Maine International Trade Center

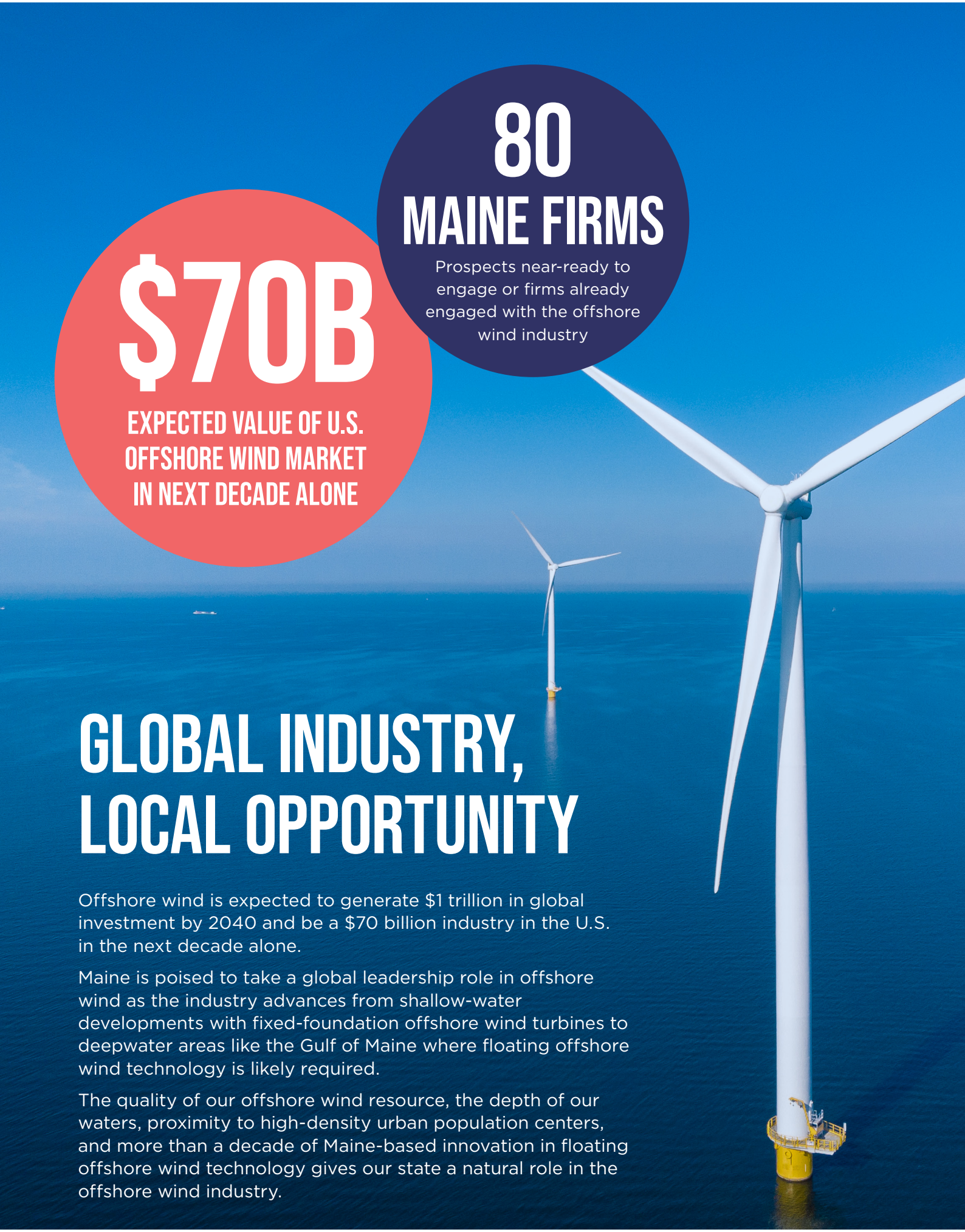
GETTING READY FOR OFFSHORE WIND

An Operational Strategy to Maximize Industry Benefits to Maine Firms and People

February 2022

U.S. Small Business Administration

This export development report was prepared with funding from the U.S. Small Business Administration's State Trade Expansion Program (STEP).



GLOBAL INDUSTRY, LOCAL OPPORTUNITY

Offshore wind is expected to generate $1 trillion in global investment by 2040 and be a $70 billion industry in the U.S. in the next decade alone.

Maine is poised to take a global leadership role in offshore wind as the industry advances from shallow-water developments with fixed-foundation offshore wind turbines to deepwater areas like the Gulf of Maine where floating offshore wind technology is likely required.

The quality of our offshore wind resource, the depth of our waters, proximity to high-density urban population centers, and more than a decade of Maine-based innovation in floating offshore wind technology gives our state a natural role in the offshore wind industry.

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About the Authors

Wade Merritt

Wade is the President of Maine International Trade Center and State Director of International Trade within the Maine Department of Economic & Community Development.

In this role, he directs trade and investment policy for the state, including the delivery of international trade services to Maine's business and academic community.

Josh Rosen

Josh consults on energy and climate policy matters in Maine, with specific knowledge on offshore wind in the Gulf of Maine–including its complex stakeholder landscape–and national trends in offshore wind policy and supply chain development.

Josh is concluding a dual JD/MBA with a central focus on energy and climate law in Spring 2022.

A MESSAGE FROM THE PRESIDENT

Wade Merritt

President and State Director of International Trade

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Sign up for Industry Updates

Visit us at MITC.com to subscribe to receive occasional renewable energy and offshore wind-specific alerts and updates from MITC.

The goal of this strategy is to maximize benefits from the emerging offshore wind industry to Maine firms and people.

Our initial analysis found that nearly 80 Maine firms are either in a strong position to engage or are already engaging with the international offshore wind industry. How do we ensure Maine firms don't miss out on real, emerging opportunities?

This strategy is our answer.

This strategy builds on what we do best–offering customized consulting, research, and an extensive network of connections across Maine and around the world–to help firms expand into global markets for their products and services.

In addition to maximizing industry benefits to Maine, this strategy seeks to deepen relationships with our members while aligning our operations with current state efforts to address a changing climate, meet renewable energy goals, and grow our economy through thoughtful offshore wind development.

This strategy aims to align closely with the Maine Offshore Wind Roadmap effort being led by the Governor's Energy Office (GEO).

MITC is an active participant in the roadmap process. I serve as a member of the Maine Offshore Wind Roadmap's Supply Chain, Workforce, Ports and Marine Transportation Working Group.

This strategy will be revised as the Roadmap process advances.

In closing, I'd like to thank GEO staff, who closely collaborated with us throughout the creation of this strategy.

I'd also like to thank the Business Network for Offshore Wind, one of our primary sources for high-quality and in-depth data on the offshore wind industry.

We're excited about the current and emerging opportunities presented by this new industry.

Let us know if you'd like to chat about how to get started.

With thanks,

AN IMPORTANT NOTE: HERITAGE FISHING & OFFSHORE WIND INDUSTRIES

MITC has a long history of working with the fishing industries of Maine to gain access to global markets for fresh, Maine seafood.

Our partnership remains strong.

Since 2014, seafood has been Maine's top export with an average annual value of $486 million.

MITC has strong relationships and works closely with local industry groups, including Maine Lobster Dealers' Association and Maine Lobster Marketing Collaborative, as well as the Maine Department of Marine Resources.

While researching and crafting this strategy, we received questions about MITC's position on the offshore wind industry and how our work with this emerging sector might impact MITC's longstanding relationship with the fishing communities. MITC firmly believes that the fishing industry and the offshore wind industry can co-exist in the Gulf of Maine, and the real opportunities offered by the global offshore wind industry cannot be ignored.

Maine's coastal communities depend on a thriving fishing industry critical to our economy and our cultural heritage. Existing users must continue to have access to the Gulf of Maine even as we benefit from new opportunities created by emerging industries like offshore wind.

International trade plays an important role in growing Maine's economy, and MITC's organizational mandate is to help Maine businesses expand into global markets for their products and services.

To ignore the emerging offshore wind industry–a global industry projected to generate nearly $1 trillion in investments by 2040–would be directly counter to our mandate to connect Maine businesses with new opportunities across the globe.

EXECUTIVE SUMMARY

As Maine's leading source for international business assistance, we are well positioned to support Maine businesses and research institutions who may benefit from participating in the rapidly growing, global offshore wind industry.

This document details an operational strategy–grounded in industry research and built around MITC's key capabilities–that MITC will use to maximize the benefits of the offshore wind industry to Maine.

Offshore wind is a global industry poised for significant growth. The International Renewable Energy Association (IRENA) projects that 1,000 Gigawatts (GW) of global offshore wind installations will come online by 2050.[1] IRENA projects that by 2050, 60% of installations will be in Asia, 22% in Europe, and 16% in North America.[2] Offshore wind is expected to generate $1 trillion in global investment by 2040 and be a $70 billion industry in the U.S. in the next decade alone.[3] As of 2020 year end, the global pipeline for offshore wind energy development was 307.8 GW.[4]

The projected growth of the offshore wind industry internationally and in the U.S.–being led by European companies in response to state and federal policies to incentivize development–provides significant export opportunities for Maine's manufacturers, service providers, researchers, and engineering firms.

The offshore wind industry also offers Maine potential for long-term job creation and economic development, supply chain and port infrastructure investments, and renewable power to help meet the state's ambitious clean energy and climate change goals.

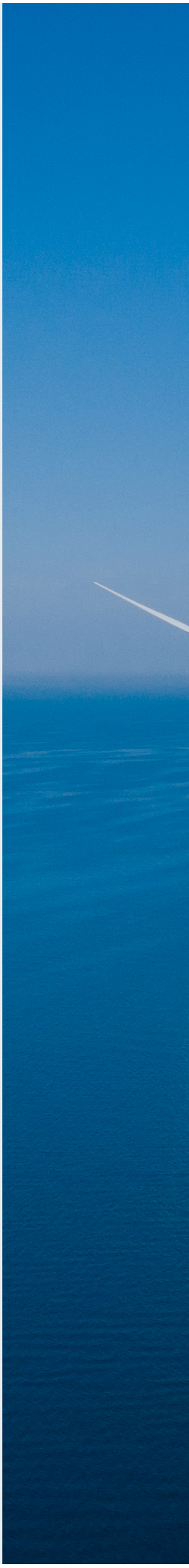
MITC has identified three strategies for how it will respond to opportunities presented by the offshore wind industry.

The subsequent sections of this document provide a further introduction to the U.S. offshore wind industry; an overview of recent state-led efforts to thoughtfully develop an offshore wind industry in Maine; a technical overview of offshore wind developments and local supply chain needs; additional details on each of the three strategies; and an 18-month timeline for strategy implementation.

WHY MITC?

Offshore wind is a truly international industry–and international is our business.

1. Industry estimates suggest that by 2050, 60% of offshore wind installations will be in Asia, 22% in Europe, and 16% in North America.
2. Domestic offshore wind development is being led primarily by European developers.



Workforce & Business Readiness

Maine businesses and research institutions must start preparing today to engage with the offshore wind industry if they wish to access current and emerging export opportunities. These efforts can also help Maine identify and build out its offshore wind supply chain in anticipation of future developments in the Gulf of Maine.

STRATEGY 1

Export Development & Industry Awareness

While the US-based offshore wind industry is poised for significant growth in the coming decades, offshore wind is a truly international industry. This strategy seeks to identify relationship-building and export opportunities for market-ready Maine businesses and research institutions–both domestically and internationally–while expanding the prominence of MITC as a partner of the offshore wind industry.

STRATEGY 2

Investment Attraction

This strategy seeks to help lay the groundwork for international offshore wind investments in Maine, in part by working with state leaders to promote Maine's offshore wind assets.

STRATEGY 3

OFFSHORE WIND OVERVIEW

Offshore wind development is already generating significant long-term job creation, economic development, supply chain and port infrastructure investments, and large-scale clean, renewable power in the United States.

The U.S. National Renewable Energy Laboratory (NREL) indicates that 35.3 Gigawatts (1 Gigawatt = 1,000 Megawatts) of U.S. offshore wind projects are currently in process as of 2021, up from 28.5 GW a year prior.[5] The projects are largely being developed by European firms in response to state-level offshore wind procurement policies, as explored below.

These major manufacturing and construction-based projects are mostly situated along the eastern coast of the U.S., primarily in Massachusetts, New Jersey, New York, Virginia, and North Carolina (Figure 1). State port and infrastructure investments to enable these offshore wind developments already exceed $2 Billion.[6]

State-level offshore wind procurement policies are largely driving the U.S. offshore wind energy market.[7] In aggregate, as of 2021, states call for deploying at least 39.2 GW of offshore wind by 2040.[8]

Many of Maine's immediate neighbors' aggressive offshore wind goals are included in that total deployment projection: 800 MW by 2028 in New Hampshire; 5,600 MW by 2035 in Massachusetts; 1,000 MW by 2030 in Rhode Island; and 2,000 MW by 2030 in Connecticut.[9]

Image of Block Island Offshore Wind Farm, a 30 megawatt development in Rhode Island, which became operational in December 2016. The way turbines are arranged and their visibility from shore vary by project and is based on existing marine uses, site conditions, transmission considerations, and other factors.

Offshore Wind Quick Facts as of 2021

1. There are currently 35.3 GW of offshore wind in the U.S. development pipeline, up from 28.5 GW a year ago.
2. State port and infrastructure investments for offshore wind already exceed $2 billion.
3. States contracted to buy nearly 40 GW of offshore wind energy by 2040.

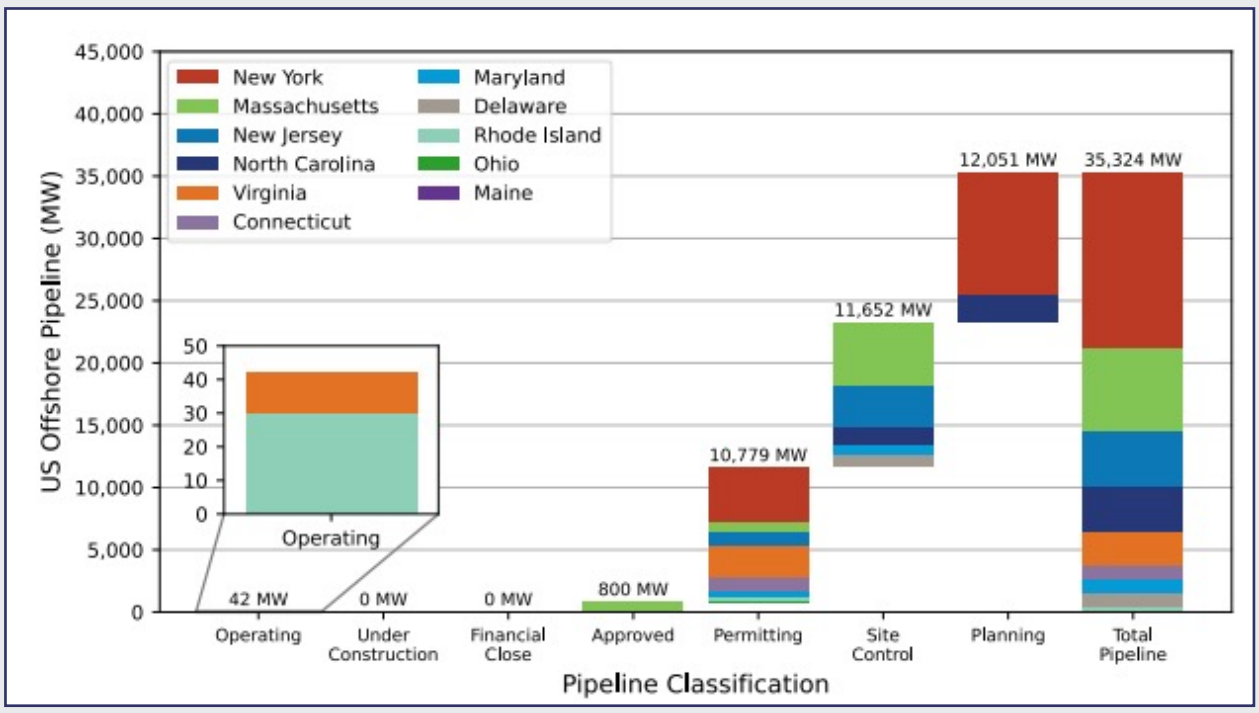


Figure 1 - 2021 U.S. offshore wind project pipeline by state. Operating projects include the Block Island Wind Farm and the Coastal Virginia Offshore Wind pilot project. Graphic courtesy of U.S. Department of Energy.

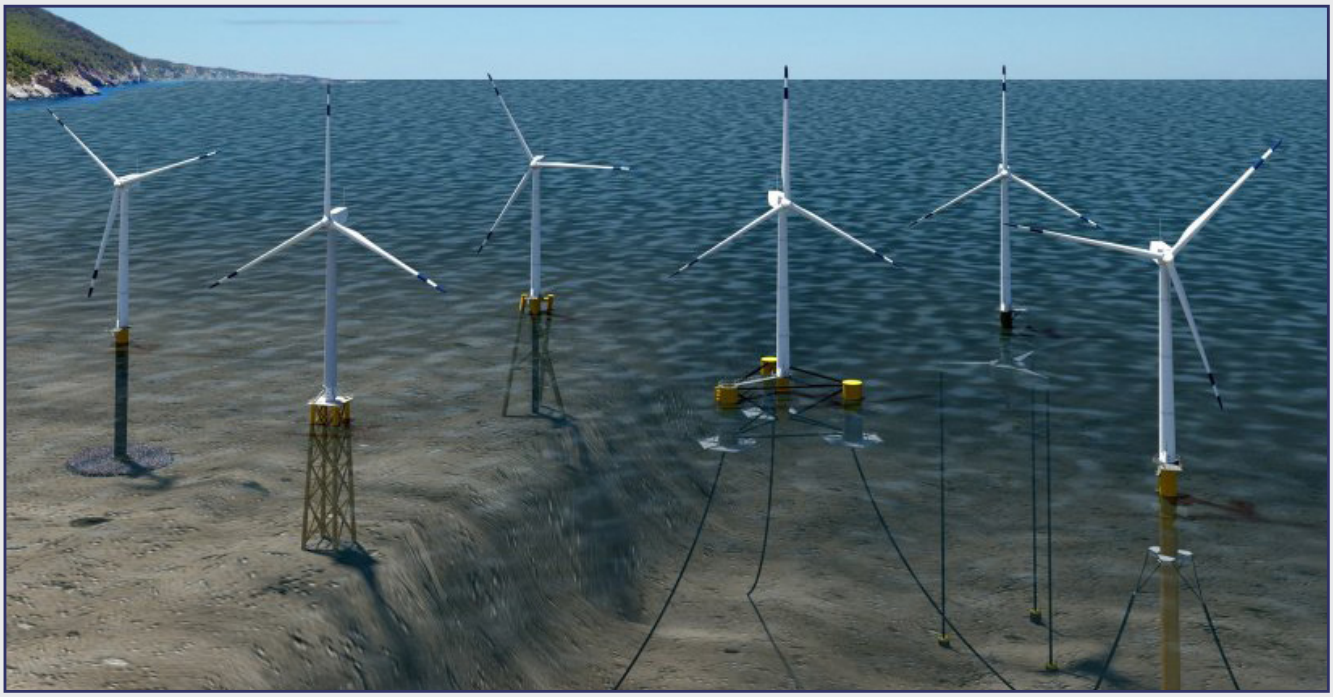


Figure 2 - The U.S. offshore wind resource is significant enough to provide more than double the amount of electricity presently generated in the U.S., but approximately 60% of that resource is in deep water where fixed-foundation offshore wind turbines–used in all current commercial-scale U.S. offshore wind farms–are less practical. This rendering illustrates common foundation designs ranging from fixed-foundations to floating structures. Graphic courtesy of NREL.

At the federal level, President Biden recently announced an aggressive national target of 30 GW of installed offshore wind by 2030. This "ambitious offshore wind target will support around 77,000 direct and indirect jobs and trigger more than USD 12 billion per year in capital investment in projects on both U.S. coasts. The 2030 target would also unlock a pathway to deploy 110 GW or more of offshore wind capacity by 2050, which would support a total of 135,000 jobs by that time."[10] In May 2020, the Biden administration approved the nation's first major commercial offshore wind farm, Vineyard Wind, an 84-turbine offshore wind farm which will provide 800 MW of electricity to Massachusetts.[11]

In October 2021, the Biden administration announced that they intend to hold lease auctions by 2025 for offshore wind development sites "off the coasts of Maine, New York, and the mid-Atlantic, as well as the Carolinas, California, Oregon and the Gulf of Mexico."[12]

Considering global development projections, significant offshore wind-based investments already being made in the U.S., aggressive state offshore wind development goals, and a federal directive supporting offshore wind, offshore wind energy represents a new significant growth area in the U.S. economy. Further, this industry relies on a mix of regional and local supply chains in proximity to developments, presenting opportunities for small and medium enterprises to engage with the emerging market.[13]

While this industry is poised for major growth, there are significant barriers to entry for new firms who desire to enter the supply chain. Barriers include state-based local content requirements, industry-specific certifications, stringent health and safety requirements, high throughput requirements, lengthy contracting timelines, heavy emphasis on long-term relationships between contractors and developers, and varying levels of profitability compared to conventional industries such as defense and aerospace.[14]

As discussed later in this document, this strategy and its resulting execution seeks, in part, to identify and mitigate these barriers to entry for Maine businesses.

Offshore Wind in Maine

There is significant interest in commercial development of offshore wind in the Gulf of Maine. Maine is poised to take a global leadership role in offshore wind as the industry advances from shallow-water developments with fixed-foundation offshore wind turbines to deepwater areas like the Gulf of Maine where floating wind technology is likely required (Figure 2). The quality of our offshore wind resource (Figure 3), depth of our waters, proximity to high-density urban population centers, and more than a decade of Maine-based innovation in floating offshore wind technology gives our state a natural role in the offshore wind industry.

Identifying pathways for Maine businesses and research institutions to provide products or services to offshore wind developments already underway to the south of our state–or internationally–will provide real opportunities for immediate economic growth while also positioning our local supply chain for the industry's future transition to deepwater offshore wind.

The state's 10-year Economic Development Strategy calls offshore wind a prime opportunity for growing Maine's economy and encourages a balanced agenda that maximizes economic benefits for Maine people while creating a culture of innovation that gives Maine a leadership position in this industry.[15] The State's Economic Recovery Plan, released in November 2020, calls for investing boldly, strategically, and consistently in next-generation technology and innovation, including in offshore wind energy, to grow our value-add economy.[16]

The Maine Offshore Wind Initiative, launched in June 2019 by Governor Janet Mills, aims to explore thoughtful development of floating offshore wind energy in the Gulf of Maine, while ensuring balance with our state's maritime industries and environment.[17]

The Initiative is overseen by the Governor's Energy Office (GEO), in close coordination with the Governor's Office of Policy Innovation and the Future and the Department of Economic and Community Development. Other agencies that play a key role in the development and regulatory process for offshore wind include MITC, the Department of Transportation, Department of Environmental Protection, the Department of Marine Resources, and Maine Technology Institute.

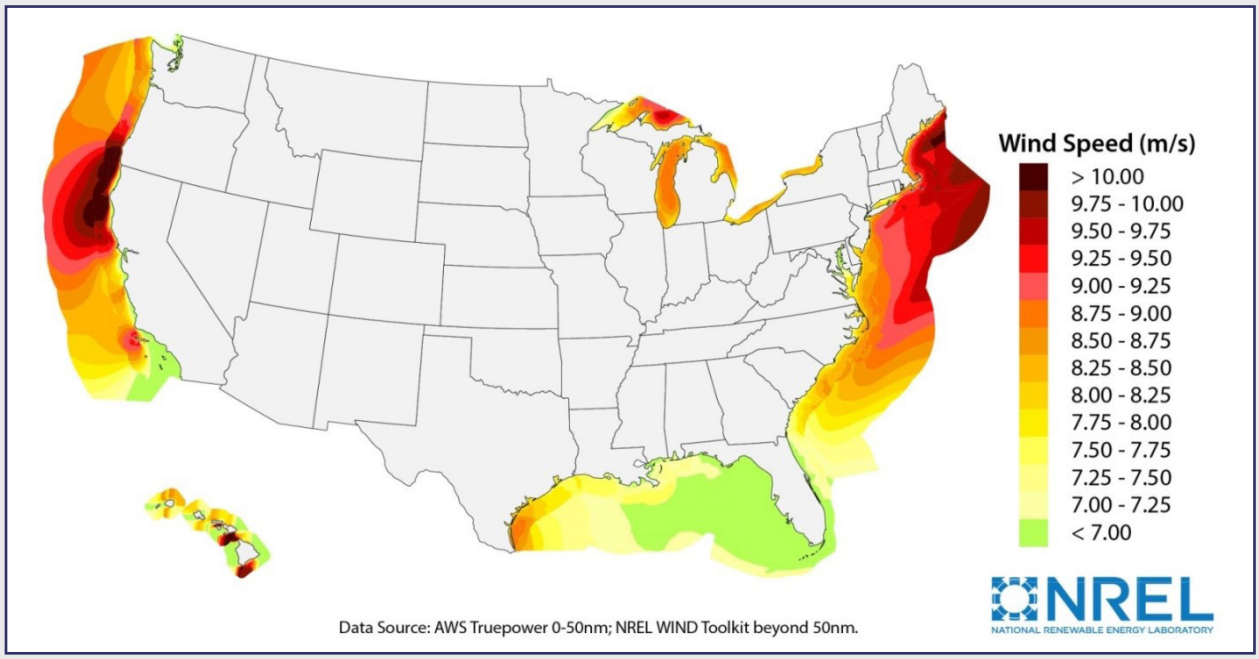


Figure 3 - This map shows average offshore wind speeds off the U.S. coast. Maine's offshore wind resource, rated at 156 GW, is among the highest quality in the U.S. Graphic courtesy of NREL.

Offshore Wind in Maine (Cont.)

Major components of the Maine Offshore Wind Initiative, currently underway, include:

Gulf of Maine Floating Offshore Wind Research Array

In October 2021, the Governor's Energy Office submitted an application to the Bureau of Ocean Energy Management to lease a limited, 15.2-square-mile site in the Gulf of Maine for the nation's first floating offshore wind research site in federal waters.

The State hopes to deploy a small-scale research array of 12 or fewer wind turbines on innovative floating hulls designed at the University of Maine. This project will advance UMaine's patented technology and will foster leading research into how floating offshore wind interacts with Maine's marine environment, fishing industry, shipping and navigation routes, and more.

Research will allow the State, the fishing industry and many others to learn about potential impacts of floating offshore wind together, in order to ensure Maine develops this industry in a manner that capitalizes on our innovative technology and abundant resources, while protecting our interests, industries, environment and values.

MaineDOT Port Infrastructure Feasibility Study of Searsport by Moffatt & Nichol

In March 2020, Governor Mills identified the Port of Searsport as a leading site in Maine to support the transportation, assembly and fabrication of offshore wind turbines and called for a study to further analyze this opportunity.

Moffatt & Nichol evaluated the port's assets and future needs to support offshore wind and published its findings in a November 2021 report for the Maine Department of Transportation.[18] This evaluation is a major milestone for the Maine Offshore Wind Initiative.

Maine Offshore Wind Roadmap

In October 2020, the U.S. Economic Development Administration (EDA) awarded a $2.166 million grant to the Governor's Energy Office (GEO) to advance the offshore wind industry in Maine through the development of a comprehensive industry roadmap.[19]

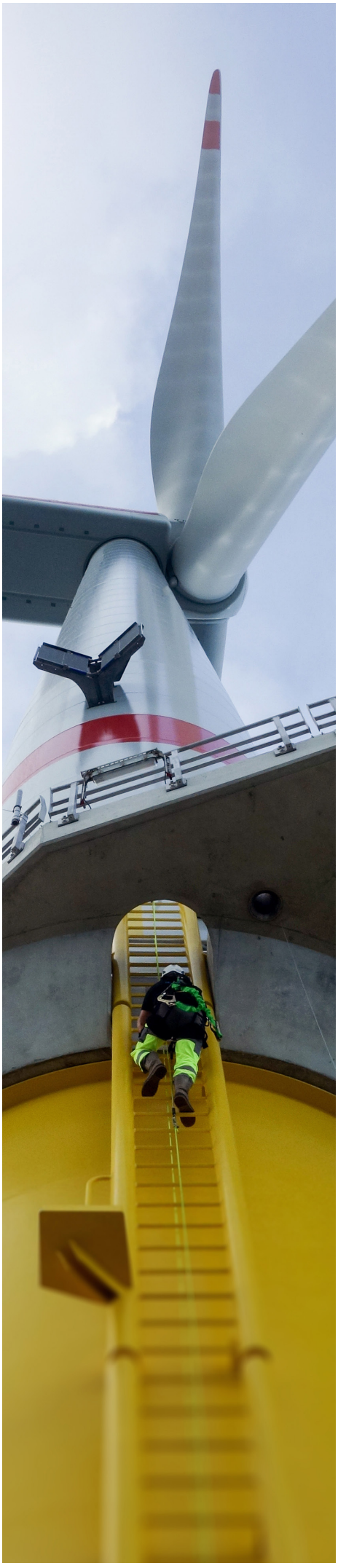
The Maine Offshore Wind Roadmap, now underway, will create an economic development plan for the offshore wind industry in Maine, by building on the state's record of planning, research and development, and innovation that stretches back over a decade. The Roadmap is being developed by an expert advisory committee and working groups with broad public input, focusing on energy markets, ports and infrastructure, socioeconomic impacts, equity, manufacturing and supply chains, workforce development, and ocean and environmental compatibility.

Roadmap working groups began in summer 2021 will ultimately finalize recommendations by December 2022.

EXECUTIVE OFFICE OF THE GOVERNOR OF THE STATE OF MAINE
DIRIGO
MAINE
ENERGY OFFICE

Learn more about the Maine Offshore Wind Initiative at:
maineoffshorewind.org

The vessel shown below is called a jack-up barge, one of several dozen vessels relied upon by the offshore wind industry and in other marine infrastructure applications.



DEFINING THE OPPORTUNITY

Offshore wind is a heavily relationship-based industry. Knowing the terminology and general relationships between parties in an offshore wind development is a critical step towards engaging with the industry.

A wide variety of industrial sectors possess products and services transferable to the offshore wind industry, including: engineering, manufacturing, construction, finance, technology, energy, and utilities; and related subsectors include aerospace, defense, maritime, oil and gas, transportation, information technology, and logistics.[20]

This portion of the document provides a technical overview of supply chain roles, supply chain structure, and major phases of offshore wind project development.

The subsection on major phases of project development includes high-level information on certifications or licenses typically required and examples of local supply chain products or services needed for each development phase.

Supply Chain Roles

Offshore wind projects are executed through contracted partnerships between developers and Tiers 1-3 suppliers.

Developers are responsible for the development and management of the project, including activities such as site evaluation, project planning, permitting, design and engineering, financing, public outreach, and contracting.[21] Developers of US projects are predominantly European in origin, including Copenhagen Infrastructure Partners, Equinor, Ørsted, Iberdrola, BP, and others.

Tier 1 suppliers are those who contract directly with the developer to deliver major contract packages.[22] Examples of Tier 1s include: foundation suppliers, wind turbine generator suppliers, offshore substation suppliers, cable suppliers, onshore substation suppliers, and installation suppliers. Tier 1s often hire local supply chain businesses to meet local content and economic requirements for developers which vary for each project.[23]

Each Tier 1 has its own unique pre-qualification process for their suppliers. Much like developers, Tier 1 suppliers are usually global companies with extensive experience in offshore wind; most of these suppliers are also based in Europe.[24]

Tier 2 suppliers contract with Tier 1 suppliers as subcontractors or vendors.[25] Examples of Tier 2 suppliers include: secondary steel fabrication, tower manufacturing, electrical components, cable protection, and cranes. A small number of large Maine companies that engage with the offshore wind industry may be considered Tier 2 suppliers.

Tier 3 suppliers are those who contract with Tier 2 suppliers as a vendor or provides goods and services to Tier 1 and Tier 2.[26] Examples of Tier 3 suppliers include: maritime and port services, support vessels, training and engineering, tools and fuel, and support services.

General Structure of the Offshore Wind Supply Chain

The offshore wind supply chain is formed of large, medium, and small companies that deliver a product or service under one of four major phases of an offshore wind project: siting and development; manufacturing; construction and installation; and operations and maintenance.[27] Figure 4 demonstrates the overall structure of the offshore wind supply chain for a single offshore wind development. Each of these components represents opportunity for a variety of product and service suppliers. Each of the four major phases of an offshore wind project and related supply chain components are explored, below.

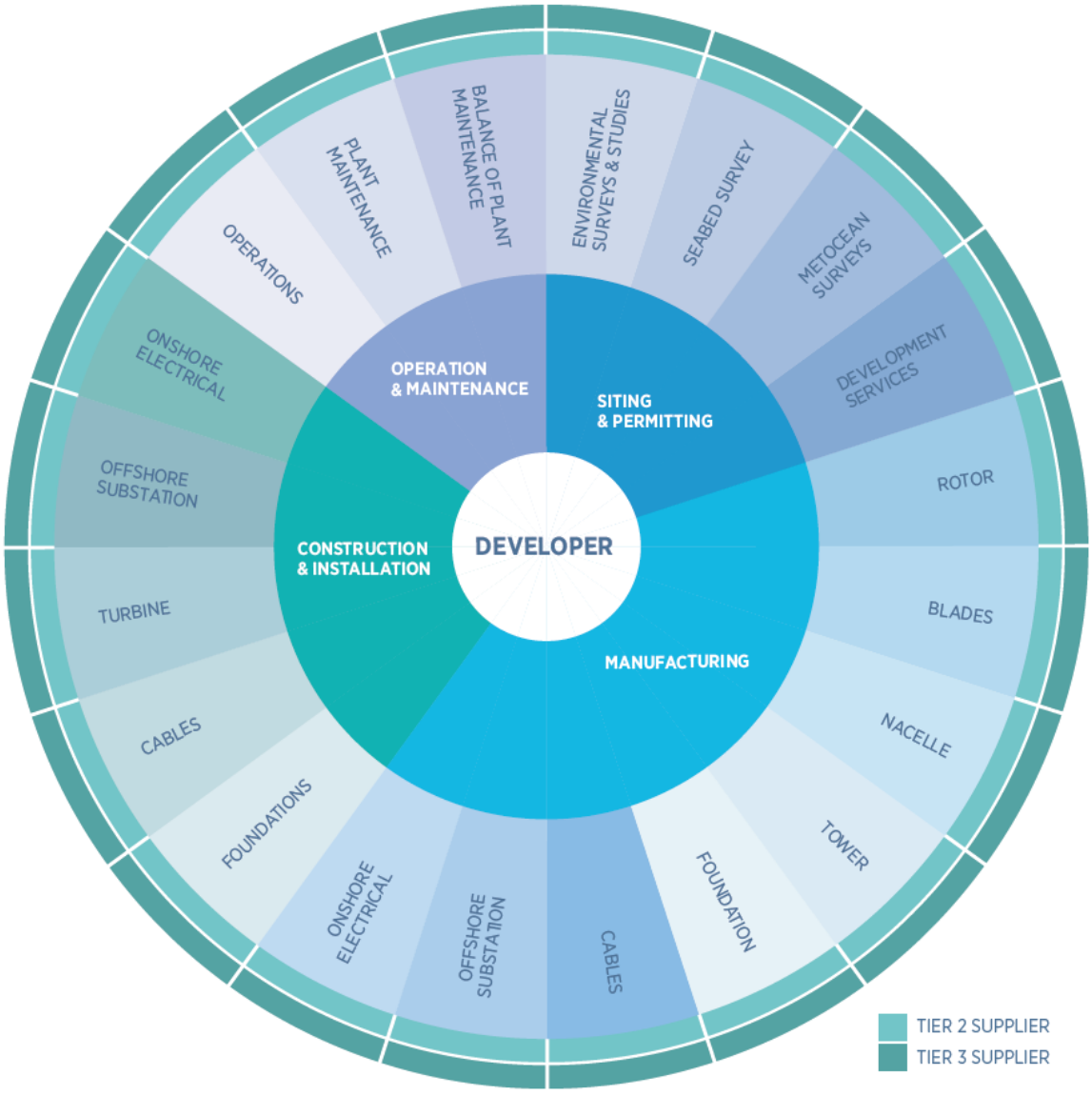


Figure 4 - A general structure of the offshore wind supply chain, separated by major phases of project development. Graphic courtesy of Business Network for Offshore Wind.

General Structure of the Offshore Wind Supply Chain (Cont.)

Siting & Permitting

The siting and permitting phase of an offshore wind project typically takes 5-7 years. Local knowledge and specialty services are the biggest area of opportunity for local supply chain companies in this phase of the project development.[28]

During this phase, the project developer undertakes extensive analysis to choose a potential site, competes to secure development rights, and undertakes further analysis to submit a bid for government financing and permitting approvals. The developer may award major contracts to Tier 1 suppliers. Examples of products and services needed in this phase include: stakeholder engagement; geophysical, geological, bathymetric, and marine archeological surveys; survey vessels and ROVs; and front-end engineering design.

Manufacturing

The manufacturing phase of an offshore wind project typically takes up to 3 years. The offshore wind industry relies heavily on standardized designs and serial fabrication methods as major cost reduction factors.[29] There are several subphases within the manufacturing phase of development, each with unique supply chain needs. These subphases include: manufacturing of wind turbine nacelle and hub structures; blades; offshore wind towers; foundation and transition structures; cables; offshore substations; crew transfer vessels; meteorological instrumentation; and lighting.

Manufacturers must have a variety of certifications depending on the type of product being manufactured, such as: AWS Certification; ISO 3834, 9001, 9008, 9015, or 14001; OSHA 18001; EN 1090; DIN 18800; and others.

Construction & Installation

The construction and installation phase of an offshore wind project typically takes up to 3 years, though that timeline is largely dependent on weather, availability of port facilities and vessels, and other factors. This phase includes "site preparation, installation of foundations, onshore and offshore substations, and final testing and commissioning."[30]

This phase also "requires multiple port facilities, a wide variety of vessels, extensive planning and coordination, and adherence to strict health and safety standards."[31]

Construction and installation suppliers must have a variety of certifications or licenses, such as: ISO 9001; Professional Engineer; Professional Surveyor; Project Management Professional; Global Wind Organization (GWO); Health, Safety, and Environmental; and similar.

There are several subphases within the construction and installation phase of development, each with unique supply chain needs. These subphases include the construction and installation related to port facilities, offshore substations, onshore substations, and offshore construction.

Operation & Maintenance

The operations and maintenance (O&M) phase of an offshore wind project lasts for nearly 30 years after installation and, unless life extension is an option, project decommissioning follows.[32] Operations refers to high-level management of an offshore wind development and maintenance refers to upkeep and repair of physical systems associated with the offshore development.

While operations are generally handled remotely, maintenance is typically managed near the project development. This minimizes costs for preventative maintenance and to reduce reaction time in cases of corrective maintenance (fixing or replacing failed or damaged components).[33]

Examples of products and services needed in this phase include: trade services including electricians, plumbers, and cleaners; hotels or rental properties; remote surveillance including drone-based technologies; marine and offshore evacuation systems; firefighting equipment; rescue equipment; marine coordination; crew transfer services; vessel chartering and operations; aviation services; equipment calibration; and environmental surveys.

These images, both from offshore wind deployments in Europe, are shared to demonstrate the size and scale of major offshore wind turbine and tower components.

STRATEGY 1

WORKFORCE & FIRM READINESS

Maine businesses and research institutions must start preparing today to engage with the offshore wind industry if they wish to access current and emerging export opportunities as they arise. These efforts can also help Maine to identify and build out its offshore wind supply chain in anticipation of future developments in the Gulf of Maine.

Tactic 1: Prepare Offshore Wind Industry Programming and Services

- Create targeted resources for Maine firms to understand key players, industry structure, and opportunities and barriers to participation in offshore wind. (Month 0-6)
- Create formal engagement pathways and tailor targeted services based on market readiness levels. (Month 0-6)
- Develop Capability Audits and identify industry training resources (ISO 9001, GWO) to upskill Maine firms. (Month 0-6)

Tactic 2: Identify Firms with Potential Offshore Wind Market-Readiness

- Participate in Maine Offshore Wind Roadmap process, incorporate learnings into this strategy. (Month 0-6)
- Promote Offshore Wind Industry Programming and Services to Maine economic development community. (Month 0-6)
- Identify Maine firms likely to have the strong market readiness or pivotability potential to participate in offshore wind supply chain. (Month 0-6)

Tactic 3: Provide Tailored Services to Pre-market Ready Firms

- Provide general education services, promote general understanding within Maine of the offshore wind industry. (Month 6-18)
- Continually re-assess pre-market ready firms for interest in advancing to Market Ready. (Month 0-18)

Tactic 4: Provide Tailored Services to Market Ready and in-market Firms

- Advance firms through Strategy 2: Export Development & Industry Awareness.
- Provide business plan development strategy and gap analysis for interested businesses. (Month 6-18)
- Facilitate inclusion of Maine businesses in international supply chain registries. (Month 6-18)

STRATEGY 2

EXPORT DEVELOPMENT & INDUSTRY AWARENESS

While the US-based offshore wind industry is poised for significant growth in the coming decades, offshore wind is a truly international industry.

This strategy seeks to identify relationship-building and export opportunities for market-ready Maine businesses and research institutions–both domestically and internationally–while expanding the prominence of Maine as a partner of the offshore wind industry.

Tactic 1: Identify Leads for Market-Ready or In-Market Firms

- Identify relationship-building opportunities and matchmaking prospects for subcontracting between Maine firms and Tier 1 European developers and Tier 2 suppliers. (Month 6-18)
- Identify and provide procurement, cross-cultural, or opportunity-specific trainings for Maine senior firm leaders to help them identify opportunities in the international offshore wind industry with a particular focus on the UK, Netherlands, Denmark, South Korea, Japan, Scotland, and Canada. (Month 6-18)
- Identify market access opportunities (trade shows, etc.) to promote industry to targeted audiences. (Month 6-18)

Tactic 2: Develop Maine's Prominence in the International Offshore Wind Industry

- Explore opportunities for partnerships that address local content requirements for Maine firms or in-bound Canadian firms. (Month 0-18)
- Foster relationships within industry innovation hubs. (Month 0-6)
- Learn from and offer leadership to other state trade organizations. (Month 0-18)
- Identify opportunities for new "exports" beyond manufactured items, such as services, expertise, and research and development. (Month 0-18)
- Explore partnership with the industry associations on international access programs. (Month 0-18)

STRATEGY 3

INVESTMENT ATTRACTION

This strategy seeks to help lay the groundwork for international offshore wind investments in Maine, in part by working with state leaders to promote Maine's offshore wind assets.

Tactic 1: Advance Groundwork for International Offshore Wind Investments

- Develop MITC-specific communications strategy and related materials for the international offshore wind industry. (Month 0-6)
- Incorporate offshore wind strategy into existing MITC branding and promote overall industry opportunity. (Month 0-6)
- Create central portal for OSW development, in concert with state government partners, that identifies all state assets for developers interested in potential offshore wind projects in the Gulf of Maine. (Month 0-6)
- Develop strategy to foster relationships with Canadian firms interested in accessing the U.S. offshore wind market. (Month 0-6)

Tactic 2: Partner with State Leaders to Promote Maine's Assets

- Identify speaking opportunities for Maine firm leaders at national and international industry conferences to promote Maine's offshore wind assets. (Month 0-18)
- Identify and facilitate opportunities for conversations between state leaders and international developers or Tier 1 suppliers. (Month 0-18 – after asset portal is up and running)

TIMELINE FOR IMPLEMENTATION

Strategy 1 – Workforce & Business Readiness	Months 0-6	Months 6-12	Months 12-18
Prepare Offshore Wind Programming and Services	■	■	
Identify Firms with Potential Offshore Wind Market-Readiness	■	■	
Provide Tailored Services to Pre-market Ready Firms		■	■
Provide Tailored Services to Market Ready and in-market Firms		■	■
Strategy 2 – Export Development & Industry Awareness	**Months 0-6**	**Months 6-12**	**Months 12-18**
Identify Leads for Market-Ready or In-Market Firms		■	■
Develop Maine's Prominence in the International Offshore Wind Industry	■	■	
Strategy 3 – Investment Attraction	**Months 0-6**	**Months 6-12**	**Months 12-18**
Advance Groundwork for International Offshore Wind Investments	■	■	
Partner with State Leaders to Promote Maine's Assets	■	■	■
Strategy Revision	**Months 0-6**	**Months 6-12**	**Months 12-18**
Revise Strategy as Roadmap Progresses, Industry Trends Shift	■	■	■

A NOTE ON STRATEGY CROSSOVER

Each of our three strategies have the potential to significantly crossover with or reinforce one another.

For example, export activities promote the industry's awareness of Maine, increasing the potential for investment attraction; investment attraction opens more opportunities for Maine-based Tier 2 and Tier 3 suppliers to engage with the offshore wind industry domestically or internationally; and the emergence of an offshore wind workforce will strengthen the potential of further export activities and investment attraction.

ENDNOTES

1 "Fostering a Blue Economy: Offshore Renewable Energy." International Renewable Energy Association. December 2020. Page 17. Accessed at: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Dec/IRENA_Fostering_Blue_Economy_2020.pdf. [Hereinafter IRENA, 2020.]

2 IRENA, 2020.

3 U.S. Department of Energy, Offshore Wind Market Report: 2021 Edition, at Page x. Accessed at: https://www.energy.gov/sites/default/files/2021-08/Offshore%20Wind%20Market%20Report%202021%20Edition_Final.pdf. [Hereinafter U.S. Dept. of Energy, 2021.]

4 U.S. Dept. of Energy, 2021, at Page x.

5 U.S. Dept. of Energy, 2021, at Page viii.

6 U.S. Dept. of Energy, 2021, at Pages 29-30.

7 U.S. Dept. of Energy, 2021, at Pages 24-25.

8 Note that this cumulative value is up from 23.7 GW in 2019. U.S. Dept. of Energy, 2021, at Pages 7, 24-25.

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AUTHOR'S NOTE

A special thank you to the Business Network for Offshore Wind (BNOW) for their high quality industry data and informational products. Interested parties are highly encouraged to connected with BNOW, whether through their industry events, trainings, or advocacy.

For more information about BNOW's education and training offerings, including the Foundation 2 Blade Industry Training, visit: https://www.offshorewindus.org/oswtraining/

Global industry, local opportunity.

Offshore wind development is already generating significant long-term job creation, economic development, supply chain and port infrastructure investments, and large-scale clean, renewable power in the United States.

As Maine's leading source for international business assistance, we are well positioned to support Maine firms who may benefit from participating in the rapidly growing, global offshore wind industry.

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