKGROUND & MARKET EFFECTS (PART 2) (2023), https://www.usitc.gov/publications/332/executive_briefings/ebot_maritime_decarbonization_ii.pdf; Ratih Rajan, Navigating the EU ETS and Fuel EU Maritime Regulations: What You Need to Know for 2025, MAERSK (Oct. 10,2024), https://www.maersk.com/insights/sustainability/2024/10/10/what-you-need-to-know-for-2025.

market for low-carbon-fueled ships is still in its early phases, and the governments of Japan and South Korea have taken decisive steps to support technological development.[100] Indeed, recent announcements of a joint U.S.-South Korean financing framework to support $350 billion in U.S. shipbuilding development suggests movement in this direction.[101] But it is not enough for the United States to merely welcome South Korean investment and expertise.

Rather than hoping that Korean investment in Philly Shipyard can work in isolation, creating an Eastern Liberty Yard would capitalize on these partnerships and investment announcements by establishing U.S. dominance. Such an undertaking would position the United States to develop cutting-edge ammonia- and methanol-ready ships to help support the green shipping industry transformations.[102]

2) The Southern Liberty Yard would focus on the essential backbone of maritime logistics: tankers and bulk carriers built through modular construction. These vessel types offer the clearest dual-use potential between commercial and military needs. Whereas naval combat ships require sophisticate defense-oriented specifications, more generalized supply and support vessels can serve generalized military needs, such as moving relief supplies and transporting troops, as well as commercial purposes.

   But here again, the U.S. military faces glaring shortfalls. Presently, the Navy's Maritime Security Program can satisfy only 10% of surge fuel requirements, meaning that, in case of war, the military would have a 90% shortfall in fuel-

[100] Julian Atchison, *Government Support for Ammonia-Powered Shipping in Japan, Korea*, AMMONIA ENERGY ASS'N (Jan. 28, 2025), https://ammoniaenergy.org/articles/government-support-for-ammonia-powered-shipping-in-japan-korea/.
[101] Moyoun Jon, *US, South Korea Reach $350bn Investment Deal with Shipbuilding Focus*, LLOYD'S LIST (Oct. 30, 2025), https://www.lloydslist.com/LL1155295/US-South-Korea-reach-350bn-investment-deal-with-shipbuilding-focus.
[102] Bentley Allan et al., *How the U.S. Can Stop Losing the Race for Clean Energy*, CARNEGIE ENDOWMENT INT'L PEACE (Feb. 26, 2025), https://carnegieendowment.org/research/2025/02/how-the-us-can-stop-losing-the-race-for-clean-energy?lang=en.

transport capacity.[103] Moreover, the ships in the Ready Reserve Fleet averages 46 years old—twice the age of comparable foreign-flagged vessels.[104] These vulnerabilities suggest that production capacity for tankers and bulk carriers is a national security priority.

The Gulf Coast's extensive industrial base situates it optimally for distributed modular production, with components fabricated across multiple suppliers from Texas to Alabama. This geographic dispersion could also enhance supply-chain resilience by attracting greater manufacturing capacity and developing a robust pipeline of suppliers. The current system's dependence on single points of failure makes the entire industry vulnerable to cascading shutdowns, but a revitalized Gulf Coast shipyard ecosystem would create additional capacity to compensate for disruptions. Moreover, the region's role in energy exports also creates natural demand for the tankers this yard would produce.

3) The North Coast Liberty Yard would anchor a new center of maritime manufacturing excellence along the Great Lakes and integrate the region's dense industrial base into the national shipbuilding supply chain. The Lakes region—long the heart of U.S. manufacturing—already possesses the skilled labor, precision tooling, and logistics capacity that shipbuilding requires. Michigan, for example, has partnered with the Navy to produce submarine components, which can be moved by rail to maritime assembly locations, and expand reskilling initiatives that link automotive expertise with maritime production.[105] Pilot programs with local union leaders have incorporated naval welding certifications into apprenticeship pipelines.

   Such programs demonstrate how cross-sector coordination between unions and policymakers can generate new talent for the maritime industrial base.[106] A North Coast facility would build on these strengths, diversify production capacity, and reduce the geographic concentration of the U.S.

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[103] BRYAN CLARK, TIMOTHY A. WALTON & ADAM LEMON, CTR. FOR STRATEGIC & BUDGETARY ASSESSMENTS, STRENGTHENING THE U.S. DEFENSE MARITIME INDUSTRIAL BASE: A PLAN TO IMPROVE MARITIME INDUSTRY'S CONTRIBUTION TO NATIONAL SECURITY (2020).

[104] RAO, *supra* note 15 at 12.

[105] Lucy Valeski, *Submarine Manufacturing Program Unvelied by Whitmer and National Leaders*, MICH. ADVANCE (July 22, 2024), https://michiganadvance.com/2024/07/22/submarine-manufacturing-program-unveiled-by-whitmer-and-national-leaders/.

[106] Interview with industry experts.

shipbuilding supply chain—creating an inland hub that connects heavy manufacturing to coastal demand.

4) The Western Liberty Yard would close a clear gap in U.S. repair capacity and address a gaping geostrategic deficit, in terms of underdevelopment of West Coast maritime construction capacity. Today, much of the world's commercial repair work gravitates to Asia—home to the densest concentration of large dry docks and specialist firms—and this reliance leaves U.S. operators dependent on overseas yards for schedule-critical work.[107] The Asia-Pacific region currently serves as the hub for commercial ship repair and maintenance, with China as the global leader.[108]

   On the military side, U.S. public and private yards are already oversubscribed. GAO and Navy data show persistent maintenance delays and capacity shortfalls; in 2024 alone, U.S. surface ships (excluding carriers) accumulated 2,633 extra days in depot maintenance beyond plan—effectively costing the fleet years of foregone availability.[109] Recent reviews by the Government Accountability Office have revealed chronic delays and scheduling risks across sustainment and shipyard work, even though funding has risen.[110] Because the domestic system can't absorb all the work, the Navy is expanding overseas repair pathways. Military Sealift Command and fleet auxiliaries are now completing major availabilities in allied Asian yards and pursuing lead maintenance arrangements in Singapore and elsewhere

[107] See, e.g. Sam Chambers, *China's ship repair yards in overdrive as ageing fleet drives global boom*, SPLASH MAR. & OFFSHORE NEWS (Oct. 13, 2025), https://splash247.com/chinas-ship-repair-yards-in-overdrive-as-ageing-fleet-drives-global-boom/; FORTUNE BUS. INSIGHTS, *Summary, Ship Repair and Maintenance Services Market Size, Share & Industry Analysis* (Nov. 17, 2025), https://www.fortunebusinessinsights.com/ship-repair-and-maintenance-services-market-105801.

[108] Namitta Mittal, *India's Ship Repair Sector: Opportunities for Growth*, R.I.S. FOR DEV. COUNTRIES (June 30, 2025), https://www.ris.org.in/en/node/4192; Ole Martin Myrbekk, *China's Repair Yards Surge on Wave of Global Fleet Maintenance*, MARITIME OPTIMA (Oct. 13, 2025), https://maritimeoptima.com/maritime-news/chinas-repair-yards-surge-on-wave-of-global-fleet-maintenance; YOGITA SAHU, KEN RESEARCH, GLOBAL BOAT AND SHIP MRO MARKET OUTLOOK TO 2030 (2024), https://www.kenresearch.com/industry-reports/global-boat-and-ship-mro-market.

[109] Alistair MacDonald, *U.S. Navy Ships Are Languishing in Repair Yards*, WALL STREET J. (Aug. 4, 2025), https://www.wsj.com/us-news/u-s-navy-ships-are-languishing-in-repair-yards-e6358adf.

[110] DIANA MAURER, U.S. GOV'T ACCOUNTABILITY OFF., GAO-25-106990, NAVY SURFACE SHIPS: MAINTENANCE FUNDS AND ACTIONS NEEDED TO ADDRESS ONGOING CHALLENGES (2025).

to cut transit time and downtime.[111]

Commercial operators face the same clock. Repair slippage cascades through voyage schedules and margins, and the global repair market—roughly $30–36 billion annually—remains concentrated in Asia. A West Coast hub sized for large commercial tonnage and complex conversions would shorten sails to service, reduce geopolitical risks, and contribute to the broader reinvigoration of U.S. maritime capacity.[112]

Strategically, a Western Liberty Yard would extend service life for U.S.-flag commercial vessels and, critically, build surge capacity for naval supply vessels. With allied yards already backstopping U.S. needs in Korea, Japan, and Singapore, building a modern West Coast repair complex would convert lost days-in-maintenance into days at sea and greater geopolitical resilience for the U.S. fleet.

All four Liberty Yards would operate on the same production philosophy, which borrows from the Costco-approach to production management: ***Public Label, Prestige Quality***. The aim is not boutique, one-off craftsmanship for niche markets, but high-quality, larger-scale built on scale and focus—the shipbuilding equivalent of Costco's Kirkland Brand.[113] The brand built its success on several foundational principles:

- Limiting the number of designs allows for repeatable builds
- Standardizing components improves supply-chain predictability
- Modularity keeps production moving
- Specialization ensures each division focuses on quality and purpose

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[111] Aaron-Matthew Lariosa, *Navy Supply Ship Completes First Large-Scale Maintenance at South Korean Shipyard*, USNI NEWS (Mar. 13, 2025), https://news.usni.org/2025/03/13/navy-supply-ship-completes-first-large-scale-maintenance-at-south-korean-shipyard; Aaron-Matthew Lariosa, *U.S. Navy Seeks Singapore-based American Contractor For Indo-Pacific Ship Repairs*, USNI NEWS (Oct. 6, 2025), https://news.usni.org/2025/10/06/u-s-navy-seeks-singapore-based-american-contractor-for-indo-pacific-ship-repairs; Craig Fischbach & Kelly Grieco, *Maritime strategy is built in shipyards. Partner with allies to revitalize the industrial base*, BREAKING DEFENSE (Oct. 20, 2025), https://breakingdefense.com/2025/10/maritime-strategy-is-built-in-shipyards-partner-with-allies-to-revitalize-the-industrial-base/.

[112] NIKHIL KAITWADE, FUTURE MKT. INSIGHTS INC., SHIP REPAIR AND MAINTENANCE SERVICE MARKET (2025), https://www.futuremarketinsights.com/reports/ship-repair-and-maintenance-services-market.

[113] Benjamin J. Cohen, *The Pants Cost $20. They Explain $86 Billion of Costco Sales.*, WALL STREET J. (July 11, 2025), https://www.wsj.com/business/retail/costco-kirkland-signature-pants-lululemon-792becb2; CHANSOO PARK ET AL., COSTCO WHOLESALE CORPORATION: MARKET EXPANSION AND GLOBAL STRATEGY (2019).

Similarly, the Liberty Yards' mission would be to focus on achieving excellence in a narrow set of vessel types, rather than chasing every market segment.

Workforce retention would also be a core metric of Liberty Yards' success. One of the most foundational parts of shipbuilding competitiveness is the workforce—cultivating and keeping skilled people. That means competitive pay, strong benefits, and training that builds deep expertise in the specific vessels each yard produces. By focusing Liberty Yards on specific production targets, workers can better master their roles, and low turnover preserves institutional knowledge and supports productivity gains. Whether operated directly by government entities or through partnerships with allied shipbuilders, these yards would prioritize long-term workforce development over short-term returns with a goal of rebuilding not just ships, but the industrial ecosystem that makes such capacity possible.

B. Demand Side: Maritime Infrastructure Bank

Any plan to rebuild U.S. shipbuilding must solve both the supply and demand sides of the maritime equation. New yards and modern production techniques will only succeed if they are matched by a predictable flow of orders. Historically, U.S. shipbuilding has suffered from boom-and-bust cycles wherein yards expand and contract—or collapse—according to surges in defense spending.[114] Avoiding that trap requires a demand-side strategy as deliberate as the organization of shipyard construction.

The federal government is the most important anchor customer. Multi-vessel procurement commitments from the Navy, the Military Sealift Command, the Maritime Administration (MARAD), the Coast Guard, and other agencies serve as the primary customer base for many U.S. shipyards.[115] These government agencies provide a foundation of orders that give yards the stability to invest in tooling, training, and long-run efficiency. Allied fleet integration could further smooth demand cycles, with Liberty Yards producing select vessels for Australia, Japan, or South Korea—and vice versa—under co-procurement agreements.

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[114] Colton & Huntzinger, *supra* note 30; Rao, *supra* note 11.
[115] U.S. DEP'T OF TRANSP., MAR. ADMIN., *FACT SHEET – U.S. DOMESTIC SHIPBUILDING* (July 25, 2024), https://www.maritime.dot.gov/sites/marad.dot.gov/files/2024-07/FACT%20SHEET%20for%20DOMESTIC%20SHIPBUILDING%20%28JULY%202024%29_0.pdf; On the Navy's bulk purchasing patterns, see: Labs, *supra* note 37.

A Maritime Infrastructure Bank (MIB) could transform the demand landscape by making vessel acquisition and fleet upgrades financially attainable for both public and private operators. The MIB would draw on existing federal financing models and be contoured to tackle the specific challenges of maritime industrial revival.

The federal government already operates several successful infrastructure financing mechanisms that demonstrate both the viability of and need for the MIB. The Export-Import Bank of the United States (EXIM) offers one model for using federal funds to support U.S. industries. EXIM provides loans and guarantees for foreigners' purchasing of U.S.-manufactured goods, such as lending to foreign buyers of U.S. aircraft.[116] Similarly, the MIB would support foreign buyers' purchases of U.S. vessels and could work in tandem with EXIM to increase international demand for Liberty Yard production. Likewise, MARAD offers several financial incentive programs to support U.S. maritime industries, from tax deferrals to loan guarantees; however, many of the programs have struggled to raise awareness, attract applicants, demonstrate effectiveness, and drive industry transformation, according to the Government Accountability Office.[117]

Recent proposals calling for a national investment authority offer a useful precedent that would guide MIB formalization and operation. These various proposals for federal and state-backed infrastructure funds draw on the central insight that public funds and regulatory structures can transform slow-to-modernize industries and sectors.[118] A Maritime Infrastructure Bank would apply such models to shipping. It would create a dedicated authority, capitalized by Congress and reinforced by federal guarantees, that makes loans to modernize and expand the U.S. fleet. Moreover, an independent board would help ensure that bank lending focuses on efficient, globally competitive projects, rather than the most politically convenient ones.

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[116] SHAYERAH AKHTAR, CONG. RSCH. SERV., IF10017, EXPORT-IMPORT BANK: OVERVIEW AND ISSUES FOR CONGRESS (2025), https://www.congress.gov/crs-product/IF10017; George Hayes, *Final Boeing 747s to be delivered after US Exim guarantees multi-million-dollar loan*, GLOB. TRADE REV. (Oct. 24, 2022) https://www.gtreview.com/news/americas/final-boeing-747s-to-be-delivered-after-us-exim-guarantees-multi-million-dollar-loan/.

[117] COMMERCIAL SHIPBUILDING: MARITIME ADMINISTRATION NEEDS TO IMPROVE FINANCIAL ASSISTANCE PROGRAMS, *supra* note 23.

[118] Robert C. Hockett & Saule T. Omarova, *Private Wealth and Public Goods: A Case for a National Investment Authority*, 43 J. CORP. L. 437 (2018); WILLIAM J. MALLETT, CONG. RSCH. SERV., IF12585, NATIONAL INFRASTRUCTURE BANK: PROPOSALS IN THE 118TH CONGRESS (2025).

The MIB's financial structure would also be modeled on precedents such as EXIM: an initial Congressional appropriation would provide a foundation of equity. Additional equity support would come from a bond issue: Liberty Bonds for Maritime Security would offer the public the opportunity to invest in long-term, safe, and liquid securities. Like the Federal Reserve's regional banks, the MIB could also admit member-shareholders from industry, such as shipping companies, port authorities, unions, and allied partners. Such a structure would give stakeholders a voice in MIB's operation and provide ways for the public at large to support U.S. maritime security. The independent leadership would help ensure the bank remained an effective lender, rather than a slush fund for pet projects of political elites.

By consolidating federal support for maritime financing, the MIB would fundamentally alter how investors assess shipbuilding. Traditionally, the industry has been a sleepy, low-growth industry reliant on 1950s-era financial structures.[119] By putting the full faith and credit of the United States behind maritime lending, the MIB would incentivize new investments and productivity gains. The bank would also consolidate scattered federal initiatives—from Small Shipyard Grants to Title XI loan guarantees—under an integrated strategic framework.[120]

The bank's financing model recognizes a fundamental market failure that extends beyond ship prices. While Jones Act operators can technically access commercial credit, the maritime industry's chronic financial instability makes lending prohibitively expensive. If a shipyard collapses, banks absorb major losses. Without a government backstop, lenders price this risk into every maritime loan, making even loans even harder to attain.[121]

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[119] Konrad, *supra* note 48. Martin J. Bollinger, *Shareholder Interests Are at Odds with Navy Needs*, 151 U.S. NAVAL INST. PROC. 1464 (Feb. 2025), https://www.usni.org/magazines/proceedings/2025/february/shareholder-interests-are-odds-navy-needs.

[120] COMMERCIAL SHIPBUILDING: MARITIME ADMINISTRATION NEEDS TO IMPROVE FINANCIAL ASSISTANCE PROGRAMS, *supra* note 23.

[121] On global financing challenges Liana Milliotis, *Trends in ship finance*, NORTONROSEFULBRIGHT (Dec. 2017), https://www.nortonrosefulbright.com/en/knowledge/publications/b83d9cbc/trends-in-ship-finance; Stephen Girvin, *Aspects of Ship Finance: The Market, Ship Mortgages and Their Enforcement*, NUS LAW WORKING PAPER No. 2019/015 (Aug. 30, 2019), https://ssrn.com/abstract=3445340; On the dependence of US shipyards on government financing see BEN GOLDMAN, CONG. RSCH. SERV., R46654, U.S. MARITIME ADMINISTRATION (MARAD) SHIPPING AND SHIPBUILDING SUPPORT PROGRAMS (2021), https://www.congress.gov/crs-product/R46654.

The MIB addresses this through three complementary mechanisms. First, gap financing during the transition period: while U.S. yards scale up and modernize, the bank absorbs part of the price differential between U.S.-built and foreign-built vessels, making orders economically viable for operators. Second, demand aggregation: by coordinating procurement across Navy, Coast Guard, MARAD, and commercial fleets, the MIB creates multi-vessel order pipelines that justify yard modernization—solving the collective action problem that no individual operator can address. Third, and most critically, risk backstopping: following the model proposed by maritime analysts, the MIB would guarantee to purchase U.S.-flagged vessels from struggling operators at fair market value, which would protect lenders from catastrophic losses. The program—modeled on the Federal Deposit Insurance Corporation's work—would support greater maritime lending and shift investors' perceptions of shipping as a high-risk gamble into a viable activity.[122]

As Liberty Yards achieve efficiency through volume and modern techniques, gap subsidies should diminish. But the MIB's risk-management role remains permanent—providing the institutional stability that allows private capital to flow into an industry critical to national security.

With this financial structure in place, the MIB's could also underwrite large orders and fund buyback programs for upgrading obsolete vessels. This Rebate for Rust Buckets initiative would both modernize the aging U.S. fleet and keep Liberty Yards and other U.S. shipbuilders supplied with steady orders. Like the Cash-for-Clunkers program—which stimulated the auto industry after the 2008 financial crisis—the maritime rebate program would help shipowners modernize their fleets while offsetting the expensive and time-consuming repairs that impede the readiness of military supply vessels.[123]

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[122] Konrad, *supra* note 48.

[123] The legacy of "Cash-for-Clunkers" showed mixed success: it stimulated short-term automobile purchasing and helped change the mix of vehicles on US roadways, but some economic studies suggest it did so at considerable expense to US taxpayers and with subsequent distortions to the used-car market. The program's legacy could guide better customization of a shipbuilding rebate program. *See generally* Christina Romer & Christopher Carroll, *Did 'Cash-for-Clunkers' Work as Intended?*, WHITE HOUSE (Apr. 5, 2010), https://obamawhitehouse.archives.gov/blog/2010/04/05/did-cash-clunkers-work-intended; Shanjun Li, Joshua Linn & Elisheba Spiller, *Evaluating "Cash-for-Clunkers": Program Effects on Auto Sales and the Environment*, 65 J. ENV'T ECON. & MGMT. 175 (2013), https://www.sciencedirect.com/science/article/abs/pii/S0095069612000678; Kimberly Blanton, *Cash for Clunkers Had Modest and Short-Lived Effects*, NBER DIG. (2011), https://www.nber.org/digest/feb11/cash-clunkers-had-modest-and-short-lived-effects; Ted Gayer & Emily Parker, *Cash for Clunkers: An Evaluation of the Car Allowance Rebate System*, BROOKINGS (Oct. 30, 2013), https://www.brookings.edu/articles/cash-for-clunkers-an-evaluation-of-the-car-allowance-rebate-system/.

Finally, the MIB's work would extend beyond new construction to the support of repair and maintenance contracts. Industry experts note that repair work is often the key to long-term viability of shipyards because repair and maintenance operations provide a stable flow of jobs even when new orders slow.[124] By financing life-extension overhauls, environmental retrofits, and major maintenance, the MIB would ensure that Liberty Yards and their supplier networks remain active year-round and thus create the kind of predictable demand that makes scale, efficiency, and workforce retention possible.

C. Workforce Development: The Maritime Workforce Reserve

Finally, even the most advanced shipyard cannot succeed without the people to run it, and shipbuilding already faces a critical shortage of workers—especially welders, fitters, electricians, and naval architects. The Navy needs 100,000 new workers by 2040 to meet the demands of submarine construction alone.[125] Yet a recent program to recruit naval shipbuilders saw 50-60% attrition in the first year.[126] The reason is clear: the industry offers 20th-century jobs for a 21st-century economy. If workers can make nearly the same money pulling espressos as welding ships, few will be incentivized to face extreme temperature, handle heavy machinery, or endure long commutes to revitalize the industry.

The solution isn't another jobs program: it's the creation of a new shipbuilding workforce—the Maritime Workforce Reserve—to transform modern shipyard work into a compelling, twenty-first century career.

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[124] *See generally* Robert Kunkel, *The U.S. Ships for America Act … In a Corked Bottle*, MARINELINK (May 28, 2025), https://www.marinelink.com/news/opinion-us-ships-america-act-a-corked-526239; Brooke Weddle et al., *Charting a New Course: The Untapped Potential of American Shipyards*, MCKINSEY & CO. (June 5, 2024), https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/charting-a-new-course-the-untapped-potential-of-american-shipyards; One private-sector analysis suggests that maintenance and repair operations could generate up to four times more profit than new construction projects for U.S. shipyards. *See* Brooke Weddle et al., *Rising Tide: How Private Equity Can Lift the Shipbuilding Industry*, MCKINSEY. & CO. (Apr. 7, 2025), https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/rising-tide-how-private-equity-can-lift-the-shipbuilding-industry.

[125] Team Submarines Public Affairs, *US Navy Submarine Industrial Base Celebrates Growing Workforce*, NAVSEA(2023), *available at* https://www.navsea.navy.mil/Media/News/Article-View/Article/3444392/us-navy-submarine-industrial-base-celebrates-growing-workforce/.

[126] Justin Katz, *Amid shortage, Navy recruiting program struggles to keep half first-year shipbuilders: Official*, BREAKING DEFENSE, (Mar. 26, 2025), https://breakingdefense.com/2025/03/amid-shortage-navy-recruiting-program-struggles-to-keep-half-first-year-shipbuilders-official/.

The Workforce Reserve leverages best practices from private employers, such as Costco's workforce model, and combines it with public benefits and educational supports. Costco reduced turnover to just 15% by paying workers substantially above market rate.[127] The Reserve could strive for even better by offering compensation packages that compete with skilled trades and technology jobs. While specific wages would vary by region and specialization, the goal would remain constant: shipbuilding must offer a significant premium over alternative careers to attract and retain talent.

Benefits should also attract and retain workers. Healthcare should match federal employee standards, retirement benefits should be immediate and substantial, and housing assistance should be available in high-cost areas. Even seemingly minor improvements matter: one shipyard sought to boost morale by adding a Chick-fil-A and free wi-fi to its cafeteria. "It's a hundred little things like that that we want to do to tell people that they're important and attract them and keep them," said Ingalls Shipbuilding President Kari Wilkinson about the company's recent upgrades.[128]

While the SHIPS Act contains promising provisions for mariner training, a broader shipbuilding workforce strategy—creating the Maritime Workforce Reserve—would expand apprenticeships, technical school partnerships, and collaborations with industry leaders to create a more robust career pipeline of trained workers.

The workforce efforts would operate through three integrated divisions:

- Maritime Workforce Active forms the permanent workforce in Liberty Yards and certified private facilities. These full-time shipbuilders would handle daily production while maintaining the institutional knowledge essential for complex projects.

- Maritime Workforce Academies create a sustainable training pipeline. Participants earn competitive wages while learning through a combination of classroom instruction, virtual reality simulators like HII's welding labs, and hands-

[127] Park et al, *supra* note 113.
[128] Marcus Weisberger, *OK Boomer: What Today's Young Shipyard Workers Want*, DEFENSEONE (Jan. 10, 2023) https://www.defenseone.com/business/2023/01/ok-boomer-what-todays-young-shipyard-workers-want/381671/.

on yard experience.[129] The federal government covers training costs in exchange for a multi-year service commitment—essentially reversing the GI Bill model. Technical schools, community colleges, and high school programs provide multiple entry paths, with industry veterans serving as instructors.

- Maritime Workforce Reserve maintains surge capacity for emergencies or rapid fleet expansion. Reserve members work in commercial yards or related industries but train two weeks annually at naval shipyards to maintain proficiency with military specifications. This creates a mobilization-ready workforce that can scale up within 30 days when needed.

The combined programs would complement existing shipyard workforces rather than replacing them. Private yards could access public training and certification programs while maintaining their own pay structures, with flexibility to adopt full or partial participation based on their capabilities. For yards unable to match the Reserve's compensation immediately, the Maritime Infrastructure Bank would provide transitional support through workforce development loans, training subsidies, and productivity investments that enable gradual wage increases.

The return on investment is clear: reducing attrition from over 30% to a goal of 10% means training investments would compound rather than evaporate. A career-oriented workforce, rather than a gig-dependent one, preserves shipyards' institutional knowledge and ensures the nation has a workforce surge capacity eliminates cold starts in emergencies. By both raising industry standards and providing financial pathways for adaptation, the workforce investment would transform shipbuilding from an overlooked relic of the industrial past into a modern career path—ensuring the United States has the skilled workforce needed to rebuild its maritime capacity.

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[129] Press Release, HII, HII's Ingalls Shipbuilding Opens New Virtual Reality Welding Lab, (Jan. 30, 2025), https://hii.com/news/hiis-ingalls-shipbuilding-opens-new-virtual-reality-welding-lab/. On existing apprenticeship and training programs, see, for example: Matt Grahn, *Electric Boat to hire 3000 workers in 2025: What's the state of manufacturing in eastern CT?*, NORWICH BULLETIN, (Feb. 4, 2025), https://www.norwichbulletin.com/story/news/local/2025/02/04/general-dynamic-electric-boat-to-hire-3000-workers-in-2025/78193474007/; Press Release, Virginia Economic Development Partnership, Governor Northam Announces Partnership to Promote Hiring at Newport News Shipbuilding (June 26, 2018), https://www.vedp.org/press-release/2018-06/NewportNewsShipbuilding%20; Bryant Harris, *Gulf shipyards struggle to find workers amid shipbuilding spree*, DEFENSENEWS (Apr. 25, 2023) https://www.defensenews.com/industry/2023/04/25/gulf-shipyards-struggle-to-find-workers-amid-shipbuilding-spree/.

IV. Implementation

The United States does not have the luxury of a slow rollout. The industrial gap with global competitors is widening every year, and shipyard capacity cannot be instantly produced in a crisis. Developing the Liberty Yards, Maritime Infrastructure Bank, and Ironclad Corps must begin while plans are still being finalized, so momentum builds from the first appropriation. This proposal charts three phases to scaffold development.

In the first year, Phase I would involve chartering and capitalizing the Maritime Infrastructure Bank, selecting Liberty Yard sites, and launching workforce training cohorts. At the same time, the plan would deploy stop-gap measures to satisfy urgent production needs. Investments could support reflagging suitable foreign-built vessels into the U.S. registry and coordinating with foreign allies' yards to begin construction on ships the U.S. cannot yet produce domestically. These steps can strengthen the U.S. fleet, deepen allied industrial relationships, and buy time for domestic yards to come online.

Phase II—Years 2 and 3—would see the build-out of the four Liberty Yards. The plan would include constructing new facilities, modernizing existing yards, installing modular fabrication lines, and strengthening the supplier networks that will feed them. The Maritime Infrastructure Bank would begin issuing loans and guarantees to finance early vessel orders and major repair contracts, ensuring yards have steady work as they ramp up. Finally, the Maritime Workforce Reserve would begin training cohorts of mariners.

In Phase III, Years 4 to 8, the program would reach full operational pace. Each Liberty Yard would reach full operational capacity, with workforce retention rates would work to meet the 15% turnover target. The Maritime Infrastructure Bank would refine its programmatic focus and capture best practices to consider applying in other defense industrial base transformations. This phase would also see the Maritime Workforce Reserve fully operational, creating a trained surge workforce capable of supporting both commercial and naval production.

Beyond Year 8, Liberty Yards would continue to evolve with shifting market, technological, and geopolitical imperatives. That means ongoing investment in automation and green propulsion systems, targeted expansion into new vessel classes,

and continuous alignment between yard capacity and fleet renewal cycles. Repair and maintenance should remain a core business line, providing a steady revenue stream and preserving workforce stability through market fluctuations.

Successful implementation depends on clear policy priorities: securing predictable demand, investing in workforce, maintaining public control of key yard assets, and integrating repair capacity from the outset. These measures will determine whether Liberty Yards become a permanent pillar of U.S. industrial strength or fade into another short-lived experiment.

V. Costs and Counterarguments

These initiatives require a significant investment—an estimated $9.8 to 15.4 billion in the initial five years (accompanying appendices contains a compendium of projected costs). That may sound large in isolation; however, it's worth contextualizing the cost by considering the relief package for U.S. airlines during the pandemic cost more than $50 billion.[130] A single nuclear-missile submarine is projected to cost $16 billion.[131] Unlike individual warships, however, Liberty Yards, the MIB, and the Maritime Workforce Reserve would deliver sustained industrial capacity—producing multiple classes of vessels, maintaining and repairing existing fleets, supplying allied orders, and supporting a dynamic workforce—for decades.

The upshot is that the United States *can* afford to catalyze a transformation in its shipbuilding industry. The bigger question is *will* it choose to do so. This section addresses the most common counterarguments and resistance points.

[130] David Shepardson, *U.S. airlines to defend $54 billion COVID-19 government lifeline*, REUTERS (Dec. 15, 2021), https://www.reuters.com/business/aerospace-defense/us-airlines-defend-54-billion-covid-19-government-lifeline-2021-12-15/.
[131] Anthony Capaccio, *Next-Gen US Missile Submarine Sees a $1.7 Billion Cost Hike*, BLOOMBERG (July 22, 2025), https://www.bloomberg.com/news/articles/2025-07-22/next-gen-us-missile-submarine-sees-a-1-7-billion-cost-hike.

1) Government Ownership

Critics often object that the U.S. government does not own factories—and shouldn't start now.[132] That claim is both historically inaccurate and conceptually misguided. The U.S. government has a long record of owning or co-owning productive facilities when national security, economic stability, or technological leadership demanded it. Current examples include the Navy's repair yards and the Army's ammunition plants.[133] Historically, the government has owned facilities as diverse as a rum distillery in Puerto Rico and the power plants that electrified the Tennessee Valley.[134] Moreover, the Trump Administration has recently moved to acquire equity stakes in Intel, critical minerals firm MP Materials, U.S. Steel, and Westinghouse—investments justified on grounds of national security, industrial resilience, and fair return for taxpayer capital.[135]

As these examples reveal, the United States has repeatedly used public ownership to address gaps between what private capital prioritizes and what U.S. national interests demand. Even Adam Smith, the eighteenth-century thinker credited as the father of free-market economics, acknowledged that maritime power was too vital to national security and prosperity to be left entirely to the invisible hand.[136]

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[132] Greg Ip, *The U.S. Marches Toward State Capitalism With American Characteristics*, WALL ST. J. (Aug. 11, 2025), https://www.wsj.com/economy/the-u-s-marches-toward-state-capitalism-with-american-characteristics; Danbielle Myles, *White House equity grabs deepen pivot to state capitalism,* FDI INTELLIGENCE (Sep. 30, 2025), https://www.fdiintelligence.com/content/3853b6a7-c4b9-472c-a734-ad274bb5372e; Sarah Fortinsky, *GOP senator: US stake in Intel would be 'step toward socialism'*, THEHILL (Aug. 20, 2025), https://thehill.com/homenews/senate/5462706-rand-paul-intel-socialism/; William Henagan & Ely Sandler, *State Capitalism in America: The Government as Investor, Broker, Rentier…Thug?*, COUNCIL ON FOREIGN RELS. (Oct. 28, 2025), https://www.cfr.org/article/state-capitalism-america-government-investor-broker-rentierthug.

[133] Mike Stone, *US Army Opens New 155mm Artillery Munitions Plant in Texas*, REUTERS (May 30, 2024), https://www.reuters.com/business/aerospace-defense/us-army-opens-new-155mm-artillery-munitions-plant-texas-2024-05-29/.

[134] KATHRYN OLMSTED & ERIC RAUCHWAY, *Tropical Laboratory: The New Deal's Experiment in Rum, Socialism, and Civil Rights in the Caribbean*, *in* HOW THE NEW DEAL WAS RUN (Sarah Igo & Ganesh Sitaraman eds., Chicago University Press forthcoming).

[135] Joel Dodge, *The Cases for Government Equity Stakes*, VAND. POL'Y ACCELERATOR (Nov. 12, 2025), https://vanderbiltpolicyaccelerator.substack.com/p/the-cases-for-government-equity-stakes.

[136] Beth Baltzan, *Relearning Adam Smith's Lessons on Trade*, 9 AM. AFF. No. 3, https://americanaffairsjournal.org/2025/08/relearning-adam-smiths-lessons-on-trade/.

A potential pushback to public ownership of shipyards involves the concern that private enterprises would have to compete with government production.[137] Yet this logic misunderstands the fundamentals of today's shipbuilding landscape, where no robust private market presently exists. The Liberty Yards' purpose is not to crowd out competition but to restore it—creating baseline capacity, stabilizing supply chains, and setting transparent cost and quality standards that private yards can build upon. When the private sector cannot sustain strategic production, government ownership is not socialism; it is stewardship, grounded in a long U.S. tradition of state involvement in essential industries.

The Liberty Yards proposal stands squarely within that tradition. Public shipyards would serve as cornerstone institutions that the nation can rely on when private markets cannot create workforce pipelines or meet national security needs. The model recognizes, as Smith did and as modern policymakers again acknowledge, that certain industries—such as critical minerals, semiconductor fabrication, and shipbuilding—are too strategic to be left to speculative finance or global oligopolies.[138] When both economics and geopolitics point to public leadership, ownership is not a deviation from the foundational principles of U.S. governance, but rather a way to defend those principles.

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[137] Harral Burris, *The Government Should Not Demand Shares in Companies*, DEMOCRACY OF HOPE (Sep. 3, 2025), https://democracyofhope.substack.com/p/the-government-should-not-demand; This point emerges starkly in a forthcoming paper from Joel Dodge, *Made By America: Public Factories in the United States,* VAND. POL'Y ACCELERATOR. As Dodge notes, a 1955 report to Congress by the Second Hoover Commission recommended limiting government-ownership models pursued during the New Deal and World War II to exceptional situations such as wartime emergencies. COMM'N ON ORG. OF THE EXEC. BRANCH OF THE GOVT., BUSINESS ENTERPRISES: A REPORT TO CONGRESS 12 (May 1955) available at https://www.google.com/books/edition/Business_Enterprises/-RjRAAAAMAAJ?hl=en&gbpv=1&bsq=unfair%20competition; See also: MARK R. WILSON, DESTRUCTIVE CREATION: AMERICAN BUSINESS AND THE WINNING OF WORLD WAR II 267 (2016); John S. Hoff, *The Public Health Insurance Option: Unfair Competition on a Tilting Field*, HERITAGE FOUND. (Aug. 26, 2009), https://www.heritage.org/health-care-reform/report/the-public-health-insurance-option-unfair-competition-tilting-field.

[138] Christos A. Makridis, *The Economics of Geopolitics*, 9 AM. AFF. No. 4, https://americanaffairsjournal.org/2025/11/the-economics-of-geopolitics/; Heidi Crebo-Rediker, *America's Most Dangerous Dependence*, FOREIGN AFFS. (May 7, 2025), https://www.foreignaffairs.com/united-states/americas-most-dangerous-dependence; Kevin Honglin Zhang, *Geoeconomics of US-China tech rivalry and industrial policy*, 4 ASIA & GLOBAL ECON. 2 (2024).

2) Efficiency

Relatedly, a common pushback is that government-owned shipyards are destined to be lumbering, inefficient, and low-innovation endeavors. The concern is real—but so is the evidence that unregulated private ownership can be worse. Across sectors from health care to education, private-equity control has often prized short-term returns over long-term capability. The result is not efficiency but exhaustion: debt-loaded firms, degraded service, and a public left paying for subpar services and infrastructure neglect.

Shipbuilding is especially ill-suited to that model. It requires long-term capital commitments and skilled labor, not risk arbitrage. Public yards can bypass the compulsion to financialize every decision and, instead, prioritize investing in workers and long-term improvements. Moreover, because those workers are public employees, the wages, training, and health benefits that underpin a high-quality workforce become part of the system, not an afterthought.

History bears this out. The spikes of productivity in U.S. shipbuilding during World War II, for example, were not the work of speculative capital. They succeeded because the federal government coordinated finance, design, and labor at scale, investing directly in facilities and tooling.[139] The yards themselves varied in ownership, but the system was public: oversight, financing, and guarantees came from Washington.[140] That coordination, rather than financialization for short-term gain, produced the ships that met the nation's moment.

Public shipyards may make missteps, but they will do so in the open, under rules of transparency and accountability that allow citizens to demand improvement. The alternative is opacity: contracts and costs buried in private accounting, and an industry that serves investors before it serves the nation.

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[139] Brian Potter, *How the US Built 5,000 Ships in WWII*, CONSTR. PHYSICS (May 7, 2025), https://www.construction-physics.com/p/how-the-us-built-5000-ships-in-wwii; Rao, *supra* note 15.

[140] SOPHIE COHEN & RYAN MULHOLLAND, CTR. FOR AM. PROGRESS, PRESIDENT TRUMP SAYS HE WANTS MORE U.S. SHIPBUILDING—HERE'S HOW TO DO IT WELL (2025), https://www.americanprogress.org/article/president-trump-says-he-wants-more-u-s-shipbuilding-heres-how-to-do-it-well/; ANDREW BOSSIE & J.W. MASON, ROOSEVELT INST., THE PUBLIC ROLE IN ECONOMIC TRANSFORMATION: LESSONS FROM WORLD WAR II (2010), https://rooseveltinstitute.org/wp-content/uploads/2020/07/RI_WWII_Working-Paper_202003-1.pdf.

3) Expense

Another critique is the concern that U.S. yards can never match foreign producers' productivity or unit costs. In a narrow sense, that objection might hold: South Korea and China can build many categories of vessels more cheaply. But cost parity is not the goal. Neither is outbuilding China. The goal is strategic resilience. In a crisis, relying on foreign yards introduces delay, risk, and dependency. A network of domestic yards helps ensure that the United States can build and repair the ships it needs, when it needs them.

4) Outsourcing Ease

Others will suggest the United States should rely entirely on allies for new tonnage. While friendshoring and alliance development must be part of the solution, outsourcing production is not enough. Allied yards fall within strike range of potential adversaries, face their own domestic priorities, and cannot be assumed to have spare capacity to meet U.S. needs in an emergency.

5) Repercussions for Existing Shipyards

Existing shipbuilders may understandably worry that Liberty Yards and the Maritime Workforce Reserve will exacerbate their workforce challenges, forcing them to compete even harder for scarce talent while driving up labor costs. These concerns deserve serious responses.

First, the Maritime Infrastructure Bank would provide comprehensive transitional support specifically designed to help private yards compete. Rather than scrambling for multiple federal programs with different requirements and timelines, shipbuilders would access a single portal for workforce development loans, training subsidies, equipment modernization funds, and bridge financing during wage transitions. The MIB could offer below-market rates for yards that commit to Maritime Workforce Reserve training standards, effectively subsidizing the wage increases needed to retain workers.

Second, the program addresses the root cause of workforce scarcity rather than simply redistributing existing workers. The Reserve's training pipeline would vastly increase current industry capacity, while making shipbuilding visible to a generation that doesn't even know these careers exist. When the pie grows dramatically, competition for individual workers becomes less zero-sum. Private yards would benefit from Reserve-trained workers with experience from other facilities and certification in standardized skills.

Third, while Liberty Yards would focus primarily on commercial vessels, greater U.S. shipbuilding resilience could help stabilize the broader supply chain. Naval construction requires different production standards and supplier customization, so not all benefits flow equally from commercial to naval construction. However, the expansion of total U.S. shipbuilding from 0.1% to even 1.5% of global capacity could strengthen the ecosystem that all yards depend upon, from steel suppliers to marine electronics to specialized subcontractors, as well as attract talent and foster innovation in the sector.

Fourth, the program offers private shipbuilders something they've lacked for decades: predictable, long-term federal commitment to the industry. Rather than lurching between feast and famine based on congressional appropriations, yards could plan multi-year investments knowing that Liberty Yards, the Maritime Workforce Reserve, and MIB financing represent durable infrastructure. This certainty makes it easier to justify capital improvements, workforce development, and capacity expansion that private capital markets have been unwilling to support.

Ultimately, critics may say new yards will take too long to change geopolitical calculations or remake the nation's defense industrial base. That is why this plan starts with immediate actions—reflagging foreign-built vessels, placing early allied orders, and expanding repair capacity—to deliver results within the first two years. Liberty Yards are not a distant bet; they are a scaffolded plan that will produce early wins while building permanent capacity. The cost of action is high, but the cost of inaction is higher. Right now, the United States can restore its maritime industrial base to safeguard national security for generations. The investment not only creates shipyards: it builds sovereignty, security, and economic resilience.

Conclusion

Rebuilding U.S. shipbuilding demands a decisive break from the patchwork fixes of the last forty years. The Liberty Yards, the Maritime Infrastructure Bank, and the Maritime Workforce Reserve can reverse the full spectrum of decline, from outdated facilities to an aging and unstable workforce. This is not a plan to tweak an existing system. It is a plan to replace a failing system with one built for scale, specialization, and steady demand.

The depth of maritime neglect is profound. Resolving it is not merely a matter of hiring more welders or buying fancier equipment. A maritime transformation requires rethinking career pipelines that make modern shipbuilding possible. Among the top dozen or so graduate engineering programs in the United States, only one has a stand-alone PhD in Naval Architecture & Marine Engineering—the University of Michigan, while the rest have either eliminated such programs or embedded the specialization within broader disciplines.[141] Of the few remaining faculty who teach naval engineering and maritime architecture, many are nearing retirement, and U.S. higher education lacks a new generation of talent to replace them.

Inside existing yards, the effects of chronic underinvestment are unmistakable, even in mundane details. Some facilities have sought to use federal grants to upgrade facilities for workers, such as gyms, cafeterias, and parking options.[142] Adequate parking was such a problem in one facility that workers resorted to paying nearby homeowners for lawn parking, like overflow parking for football games.[143] The Maritime Administration (MARAD), responsible for overseeing the nation's entire commercial maritime portfolio, employs roughly 800 people; meanwhile, the Federal Aviation Administration has 45,000.[144] Expecting small subsidies or "demand signals" to fix neglect of this magnitude is an exercise in denial.

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[141] On the top-10 rankings, see 2025 Best Engineering School Rankings, U.S. NEWS & WORLD REP., https://www.usnews.com/best-graduate-schools/top-engineering-schools/eng-rankings (last visited Nov. 25, 2025). The University of Michigan, ranked 11, offers such training but it is one of the only in the United States. *See Naval Architecture & Marine Engineer Doctoral Program*, UNIV. MICH., https://name.engin.umich.edu/home/graduate/ph-d-degree/ (last visited Nov. 25, 2025). Texas A&M also offers a Doctor of Philosophy (PhD) degree in Ocean Engineering. *See Doctor of Philosophy in Ocean Engineering*, TEX. A&M UNIV., https://engineering.tamu.edu/ocean/academics/degrees/graduate/phd.html (last visited Nov. 25, 2025).

[142] Mallory Shelbourne, *HII Awarded $78M for Quality of Life Improvements at Newport News,* USNI NEWS (July 15, 2024), https://news.usni.org/2024/07/15/navy-issues-hii-78m-contract-mod-that-includes-quality-of-life-facility-at-newport-news; Craig Hooper, *Navy Paying Too Much For Quality-Of-Life Improvements At HII Shipyard*, FORBES (Aug. 6, 2024), https://www.forbes.com/sites/craighooper/2024/08/06/navy-paying-too-much-for-quality-of-life-improvements-at-hii-shipyard/.

[143] Press Release, General Dynamics, General Dynamics Bath Iron Works to Invest in New Parking Garage (Mar. 19, 2025), https://www.gdbiw.com/press-media/general-dynamics-bath-iron-works-to-invest-in-new-parking-garage/.

[144] David Shepardson, *FAA Plans to Furlough 11,000 Employees in US Government Shutdown*, REUTERS (Sep. 30, 2025), https://www.reuters.com/business/world-at-work/faa-would-furlough-11000-employees-us-government-shutdown-2025-09-30/; ANDREW VON AH, U.S. GOV'T ACCOUNTABILITY OFF., GAO-25-107460, MARITIME ADMINISTRATION: ACTIONS NEEDED TO HELP ADDRESS WORKFORCE CHALLENGES (2025), https://www.gao.gov/products/gao-25-107460.

Technology must drive the resurgence of U.S. shipbuilding, but it cannot replace the fundamentals of capacity and craft. U.S. yards remain equipped for the Cold War era and lag decades behind global peers in tooling, automation, and environmental standards. That is both a problem and an opening. Steelwork cannot rely on software alone, but technology can make it smarter, cleaner, and safer. A serious maritime strategy sees this moment not as a search for a Silicon Valley silver bullet, but as an opening to modernize how ships are conceived, built, and maintained.

New yards should be designed not to today's standards but to meet the needs of tomorrow's customers. That means integrating low-emission propulsion systems, automating repetitive and hazardous tasks, and using AI-driven predictive maintenance to keep vessels in service longer. Modernization in steel and circuitry together can make U.S. shipbuilding globally competitive, if the surrounding institutional ecosystem is strong enough to sustain those investments.

A national shipbuilding base is an industrial asset and an enabler of military readiness. Modern, well-staffed yards allow the United States to compete in commercial segments that have been ceded to others. They ensure repairs and overhauls happen within U.S. jurisdictions. They create stable, long-term jobs that can lift communities and sustain technical expertise. Without this foundation, both defense and commerce remain exposed to the risks of foreign dependence.

The choice is immediate and concrete. Either the United States reinvests now in the infrastructure, people, and institutions needed to restore its maritime strength—or it accepts a future of eroding capacity and dependence. The tools are there. The political will exists. What remains is a plan—and the seriousness—to act before the window closes.

Appendix A: Overview of Projected Costs

These cost estimates—between $9.8 and 15.4 billion for the Liberty Yards, the Maritime Infrastructure Bank, and the Maritime Workforce Reserve over five years—are intended as a good-faith attempt to approximate the public expense of launching such a vast undertaking. Because even seasoned industry practitioners and naval-yard experts lack authoritative benchmarks for projecting maritime costs, precise numbers remain out of reach.[145] Nonetheless, anchoring cost expectations can help inform a public conversation about the viability and implementation strategy to support a maritime transformation.

Methodology and Approach: Creating these estimates involved the following inputs: more than a dozen conversations with industry experts, comments from five external reviewers, public and private shipyard cost assessments, and modeling to reflect recently announced U.S. shipyard investments. To reflect variation in site conditions, scale, and implementation strategies, we present a full cost range rather than a point estimate. The ranges enable flexibility depending on which locale and design path are chosen.

A high-end reference point for understanding the cost of maritime revitalization is Hanwha's recently announced $5 billion investment for Philly Shipyard.[146] That investment reflects a specialized upgrade program tailored to LNG-carrier production—one of the most capital-intensive vessel types in global shipbuilding—and the challenges of retrofitting a legacy Mid-Atlantic yard.[147] The Liberty Yards generally focus on vessel classes with lower technical complexity and will ideally be sited in regions where land, permitting, and remediation costs are materially lower.

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[145] Nikki Wentling, *Navy shipbuilding plan would cost $1 trillion over the next 30 years*, NAVY TIMES (Jan. 14, 2025), https://www.navytimes.com/news/your-navy/2025/01/08/navy-shipbuilding-plan-would-cost-1-trillion-over-the-next-30-years/.

[146] Press Release, Hanwha Group, Hanwha announces $5 billion Philly Shipyard investment as part of South Korea's commitment to US shipbuilding growth (Aug. 27, 2025), https://www.hanwha.com/newsroom/news/press-releases/hanwha-announces-5-billion-philly-shipyard-investment-as-part-of-south-koreas-commitment-to-us-shipbuilding-growth.do.

[147] Dushyant Bisht, *LNG Carriers: A $26.5 Billion Investment Opportunity in 2025*, SHIPFINEX (Sep. 25, 2025) https://www.shipfinex.com/blog/lng-carriers-investment-guide-2025; MC01, *The Huge Ships for the Booming LNG Trade*, WOLF STREET (June 17, 2018), https://wolfstreet.com/2018/06/17/the-huge-ships-for-the-booming-lng-trade/.
Brooke Weddle et al, *Redeveloping legacy sites to boost global maritime industry capacity*, MCKINSEY & CO (Nov. 4, 2024), https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/redeveloping-legacy-sites-to-boost-global-maritime-industry-capacity.

Comparative Framing: Even if our estimates underestimate costs by a factor of two—bringing total program costs to $30 billion over 5 years—this investment remains modest compared to recent federal interventions for comparably strategic assets. The CHIPS Act allocated $52.7 billion for semiconductor manufacturing.[148] The airline industry received more than $50 billion in pandemic bailouts.[149] A single Ford-class aircraft carrier cost the Navy $13 billion.[150] By comparison, achieving a broad maritime revival for approximately the same cost as one advanced warship is a strategic bargain the United States can ill afford to forgo.

These numbers should be understood as planning benchmarks and as a foundation for further debate, refinement, and discussion. Actual costs will depend on site selection, material inputs, labor market conditions, technology transfer agreements, and the pace of implementation.

	Lower Estimate (in millions)	Upper Estimate (in millions)
Liberty Yards	3,720	8,340
Maritime Industrial Bank	4,176	4,277
Maritime Workforce Reserve	1,935	2,800
Total	9,831	15,417

[148] EMILY BLEVINSS, ALICE GROSSMAN, & KAREN SUTTER, CONG. RSCH. SERV., R47558, SEMICONDUCTORS AND THE CHIPS ACT: THE GLOBAL CONTEXT (2025), https://www.congress.gov/crs-product/R47558.
[149] Oriana Pawlyk, *Congress to airlines: Where did all that Covid money go?*, POLITICO (Nov. 20, 2021), https://www.politico.com/news/2021/11/20/airlines-pandemic-bailout-cancellations-523100; Veronique de Rugy & Gary D. Leff, *The 2020 Bailouts Left Airlines, the Economy, and the Federal Budget in Worse Shape Than Before*, MERCATUS CENT. (Sep. 8, 2022), https://www.mercatus.org/research/policy-briefs/2020-bailouts-left-airlines-economy-and-federal-budget-worse-shape.
[150] Fox van Allen, *Meet the US Navy's new $13 billion aircraft carrier*, CNET (Dec. 10, 2019), https://www.cnet.com/pictures/meet-the-navys-new-13-billion-aircraft-carrier/.

Appendix B: Cost of Liberty Yards

Total Program Costs: $3.7 to 8.3 billion over 5 years

1) Land acquisition & site preparation — $580 million to $2 billion[151]

Includes acquisition of prime waterfront parcels, dredging and permitting, utilities, and remediation, if necessary. Gulf sites can be materially cheaper than East or West Coast locations given land and regulatory costs, but the variability is high. Budgeting requires include contingency for remediation and coastal resilience works.

- Liberty East (Philadelphia / Mid-Atlantic) – $200 to 500 million
  East Coast industrial waterfront property tends to be expensive and offers limited availability in shipyard-suitable parcels. Higher costs are driven by demand competition from port expansions, property values, and complex environmental permitting under both state and federal rules.

- Liberty South (Mobile, AL / Gulf Coast) – $100 to 300 million
  Gulf Coast sites are typically less expensive than comparable East/West Coast locations. Cost draws on Austal USA's 2020 purchase of expansion in Mobile, Alabama and 2024 expansions.

- Liberty Yards North Coast (Great Lakes) – $80 to 150 million
  Midwest industrial sites can be cost-optimized, given the strong demand for new manufacturing facilities and the availability of inland real estate.

- Liberty West (California Bay Area or Puget Sound) – $200 million to $1 billion
  High-cost urban coastal land markets drive up acquisition and remediation costs. Real estate would likely need a long-term leasing agreement particularly for remediating contaminated industrial waterfronts.

[151] Inputs to benchmark land requirements, property costs, and other site-related figures included: Interviews with industry experts; *See What We Do*, PHILLY SHIPYARD, https://www.phillyshipyard.com/repairs-maintenance/ (last visited Nov. 25, 2025); Peter Roberts, *Austal Buys Land for US Shipbuilding Expansion*, AUMANUFACTURING (Aug. 21, 2020), https://www.aumanufacturing.com.au/austal-buys-land-for-us-shipbuilding-expansion; Maurer, *supra* note 33.

2) Marine infrastructure & Equipment (dry docks, dredging, capital equipment) — $2.4 to 4.8 billion[152]

Modern shipbuilding requires both massive marine infrastructure and sophisticated production equipment that can shape, weld, and assemble thousands of tons of steel with millimeter precision. This category encompasses dry docks, berths, and advanced machinery required to transform raw steel into vessels. Because site conditions, environmental requirements, and equipment specifications vary enormously by geography and vessel type, this category represents the most variable. The estimates presented here intentionally span a broad range to reflect these uncertainties.

- Liberty East: $700 million to $1.3 billion
- Liberty South: $500 million to $1.2 billion
- Liberty North Coast: $300 to 600 million
- Liberty West: $800 million to $1.7 billion

[152] Inputs used to gauge these costs: Interviews with industry leaders; COMMERCIAL SHIPBUILDING: MARITIME ADMINISTRATION NEEDS TO IMPROVE FINANCIAL ASSISTANCE PROGRAMS, *supra* note 23, at 39; Maurer, *supra* note 33; *New Dry Dock Project at Pearl Harbor Naval Shipyard Reaches Early Milestone*, SEAPOWER (Feb. 20, 2024), https://seapowermagazine.org/new-dry-dock-project-at-pearl-harbor-naval-shipyard-reaches-early-milestone/; Phil Clark, *[2024 Update] Commercial Construction Cost Per Square Foot in the US*, CLARIS (Feb. 29, 2024), https://www.clarisdesignbuild.com/2024-update-commercial-construction-cost-per-square-foot-in-the-us/; *Halifax Shipyard Modernization Program*, HATCH, https://www.hatch.com/Projects/Infrastructure/Halifax-Shipyard-Modernization-Program (last visited Nov. 26, 2025). *Goliath Task May Face Babcock Selling Crane*, TRADEWINDS (Mar. 31, 2026), https://www.tradewindsnews.com/weekly/goliath-task-may-face-babcock-selling-crane/1-1-390498. Park Young-Woo, *Hanwha to Invest $72M in Philly Shipyard to Build LNG Carriers*, KOREA JOONGANG DAILY (May 20, 2025), https://koreajoongangdaily.joins.com/news/2025-05-20/business/industry/Hanwha-to-invest-72M-in-Philly-Shipyard-to-build-LNG-carriers/2311726. *Austal Issues Shares to Raise Capital for Alabama Yard Expansion*, MAR. EXEC. (Mar. 11, 2025), https://maritime-executive.com/article/austal-issues-shares-to-raise-capital-for-alabama-yard-expansion. *Dockwise Vanguard Heavy Transport Vessel*, SHIP TECH. (Apr. 23, 2013), https://www.ship-technology.com/projects/dockwise-vanguard-heavy-transport-vessel/?cf-view. Brad Graves, *NASSCO Launch Is a Big Deal for Shipyard*, SAN DIEGO BUS. J. (June 27, 2019), https://www.sdbj.com/defense/nassco-launch-big-deal-shipyard/; *Shipyard Crane Price List 2025: The Complete Buyer's Guide,* DONGQI GROUP (May 26, 2025), https://pk.craneyt.com/knowledge/shipyard-crane-price-list-2025/; *Colonna's Shipyard Invests $70m for Fourth Drydock*, MARINELINK (Oct. 3, 2025), https://www.marinelink.com/news/colonnas-shipyard-invests-m-fourth-530735.

3) IT & Digital Integration — $300 million to 560 million[153]

Modern shipyards are not just factories; they are data-driven production hubs. Building Liberty Yards with efficiency from day one means investing in digital systems that tie together design, supply chains, and shop-floor work. Each of the four yards will need:

- Design software and digital twins ($30 to 50 million) – Systems include advanced modeling platforms that let engineers test and refine ships virtually before steel is cut.
- Supply-chain management, project monitoring, and quality control technologies ($15 to 30 million) – Systems for modernizing project range from incorporating IoT hardware to digital workstations. Software packages can cost $500,000 to $1.5 million, depending on complexity. Hardware and customization requirements can add additional layers of cost.
- Cybersecurity and communications infrastructure ($30 to 60 million) – Particularly given national security risks, shipyards must maintain sophisticated cloud systems to protect proprietary designs and coordinate with allied yards.

These investments (roughly $75-140 million per yard) ensure Liberty Yards avoid the inefficiencies that plague many existing U.S. facilities, where outdated machinery and disconnected systems add months of delay and millions in overruns.

4) Workforce Start-up — $540 to 980 million[154]

Launching Liberty Yards on a Costco-style labor model requires upfront investment well above conventional workforce budgeting. Each of the four yards will need to fund:

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[153] Inputs to ballpark these costs included: Paul Lengthorn, *How Much to Build a Digital Twin?*, CONSULTING ENG'R SURVIVOR, https://www.consultengsurvivor.com/cost-to-build-a-digital-twin (last visited Nov. 26, 2025); IMARC GRP., SR112025A19937, DIGITAL SHIPYARD MARKET SIZE, SHARE, TRENDS AND FORECAST BY TYPE, TECHNOLOGY, PROCESS, CAPACITY, DIGITALIZATION LEVEL, END USE, AND REGION, 2025-2033 (2024). *Manufacturing Execution System (MES)*, SCIENCESOFT MFG., https://www.scnsoft.com/manufacturing/execution-system (last visited Nov. 26, 2025); *How Much Does It Cost to Build a Security Operations Center (SOC)?*, ARCTIC WOLF (May 21, 2024), https://arcticwolf.com/resources/blog/how-much-does-it-cost-to-build-a-soc/.

[154] Modeling inputs include: *Community Colleges Build New Centers for Advanced Manufacturing Training*, BLDG DESIGN + CONSTR. (Feb. 17, 2022), https://www.bdcnetwork.com/home/article/55145853/community-colleges-build-new-centers-for-advanced-manufacturing-training; *Warren County Leading the State in Future Advanced Robotics Training*, UCDD (Nov. 21, 2016), https://ucdd.org/11950-2/.

- Premium pay and benefits ($75 to 125 million for the first three years) – Ensuring base wages are 20–40% above comparable employment options will make Liberty Yards the source of career-track jobs rather than short-term "gigs."
- Dedicated training centers ($45 to 90 million) – Costs would cover classrooms, welding simulators, virtual reality bays, advanced robotics facilities, and safety labs. Such facilities can prepare workers for long-term careers.
- Recruitment and retention packages ($15 to 30 million) – Relocation stipends, signing bonuses, and child-care or housing support would be among the costs required to stabilize the first cohorts of shipbuilders.

	Lower Estimate (in millions)	Upper Estimate (in millions)
Land	580	2,000
Infrastructure	2,300	4,800
IT & Digital Integration	300	560
Workforce Start-up	540	980
Total	3,720	8,340

Appendix C: Cost of Maritime Infrastructure Bank

Total Program Costs: $4.2 billion (5-Year Period)

The MIB requires a large upfront commitment to become self-funding through lending operations. Its break-even timeline seeks 90% self-funding by Year 5, with full cost recovery by Years 8-10. After the initial payback period, the bank is expected to generate net revenue to the Treasury. The MIB's $4 billion initial capitalization supports direct lending operations and gap subsidies. Separately, Congress would grant the MIB guarantee authority of up to $20 billion to backstop maritime lending risk—the "FDIC for Ships and Shipyards" function.[155]

Initial Capitalization: $4 billion

A $4 billion initial appropriation would provide foundational capital to launch MIB. After organization, MIB could issue Liberty Bonds for subscribers to raise additional capital.

Year 1: Establishment and Launch Costs

Initial Setup: $48 to 67 million[156]

- Administrative Setup Costs: $25-35 million
    - Legal and regulatory framework
    - IT systems and digital infrastructure
    - Initial facility acquisition and setup
    - Initial staffing and recruitment
    - Professional services – consulting, auditing, cybersecurity
- Core Operational Infrastructure
    - Personnel Costs: $15-20 million
        - Executive leadership team (5-7 positions): $2-3 million

[155] Konrad, *supra* note 48.

[156] Modeling inputs included: Interviews with industry insiders; *IRA Section 60103 – Greenhouse Gas Reduction Fund*, COLUM. UNIV: SABIN CTR. CLIMATE CHANGE L., https://iratracker.org/programs/ira-section-60103-greenhouse-gas-reduction-fund/ (last visited Nov. 26, 2025); Green Banks, ENV'T PROT. AGENCY, https://www.epa.gov/statelocalenergy/green-banks#starting (last visited Dec. 12, 2025); WENDY KISKA, CONG. BUDGET OFF., CBO PUB. NO. 60682, ESTIMATES OF THE COST OF FEDERAL CREDIT PROGRAMS IN 2025 (2024), https://www.cbo.gov/publication/60682; *GS-13 Pay Scale – General Schedule 2024*, FEDERALPAY, https://www.federalpay.org/gs/2024/GS-13 (last visited Nov. 26, 2025); *GS-14 Pay Scale – General Schedule 2024*, FEDERALPAY, https://www.federalpay.org/gs/2024/GS-14 (last visited Nov. 26, 2025). *GS-15 Pay Scale – General Schedule 2024*, FEDERALPAY, https://www.federalpay.org/gs/2024/GS-15 (last visited Nov. 26, 2025).

        - Maritime finance specialists (15-20 positions): $3-4 million
        - Credit analysts and underwriters (20-25 positions): $4-5 million
        - Operations, communications, and support staff (25-30 positions): $3-4 million
        - Regional representatives (10-15 positions): $3-4 million
    - Technology and Systems: $8-12 million[157]
        - Loan origination and management platform: $4-6 million
        - Risk management and analytics systems: $2-3 million
        - Integration with Treasury/Fed systems: $2-3 million
    - Facilities and Operations: $2-4 million[158]
        - Washington D.C. headquarters: $1-2 million
        - Regional office setup (3-4 locations): $1-2 million

Years 2-5: Annual Operating Budget – $32-40 million[159]

- Personnel costs will represent the largest budget component at approximately $21-28 million annually. This includes maritime finance specialists, credit analysts, operations staff, and regional coordinators.

- Technology and infrastructure costs of $5-8 million annually will support system maintenance, cybersecurity, and the specialized maritime databases needed for ship valuation and risk assessment. The MIB will need to consider integration with external systems, such as Lloyd's Register, vessel tracking systems, and international maritime databases.

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[157] The estimates draw on benchmarks such as: CAROL C. HARRIS, U.S. GOV'T ACCOUNTABILITY OFF., GAO-24-106575, TECHNOLOGY MODERNIZATION FUND: ALTHOUGH PLANNED AMOUNTS ARE SUBSTANTIAL, PROJECTS HAVE THUS FAR ACHIEVED MINIMAL SAVINGS (2024), https://www.gao.gov/products/gao-24-106575.

[158] Inputs included: *Washington Office Rent Price & Sales Report: 2024 Office Space Rent & Sales*, COMMERCIALCAFE, https://www.commercialcafe.com/office-market-trends/us/dc/washington/ (last visited Nov. 16, 2025). Katie Burke, *Federal Government Plans Major Cuts to DC Office Space*, COSTAR (Aug. 13, 2024), https://www.costar.com/article/1690475028/federal-government-plans-major-cuts-to-dc-office-space *Construction Pipelines Remain Sluggish as Office Utilization Patterns Continue to Settle*, COMMERCIALCAFE (Nov. 20, 2025), https://www.commercialcafe.com/blog/national-office-report/; CUSHMAN & WAKEFIELD, FIT OUT COST GUIDE 2025 (2025), https://www.cushmanwakefield.com/en/united-states/insights/office-fit-out-cost-guide.

[159] Modeling inputs included: LABS, *supra* note 37; CAROL C. HARRIS, U.S. GOV'T ACCOUNTABILITY OFF., GAO-25-106488, TECHNOLOGY BUSINESS MANAGEMENT: CRITICAL GO OR NO GO ACTION REQUIRED ON FEDERAL AGENCY ADOPTION OF IT SPENDING FRAMEWORK (2025), https://www.gao.gov/products/gao-25-106488.

- Administrative and facilities costs of $3-6 million annually will support headquarters operations and a modest regional presence. Rather than establishing large regional bureaucracies, the MIB will operate primarily from Washington, D.C., with targeted field representatives in key maritime centers.

- Specialized maritime operations, including vessel inspection coordination and industry outreach, will require $2-4 million annually to maintain the technical expertise that distinguishes the MIB from generic federal lending programs.

Revenue Model and Path Toward Self-Sufficiency

The MIB will develop multiple revenue streams to gradually reduce its dependence on annual appropriations. Revenue streams include:

- Loan origination fees,
- Annual servicing fees on guaranteed portfolios, and
- Investment income from bond management

These sources will provide increasing operational support over time.

Rather than following a rigid timeline, the MIB's path toward financial sustainability will depend on maritime industry recovery and the Liberty Yards' successes. In an optimistic scenario where shipbuilding demand grows steadily, fee income could cover 60-80% of operating costs by Year 5. However, the MIB's public mission means that financial self-sufficiency, while desirable, will not compromise its core function of supporting maritime industrial capacity during lean periods.

This approach recognizes that maritime infrastructure financing needs long timelines and counter-cyclical support—exactly the type of financing that private markets struggle to provide consistently. The MIB's value lies not just in eventual cost recovery, but in maintaining U.S. shipbuilding capacity through market cycles that would otherwise lead to permanent industrial decline.

Appendix D: Maritime Workforce Reserve

Total Program Costs: $1.9 to 2.8 billion (5-Year Period)

- Initial training infrastructure and facilities
- First cohort recruitment and training (Years 1-3)
- Operational costs for full workforce (Years 4-5)
- National Shipbuilding Reserve establishment

1) Reserve Academies and Training Programs — $330 to 500 million[160]

Modern shipbuilding requires sophisticated training facilities that mirror actual yard conditions. Each Liberty Yard region needs dedicated Reserve Academies equipped with cutting-edge technology.

- Regional Academies (3 facilities) — $300 to 450 million
    - Each Liberty Yard training center would need to accommodate welding bays, labs, and classroom space at $75 to 150 million per facility.

- Virtual Reality and Simulation Systems — $30 to 50 million
    - Comprehensive VR training suites, robotics labs, and accompanying technological systems for all three centers would likely cost $30-50 million for the three centers, including hardware, software, and compliance requirements.

[160] Modeling inputs included: *$15 Million Skills Training Center to Be Built in North Memphis*, ACTION NEWS 5 (Dec. 14, 2023), https://www.actionnews5.com/2023/12/14/15-million-skills-training-center-be-built-north-memphis/; *Warren County Leading the State in Future Advanced Robotics Training*, *supra* note 154; Katherine Miller, *OMIC Training Center Benefits from Emerging Project Delivery Method*, PORTLAND CMTY. COLL. (Sep. 10, 2020), https://www.pcc.edu/news/2020/09/omic-construction/#:~:text=At%2032%2C245%20square%20feet%20and,for%20PCC%20in%20Columbia%20County; *South Korea to Train 1,000 Shipbuilding Professionals Annually*, IMARINE (Mar. 25, 2024), https://www.imarinenews.com/7460.html.

2) Work-to-Train Program — $930 million to $1.1 billion[161]

A federally funded program to support the development of a shipbuilding workforce could be modeled on military service academies and the Merchant Marine Academy. It would offer free training with living stipends in exchange for four-year industry commitments.

- Training Stipends and Living Allowances — $750 million
  - Based on comparable costs for merchant mariner education, including tuition, subsistence support, and stipends for 5 years of trainee cohorts.

- Instructor Recruitment and Compensation — $150 to 300 million
  - Recruiting experienced shipbuilders as instructors would require competitive compensation of estimated $100,000 to $150,000 per instructor, plus benefits and other incentives.

- Curriculum Development and Certification — $30 to 50 million
  - Costs would support partnering institutions, such as community colleges and training centers, in developing standardized curricula in partnership with U.S. agencies like MARAD and to align with international best practices.

[161] Estimates considered the following range of inputs: *Occupational Employment and Wages, May 2023*, U.S. BUREAU LAB. STAT. (Apr. 3, 2024), https://www.bls.gov/oes/2023/may/oes251194.htm; *The Student Incentive Payment (SIP) Program*, U.S. DEP'T TRANSP. (June 30, 2025), https://www.maritime.dot.gov/education/maritime-academies/student-incentive-payment-sip-program; Press Release U.S. Department of Labor, US Department of Labor announces availability of $30M in grants to train American workers for jobs in high demand, emerging industries (Aug. 11, 2025), https://www.dol.gov/newsroom/releases/eta/eta20250811.

3) Retention and Quality of Life Programs — $425 to 800 million[162]

Achieving Costco-level 15% turnover requires comprehensive support beyond wages. The following initiatives would ensure greater retention of workers and long-term expansion of the nation's industrial base.

- Childcare Centers — $75 to 125 million
  - On-site childcare facilities at each yard, subsidized at 50% for workers. Based on childcare center costs, facilities are projected to cost $15-25 million per facility, plus $5 million annual operations.
- Housing Support Program — $200 to 400 million
  - Funding would support the construction of temporary housing for relocating workers, as well as subsidies for living expenses and home buying. The program would be modeled on comparable Defense Department and private-sector programs.
- Transportation and Commuter Benefits — $75 to 125 million
  - Transit subsidies, shuttle services, and parking improvements are all potential avenues to support workers.
- Career Development and Continuing Education — $75 to 150 million
  - Tuition assistance could support workers' pursuit of advanced certifications, naval architecture degrees, management training, and

[162] Inputs considered included: U.S. Gov't Accountability Off., *Military Child Care: DOD Efforts to Provide Affordable, Quality Care for Families*, GAO-23-105518 (Feb. 2023), at p. 7, https://www.gao.gov/assets/gao-23-105518.pdf; Jeremy Pittari, *Ole Miss, MUW Invest in Early Childhood Learning*, MAGNOLIA TRIB. (July 25, 2025), https://magnoliatribune.com/2025/07/25/ole-miss-muw-invest-in-early-childhood-learning/; Press Release, Kathy Hochul, Governor, New York, Governor Hochul Announces 200 New Child Care Spots at 12 High-Demand SUNY Campus Centers (Sep. 5, 2023), https://www.suny.edu/suny-news/press-releases/9-23/9-5-23/child-care.html; JT Cestkowski, *Madison College Unveils $10 Million Child Care Facility Plans for Goodman South Campus*, 27 WKOW (Dec. 10, 2024), https://www.wkow.com/news/education/madison-college-unveils-10-million-child-care-facility-plans-for-goodman-south-campus/article_3b666f62-b74d-11ef-9a8e-9ba6c12fa9e5.html; Kelsey Jones, *Newport News Approves $400M Novy Housing Plan to Expand Military Housing*, NEWS 3 WTKR (Aug. 27, 2025), https://www.wtkr.com/news/in-the-community/newport-news/newport-news-approves-400m-navy-housing-plan-to-expand-military-housing; *Ten Projects Receive Workforce Housing Investment Program Funding*, VA. HOUS. (May 30, 2025), https://www.virginiahousing.com/news/25-0529-ten-projects-workforce-housing-investment; Craig Hooper, *Center for Maritime Strategy's Navy Shipyard Housing Proposal Misfires*, FORBES (June 1, 2023), https://www.forbes.com/sites/craighooper/2023/06/01/center-for-maritime-strategys-navy-shipyard-housing-proposal-misfires/; Lauren Schneider, *The Employer's Guide to Commuter Benefits*, COMPT (Apr. 20, 2025), https://compt.io/blog/guide-to-employee-commuter-benefits/; KRISTY N. KAMARCK & CLAYTON M. LEVY, CONG. RSCH. SERV., R47875, MILITARY TUITION ASSISTANCE PROGRAM: BACKGROUND AND ISSUES (2025), https://www.congress.gov/crs-product/R47875; https://fortune.com/2024/09/25/medtronic-tuition-assistance-program/.

other forms of upskilling.

4) Maritime Workforce Reserve — $250-400 million[163]

The Ironclad Reserve could be modeled on successful industrial workforce programs in addition to best practices from military reserve structures. Reserve programs could include:

- Annual training and re-skilling programs
- Shipyard work rotations
- Partnerships with technology firms and other industry initiatives

	Low Estimate (millions)	High Estimate (millions)
Reserve Academies	330	500
Work-to-Train Programs	930	1,100
Retention	425	800
Ironclad Reserve	250	400
Total	1,935	2,800

[163] Modeling estimates included: NIST, AMS 600-15, STRATEGIC PLAN FOR THE MANUFACTURING USA PROGRAM (2024), https://nvlpubs.nist.gov/nistpubs/ams/NIST.AMS.600-15.pdf.