

ARTICLES**GREAT LAKES OFFSHORE WIND:
CREATING A LEGAL FRAMEWORK FOR NET
POSITIVE ENVIRONMENTAL, SOCIAL, AND
FINANCIAL BENEFITS**

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ABSTRACT

Violent storms, excessive heat, extensive drought, and destructive wildfires with their choking smoke are common realities of the 2020s and underscore the urgent need to mitigate climate change. As agreed at COP28 in 2023, the world needs to move away from fossil fuels and prioritize the decarbonization of energy production. While Europe and China have taken the lead on developing offshore wind to make this transition, the U.S. is just starting to see operational projects off the northeast coast in the Atlantic Ocean. The vast Great Lakes caught public attention in 2023 when the National Renewable Energy Laboratory showed substantial wind resources over the Great Lakes; so much wind energy resource potential that five of the eight Great Lakes states could meet their statewide annual electricity demands and provide renewable power beyond their borders. This opportunity for Great Lakes wind energy resources to contribute to the regional energy mix and the economic growth of the region will only be realized if there is a legal framework in which to develop this untapped renewable resource.

While the federal government has taken a leading role in the ocean, the Great Lakes states have primary jurisdiction as trustees of the Great Lakes. Thus, the eight Great Lakes states individually or through a regional collaboration are the primary actors to determine how offshore wind will be developed. In this article we argue the states should use the renewables revolution to rethink our approach to energy production and create legal frameworks that result in energy

production with net positive outcomes for the environment and society. By this we mean that offshore wind projects should, by design, go beyond the typical environmental law framework of avoid, reduce, and mitigate environmental harm; instead, government should select offshore wind projects based on how far they advance the triple bottom line with environmental, social, and financial benefits. We argue that as trustees over the Great Lakes, government should plan, auction, and issue leases to offshore wind projects based on their net positive benefits. We provide leading examples from Europe and the United States for the Great Lakes states to consider as they evaluate how to build a legal framework to harness the potential of offshore wind and offer actionable recommendations.

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INTRODUCTION

Offshore wind energy is globally recognized as one of the primary and abundant energy sources to decarbonize energy production and mitigate climate change.¹ With less than 0.1 percent of the global total of operational offshore wind, the U.S. is far behind Europe and China in harnessing offshore wind to supply renewable energy.² However, following global trends, the U.S. has started developing legal frameworks to encourage offshore wind energy development.³

Government policies at the state and federal level have shaped the speed and location of U.S. offshore wind development. Most of the proposals for offshore wind facilities have clustered off the northeastern Atlantic coast. States in this region proactively encouraged the industry with state-level procurement activities and policies.⁴ For instance, seven states call for the deployment of offshore wind energy capacity that

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¹ WALTER MUSIAL ET AL., OFFSHORE WIND MARKET REPORT: 2022 EDITION x (2022), <https://www.energy.gov/sites/default/files/2022-09/offshore-wind-market-report-2022-v2.pdf>.

² GLOBAL WIND ENERGY COUNCIL, GLOBAL OFFSHORE WIND REPORT 2023 7 (2023); Shotaro Tani, *China Drives Asian Lead in Global Offshore Wind as Europe Loses Top Spot*, FINANCIAL TIMES (Aug. 28, 2023), <https://www.ft.com/content/cb2581c1-6e2d-4868-ac73-c3d8657d403a>.

³ Musial et al., *supra* note 1, at vi-vii.

⁴ *Id.* at vi.

collectively totals 42.7 gigawatts (GW) by 2040.⁵ The federal government is advancing wind energy through the Biden-Harris Administration's executive branch goals. In March 2021, the Biden-Harris Administration announced its goal to deploy 30 GW of offshore wind by 2030.⁶

These are aggressive goals given the U.S. had only 42 megawatts (MW), or less than one-tenth of one GW, of operational offshore wind projects in May 2023.⁷ That said, the industry is progressing. The U.S. offshore wind energy development pipeline—which includes installed projects, projects under or approved for construction, projects undergoing permitting, existing lease areas, and the potential of yet-to-be-leased areas—totaled 52 GW as of May 2023.⁸

In October 2021, the U.S. Bureau of Ocean Energy Management (BOEM) announced its plan to hold up to seven new offshore Wind Energy Area lease auctions by 2025.⁹ In 2022, BOEM held three lease auctions, resulting in 13 leases and \$5.44 billion in government revenues, which “substantially increase the number of viable offshore wind energy sites in the United States.”¹⁰ Lease locations included the New York Bight, Carolina Long Bay, and California's Pacific coast.¹¹ In August 2023, BOEM held the first lease auction for offshore wind in the Gulf of Mexico.¹² In October 2023, BOEM announced four new Wind Energy

⁵ WALTER MUSIAL ET AL., OFFSHORE WIND MARKET REPORT: 2023 EDITION xi (2023), <https://www.energy.gov/sites/default/files/2023-09/doe-offshore-wind-market-report-2023-edition.pdf>. Those “[s]even states have durable statutory procurement mandates,” defined as targets that “are protected by robust legislation rather than based on a single executive order that could potentially be overturned by a change in governance.” “Six other states have set offshore-wind-specific planning targets.” *Id.* at xi. “In aggregate, 13 coastal states have announced planning targets or procurement mandates for offshore wind energy” for over 112 GW of offshore wind capacity by 2050. *Id.*

⁶ FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs, THE WHITE HOUSE (Mar. 29, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/>.

⁷ MUSIAL ET AL., *supra* note 5, at 11–12.

⁸ MUSIAL ET AL., *supra* note 5, at 11–12. Operational versus potential generating capacity is an important distinction. Here, pipeline potential capacity includes the potential capacity of Wind Energy Areas that are waiting to be auctioned, sites where developers hold leases, projects under development, and operational projects. *Id.* at 4. By May 2022, the U.S. offshore wind energy industry grew to a potential generating capacity of 40 GW, representing a 13.5% growth over the 35 GW reported in the “Offshore Wind Market Report: 2021 Edition.” *Id.* at vi. By May 2023, the U.S. offshore wind energy industry grew to a potential generating capacity of 52 GW, representing a 15% growth from the 2022 Wind Market Report. *Id.* at viii.

⁹ MUSIAL ET AL., *supra* note 1, at vi.

¹⁰ MUSIAL ET AL., *supra* note 5, at x.

¹¹ *Id.*

¹² Biden-Harris Administration Holds First-Ever Gulf of Mexico Offshore Wind Energy Auction, U.S. DEP'T OF THE INTERIOR (Aug. 29, 2023) <https://www.doi.gov/pressreleases/biden-harris-administration-holds-first-ever-gulf-mexico-offshore-wind-energy-auction>.

Areas in the Gulf of Mexico.¹³ Currently, BOEM is developing two Wind Energy Areas off the Oregon coast.¹⁴

While much of the U.S. attention has been fixed on offshore wind in the oceans, the vast Great Lakes also have significant wind energy potential. Research by the National Renewable Energy Laboratory found offshore wind in the Great Lakes to be substantial.¹⁵ Wind speeds are faster over the water than land and could produce more than the current energy demands of five of eight Great Lakes states.¹⁶ For instance, the mean wind speed at 140 meters above Lake Michigan was 9.6 - 9.8 meters per second (m/s).¹⁷ While this is somewhat slower than the Pacific and Atlantic oceans near the coastlines, it is faster than annual average wind speed over land in the lake-adjacent states.¹⁸

In contrast to the ocean coasts, the federal government does not identify potential wind areas or auction or lease submerged lands for offshore wind projects in the Great Lakes. As offshore wind is in its infancy in the Great Lakes with no operational projects, how each of the eight Great Lakes states might evaluate and permit offshore wind projects lacks clarity and uniformity. None of the Great Lakes states have developed a comprehensive approach to offshore wind development. However, if states are going to allow and manage offshore wind development consistent with their roles as trustees of the Great Lakes, they have an opportunity to craft a new legal framework to evaluate projects. Such an evaluation framework should optimize environmental and social benefits by setting non-price criteria and optimize financial benefits by setting price criteria. Without the federal government controlling the process, Great Lakes states will benefit from regional collaboration to leverage the offshore wind planning and selection process to prioritize projects that promote net-positive benefits for the

¹³ BOEM Designates Four Wind Energy Areas in Gulf of Mexico, BUREAU OF OCEAN ENERGY MGMT. (Oct. 27, 2023), <https://www.boem.gov/newsroom/press-releases/boem-designates-four-wind-energy-areas-gulf-mexico>. As of January 4, 2024, BOEM has not yet published a Proposed Sale Notice.

¹⁴ *Renewable Energy: Oregon Activities*, BUREAU OF OCEAN ENERGY MGMT., <https://www.boem.gov/renewable-energy/state-activities/Oregon> (last visited Jan. 5, 2024).

¹⁵ Walter Musial et al., *Great Lakes Wind Energy Challenges and Opportunities Assessment* at ix, fig.ES-2, NAT'L RENEWABLE ENERGY LAB'Y (Mar. 2023), <https://www.nrel.gov/docs/fy23osti/84605.pdf>. There are many qualifications to their modeling, including the need for more research and development of technology that could function in icy conditions in freshwater, storage capacity for intermittent winds, and much more. *Id.* at 52.

¹⁶ *Id.* at 18–20, tbl.3. Note that “[t]hese indicative values are a useful comparison for estimating the total opportunity by state for Great Lakes wind energy but are subject to many sources of uncertainty, including the extent of the area in which offshore wind energy development may be permitted or prohibited, changing demand for electricity, and possible delivery of Great Lakes wind energy across state boundaries.” *Id.* at 18–19.

¹⁷ *Id.* at ix, fig.ES-2.

¹⁸ *E.g.*, *Map of annual average wind speed over land in Wisconsin*, DEP'T OF ENERGY, <https://windexchange.energy.gov/maps-data/136>.

environment and society, while maximizing revenues for states to reinvest in public trust protections. An offshore wind regional collaboration should include Tribes, First Nations, and the Canadian provinces of Quebec and Ontario that border the lakes. However, tribal law and Canadian law on offshore wind are beyond the scope of this article.

This article argues that the U.S. federal and state governments must ensure that environmental and social values are not set aside in the rush for renewable energy development. We should use the renewables revolution to rethink our approach to energy production and create legal frameworks that result in energy production that is a net positive for the environment and society. Renewable energy projects should, by design, go beyond the framework of avoiding, reducing, and mitigating environmental harm; instead, the government should select offshore wind projects based on how far they advance the triple bottom line with environmental, social, and financial benefits.

This article proceeds in four sections. Section I explains how jurisdiction over the Great Lakes differs from the oceans, with a significant impact on regulatory oversight. We describe the federal statutory and regulatory authority for leasing submerged lands in the Outer Continental Shelf of the oceans.¹⁹ From there, we reveal the financial terms of federal offshore wind leases—the price criteria on which leases have been selected. Based on our original review of all the existing leases through August 2023, we aggregate the financial terms in one location. Lastly, we explain the distribution of revenues from federal leases. Section II examines the use of non-price criteria as a tool to promote net positive environmental and social benefits when issuing leases for offshore wind projects. We offer examples and case studies from Europe and the U.S., with an emphasis on the Netherlands as a leading model. Section III explores the nascent legal approach to offshore wind in the Great Lakes. As the states are trustees of the lakes, this section is grounded in the public trust doctrine and existing regional legal instruments that recognize the trust responsibilities. We provide a case study of the first offshore wind facility lease in the Great Lakes—the Icebreaker Wind project in Lake Erie, off Ohio’s coast—to evaluate how that pilot project was approved and later paused indefinitely in December 2023.²⁰ Finally, Section IV provides recommendations for Great Lakes states to consider as they weigh creating legal frameworks to plan, evaluate, and lease Great Lakes lakebed for offshore wind.

¹⁹ The Outer Continental Shelf consists of submerged lands that extend seaward from three geographical miles from the coastline to 200 nautical miles from the coastline. Submerged Lands Act, 43 U.S.C. § 1312 (2023); Outer Continental Shelf Lands Act, 43 U.S.C. § 1331(a) (2023); Exclusive Economic Zone and Maritime Boundaries, 60 Fed. Reg. 43825 (Aug. 23, 1995); Notice of Limits, 60 Fed. Reg. 43825 (Aug. 23, 1995).

²⁰ Press Release, Port of Cleveland (Dec. 8, 2023), <https://www.portofcleveland.com/challenges-delays-lead-to-pause-on-lake-erie-wind-turbine-project/>.

Fundamentally, the lakebed and waters of the Great Lakes are to be protected by the public trust doctrines of each of the Great Lakes states. Consistent with those public trust responsibilities, we offer a vision for a planning and leasing system that selects projects based on their optimal net positive benefits for the environment and society as well as their financial terms.

I. PRICE CRITERIA OF FEDERAL OFFSHORE WIND LEASES

In this section, we explain federal jurisdiction for offshore wind leases in the oceans and state jurisdiction over the Great Lakes. Then, we discuss the federal leasing process with its strong emphasis on price criteria. While non-price criteria to evaluate the environmental and social benefits of projects is a newer concept, price criteria have long been part of the federal offshore wind leasing system. Price criteria are the financial terms of federal leases for offshore wind. We evaluate them here to show how much money the federal leases generate and how the government directs those funds. This review is to inform Great Lakes states as they evaluate how to structure the financial terms of lakebed leases. Consistent with the public trust doctrine, the state government trustees need to make legal design choices that protect the public interest in the Great Lakes before entertaining any offshore wind leases. Typically, public interests focus on public use rights, such as recreation, navigation, and ecological protections, all of which are features that could be reflected in the non-price criteria of applications, as will be explored in Section II. However, when it comes to leasing public trust lakebed, we argue the public interest also includes the trustee securing and spending lease revenues in ways that enhance public rights.

A. *Federal and State Jurisdiction for Offshore Wind Leases*

Federal authority to auction and lease submerged lands for the development of energy resources comes primarily from two statutes: the Submerged Lands Act of 1953 and the Outer Continental Shelf Lands Act of 1953. The Submerged Lands Act of 1953 establishes the seaward boundary of each ocean coastal state as a line three geographical miles from its coastline.²¹ The Outer Continental Shelf Lands Act establishes federal jurisdiction over submerged lands beyond three miles from the

²¹ Submerged Lands Act, 43 U.S.C. § 1312 (2023). Two exceptions are Texas and the Gulf Coast of Florida, which have three leagues, or about 10 miles, of submerged lands jurisdiction. *United States v. Louisiana*, 363 U.S. 1, 65, 129 (1960). *See also* National Centers for Environmental Information, *Marine Jurisdictions*, GULF OF MEXICO DATA ATLAS, <https://www.ncei.noaa.gov/maps/gulf-data-atlas/atlas.htm?plate=Marine%20Jurisdictions> (last visited Jan. 18, 2024).

coast, which are known as the Outer Continental Shelf,²² and authorizes the Secretary of the Interior to lease those lands for the development of energy resources.²³ Thus, while states control leasing of the submerged lands under the ocean from their coastline to three miles off their coasts, the Department of the Interior has the sole authority beyond three miles offshore.

By contrast, under the Submerged Lands Act of 1953, the submerged lands under the Great Lakes are entirely under the control of the adjacent coastal states “to the international boundary” with Canada.²⁴ Without a statutory role defined for the federal government, the eight Great Lakes states must determine the legal design of any lakebed leases. The federal lease process and financial terms can inform state legal design choices.

B. Federal Offshore Wind Lease Process

The Energy Policy Act of 2005 amended the Outer Continental Shelf Lands Act, authorizing the Department of the Interior to create a program for the development of offshore renewable energy sources.²⁵ Subsequently, in 2009, the Department of the Interior announced final regulations for the Outer Continental Shelf Renewable Energy Program.²⁶ The regulations provide a framework for all activities needed to support production and transmission of energy from sources other than oil and natural gas.²⁷ In 2010, the Department of the Interior created the Bureau of Ocean Energy Management (BOEM) to take over management of renewable energy development activities in the Outer Continental Shelf from the Minerals Management Service.²⁸

1. Competitive Leases

²² “The term ‘outer Continental Shelf’ means all submerged lands lying seaward and outside of the area of lands beneath navigable waters as defined in section 1301 of this title, and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control. . . .” 43 U.S.C. § 1331(a)(1). Section 1301 of the title defines “lands beneath navigable waters” as those state-controlled submerged lands up to three miles from the coast. 43 U.S.C. § 1301(a).

²³ Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1337, 1356c.

²⁴ Submerged Lands Act, 43 U.S.C. § 1312 (2023).

²⁵ Energy Policy Act, Pub. L. No. 109-58, § 388, 119 Stat. 594, 744-47 (2005).

²⁶ Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf, 74 Fed. Reg. 19638 (Apr. 29, 2009).

²⁷ DOI Renewable Energy on the Outer Continental Shelf, 30 C.F.R. Part 585 (2023).

²⁸ U.S. DEP’T OF THE INTERIOR, ORDER NO. 3299, ESTABLISHMENT OF THE BUREAU OF OCEAN ENERGY MGMT., THE BUREAU OF SAFETY AND ENV’T ENF’T, AND THE OFFICE OF NAT. RES. REVENUE (2010) [hereinafter SECRETARIAL ORDER]. BOEM also has jurisdiction over conventional (i.e., oil and gas) leases in the Outer Continental Shelf of the ocean. *Id.*

A competitive lease sale process may begin when BOEM publishes in the Federal Register a public notice of Request for Interest in leasing all or part of the Outer Continental Shelf for authorized activities.²⁹ BOEM considers information received in response to a Request for Interest to determine whether there is competitive interest for scheduling sales and issuing leases.³⁰ BOEM then publishes in the Federal Register a Call for Information and Nominations for leasing in specified areas, followed by a comment period of forty-five days.³¹ Potential lessees can submit a response that must include a general description of objectives and facilities that the lessee would use to achieve those objectives.³² BOEM uses the information received in response to a Request or Call along with other information it deems appropriate to identify areas for environmental analysis and leasing in consultation with appropriate federal agencies, states, local governments, affected Indian Tribes, and other interested parties.³³ BOEM calls these areas “Wind Energy Areas.”³⁴ BOEM evaluates the potential effect of leasing on human, marine, and coastal environments, then develops measures such as lease stipulations and conditions to mitigate adverse impacts on the environment.³⁵

BOEM then publishes in the Federal Register a Proposed Sale Notice, which includes the Wind Energy Area available for leasing, proposed lease provisions and conditions, auction details, criteria BOEM will use to evaluate competing bids, and award procedures.³⁶ BOEM sends the Proposed Sale Notice to the executive of any state, Indian Tribe,

²⁹ 30 C.F.R. § 585.210 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. 42,602, 42,633 (May 15, 2024) (amending 30 C.F.R. § 585.210(b), 585.116(b), (c)) (effective July 15, 2024). Note that “BOEM is eliminating the ‘Request for Interest,’ which was similar enough in name and purpose as to be frequently confused with the ‘Request for Information.’ BOEM retains the Request for Information, . . . [which] can easily be employed to gather the same public input that would once have been solicited in a Request for Interest.” Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,633.

³⁰ 30 C.F.R. § 585.210 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,728, 42,730 (amending 30 C.F.R. §§ 585.116(b), (c), 585.210(b)).

³¹ 30 C.F.R. § 585.211(a) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,730 (amending 30 C.F.R. §§ 585.210(b)(1), 585.211(c)).

³² 30 C.F.R. § 585.213 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,730 (amending 30 C.F.R. § 585.211(b)(5)(ii)).

³³ 30 C.F.R. §§ 585.211(b), 585.214 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,730 (amending 30 C.F.R. §§ 585.210(b)(2), 585.211(b)(2)).

³⁴ *The Renewable Energy Process: Leasing to Operations*, BUREAU OF OCEAN ENERGY MGMT. (Apr. 2022),

<https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/BOEM-Poster-Renewable-Commercial-Leasing-Process.pdf>.

³⁵ 30 C.F.R. § 585.211(b) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,730 (amending 30 C.F.R. § 585.212(b)(1), (3)).

³⁶ 30 C.F.R. § 585.216 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,730-31 (amending 30 C.F.R. § 585.213(1)(ii), (iv), (4), (6)).

or local government that may be affected.³⁷ A comment period of sixty days follows the issuance of a Proposed Sale Notice.³⁸

BOEM considers comments received from the Proposed Sale Notice in developing the final lease terms and conditions.³⁹ Then, BOEM publishes the Final Sale Notice, which specifies minimum bids and the bidding system it will use.⁴⁰ BOEM publishes the Final Sale Notice in the Federal Register at least thirty days before the date of the sale.⁴¹ The Final Sale Notice includes all the items that were in the Proposed Sale Notice: the Wind Energy Area available for leasing, final lease provisions and conditions, auction details, criteria BOEM will use to evaluate competing bids, and award procedures.⁴² The Final Sale Notice may also set a rental rate different from the regulatory default of \$3 per acre per year, which was set in 2009.⁴³ To date, BOEM has not exercised its discretion to increase the rental rate in the Final Sale Notice. However, as shown in the winning bids table below, lease-related revenues are dominated by bonus payments, not rental payments. Federal regulations define the bidding systems BOEM may use.⁴⁴ Options for bidding systems are shown in Appendix A. After the Final Sale Notice, BOEM holds a competitive auction using one of four auction types defined in federal regulations to award a renewable energy lease: sealed, ascending, two-stage, and multiple factor bidding.⁴⁵ Options for auction types are shown in Appendix B.

³⁷ 30 C.F.R. § 585.211(c) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,731 (amending 30 C.F.R. § 585.213(e), “BOEM will notify any potentially affected federally recognized Indian Tribes, States, local governments, and [Alaska Native Claims Settlement Act of 1971] corporations of the [Proposed Sale Notice]’s publication, and will provide copies of the [Proposed Sale Notice] to these entities upon written request.”).

³⁸ 30 C.F.R. § 585.211(c) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,731 (amending 30 C.F.R. § 585.213(d)).

³⁹ 30 C.F.R. § 585.216 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,730-31 (amending 30 C.F.R. § 585.213(a)). However, BOEM may decide to end the competitive process before publishing the Final Sale Notice if it determines that competitors have withdrawn and competition no longer exists. 30 C.F.R. § 585.212 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,731 (amending 30 C.F.R. § 585.215(a)).

⁴⁰ 30 C.F.R. § 585.221 (2023). *See* Appendix A: BOEM’s Bidding Systems.

⁴¹ 30 C.F.R. § 585.221 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,731 (amending 30 C.F.R. § 585.214(a)).

⁴² 30 C.F.R. § 585.216 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,731 (amending 30 C.F.R. § 585.214(a)).

⁴³ 30 C.F.R. § 585.503(a) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,742; 74 Fed. Reg. 19,679.

⁴⁴ 30 C.F.R. § 585.221 (2023).

⁴⁵ 30 C.F.R. § 585.220 (2023). *See* Appendix: B BOEM’s Competitive Auction Types. Note that BOEM’s Renewable Energy Modernization Rule, 89 Fed. Reg. 42,602, 42,633 (May 15, 2024), describes how “[t]he final rule replaces the lists of permissible auction formats, bid variables, and bidding processes with a more flexible process consistent with current BOEM practices,” and “changes would permit BOEM to hold lease sales that do not conform to the previously enumerated auction formats and

2. Non-Competitive Leases

Additionally, BOEM may issue non-competitive leases for offshore wind. Even if BOEM has not issued a Call for Information or Nomination, a potential lessee may submit an unsolicited request to BOEM for a commercial lease.⁴⁶ The unsolicited request must contain the area the lessee is requesting for lease, a general description of the lessee's objectives, the facilities the lessee would use to achieve those objectives, and an acquisition fee, among other information.⁴⁷

BOEM considers unsolicited requests on a case-by-case basis.⁴⁸ BOEM issues a public notice of a request for interest related to the unsolicited proposal and considers comments received to determine if competitive interest exists.⁴⁹ If BOEM finds that competitive interest exists, then it will proceed with the competitive process outlined above.⁵⁰ If BOEM finds there is no competitive interest, then it will publish in the Federal Register a notice of Determination of No Competitive Interest.⁵¹ BOEM coordinates and consults with affected federal agencies, state and local governments, and Indian Tribes in the review of noncompetitive lease requests.⁵² After completing review of the lease request, BOEM may offer the applicant a noncompetitive lease.⁵³

C. Price Criteria in Federal Offshore Wind Leases

This section summarizes the original financial terms of federal leases of submerged lands in the Outer Continental Shelf for offshore wind. To construct Table 1, we evaluated the financial terms of every individual lease agreement BOEM executed for the development and operation of offshore wind, from 2010 through August 2023. The table shows leases in order from oldest to most recent and shows the number

bidding systems, should circumstances warrant, though BOEM has no immediate plans to do so.”

⁴⁶ 30 C.F.R. § 585.230 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,733.

⁴⁷ 30 C.F.R. § 585.230 (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,733.

⁴⁸ 30 C.F.R. § 585.231(a) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,733.

⁴⁹ 30 C.F.R. § 585.231(b) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,733 (amending 30 C.F.R. § 585.231(a)).

⁵⁰ 30 C.F.R. § 585.231(c) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,733.

⁵¹ 30 C.F.R. § 585.231(d) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,733.

⁵² 30 C.F.R. § 585.231(e) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,733 (amending 30 C.F.R. § 585.231(d)(3)).

⁵³ 30 C.F.R. § 585.231(f) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,734.

of acres leased, the annual rent, and the bonus paid. Although the annual rental rate established in federal regulations in 2009 has not been updated and still stands at a default of \$3 per acre per year, that is not the source of most of the revenues for these leases.⁵⁴ The Bonus column shows the amount of consideration paid by the lessee to the federal government in exchange for the lease. From 2019 onward, bonuses have all been in the hundreds of millions and up to more than one billion dollars in 2022. After a wind project starts generating electricity, it pays an additional annual operating fee and stops paying rent on the land that is being used for the operations. Table 1 does not include any operating fees.

Table 1. BOEM Lease Financial Terms⁵⁵

Lease #	Lessee	State	Effective Date	Acres	Annual Rent	Bonus
OCS-A 0478	Cape Wind Associates, LLC	MA	11/01/10	29,426	\$88,278	\$0
OCS-A 0482	Bluewater Wind Delaware LLC	DE	12/01/12	96,430	\$289,290	\$24,108
OCS-A 0486	Deepwater Wind New England, LLC	MA/RI	10/01/13	97,498	\$292,494	\$3,089,461 ⁵⁶
OCS-A 0487	Deepwater Wind New England, LLC	MA/RI	10/01/13	67,252	\$201,756	\$3,089,461
OCS-A 0483	Virginia Electric and Power Company	VA	11/01/13	112,799	\$338,397	\$1,600,000
OCS-A 0500	RES America Developments Inc.	MA	04/01/15	187,523	\$562,569	\$281,285
OCS-A 0501	Offshore MW LLC	MA	04/01/15	166,886	\$500,658	\$150,197
OCS-A 0498	RES America Developments Inc.	NJ	03/01/16	160,480	\$481,440	\$880,715
OCS-A 0499	US Wind Inc.	NJ	03/01/16	183,353	\$550,059	\$1,006,240
OCS-A 0512	Statoil Wind US LLC	NY	04/01/17	79,350	\$238,050	\$42,469,725

⁵⁴ 30 C.F.R. § 585.503(a) (2023); Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,742; 74 Fed. Reg. 19,679.

⁵⁵ *Lease and Grant Information*, BUREAU OF OCEAN ENERGY MGMT., <https://www.boem.gov/renewable-energy/lease-and-grant-information>. Authors reviewed agreements and created Table 1 from the data within to reflect original lease awards.

⁵⁶ Lease documents for Leases OCS-A 0486 and OCS-0487 reflect that the bonus of \$3,089,461 applied to both Leases.

OCS-A 0508	Avangrid Renewables, LLC	NC	11/01/17	122,405	\$367,215	\$9,066,650
OCS-A 0520	Equinor Wind US LLC	MA	04/01/19	128,811	\$386,433	\$135,000,000
OCS-A 0521	Mayflower Wind Energy LLC	MA	04/01/19	127,388	\$382,164	\$135,000,000
OCS-A 0522	Vineyard Wind LLC	MA	04/01/19	132,370	\$397,110	\$135,100,000
OCS-A 0489	US Wind Inc.	MD	12/01/14	32,737	\$98,211	\$3,841,538
OCS-A 0490 ⁵⁷	US Wind Inc.	MD	12/01/14	46,970	140,910	\$4,859,560
OCS-A 0537	OW Ocean Winds East, LLC	NY	05/01/22	71,522	\$214,566	\$765,000,000
OCS-A 0538	Attentive Energy LLC	NY	05/01/22	84,332	\$252,996	\$795,000,000
OCS-A 0539	Bight Wind Holdings LLC	NY	05/01/22	125,964	\$377,892	\$1,100,000,000
OCS-A 0541	Atlantic Shores Offshore Wind Bight, LLC	NY	05/01/22	79,351	\$238,053	\$780,000,000
OCS-A 0542	Invenergy Wind Offshore LLC	NY	05/01/22	83,976	\$251,928	\$645,000,000
OCS-A 0544	Mid-Atlantic Offshore Wind LLC	NY	05/01/22	43,056	\$129,168	\$285,000,000
OCS-A 0545	TotalEnergies Renewables USA, LLC	NC	06/01/22	54,937	\$164,811	\$133,333,333
OCS-A 0546	Duke Energy Renewables Wind, LLC	NC	06/01/22	55,154	\$165,462	\$129,166,667
OCS-P 0561	RWE Offshore Wind Holdings, LLC	CA	06/01/23	63,338	190,014	\$121,307,691
OCS-P 0562	California North Floating LLC	CA	06/01/23	69,031	207,093	\$133,692,308
OCS-P 0563	Equinor Wind US LLC	CA	06/01/23	80,062	240,186	\$100,000,000
OCS-P 0564	Central California Offshore Wind LLC	CA	06/01/23	80,418	241,254	\$120,240,000

OCS-P 0565	Invenergy California Offshore LLC	CA	06/01/23	80,418	241,254	\$111,769,231
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For a competitive lease that BOEM offers through sealed bidding, a bidder must submit a deposit of 20% of the total bid amount, unless otherwise specified in the Final Sale Notice.⁵⁸ If the commercial lease is offered through ascending bidding, then the bidder must submit a deposit as established in the Final Sale Notice.⁵⁹ The winning bidder must pay any balances on accepted high bids in accordance with the Final Sale Notice and the lease.⁶⁰

The full annual rent is due on or before each lease anniversary until the facility begins to generate electricity commercially.⁶¹ BOEM’s proposed sale notice released on February 24, 2023, for a Wind Energy Area in the Gulf of Mexico, stated that “once commercial operations under the lease begin, BOEM will charge rent only for the portions of the Lease Area remaining undeveloped.”⁶² Once a project begins commercial operations, the lessee must pay the Department of the Interior’s Office of Natural Resources Revenue an operating fee.⁶³

Although Table 1 shows most federal offshore wind leases have been executed in the Atlantic Ocean off the East Coast, primarily in ocean waters between Massachusetts and New York, lease regions are expanding. In October 2021, BOEM announced that it planned to hold seven new offshore Wind Energy Area lease auctions in the New York Bight, Carolina Long Bay, Central Atlantic, Gulf of Maine, California, Oregon, and the Gulf of Mexico by 2025.⁶⁴ In 2023, BOEM announced

⁵⁸ 30 C.F.R. § 585.501(a) (2023).

⁵⁹ 30 C.F.R. § 585.501(b) (2023).

⁶⁰ 30 C.F.R. § 585.501(c) (2023).

⁶¹ 30 C.F.R. § 585.503 (2023).

⁶² Proposed Sale Notice for Commercial Leasing for Wind Power Development on the Outer Continental Shelf in the Gulf of Mexico (GOMW-1), 88 Fed. Reg. 11,939, 11,948 (2023). https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/BOEM_FRDOC_0001-0629.pdf.

⁶³ 30 C.F.R. § 585.506 (2023). The operating fee is based on the “formula, $F = M * H * c * P * r$, Where: (1) F is the dollar amount of the annual operating fee; (2) M is the nameplate capacity expressed in megawatts; (3) H is the number of hours in a year, equal to 8,760, used to calculate an annual payment; (4) c is the ‘capacity factor’ representing the anticipated efficiency of the facility’s operation expressed as a decimal between zero and one; (5) P is a measure of the annual average wholesale electric power price expressed in dollars per megawatt hour, as provided in (c)(2) of this section; and (6) r is the operating fee rate expressed as a decimal between zero and one.” *Id.* § 585.506(a). “Unless BOEM specifies otherwise, the operating fee rate, ‘r’ is 0.02 for each year the operating fee applies when you begin commercial generation of electricity.” *Id.* § 585.506(c)(1). “The power price ‘P,’ for each year when the operating fee applies, will be determined annually. The process by which the power price will be determined will be specified in the Final Sale Notice and/or in the lease.” *Id.* § 585.506(c)(2). “BOEM will select the capacity factor ‘c’ based upon applicable analogs drawn from present and future domestic and foreign projects that operate in comparable conditions and on comparable scales.” *Id.* § 585.506(c)(3).

⁶⁴ MUSIAL ET AL., *supra* note 1, at vi.

auctions in the Pacific Ocean off the West Coast of California and in the Gulf of Mexico.⁶⁵ Leases in the New York Bight, Carolina Long Bay, and California appear in the above table, and a lease was issued in the Gulf of Mexico effective November 1, 2023.⁶⁶ In April 2024, BOEM announced its leasing schedule for the five-year period starting May 1, 2024, which describes BOEM's plans to hold lease auctions for the Central Atlantic in August 2024 and for the Gulf of Maine and Oregon in October 2024.⁶⁷ Federal offshore wind lease sites will likely continue to diversify in the coming years.⁶⁸

D. Use of Federal Offshore Wind Lease Revenues

The Office of Natural Resources Revenue collects revenues from offshore wind leases and disburses them.⁶⁹ As indicated in Table 1, data from the Department of the Interior document the federal government has collected \$5.7 billion in rent and bonuses for leases of offshore submerged lands for wind energy facilities through August 1, 2023.⁷⁰ The government collected the majority of this revenue in 2022 in the amount of \$4.64 billion,⁷¹ of which \$4.63 billion was collected as bonuses from the auctioning of six Wind Energy Areas in the New York Bight and two Wind Energy Areas in the Carolina Long Bay.⁷² Leases for submerged

⁶⁵ *Gulf of Mexico Activities*, BUREAU OF OCEAN ENERGY MGMT., <https://www.boem.gov/renewable-energy/state-activities/gulf-mexico-activities>. “RWE Offshore US Gulf, LLC was the winner of the Lake Charles Lease Area.” The other two sites, Galveston I and Galveston II, did not receive bids.

⁶⁶ *Lease and Grant Information*, BUREAU OF OCEAN ENERGY MGMT., <https://www.boem.gov/renewable-energy/lease-and-grant-information> (then click Lease Number “OCS-G 37334” hyperlink).

⁶⁷ *Renewable Energy Leasing Schedule*, BUREAU OF OCEAN ENERGY MGMT., at 4-5 (Apr. 2024), <https://www.boem.gov/sites/default/files/documents/renewable-energy/RELS%20Information%20Sheet%20Handout%20v3.pdf>.

⁶⁸ *Id.* at 3.

⁶⁹ SECRETARIAL ORDER, *supra* note 28, at § 5.

⁷⁰ *Natural Resources Revenue Data*, U.S. DEP'T OF THE INTERIOR, <https://revenuedata.doi.gov/downloads/revenue/> (then click “Combined excel spreadsheet” download link, select “Monthly Revenue” sheet, filter “Date” column through August 2023, filter “Land Category” column by “Offshore,” filter “Mineral Lease Type” column by “Wind,” and sum 120 revenues). In addition to rents and bonuses, this figure includes a small amount of “other revenue,” which means “revenues that are not included in the royalty, rent, or bonus categories, such as minimum royalties, estimated royalties, settlement agreements, and interest.” *Id.* at Data Dictionary.

⁷¹ *Natural Resources Revenue Data*, U.S. DEP'T OF THE INTERIOR, <https://revenuedata.doi.gov/downloads/revenue/> (then click “Combined excel spreadsheet” download link, select monthly revenue tab, filter “Date” column by “2022,” filter “Land Category” column by “Offshore,” filter “Mineral Lease Type” column by “Wind,” and sum 14 revenues).

⁷² See BUREAU OF OCEAN ENERGY MGMT., RENEWABLE ENERGY LEASE NUMBER OCS-A 0537, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT

lands off the California coast created an additional \$587 million in bonus revenue in 2023.⁷³

The Office of Natural Resources Revenue disburses most of the revenues from leases on the Outer Continental Shelf to the U.S. Treasury.⁷⁴ However, the Energy Policy Act amended the Outer Continental Shelf Lands Act to require payment to coastal states of 27% of the revenues received by the federal government from any projects located wholly or partially within the area extending three nautical miles

ON THE OUTER CONTINENTAL SHELF (2022), https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Lease%20OCS-A%200537_o.pdf; see BUREAU OF OCEAN ENERGY MGMT., RENEWABLE ENERGY LEASE NUMBER OCS-A 0538, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2022), <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Lease%20OCS-A%200538.pdf>; see BUREAU OF OCEAN ENERGY MANAGEMENT, RENEWABLE ENERGY LEASE NUMBER OCS-A 0539, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2022), https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Lease%20OCS-A%200539_o.pdf; see BUREAU OF OCEAN ENERGY MGMT., RENEWABLE ENERGY LEASE NUMBER OCS-A 0541, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2022), <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Lease%20OCS-A%200541.pdf>; see BUREAU OF OCEAN ENERGY MGMT., RENEWABLE ENERGY LEASE NUMBER OCS-A 0542, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2022), <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Lease%20OCS-A%200542.pdf>; see BUREAU OF OCEAN ENERGY MGMT., RENEWABLE ENERGY LEASE NUMBER OCS-A 0544, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2022), <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Lease%20OCS-A%200544.pdf>; see BUREAU OF OCEAN ENERGY MGMT., RENEWABLE ENERGY LEASE NUMBER OCS-A 0545, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2022), <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Commercial%20Lease%20OCS-A%200545.pdf>; see BUREAU OF OCEAN ENERGY MGMT., RENEWABLE ENERGY LEASE NUMBER OCS-A 0546, COMMERCIAL LEASE OF SUBMERGED LANDS FOR RENEWABLE ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2022), <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Commercial%20Lease%20OCS-A%200546.pdf>.

⁷³ *Natural Resources Revenue Data*, U.S. DEP'T OF THE INTERIOR, <https://revenue.data.doi.gov/downloads/revenue/> (then click "Combined excel spreadsheet" download link, select monthly revenue tab, filter "Date" column by "2023," filter "Land Category" column by "Offshore," filter "Mineral Lease Type" column by "Wind," and sum 2 revenues).

⁷⁴ 43 U.S.C. § 1338 (1953).

seaward of state submerged lands.⁷⁵ BOEM uses an inverse distance formula to determine each eligible state's share of the 27% of revenues.⁷⁶

In sum, the revenues generated by leasing offshore wind from the oceans is shared between the federal government and the impacted coastal states; the federal portion simply goes into the U.S. Treasury and does not fund a specific purpose, such as protecting and conserving the oceans. States' shares of the revenues are similarly unrestricted and open to be used for general purposes. This is a policy design choice, and below we explore different choices used in Pennsylvania and Alaska that we recommend as better suited to carrying out state public trust duties.

II. NON-PRICE CRITERIA TO OPTIMIZE OFFSHORE WIND'S ENVIRONMENTAL AND SOCIAL BENEFITS

Over the past 50 years, environmental law in the United States has followed a framework established by the National Environmental Policy Act (NEPA) to avoid, reduce, and mitigate environmental harm. NEPA's approach sets procedural guardrails more than substantive criteria. While it has served us in many ways, a large body of legal literature has highlighted the deficits of this approach.⁷⁷ Yet the federal government

⁷⁵ Energy Policy Act, *supra* note 25, at 745. A state is eligible to receive these revenues if any part of the state's coastline is located within fifteen miles of the announced geographic center of the project area. 30 C.F.R. § 585.542 (2023).

⁷⁶ 30 C.F.R. § 585.540(a) (2023). The inverse distance formula "apportions shares according to the relative proximity of the nearest point on the coastline of each eligible [s]tate to the geographic center of the qualified project area." 30 C.F.R. § 585.540(c) (2023).

⁷⁷ See, e.g., Bradley C. Karkkainen, *Toward a Smarter NEPA: Monitoring and Managing Government's Environmental Performance* 102 COLUM. L. REV. 903 (May 2002). "[B]ecause NEPA does not require follow-up monitoring, actual impacts remain undisclosed and there is no assurance that mitigated impacts remain below EIS-triggering thresholds." *Id.* at 904. "NEPA appears to demand burdensome procedural formalities while accomplishing little or nothing of substance." *Id.* at 905. See also, e.g., David E. Adelman & Robert L. Glicksman, *Presidential and Judicial Politics in Environmental Litigation* 50 ARIZ. ST. L. J. 3, 24 (2018). "[W]hile thousands of federal actions are potentially subject to NEPA procedures, the vast majority are either exempted under [categorical exclusions] or reviewed under streamlined [environmental assessments]." See also, e.g., Christopher Thomas et al., *NEPA Streamlining Yet Again: Will the diet work this time?* 33 NAT. RES. & ENV'T 34-35 (2019). "NEPA's 'sweeping policy goals' do not require any particular environmental outcome, but only that federal actors take a 'hard look' at their choices," quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); "While negative impacts and potential mitigation measure must be analyzed, the agency need not necessarily demand mitigation." Thomas et al. at 35. See also, e.g., Kayla Race, Student Comment, *A Perfect Storm: Environmental Justice and Air Quality Impacts of Offshore Oil and Gas Development in the Arctic Outer Continental Shelf*, 38 UCLA J. ENV'T L. & POL'Y 105, 130-31 (2020). "[T]he bar is still extremely low for environmental justice analyses in NEPA reviews. Despite the fact that the EPA issued guidance in 1998 and 1999 explaining how the EPA should consider environmental justice in its own NEPA reviews and in its reviews of other agencies'

has continued to apply that framework in its early stages of permitting offshore wind facilities. The renewables revolution is an opportunity to rethink this approach. Some argue NEPA and other reviews are obstacles to advancing utility-scale renewables, and thus the process should be streamlined.⁷⁸ We argue government should select and issue leases to offshore wind projects based on net positive advancements of environmental, societal, and financial benefits. When developers can demonstrate projects are clearly net positive, they will encounter less litigation friction and delay.

In this section, we focus on the environmental and social benefits evaluated by non-price criteria of offshore wind bids in more mature regulatory systems. Non-price criteria are any terms other than price that are used in a bid or proposal for an offshore wind development lease.⁷⁹ Non-price criteria are an important tool that the government can use to advance broad priorities—such as energy justice, enhancing fish habitats, and ecosystem protection—when approving wind energy leases. As governments develop planning and solicitation processes for offshore wind development at unprecedented scales, there is an opportunity to utilize non-price criteria to ensure offshore wind fulfills renewable energy needs in a manner that not only mitigates the climate crisis, but also provides net positive environmental and social benefits.

Europe has led the world in the establishment of potential and operational offshore wind facilities. Thus, it is not surprising that the integration of non-price criteria is most advanced in Europe and is a sign of a maturing offshore wind industry. Federal and state governments in the U.S. are just starting to use non-price criteria in offshore wind leases and should leverage lessons from the European experience to advance these broader benefits even at this emergent stage of the industry in the U.S. We explore examples and highlight specific leading case studies from the Netherlands in Europe and Maryland in the U.S. as a basis for later providing recommendations to Great Lakes states.

A. Europe

In 2018, Europe was the leader in offshore wind with more than 80% of the global installed capacity, according to data from the International Energy Agency.⁸⁰ Since then, more countries have been

environmental impact statements pursuant to Clean Air Act Section 309, few environmental justice-based NEPA claims have been successful in court.”

⁷⁸ Michael Gerrard, *Legal Pathways for a Massive Increase in Utility-Scale Renewable Generation Capacity*, 47 ENV'T. L. REP. 10591 (2017).

⁷⁹ Mark James et al., *Using Non-Price Criteria in State Offshore Wind solicitations to Advance Net Positive Biodiversity Goals*, VT. L. & GRADUATE SCH. INST. ENERGY & ENV'T 1, 8 (2023).

⁸⁰ INT'L ENERGY AGENCY, OFFSHORE WIND OUTLOOK 2019 1, 11 (2019), https://iea.blob.core.windows.net/assets/495ab264-4ddf-4b68-b9c0-514295ff40a7/Offshore_Wind_Outlook_2019.pdf.

following their early lead. By 2022, China surged ahead with the most installed capacity. The Global Wind Energy Council reported that by the end of 2022, global installed offshore wind capacity in operation reached 64.3 GW, of which China had 31.44 GW and Europe had 30 GW.⁸¹

Given its early embrace of offshore wind and broad sustainability focus for businesses, the European Union (EU) currently has the most developed approach to integrating non-price criteria into leasing offshore wind. We briefly explain its framework here and offer a case study from the Netherlands as the leading example for incorporating non-price criteria into leasing decisions.

European countries explicitly seek to maximize ecological gains from the way offshore wind facilities are constructed and operated.⁸² The EU has three main laws that guide offshore wind development: the State aid rules, the Renewable Energy Directive, and the Maritime Spatial Planning Directive.⁸³ The State aid rules allow state aid programs to promote offshore wind development through competitively awarded auctions, though they cap the weight of non-price criteria at 30% of the assessment.⁸⁴ The Renewable Energy Directive sets EU-wide and state-specific decarbonization metrics and drives the development of offshore wind by requiring expedited offshore wind permitting.⁸⁵ Updated in 2023, it sets a binding renewable energy target of at least 42.5% of EU energy consumption by 2030.⁸⁶ The Maritime Spatial Planning Directive creates the framework for sustainable use of marine resources and the conservation of marine ecosystems through the development of marine

⁸¹ China now has 49% and Europe 47% of global installed offshore wind capacity, while the U.S. has a negligible less than one tenth of one percent. Rebecca Williams & Feng Zhao, GLOBAL WIND ENERGY COUNCIL, GLOBAL OFFSHORE WIND REPORT 2023, 7 (2023), <https://gwec.net/wp-content/uploads/2023/08/GWEC-Global-Offshore-Wind-Report-2023.pdf>; Shotaro Tani, *China drives Asian lead in global offshore wind as Europe loses top spot*, FINANCIAL TIMES, (Aug. 28, 2023), <https://www.ft.com/content/cb2581c1-6e2d-4868-ac73-c3d8657d403a>; see also, WIND EUROPE, WIND ENERGY IN EUROPE: 2022 STATISTICS AND THE OUTLOOK FOR 2023-2027 1, 9 (Feb. 2023), <https://windeurope.org/intelligence-platform/product/wind-energy-in-europe-2022-statistics-and-the-outlook-for-2023-2027/>.

⁸² James et al., *supra* note 79, at 9.

⁸³ *Id.* at 43.

⁸⁴ EUROPEAN COMM'N, *Guidelines on State Aid For Climate, Environmental Protection and Energy*, II OFF. J. EUR. UNION 26 (Feb. 18, 2022), [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022XC0218\(03\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022XC0218(03)).

⁸⁵ EUROPEAN PARLIAMENT AND EUROPEAN COUNCIL, *Directive 2018/2001 on the promotion of the use of energy from renewable sources*, OFF. J. EUR. UNION (Dec. 11, 2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001>.

⁸⁶ EUROPEAN PARLIAMENT AND EUROPEAN COUNCIL, *Renewable Energy Directive* https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en.

spatial plans.⁸⁷ These laws work in concert to build a legal architecture where offshore wind is permitted to add renewables to the grid.

B. The Netherlands

Although the EU has established a strong foundational approach for the region, the countries within the EU may go even further in protecting environmental and social values. The Netherlands represents the forerunner of implementing non-price criteria to promote net positive environmental benefits for offshore wind in the EU. The Dutch government has committed to a goal of zero carbon by 2050, which they have defined as sourcing all energy used in the Netherlands from sustainable sources.⁸⁸ Their Energy Agreement for Sustainable Growth required at least 4.5 GW of offshore wind turbines in operation by 2023.⁸⁹

According to the report by James et. al., “the Netherlands auctions a fully packaged permit” rather than a lease for an offshore wind project.⁹⁰ The permit includes the lease area, a preliminary study to complete a preliminary engineering design, the interconnection substation, and the right to construct and operate the facility for up to forty years.⁹¹ Because the Netherlands uses a non-subsidized auction format, it does not need to adhere to the 30% cap on non-price criteria

⁸⁷ EUROPEAN PARLIAMENT AND EUROPEAN COUNCIL, *Directive 2014/89/EU establishing a framework for maritime spatial planning*, OFF. J. EUR. UNION (July 23, 2014), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0089>.

⁸⁸ GOV'T OF NETH., *Offshore Wind Energy*, <https://www.government.nl/topics/renewable-energy/offshore-wind-energy>. In its commitment to zero carbon emissions by 2050, the Dutch government is considering non-renewable sources of energy such as nuclear energy. Though current market conditions do not indicate demand for a new nuclear power plant, the government does not rule out the deployment of new nuclear technologies in the future. MINISTRY OF ECONOMIC AFFAIRS OF THE NETH., *Energy Report: Transition to sustainable energy* 1, 6 (Apr. 2016), <https://www.government.nl/topics/renewable-energy/documents/reports/2016/04/28/energy-report-transition-tot-sustainable-energy>.

⁸⁹ GOV'T OF NETH., *Offshore Wind Energy*, <https://www.government.nl/topics/renewable-energy/offshore-wind-energy>. As of summer of 2023, the Netherlands had 1.5 GW of offshore wind operating. GOV'T OF NETH., *Offshore Wind Energy*, <https://www.government.nl/topics/renewable-energy/offshore-wind-energy> (adding capacity of wind farms Borssele, Sites I and II at 0.75 GW and Borssele, Sites III, IV and V at 0.75 GW, commissioned in 2020). *But see* Adnan Memija, *Netherlands to Miss 2031 Offshore Wind Target*, OFFSHOREWIND.BIZ (Apr. 29, 2024) <https://www.offshorewind.biz/2024/04/29/netherlands-to-miss-2031-offshore-wind-target/> (noting that “[t]he Netherlands’ previous goal to achieve 21 GW of offshore wind capacity by the end of 2031 has been postponed by one year, now targeting achievement by 2032.”).

⁹⁰ James et al., *supra* note 79, at 44. By contrast, in the U.S., the lease is simply one of many approvals an offshore wind project must obtain.

⁹¹ *Id.*

set by the EU's State aid rules.⁹² The Netherlands subsequently weighs non-price criteria at 50% of the total bid weight.⁹³

The involvement of independent experts is an important distinction in the Dutch example, as it adds rigor to their approach. The Netherlands Enterprise Agency works with independent experts on the ecology of the North Sea to develop qualitative, non-price criteria that are measurable and scorable, and use these to assess bid applications.⁹⁴ These criteria include mitigation of potential adverse impacts, promotion of positive effects on the conservation of marine habitats, and the promotion of positive effects on environmental health in the Dutch portion of the North Sea.⁹⁵ For example, regulations for the Hollandse Kust (west) Site VI wind project required applicants to include a description of the investment and innovation contributions to the ecology of the North Sea.⁹⁶ The benefit of independent experts creating and assessing non-price criteria increased clarity of the criteria and the bidding process, with better results, according to a renewable energy professor.⁹⁷

The Minister for Economic Affairs and Climate Policy is empowered by Dutch law to include environmental and ecological

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.* at 44–45. See also Neth. Enterprise Agency, *Uitwerking beoordelingssystematiek van het criterium: de bijdrage aan de ecologie van de Noordzee; Regeling vergunningverlening windenergie op zee kavel VI Hollandse Kust (west)* [Elaboration of the assessment system of the criterion: the contribution to the ecology of the North Sea; Regulations for licensing offshore wind energy on site VI Hollandse Kust (west)] (Sept. 7, 2022), <https://www.rvo.nl/sites/default/files/2022-12/Beoordelingssystematiek-ecologie-Hollandse-Kust-west-kavel-VI.pdf>.

⁹⁵ Gov't Gazette of the Kingdom of the Neth., MINISTRY OF ECONOMIC AFFAIRS AND CLIMATE, *Regulation of the Minister for Climate and Energy of 5 March 2022*, no. WJZ/ 21307522, containing rules regarding the granting of permits for the Hollandse Kust (west) Wind Farm Zone (Regulation for the granting of permits for the Hollandse Kust (west) Wind Farm Zone) Site VI), tbl.4, <https://zoek.officielebekendmakingen.nl/stcrt-2022-7101-n1.html>. See also Netherlands Enterprise Agency, *Uitwerking beoordelingssystematiek van het criterium: de bijdrage aan de ecologie van de Noordzee; Regeling vergunningverlening windenergie op zee kavel VI Hollandse Kust (west)* [Elaboration of the assessment system of the criterion: the contribution to the ecology of the North Sea; Regulations for licensing offshore wind energy on site VI Hollandse Kust (west)] at 1 (Sept. 1, 2022), <https://www.rvo.nl/sites/default/files/2022-12/Beoordelingssystematiek-ecologie-Hollandse-Kust-west-kavel-VI.pdf>.

⁹⁶ Gov't Gazette of the Kingdom of the Neth., MINISTRY OF ECONOMIC AFFAIRS AND CLIMATE, *Regulation of the Minister for Climate and Energy of 5 March 2022*, no. WJZ/ 21307522, containing rules regarding the granting of permits for the Hollandse Kust (west) Wind Farm Zone (Regulation for the granting of permits for the Hollandse Kust (west) Wind Farm Zone) Site VI), article 4(e)-(f), <https://zoek.officielebekendmakingen.nl/stcrt-2022-7101-n1.html>.

⁹⁷ Email between Mark James, Institute for Energy and the Environment, and authors, Nov. 11, 2023 (on file with authors).

interests in site selection decisions.⁹⁸ In a letter to the Dutch Parliament on offshore wind energy development, the Minister for Climate and Energy Policy underscored the importance of good design and planning of offshore wind projects to preserve environmental quality.⁹⁹ In clear and explicit language, the Minister pronounced the intention of the Dutch government to prioritize nature-inclusive design and the protection of the environment in its offshore wind energy development:

Both during construction and operation, wind farms impact nature, both below and above the water. . . . Achieving the climate goals and restoring and preserving biodiversity are clear policy principles for this Government. . . . The Government will therefore be focusing its efforts on research to map these effects as accurately as possible, on mitigation to prevent the effects, and on nature enhancement to contribute to the resilience of marine nature. At the same time, the realization of wind farms can also have positive effects on underwater nature, if projects are built in a nature-inclusive manner.¹⁰⁰

The Dutch government underscored this nature-enhancement approach in its selection of the next offshore wind project tender winner. In his 2022 announcement of the winner of the Hollandse Kust (west) Site VI offshore wind energy permit tender, the Dutch Minister for Climate and Energy Policy emphasized the importance of “[m]aintaining a robust and healthy ecosystem and biodiversity in the North Sea.”¹⁰¹ The Minister cited the winning project’s “net positive impact on nature” and “nature-inclusive design” as key factors in its selection.¹⁰² The applicant Ecowende

intends to make an impact and gather knowledge using 40 innovative experiments and solutions, working with ecological experts from academic, non-profit and commercial partners to analyse which measures are most

⁹⁸ *Wet van 24 juni 2015, houdende regels omtrent windenergie op zee (Wet windenergie op zee)* [Offshore Wind Energy Act], *Stb.* 2015, 261, at art. 3(3)(c) <https://zoek.officielebekendmakingen.nl/stb-2015-261.html>.

⁹⁹ R.A.A. Jetten, Minister for Climate and Energy Policy, *Letter to Parliament on offshore wind energy 2030-2050* 1, 19 (Sept. 16, 2022), <https://english.rvo.nl/sites/default/files/2023-07/Letter%20to%20Parliament%20on%20offshore%20wind%20energy%202030-2050.pdf>.

¹⁰⁰ *Id.* at 19.

¹⁰¹ R.A.A. Jetten, *Tender result: Offshore Wind Energy Permit for Hollandse Kust (west), Site VI*, Minister for Climate and Energy Policy (Dec. 15, 2022), <https://english.rvo.nl/sites/default/files/2023-07/Letter%20to%20Parliament%20winner%20HKW%20site%20VI.pdf>.

¹⁰² *Id.* at 1.

effective. The design of the wind farm is nature-inclusive, for example by including a bird corridor where the wind turbines are spaced further apart. Various pile-driving techniques will also be used to measure and minimise impact on underwater life. . . . Marine biodiversity will also be boosted by, for example, placing natural reef structures on the seabed.¹⁰³

The Minister also announced his intention to include additional ecological criteria for future offshore wind tenders.¹⁰⁴

According to The Nature Conservancy, nature-inclusive designs, or nature-based designs, are the design of structures “to optimize habitat value for native species or communities whose natural habitat has been modified, degraded, or reduced.”¹⁰⁵ The Ecowende project includes a design feature that promotes the creation of new reef structures. The Nature Conservancy evaluates this design element in a report in which it explains that nature-based designs can be integrated around wind turbine foundations, which are vulnerable to scour or erosion by waves and currents.¹⁰⁶ Structures designed to prevent scour can form artificial reefs and enhance habitat for marine species.¹⁰⁷ These turbine reefs provide new habitat areas for organisms that live on the seabed.¹⁰⁸ Those organisms, in turn, are an important food source for organisms higher up the food chain.¹⁰⁹

Glarou and colleagues’ review of over 6,500 published papers on artificial reefs and offshore wind structures found that studies of offshore wind structures showed “increased abundance and biodiversity of hard-bottom species due to reef effects and creation of no-take zones.”¹¹⁰ These artificial structures provide areas for food, spawning, and shelter.¹¹¹ The literature review found that more research is needed to determine whether the turbine reefs attract an aggregation of fish from the surrounding environment or if they result in a net increase in the population.¹¹² There is an opportunity to learn from previously

¹⁰³ *Id.* at 2.

¹⁰⁴ *Id.*

¹⁰⁵ THE NATURE CONSERVANCY, *TURBINE REEFS: NATURE-BASED DESIGNS FOR AUGMENTING OFFSHORE WIND STRUCTURES IN THE U. S.* 1, 3 (Nov. 2021) [hereinafter *TURBINE REEFS*], https://www.nature.org/content/dam/tnc/nature/en/documents/TurbineReefReport_Nature-BasedDesignsOffshoreWindStructures_Final2022.pdf.

¹⁰⁶ *Id.* at 101.

¹⁰⁷ *Id.* at 3.

¹⁰⁸ *Id.* at 4.

¹⁰⁹ *Id.*

¹¹⁰ Maria Glarou et al., *Using Artificial-Reef Knowledge to Enhance the Ecological Function of Offshore Wind Turbine Foundations: Implications for Fish Abundance and Diversity*, 8, 332 *J. MARINE SCI. & ENG'G*, 2 (2020).

¹¹¹ *Id.* at 9.

¹¹² *Id.* at 11.

implemented artificial turbine reefs to design future turbine reefs that optimize habitat conditions for native species.¹¹³

The Netherlands has proven itself as a leader in using non-price criteria to prioritize net positive environmental benefits in its offshore wind energy development, both in its stated policies and its awarded permits. Others could learn from the Dutch framework in designing or refining their leasing and permitting standards.

C. United States

The use of non-price criteria in the U.S. is in its infancy. BOEM, the leading agency for offshore wind in the oceans, has focused on prices in its auctions. However, in 2022, BOEM began using a multiple-factor auction format that allows it to consider both price and non-price criteria.¹¹⁴ BOEM uses non-price criteria to support the development of a domestic supply chain and workforce to deploy offshore wind, but so far, it has not announced new environmental evaluation criteria rules.¹¹⁵ Yet, BOEM is implementing some environmental criteria on a lease-by-lease basis. In the 2022 Pacific Wind Lease, for instance, BOEM requested input on possible lease stipulations related to environmental justice¹¹⁶ and developed lease stipulations on environmental protections and collaboration with state environmental agencies.¹¹⁷

In addition, BOEM published its final Renewable Energy Modernization Rule in May 2024, which allows for the continued

¹¹³ TURBINE REEFS, at 4–5.

¹¹⁴ James et al., *supra* note 79, at 40.

¹¹⁵ FACT SHEET: Biden Administration Launches New Federal-State Offshore Wind Partnership to Grow America-Made Clean Energy, THE WHITE HOUSE (June 23, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/23/fact-sheet-biden-administration-launches-new-federal-state-offshore-wind-partnership-to-grow-american-made-clean-energy/>. Under its regulations, BOEM has the discretion to specify what criteria it will use to evaluate bids for each auction. BOEM details the auction format and evaluation criteria in the proposed sale notice and final sale notice for each auction, which are published through the Federal Register. This process is discussed in more detail in the Competitive Leases section above. 30 C.F.R. § 585.216 (2023).

¹¹⁶ “Consistent with its statutory and regulatory authorities, BOEM is considering lease stipulations to ensure that communities, particularly underserved communities, are considered and engaged throughout the offshore wind energy development process, that potential impacts and benefits from Lessees’ projects are documented, and Lessees’ project proposals are informed by or altered to address those impacts and benefits.” Pacific Wind Lease Sale 1 (PACW-1) for Commercial Leasing for Wind Power on the Outer Continental Shelf in California-Proposed Sale Notice, 87 Fed. Reg. 32,443, 32,447 (May 31, 2022).

¹¹⁷ “In addition, BOEM developed and refined a number of lease stipulations, based on feedback solicited in the PSN, including provisions to . . . require the Lessee to coordinate with the California Coastal Commission on plan submissions; require the Lessee to use an independent Fisheries Liaison and protect the environment through the imposition of vessel speed requirements, marine mammal monitoring measures, a

implementation of multiple-factor auctions despite modifications to auction regulations.¹¹⁸ Thus, BOEM still has the ability to allow bidders to include non-monetary components or non-price criteria through bidding credits.¹¹⁹ Under the rule, BOEM may consider non-monetary factors like “environmental considerations, public benefits . . . [and] any other factor or criteria to further development of offshore renewable energy, as identified by BOEM in the [proposed and final sale notices].”¹²⁰ In the proposed rule, BOEM considered capping the maximum weight of non-price criteria at either a dollar amount or percentage of the bid.¹²¹ In response to comments, BOEM did not finalize a cap or limit, but the final rule does note that BOEM expects to limit the use of bidding credits at a maximum of 25% of the high bid for most lease sales.¹²² Depending on the lease sale notice, BOEM may or may not allow “stackable” credits allowing bidders to combine the value of multiple bidding credits.¹²³ If a bidder does not meet the commitments of a bidding credit, BOEM can collect repayment for the value of the credit with interest.¹²⁴

At least six states use non-price criteria to evaluate offshore wind projects: Connecticut, Maryland, Massachusetts, New Jersey, New York, and Rhode Island.¹²⁵ Instead of broad environmental and societal

site-specific spill prevention and response plan, a critical operations and curtailment plan, requirements related to the avoidance of intentional contact within hard substrate, rock outcroppings, seamounts, or deep-sea coral/sponge habitat, and use of low-energy geophysical survey equipment.” Pacific Wind Lease Sale 1 (PACW-1) for Commercial Leasing for Wind Power on the Outer Continental Shelf in California-Final Sale Notice, 87 Fed. Reg. 64,093, 64,094 (Oct. 21, 2022).

¹¹⁸ Renewable Energy Modernization Rule, 89 Fed. Reg. 42,602, 42,633 (May 15, 2024).

¹¹⁹ *Id.* “Bidding credits permit the agency to recognize other policy priorities, like advancing a domestic supply chain or promoting workforce training, in addition to monetary bid amounts.” *Id.*

¹²⁰ *Id.* at 42,731.

¹²¹ Renewable Energy Modernization Rule, 88 Fed. Reg. 5968, 5995 (proposed Jan. 30, 2023) (“BOEM is soliciting comments on whether the regulations should codify its past practice of imposing a cap on the value of bidding credits that any bidder can earn, measured as either an absolute dollar amount or as a percentage of the bid amount. Bidding credit limits in past auctions ranged from 10 to 25 percent of the high bid. If implemented, this cap would be intended to ensure that BOEM obtains a fair return on the prospective lease.”).

¹²² Renewable Energy Modernization Rule, 89 Fed. Reg. at 42,688.

¹²³ *Id.* If credits are “non-stackable,” that means “the total value of a bidder’s bidding credits would be limited to the value of the largest bidding credit for which the bidder was eligible. Stackable credits would incentivize bidders to meet the criteria for as many of the available bidding credits as they can. Alternatively, using non-stackable credits would limit the total value of the non-monetary component of the bid.” *Id.*

¹²⁴ *Id.* at 42,633.

¹²⁵ CONN. GEN. STAT. § 16a-3n(a)(3)(A) (2023); MD. PUB. UTIL. § 7-704.1(d)(1)(2021); 220 MASS. CODE REGS. 23.05(1)(a) (2017); N.J. REV. STAT. § 48:3-87.1(a)(10)(c) (2021); N.J. ADMIN. CODE § 14:8-6.5(b) (2013); NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY, REQUEST FOR PROPOSALS ORECRFP22-1 1, 49 (Dec. 23, 2022); R.I. GEN. L. § 39-31-10(a) (2022).

benefits, the states are focused on the narrower societal benefits of “maximizing the workforce development and supply chain benefits of the offshore wind build out.”¹²⁶

Regarding the environment, BOEM and the states mainly use a National Environmental Policy Act (NEPA) or a state NEPA-like approach by seeking to identify, avoid, minimize, and mitigate environmental impacts.¹²⁷ Maryland is emerging as a potential outlier in this regard.¹²⁸ Like the Netherlands, Maryland seeks to select wind projects that create net positive ecological impacts.¹²⁹ As will be discussed, Maryland is headed in the right direction, but there is room for improvement.

D. Maryland

In 2023, Maryland led the U.S. in using non-price criteria to promote net positive environmental benefits. The state enacted the Maryland Offshore Wind Energy Act of 2013, which requires that offshore wind development proposals be evaluated on criteria including “the extent to which the cost-benefit analysis . . . demonstrates positive net economic, environmental, and health benefits to the State.”¹³⁰ Maryland law also mandates that when regulating its utilities, the Maryland Public Service Commission must consider, among other factors, “the preservation of environmental quality, including protection of the global climate from continued short-term and long-term warming based on the best available scientific information recognized by the Intergovernmental Panel on Climate Change.”¹³¹

The Maryland Public Service Commission subsequently promulgated rules to evaluate and approve offshore wind projects that

¹²⁶ James et al., *supra* note 79, at 9.

¹²⁷ Some states have etched these requirements into statute. For example, Connecticut law requires that “all bids have an environmental and fisheries mitigation plan for the construction and operation of the facility that includes, but is not limited to, an explicit description of best management practices that will be employed to avoid, minimize, and mitigate impacts to wildlife, natural resources, ecosystems and traditional or existing water-dependent uses such as commercial fishing.” *Id.* at 32-33. Others have included environmental considerations into development plans. For example, the California legislature has directed the California Energy Commission to develop an offshore wind energy development plan together with the California Public Utilities Commission. The California Energy Commission must make recommendations “regarding significant adverse environmental impacts and use conflicts, such as avoidance, minimization, monitoring, mitigation, and adaptive management.” *Id.* at 36-37.

¹²⁸ Along with Maryland, New Jersey also uses environmental “benefits” language in its offshore wind law. *Id.* at 20.

¹²⁹ *Id.* at 9.

¹³⁰ MD. PUB. UTIL. § 7-704.1(e)(vi) (2021).

¹³¹ MD. PUB. UTIL. § 2-113(a)(2)(v) (2021).

further define the net environmental benefits analysis.¹³² The Commission considers the applicant's

analysis of the net environmental and health impacts, including impacts on the affected marine environment based on publicly available information, to the State including impacts during construction, operation and decommissioning of the proposed project, including completeness of descriptions and documentation, verifiability of model inputs and reasonableness of outputs, and extent to which the analysis demonstrates positive net environmental and health benefits to the State.¹³³

The Maryland Public Service Commission has approved four offshore wind projects, all of which are expected to begin operations in 2026 and generate a combined 2 GW of renewable energy, enough to power 600,000 Maryland homes.¹³⁴ Here, we examine the four projects.

In 2017, Maryland's Public Service Commission approved the first two projects, MarWin I and Skipjack 1, to construct 368 MW of energy

¹³² MD. CODE REGS. 20.61.06.03 (2021).

¹³³ MD. CODE REGS. 20.61.06.03(B)(1)(a)(xi) (2021).

¹³⁴ *Offshore Wind Projects in Maryland*, OFFSHORE WIND MD., <https://offshorewindmaryland.org/offshore-wind-projects-in-md/> (last visited May 22, 2024). In May 2024, Maryland passed a bill to allow the state to re-allocate awards for the Skipjack project from Ørsted to other offshore wind projects. Adrijana Buljan, *Maryland Governor Enacts Bill that Enables State to Re-allocate Ørsted's Skipjack ORECs to US Wind*, OFFSHOREWIND.BIZ (May 13, 2024) <https://www.offshorewind.biz/2024/05/13/maryland-governor-enacts-bill-that-enables-state-to-re-allocate-orsted-skipjack-orecs-to-us-wind/>. This in response to Skipjack developer Ørsted's January 2024 announcement of its plan to "reposition" the projects "for future offtake opportunities," and thus its withdrawal from the Maryland Public Service Commission's approval orders of Skipjack 1 and 2. "Ørsted intends to continue advancing development and permitting for the combined project, including submission of its updated Construction and Operations Plan to BOEM." The announcement cited "challenging market conditions, including inflation, high interest rates and supply chain constraints" as causes of the payment amounts agreed upon to become commercially nonviable. *Skipjack Wind to be Repositioned for Future Offtake Opportunities*, ØRSTED (Jan. 25, 2024), <https://skipjackwind.com/news/2024/01/skipjack-wind-to-be-repositioned-for-future-offtake-opportunities>. See also Zoe Stayman & Charles Reinert, *Ørsted Breaks with State of Maryland on Skipjack Wind, Citing Challenging Economic Conditions*, COASTTV (Jan. 25, 2024), https://www.wrde.com/news/rsted-breaks-with-state-of-maryland-on-skipjack-wind-citing-challenging-economic-conditions/article_e7286118-bbca-11ee-ba72-937484675b05.html. For more on challenging market conditions, see, e.g., Miriam Wasser, *Offshore Wind in the U.S. Hit Headwinds in 2023. Here's What You Need to Know*, NPR (Dec. 27, 2023 5:00 AM), <https://www.npr.org/2023/12/27/1221639019/offshore-wind-in-the-u-s-hit-headwinds-in-2023-heres-what-you-need-to-know>.

capacity.¹³⁵ In its order approving the project, the Public Service Commission states it “considered exhaustively the issues of whether the offshore wind projects have not only demonstrated a likelihood to produce positive net economic, environmental, and health benefits to the State but also whether such benefits will truly come to pass.”¹³⁶ An application must demonstrate the positive net environmental benefits by relying “on an independent analysis of the environmental benefits to Maryland associated with a proposed [offshore wind] project, quantitatively expressed in terms of avoided air emissions and qualitatively discussed in terms of any impacts on the affected marine environment.”¹³⁷ In the case of MarWin I and Skipjack 1, the Commission found that an independent analysis determined that because the projects would “lower the carbon intensity of Maryland’s generation profile,” they would accrue positive net environmental benefits to the State, thus, approving the projects.¹³⁸ The Commission also called out “the need to mitigate potential adverse implications to the affected marine environment stemming from these projects.”¹³⁹ Subsequently, the Commission conditioned its approval on precautionary measures to protect marine mammals from harm during the projects’ development, construction, and operation.¹⁴⁰ With these conditions in place, the Commission declared it was “confident that the [offshore wind] projects proposed by [the applicants] will yield significant positive net environmental benefits to the state.”¹⁴¹

After Maryland’s Clean Energy Jobs Act of 2019 called for an additional 1,200 MW (1.2 GW) of offshore wind energy production,¹⁴² Maryland began a second solicitation round. The Commission subsequently approved two more offshore wind projects in 2021—the Momentum Wind project and the Skipjack 2 project—to construct 1.7 GW of offshore wind energy capacity.¹⁴³ An independent consultant concluded that the project applicants demonstrated net positive environmental benefits would accrue to Maryland, as the projects would

¹³⁵ *Maryland’s Offshore Wind History*, OFFSHORE WIND MD, <https://offshorewindmaryland.org/offshore-wind-projects-in-md/marylands-offshore-wind-history/> (last visited May 22, 2024); *In the Matter of the Applications of U.S. Wind, Inc. and Skipjack Offshore Energy, LLC for a Proposed Offshore Wind Project(s) Pursuant to the Maryland Offshore Wind Energy Act of 2013*, MD. Pub. Serv. Comm’n, Case No. 9431, Order No. 88192 (2017).

¹³⁶ *In the Matter of the Applications of U.S. Wind, Inc. and Skipjack Offshore Energy, LLC for a Proposed Offshore Wind Project(s) Pursuant to the Maryland Offshore Wind Energy Act of 2013*, *supra* note 135, at 4.

¹³⁷ *Id.* at 64.

¹³⁸ *Id.* at 64–65.

¹³⁹ *Id.* at 69.

¹⁴⁰ *Id.* at 70.

¹⁴¹ *Id.*

¹⁴² Clean Energy Jobs, S. 516, Ch. 757 (2019), MD. PUB. UTIL. § 7-703(b)(25)(i)(2) (2021).

¹⁴³ *Order Granting Offshore Wind Renewable Energy Credits*, MD. Pub. Serv. Comm’n, Case No. 9666, Order No. 90011, 1 (2021).

significantly reduce net emissions.¹⁴⁴ The Commission found that “the approved projects will reduce emissions of harmful pollutants by displacing generation from other fossil fuel-fired generation plants, including emissions of carbon dioxide, sulfur dioxide, nitrogen oxide, mercury, and coarse (PM₁₀) and fine (PM_{2.5}) particulate matter.”¹⁴⁵ These findings are unremarkable for a renewable energy project, so we looked further at the conditions imposed to evaluate whether these offer a model for net positive outcomes. We found that the Commission imposed conditions to mitigate potential environmental harms that might be created during the construction and operation of the offshore wind projects.¹⁴⁶ These conditions include measures to reduce noise both in the air and underwater, as well as preventive measures to protect marine mammals during the project’s development, construction, and operation phases.¹⁴⁷

Even as a leader in using non-price criteria in the U.S., Maryland offers a stark contrast from the Netherlands in promoting net positive environmental benefits in its offshore wind solicitation process. Both the Maryland and the Dutch governments have given their agencies discretion in setting evaluation criteria for their offshore wind development processes. However, the Dutch government has explicitly stated its priority to enhance the ecology of the North Sea and embedded that priority in its offshore wind tender evaluation process; it gives half the weight of the bid to these non-price criteria.¹⁴⁸ In the Netherlands, the process uses a panel of independent experts whose names are published once the criteria have been announced;¹⁴⁹ Maryland does not integrate independent experts.

While Maryland has included net positive environmental benefits as a legal requirement in its evaluation of offshore wind project bids, in practice, the “benefit” requirement is no more than the reduction of greenhouse gas emissions that comes with every offshore wind project. Even the conditions Maryland attached to the project approvals to protect marine mammals during every project phase come in vague language. Thus, this requirement becomes a weak guardian of environmental values. When establishing a new legal approach to Great

¹⁴⁴ *Id.* at 108–09.

¹⁴⁵ *Id.* at 109.

¹⁴⁶ *Id.* at 110.

¹⁴⁷ *Id.*

¹⁴⁸ *Hollandse Kust (west) Wind Farm Zone Appendix A: Applicable Law Part of Project and Site Description*, NETHERLANDS ENTERPRISE AGENCY, 1, 27–31 (Mar. 2022), https://offshorewind.rvo.nl/file/download/c85ef7b0-6229-4055-964b-9667164e4624/hkw_20220413_psd_appendix-a.pdf.

¹⁴⁹ James et al., *supra* note 79, at 45 (citing *Questions and Answers, Ministerial Order for the Granting of Offshore Wind Farm Permits for Hollandse Kust (west) Wind Farm Site VI*, NETH. ENTER. AGENCY 9 (Apr. 2022)).

Lakes offshore wind, the Netherlands offers a stronger example to inform a more robust nature-based approach.

III. GREAT LAKES OFFSHORE WIND: AN EMERGENT LEGAL SYSTEM

Great Lakes offshore wind resources caught public attention after an evaluation by the National Renewable Energy Laboratory showed substantial wind resources over the Great Lakes.¹⁵⁰ Illustrated in Table 2 below, the report asserts that “in five of the eight Great Lakes states, the lake-based wind energy resource potential exceeds the state’s annual electricity consumption,” which could be a big opportunity to supply the Great Lakes states as well as supplement other regions in the transition to renewable, carbon-free energy.¹⁵¹

Table 2. Electricity Consumption and Offshore Wind Resource Potential in the Great Lakes Region¹⁵²

	Annual Electric Consumption (terawatt-hours) ⁵	Great Lakes Wind Resource Capacity ⁶ (GW)	Potential Annual Energy Production (terawatt-hours) ⁵	Potential Energy Production/ Current Electric Consumption
Michigan	97	390	1,821	1,877%
Wisconsin	67	97	447	667%
New York	140	40	177	126%
Ohio	143	36	159	111%
Minnesota	64	25	98	153%
Illinois	132	19	88	67%
Pennsylvania	140	6.4	28	20%
Indiana	97	1.3	6.0	6%

Overall, despite technological and regulatory challenges and unknowns, the report asserts that “there is real opportunity for Great Lakes wind energy resources to not only contribute to the regional energy mix and the economic growth of the region but also help achieve long-term national clean energy goals.”¹⁵³

¹⁵⁰ Walter Musial et al., *Great Lakes Wind Energy Challenges and Opportunities Assessment*, NAT’L RENEWABLE ENERGY LAB’Y at vi (Mar. 2023), <https://www.nrel.gov/docs/fy23osti/84605.pdf>.

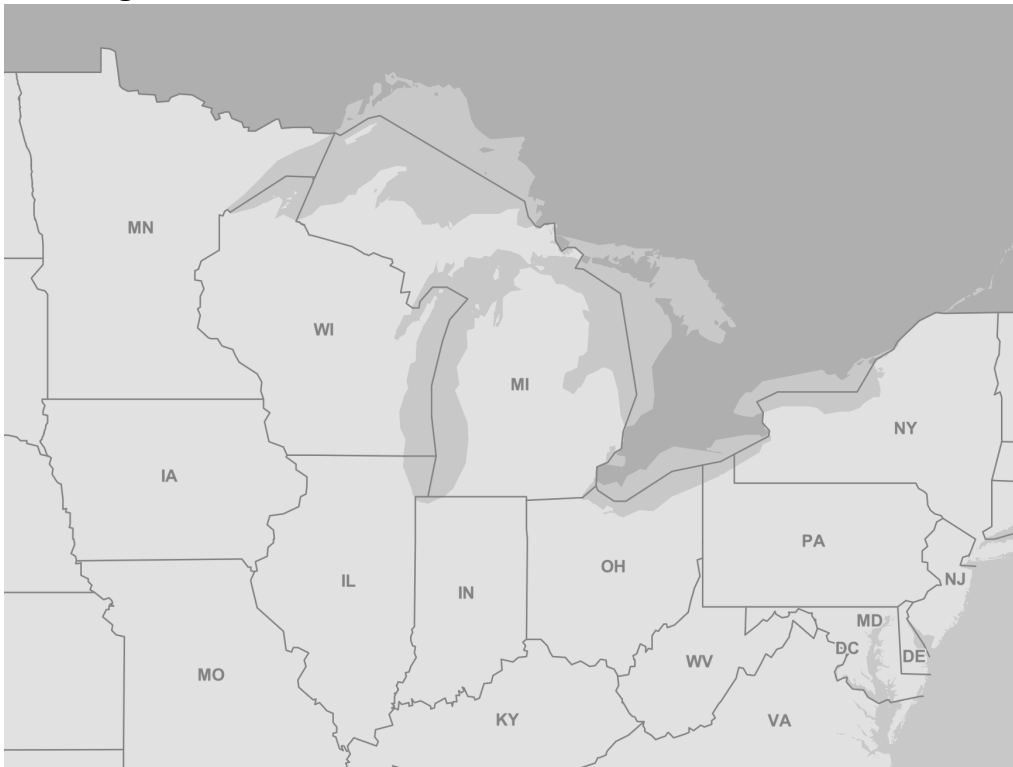
¹⁵¹ *Id.*

¹⁵² *Id.* at 20, tbl.3 n.5: “Total retail electricity sales in 2020 from EIA (2022).” *Id.* at n.5. Note 6: “Resource capacity and annual energy production assume wind turbines are installed at locations beyond 3 miles from shore, with an array density of 5 MW/km² using 5.5-MW turbines (described in Section 10.3 under the Current Scenario).” *Id.* at n.6.

¹⁵³ *Id.* at xiii.

BOEM is not conducting wind area lease auctions for the Great Lakes because it lacks jurisdiction. According to the Submerged Lands Act, the jurisdiction of a state bordering a Great Lake extends from the coastline to the international boundary with Canada.¹⁵⁴ As between the states, jurisdiction ends at the state boundary. Figure 1 shows the state and international boundaries in the Great Lakes.

Figure 1. Great Lakes State and International Boundaries.¹⁵⁵



Unlike for submerged lands on the Outer Continental Shelf of the oceans, where BOEM controls the lease process for offshore wind, the states are the primary authorities over the Great Lakes.

While the eight Great Lakes states and two Canadian provinces have created regional agreements and compacts with associated institutional bodies to manage aspects of water use and water quality, there is no Great Lakes regional authority to plan, assess environmental and social impacts, and open auctions to lease submerged lands in the Great Lakes. Therefore, each state and province bordering the Great Lakes may determine its own process for leasing its submerged lands in the Great Lakes. This fragmentation in control could quickly lead to conflicting approaches to planning and approving wind projects. For instance, legislators in Illinois are interested in placing wind turbines off

¹⁵⁴ Submerged Lands Act, 43 U.S.C. § 1312 (2023).

¹⁵⁵ U.S. CENSUS BUREAU, https://data.census.gov/map?layer=VT_2021_040_00_PP_D1&loc=41.9754,-83.5796,24.6223 (last visited May 24, 2023).

the south coast of Lake Michigan.¹⁵⁶ Depending on the location, this could come very close to a jurisdictional boundary with Indiana and may impact uses of Lake Michigan by people who are not represented by legislators in Illinois, and aquatic species, birds, and bats that do not recognize political boundaries. Despite enthusiasm in Illinois, the potential for such conflicts with those unrepresented by the Illinois legislature could slow offshore wind development through after-the-fact litigation. In the absence of a regional legal framework, the states are on their own to develop approaches to offshore wind, and these may conflict with their neighboring states' priorities. At a minimum, offshore wind development should be guided by the states' special roles as trustees of the lakes under the public trust doctrine.

A. *The Public Trust Doctrine*

Noel and Firestone argue that the “public trust doctrine can compel full consideration of the non-monetized benefits of renewable electricity.”¹⁵⁷ We agree and go further to argue the doctrine should also frame how revenues are received and expended for state leases of lakebed for offshore wind projects.

The public trust doctrine has a strong salience for the Great Lakes. Under the Equal Footing Doctrine of the U.S. Constitution, each Great Lakes state took title to the beds and waters of the Great Lakes when it joined the union. The U.S. Supreme Court clearly articulated in *Illinois Central* that each of the Great Lakes states holds navigable waters in trust and should manage those waters for the benefit of the public.¹⁵⁸ To varying degrees, the states around the Great Lakes have developed this legal doctrine in state law. For instance, Wisconsin courts have required the Wisconsin Department of Natural Resources to consider a wide array of public trust rights, ranging from recreation and natural beauty to water quality, when managing public trust resources.¹⁵⁹ In Illinois, the courts have been reluctant to grant lakebed leases for private purposes where environmental benefits would only be secondary.¹⁶⁰

¹⁵⁶ Lake Michigan Wind Energy Act, 20 ILL. COMP. STAT. 896 (2023); Illinois Rust Belt to Green Belt Pilot Program Act, H.R. 2132, 103d Gen. Assemb. § 5(13) (Ill. 2023) (“The State seeks a leadership position in the offshore wind industry as it emerges in the Great Lakes.”); Jenny Whidden, *State Legislation Could Help Put the Great Lakes’ First Offshore Wind Farm in Chicago*, DAILY HERALD (Jan. 6, 2024), <https://www.dailyherald.com/20240106/news/state-legislation-could-help-put-the-great-lakes-first-offshore-wind-farm-in-chicago/>.

¹⁵⁷ Lance Noel & Jeremy Firestone, *Public Trust Doctrine Implications of Electricity Production*, 5 MICH. J. ENV’T. & ADMIN. L. 169, 252 (2015).

¹⁵⁸ See Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 435–37 (1892).

¹⁵⁹ Noel & Firestone, *supra* note 157, at 227.

¹⁶⁰ Michael Norton, “*The Answer is Blowin’ in the Wind*”: A Case for Illinois to Increase Production of Sustainable Wind Energy, 9 GEO. WASH. J. ENERGY & ENV’T. L. 176, 184 (2019).

Modern regional legal cooperation among the Great Lakes U.S. states and Canadian provinces has further articulated this long-standing public trust doctrine. The Great Lakes state governors and Canadian premiers signed the Great Lakes Charter in 1985, which declares, “[t]he water resources of the Great Lakes Basin are precious public natural resources, shared and held in trust by the Great Lakes States and Provinces.”¹⁶¹ Twenty years later, the U.S. governors negotiated the Great Lakes-St. Lawrence River Basin Water Resources Compact and a related agreement with the Canadian provinces in which they recommitted to their trustee role. The Compact states the Great Lakes Basin waters are “precious public natural resources shared and held in trust” by the states.¹⁶² It also explains the government’s public trust duty: as trustees of the Basin’s natural resources, the Great Lakes states and provinces “have a shared duty to protect, conserve, and manage the renewable but finite waters of the Great Lakes Basin for the use, benefit, and enjoyment of all their citizens, including generations yet to come.”¹⁶³

The public trust orientation should guide the evaluation of proposals to develop Great Lakes offshore wind. Here is an opportunity, a trust mandate, for the government to put environmental values and benefits at the center of Great Lakes offshore wind policy to require net positive environmental, social, and financial benefits before allowing a project to proceed.

B. Models for Use of Trust-Generated Revenues

As of August 1, 2023, the federal government has collected \$5.7 billion in revenues from offshore wind leases.¹⁶⁴ If the Great Lakes states develop a legal framework to lease lakebed for offshore wind, they could be collecting similarly significant funds.¹⁶⁵ Revenues from leasing trust

¹⁶¹ COUNCIL OF GREAT LAKES GOVERNORS, THE GREAT LAKES CHARTER: PRINCIPLES FOR THE MANAGEMENT OF GREAT LAKES WATER RESOURCES 1 (Feb. 11, 1985) (describing the roles and responsibilities of the states and provinces as trustees of the Basin’s natural resources).

¹⁶² Great Lakes-St. Lawrence River Basin Water Resources Compact, § 1.3, Dec. 13, 2005 (Oct. 3, 2008), <https://www.congress.gov/110/plaws/publ342/PLAW-110publ342.pdf>.

¹⁶³ *Id.*

¹⁶⁴ Natural Resources Revenue Data, U.S. DEP’T OF THE INTERIOR, <https://revenuedata.doi.gov/downloads/revenue/> (then click “Combined excel spreadsheet” download link, select “Monthly Revenue” sheet, filter “Date” column through August 2023, filter “Land Category” column by “Offshore,” filter “Mineral Lease Type” column by “Wind,” and sum 120 revenues).

¹⁶⁵ Though revenues for offshore wind in the Great Lakes are currently much lower than projects in the oceans, as there is only one example from Ohio’s Icebreaker, the Great Lakes present a scarcity characteristic distinct from the oceans. As Great Lakes offshore wind projects develop, a comparatively limited number of leases can be granted without conflicting with other uses like navigation, aesthetics, and wildlife; this scarcity of locations could increase bonus revenues generated by those additional

resources, such as lakebed, should be managed in ways aligned with the state's trustee duties. Here, we explain two different approaches used by Pennsylvania and Alaska.

The public trust doctrine offers a conceptual framework that weighs in favor of states investing revenues from lakebed leasing back into managing public trust resources for current and future generations of trust beneficiaries. Pennsylvania provides an example of this approach. In 1971, Pennsylvania amended its constitution to include the Environmental Rights Amendment:

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.¹⁶⁶

The Amendment, in Section 27 of the Pennsylvania Constitution, identifies natural resources as the corpus of a public trust for the people as beneficiaries and the government as trustees.¹⁶⁷ In Ohio, discussed below, developers attempted to establish the Icebreaker Project to pilot a demonstration of offshore wind in Lake Erie. Opponents argued that leasing a lakebed for offshore wind violated the public trust doctrine. While that issue was not properly appealed or decided by the Ohio courts, Pennsylvania provides an interesting analysis. The Pennsylvania legislature rejected the argument that its constitutionally protected environmental trust precluded energy development.

Prior to the Amendment, in 1955, Pennsylvania created a statutory system to regulate leases of energy resources and to receive and disburse royalties from those leases through a "Lease Fund."¹⁶⁸ After especially large revenues in 2009, the legislature amended the fiscal code to allocate revenues from oil and gas leases to the state General Fund instead.¹⁶⁹ In 2017, the Pennsylvania Supreme Court evaluated the statute and determined in *Env't Def. Found. v. Commonwealth II* that the public natural resources in the trust corpus include not only state lands leased for oil and gas production, but also the actual oil and gas produced.¹⁷⁰ Thus, proceeds from the extraction of oil and gas are within the trust

lease auctions over time and as land-based sites for renewable energy also become scarcer. For a more detailed comparison between Ohio and federal rental rates and bonuses, see Section III.C.3.b, below.

¹⁶⁶ PA. CONST. art. I, § 27.

¹⁶⁷ Pa. Env't Def. Found. v. Commonwealth, 214 A.3d 748, 752 (Pa. Commw. Ct. 2019) (citing Pa. Env't Def. Found. v. Commonwealth, 161 A.3d 911, 931–32 (Pa. 2017)).

¹⁶⁸ Pa. Env't Def. Found. v. Commonwealth, 255 A.3d 289, 293–94 (Pa. 2021).

¹⁶⁹ *Id.* at 294.

¹⁷⁰ Pa. Env't Def. Found. v. Commonwealth, 214 A.3d 748, 752 (Pa. Commw. Ct. 2019) (citing Pa. Env't Def. Found. v. Commonwealth, 161 A.3d 911, 931 (Pa. 2017)).

corpus and “must be devoted to the conservation and maintenance of [Pennsylvania’s] public natural resources.”¹⁷¹ In 2021, the Pennsylvania Supreme Court also held that bonuses, rent payments, and interest penalties for late payments must be reinvested in the conservation and maintenance of natural resources, but for different reasons. Unlike royalties, revenue streams from bonuses, rents, and interest penalties for late payments are not given in exchange directly for the trust assets.¹⁷² Thus, those revenues are trust income instead of trust property.¹⁷³ However, under trust law, those revenues as trust income must also be disbursed solely for the purpose of the trust—conserving and maintaining public natural resources—because the Environmental Rights Amendment does not specify an alternative use for trust income.¹⁷⁴

Further, Pennsylvania describes a trustee’s duty to maximize revenues in a way that is consistent with industry practice. The Pennsylvania Supreme Court opined that Pennsylvania could have “violated its duties as trustee by failing to follow the industrial practice of soliciting bonus bids upfront.”¹⁷⁵

By contrast, Alaska offers an alternative model of disbursing revenues gained through leasing energy resources. Article IX, Section 15 of the Alaska Constitution created the Alaska permanent fund and required at least 25% of oil lease rents, royalties, and bonuses to be deposited in that fund.¹⁷⁶ Subsequent legislation increased that investment requirement to 50% of lease rents, royalties, and bonuses received after 1980.¹⁷⁷ The fund principal is then invested to produce income,¹⁷⁸ part of which is distributed to Alaska residents as an annual

¹⁷¹ *Id.* at 756 (quoting *Pa. Env’t Def. Found. v. Commonwealth*, 161 A.3d 911, 936 (Pa. 2017)).

¹⁷² *Pa. Env’t Def. Found. v. Commonwealth*, 255 A.3d 289, 307–08 (Pa. 2021).

¹⁷³ *Id.*

¹⁷⁴ *Id.* at 311.

¹⁷⁵ *Id.* at 307.

¹⁷⁶ ALASKA CONST. art. IX, § 15 (“At least twenty-five percent of all mineral lease rentals, royalties, royalty sale proceeds, federal mineral revenue sharing payments and bonuses received by the State shall be placed in a permanent fund, the principal of which shall be used only for those income-producing investments specifically designated by law as eligible for permanent fund investments. All income from the permanent fund shall be deposited in the general fund unless otherwise provided by law.”).

¹⁷⁷ ALASKA STAT. § 37.13.010(a)(2) (“Under art. IX, sec. 15, of the state constitution, there is established as a separate fund the Alaska permanent fund. The Alaska permanent fund consists of . . . (2) 50 percent of all mineral lease rentals, royalties, royalty sale proceeds, net profit shares under AS 38.05.180(f) and (g), and federal mineral revenue sharing payments received by the state from mineral leases issued after December 1, 1979, and 50 percent of all bonuses received by the state from mineral leases issued after February 15, 1980; . . .”).

¹⁷⁸ ALASKA CONST. art. IX, § 15.

permanent fund dividend.¹⁷⁹ Unlike Pennsylvania's reinvestment model, which supports state management of trust resources, this model provides direct payments to individual residents to be used for any purpose.

In *Who Owns the Sky?*, Peter Barnes advocates for a "sky trust" where carbon emissions to the atmosphere are permitted and monetized, and revenues generated from emissions permits are deposited into a trust fund.¹⁸⁰ Similar to the Alaska permanent fund, revenues would then be disbursed to the public as beneficiaries of the Sky Trust. Analogizing the Great Lakes offshore wind context, a "lakebed trust fund" might offer a model for distributing revenue generated by lakebed leases for offshore wind projects.¹⁸¹

However, determining which members of the public are beneficiaries of the lakebed lease revenues is complex. One option might be to define the lakebed trust beneficiaries as residents of the state with jurisdiction over the submerged lands of the project, similar to Alaska's approach. Such an arrangement would not account for the impacts on the use of the lakes by residents of bordering states or tourists. It is questionable whether direct payments to residents would be found consistent with a Great Lakes state's public trust duties. Pennsylvania's model is a stronger choice because it has been tested in a Great Lakes state, the state supreme court has explained the tight fit between trust income and enhancing trust purposes, and it reinvests revenues directly into public trust resource management.

C. First Pilot of Great Lakes Offshore Wind: Ohio's Icebreaker Project

1. Ohio Lakebed Lease Laws

Ohio is the first Great Lakes state to move forward with leasing lakebed for offshore wind. Ohio enacted a state statute that authorizes the director of their natural resources agency to lease and issue permits for the development of submerged lands underlying Lake Erie.¹⁸² Ohio further detailed the process for lakebed leasing in its administrative

¹⁷⁹ ALASKA STAT. § 43.23.045(a) (2023) (establishing the dividend fund); ALASKA STAT. § 37.13.145(b) (2023) (requiring the dividend fund to be funded with 50% of income available for distribution as determined under Alaska Stat. § 37.13.140); ALASKA STAT. § 43.23.005 (providing for annual disbursement of the dividend fund to qualifying residents of Alaska).

¹⁸⁰ PETER BARNES, *WHO OWNS THE SKY?: OUR COMMON ASSETS AND THE FUTURE OF CAPITALISM*, 53 (2001).

¹⁸¹ See also WALTER MUSIAL ET AL., *NAT'L RENEWABLE ENERGY LAB'Y, GREAT LAKES WIND ENERGY CHALLENGES AND OPPORTUNITIES ASSESSMENT 90*, (Mar. 2023), <https://www.nrel.gov/docs/fy23osti/84605.pdf>. "[T]he Michigan Great Lakes Wind Council (2010) identified avenues for recommended compensation to the public, including through rent, royalties, and establishing a Great Lakes wind trust fund."

¹⁸² OHIO REV. CODE § 1506.11(B) (1999).

code.¹⁸³ Ohio's leasing laws are broadly written and not specific to offshore wind projects but provide the legal vehicle to lease the lakebed for wind production.

Ohio's lakebed lease laws reflect a public trust orientation. The director of natural resources reviews a Submerged Lands Lease Application to determine whether the proposed "development, improvement, or activity is consistent with the policies of the Ohio coastal management program document" and "does not otherwise contravene the general public's interest in [L]ake Erie submerged lands, waters of the state, fish and wildlife, or cultural or other public trust resources."¹⁸⁴ Per statute, the director must determine whether the project will not impair "the public right of navigation, water commerce, and fishery" before issuing a lease or permit.¹⁸⁵ Ohio delineates its leasing considerations in regulations and specifically requires a project to be "compatible with the rights of the public and the public trust uses of the affected area"¹⁸⁶ Part of the public trust compatibility requirement involves determining "[w]hether public uses such as, navigation, water commerce, and fishing in the affected area would be destroyed or greatly impaired."¹⁸⁷

¹⁸³ See generally OHIO ADMIN. CODE 1501-6-01-28 (1999).

¹⁸⁴ OHIO ADMIN. CODE 1501-6-03(A) (1992). The lease process begins when a potential lessee files an application with the director of natural resources. The applicant must submit a resolution or ordinance from the local authority with the Submerged Lands Lease application. The municipal corporation, county, or port authority must make a finding that the territory described in the application is "not necessary or required for the construction, maintenance, or operation by the municipal corporation, county, or port authority of breakwaters, piers, docks, wharves, bulkheads, connecting ways, water terminal facilities, and improvements and marginal highways in aid of navigation and water commerce and that the land uses specified in the application comply with regulation of permissible land use under a waterfront plan of the local authority." OHIO REV. CODE § 1506.11(B) (1999).

The director will first evaluate whether the application is complete and acceptable. If the application is unacceptable due to "incomplete or insufficient information for proper evaluation of the development, improvement, or activity upon lake Erie submerged lands," then the director will notify the applicant within sixty days and give an opportunity to resubmit a new application for evaluation. Once the director evaluates the application as complete and acceptable, the director evaluates substantively. OHIO ADMIN. CODE 1501-6-02 (1992).

¹⁸⁵ OHIO REV. CODE § 1506.11(B) (1999).

¹⁸⁶ OHIO ADMIN. CODE 1501-6-03 (C)(1-5) (1992). "The department in determining whether the development, improvement or activity as set forth in an application for a lease will be compatible with the rights of the public and the public trust uses of the affected area will consider the following: (1) Whether the project prejudices the littoral rights of any owner of land fronting on Lake Erie without permission of that owner. (2) Whether the project conforms to the permitted uses as regulated by the local government, where applicable. (3) Whether public uses such as, navigation, water commerce, and fishing in the affected area would be destroyed or greatly impaired. (4) Whether the diminution of the area of original use would be small compared to the use of the entire area. (5) Whether the area has a history of use including, but not limited to, services rendered to the general public."

¹⁸⁷ OHIO ADMIN. CODE 1501-6-03 (C)(3) (1992).

The director may also require an Environmental Impact Assessment to determine the impacts of the proposed project but should utilize any information already developed by the U.S. Army Corps of Engineers under the Clean Water Act and Ohio's related 401 water quality certification.¹⁸⁸ If the director finds there is insufficient information in the application upon which to base a decision, then the director may request the applicant supply additional information and may declare a public hearing or meeting be held to obtain the necessary information.¹⁸⁹ If sufficient information exists, the director makes a recommendation to the governor as to whether to approve the application for lease of submerged land based on this evaluation.¹⁹⁰ We will explain how Ohio implemented these provisions when faced with a request to develop wind on submerged lands in Lake Erie, known as the Icebreaker Wind project.

2. Ohio Revenues from Lakebed Leases

Ohio law establishes the financial terms of lakebed leases of submerged lands in Lake Erie and where leased revenues are disbursed. Ohio's regulations empower the director of natural resources to use their discretion to determine the value of consideration to be paid by the potential lessee for the right to lease the submerged land.¹⁹¹ Ohio created a "Lake Erie submerged lands fund" and directs that rents received for leasing submerged lands "shall be paid into the state treasury" to the credit of that fund.¹⁹² Half of the Lake Erie submerged lands fund must be distributed to the municipality, county, or port authority that made the requisite finding of no disturbance to government functions for the project site.¹⁹³

The other half of the Lake Erie submerged lands fund must be distributed to the Ohio Department of Natural Resources, in part to fund the state's coastal management assistance grant program.¹⁹⁴ The coastal management assistance grant program provides state and federal funding to municipalities and public entities across the state "to help

¹⁸⁸ OHIO ADMIN. CODE 1501-6-03 (D)(2) (1992).

¹⁸⁹ OHIO ADMIN. CODE 1501-6-04 (1992).

¹⁹⁰ OHIO ADMIN. CODE 1501-6-03 (1992).

¹⁹¹ "If the director finds that a lease may properly be entered into with the applicant or a permit may properly be issued to the applicant, the director shall determine the consideration to be paid by the applicant, which consideration shall exclude the value of the littoral rights of the owner of land fronting on Lake Erie and improvements made or paid for by the owner of land fronting on Lake Erie or that owner's predecessors in title." OHIO REV. CODE § 1506.11(C) (1999).

¹⁹² OHIO REV. CODE § 1506.11(C).

¹⁹³ OHIO REV. CODE § 1506.11(C)(2).

¹⁹⁴ OHIO REV. CODE § 1506.11(C)(1). The half of the fund paid to the Ohio Department of Natural Resources also covers the administration costs of § 1506.11 and § 1506.10.

implement, administer, or enforce any aspect of the coastal management program.”¹⁹⁵

Ohio’s sharing of revenue with the coastal community directly adjacent to the project is similar to BOEM’s federal lease revenue sharing, although Ohio gives local governments a larger share at 50%. Further, while BOEM directs the remaining revenues into the U.S. Treasury for no specific purpose, Ohio funnels the rest of its lease revenues back into coastal protection by municipalities and other public entities.¹⁹⁶ Ohio’s targeted use for coastal management is similar to Pennsylvania’s use of trust revenues from energy leases.¹⁹⁷

3. Example of Ohio’s Laws Applied to Icebreaker Wind Project

Before developers announced an indefinite pause of the Icebreaker Wind project in December 2023,¹⁹⁸ the project was permitted to be built in Lake Erie eight to ten miles off the coast of Cleveland, Ohio.¹⁹⁹ Prior to the pause, it was on track to become the first operational offshore wind facility in the Great Lakes and the first freshwater wind facility in North America.²⁰⁰ In 2017, Icebreaker filed an application with the Ohio Power Siting Board for a six-turbine offshore wind project.²⁰¹ Each turbine was to be constructed using mono-bucket foundations that use suction technology to attach to the lakebed instead of foundations that would require pile driving.²⁰² The design involved electric cables buried under the lakebed that connect the turbines to each other and back to Cleveland.²⁰³ Icebreaker’s estimated total electric generation capacity was 20.7 megawatts (MW).²⁰⁴

¹⁹⁵ OHIO REV. CODE § 1506.02(C).

¹⁹⁶ For a detailed discussion of federal lease revenue sharing, see Section I.D., above.

¹⁹⁷ See PA. CONST. art. I, § 27; Pa. Env’t Def. Found. v. Commonwealth, 255 A.3d 289, 292–94, 307–08, 311 (Pa. 2021). For a detailed discussion of Pennsylvania’s trust revenues structure, see Section III.B., above.

¹⁹⁸ PORT OF CLEVELAND (Dec. 8, 2023), <https://www.portofcleveland.com/challenges-delays-lead-to-pause-on-lake-erie-wind-turbine-project/>.

¹⁹⁹ Lake Erie Submerged Lands Lease File Number SUB-2356-CU, STATE OF OHIO (Jan. 29, 2014) [hereinafter Icebreaker Lease] [on file with author].

²⁰⁰ Icebreaker Wind Project, *Project Updates*, GREEN ENERGY OHIO, <https://greenenergyohio.org/icebreakerwind/>.

²⁰¹ Icebreaker Windpower Inc., Case No. 16-1871-EL-BGN at 2 (Ohio Power Siting Board May 21, 2020) (opinion, order, and certificate), <https://dis.puc.state.oh.us/ViewImage.aspx?CMID=A1001001A20E21B35239G02930>.

²⁰² *Id.* at 13, 33.

²⁰³ *Id.* at 5.

²⁰⁴ *In re* Application of Icebreaker Windpower, Inc., 169 Ohio St. 3d 617, 2022-Ohio-2742, ¶ 4.

a. *Public Trust Considerations in Icebreaker's Lakebed Lease*

The Ohio Department of Natural Resources considered the public trust implications of the Icebreaker Wind project through various negotiations with the applicant and collaboration with other state departments, including the Ohio Power Siting Board and the Ohio Department of Natural Resources Division of Wildlife.²⁰⁵ The Ohio Department of Natural Resources entered into a Lake Erie Submerged Lands Lease for the Icebreaker Wind project with Lake Erie Energy Development Corporation, who later assigned the lease to Icebreaker Windpower.²⁰⁶ The lease term is fifty years from February 1, 2014.²⁰⁷ The Submerged Lands Lease requires the Lessee to “respect . . . the public’s right to free and unrestricted use of the waters” around the project area, and maintains the leased property will “be subject to the public’s right of navigation.”²⁰⁸ The Lease requires the Lessee to “use the highest degree of care and all appropriate safeguards” to prevent any air, ground, or water pollution on the property, and to “protect and preserve natural resources and wildlife habitat.”²⁰⁹

The Lease includes a Wind Resource Covenant by which the state of Ohio agreed to prohibit the leasing of submerged lands for projects around the Icebreaker project that would obstruct wind flow to the turbines.²¹⁰ However, that agreement term is limited by the public trust: “[T]his covenant shall not preclude the normal operation or navigation of commercial or recreational vessels . . . within the established public trust doctrine under the laws of the State.”²¹¹ In addition, the Submerged Lands Lease incorporates regulatory metrics from other state and federal agencies, such as bird, bat, and fish sampling and monitoring requirements in the Ohio Power Siting Board Certificate of Operation.²¹² Such requirements must be satisfied before the Lease allows construction to begin.²¹³ The more extensive Ohio Power Siting Board Certification assessment and requirements are described below.

²⁰⁵ Phone conversation between Cora Sutherland, Water Policy Specialist at the Center for Water Policy and Ohio Department of Natural Resources Chief of the Office of Coastal Management (Oct. 4, 2023) (on file with author).

²⁰⁶ Icebreaker Lease, *supra* note 200, at 3.

²⁰⁷ *Id.* at 3. In 2017, the director of natural resources approved the assignment of the Lake Erie Energy Development Corporation’s lease to Icebreaker Windpower Inc. under the same terms and conditions as set forth in the original Submerged Lands Lease. Consent to Assignment of Lake Erie Submerged Lands Lease File Number SUB-2356-CU, STATE OF OHIO (Jan. 18, 2017) [hereinafter Consent to Assignment] [on file with author].

²⁰⁸ Icebreaker Lease, *supra* note 200, at 5–6.

²⁰⁹ *Id.* at 23.

²¹⁰ *Id.* at 11.

²¹¹ *Id.*

²¹² *Id.* at Exhibit “C.”

²¹³ *Id.* at 3.

b. State Revenues Generated by Icebreaker's Lease

Icebreaker's lease area is 6 million square feet or 139 acres.²¹⁴ By comparison, the smallest lease area for federal offshore wind projects has been 29,000 acres. Annual rental rates are based on the area occupied by the structures on submerged lands. The annual rental rate for the first five-year period of Icebreaker's lease is \$7,971 (almost \$40,000 for the five-year period),²¹⁵ which equals a rental rate of \$57 per acre per year—much higher than the federal rate of \$3 per acre per year.²¹⁶ However, as discussed and shown in Table 1 above, bonuses are a much more significant revenue generator for federal offshore leasing. The Icebreaker lease does not show a separate bonus paid or an operating fee, in sharp contrast to BOEM's federal leases, where bonuses have ranged from \$24,000 in 2012 to \$1.1 billion in 2022. All federal bonuses in 2022 were a minimum of hundreds of millions of dollars per project. Therefore, despite the higher leasing price per acre for Ohio's lakebed leases, federal projects have generated significantly higher revenue from submerged land leases for offshore wind because of their much larger footprints and bonuses.

As offshore wind energy proliferates across the Northeast, and possibly the Gulf of Mexico and the West Coast of the United States, Great Lakes states risk losing out on the opportunity to decarbonize their energy supply if they fail to establish a defensible legal design for evaluating and harnessing offshore wind. The public trust doctrine offers a legal foundation for Great Lakes states to build leasing criteria and direct revenues in ways that are consistent with their role as trustee of the Great Lakes. We will develop this further in the recommendations section below.

²¹⁴ *Id.* at Exhibit "B." This includes 17,000 square feet for the land for the substation, 183,000 square feet for the land for the wind turbines, and 5,870,000 square feet for the land for the submerged transmission and array cables.

²¹⁵ Consent to Assignment, *supra* note 208. Rent for fill as defined by Ohio Administrative Code §1501-6-01(G) occupying 17,097 square feet of submerged lands equals \$0.01 per square foot or \$170.97 plus the rent for a large facility (Lake Erie wind-powered electrical generation facility) as defined by Ohio Administrative Code Section 1501-6-01(J) occupying 182,512 square feet of submerged lands equals \$0.04 per square foot or \$7,300.48 plus the rent for a utility (submerged transmission and array cables) as defined by Ohio Administrative Code § 1501-6-01(X) occupying 5,871,825 square feet of submerged lands equals \$500.00 for a total of \$7,971.45.

²¹⁶ 30 C.F.R. § 585.503(a) (2023). Prior to the expiration of each five-year period, the director of natural resources shall review the annual rental which shall be recalculated every five years. The rent is based on the applicant's description of the development, improvement, or activity on the land and how it is categorized according to regulations. For example, rent for a private structure is \$50 plus \$0.02 per square foot of leased area per year, while rent for large or industrial facilities cost \$0.04 per square foot of the leased area per year. Consent to Assignment, *supra* note 208; OHIO ADMIN. CODE 1501-6-06 (1999).

c. Non-price Considerations for the Icebreaker Project

The non-price criteria of environmental and social impacts of the Icebreaker project were partially addressed in the lakebed lease as it relates to protecting public trust rights. The non-price considerations were further developed in the project approvals before the Ohio Power Siting Board. However, this review was limited in that it used the traditional environmental framework of identifying, avoiding, and mitigating impacts.

Ohio law requires developers to acquire a certificate from the Power Siting Board before the construction of an “economically significant wind farm.”²¹⁷ The certificate application must describe the project and summarize studies made by or for the applicant regarding environmental impacts.²¹⁸ Applicants may include any other relevant information, and the Board may require additional information by rule or by order.²¹⁹ Before granting a certificate, the Board must review a report on the staff investigation and recommended findings and determine “the nature of the probable environmental impact” and “that the facility represents the minimum adverse environmental impact,” among other requirements.²²⁰

²¹⁷ OHIO REV. CODE § 4906.20(A) (2014). An “economically significant wind farm” means “wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of five or more megawatts but less than fifty megawatts.” OHIO REV. CODE § 4906.13(A) (2019). The process for obtaining a certificate is “identical to the extent practicable to the process applicable to certifying major utility facilities.” OHIO REV. CODE § 4906.20(B)(1) (2014).

²¹⁸ OHIO REV. CODE § 4906.06(A)(2) (2012).

²¹⁹ OHIO REV. CODE § 4906.06(A)(6) (2012). Applications shall contain: “(1) A description of the location and of the major utility facility; (2) A summary of any studies that have been made by or for the applicant of the environmental impact of the facility; (3) A Statement explaining the need for the facility; (4) A statement of the reasons why the proposed location is best suited for the facility; (5) A statement of how the facility fits into the [energy] applicant’s forecast...; (6) Such other information as the applicant may consider relevant or as the board by rule or order may require.” OHIO REV. CODE § 4906.06(A) (2012).

Once the chair has deemed the application complete and the application is filed, the board or an administrative law judge schedules a public hearing. OHIO ADMIN. CODE § 4906-3-08(B) (2015). The chair of the Board must determine within sixty days whether the application is sufficiently complete to begin an investigation. OHIO ADMIN. CODE § 4906-3-06(A)(1) (2015). Each certificate application must be investigated, and a report must be published fifteen days prior to the public hearing. The report must include the nature of the investigation and recommended findings with regard to decision-making criteria. OHIO REV. CODE § 4906.07(C) (2012).

²²⁰ OHIO REV. CODE § 4906.10(A) (2021). Additional requirements include: (1) The basis of the need for the facility if the facility is an electric transmission line or gas pipeline; . . . (4) In the case of an electric transmission line or generating facility, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability; (5) That the

The Icebreaker investigation report found that the project complied with each applicable criterion required by law.²²¹ However, the report also recommended that any certificate issued by the Board include conditions regarding transmission lines, interconnection agreements, and federal and state law and regulation compliance.²²² The report also recommended socioeconomic conditions for the Board to adopt with the certification. Socioeconomic conditions included prohibiting commercial advertisements and vandalism on the turbines and infrastructure to preserve aesthetics, public outreach thirty days before construction, ongoing communication with surrounding communities, and regular updates on complaint resolution during construction.²²³ These conditions were adopted by the Board as part of the revised stipulations discussed below.

The Ohio Power Siting Board approved the Icebreaker application in May 2020.²²⁴ In making its determination, the Board considered evidence submitted at two public hearings, public comments, and the staff investigation report.²²⁵ At the hearings, representatives from the Black Swamp Bird Observatory, the National Audubon Society, and multiple other witnesses expressed their concerns that the project could endanger bird populations.²²⁶ Other witnesses opposed the project, explaining that it violated the public trust doctrine because “the right to

facility will comply with Chapters 3704., 3734., and 6111. of the Revised Code and all rules and standards adopted under those chapters and under section 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under section 4561.32 of the Revised Code, the board shall consult with the office of aviation of the division of multi-modal planning and programs of the department of transportation under section 4561.341 of the Revised Code.

(6) That the facility will serve the public interest, convenience, and necessity; (7) In addition to the provisions contained in divisions (A)(1) to (6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929. of the Revised Code that is located within the site and alternative site of the proposed major utility facility. Rules adopted to evaluate impact under division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternative site. (8) That the facility incorporates maximum feasible water conservation practices as determined by the board, considering available technology and the nature and economics of the various alternatives.”

²²¹ OH. POWER SITING BOARD, STAFF REPORT OF INVESTIGATION, ICEBREAKER WIND FACILITY, 16-1871-EL-BGN, at 13, 31, 33, 36, 38, 42, 43, and 44 (2018), <https://dis.puc.state.oh.us/ViewImage.aspx?CMID=A1001001A18G03B43530D00369> (The report found the first criterion inapplicable).

²²² *Id.* at 45.

²²³ *Id.* at 46–47.

²²⁴ Icebreaker Windpower Inc., Case No. 16-1871-EL-BGN at 1 (Ohio Power Siting Board May 21, 2020) (opinion, order, and certificate), <https://dis.puc.state.oh.us/ViewImage.aspx?CMID=A1001001A20E21B35239G02930>.

²²⁵ *Id.* at 6–18.

²²⁶ *Id.* at 7.

use and enjoy Lake Erie is shared by the public at large.”²²⁷ However, overall, more people at those two hearings testified in support of the Icebreaker application.²²⁸ These included Lakewood City Council and Euclid City Council representatives, trade groups and unions, and advocates for investing in renewable energy in Ohio.²²⁹ “In addition to the public hearings, since Icebreaker’s application was filed, over 1,000 comments were submitted to the docket for the Board’s review,” which were “relatively divided between” opponents and proponents for the Icebreaker application.²³⁰

The Board concluded that “the projected risk to avian and bat species associated with this small demonstration project is expected to be low, recognizing, however, that there is a considerable unknown risk associated with the number and density of birds and bats potentially migrating through the rotor-swept zone.”²³¹ The board concluded that conditions included in the stipulation ensured “the minimum adverse environmental impact” from the project.²³²

In issuing a certificate for the Icebreaker project, the Board also approved and adopted a set of stipulations between Icebreaker Windpower, Inc., the Ohio Attorney General, the Ohio Environmental Council and Sierra Club, the Indiana/Kentucky/Ohio Regional Council of Carpenters, and the Business Network for Offshore Wind, Inc.²³³ The stipulations recommended attaching conditions to any certificate of environmental compatibility and public need that the board may issue to the project, including the conditions recommended by the staff investigation report.²³⁴

In considering the reasonableness of a stipulation before adopting it as an order, the Board must consider whether the “settlement package violate[s] any important regulatory principle or practice.”²³⁵ In their reply brief on the topic of this question, local residents contended that the project violates the public trust doctrine and that the state of Ohio could not relinquish its interest in its portion of Lake Erie for the benefit of private parties.²³⁶ The Board responded that “whether the project violates Public Trust Doctrine is a judicial determination and outside of the Board’s jurisdiction.”²³⁷ Despite denying it had jurisdiction over the issue, it opined that

²²⁷ *Id.*

²²⁸ *Id.*

²²⁹ *Id.* at 8.

²³⁰ *Id.*

²³¹ *Id.* at 70.

²³² *Id.*

²³³ *Id.* at 98.

²³⁴ Revised Joint Stipulation and Recommendation, Icebreaker Windpower Inc., Case No. 16-1871-EL-BGN, at 3–12 (May 15, 2019), <https://dis.puc.state.oh.us/ViewImage.aspx?CMID=A1001001A19E15B40732Fo3078>.

²³⁵ Icebreaker Windpower Inc., at 92.

²³⁶ *Id.* at 97.

²³⁷ *Id.*

due to the small scope of the project and its location eight to ten miles offshore, the project is expected to have minimal impact on the public's enjoyment of Lake Erie. Therefore, because the state is not relinquishing any interest in Lake Erie . . . we find that the project does not violate the Public Trust Doctrine.²³⁸

Shortly after the Board approved the Icebreaker project, opposing parties challenged the decision in the Ohio courts and ultimately litigated the issues to a final determination by the Ohio Supreme Court. Litigants attempted to stop Icebreaker from going forward based on a variety of legal arguments. However, the lakebed lease decision was not one of the issues the Ohio Supreme Court reviewed. The dispute in the case was whether the Ohio Power Siting Board had appropriately approved the application for the Icebreaker project “for a certificate of environmental compatibility and public need.”²³⁹ Residents on the southern shore of Lake Erie appealed the board's decision granting the certificate, arguing “that there was insufficient evidence before the board for it to determine (1) the nature of the probable environmental impact of the project” and “(2) whether the project represented the minimum adverse environmental impact.”²⁴⁰

The court stated that the Board “generally cited myriad scientific studies submitted as evidence that monitored birds and bats flying in the vicinity of the project site and other offshore and near-shore parts of Lake Erie” in making its determination.²⁴¹ The court also acknowledged that the Board “cited evidence showing that the small scale of the project (six turbines) and its location between eight and ten miles offshore severely reduced the impact that the facility will have on birds and bats.”²⁴² The Board had also relied on the testimony of staff and expert witnesses, studies of bat fatalities at land-based wind farm projects, and a bat-acoustic survey near the project area. Because of this extensive evidence and the further conditions imposed on the Icebreaker project, the court found that the appealing residents failed to demonstrate that the Board's decision “was against the manifest weight of the evidence and was ‘so clearly unsupported by the record as to show misapprehension, mistake or willful disregard of duty.’”²⁴³ The court upheld the Board's determinations as lawful and reasonable.²⁴⁴

²³⁸ *Id.*

²³⁹ *In re* Application of Icebreaker Wind Power, Inc., 169 Ohio St.3d 617, 2022-Ohio-2742, ¶ 1.

²⁴⁰ *Id.*

²⁴¹ *Id.* ¶ 17.

²⁴² *Id.* ¶ 18.

²⁴³ *Id.* ¶ 22.

²⁴⁴ *Id.* ¶ 16.

The residents also argued “that the [B]oard’s decision to issue the certificate violated the public-trust doctrine and thus the project d[id] not serve the public interest, convenience, and necessity” as statutorily required.²⁴⁵ The residents asserted that the public trust doctrine “prohibits the state—and the board as its agent—from relinquishing its ownership interest in Lake Erie to the benefit of a private, for-profit entity such as Icebreaker.”²⁴⁶ The Board had already rejected this argument by determining that whether the project was a violation of the public trust doctrine was outside the Board’s jurisdiction.²⁴⁷ The residents argued before the court that the Board “erred in determining that it lacked jurisdiction to consider whether the project violated the public-trust doctrine. They claim[ed] that the board has authority to determine public-trust issues when it considers whether ‘[a] facility will serve the public interest, convenience, and necessity’ under R.C. 4906.10(A)(6).”²⁴⁸ The court found no language in the cited statute that gives the Board authority to make public trust determinations. It subsequently found that the Board had no authority to make public trust determinations concerning Lake Erie, and therefore, the Board did not err when it determined that it lacked jurisdiction to consider the residents’ public trust argument.²⁴⁹ On August 10, 2022, the Ohio Supreme Court held that the board appropriately granted a certificate to construct the Icebreaker in Lake Erie,²⁵⁰ removing a major legal hurdle for the project.

Despite ultimately prevailing in court, the Icebreaker has yet to be built. Developers of the project announced at the end of 2023 that they were pausing the project indefinitely. They cited increased costs due to the delays caused by the project’s opponents as reasons for not moving forward.

The Icebreaker Project provides lessons for Great Lakes states considering decarbonizing their electricity demands through offshore wind. Icebreaker shows that a state can move forward to issue permits for Great Lakes offshore wind despite BOEM’s absence and despite a lack of comprehensive state offshore wind legislation setting renewable energy goals, reducing conflicts through planning, and creating lakebed lease non-price and price criteria designed to select projects based on their triple bottom line of producing clear environmental, social, and financial benefits.

However, abandoning a fully permitted project that survived multiple legal challenges shows how failure to implement comprehensive offshore wind legislation can cause too much legal friction. Delays are costly for project developers and undermine the ability of the

²⁴⁵ *Id.* ¶ 5.

²⁴⁶ *Id.* ¶ 52.

²⁴⁷ *Id.* ¶ 54.

²⁴⁸ *Id.* ¶ 55.

²⁴⁹ *Id.* ¶ 58.

²⁵⁰ *Id.* ¶ 2.

government to actualize goals to decarbonize electricity. Ohio's existing lakebed leasing law offered an avenue to lease the area consistent with Ohio's public trust doctrine. Yet, without a legal framework for offshore wind that requires net positive benefits through specific non-price and price criteria, Ohio missed an opportunity to enhance public trust resources in the leasing process and to garner public support through engagement in that evaluation. Without an auction and bidding process, Ohio missed an opportunity to capture bonus payments like those BOEM receives for its leases. Moving forward, the Great Lakes states will be better equipped to evaluate how offshore wind fits into their decarbonization goals if they learn from places that have a more mature wind industry.

IV. RECOMMENDATIONS

A. Regional Body for Wind Analysis and Planning

As the Great Lakes states and provinces decide whether and how to pursue Great Lakes offshore wind, they can look at other leading examples to inform their decisions. Given the fragmented jurisdictions on the Great Lakes, creating a regional government body for comprehensive wind and spatial planning should be strongly considered. The states and provinces already have experience working collectively and cooperatively on the Great Lakes through the Great Lakes Commission, the Great Lakes Water Quality Agreement, the Great Lakes Charter, and the Great Lakes and St. Lawrence Compact. In fact, the Great Lakes Commission managed a wind consortium for several years, about a decade ago. Whether through the Great Lakes Commission or another regional collaboration, the states could build on that foundation to establish a legal framework for offshore wind.

The Netherlands uses marine spatial planning and a streamlined regulatory process as part of its legal architecture. For example, the environmental impact review is completed before the tender process, and the auction is for a fully packaged permit rather than just a lease. Such a process places less burden on developers and allows a focus on enhancing existing conditions at the auction and leasing stages.

We recommend that a regional body conduct wind analyses, spatial planning, and environmental review to identify possible areas to open to state lakebed leasing based on various non-price criteria built around enhancing the environment and society. Informed by public trust duties, this planning could map areas off limits to wind energy based on known conflicts with public rights and broad environmental protections, including for migratory birds, bats, and fisheries. The planning could further identify needed supply chains and infrastructure, such as port improvements, turbine construction, and shipbuilding.

In the absence of a regional body, states should engage in planning for waters and lakebeds within their jurisdiction. That planning process would better inform legislators about the wind power potential and the environmental and social costs and benefits of Great Lakes offshore wind. The Coastal Zone Management Act provides existing legal tools for states or regional collaborations to plan for offshore wind, as we have examined in a related article.

B. Goal Setting

Based on the planning process results, legislators could decide to set a goal for offshore wind. One commonality with the leading examples of promoting offshore wind from the Netherlands and Maryland is that they have offshore wind goals. Maryland set a statutory goal in 2019 to add another 1.2 GW of offshore wind.²⁵¹ By the end of 2023, Maryland's approved projects pipeline surpassed that goal.²⁵² Whether this industry is pursued by a new regional body or by individual states, establishing a goal for offshore wind—to deploy a certain number of GW by a certain date—has been a driver for other jurisdictions.

Currently, all eight Great Lakes states have some type of energy goal (for renewable, clean, or alternative energy) in state law, and five have 100% renewable energy goals by dates ranging from 2040 to 2050.²⁵³ Such energy goals can also be drivers for offshore wind, as they set the top-level policy course for decarbonizing each state's electricity sector. However, stronger policy nudges would come from specific offshore wind goals.

Other design choices involve setting up auctions for lakebed leases that empower the government to select projects that produce net positive benefits for the environment and society through non-price and price criteria.

C. Non-Price Criteria

²⁵¹ Clean Energy Jobs, S. 516, Ch. 757 (May 25, 2019), https://mgaleg.maryland.gov/2019RS/chapters_noln/Ch_757_sb0516E.pdf, amended Md. Pub. Util. Code Ann. § 7-703(b)(25)(II).

²⁵² See Maryland Offshore Wind, MARYLAND ENERGY ADMINISTRATION, <https://energy.maryland.gov/Pages/Info/renewable/offshorewind.aspx> (last visited Jan. 30, 2024) (“Maryland’s total approved offshore wind projects (Round 1 and Round 2) stands at 2,022.5 MW.”).

²⁵³ 20 ILL. COMP. STAT. 3855/1-5(1.5) (2023); IND. CODE § 8-1-37-12(a)(3) (2023); 2023 Mich. Pub. Acts 235 § 51(1)(a)-(b) (effective Feb. 27, 2024) (to be codified at MICH. COMP. LAWS § 460.1051(1)(a)-(b)); MINN. STAT. § 216B.1691(2g)(1)-(3) (2023); 2019 N.Y. Sess. Laws ch. 106 (S.B. 6599) (12)(d) (McKinney); OHIO REV. CODE ANN. § 4928.64(B)(2) (2019); 73 PA. CONS. STAT. § 1648.3(b)(1), (c)(4) (2022); Wis. Exec. Order No. 38 (Aug. 16, 2019), <https://evers.wi.gov/Documents/EO%20038%20Clean%20Energy.pdf>. Illinois, Michigan, Minnesota, New York, and Wisconsin are the five states with 100% commitments.

Decarbonizing the electricity sector is essential to mitigate climate change. However, states should establish legal designs to go beyond business as usual in approaching this transition. Articulating robust non-price criteria, informed by public trust responsibilities to manage the Great Lakes, offers an opportunity for decision-makers to leverage the renewable energy transition as a tool to make positive improvements to the environment and society. Where current environmental review practices aim to minimize and neutralize environmental harms, requiring non-price criteria aims to achieve net positive benefits. Policy priorities available to states when establishing project evaluation criteria include nature-enhancing design of habitats, creating turbine reefs, ensuring public rights in navigation and recreation are protected, preserving viewshed aesthetics by placing turbines far offshore and prohibiting commercial advertisements on turbines or related infrastructure,²⁵⁴ prioritizing energy justice for low-income ratepayers, and promoting local jobs and supply chains.²⁵⁵ Simply following the standard procedural approach of the National Environmental Policy Act and state NEPA-like laws fails to reach the potential value that could be gained by requiring projects to produce net positive environmental and social benefits. A net positive benefits framework is the most consistent with the public trust duties of the Great Lakes states.

There are a variety of legal design choices for governmental bodies that aim to craft non-price criteria into their evaluation of proposed offshore wind projects. Does the state create an auction process for lakebed leasing similar to that used by BOEM? What weight should the state give non-price criteria in an auction for offshore wind leases of the Great Lakes lakebed? For instance, the EU limits the weight of non-price criteria to 30% of the total, but the Netherlands gives 50% of the weight to non-price criteria.

Another legal design choice is how much discretion to give the government body evaluating non-price criteria. Being too prescriptive could inhibit innovation by applicants, but allowing too much discretion might lead to non-price criteria being undervalued and far too broad to be meaningful, which is an issue in Maryland's approach.

A critical characteristic of non-price criteria must be to provide meaningful distinctions between projects to aid decision-makers in determining who receives a lease. Thus, between multiple potential offshore wind projects, including the carbon-free benefits as compared to fossil fuel-based energy sources is not particularly helpful to differentiate one proposal from the others.

²⁵⁴ Revised Joint Stipulation and Recommendation, *supra* note 235, at 5.

²⁵⁵ FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs, WHITE HOUSE (Mar. 29, 2021) <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/>.

A key element to consider is who will set the non-price criteria. The Dutch experience shows the importance of including independent ecological experts to establish clear and measurable non-price criteria. We similarly recommend including an independent panel of Great Lakes scientists to identify criteria.

D. Price Criteria

In addition to non-price criteria, revenue from offshore wind projects offers additional opportunities for positive benefits. Legislative requirements and administrative rules governing revenues from wind projects can be an additional avenue for promoting environmental and social benefits. If the states allow the use of lakebeds for offshore wind, they should maximize economic benefits for the beneficiaries of the public trust in the lakes. Great Lakes states have an opportunity to increase lakebed lease revenue through competition, rent, and bonuses on offshore wind projects. Higher revenues, like those in the Northeast, better reflect the value of the public trust resources the trustees are leasing to wind energy development. Table 1 above shows the financial value of existing offshore wind leases by BOEM off the ocean coasts, which should be used to inform expectations for leasing the Great Lakes lakebed for offshore wind projects.

In addition, lease revenues should be invested in public trust resources or other environmental benefits. Ohio's lakebed lease for the Icebreaker project shares some revenues with local adjacent municipalities and puts the remaining funds into Ohio's coastal management assistance grant program fund, which is later distributed to municipalities and public entities. This is similar to Pennsylvania's Environmental Rights Amendment and related laws that direct energy royalties to support natural resources management. Alaska offers a different example by sharing energy revenues directly with its citizens. These are the legal design choices legislators need to make if they create a leasing system for Great Lakes offshore wind. We recommend Pennsylvania's approach because it focuses on funding natural resources management with broad impacts on all beneficiaries of the trust, which is more appropriate for the shared Great Lakes.

CONCLUSION

Federal revenues from offshore wind leases in the Outer Continental Shelf greatly increased in 2022, thanks to the sharply higher bonuses paid by auction bidders for leases. This reflects a recognition by energy bidders of the potential of offshore wind energy. So far, the Great Lakes states have not held any competitive auctions for similar projects in the Great Lakes. Before they do, they would benefit from regional cooperation and evaluating the legal design choices they must make

consistent with their trustee duties under the public trust doctrine. First, states should engage in a comprehensive planning process to assess the optimal wind areas based on a combination of power potential and non-price criteria. If the planning shows areas where wind power potential is strong, environmental conflicts are minimal, and ecology may be improved through nature-enhancing design, governments should set goals for adding renewable offshore wind and structure an auction and leasing process. States that desire to move forward with such goals need lakebed leasing laws consistent with a state's public trust duties, which is best advanced by utilizing specific non-price criteria that are weighted alongside the price criteria of bids. Revenues from offshore wind likewise need to be spent in ways that are consistent with public trust duties, such as reinvesting in public trust resources management. While research shows the wind resources over the lakes are abundant and may even surpass the electricity demands of some Great Lakes states, many points of discussion and evaluation are needed to design the legal architecture to harness this resource in a way that delivers net positive benefits.

APPENDIX A: BOEM’S BIDDING SYSTEMS²⁵⁶

Bid system	Bid variable
(1) Cash bonus with a constant fee rate (decimal)	Cash bonus.
(2) Constant operating fee rate with fixed cash bonus	A fee rate used in the formula found in § 585.506 to set the operating fee per year during the operations term of your lease.
(3) Sliding operating fee rate with a fixed cash bonus	A fee rate used in the formula in § 585.506 to set the operating fee for the first year of the operations term of your lease. The fee rate for subsequent years changes by a mathematical function we specify in the Final Sale Notice.
(4) Cash bonus <i>and</i> constant operating fee rate	Cash bonus and operating fee rate as stated in paragraph (a)(2) of this section (two-stage auction format only).
(5) Cash bonus <i>and</i> sliding operating fee rate	Cash bonus and operating fee rate as stated in paragraph (a)(3) of this section (two-stage auction format only).
(6) Multiple-factor combination of nonmonetary and monetary factors	BOEM will identify bidding variables in the Final Sale Notice. Variables may include:
	(i) Nonmonetary (<i>e.g.</i> , technical merit) factors and
	(ii) Monetary (<i>e.g.</i> , cash bonus, rental rate, fee rate) factors.

²⁵⁶ 30 C.F.R. § 585.221 (2023).

APPENDIX B: BOEM’S COMPETITIVE AUCTION TYPES²⁵⁷

Type of auction	Bid variable	Bidding process
(1) Sealed bidding	A cash bonus or an operating fee rate	One sealed bid per company per lease or packaged bidding unit.
(2) Ascending bidding	A cash bonus or an operating fee rate	Continuous bidding per lease.
(3) Two-stage bidding (combination of ascending and sealed bidding)	An operating fee rate in one, both, or neither stage and a cash bonus in one, both, or neither stage	Ascending or sealed bidding until: (i) Only two bidders remain, or (ii) More than one bidder offers to pay the maximum bid amount. Stage-two sealed or ascending bidding commences at some predetermined time after the end of stage-one bidding.
(4) Multiple-factor bidding	Factors may include, but are not limited to: technical merit, timeliness, financing and economics, environmental considerations, public benefits, compatibility with State and local needs, cash bonus, rental rate, and an operating fee rate	One proposal per company per lease or packaged bidding unit.

²⁵⁷ 30 C.F.R. § 585.220 (2023).