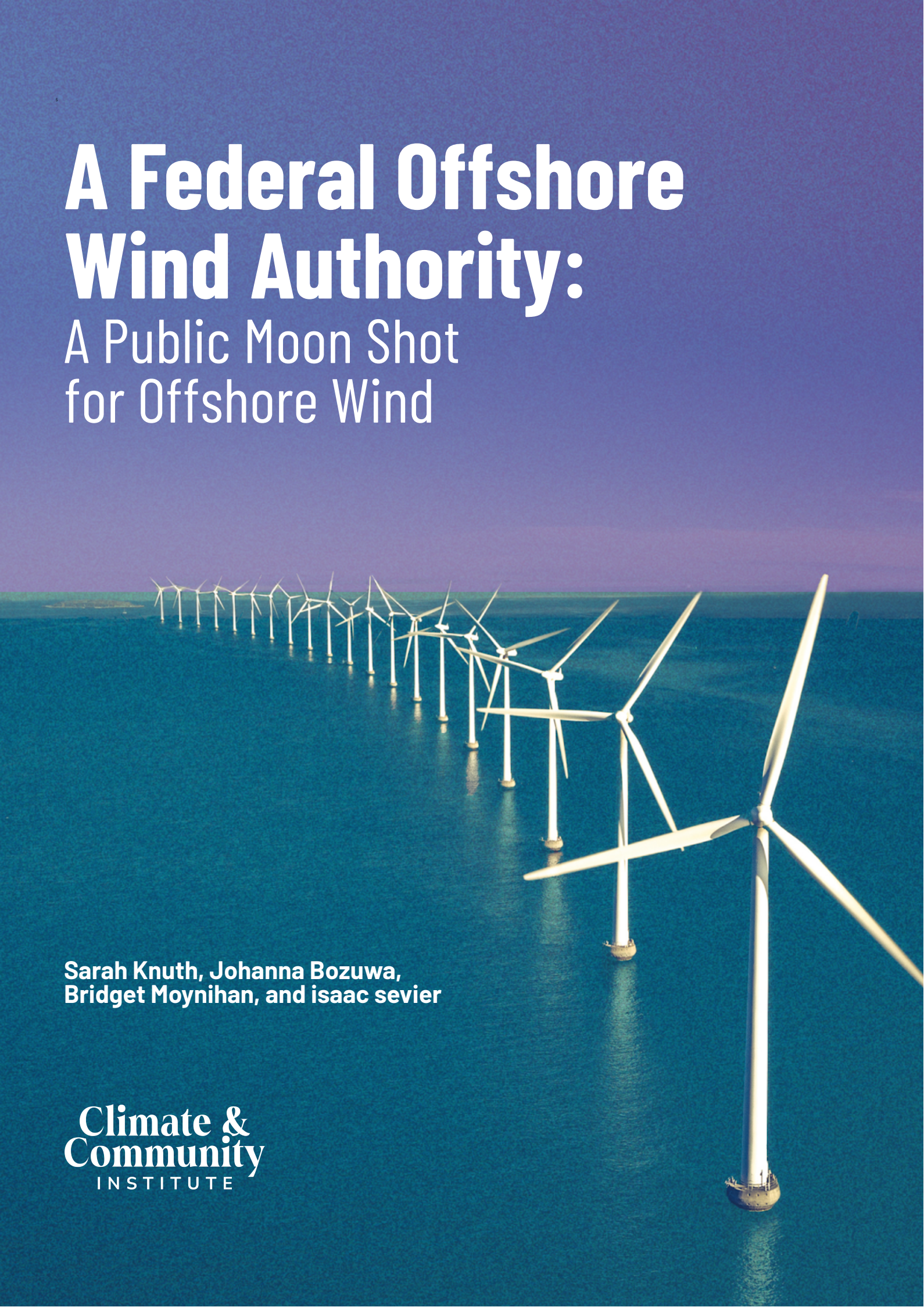


A Federal Offshore Wind Authority:

A Public Moon Shot
for Offshore Wind

Sarah Knuth, Johanna Bozuwa,
Bridget Moynihan, and isaac sevier

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Companies entering the United States' emerging industry have had to take on high risks for massive projects, and the country's coordination breakdowns and political risks have made new entrants wary.

Executive Summary

The US offshore wind industry has a coordination problem. Not only do offshore wind projects require key support infrastructure like offshore transmission networks to be in place, they also need functional domestic supply chains, modernized ports, a trained and available labor force, and coordinated sites. The US approach—largely piecemeal and underfunded—had faltered even before the major political roadblocks of the second Trump administration, with cancelled projects due to broken supply chains, drawn-out siting flights, and pressures like inflation. Companies entering the United States' emerging industry have had to take on high risks for massive projects, and the country's coordination breakdowns and political risks have made new entrants wary.

Getting offshore wind online is critical to US decarbonization goals. The United States needs somewhere between 270 and 485 gigawatts (GW) of offshore wind to decarbonize by 2050; however, based on states' current plans, only about 50 GW is planned to be online. The Trump administration's hostility toward offshore wind has further pushed back development. This means that a future administration will have to take even more ambitious steps to advance offshore wind to decarbonize the national economy.

We propose that a future administration deploy a public option for offshore wind—the federal Offshore Wind Authority. In coordination with existing federal agencies, this Authority could be integral to securing deployment and keeping costs manageable. As a public entity, it could lower risks and drive down costs sector-wide in multiple ways: via planning on long time horizons, establishing technological standards across the US industry, guaranteeing baseline supply, and limiting overbuilding. It could also ensure that, instead of engaging in a race to the bottom, the industry employs social standards that embed commitments to high-road labor and balance environmental and community outcomes.

A public option for offshore wind is needed to break the coordination stalemate between different industry actors.

This strategy is not new. The federal government has stepped in for other “Moon Shot” challenges when public action was needed to bring technologically novel and strategically important sectors to maturity. For example, during wartime mobilizations like World War II, the federal government supercharged the development of vessels, ports, and the maritime labor force. It has also taken the lead when private enterprise alone was unable to meet urgent national needs. To provide rural communities affordable electricity and economic development in a time when private utilities saw that as a losing proposition, it created agencies like the Tennessee Valley Authority and Rural Electricity Administration. In fact, the scale and level of coordination required for offshore wind has meant that many governments have already gotten into the business—from Denmark’s Ørsted to rising state-owned enterprises in East Asia.

A public option for offshore wind is needed to break the coordination stalemate between different industry actors. By intervening at critical points throughout the buildout phase, the Offshore Wind Authority will not only unlock cheap public electricity but also open up opportunities for other firms and sectors to enter the industry and its supply chains, likely drawing down costs further.

Those critical points are as follows:

Offshore Wind Projects: Offshore wind projects and contracts are falling apart across the board as inflation rises and supply chains fail, meaning that the companies interested in development no longer see it as profitable. The Authority could ensure a stable baseline of offshore wind projects to help mature the US sector. Discrete actions the Authority could take include bidding for projects alongside current for-profit players as a backstop or working with state and regional governments to develop offshore wind strategically. The Authority could also anchor other nationally important big plays for the sector like maturing the novel floating wind technologies needed for the United States’ deepwater coasts.

Offshore Transmission Grids: The United States’ current model devolves the buildout of the offshore grid to individual generation developers; the costs and delays incurred by interconnecting these projects have become another significant factor hampering offshore wind buildout. The US Department of Energy and other federal entities have already undertaken much of the difficult labor of planning for

A federal Offshore Wind Authority is an opportunity to unleash integral clean energy in a coordinated manner.

offshore wind's high-voltage transmission backbones, including technological standardization. The Authority could move this work from planning to action, pre-building offshore transmission in a coordinated manner to accelerate project deployment, lower collective costs for all developers, and limit overbuilding.

Supply Chain Manufacturing: Offshore wind requires major investments in ports and intermodal linkages, but supply-chain and port infrastructure is not currently in a position to host and manage the necessary rapid expansion and modernization. The Authority could help coordinate the supply chain using instruments like equity stakes or low-cost investment, but its key tool will be its large-scale procurement power. For example, one acute supply chain roadblock has been the shortage of specialized maritime vessels. The Authority could take an active role here, commissioning new vessels from domestic shipyards and contracting them out at at-cost, fair rates to developers, thereby helping rejuvenate US shipbuilding more broadly.

Given the current political environment in the United States, concerted—or even incremental—efforts toward decarbonization are likely on hold for the immediate future. **Now is the time to prepare Moon Shot projects.** A federal Offshore Wind Authority is an opportunity to unleash integral clean energy in a coordinated manner, alleviating bottlenecks and ensuring that communities, workers, and the environment are prioritized over profit.

Getting from targets to turbines requires the alignment of an array of interests and industries: turbine manufacturers, fishermen, local port communities, shipbuilders, port developers, and logistics firms.

Introduction

Broad access to electricity in the United States would not have been possible without public ownership and federal intervention. The New Deal's Rural Electrification Administration, for example, ensured that the countryside got electricity when private utilities saw no profit incentive in doing so.¹ Similarly, large-scale infrastructure projects like hydroelectric dams and electric transmission grids required patient capital and levels of coordination that the government was uniquely situated to provide, particularly to secure broader social and economic benefits. The Tennessee Valley Authority in the Southeast and Bonneville Power Authority in the Northwest are testaments to the singular ability of government to execute ambitious projects that expand services and drive extensive economic growth.

Over the past forty years, the United States has limited its involvement in large-scale energy development and ownership. The second Trump administration has furthered this trend, attempting to strip public capacity and limit government coordination.² However, as the United States stands at the precipice of another major structural change in the electricity sector—from fossil fuels to renewables—federal ownership and planning are key instruments in the American toolbox to accelerate change and achieve social goals.

It is time for the United States to reactivate its history. **With even more time lost due to the second Trump administration's disregard for climate targets, using the muscle of the state to redouble energy transition efforts will be critical to have a chance at a livable climate.**

In particular, the federal government is well suited to lead a public "Moon Shot" for offshore wind. Offshore wind farms are large-scale projects that span multiple political jurisdictions as well as critical ecological and fishing areas. They are located in federal waters off the coasts of multiple states, and developing and operating them necessarily involves actors like port authorities. Getting from targets to turbines requires the alignment of an array of interests and industries: turbine manufacturers, fishermen, and local port

¹ See, for example, David E. Nye, *Electrifying America: Social Meanings of a New Technology* (MIT Press, 1992).

² Annette Choi and Danya Gainor, "Analyzing the Scale of Trump's Federal Layoffs in His First 100 Days," CNN, April 29, 2025, <https://edition.cnn.com/2025/04/26/politics/federal-layoffs-trump-musk-dg>.

The Authority should be empowered to take coordinated action where the United States' fragmented, market-led policy approach has fallen short.

communities as well as shipbuilders, port developers, and logistics firms.

At present, the United States' model for developing offshore wind relies on fragmented, market-led policy on a state-by-state basis with limited support and oversight from the federal government (if not outright hostility, as evidenced by the current administration). This model has resulted in a patchwork of projects rife with delays and inefficiencies.

Stabilizing and reigniting the US offshore wind industry requires a new and more ambitious policy approach. **We propose that the United States establish a federal Offshore Wind Authority to coordinate and supercharge its offshore wind buildout while keeping electricity affordable.** This independent entity would be in line with past federal initiatives—notably during World War II—to meet energy generation and transmission challenges as well as scale up and modernize shipbuilding, manufacturing, and port construction in moments of acute national need.³ Beyond the United States, foreign states are already shaping twenty-first-century energy development in direct ways, including via state-owned enterprises (that even compete as for-profit developers in the US market).⁴ The United States needs its own state-backed entity—one that can put the country's needs first and advance a progressive vision for addressing them—to coordinate an effective offshore wind buildout that serves communities and lays the groundwork for a just, low-carbon future.

The Authority should be empowered to take coordinated action where the United States' fragmented, market-led policy approach has fallen short. Heretofore, each aspect of the buildout—from generation to transmission to distribution—has had to operate as a for-profit subsector. Given the sector's high risk and thorny collective action problems—regarding technology standards, affordable interconnection to the grid, and supply chains—this reliance on the market has resulted in a lethargic industry buildout. Present state-level efforts have not been sufficient to close the governance gap.

³ Sandeep Vaheesan, *Democracy in Power: A History of Electrification in the United States* (University of Chicago Press, 2024).

⁴ Boglarka Kiraly, "Best Practices for SMEs in the Energy Transition," European Covenant of Companies for Climate and Energy, May 3, 2024, <https://www.smeunited.eu/admin/storage/smeunited/ccce-best-practices-for-smes-in-the-energy-transition-final.pdf>.

To recharge the buildout, the United States needs deeper thinking about where the state can take a more active role. Public leadership to coordinate and develop the industry may generate benefits far beyond offshore wind itself, for example by growing and rejuvenating domestic supply chain enterprises like shipbuilding and green manufacturing. Like offshore wind, these industries have real potential to lead a twenty-first century green economy—but require coordinated federal support to do so.

In this report, we make the case for an Offshore Wind Authority to reactivate the United States' historical toolkit for coordinating generational investment in its energy and economic future. We begin by discussing the current challenges facing US offshore wind before sketching how a federal offshore wind agency could address them. We then dig deeper into three key areas where an independent federal entity could intervene: (1) **offshore wind development** to stabilize and mature the US project pipeline; (2) **offshore transmission development** to build and coordinate the offshore grid; and (3) **supply chain manufacturing, in particular port retrofits and modernization** to meet the specialized needs of offshore wind development, including shipbuilding.

Offshore Wind is Off Track for 2050

The generation capacity of a single offshore wind farm is usually between 800 and 2,000 MW, whereas the average US utility-scale solar plant has a capacity of 5 MW or fewer.

Given the scale of offshore wind projects, every project built substantially advances the United States' low-carbon energy transition. For example, the generation capacity of a single offshore wind farm is usually between 800 megawatts (MW) and 2,000 MW, whereas the average US utility-scale solar plant has a capacity of 5 MW or fewer.⁵ Offshore wind farms can also relieve the siting pressures and conflicts that face land-based renewable generation projects and the long-distance transmission networks needed to interconnect them—not least because offshore wind means fewer projects are needed overall.⁶ Though offshore wind projects face their own siting and grid-interconnection challenges, their proximity to coastal population centers means that they can more directly power the places where nearly 40 percent of Americans live, work, and play.⁷

Building out offshore wind can create broad-based economic benefits for the United States. Developing the sector's supply chain provides a key opportunity to rejuvenate domestic shipbuilding and other port-based manufacturing while simultaneously supporting the creation of good green jobs and skills for the twenty-first century; it also provides an occasion—and funds—to clean up and decarbonize historically polluted ports that are often close to low-income neighborhoods. The sector's potential economic benefits are not limited to coastal or port communities. Building out domestic supply chains for offshore wind can generate the demand needed to supercharge development and innovation in other key green industrial sectors. For instance, the Danish firm Ørsted's three offshore wind projects in the Northeast already have a supply chain spanning forty states.⁸

⁵ US Energy Information Administration, "Most US Utility-Scale Solar Photovoltaic Power Plants Are 5 Megawatts or Smaller," February 7, 2019, <https://www.eia.gov/todayinenergy/detail.php?id=38272>.

⁶ International Renewable Energy Agency, "Wind Energy," [September 1, 2025], <https://www.irena.org/Energy-Transition/Technology/Wind-energy>; US Environmental Protection Agency, "Ports Primer: 4.1 Port Impacts to Local Communities," [September 1, 2025], <https://www.epa.gov/ports-initiative/ports-primer-41-port-impacts-local-communities>.

⁷ Forty percent of the US population lives in a coastal county. NOAA Office of Coastal Management, "Economics and Demographics," [September 1, 2025], <https://coast.noaa.gov/states/fast-facts/economics-and-demographics.html>.

⁸ Adrijana Buljan, "US Offshore Wind Supply Chain Spans 40 States, Report Says," *offshoreWIND.biz*, January 20, 2025, <https://www.offshorewind.biz/2025/01/20/us-offshore-wind-supply-chain-spans-40-states-report-says/>.

However, despite these clear benefits, US offshore wind development is off track. Different decarbonization pathways show that the United States needs between 270 and 485 gigawatts (GW) of offshore wind to decarbonize by 2050, with the higher-end estimates signifying full electrification from purely renewable energy sources.⁹ The United States should be able to meet this need; in fact, the winds off the country's coasts generate enough power to meet its annual electricity demand three times over.¹⁰ However, the necessary political commitment has fallen short. To be sure, the federal government has historically enabled deployment by opening up lease blocks in federal waters, but it has largely relied on individual states to take the lead in setting concrete deployment targets and delivering on them.¹¹ Current state-level targets add up to 115 GW of offshore wind by 2050—well short of the number required nationwide for decarbonization.¹²

As important as state goals are, it is important to note they are not always legally binding and do not secure the production pipeline; state-level procurement, on the other hand, is and does (in theory). As of May 2024 the United States' actual offshore wind pipeline contained only 50 GW of projects with a developer for a leased area, with only 0.174 GW currently built and just a quarter of that pipeline projected to be built by 2030.¹³ Moreover, the pipeline features significant uncertainties in practice. Under the second Trump administration, even projects already under construction face risk of cancellation.¹⁴

⁹ James H. Williams et al., "Carbon-Neutral Pathways for the United States," *AGU Advances* 2, no. 1 (2021): 1–25, <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2020AV000284>.

¹⁰ National Renewable Energy Laboratory, "Offshore Wind Resource Assessment," US Department of Energy, [September 2, 2025], <https://www.nrel.gov/wind/offshore-resource.html>.

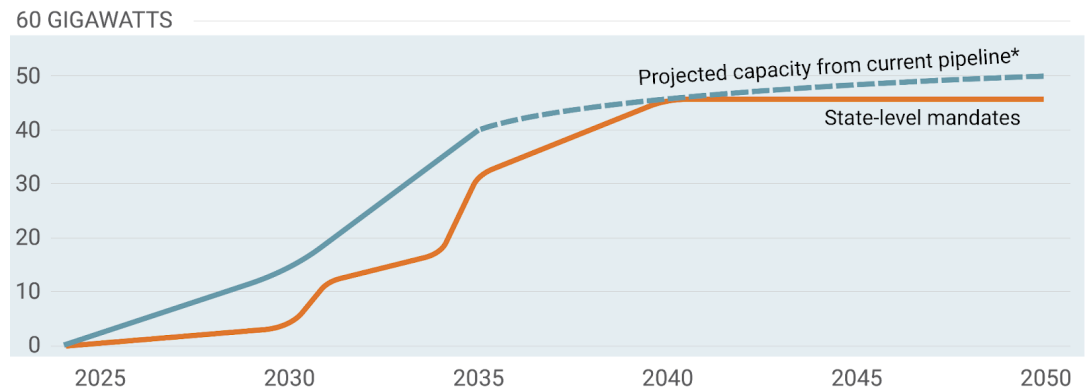
¹¹ Notwithstanding past federal actions like the Biden administration's goal of building 30 GW of offshore wind by 2030—a useful organizing target but not a binding commitment.

¹² American Clean Power, "NEW REPORT: Offshore Wind Momentum Grows with Sector to Invest \$65 Billion and Create 56,000 US Jobs by 2023," July 9, 2024, <https://cleanpower.org/news/offshore-wind-to-invest-65-billion-and-create-56000jobs-by-2030/>.

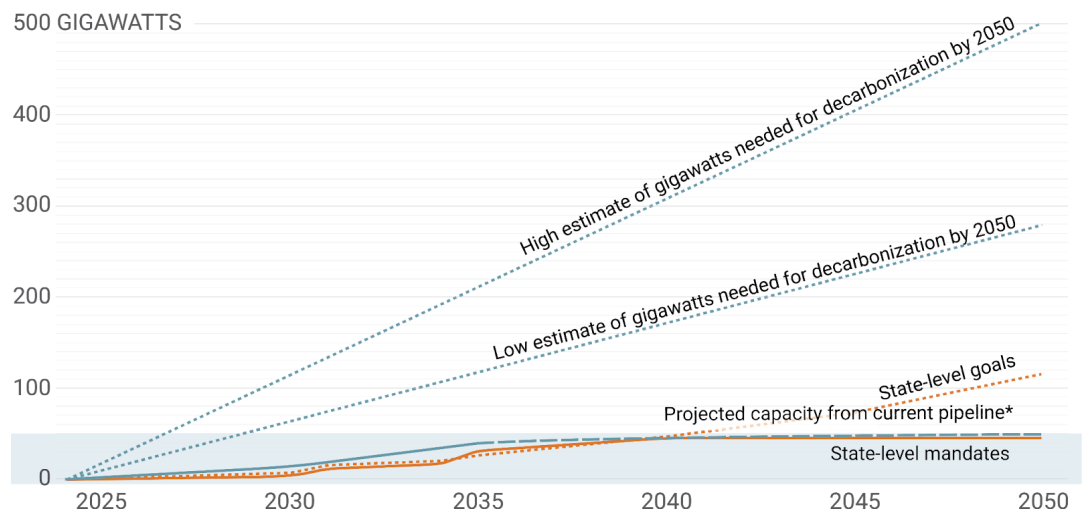
¹³ American Clean Power, "NEW REPORT: Offshore Wind Momentum Grows with Sector to Invest \$65 Billion and Create 56,000 US Jobs by 2023"; Angel McCoy et al., "Offshore Wind Market Report: 2024 Edition," National Renewable Energy Laboratory, US Department of Energy, August 2024, <https://www.energy.gov/eere/wind/offshore-wind-market-report>.

¹⁴ As recent controversy over New York's Empire Wind project illustrates, even projects already in the construction phase are vulnerable to disruption or cancellation. See Gareth Chetwynd, "Equinor Could Pull Plug on Empire Wind 'within Days,'" *Recharge*, May 12, 2025, <https://www.rechargenews.com/wind/equinor-could-pull-plug-on-empire-wind-within-days/2-1-1818055>.

The US is projected to meet state-level mandates for offshore wind capacity in the short term...



but is nowhere near on track to meet capacity needs for decarbonization.



*40 gigawatts of capacity are currently in development and projected to be built by 2035. An additional 10 gigawatts of capacity are in the development pipeline without a predicted construction date. Here we show a scenario where that capacity is built by 2050.

Source: Climate and Community Institute. See appendix table A1 for details.

US projects have run into a range of barriers—rising interest rates, permitting quagmires, an uncoordinated supply chain, a lack of technological standardization—that have slowed deployment.

US projects have run into a range of barriers—rising interest rates, permitting quagmires, an uncoordinated supply chain, a lack of technological standardization—that have slowed deployment. For instance, today's "arms race" for ever-bigger turbines illustrates the need for a higher level of sector coordination.¹⁵ With turbines as large as skyscrapers, each wind farm can generate significantly more power.¹⁶ However, competitive pressures to grow component sizes and the lack of an agreed-upon standard or cap are creating planning uncertainty, raising risks of defects and failures, and making existing installation vessels, manufacturing facilities, and port infrastructures rapidly obsolete. This discoordination means that developers and financial institutions risk losing money on major investments.¹⁷

Meanwhile, rising project risks and time overruns increase the cost of projects, potentially pushing up the cost of the electricity they generate.

Historically, the United States' fragmented, market-led policy approach has been an overarching roadblock—notably, via its underlying assumption that every aspect of the buildout must work as a for-profit subsector. This model has largely restricted the federal government's role to providing "derisking" subsidies and guarantees to enterprises and their investors, interventions designed to encourage the private sector to invest in a market viewed as new and untested.¹⁸ One major tool employed by the federal government has been tax credits for wind project developers and manufacturers, which—so the theory goes—would allow these actors to secure affordable third-party financing and otherwise make costs pencil out. The industry's faltering development suggests this approach had already fallen short before the challenges of the current federal administration. Even before the 2024 election, developers were responding to rising costs by pushing

¹⁵ This arms race is a problem for the industry internationally and is prompting ongoing policy discussions. For instance, the Netherlands' wind energy association has proposed a temporary size cap to allow European supply chains to catch up. NedZero, "The North Seas Standard: Enable Growth With Wind Turbine Standardization," [September 2, 2025], <https://www.nedzero.nl/en/news/the-north-seas-standard-enable-growth-with-wind-turbine-standardization>.

¹⁶ Heather Richards, "Offshore Wind Turbines Are Growing Larger. How Big Is Too Big?" *E&E News*, March 2, 2023, <https://www.eenews.net/articles/offshore-wind-turbines-are-growing-larger-how-big-is-too-big/>.

¹⁷ Justine Calma, "The US Offshore Wind Boom Will Depend on These Ships," *Verge*, February 23, 2023, <https://www.theverge.com/22296979/us-offshore-ships-wind-boom-installation-vessels>; *Renews.biz*, "Turbine Arms Race Driving Failure Rates Higher," May 3, 2023, <https://renews.biz/85488/underwriter-warns-of-larger-turbine-impact/>.

¹⁸ See Daniela Gabor, "The Wall Street Consensus," *Development and Change* 52, no. 3 (2021): 429–459, <https://onlinelibrary.wiley.com/doi/abs/10.1111/dech.12645>.

for deal rebids to increase prices paid by utilities—and ultimately ratepayers—or by walking away from deals altogether.¹⁹

To overcome the sector's barriers, the United States must take a broader view on what derisking can look like. This strategy could certainly include conventional derisking tools like purchase guarantees for supply chain enterprises. **The US must also consider a stronger state role to provide better coordination, stabilize growth, and resolve collective action problems.**

With the second Trump administration in power as of 2025, projects have been significantly stalled and face a heightened risk of cancellation. For instance, the administration has already issued two stop work orders on offshore wind farms in New York and Rhode Island—with the latter already 80 percent completed and just about ready to be brought online.²⁰ The future is even more uncertain, as the administration's prohibition on new or renewed offshore wind leases in federal waters, threat to revoke existing leases, rollback of tax credits for wind, cancellation of federal funding for ports undertaking offshore wind retrofits, and other hostile policies will decelerate the US buildout for years to come.²¹ It is important to start building a new approach now to regain momentum and deliver on the promise of the offshore wind sector.

¹⁹ Ashley Dawson, Bridget Moynihan, and Dessen S. Özkan, "Why American Needs Public Wind Power," *Next City*, April 22, 2024, <https://nextcity.org/urbanist-news/why-america-needs-public-wind-power>; Marie J. French, "Major Offshore Wind Projects in New York Canceled in Latest Blow to Industry," *Politico*, April 19, 2024, <https://www.politico.com/news/2024/04/19/new-york-offshore-wind-canceled-00153319>; Steven Rodas and Bret Johnson, "NJ Will Get \$125M—not \$300M—after Offshore Wind Farm Developer Cancels Projects," *NJ.com*, May 29, 2024, <https://www.nj.com/cape-may-county/2024/05/nj-loses-out-on-175m-after-offshore-wind-farm-developer-cancels-projects.html>.

²⁰ The Trump administration's rescinded stop work order for New York's Empire Wind project has been a qualified win for now, but as of this writing Rhode Island's Revolution Wind is fighting a similar order. Clare Fieseler, "A Timeline of Trump's Failed Attempt to Kill Empire Wind," *Canary Media*, May 20, 2025, <https://www.canarymedia.com/articles/offshore-wind/equinor-empire-trump-timeline>; Diana DiGagni, "Trump Administration Halts Work on 700-MW Revolution Wind," *Utility Dive*, August 25, 2025, <https://www.utilitydive.com/news/trump-administration-offshore-wind-revolution-wind-orsted-stop-work/758500/>

²¹ BOEM, "BOEM Rescinds Designated Wind Energy Areas on the Outer Continental Shelf," July 30, 2025, <https://www.boem.gov/newsroom/notes-stakeholders/boem-rescinds-designated-wind-energy-areas-outer-continental-shelf>; Clare Fieseler, "Tax Credit Cuts in Trump's Megabill Imperil Two Fully Approved Wind Farms," *Canary Media*, July 8, 2025, <https://www.canarymedia.com/articles/offshore-wind/trump-tax-credits-marwin-delaware>; Brad Plumer, "Transportation Dept. Cancels \$679 Million for Offshore Wind Projects," *The New York Times*, August 29, 2025, <https://www.nytimes.com/2025/08/29/climate/transportation-dept-cancels-679-million-wind-industry.html>

At crucial points in the country's history, the US federal government has played an active coordinating role in getting energy and economic transitions over the line.

Public Options for Economic Advancement

An entity like an Offshore Wind Authority is not new. At crucial points in the country's history, the US federal government has played an active coordinating role in getting energy and economic transitions over the line. The Offshore Wind Authority will reactivate these valuable US federal legacies and reimagine them for the twenty-first century, making judicious choices about where patient capital, at-cost investment, and public infrastructure are needed to achieve nationally important goals.

For-profit enterprises benefited from these past US public investments to build backbone energy systems and infrastructure, both directly and in the broader economic development they fostered. The same will be true for public investment in offshore wind. Moreover, public leadership accomplished broader social goals, for example by extending modern energy services to rural areas and other underserved communities affordably. Internationally, foreign state-owned enterprises (SOEs)—among them Ørsted, Vattenfall, and the China Energy Corporation—already play a significant role in the offshore wind industry. Both US historical and international experiences of SOEs give policymakers ample models to learn from.²²

American history of public development

The United States' Power Marketing Administrations (PMAs), the Tennessee Valley Authority, and the US Bureau of Reclamation are all examples of public entities—ranging from independent public corporations required to raise their own revenue (the TVA) to agencies with Congressional appropriations (Bureau of Reclamation)—that have engaged in the development, ownership, and provision of electricity in different ways over the decades.

One sector in which these entities have been instrumental is hydroelectricity. Public dams and publicly subsidized electricity not only provide low-cost, clean power to surrounding communities but

²² It is important to note that the term SOE does not exist in US law or legislation; the closest comparison is "government corporations."

also supported the development of energy-intensive industries like aluminum production and aviation in the Pacific Northwest. The infrastructure planned and produced by public entities also benefited private industry: Bechtel, for example, was able to build itself as a major engineering firm based on public contracts.²³ Beyond electricity, the US federal government also funded and planned 90 percent of the Interstate Highway System—a similarly massive infrastructural undertaking that necessitated large-scale investment with strong coordination.²⁴

Past public interventions like these provide models to adapt but also lessons to learn from. The TVA and highway development processes, for example, reinforced racial divisions when better planning principles could have addressed histories of disinvestment.²⁵ An Offshore Wind Authority must incorporate these lessons into its institutional design and processes, prioritizing environmental responsibility and democratic accountability.²⁶

The federal government has taken the lead during other moments when private enterprise alone was unable to meet national needs.

This leadership includes the original Moon Shot, for which the government coordinated massive amounts of data, infrastructure, and people in pursuit of a collective goal.²⁷ It has also stepped in during moments of crisis. For example, the federal government intervened to make Amtrak a federal corporation when private rail companies were failing and wanted to exit the market.²⁸ During World War II, the US

²³ Jason Henderson, "Bechtel: The Global Corporation," in *Engineering Earth: The Impacts of Megaengineering Projects*, ed. Stanley D. Brunn (Springer Nature, 2011), 783–801; Christopher J. Tassava, "Multiples of Six: The Six Companies and West Coast Industrialization, 1930–1945," *Enterprise and Society* 4, no. 1(2003): 1–27, <https://doi.org/10.1093/es/4.1.1>; Richard White, *The Organic Machine: The Remaking of the Columbia River* (Hill and Wang, 1996).

²⁴ Federal Highway Administration, "Part 1 – History," US Department of Transportation, accessed September 2025, <https://highways.dot.gov/highway-history/interstate-system/dwight-d-eisenhower-system-interstate-and-defense-highways/part-i>.

²⁵ Derek H. Alderman and Robert N. Brown, "When a New Deal Is Actually an Old Deal: The Role of TVA in Engineering a Jim Crow Racialized Landscape," in *Engineering Earth: The Impacts of Megaengineering Projects*, ed. Stanley D. Brunn (Springer Nature, 2011), 1901–1916.

²⁶ The recent proliferation of data centers for cryptocurrency mining in the Pacific Northwest underlines that the private sector can exploit cheap power for questionable social benefits and net harms. See Nick Lally, Kelly Kay, and Jim Thatcher, "Computation Parasites and Hydropower: A Political Ecology of Bitcoin Mining on the Columbia River," *Environment and Planning E: Nature and Space* 5, no. 1(2022): 18–38, <https://doi.org/10.1177/2514848619867608>.

²⁷ See, for example, Fred L. Block and Matthew R. Keller, eds., *State of Innovation: The US Government's Role in Technology Development* (Routledge, 2015), and Marianna Mazzucato, *The Entrepreneurial State: Debunking Public vs. Private Sector Myths* (Revised Edition) (PublicAffairs, 2015).

²⁸ David Randall Peterman, "Amtrak: Overview," Congressional Research Service, September 28, 2017, <https://www.congress.gov/crs-product/R44973>.

Emergency Shipbuilding Program rapidly produced a fleet of Liberty Ships that modernized the US commercial fleet.²⁹

State-owned enterprises in offshore wind

A Federal Offshore Wind Authority can also build upon the ample precedent of SOEs' role in the global renewables buildout.³⁰ SOEs have a significant track record in developing offshore wind as well as relevant supply chain activities like shipbuilding.³¹ European SOEs, for example, have leveraged their previous capacities in oil and gas production and translated them to offshore wind development with major market share and Asian SOEs are rapidly ramping up production.³²

Domestically, SOEs' activities may encompass some of the broader social goals discussed above. However, when these entities seek out foreign markets, they typically do so for profit; thus they are not required to remain if the risks grow too high.³³ For example, leading developers of US offshore wind to date include European SOEs like Denmark's Ørsted and Norway's Equinor. As SOEs like these face unresolved barriers in the buildout and losses on current projects, their future willingness to bet on the US market is a significant question.

²⁹ Paul W. Stott, "Shipbuilding Innovation: Enabling Technologies and Economic Imperatives," *Journal of Ship Production and Design* 34, no. 2 (2018): 144–154, <https://doi.org/10.5957/JSPD.160040>; Christopher James Tassava, "Launching a Thousand Ships: Entrepreneurs, War Workers, and the State in American Shipbuilding, 1940–1945," *Enterprise and Society* 6, no. 4 (2005): 588–800, <https://doi.org/10.1093/es/khi090>; Mark R. Wilson, *Destructive Creation: American Business and the Winning of World War II* (University of Pennsylvania Press, 2016).

³⁰ Andrew Prag, Dirk Röttgers, and Ivo Scherrer, "State-Owned Enterprises and the Low-Carbon Transition," OECD Environment Working Papers (no. 129), April 25, 2018, <https://www.oecd-ilibrary.org/docserver/06ff826b-en.pdf>; We Own It, "Guess Which of the Top 10 Green Energy Countries DOESN'T Use Public Ownership," September 26, 2022, <https://weownit.org.uk/blog/guess-which-top-10-green-energy-countries-doesnt-use-public-ownership>.

³¹ Laurent Daniel, Changhoon Lee, and Pieter Parmentier, "State-Owned Enterprises in the Shipbuilding Sector," OECD Science, Technology, and Industry Policy Papers (No. 98), February 2021, https://www.oecd.org/en/publications/state-owned-enterprises-in-the-shipbuilding-sector_5264c49c-en.html; International Energy Agency, "Share of Government/SOE Ownership in Global Energy Investment by Sector, 2015 Compared to 2019," May 27, 2020, <https://www.iea.org/data-and-statistics/charts/share-of-government-soe-ownership-in-global-energy-investment-by-sector-2015-compared-to-2019>.

³² Endri Lico, "Wind Turbine Technology Evolution Is Diverging Quickly between China and the Rest of the World," Wood Mackenzie, February 7, 2024, <https://www.woodmac.com/news/opinion/wind-turbine-technology-evolution-is-diverging-quickly-between-china-and-the-rest-of-the-world/>.

³³ International Monetary Fund, "State-Owned Enterprises: The Other Government," in *Fiscal Monitor: Policies to Support People During the COVID-19 Pandemic*, April 2020, <https://www.imf.org/-/media/Files/Publications/fiscal-monitor/2020/April/English/ch3.ashx>. For critiques of this model, see, for example, Lucy Baker, "Procurement, Finance, and the Energy Transition: Between Global Processes and Territorial Realities," *Environment and Planning E: Nature and Space* 5, no. 4 (2022): 1738–1764, <https://doi.org/10.1177/2514848621991121>, and Yngvie Solli Hereit, "The Landlord State Goes Abroad: The Remaking of the Norwegian 'Energy Nation' as a Global Rentier," *Environment and Planning A: Economy and Space* 56, no. 7 (2024): 1985–2002, <https://doi.org/10.1177/0308518X241251475>.

Structuring the Offshore Wind Authority

A US Offshore Wind Authority can coordinate the larger industrial ecosystem; manage ecological, social, and economic needs; and provide patient capital investments so that high-road offshore wind projects can be built domestically. Below we outline how the Offshore Wind Authority would generally operate and where it would intervene explicitly in the offshore wind industry.

Institutional design

Purpose and structure: We propose a single independent federal entity established by Congress that has the authority to intervene directly in US domestic offshore wind generation, transmission, and supply chain development. The Authority would act as a public option in the offshore wind industry with the purpose of better coordinating and standardizing the sector to drive down overall industry risks and costs; keep electricity costs affordable; and help cultivate high-road standards for workers, environment, and co-located communities.

The Authority could be standalone or housed within a federal department like the Department of Energy and will interact with other relevant federal agencies, the Bureau of Ocean Energy Management (BOEM), the Department of Transportation and Maritime Administration (MARAD), and others. (We limit our discussion of the interactions among existing agencies and the Offshore Wind Authority, as any future administration will need to reckon with the Trump administration's draconian cuts to the federal workforce.³⁴)

Drawing on the example of the Environmental Protection Agency's regional offices or regionally focused PMAs, officials may choose to develop regional offshore wind entities to serve particular coastal development hubs like the East Coast, West Coast, or Gulf Coast. These entities could partner more closely with regional players and facilitate public-public partnerships with state governments and other multilevel US actors like urban governments, ports, and Tribal

³⁴ Elena Shao and Ashley Wu, "The Federal Work Force Cuts So Far, Agency by Agency," *New York Times*, accessed September 2, 2025, <https://www.nytimes.com/interactive/2025/03/28/us/politics/trump-doge-federal-job-cuts.html>.

A public Authority has the unique ability to coordinate regional planning for offshore wind while integrating environmental protections and upfront community engagement.

governments. These formal partnerships have the additional potential benefit of protecting projects against political shifts at the federal level, both by strengthening regional bases' ability to maintain development and bolstering commitments made to develop the industry.

Governance and planning: A public enterprise can be mandated to pursue high stakeholder engagement, shared governance standards, and commitments to high-road labor. Public enterprises can also plan on long time horizons and integrate a wide set of priorities, giving them the latitude to consider and integrate feedback from stakeholders in a holistic way. With a dual focus on planning and governance, a public Authority has the unique ability to coordinate regional planning for offshore wind while integrating environmental protections and upfront community engagement. Although permitting processes would likely still be handled by existing agencies, the Authority could conduct preemptive community engagement to set the permitting process up for success.

In the CCI and Roosevelt Institute report, [Planning to Build Faster: A Solar Case Study](#), the authors developed a set of six principles for solar buildout that are just as relevant to the governance and deployment of offshore wind. The authors argue that any development effort must (1) invest in constructive reparations, focusing benefits on those who have been most subjugated by the current political and economic system; (2) distribute benefits—and inevitable harms—fairly; (3) engage in democratic and community consultation; (4) make financial returns subordinate to social and environmental concerns; (5) find synergies and multi-solving opportunities; and (6) build sustainability, considering both embodied energy and material consumption patterns.³⁵

The Offshore Wind Authority we envision can use its convening power to bring multiple groups across the supply chain together to make coordinated decisions at the national or regional level to manage the multiple priorities of the different constituencies. It can invest in upfront engagement with local communities near offshore wind infrastructure, engaging them in the process of designing and planning

³⁵ Johanna Bozuwa, Dustin Mulvaney, Isabel Estevez, Kristina Karlsson, and Sunny Malhotra, "Planning to Build Faster: A Solar Energy Case Study," Climate and Community Institute and Roosevelt Institute, October 2024, https://climateandcommunity.org/wp-content/uploads/2024/10/RI_Build-Faster-Solar-Energy-Case-Study_Report_202410.pdf.

projects to increase the potential for community buy-in and community benefits agreements.³⁶ It can also coordinate directly with a range of trade unions and labor actors to skill up and employ thousands of workers across the supply chain; build neutrality agreements, labor peace agreements, project labor agreements, and prevailing wages into all development and procurement programs; and coordinate community-labor relationships for resilient local workforces.³⁷

Revenue: Federal entities can be more or less revenue independent, variously drawing funding from Congressional appropriations, the sale of bonds to the public and/or US Treasury, and more. Our proposal envisions a not-for-profit entity with a high level of financial independence. In other words, though the Agency may receive ongoing Congressional appropriations support, it should also have considerable power to issue its own bonds to the public or Treasury, borrow from the Treasury, and otherwise operate with the autonomy and patient capital needed to deliver on its long-term vision. It might be wholly funded through initial appropriations; or it could potentially leverage BOEM leasing revenues or revenues from at-cost project development and operations.

The Authority may use its revenues to recover upfront development, operations, and labor-training costs; repay bondholders and lenders; reinvest for future needs; and undertake other priority activities related to buildout priorities and community wealth building for port localities. These community-focused activities might include, for example, providing power generated from publicly owned and operated offshore wind projects at at-cost or subsidized rates to certain actors or sharing a portion of revenues with local communities or Tribes who host infrastructure.

The same philosophy might apply to service charges for private industry. The Authority could allow private entities to use publicly owned offshore transmission lines and grid infrastructure, federally owned vessels, or other infrastructure at cost to support manufacturing buildout for offshore wind supply chains.

³⁶ PowerSwitch Action, "How Community Benefit Agreements Build Thriving Communities and Authentic Democracy," November 1, 2024, <https://www.powerswitchaction.org/updates/how-community-benefits-agreements-build-thriving-communities-and-authentic-democracy>.

³⁷ Bluegreen Alliance, "Offshore Wind Works for Oregon | Our Vision: High-Road Development," accessed September 2, 2025, <https://www.bluegreenalliance.org/site/offshore-wind-works-for-oregon/our-vision-high-road-development/>.

The Offshore Wind Authority could ensure stable baseline demand and a pipeline of projects to mature the US sector.

Sectoral intervention

We have identified three key areas where the United States' existing policy approach has fallen short—and where an Offshore Wind Authority could have a profound impact. While the strongest version of the Authority would intervene in all three areas, each area could also be pursued individually.

Offshore wind projects: The Offshore Wind Authority can ensure stable baseline demand and a pipeline of projects to mature the US sector. It could achieve this by bidding for projects alongside current for-profit players or forming strategic partnerships—for example, with state governments. The Authority could also anchor nationally important Moon Shot challenges like novel floating wind technologies for the United States' deepwater coasts.

Offshore transmission grids: The Authority can assist in building the United States' offshore transmission grid. The United States' current model devolves responsibility for interconnecting projects to individual developers, and the costs and delays incurred thereby have become a significant factor in project delays and cancellations. The Authority and relevant partnerships could address offshore transmission's unique challenges in a more coordinated, just, and cost-efficient manner, charging public or for-profit developers at-cost, fair rates to use lines.

Supply chain manufacturing: The Authority can use its large-scale procurement power strategically to help grow port-based manufacturing and staging hubs and invest in ports' low-carbon modernization, supporting infrastructure like intermodal transportation networks and other supply chain needs. Given that the shortage of specialized maritime vessels for building and maintaining US offshore wind projects has been a key supply chain roadblock, the Authority could be empowered to commission new vessels from domestic shipyards, owning and contracting them out at at-cost or fair rates.

In the next sections, we describe in detail the unique structural issues of each key area of intervention and expand upon the specific actions the Authority could take to resolve current roadblocks.

Offshore Wind Projects: Drive Buildout via a Federal Developer

The Offshore Wind Authority should create a federal offshore wind developer to ensure stable baseline demand and a pipeline of projects to mature the US sector

Offshore wind generation projects are too expensive for today's developers to build speculatively. Long before projects can begin construction, developers must guarantee an offtaker and an acceptable price for power generated.³⁸ Today, US states create this advanced market by setting binding offshore wind deployment targets, often as part of their broader energy and climate mandates. Many states have attempted to meet these targets via open market solicitations, in which they invite developers to submit competing bids to deliver the power needed.³⁹ Winning developers enter into long-term contracts that lock in a price for the future electricity they will sell, generally years in advance. In Southeastern states that have resisted power sector deregulation and retained investor owned utilities (IOUs) as regulated vertically integrated monopolies, state governments may require IOUs directly to build offshore wind (Virginia's Dominion Energy is a prominent example).⁴⁰ However, this offshore wind development strategy has come up short, with few projects achieving completion.

³⁸ This remains broadly true for the renewables sector in toto despite claims by pro-market voices that renewable energy has entered a "post subsidy" era, one that corporate power clients and merchant project developers can lead. See Brett Christophers, *The Price Is Wrong: Why Capitalism Won't Save the Planet* (Verso, 2024).

³⁹ See, for example, "Offshore Wind Solicitations," New York State Energy Research and Development Authority, New York State, accessed September 2, 2025, <https://www.nyserda.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/Offshore-Wind-Solicitations>, and Adnan Memija, "Signing of Massachusetts Offshore Wind Power Contracts Delayed Again," *offshoreWIND.biz*, April 2, 2025, <https://www.offshorewind.biz/2025/04/02/signing-of-massachusetts-offshore-wind-power-contracts-delayed-again/>.

⁴⁰ Leah Garden, "How Dominion Energy Is Creating a \$9.8 Billion Road Map for Offshore Wind," *Trellis*, November 30, 2023 (updated July 25, 2024), <https://trellis.net/article/how-dominion-energy-is-creating-a-9-8-billion-road-map-for-offshore-wind/>.

Projects have been affected by macroeconomic pressures like inflation as well as cross-cutting industry issues like the turbine-size arms race.

A concentrated market facing significant challenges

In theory, any kind of developer can advance a bid for a federal lease block or state solicitation, whether it be domestic or foreign, private or public, large or small. In practice, however, the scale, complexity, capital intensity, and new-sector risks of offshore wind projects have restricted entry to a narrow set of large actors, all of whom are currently operating for profit in the United States. Leading developers include major European SOEs who have speculated in the United States as a new market frontier. Other major players are multinational oil and gas companies, though these have continued to be unreliable partners in renewables (for example, both BP and Shell recently pulled out of the US offshore wind market to refocus on fossil extraction).⁴¹ Big banks, private equity, and other financial actors play a more shadowy role throughout, part-owning some projects or developers themselves, including SOEs.⁴²

US offshore wind projects have faced significant economic challenges. Projects have been affected by macroeconomic pressures like inflation as well as cross-cutting industry issues like the turbine-size arms race. The United States' late arrival and stop-start federal commitment to offshore wind have also made its market particularly risky and have stunted efforts to grow the country's domestic supply chain.⁴³ These difficulties have demonstrated the brittleness of states' market-based procurement mechanisms. Developers who agreed to electricity prices with states years in advance have found that rising costs now make multiple big projects uneconomical. Developers have responded by pushing states to rebid deals to increase prices paid for power, costs that will ultimately be

⁴¹ Julia Kollwe and Jillian Ambrose, "BP Imposes Hiring Freeze and Halts New Offshore Wind Projects," *Guardian*, June 27, 2024, <https://www.theguardian.com/business/article/2024/jun/27/bp-imposes-hiring-freeze-and-halts-new-offshore-wind-projects>; *Maritime Executive*, "Shell Takes \$1B Charge as It 'Pauses Involvement' in US Offshore Wind," January 30, 2025, <https://maritime-executive.com/article/shell-takes-1b-charge-as-it-pauses-involvement-in-u-s-offshore-wind>.

⁴² For financial institutions' role in offshore wind projects, see Adnan Memija, "Dominion Energy and Stonepeak Finalize CVOW Offshore Wind Deal," *offshoreWIND.biz*, October 23, 2024, <https://www.offshorewind.biz/2024/10/23/dominion-energy-and-stonepeak-finalise-cvow-offshore-wind-deal/>. Even Ørsted, the Danish national government's leading offshore-wind SOE, is co-owned by profit-seeking institutions, including Danish pension funds and Goldman Sachs, which took a major stake in the company early on in its transition to a renewables developer. Goldman Sachs's partial ownership of Ørsted prompted a public outcry. See Richard Milne, "Dong Energy's debut sparks outrage in Denmark over Goldman windfall," *Financial Times*, June 8, 2016, <https://www.ft.com/content/327d093e-2cd1-11e6-bf8d-26294ad519fc>.

⁴³ Though gains were made under the Biden administration with the Inflation Reduction Act, this development is now threatened under the second Trump administration.

borne by the broader public.⁴⁴ Even before Trump's reelection, developers had also begun to walk away from US deals altogether as losing bets.⁴⁵

Federal de-risking is not enough

Historically, the federal government has attempted to subsidize offshore wind projects' significant price tag by offering derisking support to developers, chiefly via federal clean energy tax credits.⁴⁶ Like other conventional derisking strategies, this approach uses public resources to try to entice private actors to invest. The theory here is that the federal government can drive investment and development by reducing companies' federal tax burden—in effect, paying companies for publicly useful development. The federal support is also intended to reduce developers' third-party financing costs (because lower-risk projects should be cheaper to finance). Analysis suggests that tax credits are helping qualifying offshore wind projects pencil out—potentially reducing their lifetime costs by almost 25 percent.⁴⁷

Tax credits are an imperfect tool. For instance, they have been criticized as an inequitable and inefficient way of delivering public resources compared to direct grants, because developers historically have had to strike complex and costly financial deals with a highly restricted set of third-party "tax equity" players to actually use them.⁴⁸ The Biden administration attempted to streamline the derisking process by targeting these tax equity mechanisms as well as expanding and extending tax credits. For example, the Biden administration made credits "transferable" in an effort to allow a broader range of for-profit actors to claim, buy, and sell them. The intention was to allow developers to access federal subsidies more

⁴⁴ Ashley Dawson, Bridget Moynihan, and Dessen S. Özkan, "Why American Needs Public Wind Power," *Next City*, April 22, 2024, <https://nextcity.org/urbanist-news/why-america-needs-public-wind-power>.

⁴⁵ Marie J. French, "Major Offshore Wind Projects in New York Canceled in Latest Blow to Industry," *Politico*, April 19, 2024, <https://www.politico.com/news/2024/04/19/new-york-offshore-wind-canceled-00153319>; Steven Rodas and Bret Johnson, "NJ Will Get \$125M—not \$300M—after Offshore Wind Farm Developer Cancels Projects," *NJ.com*, May 29, 2024, <https://www.nj.com/cape-may-county/2024/05/nj-loses-out-on-175m-after-offshore-wind-farm-developer-cancels-projects.html>.

⁴⁶ Offshore wind generation projects were made eligible for key US renewable energy tax credits, the Investment Tax Credit (ITC), and Production Tax Credit (PTC) as well as the more generalized tax break provided by the US Modified Accelerated Cost Recovery System (MACRS).

⁴⁷ Fieseler, "Tax Credit Cuts in Trump's Megabill Imperil Two Fully Approved Wind Farms."

⁴⁸ Developers rarely owe any taxes when they start building a new renewable project, because, in general, each developer is set up as a new company. Historically, to use federal subsidies, they have had to—in effect—sell tax credits to a handful of big Wall Street banks like JPMorgan and Bank of America seeking to shelter their high federal tax bills. See Sarah Knuth, "Rentiers of the Low-Carbon Economy? Renewable Energy's Extractive Fiscal Geographies," *Environment and Planning A: Economy and Space* 55, no. 6 (2023): 1548–1564, <https://doi.org/10.1177/0308518X211062601>.

If the United States continues to rely on massive private financing deals for offshore wind, projects' profitability and viability are likely to suffer.

effectively, generally reduce projects' financing costs, and mitigate the gatekeeping that big tax-equity banks have exercised over projects.

Offshore wind projects in the United States have only begun to complete their financing deals in the last few years, but their experience to date suggests reasons for skepticism that Biden administration reforms would significantly simplify them. The United States' inaugural offshore wind project, Vineyard Wind I off the coast of New Bedford, MA, was reported by the financial press as the "largest ever single asset tax equity deal" in US history, totaling over \$1 billion in investment. The deal ultimately took five years to negotiate and required funds from more than 25 banks.⁴⁹

Tax credit transferability might help offshore wind developers make use of federal subsidies—without this reform, some feared, giant offshore wind deals would quickly swamp the entire capacity of the US tax equity market (even big banks have only so much tax to offset).⁵⁰ However, tax credits fail to address deeper sectoral problems like supply chain coordination and standardization; and, in practice, it appears the associated risks and costs of development have swamped whatever mitigating effect these late-stage subsidies might have had. Regardless of their merits and defects, the Trump administration's rollbacks of tax credits for wind means that few offshore wind projects not already in construction will be able to access them for the foreseeable future.⁵¹

If the United States continues to rely on massive private financing deals for offshore wind, projects' profitability and viability are likely to suffer.⁵² For-profit developers are compelled to realize a certain rate of return for their projects, including a cut for other part-owners. Every additional lender or tax equity partner added on the upstream end of deals means an additional claim on project revenues. Moreover, in times of economic and political volatility like today, or for newer and riskier technologies like floating offshore wind, private financial

⁴⁹ "Vineyard – Offshore tax equity arrives," *PFI*, December 6, 2023, <https://www.pfie.com/pfi-yearbooks/1491828/vineyard-offshore-tax-equity-arrives>; Vineyard Wind, "Copenhagen Infrastructure Partners and Avangrid Announce Largest Single Asset Tax Equity Financing and First Large-Scale Offshore Transaction in the US," October 23, 2023, <https://www.vineyardwind.com/press-releases/2023/10/26/copenhagen-infrastructure-partners-and-avangrid-announce-largest-single-asset-tax-equity-financing-and-first-large-scale-offshore-transaction-in-the-us>.

⁵⁰ Knuth, "Rentiers of the Low-Carbon Economy?"

⁵¹ Fieseler, "Tax Credit Cuts in Trump's Megabill Imperil Two Fully Approved Wind Farms."

⁵² These derisking strategies also rely on the ongoing existence of federal clean energy tax credits, which has proven far from assured today.

players typically demand higher prices for their capital (if they provide it all).⁵³ Such cascading and locked-in financial claims on projects are broadly counterproductive. Excessive financing costs in the short term may kill otherwise-viable projects, and affordable private capital is likely to dry up just when and where it is needed most.

Under-coordinated project development breaks supply chains

Although BOEM decides when US offshore lease blocks are available—usually as part of a Congressionally mandated leasing plan—it has not coordinated when and if states set offshore wind mandates or choose to schedule competitions for projects. This under-coordination has become a problem when states, projects, and developers end up competing with each other for scarce supply chain resources. One frequent bottleneck is specialized installation vessels—or vessels generally—that have to be sourced domestically due to the Jones Act but for which the domestic supply chain is still emerging.⁵⁴ Without a secure pipeline of projects to assure baseline demand, building out these supply chains has been difficult for raw materials suppliers, manufacturers, shipbuilders, ports, and other actors across the US sector.

Delays in financing or siting also can cause downstream effects. Developers may miss windows for the use of particular manufacturing facilities and/or specialized installation vessels, resulting in further delays. Suppliers, for their part, may find themselves contending with an unmanageable number of projects—or barely any.

Project developers have attempted strategic procurement to try to secure the components needed for development and mature US supply chains more broadly. These efforts have included, for example, commissioning installation vessels and striking deals with ports and portside manufacturers to grow fabrication and staging capacities (see the Ports and Manufacturing Hubs section below). Although these strategies indeed provide important models for what large-scale offshore wind procurement can achieve, they may depend on particular deals moving forward, compounding the costs when projects fail. Cancellations risk cascading breakdowns.

⁵³ Knuth, “Rentiers of the Low-Carbon Economy?”

⁵⁴ Actors have devised costly and time-consuming workarounds, like mobilizing projects from Canadian waters.

Stabilize and recharge project pipelines via a federal developer

A much more straightforward way to steady a resource-intensive, emerging, and risky sector is to intervene directly via a public federal developer, whether acting alone or in partnership with other US public entities. A public developer can facilitate the construction of big, complex projects more quickly—and likely more cheaply. And it would provide the guaranteed pipeline of future US projects that supply chains need to justify ramping up investment (while also promoting technological standardization to further stabilize and rationalize the rollout).

Recommendation 1:

Create a federal public developer-owner

A federal developer, by dint of its unique mandate and deep commitment to domestic industry, could secure the baseline level of demand needed to stabilize the US project pipeline and mature domestic supply chains, provide a guaranteed entrant to BOEM lease block auctions and state solicitations, and lead more integrated federal procurement models. It could undertake this development more affordably with cheaper public financing tools—a major aid in getting projects over the line successfully and protecting electricity affordability. Through its use of public appropriations and bonds rather than complex tax credits and tax equity finance, it would simplify projects' capital structure significantly.

A federal public developer would work in coordination with other federal agencies like the Department of Energy, local port authorities, port communities and advocates, and unions and the local workforce to put together comprehensive plans for wind development.⁵⁵ This coordinating power would be a major help in seeing projects through to completion as well as setting and periodically updating technological standards for US projects, conducting important environmental evaluations to limit harm in ecosystems, and integrating coordinated

⁵⁵ For an example of how this is being discussed in the UK, see Melanie Brussler, Chris Hayes, Adrienne Buller, and Mathew Lawrence, "The Greatest Generation: How Public Power Can Deliver Net Zero Faster, Fairer, and Cheaper," Common Wealth, December 2, 2024, <https://www.common-wealth.org/publications/the-greatest-generation-how-public-power-can-deliver-net-zero-faster-fairer-and-cheaper>.

Public-public
partnerships—
that is,
government or
nonprofit entities
working together
on a project—can
be an effective
way to
coordinate
across scales
and provide local
insight and
investment.

and upfront engagement with workers and communities to ensure localized economic benefits and consent.

Lastly, a public offshore wind developer could make the long-term investments needed for long-term wins—again, very much in the spirit of the original Moon Shot.⁵⁶ This kind of approach is needed given the rapid evolution of offshore wind technology. For example, to harness US offshore wind capacity—in particular, in the deeper waters off the West Coast—floating wind infrastructure is essential. The Biden Administration’s Department of Energy provided R&D funding for novel floating offshore wind technologies as part of the Administration’s Floating Offshore Wind Shot.⁵⁷ However, directly developing projects through a federal public developer or strategic multi-level partnerships could provide a clearer route for maturing and scaling up this key technology.

Recommendation 2:

Build multi-scalar public-public partnerships

A federal wind developer can be further enhanced by partnerships at the state and local level. Public-public partnerships—that is, government or nonprofit entities working together on a project—can be an effective way to coordinate across scales and provide local insight and investment. For example, a federal public developer could partner with state governments, urban governments or port authorities, Tribal governments, or communities to co-own and coordinate wind projects. Such co-ownership structures are already common among for-profit developers and their financial partners.

Public-public partnerships could help redress non-profit developers’ sidelining by the market-led approach to developing renewables dominant in the United States. In fact, the federal government’s tax credit mechanism for derisking projects has historically excluded non-profit developers given their tax-exempt status. The Biden administration attempted to remedy the situation, introducing “direct pay” provisions intended to give non-profit entities access to existing

⁵⁶ Fred L. Block and Matthew R. Keller, eds., *State of Innovation: The US Government's Role in Technology Development* (Routledge, 2015).

⁵⁷ Adrijana Buljan, “Nine US Floating Wind Foundation Projects Win USD 1.6 Million From Department of Energy,” *offshoreWIND.biz*, March 30, 2023, <https://www.offshorewind.biz/2023/03/30/nine-us-floating-wind-foundation-projects-win-usd-1-6-million-from-department-of-energy/>. Also see Energy Earthshots, “Floating Offshore Wind Shot™: Unlocking the Power of Floating Offshore Wind Energy,” US Department of Energy, September 2022, <https://www.energy.gov/sites/default/files/2022-09/floating-offshore-wind-shot-fact-sheet.pdf>.

federal subsidies. In theory, this program gave a more diverse set of actors pathways to renewables development and ownership. However, initial evidence suggests that ostensible beneficiaries like Tribal governments have still faced considerable obstacles in using funding.⁵⁸

Regardless, the upfront costs of offshore wind projects are too high for most non-profit or local-government players without backing from a deeper-pocketed entity. Even relatively large and well-funded public power entities like the New York Power Authority (NYPA) see risk in offshore wind projects: In its 2025 strategic renewables plan, NYPA states that, “regarding offshore wind projects, the capital costs of an offshore wind project generally range from \$5–10 billion, which is approximately 50–100 percent the total value of NYPA’s asset base. As a result, NYPA is unable to pursue projects of that size with our majority ownership requirement while maintaining a sound financial position to keep our current assets running safely.”⁵⁹

Using federally backed partnerships to support more financially constrained public entities can serve multiple purposes. For example, at the state level, a federal developer could facilitate more regional agreements like the one announced by Massachusetts, Rhode Island, and Connecticut in the fall of 2023. These states have signed a Memorandum of Understanding to pursue offshore wind procurement together, including soliciting explicitly multistate development proposals in which project costs and power generated will be shared with one or more participating states.⁶⁰

Co-ownership stakes can also give communities greater ability to localize and stabilize infrastructure investment and secure locally defined benefits. At the same time, direct access may provide a leverage point for greater control earlier in project planning stages, mitigating harms up front and opening the broader development process to greater democratic accountability.

⁵⁸ Arthur Borden Heilman (Justice Capital), phone interview with authors, August 8, 2024; Maria McCoy, host, *Local Energy Rules*, podcast, produced by Institute for Local Self-Reliance, “Standing Rock’s Wind Project Puts People First,” April 24, 2024, <https://ilsr.org/articles/standing-rocks-wind-project-puts-people-first-episode-208-of-local-energy-rules/>.

⁵⁹ New York Power Authority, “NYPA Renewables Strategic Plan,” January 28, 2025, <https://www.nypa.gov/-/media/nypa/documents/document-library/renewables/nypa-renewables-2025-strategic-plan.pdf>, 42.

⁶⁰ Mass.gov, “Massachusetts, Rhode Island, and Connecticut Sign First-Time Agreement for Multi-State Offshore Wind Procurement,” October 4, 2023, <https://www.mass.gov/news/massachusetts-rhode-island-and-connecticut-sign-first-time-agreement-for-multi-state-offshore-wind-procurement>.

Under the Biden administration, the federal government was already supporting these efforts via convening and facilitation aid as well as funding through competitive grant processes (as we discuss in the case of transmission below). This recent work was an important step toward better coordination and standardization and the mitigation of damaging interstate competition and races to the bottom. The public developer is a clear extension of this strategy.

Offshore Transmission Grids: Establish Essential Infrastructure through a Federal Offshore Transmission Developer

The Offshore Wind Authority should build and own new offshore transmission grids to hook up a wave of fixed and floating generation projects quickly and equitably

Offshore wind projects require extensive infrastructure to transmit the electricity they generate to the onshore grid. At a bare minimum, offshore wind farms need subsea transmission cables and onshore substations that connect to the broader grid. To receive offshore energy and prevent grid overloading, many onshore grids require upgrades.

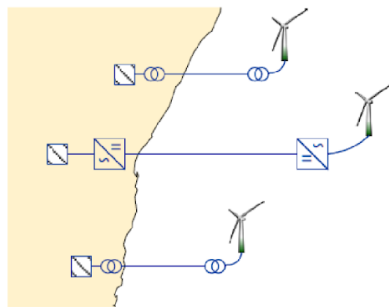
As the sector matures and evolves technologically, new grid infrastructures are coming online: offshore substations to collect power from multiple wind farms before transmitting it onshore, “backbone” or “meshed” designs for more integrated high-voltage offshore grids, floating cables to connect deeper-water floating wind farms, and more.

Who will plan, build, own, and operate these offshore networks going forward is an open question for the international sector. In the United States, such uncertainties and their costs have helped stall the country’s offshore wind buildout. The grid challenges of offshore wind also speak to a broader problem in the US energy and climate transition: **The United States’ under-coordinated transmission system is delaying and blocking new renewable projects of all kinds.**

Transmission infrastructure design concepts

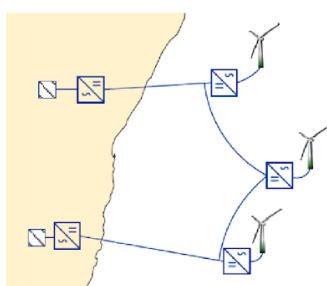
Radial tie lines

Transmission links bundled with individual OSW plants



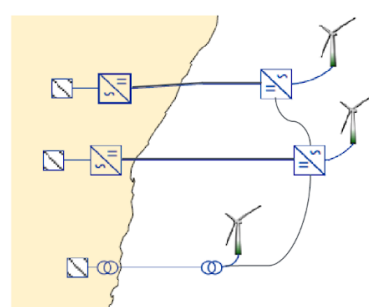
Backbone offshore grid

Planned transmission tie lines for multiple OSW plants



Meshed generation ties

Individual tie lines to shore linked through offshore transmission



Substations on the existing grid



Conventional AC transformers



HVDC converter stations

Source: Climate and Community Institute, adapted from Johannes Pfeifenberger, "Promoting Efficient Investment in Offshore Wind Transmission," Brattle Group, August 16, 2022, <https://www.brattle.com/wp-content/uploads/2022/08/Promoting-Efficient-Investment-in-Offshore-Wind-Transmission.pdf>.

Grid interconnection challenges worsen offshore wind's profitability problem

As with the initiation and realization of offshore wind projects, so with the transmission of offshore energy: Individual states are left to make the key decisions about how to connect projects to the grid. The many US states that have deregulated their power sectors currently procure offshore wind projects via competitive solicitations. These states have sought to connect offshore wind projects to the broader grid using standard regional transmission processes. Different from onshore renewables, however, developers of US wind electricity generation projects have historically built out the offshore grid themselves. In this "generator-led" model, developers have folded associated costs into their offtake bids (and, ultimately, the prices paid by ratepayers).⁶¹

⁶¹ In the US Southeast, states with offshore wind mandates require utilities to build, own, and operate both offshore wind generation and the grid infrastructure needed to connect it—vertical integration that remains the norm in states that have resisted deregulation. Conor Harrison and Shelley Welton, "The States that Opted Out: Politics, Power, and Exceptionalism in the Quest for Electricity Deregulation in the United States South," *Energy Research and Social Science* 79 (2021): 102147, <https://doi.org/10.1016/j.erss.2021.102147>.

The project by project approach to transmission has produced a fragmented grid.

The generator-led model has meant that, before selling any power, each separate project and its developers must undertake the costs and time to plan interconnections; negotiate rights of way amid competing local uses and potential resistance; muster relevant supply chain components like cables, cable-laying vessels, and substations; and, finally, construct the infrastructure itself. Meanwhile, the project-by-project approach that has been the norm has produced a fragmented grid: Each project connects independently to shore via its own “radial” transmission line and landing point rather than integrating into—or helping build out—a coordinated offshore network that can serve multiple incoming wind farms.

Initially, project developers favored the generator-led model to get the United States’ first offshore wind projects over the line. Spokespersons for early entrants like Ørsted, for example, argued that having more end-to-end control over the development process could smooth potential bottlenecks and allow them to leverage their existing grid-building experience in the new US market.⁶² In part, developers’ attitude has been a response to broader challenges in the United States in terms of connecting new renewables to the grid (a phenomenon we discuss further below). As one Ørsted representative put it in 2021, “Our primary concern is timing; we can’t wait for the perfect transmission system to be conceived of, permitted and built.”⁶³

However, the generator-led model is increasingly contributing to US projects’ profitability issues. For one, transmission facilities represent a significant share of projects’ upfront costs.⁶⁴ For another, offshore transmission infrastructure requires long-term development in its own right, historically taking a decade or more to get from planning to

⁶² In the UK’s more mature offshore wind sector, offshore wind developers build both generation and transmission before on-selling transmission assets to third-party owner-operators who bid for them in national-government-run auctions. See Molly Green, “OFGEM Picks Preferred Bidder for Moray West Offshore Transmission Ownership,” *Solar Power Portal*, April 10, 2025, <https://www.solarpowerportal.co.uk/solar-projects/ofgem-picks-preferred-bidder-for-moray-west-offshore-transmission-ownership>.

⁶³ Justin Horwath and Yannic Rack, “US Offshore Wind Boom Entangled in Transmission Debate,” *S&P Global*, July 6, 2021, <https://www.spglobal.com/market-intelligence/en/news-insights/articles/2021/7/us-offshore-wind-boom-entangled-in-transmission-debate-65142464>.

⁶⁴ One analysis finds that states would have to spend \$15–20 billion for transmission out of a \$100 billion investment needed to get to 28.5 GW of offshore wind capacity by 2035. See Jeff St. John, “A Looming Transmission Crunch for the US East Coast’s Offshore Wind Ambitions,” *gtm*, November 11, 2020, <https://www.greentechmedia.com/articles/read/the-coming-transmission-crunch-for-the-us-east-coasts-gigawatt-scale-offshore-wind-goals/>.

completion.⁶⁵ Meanwhile, these projects have encountered their own supply chain issues, associated delays, and cost rises, for example due to bottlenecks in the availability of subsea transmission cables and specialized installation vessels.⁶⁶

The federal government has approached transmission infrastructure projects much as it has wind farms themselves: by favoring financial derisking strategies in lieu of coordinated planning.⁶⁷ In 2023, the Biden Administration specified that generators could apply federal tax credits to transmission facilities associated with their projects.⁶⁸ However, once again, this public resource transfer is at best a partial response to deeper sectoral issues.

Under-coordinated grids impose mounting public costs

Troubles in the US offshore wind market have prompted growing calls for a more coordinated approach to offshore transmission, from for-profit developers and industry outlets as well as US states and utilities. Many have argued that a holistically planned and shared offshore transmission network could significantly reduce project risks and result in big cost savings for both developers and ratepayers.⁶⁹ Recent studies have calculated that more proactive planning—e.g., cutting down on overbuilding and adopting the most cutting-edge technologies like high-voltage direct current (HVDC) cables—could save the United States hundreds of millions of dollars on New York and New England projects and ultimately more than \$20 billion overall.⁷⁰

⁶⁵ Johannes P. Pfeifenberger et al., “The Benefit and Urgency of Planned Offshore Transmission: Reducing the Coasts of and Barriers to Achieving US Clean Energy Goals,” Brattle Group, January 25, 2023, https://www.brattle.com/wp-content/uploads/2023/01/Brattle-OSW-Transmission-Report_Jan-24-2023.pdf; “Average lead times to build new electricity grid assets in Europe and the United States, 2010–2021,” International Energy Agency, January 13, 2023, <https://www.iea.org/data-and-statistics/charts/average-lead-times-to-build-new-electricity-grid-assets-in-europe-and-the-united-states-2010-2021>

⁶⁶ Pfeifenberger et al., “The Benefit and Urgency of Planned Offshore Transmission.”

⁶⁷ BOEM’s permitting practices have also tended to support a generator-led approach by bundling permitting for radial transmission lines with generation projects (i.e., as associated easements). See Pfeifenberger et al., “The Benefit and Urgency of Planned Offshore Transmission.”

⁶⁸ Heather Richards and Miranda Willson, “4 Things to Know about the State-Led Push for Underwater Transmission,” *E&E News*, September 5, 2023, <https://www.eenews.net/articles/4-things-to-know-about-the-state-led-push-for-underwater-transmission/>.

⁶⁹ See, for example, St. John, “A Looming Transmission Crunch for the US East Coast’s Offshore Wind Ambitions,” and Abraham Silverman, “An Offshore Wind Super-Grid for the East Coast,” *Energy Explained*, Center on Global Energy Policy, Columbia University, May 18, 2023, <https://www.energypolicy.columbia.edu/an-offshore-wind-super-grid-for-the-east-coast/>.

⁷⁰ Pfeifenberger et al., “The Benefit and Urgency of Planned Offshore Transmission”; St. John, “A Looming Transmission Crunch for the US East Coast’s Offshore Wind Ambitions.”

A holistically
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As projects are built along busy coasts and encounter complex siting questions, the individual and collective costs of under-coordinated grid development are only likely to grow. First-moving developers may snap up cheaper, easier-to-develop transmission corridors and coastal interconnection points and thereby make future development more difficult.⁷¹

Such arguments have driven growing US interest in “transmission-first” offshore development and other more coordinated and technologically standardized models, but it remains unclear who should lead such efforts. The major advocates for transmission-first development in the United States have been for-profit ventures like Anbaric, which have sought to carve out a space for themselves as independent merchant builders and owners of offshore transmission assets.⁷² Pro-market voices like the Brattle Group have more broadly supported models of “competitive transmission,” i.e., more fully opening up the US grid to for-profit transmission developers beyond legacy utilities.⁷³ They have pointed to utilities’ systematic underinvestment in the expansion and retrofits needed to interconnect new renewables nationwide and build grid resilience against climate change impacts, as well as regional transmission organizations’ failure to push utilities to build needed lines and otherwise enable renewables entry. Offshore wind projects have joined the many renewables nationwide stuck in the resultant interconnection queues. By 2022, for example, the average wait time had stretched to over five years for all new power projects entering the US grid—almost 95 percent of which were renewables and storage.⁷⁴

Initial US attempts to build offshore transmission as a stand-alone venture have had mixed results. In 2021, advocates for competitive transmission closely watched New Jersey’s first-of-its-kind

⁷¹ Pfeifenberger et al., “The Benefit and Urgency of Planned Offshore Transmission.”

⁷² Adrijana Buljan, “Anbaric Details Massive New Jersey Offshore Wind Power Transmission Bid,” *offshoreWIND.biz*, September 21, 2021, <https://www.offshorewind.biz/2021/09/21/anbaric-details-massive-new-jersey-offshore-wind-power-transmission-bid/>.

⁷³ Johannes Pfeifenberger, Judy Chang, and Michael Hagerty, “Cost Savings Offered by Competition in Electric Transmission: Experience to Date and Potential Value for Electricity Consumers,” Brattle Group, December 11, 2019, https://www.brattle.com/wp-content/uploads/2021/05/17805_cost_savings_offered_by_competition_in_electric_transmission.pdf.

⁷⁴ In the deregulated states that make up two thirds of the US power load today, utilities still build and own transmission and distribution infrastructure as well as power plants. However, they hand off transmission operation to their ISO or RTO, which may operate across multiple deregulated states. ISOs and RTOs are meant to work with utilities to conduct forward planning for grid needs. In practice, this market arrangement has produced significant grid underinvestment and otherwise frequently obstructed new renewables. See Sarah Knuth and Jennifer Ventrella, “Renewables in the Queue: Capital Landing and the Present Crisis in Power Transmission,” *Finance and Space* 2, no. 1(2025): 77–94, <https://doi.org/10.1080/2833115X.2025.2481071>, and Joseph Rand et al., “Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection as of the End of 2022,” Energy Markets and Policy, Berkeley Lab, April 2023, <https://emp.lbl.gov/publications/queued-characteristics-power-plants-1>.

solicitation specifically for offshore wind transmission, which it conducted in coordination with PJM.⁷⁵ Among the 80 bids the state received was a proposal by Anbaric to pre-build a portfolio of 19 transmission projects, including HVDC cables and offshore collector platforms ready for use by future wind farms.⁷⁶ Ultimately, New Jersey, blaming cost and siting uncertainties, retreated from the more ambitious vision of a merchant-built backbone and confined its new transmission buildout to upgrades to onshore landing points.⁷⁷

Build out and modernize the grid with a federal transmission developer

Streamlining and coordinating transmission infrastructure with a public transmission developer can support project developers to make it over a major hurdle to connecting to the grid. By coordinating transmission at a higher level than project-by-project, the developer can help streamline processes and limit overbuilding of infrastructure overall.

Recommendation 1: Create a federal offshore transmission developer

A federal transmission developer could construct and own new offshore transmission backbones and do so in a more effective and equitable way than for-profit actors. The DOE and other federal entities have already undertaken much of the difficult labor of planning for a modern high voltage transmission backbone, and this transmission developer could move quickly into action. Depending on how it is rolled out alongside other Offshore Wind Authority programs, it could cut costs for wind developers and ratepayers in multiple ways. And by accelerating offshore wind projects' ability to get online, it could also relieve pressures and costs across the broader US grid—collective benefits that extend far beyond coasts and coastal states.

⁷⁵ *InsiderNJ*, "Anbaric Submits Proposals to Deliver Offshore Wind and Create Ocean Transmission Network to Accelerate Job Growth and Unleash Infrastructure Investment," September 17, 2021, <https://www.insidernj.com/press-release/anbaric-submits-proposals-deliver-offshore-wind-create-ocean-transmission-network-accelerate-job-growth-unleash-infrastructure-investment/>.

⁷⁶ Buljan, "Anbaric Details Massive New Jersey Offshore Wind Power Transmission Bid."

⁷⁷ Richards and Willson, "4 Things to Know about the State-Led Push for Underwater Transmission."

Public leadership
in building out
the grid will be
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needed
infrastructure
over the line.

The United States can draw lessons from existing public models of transmission-first planning and development. For example, in countries like the Netherlands, state transmission operators already plan and pre-build offshore transmission as part of broader national renewable energy strategies.⁷⁸ This approach allows generators simply to hook in, lowering their projects' complexities, risks, and costs. This state-level coordination provides valuable certainty overall, as generation and transmission are planned and rolled out in sync. As one commentator on New Jersey's attempted market-based scheme noted, "You can't pre-build offshore infrastructure when you're not sure where future wind farms will be located."⁷⁹

In fact, the United States has already successfully experimented with transmission-first public planning. In 2005, Texas's grid operator ERCOT launched a Competitive Renewable Energy Zone (CREZ) initiative to pre-build transmission infrastructure in the hopes of supporting the development of Texas onshore wind. To be sure, Texas's scheme deployed competitive bids for transmission, but it did so in a more tightly state-coordinated way.⁸⁰ The policy enabled \$7 billion in transmission investment, funding the construction of 3,600 miles of transmission lines to connect wind resources in West Texas to urban centers. This upfront infrastructural investment has been credited as an important enabler of Texas's ongoing wind boom.⁸¹

For a model of directly developing and owning transmission, the federal government could again look to the legacy of PMAs and existing US public power entities, which own and operate grids as well as power generation. Public transmission development would also build on and extend the significant work that the DOE and collaborating federal entities have already done to produce detailed offshore transmission studies and action plans for the East, West, and Gulf Coasts as well as

⁷⁸ Horwath and Rack, "US Offshore Wind Boom Entangled in Transmission Debate." It should be noted, though, that the Netherlands still faces onshore grid bottlenecks that have challenged its ability to move new wind power effectively. See, for example, Antony Jankman, Marnix Geraerts, and Daniël Soons, "Grid Capacity in the Dutch Energy Sector," TaylorWessing, May 9, 2025, <https://www.taylorwessing.com/fr/insights-and-events/insights/2025/05/grid-capacity-in-the-dutch-energy-sector>.

⁷⁹ Richards and Willson, "4 Things to Know about the State-Led Push for Underwater Transmission."

⁸⁰ Power Up Texas, "Transmission and CREZ Fact Sheet," accessed September 2, 2025, <https://www.poweruptexas.org/wp-content/uploads/2020/11/Transmission-and-CREZ-Fact-Sheet.pdf>.

⁸¹ Shelley Welton (University of Pennsylvania), in phone interview with authors, August 16, 2024; St. John, "A Looming Transmission Crunch for the US East Coast's Offshore Wind Ambitions"; Silverman, "An Offshore Wind Super-Grid for the East Coast."

the US grid writ large.⁸² These extensive studies have already done vital scoping work to evaluate effective offshore grid needs for each region; they also include important recommendations for grid designs and phased rollouts, technological standardization, the incorporation of floating wind technologies, strategies for using the offshore buildout to strengthen onshore grid resilience and build community benefits, and more.

However, despite these plans' details, an important gap remains in who will actually implement them—a task which again exceeds the clear remit of any individual developer or state and requires complex processes of negotiation. **Standing up a federal transmission developer could help resolve this collective action problem.** Public leadership in building out the grid will be necessary to get needed infrastructure over the line, as heightened economic and political risks make for-profit ventures less likely to bet on expensive and complex offshore networks.

A federal transmission developer, owner, and operator is likely to be a more effective and responsible custodian of public interests than for-profit speculators, particularly given the complexity of building and operating backbone networks. Managing large-scale electrical grids for reliable power delivery and resilience against disruptions has always been a significant technical and coordination challenge—and a questionable fit for for-profit models. Likewise, building out transmission requires negotiating complex siting challenges, often across multiple political jurisdictions, and capital must be patient enough to withstand associated delays and risks.

For-profit transmission projects therefore require a significant amount of public derisking—and, subsidies notwithstanding, still may not get over the line. For example, although subsidies under the Biden administration for priority onshore transmission corridors sparked a wave of new competitive bids, prominent existing onshore projects backed by entities like Blackstone have faced considerable public resistance, including accusations that they prioritized profits over

⁸² National Renewable Energy Laboratory, "Gulf Coast Offshore Transmission," April 24, 2025, <https://www2.nrel.gov/wind/gulf-offshore-transmission>; US Department of Energy, "National Transmission Needs Study," October 23, <https://www.energy.gov/gdo/national-transmission-needs-study>; US Department of Energy, "Offshore Wind Transmission Development in the US Atlantic Region," March 2024, https://www.energy.gov/sites/default/files/2024-04/Atlantic_Offshore_Wind_Transmission_Plan_Report_v16_RELEASE_508C.pdf; US Department of Energy, "West Coast Offshore Wind Transmission Planning," January 2025, <https://www.energy.gov/gdo/articles/doe-west-coast-offshore-wind-transmission-action-plan-charts-path-increase-domestic>.

developing justly and democratically.⁸³ Such troubles contributed to the recent high-profile cancellation of New York's Clean Path NY project.⁸⁴

Although a public developer may still run into community resistance or political backlash, it may have certain tools at its disposal—reconsidering the pathway, deploying community benefits agreements, or increasing community engagement—unavailable to a private developer with tighter financing deadlines and more demanding profit imperatives.

As with generation, a regional offshore transmission developer has the patient capital needed for the buildout. It could also charge private generators to use publicly built and maintained lines and substations and has the flexibility to do so at at-cost or subsidized rates.⁸⁵ If rolled out alongside a federal wind project developer, it could also pass on savings to this generator and more broadly coordinate rollout—both of which would reduce costs for the broader public.

Recommendation 2: Build multi-scalar public-public partnerships

Offshore transmission development, similar to offshore wind project development, provides essential opportunities for multi-scalar collaboration and public-public partnerships. The federal government itself has the clearest existing jurisdiction over the offshore wind space—particularly with respect to development beyond state coastal waters in the Outer Continental Shelf—but projects must connect into state and regional grids to serve ratepayers.

⁸³ The US formally allowed competitive bidding processes for transmission in the 2010s, but this policy change initially sparked few investments. Biden administration subsidies awoke fresh interest from merchant transmission developers. These have included major independent power producers like NextEra that already compete with incumbent utilities in power generation in deregulated US states as well as financial players such as Berkshire Hathaway, the Canada Pension Plan Investment Board, and Blackstone. See Adam Wilson, "As IRA Drives Renewables Investment, Attention Turns to Transmission Upgrades," S&P Global, September 27, 2022, <https://www.spglobal.com/market-intelligence/en/news-insights/research/as-ira-drives-renewables-investment-attention-turns-to-transmission-upgrades>, and Knuth and Ventrella, "Renewables in the Queue."

⁸⁴ Knuth and Ventrella, "Renewables in the Queue"; Jennifer Ventrella and Sarah Knuth, "Transitioning the Grid for Climate Change: Power Transmission Futures and Grid Justice," *Environmental Research: Energy* 1, no. 4 (2024): 045008. Similarly, in operation, the UK's market-based system for offshore transmission has been accused of rewarding third party owner-operators for systematic underinvestment in maintaining the grid. See Nicola Crawford-Percival, "Reforming the Offshore Transmission Regime," RWE, accessed September 2, 2025, <https://uk.rwe.com/press-and-news/uk-statements-and-opinion/reforming-the-offshore-transmission-regime/>.

⁸⁵ See Silverman, "An Offshore Wind Super-Grid for the East Coast."

One recent estimate suggested that advance planning could cut environmental and community impacts in half.

Matching the scale of the federal government with needs at the local and state level could allow for a more coordinated approach, ultimately resulting in fewer new lines and substations overall. This better-planned offshore grid will not just reduce costs; it will also cause fewer disruptions to coastal ecosystems, fisheries, and communities onshore—including by reducing grid strains and congestion from new power flows. One recent estimate suggested that starting advance planning now could cut environmental and community impacts in half.⁸⁶ Local governments and communities are integral to this process, because they can leverage broader upgrades to local infrastructure, especially in the many sites where grids already badly need reinvestment and modernization for a precarious climate future.

The United States has already seen important instances of state and regional innovation. East Coast states have recently formed multiple regional collaborations to accelerate offshore wind transmission buildout alongside parallel efforts around procurement and supply chains. Ten New England and mid-Atlantic states have signed a Memorandum of Understanding to align technical standards like the choice of HVAC or HVDC current as well as siting and permitting procedures for interregional transmission. This agreement has laid important groundwork to support an offshore backbone.⁸⁷

The federal role in this effort is already noteworthy: The group of states specifically asked the DOE to convene and lead this multi-regional initiative.⁸⁸ Still, its success will depend on states resolving longstanding challenges around fair cost allocation for shared infrastructure like long-distance transmission—i.e., what each state and relevant sets of ratepayers should pay for grid improvements that benefit all but, potentially, to varying degrees.⁸⁹ With a federal transmission developer, the federal government would move from a technical support and regulatory role to more direct action, with the

⁸⁶ Pfeifenberger et al., “The Benefit and Urgency of Planned Offshore Transmission.”

⁸⁷ The 10 states that signed the Memorandum of Understanding are New Jersey, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

⁸⁸ Ethan Howland, “Northeastern States Seek DOE Support for Transmission Collaborative across Three Regions,” *Utility Dive*, June 20, 2023, <https://www.utilitydive.com/news/northeast-states-doe-interregional-transmission-collaboration-iso-ne/653298/>.

⁸⁹ Richards and Willson, “4 Things to Know about the State-Led Push for Underwater Transmission.”

resources required to circumvent state-level fiscal and political roadblocks.

Finally, innovative federal action and multi-scalar partnerships could inform and inspire the state-led interventions necessary to ready the broader US grid for energy and climate transition. Collective-action and cost-allocation problems are in many ways more difficult in onshore transmission: The density of incumbent utilities and regulating bodies in the United States' patchwork grid results in persistent administrative dysfunction. Changes at scale are clearly needed, especially because onshore generators typically do not build transmission themselves (although, as the most recent projects to enter grids, they have often shouldered the cost of broader upgrades).⁹⁰ Recent DOE research suggests that, by 2035, the United States will need 20–128 percent more regional transmission capacity and 25–412 percent more interregional capacity. As the calls for solutions to these barriers become louder, the need for transformative federal action is increasingly evident. As one commentator recently put it, "Offshore wind could very well become the first leg of the North American macro grid."⁹¹

⁹⁰ Knuth and Ventrella, "Renewables in the Queue."

⁹¹ Richards and Willson, "4 Things to Know about the State-Led Push for Underwater Transmission."

Supply Chain Manufacturing: Invest in and Utilize Ports as Manufacturing Hubs

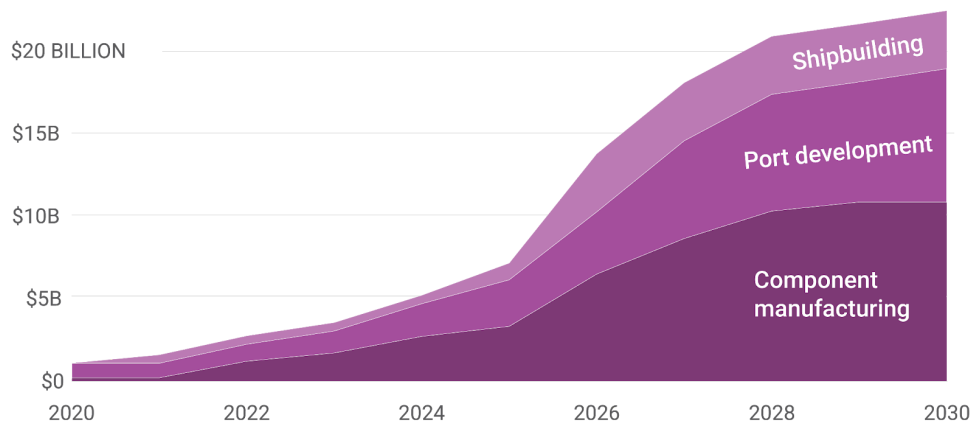
The Offshore Wind Authority should enact a two-part strategy vis-à-vis supply chains: establish a comprehensive investment plan to develop the intermodal links required to ready ports for offshore wind and build a fleet of public, American-made offshore wind vessels

The successful development of offshore wind relies on linked, time-sensitive, place-based investment and project execution. The final product—operational wind energy equipment connected to the grid—is only possible at the end of a long sequence of manufacturing, assembly, and installation that has to be co-located due to projects' size and complexity. Researchers at the National Renewable Energy Lab (NREL) project that supply chain growth to meet a target of 30 GW by 2030 would need investment of at least \$22.4 billion.⁹² This buildout requires major investments in ports and intermodal linkages, but supply chain and port infrastructures are not currently in a position to host and manage the rapid expansion and modernization needed to support offshore wind.

⁹² As of August 2024, the Biden Administration had announced over \$6.9 billion of federal investments in offshore-wind port and manufacturing supply chains, with funds supporting 15 ports and 19 manufacturing facilities across 9 US states. See US Department of Energy, "Building America's Clean Energy Future," January 15, 2025, <https://www.energy.gov/invest>.

A supply chain that produces 30 gigawatts of offshore wind energy by 2030 would require an investment of at least \$22.4 billion.

Cumulative investment over time in the major components of a domestic offshore wind energy supply chain



Source: Climate and Community Institute, using data from Matt Shields et al., 2023.⁹³

Co-location and specialized transportation are required for key parts of offshore wind manufacturing and supply chains. The massive size of components like turbine blades and foundations can make them too large for existing road and rail networks to transport. This means that there is a strong case for manufacturing parts in ports themselves as well as facilitating water-based transportation to connect interior and coastal manufacturing. The latter, for example, may require expanded investment in underwater dredging as well as dredging vessels.

There are two key types of ports that offshore wind development will require: fabrication and marshalling ports.

- **Fabrication ports** require space for new or retrofitted manufacturing plants onshore as well as significant construction in the water. NREL researchers calculate that the United States will need at least 34 manufacturing plants with fabrication ports to get to 30 GW of offshore wind. Though existing ports could take this up, all will need significant investment: in underwater dredging to

⁹³ Data provided directly by Shields et al. to report authors. Chart adapted from Matt Shields et al., "A Supply Chain Road Map for Offshore Wind Energy in the United States," National Renewable Energy Laboratory, January 2023, <https://docs.nrel.gov/docs/fy23osti/84710.pdf>, xi. To produce this chart, we combined the categories of "wind turbines," "substructures," "electrical components," "steel plates," and "other" into a single category of "component manufacturing." See appendix table A2 for details.

deepen navigation channels; evaluation and modernization to ensure that dockside facilities can handle the weight; and construction to provide intermodal road, rail, and barge connections that may extend far beyond coastal states.⁹⁴

- **Marshaling ports** will also be needed to assemble the turbines and stage the blades, towers, and foundations for transfer onto specialized installation vessels. These marshaling ports require significant space and weight-bearing capacity due to the sheer scale of the components, which can come into conflict with busy ports' preexisting demands for space. NREL estimates that the United States will need 8 marshaling ports on the East Coast to support fixed-bottom wind project goals by 2030 and an additional 2 on the West Coast to meet the parallel national target of 15 GW of floating wind by 2035. As more wind projects come online, these requirements will grow due to ongoing operations, repair, and maintenance needs.⁹⁵

Firms face a mix of high barriers to entry and lack of demand certainty

The offshore wind industry's buildout—a complex effort that will require long-term commitment—cannot be supplied by uncoordinated, private developers and manufacturers specializing in just one aspect of the supply chain. For example, NREL estimates that a new marshaling port may cost \$300–400 million.⁹⁶ To develop a port at this cost and level of complexity, several different domestic manufacturers would have to, in near unison and with voluntary and non-binding coordination, commit to constructing the new facility without demand certainty.

Even after bringing a new marshaling port online, the private developers would face significant challenges. Currently there are no statutory guarantees that such investments will successfully develop

⁹⁴ Matt Shields et al., "A Supply Chain Road Map for Offshore Wind Energy in the United States," National Renewable Energy Laboratory, January 2023, <https://www2.nrel.gov/wind/offshore-supply-chain-road-map>. Their evaluation of current capacity refers exclusively to East Coast ports.

⁹⁵ Shields et al., "A Supply Chain Road Map for Offshore Wind Energy in the United States." Floating offshore wind will require distinctive port configurations, because projects are likely to be assembled in ports, towed out to installation sites, and later returned to port for major repairs (and, potentially, decommissioning at end of life). See Shields et al., "The Impacts of Developing a Port Network for Floating Offshore Wind Energy on the West Coast of the United States," National Renewable Energy Laboratory, September 2023, <https://www.nrel.gov/docs/fy23osti/86864.pdf>.

⁹⁶ Shields et al., "A Supply Chain Road Map for Offshore Wind Energy in the United States."

Better state coordination and support are needed to grow green manufacturing while also facilitating just transitions for unionized workers and communities.

the US supply chain let alone unlock domestic export capacity to the global market. The international turbine-size arms race presents a further dimension of under-coordination and unnecessary development risk. If port and manufacturing investors bet on the wrong turbine size, their plant could be obsolete before it can be paid back.⁹⁷

Firms in the supply chain evaluating whether to enter must know that there will be an offtaker for manufactured components and users of port infrastructure once built. Developers have supported some of this regional development to secure supply chains for their projects, and manufacturers, ports, and other public partners have joined in the hope that upgraded port facilities and manufacturing capacity will find a broader market in future projects. However, recent offshore wind project cancellations and other market uncertainties raise serious questions about relying on for-profit developers or other private enterprises alone to anchor supply chain demand and investments.

For example, GE Vernova and its subsidiary LM Wind Power committed to build blade and nacelle factories in New York State on the condition that GE Vernova/LM Wind Power “wins a sufficient volume of orders from customers.”⁹⁸ Siemens Gamesa made similar plans—with similar conditions—for a planned blade manufacturing plant in Virginia. Two Ørsted projects were proposed to support a supply hub in New Jersey. All of these contracts were canceled in 2022–23.⁹⁹ Better state coordination and support are needed to grow green manufacturing while also facilitating just transitions for unionized workers and communities. To build amid today’s deepened risks, it will become all the more necessary to mobilize the supply chain in a way that stabilizes port investments.

⁹⁷ Shields et al., “A Supply Chain Road Map for Offshore Wind Energy in the United States.”

⁹⁸ Eduardo Garcia, “US Efforts to Restore Offshore Wind Pipeline Spur Factor Investments,” *Reuters*, February 14, 2024, <https://www.reutersevents.com/renewables/wind/us-efforts-restore-offshore-wind-pipeline-spur-factory-investments>.

⁹⁹ Garcia, “US Efforts to Restore Offshore Wind Pipeline Spur Factor Investments.”

Public ports in the United States are typically run by localized port authorities, almost 200 of which are in operation across the country.

Individual ports uncoordinated in the face of multiple systemic changes

Public ports in the United States are typically run by localized port authorities, almost 200 of which are in operation across the country.¹⁰⁰ Given this atomized model, individual ports risk overbuilding, duplication of efforts and debt burdens, and collective economic inefficiencies. Doubling down on this under-coordinated development for offshore wind would not just be bad for ports and port communities but for electricity ratepayers, who would eventually shoulder the additional costs downstream.

Historically, US ports have had limited success in securing the necessary federal funds to modernize and diversify their transportation linkages to include, for example, the water-based forms of transport that offshore wind manufacturing and installation may need.¹⁰¹ Underinvestment in port connectors not only hurts offshore wind's ability to expand but also harms surrounding communities: Congested roads and the resulting air and noise pollution have long been the impetus for environmental justice organizing around ports.¹⁰²

Coordinated supply-chain investment is also essential as the climate crisis becomes ever more acute. Commercial ports across the US will increasingly be expected to adapt to rising seas and climate disasters. When extreme weather like floods and hurricanes hit ports, it can cause significant damage. A more coordinated approach could help

¹⁰⁰ According to a widely cited survey conducted for the American Association of Port Authorities, as of the early 2010s there were 183 commercial deepdraft ports in operation across the US. See Rexford B. Sherman, "Seaport Governance in the United States and Canada," American Association of Port Authorities, accessed September 2, 2025, https://www.aapa-ports.org/files/pdfs/governance_uscan.pdf.

¹⁰¹ American Society of Civil Engineers, "2021 Report Card for America's Infrastructure Grades Reveal Widening Investment Gap," March 3, 2021, <https://www.asce.org/publications-and-news/civil-engineering-source/article/2021/03/03/2021-report-card-for-americas-infrastructure-grades-reveal-widening-investment-gap>.

¹⁰² See, for example, Darryl Fears and John Muyskens, "City Planners Targeted a Black Community for Heavy Pollution. Can the Damage Be Undone?" *Washington Post*, May 7, 2023, <https://www.washingtonpost.com/climate-environment/2023/05/07/oakland-freeways-environmental-justice/>, and Alejandra Reyes-Velarde, "Herculean effort": These Port Communities Have Waited Decades for Clean Air. Why a New Plan May Fall Short," *Cal Matters*, March 20, 2025, <https://calmatters.org/environment/2025/03/port-communities-air-pollution-plan-los-angeles-long-beach/>.

facilitate more resilience, with ports relying on one another amidst crises.¹⁰³

Furthermore, the ongoing “logistics revolution” created by globalization and on-demand delivery models has imposed escalating demands on ports, including expectations that they will expand to accommodate ever-larger “post-Panamax” shipping.¹⁰⁴ The logistics revolution promised to provide economic benefits and jobs, but in practice the shift has further deindustrialized ports and increased the industry’s reliance on extractive non-union labor.¹⁰⁵

In the absence of a coordinated approach to modernizing and expanding supply chains, ports may struggle to meet shipping demands and ramp up offshore wind operations simultaneously. These activities compete for limited space, vie for port investments, and compound the financial pressures for port authorities on top of preexisting debt. **Ports are in a massive moment of upheaval that requires a level of coordination to ensure efficient and high-road transformation.**

Supply chain buildout requires installation vessels and capacities the United States currently lacks

Key supply chain needs for the offshore wind buildout also include a fleet of specialized vessels for project construction and maintenance. Some of these vessels are specific to the offshore wind sector; these include vessels needed to install and service wind generation facilities

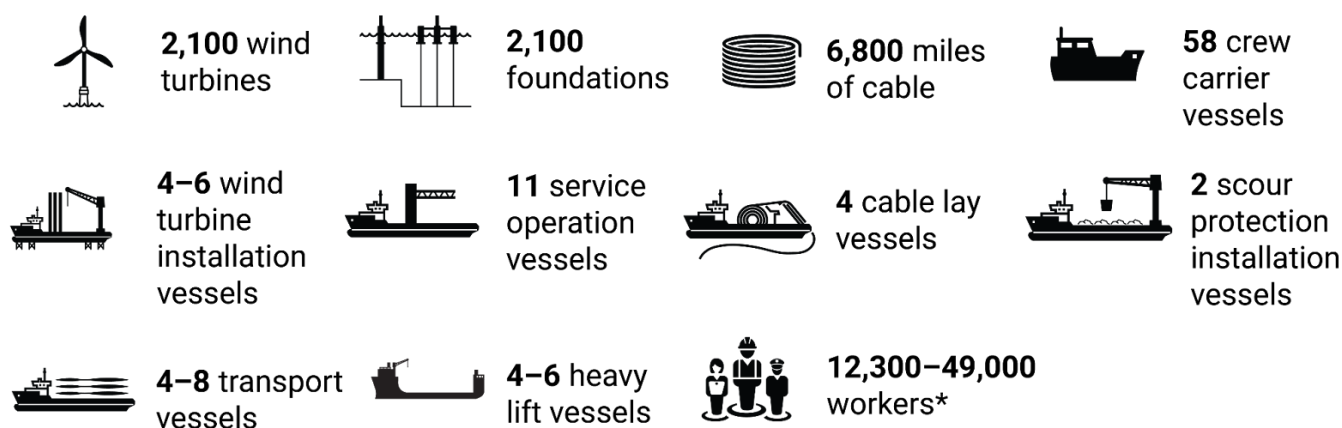
¹⁰³ At the same time, however, ports are on the frontlines of important decarbonization activities. Following long campaigns by organizers, many are electrifying their infrastructures and intermodal transport facilities. Ports are also increasingly exploring infrastructures to switch marine vessels to alternate fuel sources like green hydrogen and ammonia, plans which increasingly include offshore wind vessels. Some electrification efforts, like that pursued at the Port of Oakland, were funded through the Biden administration’s Clean Ports Program. See Bruce Beaubouef, “More Vessel Owners Looking to Hydrogen Fuel to Reduce Emissions,” *Offshore*, December 11, 2023, <https://www.offshore-mag.com/vessels/article/14301870/more-vessel-owners-looking-to-hydrogen-fuel-to-reduce-emissions>; Juan Pablo Pérez-Burgos, “In Uncertain Times, the Port of Oakland Goes Electric,” *Next City*, April 22, 2025, <https://nextcity.org/urbanist-news/in-uncertain-times-the-port-of-oakland-goes-electric>; and Reyes-Velarde, “‘Herculean effort’: These Port Communities Have Waited Decades for Clean Air. Why a New Plan May Fall Short.”

¹⁰⁴ Jitendra Bhonsle, “Advantages and Disadvantages of Bigger Vessels for Port and Terminal Operators,” *Marine Insight*, December 22, 2022, <https://www.marineinsight.com/maritime-law/advantages-and-disadvantages-of-bigger-vessels-for-port-and-terminal-operators/>; Jitendra Bhonsle, “10 Trends Expected to Define Supply Chains and Shipping,” *Marine Insight*, January 1, 2023, <https://www.marineinsight.com/maritime-law/trends-expected-to-define-supply-chains-and-shipping/>.

¹⁰⁵ This anti-union strategy has in some cases been deliberate. In Los Angeles, logistics hubs were shifted far inland, in part to try to break existing strongholds of longshore union power portside. See Juan D. De Lara, *Inland Shift: Race, Space, and Capital in Southern California* (University of California Press, 2018).

and to lay subsea transmission cables.¹⁰⁶ Additional vessels are needed to support supply chain buildout and manufacturing, such as an expanded dredging fleet to deepen portside construction facilities.¹⁰⁷ The United States needs to scale up this fleet quickly to avoid supply chain bottlenecks that can delay or halt projects. Even including vessels that can be repurposed, planned or under-construction vessel capacity in the United States is less than half of what will be needed by 2030.¹⁰⁸

Requirements for deploying 30 gigawatts of offshore wind energy by 2030



*Calculated as full-time equivalents, average annual workforce

Source: Climate and Community Institute, adapted from Matt Shields et al., 2023¹⁰⁹

The construction of all of these vessels requires significant upfront investment, and—as with US supply chains more generally—uncertainty and breakdowns in project pipelines have been a major challenge. The largest specialized vessels for offshore wind installation cost hundreds of millions of dollars to construct—far beyond what can be done on

¹⁰⁶ John Frittelli, “Vessel Construction for Offshore Wind Power Generation,” Congressional Research Service, September 12, 2023, https://www.congress.gov/crs_external_products/IF/PDF/IF12491/IF12491.1.pdf.

¹⁰⁷ Megan Biven (True Transition), phone call with authors, August 9, 2024; Megan Milliken Biven, “Dredging Up the Past,” *Current Affairs*, May 25, 2020, <https://www.currentaffairs.org/news/2020/05/dredging-up-the-past>; Ashley Carse and Joshua A. Lewis, “New Horizons for Dredging Research: The Ecology and Politics of Harbor Deepening in the Southeastern United States,” *WIREs Water* 7, no. 6 (2020): e1485, <https://doi.org/10.1002/wat2.1485>.

¹⁰⁸ As of August 2024, 25 offshore wind service vessels (as well as 1 substation) were being built across 8 different states. See US Department of Energy, “Building America’s Clean Energy Future.”

¹⁰⁹ Chart adapted from Matt Shields et al., “A Supply Chain Road Map for Offshore Wind Energy in the United States,” National Renewable Energy Laboratory, January 2023, <https://docs.nrel.gov/docs/fy23osti/84710.pdf>.

Shipbuilding for US offshore wind poses distinct challenges because the United States must construct a large number of specialized installation vessels domestically.

speculation. When projects get cancelled or renegotiated, shipbuilders can be left in the lurch. As with costlier supply chain investments more generally, ship financiers need a promise of demand to justify upfront investments.

Furthermore, only certain shipyards even have the space currently to build and maintain these massive vessels.¹¹⁰ **The time and capital demands of major shipbuilding mean that shipyards attempt to secure a pipeline of contracts years in advance, and unsteady demand signals or permitting delays can destabilize necessary funding certainty.**¹¹¹ According to Woods Mackenzie, in 2023 half of the United States' existing fleet was slated for retirement due to its inability to cope with the growing size and weight of turbines and foundations, risking a further shortfall.¹¹² Again, we see circular processes wherein project volatility impedes vessel buildout, and then delays in vessel construction contribute to project volatility.

Shipbuilding for US offshore wind poses distinct challenges, because the United States must construct a large number of specialized installation vessels domestically. Unlike the component supply chain problems described above, some of which could be solved by contracting with global firms, there are long-standing restrictions on how foreign vessels can be used within US waters. The US Merchant Marine Act of 1920—commonly known as the Jones Act—for example, requires that any cargo moved from one US port to another must be on a US-built, flagged, and crewed vessel. Maintaining robust commercial shipbuilding and relevant maritime expertise in this context—where there is protectionist regulation but no enabling direct domestic investment or public ownership—has been nearly impossible.¹¹³

¹¹⁰ Will Foster and Riley Ohlson, "Revitalizing US Shipbuilding with US-Built Offshore Wind Installation and Maintenance Vessels," Labor Energy Partnership, June 2022, https://efifoundation.org/wp-content/uploads/sites/3/2022/06/RevitalizingUSShipbuildingWithUSBuildOffshoreWindInstallationAndMaintenanceVessels_WhitePaper.pdf.

¹¹¹ Shields et al., "A Supply Chain Road Map for Offshore Wind Energy in the United States."

¹¹² Reve, "Charting a Sustainable Course for Offshore Wind Energy," August 20, 2023, <https://www.evwind.es/2023/08/20/charting-a-sustainable-course-for-offshore-wind-energy/>.

¹¹³ New domestic shipbuilding initiatives under the second Trump administration bear watching in this space. Current proposals include subsidies to make US shipyards more globally competitive and fees on Chinese competitors, but key questions have been raised about policy design and the level of funding and commitment. See, for example, William Henagan, "Can Trump's Shipbuilding Order Compete with Chinese Investment?" Council on Foreign Relations, April 10, 2025, <https://www.cfr.org/article/trump-administrations-office-shipbuilding-takes-first-official-action>.

Some offshore project developers have sought to ease supply chain bottlenecks by procuring vessels from US shipyards directly. Ørsted, Equinor, and Ocean Winds have pursued this strategy; Ørsted, for example, procured its Service Operation Vessel (SOV) directly from ECO Edison in the South. Dominion Energy, for its part, is procuring the Charybdis in Texas, developed by engineering firm Seatrium, the United States' first Jones Act-compliant Wind Turbine Installation Vessel (WTIV) and the largest, most expensive, and most specialized type of offshore wind vessel in the world today. However, other companies considering building a WTIV in the United States have backed out, citing both high costs and the same pressures facing the supply chain buildout more broadly: a lack of planned projects that provide future contract assurance.¹¹⁴

Some commentators have pointed to Dominion's unusual structure as a project developer in the United States. Operating as a vertically integrated monopoly, it has more coordinated control over its buildout than developers competing in deregulated states. Dominion may use the Charybdis to build its own projects and then contract it out to other developers for profit thereafter.

In February 2025, after significant delays and escalating costs since construction began in 2020—as of Summer 2024, total costs had reached \$715 million on a \$500 million price tag—the Charybdis finally began sea trials.¹¹⁵ However, the delays in its construction had already contributed to the 2023 cancellation of two offshore wind projects in New Jersey.¹¹⁶

¹¹⁴ Tim Ferry, "Why the First US-Built Wind Turbine Installation Vessel Could Also Be the Last," *Recharge*, October 6, 2023, <https://www.rechargenews.com/wind/why-the-first-us-built-wind-turbine-installation-vessel-could-also-be-the-last/2-1-1530517>; Astrid Sturlason, "Eneti Puts Goal of Entering US Offshore Wind Market on Hold," *Shippingwatch*, September 22, 2022, <https://shippingwatch.com/Offshore/article14426734.ece>.

¹¹⁵ *Renews.biz*, "Charybdis Begins Sea Trials," February 12, 2025, <https://renews.biz/98746/charybdis-begins-sea-trials/>.

¹¹⁶ Scott Disavino, "Ship Shortage Dealt Death Blow to Ørsted's NJ Offshore Wind Hopes," *Reuters*, November 3, 2023, <https://www.reuters.com/markets/commodities/ship-shortage-dealt-death-blow-orsted-nj-offshore-wind-hopes-2023-11-03/>.

Stabilize port infrastructure and supply chains—including offshore wind vessels— via public investment

The federal government's national scale insight can help cohere supply chains across many disparate ports. In particular, it can support shipbuilding integral to offshore wind deployment by directly building or procuring the ships and creating stable demand.

Recommendation 1: Stabilize supply chains via strategic public investment

In some cases, the lack of coordination is simply a question of states lacking knowledge about what their neighbors are doing or how they can leverage each other's strengths.¹¹⁷ The federal government has a particular advantage in this regard: It can provide a bird's eye view into the evolving ecosystem nationally. Under the Biden administration, the federal government made strides in assessing domestic supply chain needs for national wind and advancing plans for the buildout, including for ports.¹¹⁸

Discrete regions are already experimenting with greater coordination. For example, in New England, 11 governors have developed a regional vision for offshore wind with the support of the National Renewable Energy Laboratory (NREL). The Massachusetts Secretary of Energy and Environmental Affairs described their regional philosophy thus: "We don't need seven or eight small supply chains [but instead] a supply chain with multiple nodes...that will be ideal from [an] economic efficiency standpoint and will save ratepayers money."¹¹⁹

The US federal government should continue to support regional cooperation and planning. However, coming up with good plans is not enough—the federal government needs the power to implement them.

¹¹⁷ Shields et al., "A Supply Chain Road Map for Offshore Wind Energy in the United States."

¹¹⁸ See, for example, Jocelyn Brown-Saracino et al., "Advancing Offshore Wind Energy in the United States," US Department of Energy, March 29, 2023, <https://www.energy.gov/sites/default/files/2023-03/advancing-offshore-wind-energy-full-report.pdf>; Shields et al., "The Impacts of Developing a Port Network for Floating Offshore Wind Energy on the West Coast of the United States"; Shields et al., "A Supply Chain Road Map for Offshore Wind Energy in the United States."

¹¹⁹ Eduardo Garcia, "US Efforts to Restore Offshore Wind Pipeline Spur Factory Investments," *Reuters*, February 15, 2024, <https://www.reuters.com/business/energy/us-efforts-restore-offshore-wind-pipeline-spur-factory-investments-2024-02-15/>.

Coming up with good plans is not enough—the federal government needs the power to implement them.

The Offshore Wind Authority could provide a stronger hand in the market to secure, coordinate, and stabilize supply chains and port development. As a state-backed developer of offshore wind and transmission, the Authority can work to foster and invest in coordinated regional supply chain and port strategies, grounding more consistent demand than today's developers have been able to achieve alone. The Authority will have significant purchasing power and can work with potential suppliers and ports in strategic areas using targeted derisking tools like procurement, equity stakes, and purchase guarantees across the country. It can also attach high-road requirements for labor, community, and environment to ensure clean economic growth. The kind of patient public investment an Offshore Wind Authority can provide will support not only the Authority's own projects but the larger ecosystem.¹²⁰

There are some existing investments created or expanded under the Biden administration that the federal government that the Authority can build upon—though the Trump administration has targeted all for rollbacks, withdrawals, and terminations, including \$679 million in previously approved funding.¹²¹

Notably, the Biden administration created the Advanced Manufacturing Production Tax Credit (AMPTC - Section 45X), which subsidizes various turbine components and offshore-wind-related vessels as well as domestic content add-ons to help US-produced components compete with cheaper international imports. Another key source of support has been Port Infrastructure Development Program (PIDP) grants, which are distributed by the Department of Transportation and were expanded dramatically by the Infrastructure Investment and Jobs Act.¹²²

¹²⁰ Abroad, offshore wind ports use other strategies to lower risks. For example, the Port of Rotterdam is co-owned by the City of Rotterdam and the Dutch national government. Research suggests that this public ownership structure has allowed for a higher tolerance for initial risks in the public interest, as well as a longer-term orientation (that accommodates long payback periods involved in relevant infrastructures) than would be normal for a private operator. Both have given the port greater freedom of action in advancing energy transition goals. See Peter W. de Langen, "Advancing Public Interests through State Ownership: The Case of the Port of Rotterdam," *GeoJournal* 88 (2023): 6507–6521, <https://doi.org/10.1007/s10708-023-10981-9>.

¹²¹ Ysabelle Kempe, "A Cheat Sheet to Clean-energy Tax Credit Changes Under Trump's New Law," *Canary Media*, July 14, 2025, <https://www.canarymedia.com/articles/clean-energy/tax-credit-changes-trump-law> and Plumer, "Transportation Dept. Cancels \$679 Million for Offshore Wind Projects."

¹²² The PIDP was created via the 2010 National Defense Authorization Act as a discretionary grant program; however, Congress did not specify a set level of funding for it, and it did not receive an actual Congressional appropriation until 2019. See American Society of Civil Engineers, "2021 Report Card for America's Infrastructure Grades Reveal Widening Investment Gap," and Ben Goldman, "US Maritime Administration (MARAD) Shipping and Shipbuilding Support Programs," Congressional Research Service, January 8, 2021, <https://crsreports.congress.gov/product/pdf/R/R46654>.

Another area that could benefit from Authority investment is transportation funding to connect up ports, in particular as it concerns multimodal transportation (ships, road, rail). Although initiatives like the Infrastructure for Rebuilding America (INFRA) program were intended to be multimodal, they have historically sidelined port needs or imposed caps on ports' share of available funds.¹²³ Other federal multimodal funding programs are badly oversubscribed, typically receiving ten times more funding requests than they can award. Increased public investment could alleviate some of these pressures and foster more creative ways of supporting port retrofits. A major casualty of Trump administration funding withdrawals is a \$427 million INFRA grant awarded in 2024 to help rehabilitate a marine terminal for floating offshore wind projects at the Port of Humboldt Bay—intended to be the first on the West Coast.¹²⁴

The Authority can also assist in dredging projects to develop offshore wind fabrication and marshaling ports. The American Society of Civil Engineers' (ASCE) 2021 Infrastructure Report Card identified a funding gap of over \$12 billion up to 2031 for this kind of waterside infrastructure.¹²⁵ In collaboration with other relevant federal entities, the Authority has an important capacity to fill this gap.

The Authority's procurement role also bears mentioning. As an actor in the industry, it can provide important forms of certainty for the supply chain and fabrication and marshaling ports. **It can intervene directly via strategic uses of large-scale purchasing power and/or the selective use of equity stakes in regional manufacturing enterprises.** The Authority should help promote consistent technology standards across the US industry, driving down supply chain costs and lowering risks. Its large procurement contracts are a key tool for establishing these norms and thereby building support for national regulatory

¹²³ Created in 2015, INFRA was intended primarily as a highway freight program. It has spent 16 percent of its available funding on port projects—about \$358 million as of 2021. Likewise, the various iterations of the multimodal Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program (established in 2009; last renamed 2021) have focused on highways rather than ports or rail. Tracking 11 funding rounds from RAISE and its predecessors, ASCE found that the program spent only about 12 percent of available funding on port projects—about \$1 billion overall. , ASCE, "2021 Report Card for America's Infrastructure Grades Reveal Widening Investment Gap," March 3, 2021, <https://www.asce.org/publications-and-news/civil-engineering-source/article/2021/03/03/2021-report-card-for-americas-infrastructure-grades-reveal-widening-investment-gap>.

¹²⁴ Adrijana Buljan, "Californian Port to Get USD 400+ Million for Floating Wind Terminal," *offshoreWIND.biz*, January 25, 2024, <https://www.offshorewind.biz/2024/01/25/californian-port-to-get-usd-400-million-for-floating-wind-terminal/>; Plumer, "Transportation Dept. Cancels \$679 Million for Offshore Wind Projects."

¹²⁵ American Society of Civil Engineers, "2021 Report Card for America's Infrastructure," March 3, 2021, <https://2021.infrastructurereportcard.org/>.

standards. In advancing more novel technologies like floating wind, it can also help grow new supply chains.

Providing more freedom of action and patient investment can help capital-intensive manufacturing technologies survive the so-called “valley of death,” between initial funding and commercial viability.¹²⁶

The United States has attempted this in the past, for instance in the solar sector in the late 2000s and early 2010s. Dozens of innovative solar manufacturing startups in the United States rose and quickly fell when tied to project implementation, while China captured this fundamental production capacity.¹²⁷

The principal lesson to take from this experience is that US supply chains must be better insulated from the pressures and vagaries of commercial project development. The security of assured demand from a state-backed entity—which would facilitate advance planning and, potentially, component stockpiling to mitigate supply-chain boom-and-bust tendencies—can help usher emerging green manufacturers and workforces toward successful innovation and mass production. It would also promote the technological standardization and production at scale that drive down costs for both offshore wind and other social uses.

By securing cheap low-carbon power and creating strategic opportunities for labor organizing and coalition building, public procurement can advance a vision of green industrial transition with broad social and economic benefits.

The Authority’s procurement power and equity stakes will allow it to mandate high-road labor standards as well as integrate community or environmental benefits into its projects. Here, the Authority can help reverse the damage wrought by the drive to convert ports into “logistics hubs.” By taking a proactive approach to planning and intervening in manufacturing development, the Authority can incentivize unionized jobs—and combat labor exploitation—in portside economies. Building on present-day union-organizing drives, new manufacturing hubs could be integrated with new training for

¹²⁶ Block and Keller, eds., *State of Innovation: The US Government’s Role in Technology Development*; Sarah Knuth, “Breakthroughs’ for a Green Economy? Financialization and Clean Energy Transition,” *Energy Research and Social Science* 41 (2018): 220–229, <https://doi.org/10.1016/j.erss.2018.04.024>.

¹²⁷ Knuth, “Breakthroughs’ for a Green Economy? Financialization and Clean Energy Transition”; David Rotman, “Climate Tech Is Back—and This Time, It Can’t Afford to Fail,” *MIT Technology Review*, December 2023, <https://www.technologyreview.com/2023/12/02/1084059/climate-tech-startups-are-back-and-this-time-they-might-survive/>.

specialized manufacturing work, apprenticeship structures, and other worker protections to rebuild job quality.

Recommendation 2: Build a public fleet of United States-made specialized vessels

The federal government should secure a necessary supply of offshore wind installation vessels by empowering a federal entity to procure, own, and operate a fleet of installation vessels. There is plenty of US precedent for public shipbuilding. The Naval and commercial fleet rollout mobilized for World War II (and, to a lesser extent, World War I) were clear examples of the federal government taking an active role in the sector. Programs like the Liberty Ship Program during World War II were integral not only to the coordination of shipbuilding efforts but also the maintenance of the federal economic mobilization that epitomized the New Deal.¹²⁸

While there were postwar efforts to recast this story as one of successful private entrepreneurialism to justify the dismantling and privatization of the public fleet, the industry was heavily reliant on federal intervention.¹²⁹ And for decades since, multiple federal entities have owned and operated their own fleets, among them the Coast Guard, US Navy, Army Corps of Engineers, National Oceanic and Atmospheric Administration (NOAA)—even the National Science Foundation and Office of Naval Research. Contracts to procure these specialized vessels have become an important source of revenue for US commercial shipyards, part of the way both civilian and military federal entities have propped up the country's shipbuilding industrial base amid broader deindustrialization trends.

¹²⁸ Stott, "Shipbuilding Innovation: Enabling Technologies and Economic Imperatives"; Tassava, "Launching a Thousand Ships: Entrepreneurs, War Workers, and the State in American Shipbuilding, 1940–1945"; Wilson, *Destructive Creation: American Business and the Winning of World War II*.

¹²⁹ Wilson, *Destructive Creation: American Business and the Winning of World War II*.

A public Authority with oversight over the procurement, construction, and operation of vessels can provide steady, high-road work in the public interest.

An Authority managing vessel building and operations could help shield shipbuilders and other maritime industry actors from boom and bust cycles, promote the standardization necessary for domestic shipbuilders to build with certainty, and model high-road development.¹³⁰ Right now, existing ships are frequently being

scrapped for falling behind the latest standards, while massive new ships strain port infrastructures and contribute to disasters like the Francis Scott Key Bridge collapse in Baltimore.¹³¹ Meanwhile, the shipbuilding and maritime equipment industries worldwide are also grappling with labor and skills shortages caused by disinvestment. Experts estimate that 40 percent of the workforce in these industries will retire in the next decade, and maritime labor instead has become increasingly mobile and global—a further challenge to maintaining human rights standards outside of domestic labor standards.¹³²

A public Authority with oversight over the procurement, construction, and operation of vessels can provide steady, high-road work in the public interest. Canada has, in part, already attempted this strategy. In 2010, Canada invested around \$20 billion in its domestic shipyards to rebuild skilled labor capacity after cheaper foreign imports killed the domestic industry and the associated skills training. Now, that direct investment has helped build out access to education, training, and jobs for women, Indigenous peoples and Black Canadians in the sector.¹³³

There are some existing programs for shipbuilding in the US, however flawed. MARAD's Title XI program, which provides federal loan guarantees to operators using US shipyards in an effort to make US vessels and shipyards more internationally competitive, has faced significant challenges in making its subsidies attractive to shipbuilders. For instance, applicants have criticized the application

¹³⁰ Foster and Ohlson, "Revitalizing US Shipbuilding with US-Built Offshore Wind Installation and Maintenance Vessels"; John Frittelli, "US Commercial Shipbuilding in a Global Context," Congressional Research Service, November 15, 2023, https://www.congress.gov/crs_external_products/IF/PDF/IF12534/IF12534.2.pdf; Hege Høyer Leivestad and Elisabeth Schober, "Politics of Scale: Colossal Containerships and the Crisis in Global Shipping," *Anthropology Today* 37, no. 3 (2021): 3–7, <https://doi.org/10.1111/1467-8322.12650>; Elizabeth A. Sibilia, "Oceanic Accumulation: Geographies of Speculation, Overproduction, and Crisis in the Global Shipping Economy," *Environment and Planning A: Economy and Space* 51, no. 2 (2019): 467–486, <https://doi.org/10.1177/0308518X18781084>.

¹³¹ Pete Muntean, Gregory Wallace, and Eric Levenson, "Ship that Struck Baltimore Bridge Lost Power Twice before Crash, NTSB Preliminary Report Finds," CNN, May 14, 2024, <https://edition.cnn.com/2024/05/14/us/baltimore-bridge-collapse-ntsb-report>.

¹³² Organization for Economic Cooperation and Development, "Shipbuilding," accessed September 2, 2025, <https://www.oecd.org/en/topics/sub-issues/shipbuilding.html>.

¹³³ UNIFOR, "Canada's Shipbuilding Strategy Is a Success We Shouldn't Abandon," September 4, 2024, <https://www.unifor.org/news/all-news/canadas-shipbuilding-strategy-a-success-we-shouldnt-abandon>.

process as overly complex.¹³⁴ Under the Biden administration, MARAD sought to ease these roadblocks by designating offshore wind ships as “vessels of national interest,” therefore entitling them to processing priority.¹³⁵ The Trump administration has put further emphasis on growing US shipbuilding capacities, with an emphasis on national security.¹³⁶ The Authority could go further, liaising with MARAD to grow and rejuvenate US vessel production. For instance, Authority investment could strategically augment the resources provided by MARAD’s Title XI program to aid in WTIV construction.¹³⁷ (WTIVs can currently cost as much as 50 percent more to be built in America, a key concern for operators that wish to compete in the international offshore wind market.¹³⁸)

The Authority can leverage its investment in a variety of ways. As the direct procurer of vessels, it can ensure high labor and craft standards while enabling the upskilling of industry and providing greater resources to shipyards. As the owner of a well-working fleet, it can ensure that both public developers and the sector writ large have access to essential vessels at at-cost or fair rates. And as a player in the sector, it can also engage in joint ventures with private entities, operating as an anchor owner, to ensure that shipbuilding projects with high upfront costs get across the line. The Authority’s financial independence and purchasing power could be a major boon for US shipbuilding—and for the US supply chain buildout more broadly.

¹³⁴ Operators must compete for available Title XI funds, and some in the offshore wind sector have complained about complexities in this application process. Historically, many shipbuilders have taken their chances in the commercial sector instead. See Foster and Ohlson, “Revitalizing US Shipbuilding with US-Built Offshore Wind Installation and Maintenance Vessels,” and John Konrad, “US Navy Shipbuilding Is Failing Because Admirals Avoid Wall Street,” *gCaptain*, March 15, 2023, <https://gcaptain.com/us-navy-shipbuilding-failing-wall-street-marad/>.

¹³⁵ MarineLink, “Offshore Wind Vessels Get ‘Vessel of National Interest’ Designation by US MARAD,” June 28, 2022, <https://www.marinelink.com/news/offshore-wind-vessels-vessel-national-497703>.

¹³⁶ Sophie Cohen and Ryan Mulholland, “President Trump Says He Wants More U.S. Shipbuilding—Here’s How To Do It Well,” Center for American Progress, May 21, 2025, <https://www.americanprogress.org/article/president-trump-says-he-wants-more-u-s-shipbuilding-heres-how-to-do-it-well/>.

¹³⁷ Goldman, “US Maritime Administration (MARAD) Shipping and Shipbuilding Support Programs.” Before the United States moved away from more significant industrial policy for shipbuilding, key supports like MARAD’s Construction Differential Subsidy (CDS) program provided more generous subsidies, paying for up to half of the price premium between building a ship domestically and abroad (specifically for vessels engaged in international trade). The CDS was created before World War II and operated for decades before being cut in 1981; removal of this subsidy has been commonly linked to a significant decline in US shipbuilding. See Foster and Ohlson, “Revitalizing US Shipbuilding with US-Built Offshore Wind Installation and Maintenance Vessels,” and Frittelli, “US Commercial Shipbuilding in a Global Context.”

¹³⁸ Philip Lewis, “The \$1 Billion Offshore Wind Prize for US Shipyards,” *Offshore Engineer*, November–December 2023, <https://www.maritimemagazines.com/offshore-engineer/202311/the-one-billion-offshore-wind-prize-for-us-shipyards/>.

Conclusion

The offshore wind industry is in crisis in the United States. Not only has the current Trump administration attempted to slow down offshore wind development, but the industry has been beset by massive structural issues, from under-coordination to low profit margins to siting troubles. Offshore wind is critical to the country's clean energy buildout, as it can provide electricity to the country's densest population centers: coastal communities. The United States desperately needs game-changing ideas, strategies that can secure the buildout of offshore wind to achieve the country's clean energy goals while also ensuring that communities and the environment are accounted for.

A federal public option for offshore wind power—the Federal Offshore Wind Authority—gives the United States the Moon Shot it needs to build out the industry at scale. While we do not expect such a proposal to be a priority for the current Trump administration, future administrations will have to make up for lost time and engage in this kind of ambitious intervention to ensure a livable climate. A Federal Offshore Wind Authority would not only create a stable offshore wind supply chain, it would also provide at-cost power that can help keep ratepayer bills low; allow for coordination to limit redundant infrastructure; and balance the needs of the industry, communities, and the environment.

By intervening simultaneously in these offshore wind projects, transmission, and supply chain manufacturing, the Authority will be able to handle the coordination problems that have hampered the industry. Although the Authority would have the most impact tackling all three areas at once, even one point of intervention would make a demonstrable difference. It would not only unlock cheap public electricity but also open up opportunities for other companies and industries to enter the sector, likely drawing down costs further.

Last, and most important, public intervention in the offshore wind industry means that the United States can build high-road jobs, environmental protections, and community consent into the process. **Instead of a race to the bottom, the Authority can create industry standards that ensure the offshore wind industry supports people and the planet foremost.**

Appendix

Table A1: Projection of offshore wind capacity in gigawatts from current pipeline as compared to state-level mandates, goals, and needs for decarbonization

	2024	2030	2031	2034	2035	2040	2045	2050
Projected capacity from current pipeline	0.174 [*]	14 [†]			40 [†]			50 [‡]
State-level mandates[§]		3.43	11.93	17.13	31.73	45.73	45.73	45.73
State-level goals[§]		6.43	14.93	20.13	25.13	47.13	72.13	115.13
Estimated gigawatts needed to reach decarbonization								
Low estimate^{**}								270
High estimate^{**}								485

^{*} 0.174 gigawatts are already in operation as of 2024, whereas the other values in this row are projected capacity.

[†] Data from American Clean Power, "NEW REPORT: Offshore Wind Momentum Grows with Sector to Invest \$65 Billion and Create 56,000 US Jobs by 2023," July 9, 2024, <https://cleanpower.org/news/offshore-wind-to-invest-65-billion-and-create-56000jobs-by-2030/>.

[‡] Whereas 40 gigawatts of capacity are currently in development and projected to be built by 2035, an additional 10 gigawatts of capacity are in the development pipeline without a predicted construction date. Here we show a scenario in which that capacity is built by 2050.

[§] Data from Angel McCoy et al., "Offshore Wind Market Report: 2024 Edition," National Renewable Energy Laboratory, US Department of Energy, August 2024, <https://www.energy.gov/eere/wind/offshore-wind-market-report>.

^{**} Data from James H. Williams et al., "Carbon-Neutral Pathways for the United States," *AGU Advances* 2, no. 1 (2021): 1–25, <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2020AV000284>. According to this source, the least-cost carbon neutral pathway will require 270 gigawatts of offshore wind. Scenarios that utilize 100% renewables or that account for limited land for onshore wind and solar require up to 485 gigawatts.

Table A2: Cumulative investment over time in the major components of a domestic offshore wind energy supply chain

Year	Ports	Vessels	Manufacturing
2020	877	0	200
2021	877	500	200
2022	1027	500	1200
2023	1327	500	1700
2024	1977	500	2700
2025	2814	1000	3310
2026	3764	3500	6470
2027	5914	3500	8620
2028	7064	3500	10280
2029	7264	3500	10830
2030	8064	3500	10830