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Windward Woes: The Misalignment of Economic Incentives and Renewable Energy Development Goals

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WINDWARD WOES: THE MISALIGNMENT OF ECONOMIC INCENTIVES AND RENEWABLE ENERGY DEVELOPMENT GOALS

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ABSTRACT

Energy tax credits have always been a significant driver of renewable energy development, but the recent Inflation Reduction Act in response to new national development goals represents the most significant change in several decades. The Inflation Reduction Act is certainly a step in the right direction, but there are numerous factors that limit the impact on future developments that should be remedied to allow for the nation's best chance to reach 2030 renewable energy goals.

INTRODUCTION

Despite consisting of only 5% of the world's population, the United States is a massive energy consumer, using 17% of the world's energy while spending over $1 trillion annually on energy.[1] This energy over usage amounts to a per capita spending of over $3,000 per person with massive reliance on imported oil and natural gas.[2] Until the 1950s the United States domestically produced most of the energy that it consumed annually.[3] Beginning in the mid 1950s, the U.S. began to import more energy, coinciding with greater reliance on crude oil and petroleum products, with crude oil accounting for the largest share of imported energy.[4] The U.S. continued to increase imports before reaching a peak in 2007, and eventually became a net energy exporter in 2019 for the first time since 1952.[5] Every day, the average person in America consumes 2.5 gallons of oil, 8.86 pounds of coal, and 246 cubic feet of natural gas, with renewable energy sources currently only accounting for 12.5% of production.[6] As the U.S. continues to attempt to decrease reliance on foreign fossil fuels, the current administration has looked to renewables to build a robust domestic network of energy. Despite historic growth in renewable energy production in recent years across all sources, including wind, solar, and hydro, the Department of Energy predicts that renewable energy will increase to only about 41% of total U.S. generation by 2050.[7] At this rate, even optimistic models still predict that the country's primary energy consumption will still rely on fossil fuel based sources, but these

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1. *U.S. Energy System Factsheet*, UNIV. OF MICH. Ctr. FOR SUSTAINABLE Sys., 1, 1 https://css.umich.edu/publications/factsheets/energy/us-energy-system-factsheet (last visited Oct. 15, 2023) [https://perma.cc/W9BK-SNVE].

2. *Id.*

3. *U.S. Energy Facts Explained*, U.S. ENERGY INFO. ADMIN., 1, 1 https://www.eia.gov/energyexplained/us-energy-facts/imports-and-exports.php (last visited Oct. 15, 2023) [https://perma.cc/LW9E-RP7R]. This statistic refers to primary energy, as opposed to secondary or tertiary energy. Primary energy refers to "[e]nergy in the form that it is first accounted for in a statistical energy balance." *See Glossary*, U.S. ENERGY INFO. ADMIN. 1, 1 https://www.eia.gov/tools/glossary/index.php?id=Primary%20energy (last visited Oct. 15, 2023) [https://perma.cc/3XNT-YW45]. For example, coal would be primary energy, synthetic gas created from coal would be secondary energy, and electricity produced from synthetic gas would be tertiary energy. *Id.*

4. *U.S. Energy Facts Explained*, *supra* note 3, at 2.

5. *Id.* at 1-3.

6. *U.S. Energy System Factsheet*, *supra* note 1, at 1.

7. *AEO2022 Presentation to Electricity Advisory Committee*, U.S. ENERGY INFO. ADMIN. 1, 13 https://www.energy.gov/sites/default/files/2022-11/05%20October%2027%20-%20EIA%20Annual%20Energy%20Outlook%202022.pdf (last visited Nov. 6, 2023).

predictions depend significantly on renewable development costs.[8] Despite the unfortunate reality that the country will not in the near future rely primarily on renewable sources, domestic production of oil has allowed the U.S. to become less reliant on foreign imports, and both the federal and state governments have made significant steps in recent years to create strong incentives for developing more robust renewable energy production.[9] Thirty-three states have put strong renewable energy goals in place, and the recent federal tax credit extensions will help drive new developments through the Inflation Reduction Act.[10]

This comment will identify the current state of offshore wind in the United States and determine whether the recent updates in U.S. laws are enough to overcome supply chain issues, high development costs, and market uncertainty to make reaching future renewable energy targets as issued by the Biden administration possible. While interest in offshore wind has been growing significantly in recent years, spurred especially by the relative success of Deepwater Wind's completion in 2016, U.S. renewables still lag far behind European production. However, with new technologies slowly becoming commercially viable in floating offshore wind developed by U.S. researchers, the U.S. has an opportunity to lead the push to floating offshore wind, unlocking the potential for new projects to look farther offshore where fixed offshore wind would not be possible.

U.S. tax policy needs to align with national energy goals because tax credits play a significant role in the early part of offshore wind projects, and supply chain manufacturers, developers, and producers need to have confidence in the continued support that tax credits provide to encourage long term investment. The Inflation Reduction Act of 2022 issued renewals to existing tax credits and significantly expanded the opportunities for increased tax credits if certain conditions are met, but the credits are still temporary and provide little certainty in the long term.[11] The United States is unlikely to catch or surpass European development numbers to reach national energy goals without longer guaranteed, if not permanent, codification of federal renewable energy tax credits to

8. *Id.* at 16.

9. *U.S. Energy System Factsheet*, *supra* note 1, at 1.

10. *Id.* at 3*; see* Inflation Reduction Act of 2022, Pub. L. No. 117-169, 136 Stat. 1818 (2022).

11. *See* Inflation Reduction Act; *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/ [https://perma.cc/L9JB-9A55].

encourage domestic investment in the supply chain, continued interest from international developers, and investment in future grid integration.

The first part of this comment will summarize the current state of U.S. renewable energy goals and domestic supply chain issues and opportunities. Next, the comment will explore the history of tax credits and other incentives in renewable energy and analyze their importance to developers. Finally, the comment will analyze the Inflation Reduction Act of 2022 to determine if the act is likely to have its intended effect in encouraging investment and growth of tax equity markets, or whether the bottlenecks and limiting laws such as the Jones Act and tax equity market consolidations are too great for temporary tax incentives to overcome.

I. INTRODUCTION TO UNITED STATES OFFSHORE WIND ENERGY GOALS

During President Biden's first week in office, the White House announced an Executive Order designed to boost infrastructure and the clean energy economy.[12] The announcement specifically focused on the "thriving offshore wind industry" and looked to create new job opportunities as well as expanding and building new supply chains across the country.[13] The administration announced a series of three steps that were identified as significant to support offshore wind expansion at a scale that would meet national needs.[14] First, they identified a need to "[a]dvance ambitious wind energy projects to create good-paying, union jobs."[15] Second, the federal government and private companies need incentives to "[i]nvest[] in American infrastructure to strengthen the domestic supply chain and deploy offshore wind energy."[16] Last, the industry needs to "[s]upport[] critical research and development and data-sharing."[17] Under each of these three major goals, the administration announced specific initiatives designed to encourage participation, including opening new wind energy areas, investing in port infrastructure, rebuilding local manufacturing, and creating new employment opportunities.[18]

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12. *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11, at 2.

13. *Id.* at 2-3.

14. *Id.* at 3-4.

15. *Id.* at 3.

16. *Id.* at 3-4.

17. *Id.* at 4.

18. *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11, at 4-12.

Following the proclamation of these green energy goals, National Climate Advisor Gina McCarthy, Interior Secretary Jennifer Granholm, Commerce Secretary Gina Raimondo, and Transportation Secretary Pete Buttigieg met and announced a more specific, lofty goal of "deploy[ing] 30 gigawatts (GW) of offshore wind in the United States by the end of 2030, while protecting biodiversity and promoting ocean co-use."[19] This is enough energy to power ten million homes per year in the U.S.[20] The White House issued the announcement with claims that the goal would create "more than $12 billion per year in capital investment in projects on both U.S. coasts, create tens of thousands of good-paying, union jobs, with more than 44,000 workers employed in offshore wind by 2030 and nearly 33,000 additional jobs."[21] To reach this goal, the Department of the Interior's Bureau of Ocean Energy Management (BOEM), in charge of all offshore leasing, planned to review "at least 16 Construction and Operation Plans (COPs) by 2025," following the guidelines laid out by BOEM.[22]

Following the announcement of the 2030 goal there was still significant uncertainty as to the realistic nature of reaching 30 gigawatts (GW). There were no domestic manufacturers capable of producing many of the required components, there was not a clear path through the BOEM leasing process, and it was unclear how developers and producers would make the projects economically viable given the state of tax credits in 2021, notably the Production Tax Credit which had expired at the end of the year.[23] One key component of the announcement, however, looked to begin answering these questions by opening funding for advancing critical research, encouraging data sharing, and establishing grants to study offshore wind impacts and opportunities.[24]

The most notable research study into the current state of the U.S. renewable energy supply chain arrived from the U.S. Department of Energy's (DOE) National Renewable Energy Lab (NREL), issuing a report updating and categorizing the supply chain and development needs

19. *Id.* at 5.

20. *Id.*at 6-7.

21. *Id.* at 5.

22. *Id.* at 6. *See generally* BOEM, *Information Guidelines for Renewable Energy Construction and Operations Plan (COP)*, U.S. DEP'T OF THE INTERIOR, May 27, 2020, https://www.boem.gov/sites/default/files/documents/about-boem/COP%20Guidelines.pdf [https://perma.cc/ZY9J-L4ME].

23. *Production Tax Credit and Investment Tax Credit for Wind Energy*, OFF. OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, 1, 2 https://windexchange.energy.gov/projects/tax-credits (last visited Oct. 15, 2023) [https://perma.cc/KGR3-96HB].

24. BOEM*, supra* note 22.

required to reach the 2030 goal in June of 2022.[25] The White House Secretaries' announcement identified supply chain issues as an essential missing component to meeting any renewable energy goals and the supply chain report identifying weak points was the first step to expanding domestic opportunities.[26] The report outlined infrastructure requirements and identified that strengthening U.S. suppliers would reduce reliance on European and Asian suppliers, de-risking projects and increasing the likelihood of reaching these goals.[27] U.S. manufacturing, however, is not currently in a place to support the high demands required by the 2030 goal, and although the report verified that the currently awarded and soon-to-be-awarded lease areas have the capacity to modestly exceed 30 GW by 2030, there are significant challenges in developing the supply chain and increasing port capacity to match the lease areas.[28] While Europe and Asia currently possess the manufacturing capabilities to produce some of the larger Tier 1 components[29] that are not currently produced in the U.S., maintaining the 2030 schedule will be best achieved by supporting the manufacturing and development of these components in the U.S., as Europe has issued offshore wind goals that double U.S. aspirations.[30] Some investment has occurred in major facilities in the eastern U.S. for an array of wind components, and this has occurred as a response to both the local content requirements imposed by some states' energy agreements, as well as to developers' realization that sourcing components from international suppliers may generate higher risk.[31] A local supply chain both reduces complexities with sourcing, and creates efficiencies in

25. *See generally* Matt Shields et al., *The Demand for a Domestic Offshore Wind Energy Supply Chain*, NAT'L RENEWABLE ENERGY LAB'Y, https://www.nrel.gov/docs/fy22osti/81602.pdf. (June 2022) [https://perma.cc/53YB-33BZ].

26. *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11, at 8-9.

27. Shields, *supra* note 25, at v.

28. *Id.* at vi.

29. *Id.* at 5, 117. Tier 1 components are large, finished components that are the major products purchased directly from the manufacturer by the project developer, including the turbine, foundation, and cables. *Id.* at 5. Tier 2 components are subassemblies that have a major, important function for the tier 1 components. *Id.* Tier 2 suppliers are generally subcontracted by the Tier 1 manufacturers including products such as pitch systems to articulate turbine blades and other systems. *Id.* Tier 3 components are smaller subcomponents such as motors, gears, and bolts, and are generally smaller vendors who supply Tier 2 manufacturers. *Id.* Tier 4 components are raw materials. *Id.*

30. *Id.* at vi; EUR. COMM'N, *Renewable Energy Targets*, https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-targets_en (last visited Oct. 15, 2023) [https://perma.cc/BF6A-525Z].

31. Shields, *supra* note 25, at 2.

installation and maintenance, as it builds a network of experienced workers and expands job opportunities. While Europe maintains a significant developmental advantage over the United States and its supply chain maturity is several years ahead, the European supply chain is currently focused on fixed foundation wind projects.[32] This creates an opportunity for U.S. suppliers to lead the charge, especially in componentry that is unique to floating offshore projects.

The 2022 update of the NREL Supply Chain report concluded that reaching the U.S. 2030 offshore wind goal of 30 megawatts would require 2,100 wind turbines, 11,000 kilometers of cables, five wind turbine installation vessels (WTIVs), ten feeder barges, fifty-eight crew transfer vessels (CTVs), and four cable laying vessels.[33] Very little of this equipment is currently produced in the United States, and most of the early components will need to be sourced from European and Asian manufacturers to meet the demand of current projects. If the U.S. supply chain is not developed in the near future, there could be a global supply chain bottleneck.[34]

Despite the lofty announcements from the Biden administration, the NREL report clearly identified significant shortcomings of domestic supply chains, rendering the planned expansions of domestic offshore wind impossible without remedying these issues; however, establishing a supply chain capable of producing at necessary levels would require massive investment from the private sector, and without certainty as to the future of political priorities, private investment at required levels is unlikely without additional incentives. The Biden administration attempted to remedy this situation by passing the Inflation Reduction Act (IRA) of 2022 with significant renewals and expansions to federal tax credits with incentives to use domestic labor, develop new manufacturing facilities, and continue to use qualified labor through the post-construction phase.[35] While energy tax credits have historically been effective in increasing investment in renewables, the temporary nature of the current federal tax credit structure is not certain to provide enough long term support to guide offshore wind to independent profitability.

32. EUR. COMM'N, *supra* note 30.

33. Shields, *supra* note 25, at viii.

34. *See id.*

35. *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11.

II. A BRIEF HISTORY OF TAX CREDITS IN OFFSHORE WIND

Before diving into specifics regarding the IRA's offshore wind tax credits, it is important to understand the mechanics of the federal tax system and the different ways that Congress can incentivize growth and spur investment in renewable energy. Deductions, credits, depreciation schedules, and non-recognition provisions are the most common ways to create tax incentives, but they are merely a function of legislative grace, not required for any duration or at any time.[36] While the Internal Revenue Service (IRS) interprets and collects taxes in accordance with the Internal Revenue Code (IRC), the exemptions recognized are only established when Congress chooses to write laws creating them.[37] Congress frequently adjusts the tax code to follow in accordance with legislative goals, the most significant examples being the Tax Cuts and Jobs Act of 2017 (TCJA) and the Inflation Reduction Act of 2022 (IRA).[38] Renewable energy tax credits have historically floated in the middle ground where they garner enough support to pass on a temporary basis, but never gather enough bipartisan support to become a permanent feature of federal law.[39]

Beginning with the least applicable to offshore wind, non-recognition provisions allow a taxpayer to ignore "accessions to wealth" that would typically factor into gross income.[40] These are most frequently used to incentivize individual taxpayers through mechanisms such as gain exemptions for residential real estate sales.[41] Tax deductions are used frequently in commercial projects, allowing the taxpayer (or developer) to deduct additional expenses above the line, and reduce taxable income to lower the taxpayer's marginal tax rate.[42] Depreciation schedules were originally intended to allow a deduction of a portion of qualifying property in (somewhat) equal amounts over the useable commercial life of the property.[43] Modifications to depreciation schedules under the Accelerated

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36. *See generally* JEFFREY A. MAINE & JOHN A. MILLER, THE FUNDAMENTALS OF FEDERAL TAXATION 103-13 (5th ed. 2018).

37. *Id.*

38. *Biggest Tax Changes in 30 Years Passed by Congress*, FRAZIER & DEETER, https://www.frazierdeeter.com/insights/biggest-tax-changes-in-30-years-passed-by-congress/ (last visited Oct. 2, 2023) [https://perma.cc/UX9J-U74E]; *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11.

39. *See generally* MOLLY F. SHERLOCK, CONG. RSCH. SERV., R43453, THE RENEWABLE ELECTRICITY PRODUCTION TAX CREDIT: IN BRIEF, 2020 [hereinafter SHERLOCK R43453]

40. I.R.C. §§ 61 (2022) et seq.; Comm'r v. Glenshaw Glass Co., 348 U.S. 426, 431 (1955).

41. I.R.C. § 121.

42. MAINE, *supra* note 36, at 103-13.

43. *Id.* at 145-54.

Cost Recovery System (ACRS) allow corporations to depreciate qualifying property at a faster rate than its realistic usable life, providing slight incentives for purchasing this type of property.[44] Qualifying wind property is currently categorized as "5-year property," meaning that taxpayers (developers or producers) are able to depreciate wind turbine and accompanying structures to zero in a time period significantly shorter than its actual usable life.[45] The accelerated depreciation allows the taxpayer to recoup development costs faster and, with a usable life of several decades, the accelerated depreciation is an effective way for Congress to manipulate the tax code for this specific legislative goal.

Tax credits are the most widely and commonly used incentive in renewable energy projects because they have the effect of reducing the tax burden, dollar-for-dollar, of a developer's or producer's energy.[46] The tax credits are significantly more valuable than deductions and are thus the preferred mechanism by developers and producers. Tying tax credits to certain conditions that the government wants to encourage creates incentives to guide private developers or energy producers towards preferred legislative goals without stifling companies with restrictions or regulations to force decision making. In short, if well-designed, tax credits allow private developers and energy producers to compete where otherwise economically unfeasible, while still allowing companies to freely choose their course of action if independently profitable enough to not be enticed by tax credit requirements.

Tax credits have been used to spur investment in wind energy production since the enactment of the Energy Policy Act of 1992 (EPACT92) created a production tax credit for wind and closed-loop biomass, originally set to expire in 1999.[47] Since the EPACT92, the production tax credit has been expanded thirteen times; however, it has never been codified as a permanent part of the U.S. tax code.[48] On multiple occasions, the temporary extensions have lapsed before being retroactively extended, and since 1999 the longest extension had only added a maximum of four years until the enactment of the Inflation

44. I.R.C. § 168.

45. *Id.* Of course, while originally intended to reflect usable life, depreciation schedules are frequently modified to accelerate legislative goals or simplify tax filings. MAINE, *supra* note 36, at 148.

46. *Homeowner's Guide to the Federal Tax Credit for Solar Photovoltaics*, OFF. ENERGY EFFICIENCY & RENEWABLE ENERGY, U.S. DEP'T OF ENERGY March 2023, [https://perma.cc/PU46-MW5U].

47. SHERLOCK R43453, *supra* note 39.

48. *Id.* at 1, 3.

Reduction Act.[49] Notable decreases in wind installations have been recorded in each of the years following the expiration of existing tax credits.[50] The continuing fluctuations and uncertainty surrounding the future of tax credits given the long expected life of projects has limited the number of developers willing to take the risk of expiration before profitability arrives down the road.

Within the world of tax credits, there are typically two types of credits used in renewable energy: investment tax credits, and production tax credits. Each type can be further broken down into refundable or non-refundable credits. The Investment Tax Credit (ITC), also known as The Energy Credit, is defined in Section 48 of the IRC and allows a credit calculated as a percentage of the taxpayer's basis in eligible property.[51] The basis is typically the cost of acquiring or constructing eligible property, and the percentage rate is defined by "the type of property or technology for which the credit is being claimed."[52] The Production Tax Credit (PTC) is defined in Section 45 of the IRC and is a per kilowatt-hour (kWh) credit "for electricity generated using qualified energy resources."[53] For the producer to qualify for the credit, the electricity must be "sold by the taxpayer to an unrelated person."[54] The credit has applied at different rates to a variety of different energy sources since its inception, including wind, closed-loop biomass, geothermal, small irrigation power, municipal solid waste, and hydropower.[55]

While ITCs and PTCs contribute to the development of renewables, objectors to the seemingly annual extensions have noted several downfalls to the system.[56] From a purely tax revenue perspective, the Congressional Joint Committee on Taxation has laid out estimates on the foregone

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49. *Id.* at 3. *See generally* Inflation Reduction Act of 2022, Pub. L. No. 117-169, 136 Stat. 1818 (2022).

50. CONG. RSCH. SERV., R41635, ARRA SECTION 1603 GRANTS IN LIEU OF TAX CREDITS FOR RENEWABLE ENERGY: OVERVIEW, ANALYSIS, AND POLICY OPTIONS, 4, 2011 [hereinafter ARRA Section 1603] https://www.everycrsreport.com/files/20111109_R41635_f042092b5c65021d792f0ccb79634694bd9aeea8.pdf. *See also* U.S. CONGRESS, SENATE COMMITTEE ON THE BUDGET, TAX EXPENDITURES: COMPENDIUM OF BACKGROUND MATERIAL ON INDIVIDUAL PROVISIONS, COMMITTEE PRINT, CONG. RSCH. SERV., 111th Cong., 2nd sess., December 2010, S. Prt. 111-58, 197-204.

51. Inflation Reduction Act § 48; MOLLY F. SHERLOCK, CONG. RSCH. SERV., IF10479, THE ENERGY CREDIT OR ENERGY INVESTMENT TAX CREDIT (ITC) [hereinafter SHERLOCK IF10479] https://crsreports.congress.gov/product/pdf/IF/IF10479.

52. SHERLOCK IF10479, *supra* note 51, at 1.

53. I.R.C. § 45; SHERLOCK R43453, *supra* note 39, at 1.

54. I.R.C., § 45(a)(2)(B).

55. *Id.* § 45(c)(1).

56. SHERLOCK R43453, *supra* note 39, at 6.

revenue as a result of the PTC, estimating $19.3 billion in revenue losses between 2019 and 2023, with the vast majority ($17.9 billion) from wind projects.[57] The foregone revenue would be difficult to compare to the benefits of transitioning to renewable energy, as the costs of energy sources that negatively impact the global climate are probably not a simple calculation. Instead of using tax credits to achieve the goal of sparking investment in preferred methods of energy generation, Congress can elect and has previously elected to use grant funding in lieu of tax credits.[58] The justification, or perceived benefit to this option, is that it eliminates the need for developers to source third-party tax equity investors, or deal with carrying over tax credits to following years in the case that their tax credits exceed the tax liability.[59] Instead, the developers could, under the most recent use of a temporary grant, "immediately recover up to 30% of eligible project capital cost expenditures."[60] In 2009, Congress viewed this option as preferable to tax credits for developers, as there was a perceived shortage of third-party equity to purchase tax credits, and it de-risked developers in unfavorable equity markets.[61] However, despite the occasional pushback to tax credits in the past, they remain the dominant source of government provided incentives for alternative energy development.[62]

Congress has stated that "the PTC ha[s] been important to the development of environmentally friendly renewable power, and extend[ing] the credit [will] promote further development of wind."[63] Independent research generally supports this position, and investments have increased following extensions, but the growth is generally "limited in the case of short-term extensions."[64] The objection to the continuous retroactive extension to tax credits is that the credits merely provide a "windfall benefit" that reward developers who would have made the investments, even absent the tax credits.[65] The idea is that retroactive extensions are a waste of taxpayer money because when the project is already in operation, the project will continue with or without the retroactive extension.[66] However, it is equally possible that renewable

57. *Id.*
58. ARRA Section 1603, *supra* note 50, at 1.
59. *Id.*
60. *Id.* at 4-5.
61. *Id.* at 5.
62. *Id.*
63. SHERLOCK R43453, *supra* note 39, at 9.
64. *Id.*
65. *Id.*
66. *See id.*

energy producers are confident that tax credits will benefit then, in some capacity, through most of the life of the project, since the credits have been reliably renewed for more than twenty years.[67] Therefore, while it may appear that the producers are receiving a "windfall benefit," it is not unreasonable to assume that retroactive extensions are factored into pre-project projections. While opinions are mixed on the real effectiveness of retroactive extensions, the policy justifications for tax credits seek to better account for externalities that result in market failures.[68] The pollution created by "production and consumption of energy creates a negative externality, as the costs of pollution are borne by society as a whole, not just energy producers and consumers."[69] Since the costs are not experienced by the producers or consumers, the tax subsidies for renewable energy are Congress's best attempt to level the total costs of each type of energy production and "reduce the average cost of energy [and] encourag[e] energy consumption."[70]

III. THE INFLATION REDUCTION ACT

The Inflation Reduction Act was enacted in late 2022 after years of negotiations and was designed to reduce inflation by decreasing the federal deficit, lowering prescription drug prices, and investing in domestic green energy goals.[71] The project began with the Build Back Better framework and was significantly adjusted to meet bipartisan goals.[72] The Congressional Budget Office projects the Act will reduce the national budget by $238 billion over the next decade.[73] In the IRA, the primary driver for renewable energy development lies in extending the existing investment and production tax credits, as well as expanding opportunities

67. *Id.*

68. SHERLOCK R43453, *supra* note 39, at 10.

69. *Id.*

70. *Id.*

71. *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11.

72. *Compare id. with President Biden Announces the Build Back Better Framework*, THE WHITE HOUSE, (Oct. 28, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/28/president-biden-announces-the-build-back-better-framework/.

73. *CBO Scores IRA with $238 Billion of Deficit Reduction*, COMM. FOR A RESPONSIBLE FED. BUDGET (Sept. 7, 2022), https://www.crfb.org/blogs/cbo-scores-ira-238-billion-deficit-reduction [https://perma.cc/A6DW-S3EF].

for bonus credits, through wage requirements, local labor initiatives, and domestic manufacturing.[74]

The IRA extends the existing PTC and ITC for several years but adds requirements for the ITCs to qualify at the full rate.[75] Additionally, the IRA allows all projects that are under construction by the end of 2024 to be eligible for PTCs at the full rate.[76] The adjustment now allows offshore wind projects that are under construction by the end of 2024 to be eligible for a 6% ITC or 0.2 ¢ PTC, with the option to increase to a higher rate if certain conditions are met including prevailing wage requirements, construction timelines, and local sourcing requirements.[77] The IRA also added technology neutral tax credits for projects that begin construction after 2024.[78] Lastly, projects may not use both the PTC and the ITC; they may elect which option to use based on the timing of the credit phase-outs to determine which option will provide the greatest benefit to a project of a specified size.[79]

The prevailing wage requirement to begin qualifying for the full tax credit designates that the developer, and all contractors and subcontractors, must pay prevailing wages to all laborers and mechanics working on the project.[80] The prevailing wage has not yet been announced, but it will be scaled for inflation and will be designated by the Secretary of Labor.[81] For projects opting to select the ITC, the prevailing wage must be paid during the first five years of construction, and then during specified maintenance periods and during any points at which the project is altered.[82] For projects electing the PTC, the prevailing wage requirement timeline doubles to ten years, subject to the same conditions.[83]

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74. *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11.

75. *Id.*

76. *FACT SHEET: The Inflation Reduction Act Supports Workers and Families*, THE WHITE HOUSE (Aug. 19, 2022), https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/19/fact-sheet-the-inflation-reduction-act-supports-workers-and-families/ [https://perma.cc/RGJ5-ENRW]; Inflation Reduction Act of 2022, Pub. L. No. 117-169, § 45Y, 136 Stat. 1818, 1982-90 (2022).

77. Inflation Reduction Act § 48E(a)(3).

78. *Id.* § 48E.

79. *Id.*

80. *Id.* § 13101(F).

81. *Id.* § 13101(F)(7)(a)(ii).

82. *Id.*; *FACT SHEET: The Inflation Reduction Act Supports Workers and Families*, *supra* note 76.

83. *Id.*

The next requirement under the IRA to qualify for the full rate credit is to meet an apprenticeship requirement.[84] The apprenticeship requirement states that projects started must employ qualified apprentices to perform certain percentages of the total labor hours during construction and maintenance of the projects.[85] For projects begun before 2023, 10% of the labor hours must be performed by an apprentice, then 12.5% for projects begun in 2023, and 15% for all projects begun after 2023.[86] There may be an exception to the apprenticeship requirement for contractors or subcontractors who employ three or fewer employees, or if the developer or contractor makes a good faith effort to contact qualified apprenticeship programs, and are unable to find appropriate employees, or if they are denied employees after fulfilling contact requirements.[87] The main issue currently is that there are very few qualified apprenticeship programs in the U.S., and the plan to build additional apprenticeship programs remains unclear at this time.[88] Frequently, apprenticeship programs are developed through local labor unions, and there are a sampling of community colleges and technical schools that provide apprenticeship programs for wind turbine specific work, frequently on land-based projects.[89] In addition, the IRS has explained that each additional wind turbine or substation will be considered a separate facility for the purposes of hiring apprentices.[90] The IRS, however, has not issued clarity on how dispersion of employees working for the same contractor on different towers may be recorded to verify that the appropriate percentage of apprenticeship requirements has been met. The current limited guidelines seem administratively burdensome to track the minute-by-minute manufacturing time that each employee has spent on each component and coordinating these timelines to the finished offshore project. The IRS has

84. Inflation Reduction Act § 45(b)(8).

85. *Id.* § 13101(F)(8).

86. *Id.* § 13101(f)(8)(A)(ii).

87. *Id.* §§ 13101(f)(8)(C), (D)(ii).

88. *See Inflation Reduction Act Apprenticeship Resources*, Apprenticeship USA, https://www.apprenticeship.gov/inflation-reduction-act-apprenticeship-resources (last visited November 6, 2023).

89. BW RSCH. P'SHIP, 2022 MAINE OFFSHORE WIND TALENT ANALYSIS, REPORT TO THE MAINE GOVERNOR'S ENERGY OFFICE AND MAINE OFFSHORE WIND ROADMAP 25-26 (2022), https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/2022%20ME%20OSW%20Talent%20Analysis.pdf [https://perma.cc/9P3W-BUR8].

90. Inflation Reduction Act § 13101(f)(8); The Office of Associate Chief Counsel, Internal Revenue Service, Notice 2022-51, Request for Comments on Prevailing Wage, Apprenticeship, Domestic Content, and Energy Communities Requirements under the Act Commonly known as the Inflation Reduction Act of 2022 § 1.03, https://www.irs.gov/pub/irs-drop/n-22-51.pdf.

issued some preliminary reports to resolve some confusion regarding the prevailing wage requirements, noting that if federal funding is implicated in the project, then the federal Davis Bacon Act would apply, and if state funding is implicated then state prevailing wage laws will apply.[91] The Department of Labor will issue prevailing wage sheets to each project that will outline when the "construction" phase of the project has begun, the classification of each worker on the project, and which prevailing wage laws will apply.[92] Additionally, the prevailing wages for each category of worker will be scaled to appropriately match wage rates in each geographical area instead of a national prevailing wage.[93]

In addition to the apprenticeship requirements, there is an additional 10% ITC or a 10% increase to the PTC for offshore wind projects that are constructed with components that meet a 20% domestic content requirement.[94] The domestic content requirement refers to the steel, iron, and other manufactured products that become a part of the final facility.[95] For other types of renewable energy projects, the domestic content requirement can be as low as 10%, but the current guidance for offshore wind states that the minimum content requirement could be as high as 20%.[96] Additionally, there are not currently any provisions that specify how the sourcing of raw material contributes to the calculations, if the hours contributed to the production in each country will matter, or how to verify the claims of developers.[97]

Despite the numerous unanswered questions, the IRA significantly extends and modifies tax credit opportunities, with several areas that, if navigated properly, could create bonus credits that far exceed any former version of the ITC or PTC in value.

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91. *Labor Impacts of IRS' Initial Guidance on Prevailing Wage and Apprenticeship Requirement for Energy Projects*, FOLEY HOAG (Dec. 23, 2023), https://foleyhoag.com/news-and-insights/publications/alerts-and-updates/2022/december/labor-impacts-of-irs-initial-guidance-on-prevailing-wage-and-apprenticeship-requirements-for-energ/ [https://perma.cc/9ZV7-Z5XP].

92. *Id.*

93. *Id.*

94. Inflation Reduction Act of 2022, Pub. L. No. 117-169, §§ 13101(f)(9)(A), (C)(ii), 136 Stat. 1818, 1910, 1911 (2022).

95. *Id.* § 13101(f)(9)(B)(i).

96. *Id.* § 13101(f)(10)(C).

97. An interesting unexplored business could be in insurance policies against suppliers in verification of where each percentage of the percentage of the materials originate. As the tax credits potentially lost from unverifiable local percentage claims could be massive on the scale of commercial offshore wind, there are significant incentives to ensure that the suppliers are appropriately and accurately assigning local content percentages.

A. Offshore Wind Tied to Oil and Gas Leasing Under the IRA

Since the creation of BOEM, leasing of all ocean energy projects has been managed under the same authority.[98] Prior to the IRA, offshore wind and oil and gas were treated as entirely separate processes, and despite being subject to a similar permitting program, were otherwise unconnected.[99] The enactment of the IRA now ties all future offshore wind leases to a minimum oil and gas leasing acreage from the previous calendar year.[100] This means that BOEM must issue 60 million acres of the continental shelf to oil and gas drilling in the previous calendar year before consideration of offshore wind leases.[101] Suddenly, in order to reach the U.S. 2030 goal of 30 gigawatts of offshore wind, BOEM must lease, at a minimum, 480,000,000 acres of the continental shelf to oil and gas developers for continued growth in offshore drilling.[102] Additionally, this provision is temporary and lasts through 2032, conveniently stifling offshore wind if there is not similar growth in oil and gas.[103] To further expand the leasing opportunities, the IRA also changed the commonly used definition of the Outer Continental Shelf to include areas surrounding U.S. territories instead of only U.S. states.[104] This allows wind and oil and gas developers to consider areas surrounding Puerto Rico, Guam, and the Virgin Islands, areas not accessible under previous law.[105]

Treating different forms of offshore and continental shelf energy discovery similarly is not surprising given that they are both governed by BOEM leasing processes, but tax credits have been treated differently for oil and gas and renewables throughout history. While offshore wind tax credits have been temporarily and continually extended, offshore oil and gas tax credits have been a permanent fixture of the IRC.[106] Oil and gas

98. *About BOEM Fact Sheet*, BUREAU OF OCEAN ENERGY MANAGEMENT (Mar. 2023), https://www.boem.gov/sites/default/files/documents/newsroom/fact-sheets/About_BOEM_3_23.pdf [https://perma.cc/3Z8W-2KPB].

99. *See* Abby Husselbee & Hannah Oakes Dobie, *The IRA Offshore Energy Leasing Provisions' Potential Impacts*, ENVIRONMENTAL AND ENERGY LAW PROGRAM, HARVARD UNIVERSITY (Aug. 25, 2022), https://eelp.law.harvard.edu/2022/08/the-ira-offshore-energy-leasing-provisions-potential-impacts/ [https://perma.cc/T9RZ-Z9WH].

100. Inflation Reduction Act of 2022, Pub. L. No. 117-169, § 50265(b)(2), 136 Stat. 1818, 2061 (2022).

101. *See id.*

102. *See id.*; *see also* Husselbee & Dobie, *supra* note 99.

103. Inflation Reduction Act § 50265(b)(2).

104. *Id.* § 50251(b)(1).

105. *Id.*

106. Nicolas Martino, *Offshore Wind Energy: Sophisticated Technology Struggling with Outdated Legislation*, 58 JURIMETRICS J. 59, 72 (2017).

offshore exploration benefitted from the guarantee of future tax credit incentives while renewable energy sources have not.[107] Oil and gas have advanced significantly over the last one hundred years from what is known as the Depletion Allowance.[108] The Depletion Allowance takes into account that oil is a depleting resource and will not last forever in each particular location, and allows the taxpayer to depreciate the waning amount of oil in the same way that they would typically depreciate a tangible asset.[109] However, by the name, and very nature of renewable energy, it is explicitly not a depleting resource, and thus could never take advantage of this tax incentive. While oil and gas may have needed additional incentives to explore further offshore in early days of exploration, it seems those days have passed, and domestic oil companies are at no shortage of profit.[110]

Despite the promising nature of tax credits for renewables, and the seemingly endless excitement relating to future developments, how is it possible that renewable projects are unable to gain traction on oil's share of the energy market? While the media currently focuses on the new passage of offshore wind and solar tax credits, deeply buried in the Internal Revenue Code are numerous provisions that continue to minimize tax burdens for oil producers.

The most common federal tax credits utilized by oil and gas producers are the Marginal Well Tax Credit and the Enhanced Oil Recovery Credit.[111] The federal Marginal Well Tax Credit was enacted in 2004 with concerns that lower oil prices would decrease profitability of smaller wells.[112] These permanent additions to the IRC allow oil producers to hedge against low prices, spurring investment in a different manner than credits currently available for renewables.[113] Effectively, when oil prices decrease below a predetermined price, adjusted for inflation, owners of

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107. *See id.*

108. Mona L. Hymel, *Environmental Tax Policy in the United States: A "Bit" of History*, 3 ARIZ. J. ENVTL. L. & POL'Y 157, 164-65 (2013).

109. *Id.*

110. *Pallone Demands Answers from Oil Companies on Record Breaking Profits Amid High Gas Prices*, ENERGY & COMMERCE COMMITTEE DEMOCRATS (Aug. 3, 2022), https://democrats-energycommerce.house.gov/newsroom/press-releases/pallone-demands-answers-from-oil-companies-on-record-breaking-profits-amid [https://perma.cc/CA9D-GW54].

111. Kevin Potter et al., *Tax Credits and Incentives for Oil & Gas Producers in a Low-Price Environment*, 27 J. MULTISTATE TAX'N 31, 31-32 (2017).

112. *Id.*

113. *Id.; see also* Inflation Reduction Act of 2022, Pub. L. No. 117-169, 136 Stat. 1818 (2022).

smaller wells can receive a $3 per barrel credit.[114] The credit has a special permanent carryback provision that allows unused credits to be carried back five years or carried forward twenty years.[115] Oil well owners historically have not been able to utilize this provision, but the fallback guarantee of carriable credits allows owners and developers to de-risk investments.[116] While the extension of the PTC and ITC should decrease reliance on fossil fuels, the tie-in provision buried in the IRA may actually do the opposite, creating additional opportunities for oil and gas leasing areas while maintaining the permanent tax credits after the ITC and PTC for renewables expire. Additionally, since the areas can be leased far in advance of actual drilling, the lease area allocation may be accelerated by the renewable developers' push to meet construction deadlines for bonus credit qualification, and the oil and gas producers can wait on lease allocations for future exploration several years down the road.

IV. THE FINANCIALS IN ACTION: TAX EQUITY MARKET LIMITATIONS

While electricity price fluctuations are often a major consideration for developers in offshore wind projects, developers typically take several actions to minimize the effect that price fluctuations have on future profits. Developers have been dealing with increased fluctuations and volatility over the past several years across energy sources, so it has become imperative to both hedge against these rate fluctuations and negotiate energy purchase contracts.[117] Large developers such as Ørsted have negotiated price terms in recent years to minimize their exposure to market rate electricity pricing.[118] Over the past several years, Ørsted has made significant moves to reach 90% of earnings arriving from regulated or fixed price activities, such as "long -term fixed-price agreements with governments and companies with a large consumption of renewable electricity."[119] Only the remaining 10% of earnings were exposed to general energy market pricing, and this allowed the company to more accurately predict earnings and plan for future developments.[120] Additionally, since the ITCs and PTCs are based on a fixed rate, the

114. Kevin Potter et al., *supra* note 111.

115. *Id.*

116. *Id.* at 31-32.

117. ØRSTED, INVESTOR LETTER – HEDGING, INTERMITTENCY, AND BALANCING COSTS, 2, (2022), https://orsted.com/en/investors/ir-material/-/media/00b25733447e47b2940381081aef7907.ashx [https://perma.cc/8TC5-4QD3].

118. *Id.*

119. *Id.*

120. *Id.*

approximate value earned from each could be fairly well predicted on a year to year basis, further minimizing risk.[121] At the end of 2021, Ørsted had signed corporate power purchase agreements for 75% of the power generated, which typically cover a 10-15 year period.[122] Despite the recent price volatility, as long as Ørsted's production can meet the required levels designated in the purchase agreements, their earnings will be quite stable and not subject to large risk.[123]

Another issue with large developers that especially affects offshore wind projects is the necessity to hedge electric prices against other related asset prices to protect against downside when the price of electricity falls, even if only protecting the relatively small percentage that is exposed to market pricing. In a perfect situation, developers such as Ørsted can find a commodity or instrument that directly relates in a one-to-one relationship with the costs of offshore wind power generation, and when their costs increase on producing energy offshore, the costs decrease by the same amount on the hedged instrument, ideally having a zero impact on the bottom line.[124] For example, if the cost of wind increases by $10/unit, the cost of natural gas which is used as a hedge against wind decreases by $10/unit, and the developer is able to continue constructing or operating the end goal project without significant losses.[125] However, there is frequently no fully efficient one-to-one instrument that directly corresponds with offshore wind projects, the developer essentially has to take their best guess at what instruments may be available to hedge against offshore wind, as it is far too risky to leave the downside unprotected with such significant price and political fluctuations.

There are, however, several risks and inefficiencies that emerge when hedging with instruments that do not directly correlate with the underlying energy production, and these are described as either volume ineffectiveness or price ineffectiveness.[126] Volume ineffectiveness occurs when the developer has "hedged more (based on expected production) than what [they] actually generate," and this is a particular concern with offshore wind where delays in construction mean there is no power produced with which to offset the hedged position.[127] Additionally, when there is no production of power, the developer is unable to use production

121. *Id.*
122. *Id.*
123. INVESTOR LETTER – HEDGING, INTERMITTENCY, AND BALANCING COSTS, *supra* note 117, at 3.
124. *Id.* at 2.
125. *Id.*
126. *Id.* at 3.
127. *Id.*

based tax credits. Effectively, the developer is left with a short position in a different energy source with no offshore wind production profit that it was intended to offset, resulting in significant loss until the hedges expire or the project is able to come online.[128] For a company like Ørsted, with almost 100% of their offshore wind projects fully hedged, a delay on a single project could cost the company 2.5x the price of the hedged position.[129]

Currently, Ørsted specifically takes advantage of deferred tax liability agreements on the North-East Cluster (comprising of Sunrise Wind, Revolution Wind, and South Fork Wind) and Ocean Wind 1, and has not historically paid any taxes at all in the United States.[130] In other countries, they have used similar tax deferment agreements, but as the offshore wind farms in other countries mature and come online, they have begun to pay taxes on the production of energy, especially in the U.K.[131] They anticipate paying regular corporate taxes in the U.K., Germany, the Netherlands, and Taiwan as the projects become cash positive, and none of these countries allow tax equity market trading.[132] However, the U.S. allows Ørsted to have tax equity partners, which essentially means that they do not anticipate paying taxes in the U.S. for the foreseeable future.[133]

Tax equity partnerships, as noted above, occur when a large corporation with cash available and significant taxable income in other areas acquires the tax incentives (either the PTC or ITC values) and uses the tax incentives immediately (for ITCs).[134] The tax equity partner contributes cash up front to get the development started and does not have an operational or management role in the initial development.[135] The partner will receive a disproportionally high share (sometimes 100%) of the tax credits during the projects initial stages, when the developer has no taxable income and the partner has income from other sources until they reach an agreed upon return for the initial investment.[136] Once the agreed return amount has been reached, usually sometime after the point where

128. *Id.* at 2, 3.

129. INVESTOR LETTER – HEDGING, INTERMITTENCY, AND BALANCING COSTS, *supra* note 117, at 2.

130. ØRSTED, ØRSTED ANNUAL REPORT 2022 112, 116-17 (2023), https://orstedcdn.azureedge.net/-/media/2022-annual-report/orsted-annual-report-2022.ashx?rev=dbb7b462b5d64e53989413e99130cdbc&hash=273FAA9F115E673717493F904CC1FC18 [https://perma.cc/47TM-5FUN].

131. *Id.* at 117.

132. *Id.*

133. *Id.*

134. *Id.*

135. *Id.* at 105.

136. ØRSTED ANNUAL REPORT 2022, *supra* note 130, at 105.

the project has become operational and profitable, the agreement flips and the tax partner begins receiving cash and the developer can again use the production tax credits to offset the now profitable project.[137] The tax incentives are more valuable to the tax partner with significant taxable income than they are to the developer, who may not experience taxable income for several years during the project's construction.[138] Additionally, although the tax credits are deferrable by the developer for future use, when they eventually begin earning income on the projects, the credits will be worth the same initial dollar amount, and inflationary pressures encourage the developer to sell the credits sooner, even at a discount rate.[139] The tax credit partnership agreements realistically only occur in the US, and they allow the developer to cash out on the earned credits early in the project from either initial investment costs (with the ITC) or early stages of production before ramping up to full capacity (with the PTC).[140]

For Ørsted, this process allows them to maintain ownership and operation of projects in the U.S. without experiencing taxable income for the entire development phase, and selling credits to U.S. third parties that can be recognized as regular repayment on their investment.[141] The terms of the tax equity agreement may also allow them to recognize the payment as operating income, and although they are able to sell the PTCs early in the partnership agreement, they may not be recognized until they are earned, in the same way that they would be earned by the developer as production ramps up.[142]

In order to make these agreements operate properly, and as noted previously, large developers such as Ørsted agree to fixed prices on electricity generated from specific projects and fully hedge offshore wind, both actions being executed on predictions of future energy prices and timelines for the projects to come online, and these agreements can fluctuate drastically, from 35 cents per kWh for the first Block Island project to 9.8 cents per kWh for the more recent Ørsted-Eversource partnerships.[143] The differences are both due to differing sizes of the projects, but also the fact that prices are negotiated on a state-by-state level

137. *Id.*
138. *Id.*
139. *Id.*
140. *Id.*
141. *Id.* at 117.
142. ØRSTED ANNUAL REPORT 2022, *supra* note 130, at 105.
143. Cate Hewitt & Gregory Stroud, *Ørsted and Eversource Pitch "Non-Zero-Sum Game" for Agreement with Port Authority*, CONN. EXAMINER (Sept. 12, 2019), https://ctexaminer.com/2019/09/12/orsted-and-eversource-pitch-a-non-zero-sum-game-for-agreement-with-port-authority/ [https://perma.cc/CYU3-FXV6].

in the US.[144] These changes are credited by Ørsted to be mostly due to the production tax credit extension, but given supply chain issues and interest rate fluctuations through early 2022 the previously agreed upon electricity rates have become more difficult for the developers to handle.[145] In addition to delays in production causing losses from expiring hedges, increasing inflation has caused developers to reconsider the agreements that were made before the permitting process began.[146] For Ørsted, the Sunrise Wind price agreement was made several years ago, and the increasing interest rates, higher costs on wind turbine components, labor and transport means future earnings needed to be adjusted downward, with expectations decreasing by $366 million.[147]

Additionally, since the tax credits could be valued in the hundreds of millions of dollars (for example, 30% current ITC on multi-billion-dollar projects), there are not many investors who have enough taxable income to be interested in buying into such agreements, with only about twelve to fifteen typical investors or tax equity partners.[148] There have been concerns that since there are so few investors in tax credit equity markets, there may be an overconcentration of credit availability and not enough buyers in the market.[149] Just two U.S. banks accounted for 50% of the tax credit purchases in 2019, with a total market on renewable tax equity credits valued at over $15 billion.[150] Capital One Bank incurred nearly their maximum tax liability that can be offset by purchased tax credits in 2019, and did not have significant capacity to absorb more tax credits from additional projects.[151] The banks have suggested that Congress could make tax credits more accessible by increasing that amount of tax liability than can be offset by purchased credits, which is currently set at 75%, but this

144. *Id.*

145. Nicholar Skydsgaard & Christoph Steitz, *Orsted, Siemens Gamesa Charges Highlight Offshore Wind Challenges*, REUTERS, (Jan. 20, 2023, 11:48 AM), https://www.reuters.com/business/energy/orsted-2023-outlook-below-analyst-estimates-2023-01-20/.

146. *Id.*

147. *Id.*

148. Keith Martin, *State of the Tax Equity Market*, NORTON ROSE FULBRIGHT: PROJECT FINANCE (June 16, 2020), https://www.projectfinance.law/publications/2020/june/state-of-the-tax-equity-market/ [https://perma.cc/45GE-H76M] (Interview by Keith Martin with Peter Cross, Managing Director of Credit Suisse Securities, Jorge Iragorri, Head of Alternative Financing Group at Morgan Stanley, George Revock, Head of Alternative Energy and Project Finance at Capital One, and Darren Van't Hof, Managing Director of Environmental and Community Capital at U.S. Bank in Washington, D.C.).

149. *Id.*

150. *Id.*

151. *Id.*

still does not solve the massive barrier to entry required to buy into tax equity markets.[152] Even mid-sized banks in the U.S. do not have the income necessary or ability to enter the market. While interest rate increases do not directly impact the tax equity markets immediately, a number of other concerns exist, notably that supply chain delays will prevent tax equity buyers from being able to use credits until following years, or that the projects are not completed in time to qualify for the tax credits before expiration.[153] Since developers are required to meet construction deadlines to meet maximum credit values, tax equity investors may be timid in the future to sign contracts well in advance of the construction date. Capital One has historically tried to avoid projects that have any risk of running past the full credit qualifying construction date, and since the ITC is not a permanent feature of the tax code they are continually weighing the risks as new projects emerge with planned construction dates that are too close to the ITC expiration date.[154] In addition to equity markets, developers frequently turn to more local solutions and look to further minimize costs on local sales and real estate taxes.

A. Industrial Development Agencies

Another consideration that minimizes developers' U.S. tax payments in comparison to Europe is that the developers are able to negotiate out of paying state and local taxes. This is especially useful in New York through the use of Industrial Development Agencies (IDAs).[155] The IDAs are public benefit corporations that allow developers to purchase and construct real property without paying sales tax or property tax with the general goal of "fostering economic development."[156] The IDA is comprised of local townspeople and the agency has the authority to grant property tax exemptions, sales tax exemptions, and tax exempt bonds and notes to applicants, and Ørsted has taken great advantage of this.[157] Essentially, in return for agreeing to locate their substation and

152. *Id.*

153. *Id.*

154. Martin, *supra* note 148.

155. *Industrial Development Agencies and Authorities*, NEW YORK STATE DEP'T OF TAX'N AND FIN., (Dec. 8, 2022), https://www.tax.ny.gov/bus/st/ida.htm [https://perma.cc/EMH6-Z99U].

156. *Id.*

157. SUNRISE WIND, LLC, FORM APPLICATION FOR FINANCIAL ASSISTANCE (Town of Brookhaven Indus. Dev. Agency Oct. 14, 2022), https://brookhavenida.org/files/Sunrise-Wind/Application%2022%20Research%20Way.pdf [https://perma.cc/8J8U-EK4F].

transmission line through the Town of Brookhaven, NY for the Sunrise Wind project, the town has awarded them with $90 million in tax breaks.[158] The largest of the incentives, valued at over $87 million, will support the construction of the transmission line and converter station to connect the project to the local substation and will be allowed throughout the next twenty-five years, with $63 million of this total attributed to the property tax savings.[159] The remaining $2.6 million will arrive through the support of constructing a new operations building for the wind farm, both covering would be sales taxes for the renovation of the building.[160] In return for receiving these incentives, Østed merely agreed to locate the structure in the town, and will spend $500 million on the project, fostering about 2,200 construction jobs.[161] Thus, while the focus has been on national or international incentives, there are still significant incentives that exist on a more local level that can help projects reach profitability if cleverly negotiated.

V. VESSEL CONSTRUCTION AND THE LAST REMAINING HINDERANCE: THE JONES ACT

The last notable feature for the IRA's attempts to promote investment in offshore wind is the inclusion of a credit for domestic constructed offshore vessels.[162] For wind turbine installation vessels, the credit would be equal to 10% of the vessel sales price.[163] With a turbine installation vessel currently being constructed in the United States at an estimated sales price of $500 million, shipbuilding may seem like a lucrative business to take advantage of, especially with an anticipated need of nearly eighty vessels to meet 2030 goals.[164] However a 10% tax credit cannot make up a 50% markup on U.S. construction costs when compared to a

158. James T. Madore, *Wind-farm Developer Wins $90 Million in IDA Tax Breaks*, NEWSDAY, (March 8, 2023), https://www.newsday.com/business/orsted-ida-tax-breaks-brookhaven-jobs-offshore-wind-dliy45vx.

159. *Id.*

160. *Id.*

161. *Id.*

162. Inflation Reduction Act of 2022, Pub. L. No. 117-169, §§ 13502, 45x, 136 Stat. 1818, 1971-81 (2022).

163. *Id.*; Bo Jardine, *U.S. Inflation Reduction Act Offers Offshore Wind Tax Credits*, QUEST FLOATING WIND ENERGY, (Sept. 20, 2022), https://questfwe.com/u-s-inflation-reduction-act-offers-offshore-wind-tax-credits/ [https://perma.cc/8A8J-FRLW].

164. Colin Gabrow, *Jones Act Inflicts Costly Burden on US Offshore Wind*, CATO INSTITUTE, (August 2, 2021), https://www.cato.org/commentary/jones-act-inflicts-costly-burden-us-offshore-wind [https://perma.cc/7KF8-LMAD]; Shields, *supra* note 25, at viii.

current project by Eneti in South Korea using the same design at a cost of $330 million.[165]

Despite the opportunity and continued extension and expansion of tax credits, the significant premium paid for U.S. ships is credited to a 1920 cabotage law designed to protect U.S. shipbuilding.[166] The Jones Act, among other things, requires "ships that travel from a U.S. port to anywhere within the country, including its waters, [are] made and registered in the United States and owned and staffed by Americans."[167] The original purpose was to protect domestic shipbuilding and "ensure that the country had ships and crews to mobilize during war and emergencies" after World War I.[168] The effect of this law is that the cost of U.S. to U.S. shipping dwarfs international costs, and U.S. ships are required to pick up components and bring them to offshore wind projects, as the vessels are departing from and returning to U.S. ports.[169] To compliment the wind turbine installation vessels, (WTIVs), six to eight service vessels will be required, and construction costs in the U.S. are currently estimated to be 80% higher than in Europe.[170] The smaller crew transfer vessels, of which several are currently in operation, benefit from lower premiums at only 20% more expensive than Europe.[171]

With such massive price differentials, recent projects have been forced to use some terribly inefficient workarounds to install the Block Island Wind Farm and the demonstration project off the coast of Virginia.[172] For the Block Island project, the developers used Jones-Act-compliant lift boats to remove components from port and transfer the components to a foreign-flagged, and thus non-Jones-Act-compliant, installation vessel offshore before transporting to the project site and installing.[173] This required recruiting a WTIV from Europe for the duration of the

165. Gabrow, *supra* note 164; Press Release, Eneti, Eneti Inc. Announces a Contract for the Construction of its Second Next-Generation Offshore Wind Turbine Installation Vessel (Dec. 2, 2021), https://www.eneti-inc.com/eneti-inc-announces-a-contract-for-the-construction-of-its-second-next-generation-offshore-wind-turbine-installation-vessel/ [https://perma.cc/8EQV-PL6P]

166. Gabrow, *supra* note 164; Ivan Penn, *Offshore Wind Farms Show What Biden's Climate Plan is Up Against,* NY TIMES (Oct. 13, 2021), https://www.nytimes.com/2021/06/07/business/energy-environment/offshore-wind-biden-climate-change.html.

167. Penn, *supra* note 166.

168. *Id.*

169. Gabrow, *supra* note 164.

170. Penn, *supra* note 166.

171. Gabrow, *supra* note 164.

172. *Id.*

173. *Id.*

installation.[174] Similarly, Vineyard Wind is using a feeder barge strategy and leaving the WTIV stationary at the project site.[175] Since the foreign-flagged WTIV is not moving, it is thus not engaged in "coastwise transportation" as designated by the Jones Act, and the use of its crane to unload components from the feeder barges is not in violation of the Jones Act.[176] The Customs and Boarder Protection decision allowing Vineyard's strategy also found that the tools and equipment are not "merchandise" under the Jones Act, and grading, turbine foundation preparation, and cable-laying activities are allowed outside the Jones Act.[177] Creative legal arguments and nuanced crew exchanges are required to remain in compliance of hundred-year-old cabotage laws, but the law seems to be slowly loosening its grip on energy projects.

A demonstration project off the coast of Virginia took a slightly different approach to avoiding the use of feeder barges: instead of launching from U.S. ports, the project transported all of the necessary components that were constructed in Europe to Canada before hiring European vessels to collect the components and transport back to coastal Virginia to install.[178] The Port of Halifax became a home base of the project, and the crew waited several weeks for each round trip as the vessels traveled over 800 miles each direction.[179] The installation of two turbines took approximately one year at a cost of $300 million, something that could have been completed in Europe in just a few weeks.[180] One can only imagine the unnecessary emissions from multiple 1600-mile roundtrip journeys that were required for vessels exceeding 450 feet in length for a project designed to reduce reliance on oil and located only twenty-seven miles offshore.[181] Dominion, the company behind the coastal

174. *Id.*

175. Jonathan Wilcon & Carl A. Valenstein, *Jones Act Compliance Strategies for US Offshore Wind Construction*, MORGAN LEWIS (Dec. 14, 2021), https://www.morganlewis.com/pubs/2021/12/jones-act-compliance-strategies-for-us-offshore-wind-construction [https://perma.cc/UM7N-5BA9].

176. *Id.*

177. *Id.*

178. Gabrow, *supra* note 164; Penn, *supra* note 166; Colin Gabrow, *The Jones Act Continues to Hamper the Development of Offshore Wind Energy,* CATO INST. (May 19, 2021, 10:47 AM), https://www.cato.org/blog/jones-act-adds-costs-complications-offshore-wind-energy [https://perma.cc/MUH8-PMJ7] [hereinafter Gabrow, *The Jones Act*].

179. Penn, *supra* note 166.

180. *Id.*

181. Colin Gabrow, *Labor Unions (Quietly) Admit the Jones Act Is Contributing to America's Supply Chain Problems*, FEE STORIES (Apr. 10, 2022), https://fee.org/articles/labor-unions-quietly-admit-the-jones-act-is-contributing-to-america-s-supply-chain-

Virginia project and the $500 million investment in the first U.S.-flagged WTIV, hopes that costs will eventually decrease by 60% to a more palatable cost per turbine.[182] The new vessel under construction at Keppel AmFELS in Brownsville, Texas will be capable of planting legs into the seafloor and using hydraulics to lift its hull above the waves, allowing for a secure working platform generally unaffected by sea state.[183] The company also plans to lease the vessel to other developers in the U.S. to eliminate the need for expensive Jones Act workarounds, and the ship has already been leased for New England projects when it is completed.[184] Over two years prior to the anticipated completion date of the vessel named *Charybdis*, Dominion has plans to bring the vessel to New London, Connecticut on lease to Ørsted and Eversource for the construction of the Revolution Wind and Sunrise Wind projects.[185] The vessel will then move south to Virginia to expand the demonstration project from two turbines to 200 by 2026.[186]

The other impending problem lies outside of the Jones Act's textual limitations: even if European-flagged installation vessels could operate out of U.S. ports, Europe has its own ambitious offshore wind goals, and the vessels are likely to be tied up in projects across the Atlantic for the foreseeable future.[187] Defenders of the Jones Act frequently include labor unions, who argue that eliminating the Jones Act would take away thousands of shipyard and vessel jobs, forcing too much reliance on other countries.[188] With only eight ships in existence globally with lift capabilities sufficient to install turbines, and none of them U.S. flagged, it is difficult to imagine a scenario where offshore wind could be any more dependent on foreign ships.[189] There has not been any investment beyond Dominion's recent effort because there has not been enough demand

problems/ [https://perma.cc/RE56-GU6V] [hereinafter Gabrow, *Labor Unions*]; Penn, *supra* note 166; *Coastal Virginia Offshore Wind*, DOMINION ENERGY, (last visited Oct. 15, 2023) [https://perma.cc/28FE-37PV].

182. Penn, *supra* note 166.

183. Gabrow, *The Jones Act*, *supra* note 178.

184. Penn, *supra* note 166; Dominion Energy et al., *Dominion Energy, Ørsted and Eversource Reach Deal on Contract to Charter Offshore Wind Turbine Installation Vessel*, PR NEWSWIRE (June 1, 2021), https://news.dominionenergy.com/2021-06-01-Dominion-Energy,-rsted-and-Eversource-Reach-Deal-on-Contract-to-Charter-Offshore-Wind-Turbine-Installation-Vessel [https://perma.cc/8B4F-R36M].

185. *Coastal Virginia Offshore Wind*, *supra* note 181.

186. *Id.*

187. Shields, *supra* note 25, at 16.

188. Penn, *supra* note 166.

189. *Id.*; Shields, *supra* note 25, at 16.

(seven turbines in the past seven years), but other projects are struggling to move forward with no vessel available to install.[190]

Even strategizing to use feeder barges and foreign flagged WTIVs will present some major issues in the coming years. Newer projects are planning to use larger turbines, and existing Jones Act feeder barges are too small to accommodate the larger components that double production per turbine compared to early projects.[191] Larger feeder barges necessitate larger port infrastructure, something that is also lacking.[192] Additionally, Eneti, the company behind the two WTIVs being constructed in Korea, noted significant hesitation to use feeder barges to work on U.S. projects.[193] The Chief Operating Officer of Eneti commented that it is not hard to imagine the dangers that this activity poses on crews when transferring components with cranes from the feeder barge to the WTIV.[194] Even with WTIVs secured to the seafloor and elevated above the waves, the feeder barges are still bobbing and subject to wave movement.[195] The addition of feeder barges necessitated by the Jones Act is adding cost and danger to the project. The demand in Europe and Asia is strong enough that it is difficult to imagine that Eneti would agree to contract for U.S. projects, and have already signed a transportation and installation contract for these vessels to commence in 2025.[196] While the other contracting party is undisclosed, Eneti is providing transport services, so it is highly unlikely, if not impossible for this contract to be U.S. based.[197] Somewhat ironically, a separate section of the Jones Act also creates a federal cause of action in admiralty that allows a seaman to sue their employer for injuries in navigable water: here, the Act is both creating the hazard and providing a remedy.[198]

In most recent years, the tight grip on Jones Act requirements have also loosened slightly to allow more foreign funds and ownership in Jones

190. Penn, *supra* note 166; Shields, *supra* note 25, at 16.

191. Shields, *supra* note 25, at 23-36.

192. Gabrow, *The Jones Act*, *supra* note 178.

193. *Id.*

194. *Id.*

195. *Id.*

196. *Eneti Signs Initial Installation Contract for Newbuild WTIV*, ENETI (Dec. 19, 2022), https://www.eneti-inc.com/eneti-signs-initial-installation-contract-for-newbuild-wtiv/ [https://perma.cc/AJ7R-J9HJ].

197. *Id.*

198. The Jones Act, 46 U.S.C. § 30104. The Jones Act contains two parts: the first part relates to cabotage laws, and the second part relates to seamen injuries. *Id.* The Jones Act extends a cause of action for seamen under FELA guidelines for injuries that occur while working on vessels during the course of their employment. *Id.* This is essentially a personal injury action that allows for a jury trial against the employer. *Id.*

Act compliant vessels.[199] Currently, the rules allow for up to twenty-five percent foreign ownership, and international builders are looking for creative ways to create the other seventy-five percent U.S. based ownership.[200] One option is to set up a U.S. owner and charter the vessel on a long-term basis to a foreign company.[201] Effectively, a U.S. based financial institution could "own" the vessel and time charter[202] the vessel to a foreign company as long as the operational control remains with a U.S. citizen.[203] The long term "hell or high water" time charter allows the foreign charterer to obtain use and provide financing for the construction of a Jones Act compliant vessel.[204] While this would still require utilizing a U.S. shipyard to construct the vessel, of which there are very few capable, it would allow more experienced European and Asian developers to support the financing and construction of WTIVs.[205] However, broad exemptions to the Jones Act are highly unlikely given the current objectors and offers that state governments have made.[206] Though the major objectors to any changes to the Jones Act frequently represent maritime labor unions, the IRA features many protections that are likely to encourage more labor union development in offshore wind such as the apprenticeship credits, and local labor requirements, which may create some mixed opinions on the Jones Act. Labor unions frequently sponsor and develop the apprenticeship programs that will be required to take advantage of the full credit amounts.[207]

VI. IMPACT OF THE IRA OF FUTURE DEVELOPMENTS

The IRA created relatively long-term extensions to existing tax credits and expanded upon labor, production, manufacturing, and construction

199. Wilcon, *supra* note 175.

200. *Id.*

201. *Id.*

202. DAVID W. ROBERTSON ET AL., ADMIRALTY AND MARITIME LAW IN THE UNITED STATES 325 (4th ed. Carolina Academic Press 2020) (A time charter is a contract where the charterer "obtains the use of the ship in a . . . limited sense, while the owner continues to operate the vessel. More specifically, the owner provides the vessel's master and crew and . . . pays the normal operating expenses, while the charterer obtains the commercial benefit of having its cargo carried."). *Id.*

203. Wilcon, *supra* note 175.

204. *Id.*

205. *Id.*

206. Kirk Moore, *Industry Report: Offshore Wind Needs More Installation Vessels ASAP*, WORKBOAT (May 5, 2021), https://www.workboat.com/wind/industry-report-offshore-wind-needs-more-installation-vessels-asap [https://perma.cc/7LNP-7M3J].

207. BW RSCH. P'SHIP, *supra* note 89, at 26.

requirements. Despite certain evidence that this will increase investment in offshore wind projects in the coming years, it is unlikely to tell the full picture. A major concern is the uncertainty of the future of tax credits when the IRA extensions expire. Oil tax credits and special incentives have been codified in the IRC since 1913, and benefits for renewables have been temporary additions since their inception.[208] The reliance that is guaranteed from codified provisions that never sunset allows more liberal capital allocation to riskier or newer technologies. Labor unions are at the crux of the ongoing problem—though they provide reliable wages and guarantees of employment, benefits, and labor protections to American workers, they presently oppose removing a major barrier to current projects.

The requirement of local employment and domestic manufacturing to reach the maximum credit amount undoubtedly creates higher paying jobs for domestic workers. The prevailing wage requirement and apprenticeship requirements will allow the country to build a robust network of skilled labor to construct and maintain the commercial offshore wind farms for the coming decades and generations; however, labor unions continued lobbying against any adjustments to the Jones Act will limit developers' ability to move forward with projects and utilize the skilled labor or hire the unionized construction and maintenance that the unions have worked so hard to build.

VII. ALTERNATIVE OR SUPPLEMENTAL SOLUTIONS TO TAX CREDITS

A frequently suggested alternative is to create a direct carbon tax instead of tax credits that are specifically targeted at certain types of producers.[209] Arguments have stated that "[a] more direct and economically efficient approach to addressing pollution and environmental concerns in the energy sector would be a direct tax on emissions, such as a carbon tax."[210] The selection of a universal carbon tax rate would be "technology neutral," meaning that it does not favor any particular type of energy over another, it merely punishes high carbon producers and would generate significant tax revenues that are lost through tax credits.[211] In theory, this option has the same effect of encouraging

208. *Timeline History of Natural Gas and Oil Tax Provisions*, INDEP. PETROLEUM ASS'N OF AM., http://www.ipaa.org/wp-content/uploads/2016/12/2009-04-TimelineHistoryof NaturalGasandOilTaxProvisions.pdf (last visited Sept. 13, 2023) [https://perma.cc/5QCH-6YQD].

209. SHERLOCK R43453, *supra* note 39, at 10.

210. *Id.*

211. *Id.*

investment in renewables, but it allows developers to choose the form of investment without other requirements, and recuperates some of the lost tax revenue.[212] Analysts have argued that tax credits are not the most efficient way to provide direct federal support to producers, because in the early stages of the projects, the developers do not have any taxable revenue or tax burden with which to apply the credits.[213] Refundable tax credits provide some help to this issue, but with non-refundable tax credits the producers are forced to find alternative ways to monetize the awarded credits, since they have no value without a taxable income. This pushes credits into the secondary market of tax credit resale and trading. It is especially true for ITCs, because the farther projects progress and longer they are producing energy, the more likely that taxable income will arrive that can be offset by PTCs.[214]

While this proposition may be the most efficient economic choice, it does not consider the bipartisan policy initiatives, or the clear preferences to energy forms that different presidential administrations express. The Biden administration has been clear that preference will be given to large offshore wind projects, and although economically unfair to other energy types, tax credits provide the proper medium for expressing these preferences and guiding the market in a preferred direction.[215] The purpose of the IRA was precisely this: giving preference to large offshore wind developments in accordance with the 2021 White House announcement.[216] Therefore, while there are likely more economically efficient ways to guide the market as a whole, those methods would not achieve specific legislative goals.

A. Section 1603: An Expired Alternative to Tax Credit Equity Markets

In the wake of the 2008 financial crisis as part of the American Recovery and Reinvestment Act of 2009, Congress was looking for ways to inspire green energy development where tax credits were somewhat valueless given the state of the economy.[217] Since tax credits and the accompanying equity markets require taxable income to be useful, Congress was interested in alternatives that could work in situations when tax equity markets were particularly weak, and implemented Section

212. *Id.*
213. *Id.* at 11.
214. *Id.*
215. FACT SHEET: *Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs*, *supra* note 11.
216. *Id.*
217. ARRA SECTION 1603, *supra* note 50, at 1.

1603.[218] Put simply, Section 1603 allowed projects that qualified for the ITC and PTC to accept upfront cash payments in lieu of deferring tax credits or selling the credits to third parties.[219] To match the estimated value of the ITC and PTC, Section 1603 provided payments that were equal to thirty percent of the eligible cost basis of the project.[220] The implementation of Section 1603 was quite successful, and despite only lasting for about three years, the program issued over $9.2 billion in grants to renewable energy projects.[221] Wind accounted for over $7.2 billion of this total spread across 205 different projects.[222] Despite challenging economic conditions where tax equity markets were near nonexistent, a record number of wind installations occurred in 2009, although it is difficult to quantify how many of these would have occurred, absent Section 1603 grants.[223]

Another factor to consider in the argument for tax credits is the realistic chance that other, more economically efficient options would be voted through into law. Pure economically efficient policy means nothing if it never makes it past the first draft of writing. The IRA and similar legislative materials allowed bipartisan input to garner enough support to make it through Congress. Specifically, it seems to be a partially strategic initiative to encourage offshore wind as the preferred method of energy, because it requires major investments in domestic manufacturing, raw materials sourcing, investments in local port facilities, building domestic maritime workforce, and encouraging states to create more local workforce. Appealing to as many members of Congress as possible is the only way to push legislative goals into law and negotiating to extend PTCs and ITCs while adding other incentives and tying offshore wind to offshore oil and gas leasing was the chosen solution for reaching renewable goals.

CONCLUSION

While the Inflation Reduction Act represents a strong improvement and extension to existing tax credits, it is only a first step to reaching the

218. *Id.*

219. *Id.*

220. *Id.* at 2. Some projects were issued 10% cash payouts instead of 30%, but they were not projects that are frequently high investment or large commercial scale projects such as geothermal heat pumps and microturbines. *Id.* at 3. The major drivers of Section 1603 were commercial solar and wind projects. *Id.*

221. ARRA SECTION 1603, *supra* note 50, at 5.

222. *Id.*

223. *Id.* at 5-6.

2030 goals for renewable energy. There are several other issues that have emerged throughout the past several years, notably the limitations on domestic manufacturing, supply chain issues, and lack of skilled labor to fill the available construction and maritime positions. While tax credits are probably not the most economically efficient option to drive development, they allow Congress to pursue specific legislative goals, and are a relatively easy way to manipulate financial and energy markets to guide the country to the 2030 energy goals. The tax credits however, are not immediately usable by most developers as they, by nature, require a taxable income and thus a federal tax burden to be usable in the specified year. Although the tax credits can be carried forward by the developers for as long as it takes to use the credits, they are most valuable in the year that they are earned which is not frequently a year that the developer has taxable income, especially in the early years on planning, development and construction. The developers and large national banks have created a solution to this discrepancy, by designing partnership agreements that allow other investors to put money forward in return for a disproportionally high amount of the tax credits, and since the large banks typically have plenty of taxable income, they can absorb the tax credits in the year that they are earned, and the developer does not have to put as much money up to begin the project. Of course, these tax equity markets fluctuate and do not always create an affordable or preferential solution for developers, and historically Congress has considered upfront cash payments, and bringing back Section 1603 may be part of a future solution.

The IRA functions well to temporarily extend the existing tax credits and will certainly have a positive effect on increasing the rate of development, but there are numerous ways that the IRA could be improved, or additional legislation could be passed to improve the already slim chances of reaching 2030 energy goals.

First, Congress could make the tax credits a permanent feature of the federal tax code in the same way that tax incentives have been codified for oil exploration. This would give developers some stability that the incentives will not expire before they are able to build the necessary projects and navigate the permitting process. The time pressure that requires projects to begin and complete developments before a certain time to qualify for the maximum possible credit makes development difficult and makes tax equity partners more skittish, but the time pressure is just part of the nature of trying to reach a 2030 goal. Additionally, to make tax credits more marketable without increasing the percentage rate, Congress could make tax credits carry back to offset previous years income, instead of only being able to offset future income. This may allow developers to be more aggressive in spending during development and the permitting

phase if they could offset taxes in the future when credits are earned, similar to the way that losses can be carried back.[224] Tying offshore wind project approval to oil exploration acreage requirements runs counter to the purpose of the IRA, but likely negotiations and lobbying forced inclusion of this provision under the guise of increasing domestic oil production will decrease foreign reliance on imports from Canada, Mexico, and Russia, who are the three largest suppliers of U.S. oil imports.[225]

The next major way to improve the chance that the U.S. will be able to meet the 2030 goal is to increase employment education and opportunities for construction and maintenance positions. The IRA nicely requires developers and contractors to use local labor requirements, and several developers are investing in local apprenticeship programs and many state colleges have wind specific maintenance programs, but continued significant investment will be needed. Additionally, costs of ship building, shipping, maritime construction and labor, as well as turbine installation are significantly higher than any other country in the world, even places that have similar wage and employment protections thanks to the Jones Act. The costs of U.S. manufacturing and shipbuilding as compared to other nations is far too expensive to remain competitive and encourage large global developers to focus on projects in the U.S. over Europe, and European and Asian WTIVs are likely to choose work outside the U.S. where the Jones Act does not force higher construction costs, additional time, and higher danger to seamen. While one section of the Jones Act creates a cause of action for injuries sustained at great benefit to American seamen, the second section of the Jones Act no longer serves a legitimate and effective purpose. The Jones Act was passed at a time when there were national security concerns that drove Congress to implement laws that they viewed as beneficial for U.S. shipbuilding and naval defense, but the Jones Act has not created the intended result, and the number of U.S. flagged ships has dropped significantly while costs of shipping have increased disproportionally.[226]

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224. Martin, *supra* note 148. CARES Act allows carryback of losses and allows taxpayers to offset 100% of taxable income as opposed to 80% previously allowed. JANE G. GRAVELLE, CONG. RSCH. SERV., IN11296, TAX TREATMENT OF NET OPERATING LOSSES IN THE CORONAVIRUS AID, RELIEF, AND ECONOMIC SECURITY (CARES) ACT 1, 2 2021 https://crsreports.congress.gov/product/pdf/IN/IN11296#:~:text=The%20CARES%20Act%20allows%20firms,for%20up%20to%20five%20years. This carryback provision will expire at the end of 2025. *Id.*

225. *U.S. Energy System Factsheet*, *supra* note 1.

226. Gabrow, *supra* note 164.

While the IRA extends well-utilized features of renewable energy development, there are numerous other factors that cannot be immediately solved by the temporary extension of tax credits. The 2030 goal of 30 GW of offshore wind will certainly be challenging to reach and even if reached will only mildly decrease reliance on oil and natural gas, but tax credits are an effective incentive for Congress to drive legislative goals and should be an effective step on the road to long term energy security if combined with other incentives.