1. OVERALL PROJECT SUMMARY AND APPROACH

Offshore Wind is the Linchpin to Decarbonization and Electrification of the Economy in the Northeast

Offshore wind (OSW) generation is arguably the most important renewable resource currently available for the northeastern United States to secure needed greenhouse gas (GHG) emission reductions at the size and scale required to meet state and federal decarbonization targets. Specifically, floating offshore wind (FOSW) technology is the most transformative clean energy generation option available to meet these goals, as it will allow access to substantial wind resources not accessible by fixed-bottom OSW technologies, while securing U.S. leadership in an emerging FOSW global marketplace. While the potential of FOSW is immense – 58 percent of the U.S. offshore wind resources are in deeper waters requiring floating technologies–- the resource has yet to be harnessed in significant capacity.[1] To unlock this energy and economic opportunity, expert after expert has determined that the port infrastructure needed to deploy the wind turbines is currently vastly inadequate and will hinder the region's ability to meet state and national OSW and decarbonization targets unless enabling infrastructure is built. No one state can solve this alone, and to unlock these resources, states need to approach this issue collectively and in a coordinated manner. In this unprecedented regional partnership on port development to achieve dramatic GHG reductions, Maine and Massachusetts, with the support of New Hampshire, bring this proposal to build the needed port network across the northern New England region to unlock FOSW deployment for the region, nation, and indeed, the world. The states will submit an MOA governing this proposal by July 1, 2024.

Together, the states are jointly applying for $198,351,018 in Climate Pollution Reduction Grant (CPRG) Tier B implementation funding for the purposes of constructing and supporting a network of ports in northern New England to unlock, accelerate, and catalyze the development of OSW in the Gulf of Maine, with a particular focus on FOSW. With increasing demands being placed on the power sector to decarbonize and carry significant more load as the economy transitions to electrification, FOSW is the under-realized and critically needed resource to meet decarbonization goals.

A Coordinated Network of Port Infrastructure can Unlock FOSW in the Northern New England

Port infrastructure is a major chokepoint impeding the expansion of FOSW as a source of clean firm power to the electric grid. Despite more than 35 dedicated OSW ports (fixed and floating) completed or under development over the last five years, the U.S. is facing a shortage of as many as 84 OSW port sites needed to meet national targets.[2] Moreover, as described below, floating technologies require unique port capacities that are even more significantly underinvested. Yet unfortunately there is no dedicated federal funding for OSW port construction and infrastructure, and the funding that is available is insufficient for the scale of the need.[3] OSW port infrastructure is unique in its size, complexity, and scale, and without federal investment for those projects, the dearth of port infrastructure will constrain the ability to successfully deploy OSW.[4] This joint application is transformative in two major ways: *first*, it enables the unlocking and realization of FOSW technology and *second*, it represents the region's first

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[1] https://www.nrel.gov/news/program/2020/floating-offshore-wind-rises.html
[2] https://oceantic.org/building-a-national-network-of-offshore-wind-ports/
[3] There are several sources of funding for ports including the Port Infrastructure Development Program and the Clean Ports Program. While significant, neither places the needed focus on OSW port infrastructure that is needed for the U.S. to meet its renewable energy and decarbonization goals. https://www.aapa-ports.org/Federal%20Funding%20for%20Ports
[4] https://oceantic.org/building-a-national-network-of-offshore-wind-ports/

effort to take an interstate, coordinated approach to the construction of needed port infrastructure to deploy FOSW at the scale and timeline required by our collective state and national OSW goals.

The Ambitious GHG Reduction Goals in the U.S. and New England are Non-Negotiable, and Clean Power is the Only Way to Meet Them

President Biden is leading our country in an ambitious effort to tackle the climate crisis, including the U.S. Nationally Determined Contribution pursuant to the Paris Climate Agreement to reduce greenhouse gas (GHG) emissions by 50-52 percent below 2005 levels by 2030, and a carbon pollution-free power sector by 2035.[5] Consistent with these goals, the Administration has established a goal of deploying 30 gigawatts (GW) of OSW by 2030, 15 GW of FOSW by 2035, and 110 GW of OSW by 2050.[6] Through a comprehensive interagency approach, the Floating Offshore Wind Energy Shot, including the U.S. Departments of Energy (DOE), Interior (DOI), Commerce (DOC), and Transportation (DOT), the Administration is actively pursuing policies to lower costs of floating offshore wind by 70 percent, advance lease areas in deep waters to deploy FOSW platforms, and support FOSW research and development.[7]

Similarly, Maine and Massachusetts have established ambitious clean energy requirements in statute, with significant focus on OSW.[8] Decarbonization models for Massachusetts indicate the need for 23 GW of OSW power by 2050, including 13 GW from floating.[9] The *Maine Energy Plan: Pathway to 2040* identifies the need for at least 3 GW of OSW in multiple scenarios with the goal of 100 percent clean energy by 2040. Maine has statutory authority to procure 3 GW of FOSW power by 2040.[10]

These complementary federal-state goals are crystallized in the September 2023 Memorandum of Understanding on Offshore Wind Supply Chain Collaboration between the U.S. DOE, DOI, DOC, and DOT and nine states – including Maine, Massachusetts and New Hampshire.[11] The agreement commits the parties to supporting the development of a coordinated, resilient, and sustainable regional OSW supply chain along the East Coast through sub-regional frameworks between the states.[12] It is intended to

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[5] https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/

[6] https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/. See also https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/ and https://www.energy.gov/sites/default/files/2023-03/advancing-offshore-wind-energy-full-report.pdf.

[7] https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-actions-to-expand-u-s-offshore-wind-energy/

[8] https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/Maine_Offshore_Wind_Roadmap_February_2023.pdf

[9] https://www.mass.gov/info-details/massachusetts-clean-energy-and-climate-plan-for-2050

[10] https://www.maine.gov/energy/initiatives/offshorewind

[11] https://www.whitehouse.gov/wp-content/uploads/2023/09/Federal-State-MOU-on-East-Coast-Offshore-Wind-Supply-Chain-Collaboration.pdf

[12] https://www.whitehouse.gov/wp-content/uploads/2023/09/Federal-State-MOU-on-East-Coast-Offshore-Wind-Supply-Chain-Collaboration.pdf

provide a critical framework to addressing the pressing challenges facing the OSW industry, including port capabilities, as well as manufacturing, workforce development, and other supply chain issues.[13]

The Need for and Pressures on Clean Power are Significant – and Growing – as the Economy Electrifies, and the New England Region Needs FOSW to Meet its Accelerating Demand for Power

Despite significant policy goals and historic federal, state, and private sector funding to achieve them, the challenges facing the power sector remain immense. According to data from the U.S. Environmental Protection Agency (EPA), the power sector represented 25 percent of total U.S. GHG emissions in 2021.[14] As the focus of nationwide efforts to reduce those direct emissions via transition to clean resources, the power sector is also under pressure to carry significantly more load as the economy electrifies, including through the transition to electric vehicles (EVs), broad deployment of heat pumps in buildings, and growth of domestic manufacturing as a result of the Inflation Reduction Act (IRA). Nationally, data compiled by Grid Strategies noted that the 5-year load growth forecast has nearly doubled in just the last year.[15] Similar trends exist in New England, with the grid operator planning for both an increase in overall electric demand and increased peak demand that moves from the summer to winter because of beneficial electrification, particularly from heating.[16]

As the pressures on the power sector intensify, OSW offers an abundant clean energy resource. Decarbonization of the New England electric grid will require a balance of renewable energy resources and technology complementing a predominantly OSW-based supply.[17] New England states enjoy densely populated coasts with high energy demand near shore. While space and siting constrain large land-based power plants, OSW offers clean, reliable power proximate to load centers. This is acutely true during the winter months when peak loads cannot only rely on all renewable resources like solar power.[18] Without fully harnessing OSW potential, the region would need new technologies or to add new clean resources including nuclear facilities, which face significant economic and logistic challenges in the region, to meet the needed clean power supply for decarbonization.[19]

Based on analysis of 2019 electricity usage and projections, the New England states have more than enough OSW potential to provide sufficient electricity to cover projected demand with full electrification of the economy.[20] The Biden Administration has recognized the unique importance of the Gulf of Maine as a deep-water area to capture vast offshore wind energy potential via FOSW.[21] On March 15, 2024, DOI's Bureau of Ocean Energy Management (BOEM) finalized the Wind Energy Area (WEA) for the Gulf of Maine with the potential to support 32 GW of clean energy generation.[22] A separate study just

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[13] https://www.whitehouse.gov/briefing-room/statements-releases/2023/09/21/fact-sheet-biden-harris-administration-advances-offshore-wind-transmission-strengthens-regional-supply-chain-buildout-and-drives-innovation/

[14] https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions

[15] https://gridstrategiesllc.com/wp-content/uploads/2023/12/National-Load-Growth-Report-2023.pdf

16 https://www.iso-ne.com/about/key-stats/electricity-use

[17] https://www.mass.gov/doc/ma-2050-decarbonization-roadmap/download

[18] https://www.nrel.gov/docs/fy23osti/86550.pdf

[19] https://www.mass.gov/doc/ma-2050-decarbonization-roadmap/download

[20] https://publicinterestnetwork.org/wp-content/uploads/2021/03/Offshore-Wind-For-America-2021.pdf

[21] https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-actions-to-expand-u-s-offshore-wind-energy/

[22] https://www.boem.gov/newsroom/press-releases/boem-finalizes-wind-energy-area-gulf-maine-and-announces-upcoming

released by DOE shows that OSW will comprise more than 40 percent of the load in New England by 2050 in a low-carbon scenario.[23]

The Gulf of Maine is ideally suited to be the proving ground for FOSW in the U.S. and lead the deployment of this technology domestically and globally. The seabed is too deep for fixed OSW, but much shallower than other parts of the U.S., including the Pacific.[24] Enabling FOSW in the Gulf will be critical to advancing the technology in an ideal environment, and will establish the U.S. as a leader in this space, allowing for export to other regions. Nearly two thirds of U.S. OSW potential is located in waters that are too deep for fixed OSW.[25] Understanding and harnessing FOSW is essential to meeting worldwide decarbonization goals, as 80 percent of the world's OSW resources are in waters where FOSW is the best available technology.[26] Globally, there are only 244 megawatts (MW) of installed FOSW capacity as of October 2023.[27] Lessons learned in the Gulf of Maine enabled by CPRG assistance will provide critical information for the further scale up, replication, and deployment of FOSW.

New England Lacks Enough Ports to Support FOSW and Sufficient Funds to Transform the Ports Available

OSW is a maritime industry. All the finished components, and many of the supplies and materials, are too large and heavy to transport via road or railway, and the size and weight of the OSW components drive strict requirements on potential locations for port facilities. These construction, staging, and manufacturing port facilities need sufficient acreage, quayside length, quayside bearing capacity, and navigation channel depth to safely produce and handle the turbine and balance of plant components. Currently, there are inadequate port facilities available to meet federal and state OSW goals, which is a major risk factor for the advancement of the industry. The development of sites that have the necessary attributes and capabilities requires significant capital investments and long permitting and construction timelines.[28] Currently, there is insufficient federal funding to support the port infrastructure improvements required to meet state and national targets, particularly those required to support FOSW development. Studies indicate that without federal funding, port capacity will constrain offshore wind deployment in significant ways, and nationwide the country will fall well short of both short- and long-term OSW deployment goals.[29] NREL estimates at least $22 billion in new investments for ports, large installation vessels, and major manufacturing facilities will be needed to achieve the Biden Administration's 30 GW by 2030 goals.[30]

Some of the OSW ports that are now in service for fixed OSW projects may be able to serve the floating markets. However, the FOSW sector requires specializations and unique requirements in terms of ports, supply chain, and workforce needs. According to DOE's Floating Offshore Wind Shot, the first commercial scale FOSW projects may be as much as 50 percent more expensive than fixed.[31]

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[23] https://www.nrel.gov/docs/fy24osti/88003.pdf
[24] https://www.nrel.gov/docs/fy23osti/86550.pdf
[25] https://www.energy.gov/sites/default/files/2022-09/floating-offshore-wind-shot-fact-sheet.pdf
[26] https://gwec.net/wp-content/uploads/2023/03/GWR-2023_interactive.pdf
[27] https://www.offshorewind.biz/2023/10/05/global-floating-offshore-wind-project-pipeline-up-by-one-third-in-a-year/. Note, this "includes projects at any stage: fully operational, under construction, approved, in the planning system awaiting a decision, or at an early stage of development."
[28] https://www.nrel.gov/docs/fy23osti/84710.pdf
[29] https://oceantic.org/building-a-national-network-of-offshore-wind-ports/
[30] https://www.nrel.gov/docs/fy23osti/84710.pdf
[31] https://www.energy.gov/sites/default/files/2022-09/floating-offshore-wind-shot-fact-sheet.pdf

Manufacturing and staging and integration (S&I) ports, which are required for FOSW, are the most capital-intensive for FOSW, as they are generally larger than the ports used by fixed OSW projects because of the need to manufacture, store, and assemble floating foundations, and they require wide and deep navigational channels and berths without bridge impediments to accommodate the floating foundations.[32] New England possesses some of the most developed coastal regions in the nation, with some of the oldest ports. With sustained funding, OSW port infrastructure investments "will unlock 16-to-29 times more investment in clean energy generation" and related significant emissions reductions and benefits across communities.[33] Ports developed to support OSW are expected to be operational for more than 50 years, which would provide sustained long-term benefit for this short-term investment.[34] With both S&I and manufacturing capabilities available in the Gulf of Maine, jobs and supply chain activity that otherwise would be sourced in other regions and countries would be captured locally, ensuring long-term benefits. For these reasons, the opportunity to address this challenge through CPRG funding is transformative for the communities and economies of Maine and Massachusetts.

Details and Benefits of a Coordinated Approach

Maine and Massachusetts have been working for more than five years on the feasibility, planning, and design of two offshore wind ports required to unlock the transformative potential of OSW energy in the Gulf of Maine (See Figure 1 in Budget Narrative). In Maine, the CPRG implementation grant would enable the development of a FOSW port facility on state-owned Sears Island to congregate, store, and stage the wind turbine generator (WTG) components; manufacture or assemble the floating foundations; and integrate the WTG components onto the floating foundations. [35] In Massachusetts, as part of a unique a public-private partnership, the Massachusetts Clean Energy Center (MassCEC), Crowley Wind Services, and the City of Salem are advancing the redevelopment of a 42-acre former oil- and coal-fired power plant, transforming it into a purpose-built OSW port. This implementation grant will support a second phase of redevelopment for Salem Offshore Wind Terminal, with a proposed focus on deepening navigational channels, turning basins, and berths to accommodate the staging and integration of wind turbines onto semi-submersible floating wind platforms. **The projects in both states will promote localized air pollution reduction measures and enhance a regional initiative to further FOSW specialized ports, vessels, supply chain, and workforce development in the Gulf of Maine, with an emphasis on increasing access to opportunities for low-income and disadvantaged communities (LIDAC).**

To address the many risks and challenges in developing the required port infrastructure for commercial-scale FOSW deployment in the Gulf of Maine, an unprecedented collaborative approach led by the states of Maine and Massachusetts, with the support of New Hampshire, together with federal and local governments, port authorities, offshore industry companies, workforce organizations (including skilled trades and organized labor), local supply chain business, and many other organizations will be required to most effectively plan, fund, and develop these port sites in a strategic, equitable, and timely manner. Efforts are currently underway by the New England states on initial steps towards such a formal partnership, in addition to a coordinated, multi-state procurement and regionally coordinated actions and advocacy on transmission planning and favorable federal actions to support OSW development. The

[32] https://oceantic.org/building-a-national-network-of-offshore-wind-ports/
[33] https://oceantic.org/building-a-national-network-of-offshore-wind-ports/
[34] https://oceantic.org/building-a-national-network-of-offshore-wind-ports/
[35] https://www.maine.gov/governor/mills/news/governor-mills-announces-sears-island-preferred-site-port-support-floating-offshore-wind-2024

2023 MOU discussed previously between the four federal agencies and nine states will provide a cornerstone of this effort.

Critically, while CPRG funding would significantly advance efforts on these port projects, perhaps just as importantly, it would lend much-needed certainty to FOSW in the immediate future, providing invaluable leverage to accelerate additional funding and deployment, changing the speed and trajectory at which electrons from FOSW will support and power the electric grid. Both Maine and Massachusetts are committed to realizing the success of FOSW as quickly as possible. Federal investment amplifies that commitment and significantly accelerates production of clean energy from the Gulf of Maine.

2. DESCRIPTION OF THE GHG REDUCTION MEASURE

As described above, this coalition proposes to invest in Searsport, Maine and Salem, Massachusetts to upgrade port infrastructure to accelerate the deployment of FOSW in the Gulf of Maine. The states regard this as one GHG emission reduction measure. The states project that this investment will allow Salem to support increased fixed OSW installations in the near term. The details of the proposed investments are outlined below. The states propose to invest in a regional initiative focused on advancing FOSW specialized ports, vessels, supply chain, and workforce for the Gulf of Maine, with an emphasis on efforts and measures that increase access to opportunities for low-income and disadvantaged communities. The period of performance is anticipated to be October 2024 to October 2029. This proposal will detail these proposed investments in sequence. Table 1 details the roles of both states in the coalition.

Table 1: Coalition Roles and Responsibilities

Entity	**Roles and Responsibilities**
Maine Governor's Energy Office (GEO) (lead)	• Issuing subawards to coalition partners in accordance with EPA's Subaward Policy[36] • Overseeing subrecipients, and/or contractors and vendors • Overseeing project in Searsport, Maine • Jointly overseeing regional initiative to support FOSW • Tracking and reporting on project progress on expenditures and purchases • Tracking, measuring, and reporting accomplishments on proposed timelines and milestones • Submitting semi-annual progress reports on grant implementation and planned activities to EPA • Submitting detailed final report to EPA within 120 calendar days of the completion of the period of performance • Community and stakeholder outreach and education within Maine
Massachusetts Clean Energy Center (MassCEC)	• Complying with subrecipient requirements under EPA's Subaward Policy[37] • Overseeing project in Salem, Massachusetts • Overseeing contractors and vendors • Jointly overseeing regional initiative to support FOSW

[36] https://www.epa.gov/grants/grants-policy-issuance-gpi-16-01-epa-subaward-policy-epa-assistance-agreement-recipients

[37] https://www.epa.gov/grants/grants-policy-issuance-gpi-16-01-epa-subaward-policy-epa-assistance-agreement-recipients

	• Tracking and reporting to Maine GEO on project progress on expenditures and purchases within Massachusetts • Tracking, measuring, and reporting to Maine GEO on accomplishments and proposed timelines and milestones within Massachusetts • Conducting Community and stakeholder outreach and education within Massachusetts

I. Description of specific measures

a. Sub measure one: Searsport, Maine

For Searsport, this coalition is requesting CPRG funding to construct a port facility dedicated for FOSW. The purpose of the FOSW port is to congregate, store, and stage the wind turbine generator (WTG) components; manufacture or assemble the floating foundations; and integrate the WTG components onto the floating foundations to deploy from quayside. A critical first step in the construction of a commercial scale Wind Port at the site will be the construction of Phase 1 that will construct a 50-acre FOSW facility. Phase 1 will focus on developing and deploying a Floating Offshore Wind Research Array (Research Array) in partnership with GEO and the University of Maine. As the first project of its kind in the U.S., the Research Array will foster cutting-edge research into the cost-effective operation of FOSW and how it interacts with the marine environment, wildlife, the fishing industry, shipping and navigation routes, and more. The Research Array is proposed to include 10-12 turbines on semi-submersible floating concrete platforms known as VolturnUS, designed by the University of Maine's Advanced Structures and Composite Center.[38] The final size and location of the research site will be determined by BOEM during its leasing review process.

With deepwater access to the port development site, Maine has the potential to establish a premier location for the industry and help meet growing demand in the U.S. for OSW port infrastructure. The *Maine Offshore Wind Roadmap*, released one year ago, determined that a port facility is a priority for unlocking Maine's opportunity in offshore wind to create good-paying jobs, spurring broad economic development, and generating abundant clean electricity to stabilize energy costs and reduce reliance on fossil fuels.[39]

The request for funding assistance from CPRG for Maine's FOSW port project in Searsport is $130,000,000. The funding will be used for construction costs to construct a Phase 1, 50-acre FOSW port facility on Sears Island. The total cost of the Phase 1 project is $337,427,044 with a 30 percent contingency. If awarded CPRG funds, a significant portion of the needed funding will be secured to accelerate the Phase 1 construction within the period of performance. Key features are included in the budget narrative below.

CPRG funding will be used to construct the Phase 1 Searsport Offshore Wind Port. The primary elements of the project funded by CPRG will be an 800 linear foot, 2.75-acre heavy-lift quay for FOSW turbine construction and foundation launching. CPRG funds will also be used for the majority of the 10-acre ocean fill area, or infill area. This is a pile-supported concrete heavy lift area that will use cranes and equipment to launch floating foundations and install WTG components onto foundations. Finally, Maine will entirely fund the 47-acre upland area which will be used for staging and laydown, foundation

[38] https://composites.umaine.edu/volturnus/

[39] https://www.maineoffshorewind.org/roadmap/. See also https://www.maine.gov/governor/mills/news/mills-administration-releases-comprehensive-plan-responsibly-advance-offshore-wind-maine-2023.

assembly lanes, and pre-cast concrete module fabrication. The upland area will also have a small office and parking area. The total footprint of the Phase 1 Maine Offshore Wind Port will be 50 acres.

The WTG components will be delivered to the port facility on large bulk carrier vessels or barges. These components will then be transferred via crane to the wharf and placed in storage in the port uplands.

Floating foundations can be fabricated using either concrete or steel. The concrete materials will be delivered to the port via road or barge. The concrete foundations will be cast in the port uplands and moved to the wharf face when casting and assembly operations are complete. Smaller components of the steel foundations will be delivered to the port via large bulk carrier vessels or barges, transferred via crane to the wharf and placed in storage in the port uplands. These American-produced steel foundation components will then be assembled in the terminal uplands and moved to the wharf face when assembly is completed.

Once the foundations are completed and at the face of the wharf they will be moved onto a semi-submersible barge. This barge will then launch the foundations into the water. The launched foundations are then brought back to the wharf face, via tugboat, where the WTG components are installed on the foundations. This installation process is known as WTG integration.

b. Sub measure two: Salem, Massachusetts

For Salem, this coalition is requesting grant assistance through the CPRG program to bolster the current investment in the port to support FOSW projects. This effort will consist of two phases, described below.

i. Salem Offshore Wind Terminal, Phase 1: Floating Offshore Wind

The MassCEC, Crowley Wind Services, and the City of Salem have joined together in a public-private partnership to redevelop a 42-acre former coal-fired power plant site in Salem's Designated Port Area transforming it into a purpose-built OSW port for staging and deploying OSW turbine components. The first phase of the project includes the construction of a delivery berth, load-out berth, heavy lift platform, laydown yards, transition yard, and parking areas. Once complete, the Salem Offshore Wind Terminal will support the receiving, storage, partial assembly, transportation, and deployment of WTG components for fixed-bottom OSW farms currently under development in the Southern New England lease areas. Construction is expected to commence in April 2024, and substantial completion is planned for January 2026. It is expected that this facility will directly support the installation of more than 4 GW of clean, renewable energy between 2026 and 2032.

In addition to its utility and importance for supporting fixed-bottom wind farms in the Southern New England lease areas, the Salem Offshore Wind Terminal will play a critical role in supporting the development of FOSW in the Gulf of Maine. Beyond the planned Phase 1 redevelopment, enabling the Salem Offshore Wind Terminal to serve floating wind projects will require the development and implementation of a comprehensive dredged management project. Under existing conditions, current water depths in the federal channel, harbor turning basin, and at the terminal berth, are too shallow to accommodate floating wind foundations. In addition to deepening these navigational resources to allow for the inbound delivery of the semi-submersible (semi-sub) platforms, the staging and integration of turbine components at the terminal quayside, and the outbound delivery of the platforms with installed turbines, this project track will include planning and siting work to identify the most appropriate locations for wet storage of the semi-subs (before and after integration) and for any confined aquatic disposal cells that may be required. Through this and the other tracks, the project partners will maintain robust engagement and dialogue with local community and stakeholders. For this task, the states are requesting $52,407,102.

ii. Salem Offshore Wind Terminal, Phase 2: Port Electrification

To reduce on-port and near-port air quality impacts, Crowley has committed in the Community Benefits Agreement (CBA) with the City of Salem for Phase 1 development to develop and implement a strategy for port electrification that includes shore power and electric equipment, consistent with commercially available technology and in a manner that prioritizes advancing electrification of the Salem Offshore Wind Terminal. The goal specified in the CBA is to achieve 100 percent port electrification by 2040.

With support from CPRG, the project partners will develop and implement (1) an Offshore Wind Vessel Shore Power Plan and (2) a Zero-Emissions Port Plan, including stakeholder engagement, design, engineering, and permitting, and accelerate the timelines for implementation and deployment. The Offshore Wind Vessel Shore Power Plan will provide the roadmap for shore power for all harbor craft and ocean-going vessels calling at the Salem Offshore Wind Terminal, with an accelerated timeline to achieve full infrastructure build-out by 2030. The Zero-Emissions Port Plan will provide the roadmap to transition the terminal to fully zero-emission operations, including all OSW component and other cargo handling equipment (e.g., self-propelled modular transporters (SPMTs), forklifts, cranes) with requisite electric charging (or hydrogen fueling) infrastructure by 2040. For this sub-measure, the CPRG application requests $8,765,625. This funding will accelerate by up to 10 years the delivery of the shore power infrastructure, which is not an eligible project activity under EPA's Clean Ports Program. Partners intend to pursue funding opportunities through EPA's Clean Ports Program for zero-emissions equipment and related infrastructure for Salem Offshore Wind Terminal and for assessment and planning at other port facilities.

c. Sub measure three: Advancing Floating Offshore Wind Infrastructure, Supply Chain, and Workforce in Gulf of Maine

While the states are seeking funding for two discrete port locations, members are committed to continued collaboration and assessment to further the FOSW industry in the Gulf of Maine. This sub measure will support a sub-regional initiative focused on advancing FOSW specialized ports, vessels, supply chain, and workforce for the Gulf of Maine with an emphasis on efforts and measures that increase access to opportunities for LIDACs. For these efforts, the states are requesting $5,269,600.

Notable progress continues to launch and grow the U.S. OSW industry, with construction now complete on the first U.S. commercial offshore wind project. South Fork, a 132 MW project began delivering power to New York in March 2024. Vineyard Wind 1 is also delivering power to Massachusetts as construction on the 812 MW project continues. The U.S. approved a record number of projects in 2023 and is on pace to double that number in 2024.[40] In addition, the U.S. plans to hold four OSW lease auctions by the end of 2024, one of which is in the Gulf of Maine. The project pipeline includes 21 GW in permitting and another 25 GW under development. In 2022, $2.7 billion in funding was announced or invested for the development of OSW ports, supply chain, vessels, and transmission. However, nearly all this industry advancement has been directed to the fixed-bottom OSW market. While there are similarities and overlap between the fixed and floating markets, there are also differences, and the floating wind sector will require specializations and unique requirements in terms of ports as discussed previously, but also in terms of supply chain and workforce needs.

To fully achieve a mature FOSW sector in the Gulf of Maine, additional assessments, planning, and investments are required that build on prior work and include broad collaborations led by the states and inclusive of federal and local governments, port authorities, offshore industry companies, workforce

[40] https://www.energy.gov/eere/wind/articles/offshore-wind-market-report-2023-edition

organizations, local supply chain business, and many other organizations. Other federal resources are not available.

II. Risk Mitigation Strategies and Alignment with State Preliminary Climate Action Plans and CPRG Goals

In the Notice of Funding Opportunity (NOFO), EPA requested that the states identify risks "that could reasonably lead to delays or interruptions in the development or implementation of a GHG reduction measure or could impact its effectiveness."[41] Table 2 below identifies risks that the states have identified, the possible effect on the GHG emissions reduction, and the strategy to mitigate those risks.

Table 2: Risks and Mitigation Strategies

Risk	**Effect on GHG emission reductions**	**Mitigation Strategy**
Community opposition delays or blocks port infrastructure projects	Delays infrastructure needed to unlock FOSW and related GHG emissions reductions	Continue with robust community engagement detailed herein
Permitting timelines delay port infrastructure projects	Slows infrastructure readiness and decelerates FOSW and related GHG emissions reductions	Focused effort and full compliance with all legal requirements will keep permitting process on pace
Funding is not sustained for FOSW projects	Limits deployment of FOSW and related GHG emissions reductions	IRA incentives should keep strong investment interest in FOSW; States as partners in offtake will mitigate financial risk and keep investment interest strong.

The NOFO also requested that the states describe how the proposed measure relates to GHG reduction measures in coalition member Priority Climate Action Plans (PCAPs). As stated above, the states prioritized this measure because (1) OSW generation is essential for their ability to achieve their GHG reduction goals; and (2) port infrastructure represents the condition precedent to the states' ability to add that OSW generation to the grid. Table 3 identifies the specific PCAP language that correlates to this proposal.

Table 3: Alignment with Coalition Member PCAPs

Measure	**PCAP Title(s) and Page Numbers**
Maine Strategy C: Achieve by 2030 an electricity grid where 80% of Maine's usage comes from renewable generation, linked with Industrial emissions decrease, and including cost- effective deployment of technologies and associated infrastructure to support offshore wind, distributed generation, and energy storage, and outline the policies, including opportunities for pilot initiatives, necessary to achieve set targets.	Maine PCAP pages 25-26
Massachusetts P1: Develop New Renewable Energy Facilities. Language included "Invest in port infrastructure to support offshore wind development and overcome supply chain bottlenecks. Focus on opening new offshore wind areas, such as the Gulf of Maine."	Massachusetts PCAP, page 69

[41] NOFO page 31

Finally, the NOFO requested that the proposal demonstrate how the proposal would advance CPRG's goals to (1) implement ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond; (2) pursue measures that will achieve substantial community benefits (such as reduction of criteria air pollutants (CAPs) and hazardous air pollutants (HAPs)), particularly in LIDACs; (3) complement other funding sources to maximize these GHG reductions and community benefits; and (4) pursue innovative and transformative policies and programs that are replicable and can be "scaled up" across multiple jurisdictions.

The level of ambition and emissions reductions is described in detail below – these investments will create extremely significant benefits in both GHG reductions and CAP/HAP reductions. And, as described above in the description of the measure, there is very limited funding available for the port infrastructure investments needed to deploy FOSW. Most recently, Maine Department of Transportation (Maine DOT) in partnership with the Maine Port Authority applied for design funding for the Wind Port as a component of a multi-project application through the FY23 Port Infrastructure Development Program (PIDP) that was not funded.

Finally, as well-detailed above, the measures proposed in this application are the most transformative actions the states can take to provide GHG-free power to service their exploding demand for power and ensure the electrification of other sectors of the economy are powered by clean energy. No other investment of this magnitude or on this timeline by CPRG in the region could transform the carbon footprint of the region as significantly. In particular, the long timeline required for port infrastructure requires the states to act as quickly as possible, and the CPRG funds are uniquely positioned to speed this infrastructure to service FOSW. And if these investments can demonstrate and justify investments in FOSW for the nation and the globe, it will result in multiples and multiples of the GHG reductions analyzed below.

3. IMPACT OF GHG REDUCTION MEASURES

As discussed with EPA staff over the past year, this measure is both essential to enable the scale and pace of GHG emissions reductions targeted by the CPRG program and difficult to quantify, as it enables the investment in zero-carbon electricity generation but requires projections of the pace and scale of the resulting enabled investments that secure the emissions reductions. These enabling investments are a required precondition to even consider securing additional reductions from FOSW.

The states have analyzed the emissions consequences of the port infrastructure investments as comprehensively and transparently as possible. As described in greater detail in the technical appendix, the states have adopted a conservative approach to this analysis: the states project that while regional investments in FOSW are on track to grow over time, CPRG support will accelerate these investments at a level that enables the region's timely energy transition. The states also have projected reductions from additional consequences of the investment: (1) an increase in fixed OSW installations from the accelerated development of the port of Salem, Massachusetts; (2) reductions from the electrification of the port of Salem under this measure; and (3) the avoided increased transportation emissions that would occur if turbines were marshalled out of Canadian ports.

There are multiple other avenues by which this investment by EPA will likely result in additional significant GHG reductions but for which the states have determined are not feasible to indicate quantitatively. In particular, the states would indicate two other pathways by which this proposal is likely to secure significant additional reductions:

- First, by virtue of bringing onto the system high-capacity OSW generation, particularly during winter peak months, the states anticipate that many of the least efficient fossil fuel generating

peaker plants on the system will not be required to run, resulting in emissions reductions in excess of that observed through the mere application of emissions factors to the new generation described in this analysis.

- Second, given the leadership the region is demonstrating in the deployment of FOSW, the technology demonstration achieved by these projects will very likely unlock the technology as an option for many other regions of the country, and the globe. This transformative impact of the proposal could result in an order of magnitude more in emissions reductions, but the results are too undefined to include a quantitative assessment of these consequences.

In addition, the states note that this analysis is based on a baseline assessment of power sector demand that is increasingly conservative. As noted above, the load growth projections are expanding rapidly by virtue of the electrification of other sectors of the economy (a trend that the EPA will be asked to accelerate further through other grant proposals in this program, such as transportation electrification or building electrification) and the expansion of data centers (particularly those serving artificial intelligence).[42] Such load growth will make the need for the zero-carbon power that OSW generates even more essential if the region is to avoid the ongoing use and/or construction of fossil fuel assets to service this load growth.[43]

Finally, the states have opted for a more conservative set of assumptions regarding the emissions avoided by the increase of OSW in the region. In particular, the states have used EGrid data to project the avoided emissions and have used the emission factor for baseload generation in the region (540.5 lbs/mwh) rather than non-baseload (928.1lbs/mwh) because this degree of OSW penetration would implicate more than the non-baseload fleet. Moreover, the states have decreased the emissions factor over time to reflect the addition of zero-carbon OSW via this grant. These assumptions are outlined in more detail in the technical appendix, but an alternative approach would have resulted in greater projected emissions reductions.

Even with these conservative assumptions, however, the direct emissions reductions projected from the utilization of these ports to construct OSW capability off the coast of northern New England are extremely significant. Table 4 provides estimates of the cumulative emission reductions in metric tons of carbon dioxide equivalent ($mtCO_2e$) anticipated from implementation of the proposed measure(s) for two time periods: 2025-2030 and 2025-2050. Further details on quantification methods, relevant assumptions, annual emission reduction estimates, and any uncertainties associated with the estimates are provided in the Technical Appendix to this application.

Table 4: Cumulative GHG Emission Reductions Anticipated from Implementation of Proposed Measures

	Cumulative GHG emission reductions ($mt CO_2e$)	
	2025–2030	**2025–2050**
Projected increase of FOSW deployment from accelerated development of Salem, MA	524,364	524,364

[42] https://gridstrategiesllc.com/wp-content/uploads/2023/12/National-Load-Growth-Report-2023.pdf
[43] https://www.nytimes.com/interactive/2024/03/13/climate/electric-power-climate-change.html?smid=nytcore-ios-share&referringSource=articleShare

Projected increase of FOSW deployment from all measures increasing port infrastructure in region	0	50,345,703
Electrification of Salem, MA port	1985	48,633
Avoided transportation emissions due to marshalling platforms out of Canadian ports	1870	14,388
Total	528,218	50,933,088

Implementation of the proposal also will result in durable GHG emission reductions. This proposal is part of the states' long-term investment in OSW as a high-capacity renewable source of power to the power grid. Individual wind turbines are projected to have a lifespan of 30 years,[44] but the region's investment in FOSW as a source for its decarbonized economy is projected to continue indefinitely, and this proposal will unlock the infrastructure needed to support that source of power for decades beyond the life of any one turbine.

Implementation of the proposal is highly cost-effective, particularly over the longer term. Per the NOFO, the cost-effectiveness of the program over the first five-year period is equal to $198,351,018/528,218 mt CO2e, which calculates to $376 per mt CO2e. This calculation, however, obscures the massive longer term and cost effective reductions from the measure, as the measure does not gain its significant benefits until the ports are able to marshal the floating wind turbines into the Gulf of Maine, which is projected to begin in 2030. With that lens, **the reductions from the measure over the longer 25-year period calculate to be $3.89 per mt CO2e.**

4. ENVIRONMENTAL RESULTS – OUTPUTS, OUTCOMES, AND PERFORMANCE MEASURES

At its core, this proposal is consistent with EPA's first goal in its 2022 Strategic Plan, to "act boldly to drive down GHG emissions and reduce future climate change impacts."[45] The states are acting boldly to bring down the region's GHG emissions in a durable manner by empowering their region to access a critically important zero-emission source of power.

To assess the successful execution of the project, the states offer two sets of expected outcomes – (1) the installation of the physical infrastructure that will lead to the emissions reductions; and (2) the emissions reductions themselves.

Regarding the physical infrastructure constructed via this proposal, the states expect the following outcomes:

- Creation of, and staff hired for, a regional initiative to support FOSW.
- Installation of an incremental 23 fixed OSW turbines in the region by 2030.
- Installation of an incremental 85 FOSW turbines by 2035, 110 FOSW turbines by 2040, and 248 FOSW turbines by 2050.
- Electrification of the port of Salem by 2040.

Regarding the emissions reductions, the states anticipate the following outcomes:

- Reduction in cumulative metric tons of GHG emissions (Table 4):
    - 2025 – 2030: 528,218 metric tons CO_2e

[44] https://windexchange.energy.gov/end-of-service-guide#:~:text=The%20expected%20service%20life%20of,to%20last%20for%2030%20years.
[45] https://www.epa.gov/planandbudget/strategicplan

    - 2025 – 2050: 50,933,088 metric tons CO_2e
- Reduction in annual CAP and HAP emissions in 2030
    - 2025 – 2030: 120 tons SO_2 and 346 tons NOx (including 275 tons ozone season NOx)
    - 2025 – 2050: 11,524 tons SO_2 and 30,216 tons NOx (including 26,635 tons ozone season NOx)

The states also anticipate significant localized pollution reductions, particularly near LIDACs, due to the ability to greatly reduce the usage of older peaker plants (See Section 5).

Finally, as an output of this proposal, the states will provide semi-annual reports regarding their progress towards the anticipated outcomes described above. Beginning with the second semi-annual report, reporting will also include detailed descriptions of benefits to LIDACs, including changes in co-pollutant emissions, and provide updates on ongoing and planned community engagement. At the conclusion of the funding period, the states will provide a detailed final report assessing progress to date towards all of outcomes described above.

Looking forward, the states have established the following performance measures to track progress concerning successful processes and output and outcome strategies. Regarding the physical infrastructure metrics described above, the states will:

- Monitor the creation of the regional initiative, disclose the number of experts and employees hired to the effort, and qualitatively describe its role in coordinating offshore wind efforts across the region.
- Monitor and report the number of incremental fixed OSW turbines marshalled out of the ports.
- Monitor and report the number of incremental FOSW turbines marshalled out of the ports.
- Monitor and report on the creation of an Offshore Wind Vessel Shore Power Plan and a Zero-Emissions Port Plan for the port of Salem, and subsequently on the deployment of the equipment needed for the electrified port, especially the delivery of the shore power infrastructure.

Regarding the emissions benefits, the states will report regularly on the GHG, CAP, and HAP emissions across ISO New England and the total emissions from power generation. The states will also monitor the utilization levels of less efficient peaker plants, to the extent possible, monitor localized pollution from the same peaker plants.

Coalition partners will track progress for each performance measure within their jurisdiction and report such progress to the Maine GEO. The GEO will provide a status update with respect to each performance measure to EPA in the semi-annual reports and final report.

a. Authorities, Implementation Timeline, and Milestones

The project schedule incorporates sufficient time for the states to work directly with respective federal and state agencies as well as the public to address any potential issues that arise during ongoing National Environmental Policy Act (NEPA) and permitting processes to maintain the delivery schedule. No property or right-of-way acquisition is necessary. All other pre-construction activities will be complete in advance of the five-year period of performance outlined in the CPRG NOFO. The project can begin construction soon after NEPA is complete, and permits are approved. Work is not complex and, once commenced, construction will move quickly, and funds will be managed expeditiously. Any unexpected delays will be quickly resolved. Table 5 details the project schedule.

Table 5. Key Milestones for the Coalition by Sub-Measure

Key Milestones	Completion Date
Sub-Measure 1 - Maine Offshore Wind Port, Searsport Phase 1	
Maine DOT File Permits	Q3 2024
Draft Environmental Impact Statement (EIS) Published	Q1 2025
Secure Additional State and Federal Funding	Q3 2025
Complete Design	Q4 2025
Final EIS Submitted	Q4 2025
Maine DOT Obtain Permits	Q3 2026
Advertise for Construction Phase I	Q4 2026
Construction Phase I	Q3 2029
Closeout	Q4 2029
Sub-Measure 2.1 - Salem Offshore Wind Terminal: Floating Offshore Wind	
Survey, sampling, design, and engineering complete	Q4 2025
Permit applications filed	Q1 2026
Permit approvals complete	Q2 2027
Bid package issued	Q3 2027
Commence construction	Q4 2027
Construction complete	Q1 2029
Closeout	Q2 2029
Sub-Measure #2.2: Salem Offshore Wind Terminal - Port Electrification	
Contract in place for inventory, strategy, feasibility assessment	Q2 2025
OSW Vessel Shore Power Plan & Zero-Emissions Port Plan	Q1 2026
Design and engineering of shore power infrastructure	Q2 2026
Bid package issued	Q3 2026
Commence construction	Q4 2026
Construction complete	Q4 2027
Sub-Measure 3: Gulf of Maine Floating OSW Sector Development	
Gulf of Maine FOW assessments and strategies: secondary ports, vessels, supply chain, workforce	Q2 2026
Regional supply chain forums, technical assistance and directed support for business readiness and workforce	Q3 2026 through Q4 2029

Table 6 identifies the parties, roles, and responsibilities for implementing each GHG reduction measure and their respective authority to carry out the measure or plan for obtaining authority during the grant period. The overarching roles and responsibilities of each coalition member are detailed in Table 1 of this proposal. A detailed implementation timeline—including tasks, key milestones, and key actions needed to meet measure goals and objectives by the end of the grant period—for each measure is provided in the description of the specific measures provided above.

Table 6: Roles and Responsibilities and Legal Authority for GHG Reduction measure

Implementing Entities	Measure-Specific Roles and Responsibilities	Legal Authority
Maine GEO	Provide overall coordination to sub-awardees in support of port expansion and statutory requirements related to OSW procurement.	M.R.S.A. Title 35-A
Maine DOT	Responsible for, and will take the lead in the permitting, design and construction of Phase I of the Searsport Offshore Wind Port	M.R.S.A. Title 23
MassCEC	Sub-award lead. Manage and administer the scope and tasks of Sub-measure 2 and co-manage the scope and tasks for sub-measure 3.	MGL c. 23J
Massachusetts Department of Energy Resources	Provide assistance and support on project implementation and coordination (sub-measure 2 and 3)	MGL c. 25A
Crowley Wind Services	Grantee/contractor for Track 2 of Sub-measure	n/a
City of Salem/Salem Port Authority	Provide harbor/port management, regional dredge group liaison, local stakeholder coordination and engagement support	An Act Authorizing the City of Salem To Establish the Salem Harbor Port Authority c. 250 of 2016 Acts
Massachusetts Office of Coastal Zone Management	Provide planning, technical, and permitting support for sub-measure 2	MGL c. 21A, s. 4A

5. LOW-INCOME AND DISADVANTAGED COMMUNITIES

a. Community Benefits

The growth of new OSW will reduce three main contributing pollutants from retired or displaced fossil fuel powered generation, including: (1) CO_2e from greenhouse gases which all contribute to global warming potential; (2) NOx exposure is linked to long-term respiratory system damage, increased rates of asthma, and a contributor to particulate matter and ozone formation, which are also harmful to the respiratory system; and (3) SO_2 exposure is particularly harmful to adolescent respiratory systems and individuals with asthma and a contributor to particulate matter formation.

There are key characteristics of OSW that uniquely position it to offset fossil fuel generation and impact LIDAC's. First, OSW generates the most energy during afternoon and evening high-wind periods. This ensures that OSW can reduce peak demands on the electric grid year-round as compared to solar, which generates less at peak times in the evening.

Second, OSW provides reliable renewable energy generation in winter seasons, a period with significant fossil fuel dependance in New England. This will become increasingly important as electric demand grows with heating electrification. Without new OSW generation, the region will have to increase its reliance on thermal generation. This may include the increased use of peaker plants mainly fueled by

natural gas and high emission fuel oil.[46] As these systems are able to be utilized less, resultant air pollution and GHG emissions in localized communities surrounding peaker plants will be reduced.

Additionally, since OSW does not require a fossil fuel source, customers stand to benefit from more reliable pricing. Electricity generated using natural gas and oil are subject to global market price fluctuations. This volatile price risk is in turn included in the cost of energy passed down to customers in electricity rates. This was seen in New England in the past two years following Russia's invasion of Ukraine and the subsequent natural gas volatility in Europe.

Indirectly, the new FOSW developed in these ports will support broader decarbonization efforts in the transportation sector. Transportation emissions disproportionately impact environmental justice communities. The availability of reliable clean energy at port locations will help Salem and Searsport also be prepared to support decarbonization and electrification efforts directly at the port in addition to the wider communities served through the region's electric grid.

Negative impacts for this measure are minimal and have clear pathways for mitigation. As peaker plant facilities are able to retire, very few jobs will be made redundant. There is already a skilled labor shortage to support clean energy jobs which staff could be transitioned to for long term, good paying jobs, per the programs described below in the Job Quality discussion. Port infrastructure improvements to support offshore wind will also impact the local communities during construction with potential for increased traffic, noise and dust. Construction management plans will be required to properly manage construction dust and pollution, equipment noise and proper working hours, and traffic planning for reduced congestion.

Moving forward, and in addition to the information quantified in this application, additional coordination between Maine and Massachusetts Comprehensive Climate Action Plans will continue to leverage community engagement efforts in line with more detailed implementation planning for the burdened populations that will positively benefit and further quantification of CAP and HAP emissions reductions. The states will execute the following actions:

- Engagement with LIDACs with the largest and most vulnerable populations who would benefit from retirement of older peaker plants.
- Engagement with LIDACs and communities surrounding the specific port development projects.
- Engagement with LIDACs to ensure just transition opportunities for skill building and job transfer.
- Meaningful workforce development planning to involve the building industry and community-based organizations working to close the skilled labor shortage for the clean energy economy. This would include job creation metrics over the implementation timeline.
- Contractor coordination on construction management plans to reduce or eliminate air pollution emissions from the implementation projects at port locations. This would include air pollution sensors for monitoring in both port locations.
- Updated calculations for CAP and HAP air pollutants as more information is available about timelines for retiring fossil fuel peaker plants.

In more detail, using EPA CEJST and EJScreen tools, the states identified Low-Income and Disadvantaged Communities (LIDAC) throughout the region (Figures 1 and 2). Using CEJST the total LIDAC population for

[46] In the region, there are 39 peaker plants with a total of 133 generators with a net annual generation of 2.3 TWh in 2021 throughout Maine, New Hampshire, and Massachusetts, which include 20 Oil, 17 Natural Gas, 1 Biomass, and 1 coal. https://www.epa.gov/sites/default/files/2021-05/power_plants_and_communities.xlsx.

the region is 1,837,957 when filtering for Energy, Health, Legacy Pollution, Transportation and Workforce Development categories that are directly and indirectly connected to this implementation project. Using EJScreen, the total LIDAC population is 1,854,778 when filtering for air quality impact including Ozone, Air Toxics Cancer Risk, Air Toxics Respiratory Hazard Index and Toxic Releases to Air. It should be noted that PM2.5 was screened but does not currently cause burden in the region due to the amount of progress already made in retiring coal-fired power plants.

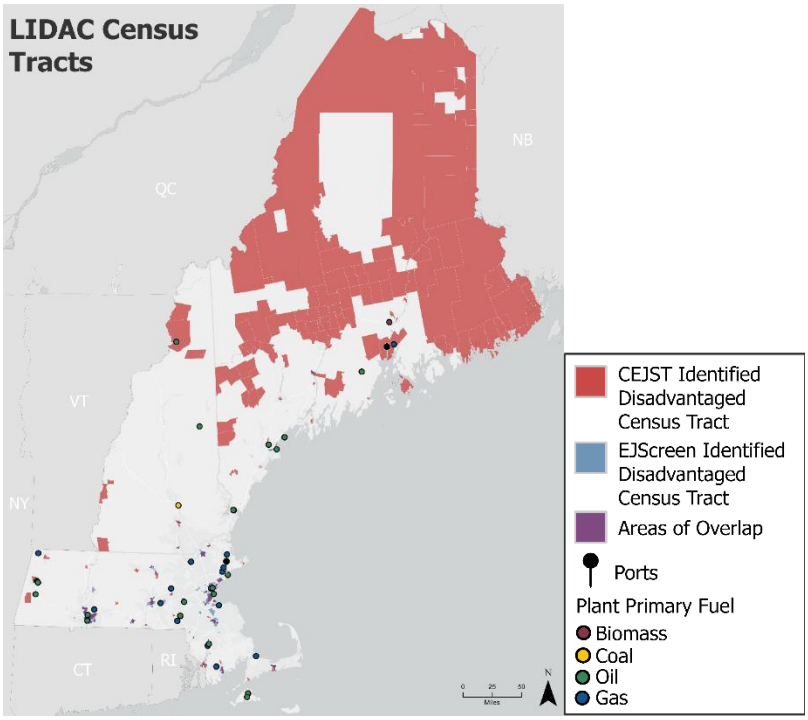

Figure 1. Identified Disadvantaged Tracts and Peaker Plants in MA, ME and NH

Regional locations near the port locations have differing impacts, as Salem is closer in proximity to Boston and has more CEJST and EJScreen LIDACs, while Searsport locations are mostly CEJST LIDACs.

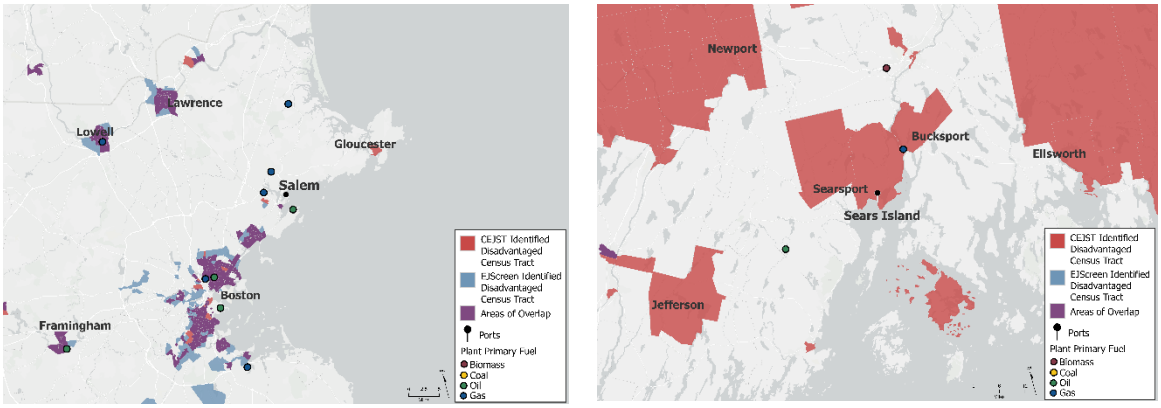

Figure 2. Port CEJST and EJScreen Tracts

Of particular interest for these communities will be the potential jobs benefits from this effort. Notably, 326 census tracts in MA, ME and NH are at or above the 90th percentile for linguistic isolation, low median income, poverty or unemployment for the CEJST workforce development burden. Within a 40-mile radius of each port location, these burdened locations represent an opportunity for 813,172

individuals in the Salem area and 7,078 individuals in the Searsport area, a significant segment of Maine's small population.

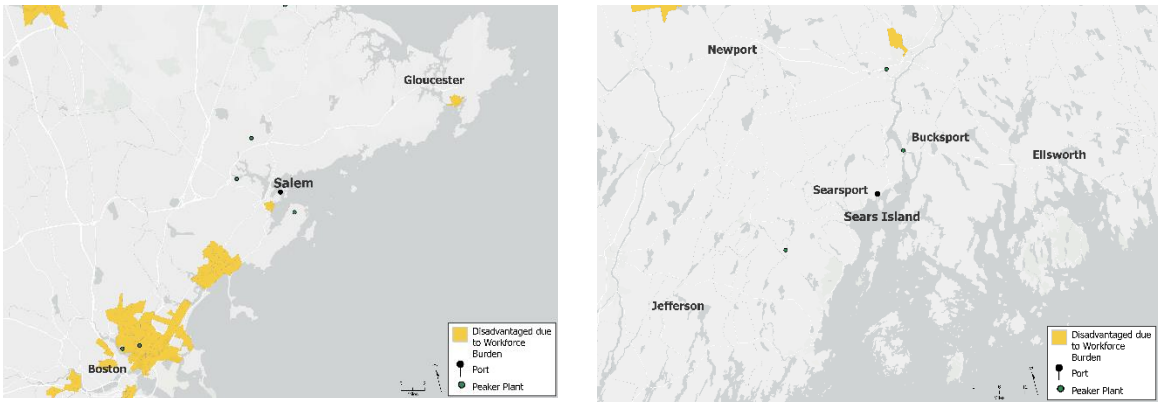

Figure 3. Workforce and Health Burden LIDAC Tracts

b. Community Engagement

Maine and Massachusetts performed extensive community outreach, including to LIDACs, in developing plans for each port and during development of the measures contained in this proposal as part of their priority climate action plan development process.

i. LIDAC and Stakeholder Input Has Informed This Application (work to date)

Searsport. This project will continue to advance key stakeholder-based priorities identified in the Maine Won't Wait Climate Action Plan and the Maine Offshore Wind Roadmap, which included hundreds of representatives from communities, businesses, organizations, government leaders, and youth. Led by GEO, the Roadmap identified the importance of OSW to help ensure an adequate and affordable clean energy supply to meet the state's renewable energy targets and generate economic growth and resiliency. The Roadmap focused on OSW for Maine and was developed over 18 months with nearly 100 representatives from fishing interests, state and local government, labor organizations, tribes, community members, private industry, and non-governmental organizations. The Roadmap underscored the importance of OSW energy as a powerful response to climate change and energy volatility driven by global events. Rising ocean and land temperatures threaten heritage industries of fishing, farming, and forestry. Higher sea levels endanger coastal communities, and more frequent and powerful storms damage infrastructure and public health. At the same time, Maine residents are experiencing higher energy price increases driven by unstable global markets and our over-reliance on fossil fuels.

In early 2022, Maine DOT assembled an Offshore Wind Port Advisory Group and established an engagement program and website to provide the structure for the start of a robust and transparent stakeholder and public engagement process.[47] This process was intended to help learn from one another and highlight issues and concerns to inform project development in accordance with the NEPA, Section 404 of the Clean Water Act, and many other federal and state regulations governing the consideration and protection of the environment. The Port Advisory Group was charged to provide advice to the state on the potential impacts of OSW port development. This advice will help to ensure that future OSW port site selection, development, and permitting decisions by federal and state

[47] https://www.maine.gov/mdot/ofps/oswpag/

agencies consider potential outcomes in determining what action would achieve the most benefit and the least adverse impacts. Port Advisory Group member responsibilities were two-fold: to provide advice on potential impacts of offshore development on the economy and the environment based on personal and professional knowledge; and to liaise with the organization or community from which they were appointed about potential impacts of OSW port development and sharing the state's advancements in the port planning process. Representatives from 19 organizations and towns were invited to serve as members of the Port Advisory Group. Advisory group members were selected for their diverse viewpoints on port development including the environment, ports and marine transportation, fishing, labor and construction, and local concerns.

Maine DOT also hosted an informational public meeting October 25, 2023 at the Searsport Community Center. The purpose of the meeting was to introduce the public to the Searsport Offshore Wind Port project, correct misinformation in the public domain to the extent practical and gather feedback and input from the public for the State to incorporate into project development. Maine DOT also launched a virtual public involvement (VPI) page for the project on October 10, 2023. The page included an introductory video recording that covers the materials presented in the public meeting and serves as an on-demand informational public meeting option. A public notice was issued on October 11, 2023 to announce the VPI and the meeting in local newspapers and on social media networks, and 1,596 postcards were mailed one week prior to the meeting date.

The public meeting was an informal open house format. All attendees were asked to sign in, provided with a fact sheet and comment form, and invited to review the information in the room and ask questions. One hundred and twenty-six people signed in at the meeting and twenty-five comments were submitted. An additional forty-seven comments were received before the comment period closed on November 22, 2023.

The broad stakeholder coalitions formed through Maine Won't Wait and the Roadmap remain strong and are primed to engage in the development of an offshore wind port at Searsport. Municipalities and Community Based Organizations (CBOs) representing labor, LIDAC, and other community stakeholders, such as Mainers for Offshore Wind, Maine Climate Action Network, Maine Conservation Voters, Ironworkers Local 7, the Maine Labor Climate Council, the Maine Building and Construction Trades Council, Maine Youth for Climate Justice, and the Wabanaki Alliance have actively participated in the state's climate and/or offshore wind planning efforts. These CBOs continue to collaborate on implementation initiatives, such as the passage of Public Law 2023, Ch 481, "An Act Regarding the Procurement of Energy from Offshore Wind Resources" and exceeding beneficial electrification goals like installing 100,000 heat pumps ahead of schedule. The strong foundation with CBOs is a key asset for the success of this project.

Salem. In Massachusetts' first Environmental Justice Strategy roadmap, the Commonwealth outlines several key strategies to advance environmental justice and equity, including governmental agencies working in close coordination with each other and in collaboration with the Executive Office of Energy and Environmental Affairs (EEA)'s Office of Environmental Justice and Equity (EJ Office).[48] MassCEC and the Massachusetts Department of Energy Resources (DOER) work in close collaboration, coordinating programmatic offerings and integrating equity into program design. Together, both agencies have significant experience collaborating with the EJ Office and associated community working groups. The EJ Office has and will continue to ensure consistent and effective stakeholder outreach and community

[48] Executive Office of Energy & Environmental Affairs, Environmental Justice Strategy, February 2024; available at https://www.mass.gov/doc/february-2024-environmental-justice-strategy-english/download

engagement including with the work proposed as part of this CPRG grant. One of the Commonwealth's key strategies for environmental justice is community outreach, including ensuring language access and interactive and accessible meetings.

Phase 1 improvements to the Salem Offshore Wind Port are just commencing and incorporate the development of strong community relationships through comprehensive engagement strategies. Over the course of the project planning, design, and permitting phase, extensive local community and stakeholder engagement was done. More than 30 meetings were held with a range of local groups and stakeholders including: Salem City Council, Derby Street Neighborhood, Willows Neighborhood, Point Neighborhood, Town of Marblehead, Salem Alliance for the Environment, Salem State University

As part of Phase 1 of the Salem Offshore Wind Port project, Crowley Wind Services entered a CBA with the City of Salem in January 2024. As part of the CBA development process, the Mayor of Salem convened a stakeholder group, which was comprised of over a dozen community leaders and chaired by the Mayor. The group met on numerous occasions over several months with the purpose of helping to formulate and assist in the drafting of terms, conditions, and provisions of the CBA on behalf of the community. In the CBA, Salem and Crowley agreed and acknowledged certain concerns with respect to the impact of the construction and operation of the Salem Offshore Wind Port on the City of Salem. the commitments contained within the CBA address such concerns, including financial commitments to offset the financial impacts of providing city services including language access, educational programing, port electrifications, resilience, workforce development, and others.

i. LIDAC and Stakeholder Engagement and Input Going Forward

Going forward, coalition members intend to continue meaningful engagement with LIDACs throughout and following implementation. Maine and Massachusetts will prioritize engagement of LIDACs and other affected stakeholders and meet the standards of Justice 40. Each state will implement specific engagement strategies, and both will stand up Advisory Committees to allow for regular engagement with local stakeholders throughout the project timeline.

Searsport. The Searsport development will involve an Advisory Committee (AC) comprised of municipalities, CBOs and the state. The AC will be formed, with capacity building support for CBO members as needed, as a channel for ongoing community guidance to the project. The AC will help refine the list of LIDACs to identify communities most in need of benefits from the Searsport project, ensure community members are engaged in identifying and tracking community benefits, ensure community and workforce investments are realized; advance diversity, equity, inclusion (DEI), and accessibility; and meet Justice40 requirements. The AC will be launched early in the project planning period and continue throughout.

After refining the list of LIDACs, the AC will work with existing networks of key community leaders to help engage additional community members in the refinement of the community benefit plan. Specific stakeholder feedback will be incorporated in the community benefit plan through multiple mechanisms including, but not limited to, community open houses, dockside conversations, presentations at town meetings and community events, webinars, social media, and surveys. Once the community benefit plan is finalized, the AC will continue to update communities on project progress, as well as coordinate and track actions to ensure the identified benefits are accruing to the communities.

Salem. MassCEC will work closely with the City of Salem and its Port Authority and Planning Department, building on the existing relationships and agreements created for the CBA associated with Phase 1 to understand local community and stakeholder concerns. MassCEC will work with Crowley to connect the proposed port electrification scope and tasks to the existing electrification commitment included in the original CBA. MassCEC commits to working with the City of Salem to meet community access needs

including financially committing to language access, translation, and educational programing. Direct funding support for the City of Salem has been included as part of the grant budget to support ongoing community and stakeholder engagement. MassCEC will work with project partners to convene public information sessions, workshops, and small group discussions to ensure that there is a high level of consultation and many different and ongoing forums for engagement. The project will meet the standards and expectations of the Commonwealth's EJ Strategy.

MassCEC and DOER in partnership with the City of Salem and guided by the Commonwealth's EJ Office will also form an Advisory Group comprised of representatives from local neighborhoods, businesses, and Salem Harbor users. Membership shall be self-appointed. This group will meet regularly throughout the project design process to advise MassCEC on topics of import. The group will continue to meet during the permitting and construction process to provide feedback from the local community and opportunity for information to and from the project team relating to potential project impacts, project design, time of work windows, etc. The Advisory Group will be a key and valuable communication mechanism to provide stakeholder feedback throughout the project scope.

6. JOB QUALITY

The growth of the OSW industry offers the potential for many different occupational roles, with job opportunities across project development, manufacturing and supply chain, ports and staging, maritime construction, and operations and maintenance.[49] All of these workforce opportunities offer long-term, high-quality employment opportunities. Occupations that require basic and skilled trades in construction and manufacturing represent the largest employment opportunity in OSW. If capacity of OSW is fully realized, projections estimate the creations of 83,000 OSW industry jobs nationwide.[50]

In 2020, Maine Governor Mills announced a goal of 30,000 clean energy jobs in the state by 2030, and the state is already more than halfway toward achieving the goal.[51] Analyses for the Maine Offshore Wind Roadmap identified 117 key occupations essential for FOSW development, requiring a range of skills and education levels from high school diplomas with apprenticeships to PhDs. The Searsport development provides an unprecedented opportunity to expand on Maine's existing talent and generate 1,300 family-supporting jobs during port construction and 350 jobs during ongoing port operations, which will initially serve the state-led FOSW Research Array planned in the Gulf of Maine. The port will be developed ready to support other commercial FOSW projects in the Gulf of Maine and beyond. As Maine DOT advances the planning and construction of Searsport, it will do so in accordance with the workforce components of P.L. 2023, Chapter 481.

CBOs, companies, and labor organizations in Maine are already preparing for Searsport and the Research Array opportunity as a precursor to full commercial scale OSW development in the Gulf of Maine. The Maine Community College System has partnered with Ironworkers Local 7 to develop OSW training at no cost to participants with support from the GEO's Clean Energy Partnership (CEP) Program. The Maine Community College System, Maine Maritime Academy, and the Maine Building and Construction Trades Council have Memoranda of Understanding to provide high quality workforce opportunities with the developers of the Research Array project that is planned to be constructed at

[49] https://cleanenergyeducation.org/career-pathways/offshore-wind/
[50] https://oceantic.org/building-a-national-network-of-offshore-wind-ports/
[51] https://dailyenergyinsider.com/news/28206-maine-launches-climate-action-plan/

Searsport.[52] Further, the University of Maine has developed a series of multi-disciplinary micro-credential courses on OSW, including undergraduate and graduate-level courses on OSW, and established an undergraduate concentration program in OSW with support from the CEP to prepare Maine's future OSW workforce.

The completion of Phase 1 marks an important milestone to the construction of a 100-acre commercial-scale wind port. While there will be significant benefits to the workforce in the Searsport region, once a commercial scale wind port is constructed, the Searsport project will generate long-lasting and quality jobs and workforce opportunities for LIDAC in the area and will prepare workers for continued careers in OSW. Maine's OSW energy procurement legislation for commercial projects was developed with input from several labor organizations, employee-owned companies, and other CBOs and includes multiple requirements to ensure long-term, family-supporting careers throughout the state, including but not limited to: a DEI plan; a stakeholder engagement and capacity building plan; community and workforce enhancement standards; and commercially reasonable efforts to establish Project Labor Agreements (PLAs) and labor peace agreements. The proposed project will help inform Maine's future Power Purchase Agreements (PPAs) to ensure good paying jobs for Maine people, broad distribution of economic opportunities and benefits, and meaningful stakeholder engagement.

In Massachusetts, the OSW industry is projected to grow 724 percent by 2030, with the largest increase in construction and manufacturing roles that will assemble components and install turbines and supporting infrastructure, building on the existing leadership of the OSW industry in Massachusetts. Scaling capacity through unions and expanding and enhancing training programs are key elements of the Commonwealth's clean energy workforce strategy.[53] As climate-critical unions scale up and increase their recruitment to meet the decarbonization workforce needs, there is an additional opportunity to prioritize inclusivity and build a more expansive profile of trades workers.

Both Maine and Massachusetts are committed to build upon their existing track records of DEI and broad, high quality economic opportunities. Maine, along with project partners, is committed to incorporating DEI and accessibility in all aspects of the project and implementing metrics to ensure accountability. Project partners will commit to the following actions: (1) Partnering with pre-apprenticeship or apprenticeship readiness training programs, such as those offered through labor organizations, other CBOs, and private entities; (2) Partnering with training and placement programs, such as the GEO-led CEP program or the Peer Workforce Navigator Partners, with a focus on underrepresented workers; (3) Implementing a plan to reduce barriers (e.g., costs, language, awareness of opportunities) and improve access to jobs for local and underrepresented workers including disadvantaged community residents, those with disabilities, returning citizens, youth, and veterans. Maine has already established a successful CEP-funded program that connects job seekers with clean energy employers, with a focus on recruiting women and individuals identifying as Black, Indigenous, or People of Color (BIPOC), and another that provides training in multiple languages. Similarly, Massachusetts is committed to creating a DEI clean energy industry where everyone is welcomed,

[52] https://www.prnewswire.com/news-releases/maine-community-college-system-maine-maritime-academy-and-diamond-offshore-wind-announce-training-partnership-301880206.html; https://www.boothbayregister.com/article/neav-and-maine-building-and-construction-trades-council-sign-mou/145438

[53] https://www.masscec.com/sites/default/files/documents/Powering%20the%20Future_A%20Massachusetts%20Clean%20Energy%20Workforce%20Needs%20Assessment_Final.pdf

supported, respected, and valued. MassCEC's workforce development programs directly support initiatives and projects that advance DEI and environmental justice.

For the port of Salem, the project partners are committed to ensuring that the construction work required for the scopes and tasks of the proposed measures will be undertaken by contractors that employ skilled, trained, local workers. PLAs are currently being negotiated between the Massachusetts Building Trades Council (MA Trades Council) and Crowley for the Phase 1 construction scope for the Salem Offshore Wind Terminal, and between the MA Trades Council and Avangrid for the pre-assembly and staging scope for the first offshore wind project expected to be deployed from the Terminal. For the proposed Phase 2 development of Salem Offshore Wind Port under sub-measure 2, the port electrification scope will fall under the Phase 1 PLA and MassCEC is currently in discussions with the MA Trades Council around advancing a PLA for the comprehensive dredge management scope. Across all contracts, including those beyond the building trades, the partners are also committed to the Good Jobs Principles developed and published by U.S. Department of Commerce and Department of Labor.

7. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

Both Maine and Massachusetts have deep capabilities and long histories of past performance that justify EPA's trust in them as recipients of this grant. However, a full description in the pages allowed is not possible. More detailed information about the lead teams can be found in the biography attachment to this proposal.

Maine's GEO, as the lead recipient under this proposal, is the designated state energy office tasked with a wide range of activities relating to state energy policies, planning, and development. As the lead energy office for the state, GEO is responsible for several activities such as providing policy leadership and technical assistance, developing energy programs, monitoring energy markets, and reporting on heating fuel and energy prices. GEO works in partnership with various state agencies, federal and local officials, industry, nonprofit interests, and academia on energy issues. The GEO oversees the Maine Offshore Wind Initiative, which was created by Governor Mills in 2019 to develop a comprehensive approach to advance responsible offshore wind in Maine. Further details on the expertise and background of GEO staff are available at https://www.maine.gov/energy/home and attached.

Maine GEO has been the lead agency on multiple federal grants for which it has always fulfilled its required reporting requirements and shown success in meeting the objectives of the grants. Recent and relevant grants in include (1) funding under the Bipartisan Infrastructure Law's Grid Deployment Office for increasing grid resilience (DE-GD0000020, Joshua Metz contact); (2) funding for the Maine Offshore Wind Roadmap from the Economic Development Administration, (3) funding for State Heating Oil and Propane Program (SHOPP) from the U.S. Energy Information Administration (DE-EI0003031); and (4) annual grants from the DOE's State Energy Program (DE-EE0010034). For all grants, GEO has submitted all reports in a timely manner and had valuable collaboration with the grantor agencies.

Maine DOT's Federal grant and formula fund experience includes the management of numerous infrastructure projects and the associated Federal requirements and regulations, such as compliance with Title VI/Civil Rights, Buy America, Americans with Disabilities Act, Uniform Relocation Assistance and Real Property Acquisition Act, and Davis Bacon Act. Further details on the expertise and background of Maine DOT staff regarding port development are available in the attached biographies.

The MassCEC is a state economic development agency focused on advancing climate solution innovation to meet emissions reduction goals while growing the clean energy economy. MassCEC is the lead applicant for the Commonwealth on this CPRG proposal and brings significant experience and capabilities in accelerating clean energy innovation and climate solutions that are critical to meeting our

climate goals. Over the past decade, its programs and investments have enabled a 80 percent growth of the clean energy workforce, supported more than 5,800 college and vocational internships with over 620 employers, attracting 65 percent women and minority interns, and seen an increase in the clean energy industry Gross State Product (GSP) by $5.7 billion since 2012, a 63 percent increase that outpaced growth in overall GSP, which grew by 55 percent over the same time.

MassCEC administers a range of programs in four areas: OSW, high-performance buildings, net-zero grid, and clean transportation. MassCEC also manages several workforce programs on increasing access to clean energy careers, education and training, including grants for training and development, equity workforce planning, minority- and women-owned business support, and equipment/infrastructure. MassCEC prioritizes support for early-stage and small/medium companies via grants, investments, access to incubators and accelerators, and other resources.

MassCEC's staff is composed of technical, policy, and other subject-matter experts across the spectrum of clean energy and climate technology. MassCEC has experience in managing all aspects of large capital-intensive projects as well as a long and deep track record in contracting and managing projects through service agreements, grants, and other forms of agreements. MassCEC designed and constructed, and now owns and operates the New Bedford Marin Commerce Terminal—the Nation's first purpose built offshore wind port facility—and the Wind Technology Testing Center—the largest indoor wind blade testing facility in North America. MassCEC has been the lead recipient of multiple federal grants, including a DOE grant on wind blade fatigue (DE-EE0008963, David Chen contact), marine mammal impact assessments with the BOEM (M17AC00002 and M23AC00002, Brian Hooker and Kyle Baker contacts) and pilot studies for regional fisheries monitoring with BOEM (M20AC00006, Brian Hooker contact). For all grants, MassCEC has submitted all interim reports in a timely manner, and where applicable, has worked collaboratively with the grantor agencies to ensure a mutually acceptable and valuable final report.

DOER develops and implements policies and programs aimed at ensuring the adequacy, security, diversity, and cost-effectiveness of the Commonwealth's energy supply to create a clean, affordable, equitable and resilient energy future for all residents, businesses, communities, and institutions. As part of this mission, DOER manages the Commonwealth's OSW energy generation procurements and engages in regional collaboration as part of the East Coast MOU on Offshore Wind Supply Chain Collaboration.

The Office of Coastal Zone Management (CZM) is the state's lead policy, planning, and technical assistance agency on coastal and ocean issues and has extensive expertise in port and harbor planning, marine spatial planning, and coastal resilience. CZM hosts the state's designated dredge coordinator.