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## Ahoy, Matey! I've Harnessed the Wind: Turning Ocean Air into Renewable Wind Energy

Amber Ferguson

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# Ahoy, Matey! I’ve Harnessed the Wind: Turning Ocean Air into Renewable Wind Energy

*Amber Ferguson*\*

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## I. INTRODUCTION

As society progresses into an era marked by heightened awareness of the finite nature of nonrenewable resources and the intensifying threat of climate change, there is a visible push towards creating greener solutions. With climate change and environmental concerns infiltrating society's collective consciousness more prominently than ever, individuals and institutions are increasingly inclined towards initiatives to preserve the planet for future generations.<sup>1</sup> There is an increasing effort towards exploring innovative avenues for sustainable energy production.<sup>2</sup> Conventional sources of renewable energy, such as wind turbines, hydropower, solar, and nuclear energy, have garnered significant attention.<sup>3</sup> Many engineers, individuals, and renewable energy corporations are adopting more unconventional approaches to achieve the pursuit of sustainability.<sup>4</sup> One such innovation is the development of offshore wind farms.<sup>5</sup>

An offshore wind farm is defined as a “power plant that contains all the facilities needed to capture the wind power, transform it into electricity, and supply it to the main electricity network.”<sup>6</sup> Wind farms come in two primary forms: onshore and offshore. Onshore wind farms are located on land, normally in areas with a small population and

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1. TROY A. RULE, *RENEWABLE ENERGY: LAW, POLICY AND PRACTICE* 94 (W. Acad. Publ'g, 2d ed. 2021).

2. See generally *What Is the Sustainable Energy Transition and Why Is It Key to Tackling Climate Change?*, U.N. DEV. PROGRAMME (Feb. 3, 2025), <https://climatepromise.undp.org/news-and-stories/what-sustainable-energy-transition-and-why-it-key-tackling-climate-change> [<https://perma.cc/UV7P-QUK7>].

3. *What Is Renewable Energy?*, UNITED NATIONS: CLIMATE ACTION, <https://www.un.org/en/climatechange/what-is-renewable-energy> (last visited Sept. 18, 2025).

4. *Id.*

5. *Id.*

6. GEORGIOS NIKITAS ET AL., *WIND ENERGY*, IN *FUTURE ENERGY: IMPROVED, SUSTAINABLE AND CLEAN OPTIONS FOR OUR PLANET* 331, 339 (Trevor M. Letcher ed., 3d ed. 2020).

conservation value.<sup>7</sup> Offshore wind farms are located in the ocean and built in open, shallow bodies of water.<sup>8</sup> Offshore wind farms are “considered more efficient than onshore wind farms,” since the wind speeds are more consistent and of greater volume offshore than onshore due to the minimum amount of interference from manmade objects.<sup>9</sup>

Offshore wind farms are recognized as “America's next major energy source” and have the potential to create positive environmental and economic impact in the United States and the rest of the world.<sup>10</sup> Even though the difference between offshore wind and onshore wind is slight, the regulatory frameworks for them are drastically different. This Article focuses on offshore wind farms and their development, with particular emphasis on the regulatory framework and financial obligations, while examining offshore wind farms' repercussions on the maritime industry and marine ecosystems.

As this up-and-coming energy source gains prominence in society, various federal agencies and state governments may be implicated. Thus, it is imperative to create a more seamless approach between the state and federal governments. This type of cooperative relationship will encourage more investment in the offshore wind industry and seamless processes.

## II. OFFSHORE WIND FARMS' REGULATORY LANDSCAPE

### *A. The Introduction of Offshore Wind Farms in the United States of America*

In the realm of innovation, an adequate framework is essential. Legislators have debated and crafted new legislation addressing offshore

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7. Ben Sparhawk, *What's the Difference Between Offshore and Onshore Wind Energy?*, STEVENS ENG'RS & CONSTRS., <https://www.stevenssec.com/blog/difference-between-offshore-and-onshore-wind-energy#onshore-wind-energy> [https://perma.cc/9G4A-VSZ4] (last visited Sept. 18, 2025).

8. *Id.*

9. *Onshore vs. Offshore Wind Energy: What's the Difference?*, NAT'L GRID, <https://www.nationalgrid.com/stories/energy-explained/onshore-vs-offshore-wind-energy> [https://perma.cc/68UM-9FZV] (last updated Aug. 9, 2024).

10. *Offshore Wind Power Facts*, AM. CLEAN POWER, <https://cleanpower.org/facts/offshore-wind/> [https://perma.cc/PV6B-AXV6] (last updated Mar. 2025); U.S. DEP'T OF ENERGY & U.S. DEP'T OF THE INTERIOR, NATIONAL OFFSHORE WIND STRATEGY, at vii (2016), <https://www.energy.gov/eere/wind/articles/national-offshore-wind-strategy-facilitating-development-offshore-wind-industry> [https://perma.cc/V24E-2K46].

wind farms.<sup>11</sup> This legislation aims to govern the industry and create societal standards to “ensure that new projects are compatible with ocean uses.”<sup>12</sup>

The first offshore wind farm was developed in 1991–Vindeby in Denmark.<sup>13</sup> During this time, the concept of offshore wind farms was met with skepticism. Many questioned if operating wind turbines at sea would be practical or even possible.<sup>14</sup> But this uncertainty was calmed when the initial offshore wind pilot project in Denmark produced 5 megawatts (MW), which was enough to meet the annual consumption of approximately 2,200 Danish households.<sup>15</sup> After the success of this pilot project, the idea took flight like a gentle breeze, drifting from the northern hemisphere to the northwestern hemisphere, where it sprouted into wind farms across Sweden, the Netherlands, the United Kingdom, and eventually the United States.<sup>16</sup>

The establishment of offshore wind farms in the United States progressed slowly.<sup>17</sup> The first time a project was proposed in the United States was 2001, and it “faced significant challenges and litigation that halted its progress,” prompting developers to reevaluate their approach.<sup>18</sup> In 2011, Ken Salazar, Secretary of the Interior, and Steven Chu, Secretary of Energy, announced “new funding opportunities for up to \$50.5 million for projects that support offshore wind energy deployment.”<sup>19</sup> This initiative was an attempt to “speed renewable energy development offshore by improving coordination with state, local and federal partners, developing wind research and test facilities for new technologies to reduce

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11. *Offshore Wind Energy: Overview*, NAT’L OCEANIC & ATMOSPHERIC ADMIN.: FISHERIES, <https://www.fisheries.noaa.gov/topic/offshore-wind-energy> [perma.cc/2MKT-2LC6] (last visited Sept. 18, 2025).

12. *Id.*

13. *Making Green Energy Affordable: The First Offshore Wind Farms*, ØRSTED (June 2019), <https://orsted.com/en/insights/white-papers/making-green-energy-affordable/1991-to-2001-the-first-offshore-wind-farms> [perma.cc/65EM-59EW].

14. *Id.*

15. *Id.*

16. *Id.*

17. *First Offshore Wind Farm in the United States Begins Construction*, U.S. ENERGY INFO. ADMIN. (Aug. 14, 2015), <https://www.eia.gov/todayinenergy/detail.php?id=22512> [perma.cc/6GPX-UGJP].

18. *Id.*

19. *Salazar, Chu Announce Major Offshore Wind Initiatives*, U.S. DEP’T INTERIOR, <https://www.doi.gov/news/pressreleases/Salazar-Chu-Announce-Major-Offshore-Wind-Initiatives> [perma.cc/9WJ4-76X2] (last updated Sept. 29, 2021).

market barriers, identifying priority areas for potential development and conducting early environmental reviews.”<sup>20</sup> The United States did not see its first offshore wind farm until the development of a pilot project off the coast of Rhode Island's Block Island in 2016, which replaced “five diesel generators . . . [with] five offshore wind turbines.”<sup>21</sup> The Block Island wind farm was the beginning of a trend, as the offshore wind farms’ development showed its “potential to play an important role in U.S. efforts to combat the climate crisis and build a clean energy economy.”<sup>22</sup>

Offshore wind farms have many advantages. Notably, their development generates societal economic value, including creating jobs, reducing electricity costs, and developing the domestic supply chain.<sup>23</sup> Moreover, offshore wind farms are more efficient at harnessing wind energy because of their larger turbines.<sup>24</sup> Additionally, the ample space and reduced environmental impact presents fewer obstacles to construction of offshore wind farms.<sup>25</sup> The potential impact that offshore wind farms have on climate change is so profound that it led the Biden Administration to approve the eighth offshore wind project, as the United States strives for the use of more renewable energy.<sup>26</sup> Nevertheless, there are downsides; offshore wind farms may be more expensive because of the need for more advanced and intricate infrastructure to support them.<sup>27</sup>

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20. *Id.*

21. The Associated Press, *35 Miles East of Long Island, the U.S. Has Its First Large Offshore Wind Farm*, NAT'L PUB. RADIO (Mar. 14, 2024, 2:14 PM), <https://www.npr.org/2024/03/14/1238593852/first-large-offshore-wind-farm-open-s-long-island-south-fork> [perma.cc/5VGU-56U3]; *The Starting Five: Stories from America's First Offshore Wind Farm*, ØRSTED, <https://us.orsted.com/renewable-energy-solutions/offshore-wind/block-island-wind-farm> [perma.cc/C7KD-P5RC] (last visited Sept. 18, 2025).

22. *Offshore Wind Energy*, *supra* note 11.

23. NATIONAL OFFSHORE WIND STRATEGY, *supra* note 10; *Offshore Wind Research and Development*, U.S. DEP'T ENERGY, <https://www.energy.gov/eere/wind/offshore-wind-research-and-development> [perma.cc/RDH6-EH9C] (last visited Sept. 18, 2025).

24. Sparhawk, *supra* note 7.

25. *Id.*; *Onshore vs. Offshore Wind Energy*, *supra* note 9.

26. *Biden-Harris Administration Approves Eighth Offshore Wind Project*, U.S. DEP'T INTERIOR, <https://www.doi.gov/pressreleases/biden-harris-administration-approves-eighth-offshore-wind-project> [perma.cc/Q7T9-B622] (last edited Apr. 2, 2024).

27. *Onshore vs. Offshore Wind Energy*, *supra* note 9.

### B. The Regulatory Framework of Offshore Wind Farms

As the success of offshore wind farms became more apparent, the United States Department of Energy and the United States Department of the Interior (DOI) decided the United States needed a national approach to offshore wind development to guide “the national energy landscape” through all of its changes.<sup>28</sup> The United States began permitting and regulating offshore wind energy development.<sup>29</sup> Currently, the Secretary of the Interior has ultimate authority over “offshore wind energy development” under the Energy Policy Act of 2005 (EPAct), and its powers are delegated to the Bureau of Ocean Energy Management (BOEM) under section 388 of the EPAct.<sup>30</sup> Before the enactment of the EPAct, the Army Corps of Engineers regulated offshore wind development, which “exercise[ed] jurisdiction under Section 10 of the Rivers and Harbors Act (RHA), as amended by the Outer Continental Shelf Lands Act (OCSLA).”<sup>31</sup> Notably, “the Corps’ jurisdiction over potential offshore wind projects” power of regulation was never explicitly mentioned within Section 10 of the Rivers and Harbors Act (RHA).<sup>32</sup>

As offshore wind development became more of a reality, the United States federal government sought to provide more structure and remove uncertainty “related to federal jurisdiction over offshore wind energy development by amending OCSLA to establish legal authority for federal review and approval of various offshore energy-related projects.”<sup>33</sup>

### C. Offshore Wind Permitting Process

Section 388 of EPAct provides a regulatory structure for offshore wind farm development, which the DOI uses to build a regulatory regime.<sup>34</sup> When developers consider developing a wind farm, the process begins with the following: “environmental planning, site design, assessment of wind potential, technology review, component selection . . . [and]

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28. NATIONAL OFFSHORE WIND STRATEGY, *supra* note 10.

29. ADAM VANN, OFFSHORE WIND ENERGY DEVELOPMENT: LEGAL FRAMEWORK 1, 3 (Cong. Rsch. Serv. 2023), <https://sgp.fas.org/crs/misc/R40175.pdf> [<https://perma.cc/GTQ6-XVVQ>].

30. *Id.*; *Energy Policy Act of 2005*, Pub. L. No. 109–58, 119 Stat. 594 (2005).

31. *Offshore Wind Energy Development*, *supra* note 29.

32. *Id.* at 3; 33 U.S.C. § 403.

33. *Offshore Wind Energy Development*, *supra* note 29, at 4.

34. *Id.*; *Energy Policy Act of 2005*, *supra* note 30.

[f]easibility studies . . . .”<sup>35</sup> Once developers and investors decide they want to carry out the process, the next step is to obtain relevant permits from agencies such as the Environmental Protection Agency (EPA) and other regulatory requirements, such as right-of-use and easements.<sup>36</sup>

Other agencies that have “permitting authority under other federal laws retain their jurisdiction,” even though DOI, through § 388 of EPAct has jurisdiction over “federal offshore wind energy.”<sup>37</sup> The Secretary of the Interior, along with other federal agencies, grants “leases, easements, or right-of-way for energy and related purposes,” which are necessary for offshore wind field projects.<sup>38</sup> The Secretary of the Interior issues these requirements on a competitive basis, and they can be suspended or canceled at any time.<sup>39</sup> The Secretary of the Interior issues a notice that is posted on the Federal Register and allows interested parties the opportunity to submit nominations for the lease of a proposed wind energy project.<sup>40</sup> During this time, individuals are able to comment or provide information regarding the proposed wind energy project’s location, conditions, or how it would affect the individual or entity.<sup>41</sup>

Furthermore, under 30 CFR § 585.100, the Secretary of the Interior delegates its power to BOEM, allowing it to regulate activities under § 388(a) of the EPAct.<sup>42</sup> BOEM has created a four-phase regime in which it uses its authority to issue offshore wind leases under the EPAct.<sup>43</sup> The four phases are: (i) planning and analysis; (ii) leasing; (iii) site assessment; and

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35. *Construction of an Offshore Wind Plant*, IBERDROLA, <https://www.iberdrola.com/about-us/our-activity/offshore-wind-energy/offshore-wind-park-construction> [<https://perma.cc/PZ82-9BY3>] (last visited July 19, 2025).

36. Robert A. James et al., *The Economic and Regulatory Outlook for U.S. Offshore Wind*, PRATT’S ENERGY L. REP. (June 1, 2019), <https://www.pillsburylaw.com/en/news-and-insights/the-economic-and-regulatory-outlook-for-us-offshore-wind.html> [<https://perma.cc/N7QB-M958>].

37. *Offshore Wind Energy Development*, *supra* note 29.

38. *Id.*; *Energy Policy Act of 2005*, *supra* note 30.

39. *Offshore Wind Energy Development*, *supra* note 29.

40. 77 Fed. Reg. 5820-02, 2012 WL 346527 (F.R.).

41. *Id.*

42. 30 CFR § 585.100; Sarah Y. Dicharry, *Navigating BOEM’s Regulatory Framework for Commercial Wind Leases*, JONES WALKER MAR. NEWSL. (Oct. 2020), <https://sites-communications.joneswalker.com/36/1613/landing-pages/navigating-boem-s-regulatory-framework-for-commercial-wind-leases---lp.asp> [<https://perma.cc/QX36-U8RB>]; *Renewable Energy Regulatory Framework and Guidelines*, BUREAU OCEAN ENERGY MGMT., <https://www.boem.gov/renewable-energy/regulatory-framework-and-guidelines> [<https://perma.cc/4WLC-AVXQ>] (last visited July 19, 2025).

43. Dicharry, *supra* note 42.

(iv) construction and operations.<sup>44</sup> First, during the planning and analysis phase, BOEM consults with parties interested in offshore wind development to identify areas suitable for the project.<sup>45</sup> Second, under the leasing phase, BOEM issues wind leases on a competitive basis, but if there is no competition, the leases are issued noncompetitively.<sup>46</sup> In the leasing phase, developers are given “the exclusive right to submit a site assessment plan,” but are unable to begin construction.<sup>47</sup> Third, the site assessment phase, which commences after the lease has been issued, permits a lessee of a commercial lease up to one year to prepare and submit a Site Assessment Plan (SAP).<sup>48</sup> After the SAP is approved, the lessee has up to five years to begin the approved site assessment activities, and to submit a Construction and Operations Plan (COP). Next, BOEM “conduct[s] technical and environmental reviews of the COP,” ensuring that all regulatory requirements are satisfied.<sup>49</sup> Finally, once the COP is approved, the project is transitioned into the construction and operations phase, where the lessee is given a commercial lease with an operations term of 25 years, which commences the day after the COP is approved.<sup>50</sup>

Beyond the regulations listed in the EPAct, offshore wind field developers must also consult with the National Oceanic and Atmospheric Administration–Fisheries (NOAA Fisheries), the United States Fish and Wildlife Service, and the Advisory Council on Historic Preservation.<sup>51</sup> These consultations help ensure recognition of the impacts on the ocean’s resources, protection of critical habitats, and minimal negative impact from offshore wind farms on the marine environment.<sup>52</sup> Furthermore, offshore wind developers are required to receive permits from the United States Army Corps of Engineers, the United States Coast Guard, the Department of Defense, the Federal Aviation Administration, and the EPA.<sup>53</sup> Also, it is necessary for developers to “[r]eceive authorization for incidental take or harassment” under several different acts from NOAA

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44. *Id.*

45. *Id.*

46. *Id.*

47. James, *supra* note 36.

48. *Id.*

49. Dicharry, *supra* note 42.

50. *Id.*

51. *Permitting and Approvals: Understanding Federal and State Requirements*, N.Y. ST. ENERGY RSCH. & DEV. AUTH., <https://www.nyserda.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/Permitting> [https://perma.cc/TK97-RTPE] (last visited July 17, 2025).

52. *Offshore Wind Energy*, *supra* note 11.

53. *Permitting and Approvals*, *supra* note 51.

Fisheries, and the U.S. Fish and Wildlife Service.<sup>54</sup> Finally, a request for a permit from the EPA under the Clean Air Act and Clean Water Act is required.<sup>55</sup> The number of permits required by BOEM before issuing approval for offshore wind project leases indicates BOEM's careful approach, aiming to minimize environmental impact while maximizing renewable energy production. Notice and comment periods are used frequently throughout BOEM's lease approval process, as the public must have an opportunity to voice its opinions on proposed offshore wind projects.<sup>56</sup>

BOEM prepares an Environmental Impact Statement, which notes the impact the proposed offshore wind project will have on the environment.<sup>57</sup> After this, a biological opinion is drafted by the National Marine Fisheries Service (NMFS), which contemplates the “effects of the proposed actions on ESA-listed whales, including the North Atlantic right whale, sea turtles, fish, and the critical habitat for various species that may be present in the proposed action area.”<sup>58</sup> Furthermore, an Incidental Harassment Authorization application was submitted, seeking “authorization of the likely incidental taking by harassment that may occur from impact pile driving in connection with the Project” from the Marine Mammal Protection Act (MMPA) and NMFS Office of Protected Resources (NMFS/OPR).<sup>59</sup>

After the preceding steps are completed, each federal agency can give mitigating measures to ensure the proposed project will not have harmful effects on the environment.<sup>60</sup> Plaintiffs are still able to challenge BOEM's approval of the lease permit in a civil action, by arguing that the review process is inadequate.<sup>61</sup> The courts will review the entirety of BOEM process, and rule on the challenge if the respective plaintiff has standing.<sup>62</sup> In *Nantucket Residents Against Turbines v. BOEM*, the court upheld

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54. *Id.*

55. *Nantucket Residents Against Turbines v. U.S. Bureau Of Ocean Energy Mgmt.*, 675 F. Supp. 3d 28, 40–41 (Mass. Dist. Ct., May 17, 2023).

56. *Id.* at 36–37; 40–41.

57. *Id.* at 36; *Environmental Impact Statement Process*, DEP'T OF ECOLOGY ST. OF WASH., <https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/guide-for-lead-agencies/environmental-impact-statements> [<https://perma.cc/7KS5-VUFA>] (last visited July 19, 2025).

58. *Nantucket Residents Against Turbines*, 675 F. Supp. 3d at 38. “ESA” is the abbreviation of Endangered Species Act.

59. *Id.* at 40.

60. *Id.* at 41–44.

61. *Id.* at 32–34.

62. *Id.*

BOEM's approval of the Vineyard Wind's Construction and Operations Plan, looking beyond the "sensationalized (though sympathetic) claims" and "focus[ing] on whether agency action is rationally supported by the administrative record," as the offshore wind industry quickly develops.<sup>63</sup>

#### *D. Federal Incentives for Developing Offshore Wind Farms*

As the world pushes for a transition to cleaner energy, the United States federal government provides incentives for those who make the leap to develop offshore wind farms.<sup>64</sup> In a 2021 Executive Order, President Joe Biden responded to the current climate crisis by announcing that he wants to increase the amount of renewable energy production, aiming to double the amount of offshore wind by 2030 to 30 gigawatts (GW).<sup>65</sup> To assist with this goal, the "United States congress has created federal tax benefits to incentivize innovation [and] capital investment" to increase the amount of offshore wind development.<sup>66</sup>

In part due to inflation, it has been hard for developers to raise capital to develop these offshore wind projects.<sup>67</sup> Hence, one incentive signed into law is the Inflation Reduction Act (IRA).<sup>68</sup> The IRA is considered to be one of the most substantial investments by Congress into the United States' economy and energy security programs in the nation's history.<sup>69</sup> It

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63. Laura Smith Morton, *District Court Dismisses Case Challenging Offshore Wind Project*, PERKINS COIE (May 26, 2023), <https://www.perkinscoie.com/en/news-insights/district-court-dismisses-case-challenging-offshore-wind-project.html#e1> [https://perma.cc/7HDA-XXKS].

64. *Government Tax Incentives for Offshore Wind Investments*, SEWARD & KISSEL LLP: MAR. BLOG (June 28, 2023), <https://maritime.sewkis.com/blog/government-tax-incentives-for-offshore-wind-investments> [https://perma.cc/4SRV-JAWK].

65. The White House, *Executive Order on Tackling the Climate Crisis at Home and Abroad* (Jan. 27, 2021), <https://bidenwhitehouse.archives.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/> [https://perma.cc/P2D2-JHX9] [section 207].

66. *Government Tax Incentives for Offshore Wind Investments*, *supra* note 64.

67. Justin Horwath, *IRA at 1: U.S. Boost to Offshore Wind Imperiled by Struggling Projects*, S&P GLOBAL (Aug. 15, 2023), <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/ira-at-1-us-boost-to-offshore-wind-imperiled-by-struggling-projects-76971616> [https://perma.cc/5KCW-VQSU].

68. *Id.*

69. *Inflation Reduction Act of 2022*, U.S. DEP'T ENERGY, <https://www.energy.gov/lpo/inflation-reduction-act-2022> [https://perma.cc/5JQC-K2LV] (last visited Sept. 18, 2025).

includes “two dozen tax provisions,” and “billions of dollars in grant and loan programs and other investments” that aim to make clean energy more affordable for families and manufacturers.<sup>70</sup> The IRA worked to “extend and increase investment tax credits (ITC) and production tax credits (PTC) through 2024 for any wind energy project beginning construction prior to January 1, 2025,” increasing the financial incentive for eligible entities to invest in and begin the development of offshore wind fields.<sup>71</sup>

The ITC and PTC are tax credit opportunities “available to taxable business[] entities and certain tax-exempt entities.”<sup>72</sup> These tax credits allow companies to reduce the amount of taxes they owe to the federal government.<sup>73</sup> Specially, the ITC is “a federal income tax credit for capital investments in renewable energy projects,” which is a one-time credit, based on the dollar amount invested and is earned when equipment is placed into service.<sup>74</sup> It provides a “30% tax credit for offshore wind projects that begin construction before January 1, 2026,” aiming to increase the amount of offshore wind field development.<sup>75</sup> The PTC is a federal income tax credit that allows owners and developers of wind energy facilities “to be eligible for federal business energy investment tax credits.”<sup>76</sup> The PTC, which was set to end in 2021, and phased out at the

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70. THE WHITE HOUSE, BUILDING A CLEAN ENERGY ECONOMY: A GUIDEBOOK TO THE INFLATION REDUCTION ACT'S INVESTMENTS IN CLEAN ENERGY AND CLIMATE ACTION 1, 2 (2023), <https://bidenwhitehouse.archives.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf> [<https://perma.cc/U77E-NVA8>].

71. *Government Tax Incentives for Offshore Wind*, *supra* note 64.

72. *Id.*

73. *Id.*

74. *Id.*

75. *Offshore Wind Provisions in the Inflation Reduction Act*, CONG. RSCH. SERV. (Oct. 22, 2024), <https://crsreports.congress.gov/product/pdf/IN/IN11980> [<https://perma.cc/JM67-6Y6F>].

76. *Investment Tax Credits*, BAKER TILLY, <https://www.bakertilly.com/industries/energy/investment-tax-credits> [<https://perma.cc/3VKS-J2AD>] (last visited Sept. 18, 2025); *Government Tax Incentives for Offshore Wind*, *supra* note 64.

end of 2024,<sup>77</sup> aimed to “reduce the federal income tax liability” and encourage the “development of renewable energy facilities.”<sup>78</sup>

Additionally, other small incentives have been implemented to encourage the creation of offshore wind farms.<sup>79</sup> For example, section 13502 of the IRA provides manufacturers in the United States who produce wind components and related goods a tax credit of “10% of the sales price.”<sup>80</sup> Products must be made domestically for manufacturers to receive this credit.<sup>81</sup> Nevertheless, for each incentive provided by the federal government, there are requirements that must be satisfied to be eligible for the credit or bonus credit.<sup>82</sup>

However, the Trump Administration’s One Big Beautiful Bill Act (OBBBA), notably revises these federal incentives.<sup>83</sup> The OBBBA amends various clean energy tax provisions under the IRA, ITC and PTC.<sup>84</sup> As a result, current offshore wind projects will become ineligible under the bill for these tax incentives if their construction hasn’t begun

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77. The mentioned PTC was replaced with the Clean Energy Production Tax Credit on January 1, 2025, under the IRA. *Summary of Inflation Reduction Act Provisions Related to Renewable Energy*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/green-power-markets/summary-inflation-reduction-act-provisions-related-renewable-energy> [<https://perma.cc/MM5L-7N5L>] (last updated July 29, 2025).

78. *Government Tax Incentives for Offshore Wind*, *supra* note 64; FEDERAL SOLAR TAX CREDITS FOR BUSINESSES 1 (U.S. Dep’t of Energy: Off. of Energy Efficiency & Renewable Energy 2024), [https://www.energy.gov/sites/default/files/2024-02/508%20Federal%20Solar%20Tax%20Credits%20for%20Businesses\\_Feb24.pdf](https://www.energy.gov/sites/default/files/2024-02/508%20Federal%20Solar%20Tax%20Credits%20for%20Businesses_Feb24.pdf) [[perma.cc/EEY3-P2ME](https://perma.cc/EEY3-P2ME)]; *Production Tax Credit for Renewable Energy*, UNION OF CONCERNED SCIENTISTS, <https://www.ucsusa.org/resources/production-tax-credit-renewable-energy> [[perma.cc/5RSB-YP2J](https://perma.cc/5RSB-YP2J)] (last updated Feb. 9, 2015).

79. *See generally Offshore Wind Provisions in the Inflation Reduction Act*, *supra* note 75, at 3.

80. *Id.*

81. *Inflation Reduction Act: New Guidance on Section 45x Manufacturing Tax Credits*, A&O SHEARMAN (Dec. 18, 2023), <https://www.aoshearman.com/en/insights/inflation-reduction-act-new-guidance-on-section-45x-manufacturing-tax-credits> [<https://perma.cc/7EYV-QJUC>].

82. *Offshore Wind Provisions in the Inflation Reduction Act*, *supra* note 75.

83. Brook Detterman et al., *The One Big Beautiful Bill Act Is Very Ugly for Wind and Solar*, BEVERIDGE & DIAMOND PC (July 16, 2025), <https://www.bdlaw.com/publications/the-one-big-beautiful-bill-act-is-very-ugly-for-wind-and-solar/> [<https://perma.cc/H2UU-HJW7>]; *see generally One Big Beautiful Bill Act*, Pub. L. No. 119–21, 139 Stat. 72 (2025).

84. Detterman et al., *supra* note 83.

“before July 4, 2026” or been “placed in service by December 31, 2027.”<sup>85</sup> But throughout the remainder of 2025, IRA and other incentives will remain the same.<sup>86</sup>

These changes place restrictions on the incentives that once drove investment into the offshore wind industry. Developers and investors must now navigate condensed timelines and substantial due diligence.<sup>87</sup> In particular, projects must comply with “the newly applicable enhanced foreign entities of concern (FEOC) requirements.”<sup>88</sup> Therefore, the OBBBA may “dissuade investment” into the offshore wind industry, particularly as the DOI “conducts a review of offshore wind energy projects and their impact on the environment, national security and the economy.”<sup>89</sup>

All in all, these legislative shifts illustrate how federal policy changes, particularly under different administrations, can directly shape the economic structure of the offshore wind industry, highlighting the importance of being up to date on regulatory changes affecting the industry.

#### *E. Collaborative Efforts Promoting Offshore Wind Development*

A continuous growth of the offshore industry caused a notable increase in collaboration between federal government agencies and states, exemplified by the creation of interstate agreements.<sup>90</sup> This partnership underscores a collective commitment to achieving President Biden’s goal

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85. *Id.*

86. *Summary of Inflation Reduction Act Provisions Related to Renewable Energy*, *supra* note 77.

87. *Id.*

88. Alvaro J. Mestre et al., *Corporate Insights: One Big Beautiful Bill Act Increases Uncertainty for Renewable Energy Sector*, SQUIRE PATTON BOGGS LLP (July 2025), <https://www.squirepattonboggs.com/en/insights/publications/2025/07/corporate-insights-one-big-beautiful-bill-act-increases-uncertainty-for-renewable-energy-sector> [<https://perma.cc/BF8E-XGZM>].

89. *Id.*; *Interior Launches Overhaul of Offshore Wind Rules to Prioritize American Energy Security*, U.S. DEP’T INTERIOR (Aug. 7, 2025), <https://www.doi.gov/pressreleases/interior-launches-overhaul-offshore-wind-rules-prioritize-american-energy-security> [<https://perma.cc/9T44-FC9G>].

90. *NOAA and BOEM Announce Interagency Collaboration to Advance Offshore Wind Energy*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. (Jan. 12, 2022), <https://www.noaa.gov/news-release/noaa-and-boem-announce-interagency-collaboration-to-advance-offshore-wind-energy> [<https://perma.cc/WE2N-W2CE>].

of 30 GW of offshore wind power by 2030.<sup>91</sup> Which contrast with the Trump Administration, which issued an Executive Order on Jan 20, 2025, halting all leasing and review of offshore wind projects, thereby pausing further development within the industry.<sup>92</sup> With the marine industry, which is represented by NOAA, and the offshore wind industry, which is regulated by BOEM, closely intertwined, their collaborative efforts “will help ensure coordination, collaboration, and alignment by NOAA and BOEM,” streamlining the investment process in the offshore wind industry.<sup>93</sup> This collaborative approach aids in combating climate change and safeguards marine life and resources.

Moreover, as offshore wind projects gain traction, particularly along the East Coast, where the bulk of active wind farms are situated, three states—Massachusetts, Rhode Island, and Connecticut—have “signed a memorandum of understanding to coordinate offshore wind procurement.”<sup>94</sup> This interstate agreement allows offshore wind

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91. *Federal Offshore Wind Deployment*, HARVARD L. SCH. ENV'T & ENERGY L. PROGRAM, <https://eelp.law.harvard.edu/tracker/federal-offshore-wind-deployment/> [<https://perma.cc/5HN2-EX7J>] (last updated Sept. 4, 2025); Clare Fieseler, ‘Scare tactics’ and Uncertainty: What Trump’s Offshore Wind Order Means, CANARY MEDIA (Jan. 22, 2025), <https://www.canarymedia.com/articles/offshore-wind/scare-tactics-and-uncertainty-what-trumps-offshore-wind-order-means> [<https://perma.cc/SR9P-EG9S>]; *Temporary Withdrawal of All Areas on the Outer Continental Shelf from Offshore Wind Leasing and Review of the Federal Government’s Leasing and Permitting Practices for Wind Projects*, THE WHITE HOUSE (Jan. 20, 2025), <https://www.whitehouse.gov/presidential-actions/2025/01/temporary-withdrawal-of-all-areas-on-the-outer-continental-shelf-from-offshore-wind-leasing-and-review-of-the-federal-governments-leasing-and-permitting-practices-for-wind-projects/> [<https://perma.cc/2BEV-KB8U>]. However, on January 20, 2025, the Trump Administration issued an Executive Order, which halted all leasing and review of offshore wind projects, which halted further development within the industry.

92. Jennifer McDermott, *Trump Administration Cancels Plans to Develop New Offshore Wind Projects*, WHYY (July 31, 2025), <https://whyy.org/articles/trump-administration-cancels-new-offshore-wind-development/> [<https://perma.cc/BSG3-BMTG>].

93. *Id.*

94. *Offshore Wind Projects*, NORTHEAST OCEAN DATA, <https://www.northeastoceandata.org/offshore-wind-projects/> [<https://perma.cc/2JSL-92SH>]; Diana DiGangi, *3 States Sign First-Ever Agreement to Coordinate Offshore Wind Procurement*, UTILITY DIVE (Oct. 4, 2023), <https://www.utilitydive.com/news/new-england-state-agreement-offshore-wind-procurement/695603/> [<https://perma.cc/G35S-VULM>]; OFFSHORE WIND MULTI-STATE COORDINATION MEMORANDUM OF UNDERSTANDING BY AND AMONG THE STATES OF CONNECTICUT AND RHODE ISLAND AND THE COMMONWEALTH OF

developers to “submit multi-state offshore wind project proposals for consideration by the soliciting parties through their respective offshore wind procurements for selection,” enabling the three states “to procure clean energy from offshore wind together at more competitive and affordable rates.”<sup>95</sup> Given that the “federal government and coastal states each have roles in the permitting process,” such partnerships serve as catalysts for enhanced collaboration and efficiency in advancing renewable energy initiatives, particularly offshore wind, on both regional and national levels.<sup>96</sup>

In addition, coastal states have joined the conversation, setting their ambitious targets for offshore wind energy beyond the Biden Administration’s goal of 30 GW by 2030.<sup>97</sup> Oregon, for example, has established a goal of three GW of offshore wind energy by 2030, with BOEM actively engaging with the state to identify viable areas for offshore wind projects.<sup>98</sup> Similarly, Massachusetts enacted legislation to elevate its offshore wind power to “4 GW by 2027,” leading the way with one offshore wind project operational and three in the construction phase.<sup>99</sup> In response to California Assembly Bill 525, the California

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MASSACHUSETTS 1 (2023), <https://portal.ct.gov/-/media/deep/energy/procurements/marict-offshore-wind-procurement-collaboration-memorandum-of-understanding--final-10323-cem-sig.pdf> [<https://perma.cc/K427-WTZQ>].

95. DiGangi, *supra* note 94.

96. *Offshore Wind Energy Development: Legal Framework*, *supra* note 29; *Virginia Among States Moving Bills to Develop Offshore Wind Energy Sustainably and Equitably*, NAT’L CAUCUS OF ENV’T LEGISLATORS (Mar. 1, 2023), <https://www.ncelenviro.org/articles/virginia-among-states-moving-bills-to-develop-offshore-wind-energy-sustainably-and-equitably/> [<https://perma.cc/VSY3-WC7U>].

97. *Report: Urgent, Collaborative Offshore Wind Transmission Planning Needed to Achieve Federal and State Clean Energy Goals*, CLEAN AIR TASK FORCE (Jan. 24, 2023), <https://www.catf.us/2023/01/report-urgent-collaborative-offshore-wind-transmission-planning-needed-to-achieve-federal-and-state-clean-energy-goals/> [<https://perma.cc/QT3J-J7KU>].

98. Laura Smith Morton et al., *Oregon Offshore Wind Watch—Examining BOEM’s Final Wind Energy Areas and Scoping Notice*, PERKINS COIE (Feb. 27, 2024), <https://www.perkinscoie.com/en/news-insights/oregon-offshore-wind-watchexamining-boems-final-wind-energy-areas-and-scoping-notice.html> [<https://perma.cc/B7ZV-BVWQ>]; Diana DiGangi, *BOEM Finalizes Two Oregon Offshore Wind Energy Areas with up to 2.4 GW in Capacity*, UTILITY DIVE (Feb. 14, 2024), <https://www.utilitydive.com/news/oregon-offshore-wind-energy-areas-boem/707505/> [<https://perma.cc/2ZFP-QD9Z>].

99. Adrijana Buljan, *Massachusetts to Procure Additional 2.4 GW of Offshore Wind by 2027*, OFFSHOREWIND.BIZ (Mar. 30, 2021),

Energy Commission released a report outlining a plan to achieve “2 to 5 gigawatts by 2030 and 25 gigawatts by 2045” of offshore wind energy.<sup>100</sup> The Bill was accompanied by stakeholder engagement efforts, such as collaborating with the Danish Energy Agency, and state investments in seaport and waterfront facilities renovations.<sup>101</sup> Additionally, in September 2024, the Biden administration approved the Maryland Offshore Wind project, which is projected to power approximately 5.25 million homes, bringing the total amount of approved projects by the DOI to 15 GW.<sup>102</sup> These examples underscore the growing interest and investment in this burgeoning industry by both federal and state governments. Offshore wind energy emerges as a pivotal component of the renewable energy landscape, holding immense potential to drive sustainable energy transition efforts and combat climate change.

Federal agencies can draw inspiration, take cues from states, and expand this idea to a cooperative federalism approach.<sup>103</sup> Offshore wind

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<https://www.offshorewind.biz/2021/03/30/massachusetts-to-procure-additional-2-4-gw-of-offshore-wind-by-2027/> [perma.cc/92CR-VKQK]; 2021 Mass. Act Ch. 8; New England for Offshore Wind, *Massachusetts for Offshore Wind*, <https://www.newenglandforoffshorewind.org/states/massachusetts/> [https://perma.cc/RU2L-UQ7V]; 2022 Mass. Acts Ch. 179.

100. See AB 525 OFFSHORE WIND STRATEGIC PLAN: VOLUME III APPENDICES, CAL. ENERGY COMM’N (June 25, 2024), <https://efiling.energy.ca.gov/GetDocument.aspx?tn=257403> [https://perma.cc/4GE4-6YNK]; *Offshore Wind Energy Development off the California Coast*, CA. ENERGY COMM’N (Aug. 2022), <https://www.energy.ca.gov/filebrowser/download/4361> [https://perma.cc/PJ84-9C9L]; *Offshore Wind Energy Development*, CA. ST. LANDS COMM’N, <https://www.slc.ca.gov/renewable-energy/offshore-wind-energy-development/> [https://perma.cc/4BXB-7Y9B] (last visited Sept. 22, 2025); *California Continues to Advance Offshore Wind With New Report Detailing Options for Permitting Projects*, CA. ENERGY COMM’N (May 10, 2023), <https://www.energy.ca.gov/news/2023-05/california-continues-advance-offshore-wind-new-report-detailing-options> [https://perma.cc/CR9H-H6FA].

101. *Offshore Wind Energy Development off the California Coast*, *supra* note 100; California State Lands Commission, *Offshore Wind Energy Development*, <https://www.slc.ca.gov/renewable-energy/offshore-wind-energy-development/> [https://perma.cc/4BXB-7Y9B]; *California Continues to Advance Offshore Wind With New Report Detailing Options for Permitting Projects*, *supra* note 100.

102. *Biden-Harris Administration Marks Major Milestones for Offshore Wind, Approves Tenth Project*, U.S. DEP’T INTERIOR (Sept. 5, 2024), <https://www.doi.gov/pressreleases/biden-harris-administration-marks-major-milestones-offshore-wind-approves-tenth> [https://perma.cc/837A-9CJ6].

103. Much like cooperative federalism, which occurs when the “state and national governments [] share power and collaborate on overlapping functions.”

energy requires approval from various federal and state agencies during the permitting and construction process.<sup>104</sup> Similar to the New Deal era where the national government created a seamless cooperative relationship between the federal and state government, and the environmental protection initiatives, the federal government can create a seamless collaboration between itself and coastal states.<sup>105</sup> For example, by aligning the goals of the various federal agencies and states, particularly coastal states, this collaboration can help minimize permitting process length and environmental impact, while upholding the rigor and thoroughness of the process.

### III. EXPLORING, FINANCING, INVESTMENT, AND ECONOMICS OF OFFSHORE WIND FIELDS

#### A. *The Financial Aspect of Offshore Wind Projects*

As society steers toward environmental sustainability and strives to achieve President Biden's objective of 30 GWs of offshore wind power by 2030, there is a surge in offshore wind investment.<sup>106</sup> By contrast, under the Trump administration there is currently no comparable offshore wind goal, as many developments have been paused temporarily.<sup>107</sup> Similar to

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*The Evolution of Cooperative Federalism*, TUL. UNIV. L. SCH. BLOG (Apr. 15, 2021), <https://online.law.tulane.edu/blog/the-evolution-of-cooperative-federalism> [<https://perma.cc/F4Y8-CLCL>].

104. *Permitting and Approvals*, *supra* note 51.

105. Initiatives, the emissions trading program, which the EPA uses by setting an environmental goal that centers around minimizing the amount of pollution sources, in the offshore wind energy space. *How Do Emissions Trading Programs Work?*, U.S. ENV'T PROTS. AGENCY, <https://www.epa.gov/emissions-trading-resources/how-do-emissions-trading-programs-work> [<https://perma.cc/K76X-K5G6>] (last updated Nov. 22, 2024).

106. Kassia Micek, *U.S. Offshore Wind Investments More Than Triple in 2022, IRA to Boost Alternative Uses*, S & P GLOBAL (Feb. 21, 2023), <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/electric-power/022123-us-offshore-wind-investments-more-the-tripled-in-2022-ira-to-boost-alternative-uses> [<https://perma.cc/S7X6-9MNK>].

107. Lisa Friedman et al., *Trump Administration Orders Work Halted on Wind Farm That Is Nearly Built*, THE NEW YORK TIMES (Aug. 22, 2025), <https://www.nytimes.com/2025/08/22/climate/trump-administration-halts-revolution-wind.html> [<https://perma.cc/54DH-9MNN>]; Barbara Kates-Garnick, *Trump's Offshore Wind Energy Freeze: What States Lose if the Executive Order Remains in Place*, THE CONVERSATION U.S., INC. (Feb. 6, 2025), <https://the>

other ventures, the development of offshore wind farms demands significant capital investments to initiate the process.<sup>108</sup> Hence, investors must gain a comprehensive understanding of the complexities of their investment, including the economic benefits of the offshore industry.<sup>109</sup> While the legal aspects of the industry are vital to comprehend, analyzing its economic impact on society and offshore wind developers is equally crucial.

As of April 27, 2024, wind turbines capable of generating 2 to 3 MW cost “around \$1 million per MW,” while larger turbines generating up to 12 MW of electricity may cost “up to \$400 million to manufacture and install.”<sup>110</sup> The development of offshore wind projects is becoming increasingly expensive due to inflation.<sup>111</sup> However, the Biden Administration took impressive strides to promote growth in the offshore wind energy industry.<sup>112</sup> But during the Trump Administration, uncertainty around federal regulations has contributed to stalled projects, with some investors facing billion dollar setbacks or pursuing legal action.<sup>113</sup>

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conversation.com/trumps-offshore-wind-energy-freeze-what-states-lose-if-the-executive-order-remains-in-place-249125 [https://perma.cc/L3HY-WCS3].

108. Infrastructure Investor Staff, *Offshore Wind Is a Double-Edged Sword for Investors*, INFRASTRUCTURE INV. (Oct. 2, 2023), <https://www.infrastructureinvestor.com/offshore-wind-is-a-double-edged-sword-for-investors/> [https://perma.cc/XBD9-YA3F].

109. See generally *id.*

110. George Duval, *How Much Do Wind Turbines Cost?*, TODAY'S HOMEOWNER (Mar. 16, 2025), <https://todayshomeowner.com/eco-friendly/guides/wind-turbine-cost/> [https://perma.cc/8B4U-MZK2].

111. RJ Arsenault et al., *Turbulent Waters—Current Developments in the U.S. Offshore Wind Industry*, FTI CONSULTING (Feb. 5, 2024), <https://www.fticonsulting.com/insights/articles/turbulent-waters-current-developments-us-offshore-wind-industry> [https://perma.cc/7T57-HNUZ].

112. *FACT SHEET: Biden-Harris Administration Advances Offshore Wind Transmission, Strengthens Regional Supply Chain Buildout, and Drives Innovation*, THE WHITE HOUSE (Sept. 21, 2023), <https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2023/09/21/fact-sheet-biden-harris-administration-advances-offshore-wind-transmission-strengthens-regional-supply-chain-buildout-and-drives-innovation/> [https://perma.cc/DH2Y-KFTW].

113. Clare Fieseler, *'Come to America and Lose \$1B': Trump Drives More Offshore Wind Pain*, CANARY MEDIA (Aug. 19, 2025), <https://www.canarymedia.com/articles/offshore-wind/orsted-financial-struggles-trump-revolution-sunrise> [https://perma.cc/JK26-YTX9]; Susan Phillips, *Trump Administration Deals Another Blow to Offshore Wind, Plans to Kill Delmarva Project*, WHYY (Aug. 26, 2025), <https://whyy.org/articles/trump-offshore-wind-kills-project-delaware-maryland/> [https://perma.cc/BSG3-BMTG].

To alleviate the financial strain that offshore wind projects create, the Department of Energy (DOE) and the Office of Advanced Materials & Manufacturing Technologies Office (AMMTO) have awarded funding to “13 projects focusing on various materials and manufacturing technologies” for \$29.9 million.<sup>114</sup> This investment underscores the federal government’s commitment to strengthen America’s wind energy potential and transition towards a more sustainable energy landscape.<sup>115</sup> Furthermore, the AMMTO awarded \$15 million in funding to a project in the metallic components industry to enable more domestic manufacturing.<sup>116</sup> Both examples demonstrate the federal government’s intention to reduce production and manufacturing costs associated with offshore wind projects while fostering domestic industries. Increasing domestic production of components not only aims to cut costs and promote innovation, but also aims to create “local economic opportunities,” including job creation.<sup>117</sup>

Moreover, the Biden Administration enacted the Bipartisan Infrastructure Law, investing in “energy efficiency and clean energy improvements” and “fund[ing] new programs to support the development, demonstration, and deployment of cutting-edge clean energy technologies.”<sup>118</sup> In 2021, through this law, the DOE Wind Energy

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114. *2023 Large Wind Turbine Materials and Manufacturing Funding Opportunity*, U.S. DEP’T ENERGY OFF. ENERGY EFFICIENCY & RENEWABLE ENERGY (Feb. 10, 2023), <https://www.energy.gov/eere/ammto/2023-large-wind-turbine-materials-and-manufacturing-funding-opportunity> [<https://perma.cc/7CEC-E6FR>].

115. *Id.*

116. *Funding Selections: Domestic Large Component Manufacturing to Enable a Clean and Competitive Economy*, U.S. DEP’T ENERGY OFF. ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://www.energy.gov/eere/ammto/funding-selections-domestic-large-component-manufacturing-enable-clean-and-competitive> [<https://perma.cc/ZYD3-9NFA>] (last visited Sept. 23, 2025).

117. *FACT SHEET: Biden-Harris Administration Advances Offshore Wind Transmission, Strengthens Regional Supply Chain Buildout, and Drives Innovation*, THE WHITE HOUSE (Sept. 21, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/09/21/fact-sheet-biden-harris-administration-advances-offshore-wind-transmission-strengthens-regional-supply-chain-buildout-and-drives-innovation/> [<https://perma.cc/DH2Y-KFTW>].

118. *See Infrastructure Investment and Jobs Act*, Pub. L. No. 117-58, 135 Stat. 429 (Nov. 15, 2021); THE WHITE HOUSE, BUILDING A BETTER AMERICA GUIDEBOOK: CLEAN ENERGY & POWER 3, 150 (2022),

Technologies Office (WETO) “released a \$28 million funding opportunity,” aimed at “lower[ing] costs and address[ing] barriers to deployment of wind energy.”<sup>119</sup> This initiative focuses on research within the wind industry, addressing issues, such as “improv[ing] permitting processes to make distributed wind more accessible” and “improv[ing] technologies that help bats avoid wind turbines.”<sup>120</sup> These efforts aim to further advancements and efficiency in the offshore wind industry. Similarly, the WETO announced its intention to issue a Funding Opportunity Announcement (FOA) titled “Offshore Wind National and Regional Research and Development,” which will allocate \$48 million to projects addressing key areas of need for offshore wind.<sup>121</sup> This demonstrates the federal government’s commitment to innovation and efficiency in the offshore wind industry. This contrasts with the Trump Administration, which paused the industry leaving investors and project developers in uncertainty.<sup>122</sup>

Additionally, developers can explore various options to fund offshore wind projects, such as project bonds, construction loans, the Innovative Energy Loan Guarantee Program, tax equity financing, and Export Credit Agencies.<sup>123</sup> For example, the DOE Loan Programs Office, “[u]nder the Title 17 Clean Energy Financing Program,” finances projects in the United

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<https://bidenwhitehouse.archives.gov/wp-content/uploads/2022/05/BUILDING-A-BETTER-AMERICA-V2.pdf> [https://perma.cc/M94Q-ZA5K].

119. *WETO Releases \$28 Million Funding Opportunity to Address Key Deployment Challenges for Offshore, Land-Based, and Distributed Wind*, U.S. DEP’T ENERGY OFF. ENERGY EFFICIENCY & RENEWABLE ENERGY (Dec. 6, 2022), <https://www.energy.gov/eere/wind/articles/weto-releases-28-million-funding-opportunity-address-key-deployment-challenges> [https://perma.cc/8VN6-VUNC].

120. *Id.*

121. *Notice of Intent: \$48 Million Funding Opportunity for National and Regional Research and Development of Offshore Wind Technologies*, U.S. DEP’T ENERGY: OFF. ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://www.energy.gov/eere/wind/notice-intent-48-million-funding-opportunity-national-and-regional-research-and> [https://perma.cc/BZ5B-77FF] (last visited Sept. 23, 2025).

122. Evan Halper, *Trump’s Crusade Against Wind Power Is Throwing an Industry into Turmoil*, THE WASHINGTON POST (Aug. 26, 2025), <https://www.washingtonpost.com/climate-environment/2025/08/26/wind-energy-offshore-trump-lawsuit-orsted/> [https://perma.cc/J4UE-HKJQ].

123. Emeka Charles Chinwuba et al., *Offshore Wind Industry: A Current Outlook*, CAHILL GORDON & REINDEL LLP (June 12, 2024), <https://plus.lexis.com/api/permalink/97bed904-b287-4a3f-9244-5cb971883313/?context=1530671> [https://perma.cc/7EUY-YW5U].

States “that support clean energy deployment and energy infrastructure reinvestment.”<sup>124</sup> Through the Innovative Energy Loan Guarantee Program, “borrowers can access: [d]irect loans from U.S. Treasury’s Federal Financing Bank (FFB) . . . [or] DOE partial guarantees of commercial debt.”<sup>125</sup> This financing program applies to four project categories, which “share six key eligibility criteria” intended to promote “innovative energy technologies.”<sup>126</sup> A project bond is a type of debt security which “provide[s] an alternative source of financing for . . . offshore wind projects,” helping to “mitigate risk for investors.”<sup>127</sup>

In continuation, offshore wind projects offer significant potential positive impacts on society. For example, they can lead to “reduced greenhouse gas emissions” and “decreased air pollution,” as society begins to rely more on the clean air generated by offshore wind farms.<sup>128</sup> Furthermore, due to the “low marginal costs of production,” the large potential amount of energy generated by offshore wind farms, and “greater energy diversity and security,” significant reductions in electricity prices are expected.<sup>129</sup> Moreover, the increase in investment in offshore wind projects will “require[] thousands of new jobs” to support various stages of the project’s lifecycle, including its development, construction, and maintenance.<sup>130</sup> An illustration of this is seen in the partnership between “North America’s Building Trades Unions (NABTU) and Ørsted,” as they “announced a Project Labor Agreement (PLA) to construct the company’s

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124. *Title 17 Clean Energy Financing*, U.S. DEP’T ENERGY LOAN PROGRAMS OFF., <https://www.energy.gov/lpo/title-17-clean-energy-financing> [<https://perma.cc/R2UC-JWUH>] (last visited Sept. 23, 2025).

125. *Id.*

126. *Id.*

127. *Practice Note: Financing a Project with a Bond Issue*, LEXISNEXIS, <https://plus.lexis.com/api/permalink/c080ea6b-de36-4500-94b6-bdd13773f465/?context=1530671> [<https://perma.cc/CE3M-H379>] (last updated May 19, 2025); Chinwuba, *supra* note 123; *How Do Project Bonds Work?*, FINANCELY.COM (Oct. 25, 2023), <https://financellygroup.medium.com/how-do-project-bonds-work-af956eb3c94f/> [<https://perma.cc/7M4C-3YNB>].

128. NATIONAL OFFSHORE WIND STRATEGY: FACILITATING THE DEVELOPMENT OF THE OFFSHORE WIND INDUSTRY IN THE UNITED STATES, i, vii (2016), <https://www.energy.gov/sites/prod/files/2016/09/f33/National-Offshore-Wind-Strategy-report-09082016.pdf> [<https://perma.cc/V9N6-ZMPY>].

129. *Id.*

130. H.J. Mai, *Biden's Offshore Wind Plan Could Create Thousands of Jobs, but Challenges Remain*, NAT’L PUB. RADIO (Jan. 24, 2023, 6:31 AM), <https://www.npr.org/2023/01/24/1145384765/biden-offshore-wind-jobs-challenges> [<https://perma.cc/R9MT-3Y9Z>].

U.S. offshore wind farms with an American union workforce.”<sup>131</sup> This partnership will lead to approximately 80,000 direct jobs from the offshore industry “with 5.75 million-plus union work hours and tens of thousands more indirect jobs in manufacturing, maritime work, logistics, and clean energy technology,” prioritizing recruitment and providing training programs.<sup>132</sup> Furthermore, the offshore wind energy industry encourages research and scholarship and fosters innovation, leading to advancements and creative solutions.<sup>133</sup>

The federal government provides a considerable amount of incentives through its spending power to promote and encourage investment in this industry.<sup>134</sup> Article I, section 8, clause 1 of the United States Constitution grants the federal government the power to tax and spend, known as the spending power.<sup>135</sup> Congress can utilize this power, as seen in the New Deal, to implement programs and goals, along with the incentives already provided, to enhance efficiency in offshore and onshore wind projects.<sup>136</sup>

Overall, the offshore wind industry has experienced different levels of federal support under the two administrations, with investment plans and project progress reflecting these policy differences.

#### *B. Financial Challenges Faced by the Investors*

While understanding the economic and financial benefits of the offshore wind industry is crucial, it is equally important to consider the hurdles it faces, such as permitting and financing these projects. Permitting is a significant hurdle, with the process often taking up to a decade due to

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131. *North America's Building Trades Unions and Ørsted Agree to Build an American Offshore Wind Energy Industry with American Labor*, ØRSTED (May 5, 2022, 11:45 AM), <https://us.orsted.com/news-archive/2022/05/national-offshore-wind-agreement> [<https://perma.cc/FP8N-AW2G>].

132. *Id.*

133. *DOE's Wind Energy Market Reports Highlight Investment and Future Growth*, U.S. DEP'T ENERGY: OFF. ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://www.energy.gov/eere/wind/wind-energy-technologies-office> [<https://perma.cc/R56T-7WGM>] (last visited Sept. 23, 2025).

134. *See generally Wind Energy Financial Incentives*, U.S. DEP'T ENERGY: WIND ENERGY TECHS. OFF., <https://windexchange.energy.gov/projects/incentives> [<https://perma.cc/X7YF-M2XB>] (last visited Sept. 23, 2025).

135. *Spending Power*, CORNELL L. SCH. LEGAL INFO. INST., [https://www.law.cornell.edu/wex/spending\\_power](https://www.law.cornell.edu/wex/spending_power) [<https://perma.cc/AD9L-R25G>].

136. *See generally* Mark Seidenfeld, *The Bounds Of Congress's Spending Power*, 61 *Ariz. L. Rev.* 1 (2019).

varying permitting times.<sup>137</sup> The various amounts of permits necessary to acquire before beginning construction of an offshore wind project can “take[] up to 10 years” depending on permitting time.<sup>138</sup> Additionally, “[i]ncreased financing costs . . . due to inflation” pose another hurdle, as the development of wind farms becomes more costly, requiring developers to seek additional funding.<sup>139</sup> Furthermore, “developing a skilled workforce capable of navigating and problem-solving” in the offshore wind industry presents another hurdle.<sup>140</sup>

Despite these challenges, the federal government is actively working to address them.<sup>141</sup> For example, the WETO “focuses on technological development to improve the reliability and affordability of wind energy.”<sup>142</sup> The WETO supports the growth of this industry through funding various research projects. Additionally, the DOE’s *Pathways to Commercial Liftoff: Offshore Wind* report, demonstrates the federal government’s efforts to publicize information about the offshore industry and encourage public input, allowing the offshore wind industry to improve as it grows.<sup>143</sup>

Nevertheless, the offshore industry experienced much growth under President Biden’s administration. In New York, the New York State Energy Research and Development Authority (NYSERDA) “has selected three new offshore wind projects totaling 4,032 megawatts (MW) of clean energy,” marking the largest state investment in renewable energy in U.S. history.<sup>144</sup> This investment “is expected to create approximately 8,300

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137. Micek, *supra* note 106.

138. *Id.*

139. Arsenault, *supra* note 111.

140. Tyler A. Hansen et al., *Five Grand Challenges of Offshore Wind Financing in the United States*, 107 ENERGY RSCH. & SOC. SCI. 1 (2024), <https://www.nrel.gov/docs/fy24osti/87712.pdf> [perma.cc/RK5U-8YX6].

141. *Id.*

142. *Wind Energy Funding Opportunities*, U.S. DEP’T ENERGY: WIND ENERGY TECHS. OFF., <https://www.energy.gov/eere/wind/wind-energy-funding-opportunities> [perma.cc/7EYK-3U75] (last visited Sept. 23, 2025).

143. JONAH URY ET AL., *PATHWAYS TO COMMERCIAL LIFTOFF: OFFSHORE WIND 1* (2024), [https://12cf57a2.delivery.rocketcdn.me/wp-content/uploads/2025/02/April-2024-LIFTOFF\\_DOE\\_Offshore-Wind-Liftoff-2.pdf](https://12cf57a2.delivery.rocketcdn.me/wp-content/uploads/2025/02/April-2024-LIFTOFF_DOE_Offshore-Wind-Liftoff-2.pdf) [https://perma.cc/8M28-GAWD].

144. *Three Offshore Wind and 22 Land-Based Renewable Energy Projects Totaling 6.4 Gigawatts Will Power 2.6 Million New York Homes and Deliver 12% of New York’s Electricity Needs in 2030*, N.Y. ST. ENERGY RSCH. & DEV. AUTH. (Oct. 24, 2023), <https://www.nyserda.ny.gov/About/Newsroom/2023-Announcements/2023-10-24-Governor-Hochul-Announces-Nations-Largest-Ever-State-Investment> [https://perma.cc/4D3Y-WGFH].

family-sustaining jobs and spur \$20 billion in economic development investments statewide,” with the hopes of “revitalize[ing] domestic manufacturing and coastal economies.”<sup>145</sup> It is projected that “[t]he offshore wind industry will invest \$28 to \$57 billion in the U.S. economy between now and 2030,” which would have a tremendous economic impact on society.<sup>146</sup>

The biggest hurdle faced by the offshore wind farm industry is the permitting process. Both the federal and state governments were working towards President Biden’s goal of 30 GW by 2030. With the same goal in mind, collaborative federalism can enable various players to share their powers and work together to create a seamless approach to the offshore industry, including the permitting process.<sup>147</sup>

#### IV. EXAMINING MARINE LIFE, MARITIME INDUSTRY, AND REGULATIONS

As previously noted, offshore wind projects are in the ocean and “built over shallow open bodies of water.”<sup>148</sup> Consequently, the development of offshore wind projects raises significant environmental concerns regarding marine life, ocean resources, and maritime industries.

To address these concerns, federal agencies responsible for enforcing environmental regulations such as the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Clean Water Act (CWA), and the Migratory Bird Treaty Act (MBTA) are actively involved in the environmental review process of wind project developments.<sup>149</sup> This oversight, carried out by the DOI, ensures regulations are correctly implemented and resources are adequately protected.<sup>150</sup>

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145. *Id.*

146. AMERICAN WIND ENERGY ASSOCIATION, U.S. OFFSHORE WIND POWER ECONOMIC IMPACT ASSESSMENT 1 (2020), [https://supportoffshorewind.org/wp-content/uploads/sites/6/2020/03/AWEA\\_Offshore-Wind-Economic-ImpactsV3.pdf](https://supportoffshorewind.org/wp-content/uploads/sites/6/2020/03/AWEA_Offshore-Wind-Economic-ImpactsV3.pdf) [<https://perma.cc/R624-ELWU>].

147. *See generally* Mary Hallock Morris, *Cooperative Federalism*, CTR. STUD. FEDERALISM, <https://federalism.org/encyclopedia/no-topic/cooperative-federalism/> [<https://perma.cc/59QT-ZQ7P>] (last updated 2006).

148. Sparhawk, *supra* note 7.

149. This list is not exhaustive; it provides examples, and additional Acts may be included. *Offshore Wind Energy Development: Legal Framework*, *supra* note 29, at 8.

150. *Id.*

Moreover, as the offshore wind industry operates within marine environments, it falls under the purview of maritime regulations.<sup>151</sup> This dynamic emphasizes the importance of considering how both industries can coexist harmoniously, which can serve as a starting point for the federal government to use when setting goals for the states regarding the offshore wind industry. It raises questions about whether the laws governing the maritime industry apply to offshore wind farms and necessitates careful examination of regulatory frameworks to ensure effective management and compliance.

#### *A. Environmental Considerations*

When considering the offshore wind industry, aside from its renewable energy benefits, one inevitably ponders its impact on marine life and resources. Examining the regulation of the offshore wind sector reveals the substantial role played by marine federal agencies and legislative acts in the leasing process, underscoring the application of marine regulations to this industry. This emphasis recognizes the importance of safeguarding marine ecosystems, resources, and industries.

During the leasing process, numerous interest groups dedicated to marine conservation frequently submit comments, emphasizing the public opinion's pivotal role in the BOEM's comprehensive environmental analysis of proposed offshore wind projects.<sup>152</sup> Furthermore, private parties with lingering concerns after lease issuance retain the option to challenge BOEM's environmental analysis through legal recourse.

Most environmental research emphasizes the impact of sound exposure on marine mammals and the risk of seabird collisions with offshore wind turbines.<sup>153</sup> Some studies have indicated that the "high noise

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151. *Navigating Legal Waters: Understanding the Jones Act and Its Impact on Offshore Wind Projects*, MARINE SAFETY CONSULTANTS INC., <https://marinesafetyconsultants.com/navigating-legal-waters-understanding-the-jones-act-and-its-impact-on-offshore-wind-projects/> [https://perma.cc/RDB7-KWLL] (last visited Aug. 2, 2025).

152. *BOEM Completes Environmental Analysis for Proposed Wind Project Offshore Massachusetts, Rhode Island, and New York*, BUREAU OCEAN ENERGY MGMT. (Feb. 26, 2024), <https://www.boem.gov/newsroom/press-releases/boem-completes-environmental-analysis-proposed-wind-project-offshore-0> [https://perma.cc/SV7C-ZCG7].

153. Corrie E. Clark et al., *Potential Impacts of Offshore Wind on the Marine Ecosystem and Associated Species: Background and Issues for Congress*, CONG. RSCH. SERV. (Jan. 19, 2024), <https://www.congress.gov/crs-product/R47894> [https://perma.cc/BW24-PHTC].

levels and/or persistent anthropogenic noise” created by offshore wind farms, have negative physical and physiological effects on marine life, for example, “auditory hair cell loss in fish.”<sup>154</sup> Mitigation efforts have been implemented to prevent these adverse effects by reducing noise levels, such as “bubble curtains, noise mitigation screens, cofferdams, and sound dampeners.”<sup>155</sup> Additionally, research suggests offshore wind farms can disrupt seabirds, leading to increased mortality rates from encounters with turbine blades.<sup>156</sup> To tackle this, BOEM established a task force to research potential solutions; its recommendations include the placement of offshore wind projects in areas not frequented by birds as well as implementing “[t]emporary shutdown of offshore wind farms during periods of peak migration” in areas frequented by birds.<sup>157</sup>

These examples illustrate the offshore industry's dedication to developing solutions that minimize environmental impacts through collaborative efforts between the federal government and states. NOAA Fisheries is actively engaged in safeguarding marine life by furnishing “BOEM with the best available science on the interactions between offshore wind energy projects and protected resources, habitats, and managed species.”<sup>158</sup> This partnership between NOAA and BOEM ensures the up-and-coming offshore wind sector consistently addresses environmental concerns with the aid of cutting-edge science.<sup>159</sup>

### *B. Interaction Between the Maritime and Offshore Wind Industry*

Offshore wind farms are part of the renewable energy sector, but they are also considered a segment of the maritime industry due to their location

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154. T. ARAN MOONEY ET AL., ACOUSTIC IMPACTS OF OFFSHORE WIND ENERGY ON FISHERY RESOURCES: AN EVOLVING SOURCE AND VARIED EFFECTS ACROSS A WIND FARM'S LIFETIME 84 (2020), <https://tos.org/oceanography/article/acoustic-impacts-of-offshore-wind-energy-on-fishery-resources-an-evolving-source-and-varied-effects-across-a-wind-farms-lifetime> [<https://perma.cc/B6Q3-CARC>].

155. *Id.* at 89.

156. CHARLES H. “PETE” PETERSON, RISKS TO BIRDS AND WILDLIFE FROM OFFSHORE WIND FARMS: BOEMRE NC TASK FORCE 1, 9 (2009), <https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/RiskBirdsWildlifeOffshore.pdf> [<https://perma.cc/ZA6D-9D7E>].

157. *Id.*; Stacy Shinneman, *Interactions Between Birds and Offshore Wind Farms*, U. AMSTERDAM: INST. BIODIVERSITY & ECOSYSTEM DYNAMICS, <https://storymaps.arcgis.com/stories/51e72d6f4a7049e8a00cd0cd8861e22a> [<https://perma.cc/4H6W-ENDX>] (last visited Sept. 23, 2025).

158. *Offshore Wind Energy: Protecting Marine Life*, *supra* note 11.

159. *Id.*

in the ocean.<sup>160</sup> The maritime industry, which is regulated by the Federal Maritime Commission (FMC), deals with everything connected to the sea or waterways.<sup>161</sup> The maritime industry has regulations guiding it, and the most impactful legislation in the offshore wind farm industry is the Merchant Marine Act of 1920 (Jones Act).<sup>162</sup> The Jones Act is a federal statute that establishes support for developing and maintaining a merchant marine to facilitate commercial activity and serve as a naval auxiliary during war or national emergencies.<sup>163</sup>

However, the Jones Act's requirements pose a challenge that developers may face. The Jones Act requires the vessels used in the development of these wind farms be compliant with the Act, and be "U.S.-flagged and built, and crewed by U.S. personnel."<sup>164</sup> Therefore, developers and investors will not only have to ensure that their vessels are suitable to carry parts, such as the turbine, to the offshore wind farm, but also ensure that the vessels comply with the Jones Act's requirements.<sup>165</sup> Because the offshore wind industry is young, there is a lack of wind turbine installation vessels in the United States that comply with the regulatory stipulations outlined in the Jones Act, "barring [offshore wind farm developers] from transporting wind turbine components to installation sites from nearby US ports."<sup>166</sup> This leaves offshore wind farm developers between a rock and a hard place, trying to find vessels compliant with the Jones Act. These vessels are very expensive to purchase and attempts to build them domestically have been drastically delayed.<sup>167</sup>

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160. *The Growing Role of Offshore Wind in Maritime Safety*, MARINE SAFETY CONSULTANTS INC., <https://marinesafetyconsultants.com/the-growing-role-of-offshore-wind-in-maritime-safety/> [<https://perma.cc/G4HA-PLUC>] (last visited Sept. 23, 2025).

161. *Federal Maritime Commission History*, FED. MAR. COMM'N, <https://www.fmc.gov/about/fmc-history/> [<https://perma.cc/JEG9-V27M>] (last visited Sept. 23, 2025).

162. *Merchant Marine Act of 1920*, Pub. L. No. 66-261, 41 Stat. 988 (June 5, 1920).

163. *Jones Act*, CORNELL L. SCH. LEGAL INFO. INST., [https://www.law.cornell.edu/wex/jones\\_act](https://www.law.cornell.edu/wex/jones_act) [<https://perma.cc/7QF5-4VBJ>].

164. *Navigating Legal Waters*, *supra* note 151.

165. *Id.*

166. Colin Grabow, *Recent Articles Highlight Jones Act Contributions to Offshore Wind Difficulties*, CATO INST. (Jan. 2, 2024, 1:05 PM), <https://www.cato.org/blog/jones-act-contributes-offshore-wind-growing-pains> [<https://perma.cc/YFG2-BT73>].

167. Colin Grabow, *Jones Act Helps Sink New Jersey Offshore Wind Project*, CATO INST. (Nov. 13, 2023, 11:34 AM), <https://www.cato.org/blog/jones-act-helps-sink-new-jersey-offshore-wind-project> [<https://perma.cc/7TZ9-A5NU>].

To address this concern, the United States Customs and Border Protection (CBP) has guided the Jones Act.<sup>168</sup> Modifying HQ H328718, CBP allows “non-coastwise-qualified foreign-flagged” vessels to be used for: “transportation and installation of monopile foundations from a U.S. coastwise point to a pristine seabed site;” transportation and installation of monopile foundations by a non-coastwise-qualified jack-up vessel from a U.S. coastwise point to a pristine seabed site; and “install monopile foundations at a pristine seabed site” as long as the “vessel is not anchored or attached to the installation site” and “not transporting these monopile foundations from another coastwise point.”<sup>169</sup> In addition to this, Dominion Energy announced that it will build the first offshore wind installation vessel that complies with the Jones Act.<sup>170</sup> The modification, coupled with the development of the first Jones Act-Compliant vessel can be seen as pushing in the right direction, creating efficiency within the industry by developing the offshore wind industry and reaching the Biden Administration’s goal of 30 GW by 2030.

Furthermore, with the growth of the offshore wind industry, concerns have arose about its effects on maritime industries, such as commercial fishing and lobstering.<sup>171</sup> For example, in 2021, “Maine bann[ed] offshore wind from state waters” as a way to compromise with fishermen and lobstermen in the state.<sup>172</sup> Governor Janet Mills suggested offshore wind farms “occur in [f]ederal waters farther off our coast,” allowing it to grow successfully without “disrupt[ing] fishing grounds.”<sup>173</sup> However in 2023,

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168. *H333956: Coastwise Transportation; Monopile Foundation; 46 U.S.C. § 55102; Modification of H328718*, U.S. CUSTOMS & BORDER PROT.: CROSS (July 17, 2023), <https://rulings.cbp.gov/ruling/H333956> [<https://perma.cc/7W3R-LZ3D>].

169. *H333956: Coastwise Transportation; Monopile Foundation; 46 U.S.C. § 55102; 46 U.S.C. § 55111*, U.S. CUSTOMS & BORDER PROT.: CROSS (July 17, 2023), <https://rulings.cbp.gov/ruling/H328718> [<https://perma.cc/H2UR-FRSC>]; *id.*

170. *Dominion Energy Launches U.S.’s First Jones Act-Compliant Offshore Wind Installation Vessel*, GREENTECHLEAD (Apr. 16, 2024), <https://www.greentechlead.com/renewable-energy/dominion-energy-launches-u-s-s-first-jones-act-compliant-offshore-wind-installation-vessel-46421> [<https://perma.cc/576J-FDZ7>].

171. *Seafreeze Shoreside, Inc. v. United States DOI*, No. 1:22-CV-11091, 2023 WL 6218159, at \*6, n.6 (Mass. Dist. Ct., Sept. 25, 2023).

172. Heather Richards, *Maine Bans Offshore Wind from State Waters*, POLITICO: E & E NEWS (July 8, 2021, 1:29 PM), <https://www.eenews.net/articles/maine-bans-offshore-wind-from-state-waters/> [<https://perma.cc/5QM4-CLPC>]; ME. REV. STAT. ANN. TIT. 35-A, § 3405.

173. *Mills Administration Introduces Bill to Prohibit Offshore Wind in Maine’s Heavily Fished Waters for 10 Years*, ST. ME.: OFF. GOVERNOR JANET T. MILLS (Apr. 28, 2021), <https://www.maine.gov/governor/mills/news/mills->

the Maine Governor's Energy Office (GEO) published the Maine Offshore Wind Roadmap, which "identif[ies] ways to foster a responsible offshore wind industry that works for Maine's people, economy, and heritage."<sup>174</sup> However, after seeing the benefits offshore wind energy can have, "legislatures passed and Gov. Janet Mills signed into law LD 1895," which is supported by "prominent environmental groups" in Maine.<sup>175</sup> The law establishes a state regulation that falls within the purview of the GEO, promoting the development of the offshore industry in Maine and instituting a fund to promote investment in the offshore wind industry.<sup>176</sup> Maine created its own goal of having 3 GW of offshore wind energy by 2040, which is beneficial, as the Gulf of Maine is seen to have "some of the highest consistent offshore wind speeds in the nation."<sup>177</sup>

This example illustrates that collaboration between the maritime industry and offshore wind energy can yield mutual benefits and foster solutions for coexistence, ultimately adding value to society and enabling individuals to enjoy its advantages.

### *C. Marine Life, Maritime Industry, and Offshore Wind Coexistence*

The growing number of offshore wind farm developments demonstrates that renewable wind energy can indeed coexist harmoniously with the maritime industry. Efforts have been underway to foster a more symbiotic relationship between these two sectors, with a particular focus on addressing environmental concerns.<sup>178</sup> The Memorandum of Understanding between BOEM, NOAA, NMFS, and the Responsible Offshore Development Alliance exemplifies strides toward

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administration-introduces-bill-prohibit-offshore-wind-maines-heavily-fished-waters-10 [<https://perma.cc/9S2A-RBYG>]; Richards, *supra* note 172.

174. *Maine Offshore Wind Solicitation*, ST. ME.: GOVERNOR'S OFF. ENERGY, <https://www.maine.gov/energy/initiatives/offshorewind/solicitation> [<https://perma.cc/3NAK-PCQ4>] (last visited Sept. 23, 2025).

175. *Legislature, Governor Pass Offshore Wind Bill*, ISLAND INST.: THE WORKING WATERFRONT NEWSL. (Sept. 22, 2023), <https://www.islandinstitute.org/working-waterfront/legislature-governor-pass-offshore-wind-bill/> [<https://perma.cc/9D9C-ALWG>].

176. Comm. Amend. A to L.D. 1895, No. S-420 (131st Legis. 2023), <https://legislature.maine.gov/doc/10198> [<https://perma.cc/FRC3-GYYV>].

177. *Maine Offshore Wind Solicitation*, *supra* note 174; NEW HAMPSHIRE DEP'T ENERGY, NEW HAMPSHIRE 10-YEAR STATE ENERGY STRATEGY 4, 11 (2022), <https://www.energy.nh.gov/sites/g/files/ehbemt551/files/2022-07/2022-state-energy-strategy.pdf> [<https://perma.cc/RLB5-DNAF>].

178. See *Offshore Wind Energy: Evaluating Impacts to Fisheries*, *supra* note 11.

enhancing this coexistence.<sup>179</sup> This agreement, effective for ten years, aims to facilitate “collaboration[] on issues of mutual interest,” considering each organization/federal agencies’ objective to create inclusivity during the “planning and developing processes” of offshore wind farms and ensuring that the “framework . . . [is] based on the best available science.”<sup>180</sup> NOAA Fisheries actively contributes data, information, and other vital resources, to assist BOEM in both offshore wind farm development and the protection of the fishing community, integrating environmental considerations more effectively into the development process.<sup>181</sup>

Furthermore, the collaboration between the offshore wind, maritime, and fishing industries is evident “throughout development, construction and operation” phases of offshore wind farms.<sup>182</sup> This collaboration seeks to safeguard biodiversity, ensure safe navigation, and engage with commercial and recreational fishing communities.<sup>183</sup> The offshore wind industry has demonstrated flexibility by making significant adjustments to its plans in response to the requests of the fishing industry, aiming to foster mutual coexistence.<sup>184</sup>

A study off the coast of Rhode Island performed over seven years found no significant negative effects on ocean floor dwelling demersal fish

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179. *NOAA and BOEM Announce Interagency Collaboration to Advance Offshore Wind Energy*, *supra* note 90; *Memorandum of Understanding Between the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, Bureau of Ocean Energy Management and the Responsible Offshore Development Alliance*, BUREAU OCEAN ENERGY MGMT. (Mar. 25, 2019), <https://www.boem.gov/noaa-boem-mou> [<https://perma.cc/5C2H-USKE>].

180. *Memorandum of Understanding Between the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, Bureau of Ocean Energy Management and the Responsible Offshore Development Alliance*, *supra* note 179; *Memorandum of Understanding and Memorandum of Agreement (MOU/MOAs)*, BUREAU OCEAN ENERGY MGMT., <https://www.boem.gov/about-boem/regulations-guidance/memorandum-understanding-and-memorandum-agreement-moumoas> [<https://perma.cc/9AA3-MEJB>] (last visited Sept. 23, 2025).

181. *Offshore Wind Energy: Evaluating Impacts to Fisheries*, *supra* note 11.

182. *Can Offshore Wind and Commercial Fishing Coexist?*, ØRSTED, <https://us.orsted.com/renewable-energy-solutions/offshore-wind/seven-facts-about-offshore-wind/commercial-fishing> [<https://perma.cc/RN77-NRCF>] (last visited Sept. 23, 2025).

183. *Id.*

184. *Offshore Wind and Fishing: How Two Ocean Industries Will Coexist Off America's Coasts*, CLIMATE NEXUS (May 3, 2023, 10:15 AM), <https://climate.nexus.org/climate-issues/offshore-wind-fishing/> [<https://perma.cc/CW8J-69BK>].

monitored during construction and operation of the Block Island Wind Farm.<sup>185</sup> Instead, researchers observed positive effects, as it was found that “black sea bass [and other fish populations] were congregating around the Block Island wind farm,” enjoying the structure of the turbine.<sup>186</sup> Further, with “[r]ising ocean temperatures and acidification due to heightened carbon emissions” and climate change, marine habitats were threatened.<sup>187</sup> The base of these offshore wind farms has the potential to form an artificial reef, creating a new ecosystem for marine life, which highlights a positive contribution to the marine environment and fishing community while generating clean, renewable energy.<sup>188</sup>

## V. CONCLUSION

The fight against climate change is of great importance, particularly as its effects become increasingly evident. The offshore wind industry emerges as a tool in combating climate change as well as a means to bolster the economy and enhance the marine environment. Despite its youth, the industry boasts substantial growth potential, embodying a promising avenue for investment for developers, the maritime and renewable energy sectors, and society at large. It offers an alternative, renewable source of electricity, generates employment opportunities, and fosters the acquisition of new skills through education.

Accordingly, there should be a seamless approach to the regulatory framework between the states and federal government to encourage investment in the industry and minimize prolonged processes. Collaborative federalism, coupled with the current surge in development, has the potential to create a future where coastal states thrive solely on the electric energy harnessed from offshore wind farms. As the offshore wind

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185. Dara H. Wilber et al., *Demersal Fish and Invertebrate Catches Relative to Construction and Operation of North America's First Offshore Wind Farm*, 79:4 ICES J. MARINE SCI. 975, 1274–88 (2022); Michelle Lewis, *The First U.S. Offshore Wind Farm Has Had No Negative Effect on Fish, Finds Groundbreaking Study*, ELECTREK (Apr. 18, 2022, 3:19 PM), <https://electrek.co/2022/04/18/the-first-us-offshore-wind-farm-has-had-no-negative-effect-on-fish-finds-groundbreaking-study/> [https://perma.cc/EUM2-YNPR].

186. Dan Wilhelmsson et al., *The Influence of Offshore Windpower on Demersal Fish*, 63:5 ICES J. MARINE SCI. 775, 775–784 (2006); Lewis, *supra* note 185.

187. Nicole Dipaolo, *A New Home for Fish: How Offshore Wind Turbines Create Artificial Reefs*, NAT'L WILDLIFE FED. BLOG, <https://blog.nwf.org/2019/09/a-new-home-for-fish-how-offshore-wind-turbines-create-artificial-reefs/> [https://perma.cc/4YJ9-RJ48] (last updated Jan. 6, 2025).

188. *Id.*

farm industry continues to expand and the states and federal government set goals for themselves regarding the amount of offshore wind energy they would like to produce, ongoing collaboration between federal and coastal state governments to streamline the permitting process, ensuring efficiency without compromising effectiveness, is essential.