

**Testimony of Siri Kindem, President, Equinor Wind U.S.  
Before the  
U.S. Senate Committee on Energy and Natural Resources  
September 22, 2020**



Chairman Murkowski, Ranking Member Manchin and members of the Committee, I appreciate the opportunity to discuss with you emerging offshore energy technologies, and more specifically offshore wind. My name is Siri Espedal Kindem and I am the President of Equinor Wind US. My responsibilities include our offshore wind portfolio throughout the U.S. East Coast, including Empire Wind, an 816 MW project off the coast of Long Island. I have had various roles at Equinor, most recently as head of Operations North in the Norwegian and Barents Sea and previously I was head of renewables for Equinor's New Energy Solutions (NES), having led operations, investment strategy, technology, and development for numerous projects. I am very enthusiastic to be here today to take you through some of the developments in this exciting and burgeoning industry.

### **Background**

Equinor Wind US LLC (Equinor Wind) is a subsidiary of Equinor ASA (Equinor), a global energy company with over four decades of experience developing, owning, and operating large-scale offshore energy projects. As a broad energy company, Equinor has 21,000 committed colleagues developing oil, gas, wind and solar energy in more than 30 countries worldwide. The resources, experience, and technical capabilities that Equinor has acquired have allowed us to become a global leader in the development and operation of offshore renewable resources and to build a growing renewable portfolio. Equinor currently owns, operates, and markets the output of numerous offshore wind facilities in operation, including the world's first floating offshore wind farm, Hywind Scotland. Equinor Wind is actively developing offshore wind projects on the east coast of the U.S., namely Beacon Wind in lease area OCS-A 0520, in the waters offshore New England, and Empire Wind in lease area OCS-A 0512 in the waters offshore New York. We are also pursuing opportunities on the west coast.

### **Equinor's Transition to a Broad Energy Company**

In 2015, we launched a new vision for the company. We determined that business as usual was not an option. We had to change in order to be competitive at all times, reduce costs and work simpler and smarter. We also set out to help transform the oil and gas industry, and transition to a low carbon future, both through producing oil and gas with as low emissions as possible and by maximizing opportunities in renewable and low carbon solutions. It was on this basis that Equinor's New Energy Solutions business area was established and Equinor became "an energy company" rather than an oil and gas company. As stated recently by Equinor's CEO, Eldar Sætre, "Equinor's strategic direction is clear. We are developing as a broad energy company, leveraging the strong synergies between oil, gas, [and] renewables . . . ." <sup>1</sup>

New Energy Solutions was tasked with developing a profitable renewables business and new lower-carbon opportunities for Equinor's core products – oil and gas. The competence we have gained through more than 40 years as an oil and gas company forms the backbone of our efforts in offshore wind. By 2026 Equinor expects to increase our installed capacity from renewable projects to between 4 and 6 GW, based mainly on our current project portfolio. This is approximately 10 times higher than today's capacity, implying an annual

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<sup>1</sup> Equinor's Climate Roadmap, <https://www.equinor.com/en/how-and-why/climate.html>, 2020.

average growth rate of more than 30% in electricity production. Towards 2035, we anticipate increasing installed renewables capacity further to between 12 and 16 GW, depending on availability of attractive project opportunities. Equinor's New Energy Solutions unit also plans annual gross capital expenditure of between \$500 million and \$1 billion in 2020-21 and between \$2 billion and \$3 billion in 2022-23. The past few years have been transformational for Equinor's offshore wind portfolio and we are on the path to becoming a global offshore wind major.

### **Empire Wind**

Empire Wind Phase 1 is planned for the western half of our New York Bight lease area of approximately 80,000 acres, in federal waters an average of 20 miles south of Long Island and between 72 and 138 feet deep. The project is expected to be developed with 60-80 wind turbines, with an installed capacity of more than 10 MW each. Total investments will be approximately \$3 billion. In July 2019, Empire Wind was awarded a long-term contract for renewable energy certificates for 816 MW in New York State's first competitive large-scale offshore wind solicitation. The project will be a major contributor to meeting the state's ambitious clean energy and climate goals and will power over 500,000 New York homes. We plan to participate in additional state processes in New York and New Jersey to compete to provide power from the remainder of the Empire lease as Empire Wind Phase 2. Commercial operation is expected to begin in the mid-2020s. We have submitted to BOEM our Construction and Operations Plan and are working on a supplement for submittal this month.

### **Beacon Wind**

In early 2019, Equinor successfully secured Lease OCS-A 0520 offshore New England for \$135 million. The project, called Beacon Wind, covers 128,000 acres and is located approximately 60 miles east of Montauk Point and 20 miles south of Nantucket. The lease has the potential to be developed with a total capacity of more than 2.4 GW.

We initiated state-of-the-art aerial wildlife surveys in December 2019, and we will take steps to secure all necessary permits for the project over the next 5-7 years. We will also undertake geophysical and geotechnical surveys to gain information about seabed features, geological conditions, presence of hazards, and other features of the lease area. When complete, Beacon Wind will provide renewable power to more than a million households in the Northeast. We anticipate submitting permit applications in 2022 and depending on the review timeline beginning construction in the mid-2020s and commencing operation in the second half of the 2020s.

### **Stakeholder Engagement**

Since 2016, Equinor Wind has been engaged intensively with key stakeholders, including fisheries, in the planning and development of its U.S. offshore wind projects. In 2017, we began meeting with commercial fishermen and their representatives, universities, and research organizations on the East Coast. Fisheries outreach intensified in January 2018 with the selection of a Fisheries Liaison Officer (FLO). Since then, we have documented more than 1,000 fisheries contacts with commercial and recreational fishermen including meetings on docks, company offices and more formal settings, fisheries trade shows, telephone calls, emails, presentations, social media, the Equinor website, and others. Equinor Wind added a Fisheries Manager in 2019. Between them, the FLO and Fisheries Manager have over sixty years' experience working with

commercial and recreational fisheries. Fisheries Communications Plans and Fisheries Mitigation Plans have been developed and discussed at length with fishermen and agencies and published on the Equinor website.

Equinor Wind strongly believes that mitigation measures to reduce impacts on fisheries should be identified and developed in close consultation with relevant fisheries stakeholders early in the project development process. This is accomplished through an iterative process of project design, including spatial planning, cable routing, timing of works, wind farm layouts, and consideration of construction and operations methods. The Empire Wind and Beacon Wind Project Teams have been following these principles rigorously since Equinor Wind secured a Lease Area in 2017. Equinor Wind endeavours to minimize disruption to fisheries at all stages of project life, including during survey activity, construction, operations, maintenance, and decommissioning. Consultations have already yielded valuable insights that have been incorporated into our survey and planning processes. We have taken various actions and played multiple roles to minimize potential impacts on fisheries, including the following:

- Modifying survey schedules to avoid areas with active seasonal fishing (over 300 survey days with no fishing gear interaction);
- Early spatial planning and real-time adaptive management to avoid high use, high value, and high sensitivity fisheries areas in planning the export cable routes;
- Holding extended consultations (in progress) with fisheries, including the Responsible Offshore Development Alliance (RODA), regarding the Empire Wind layout,
- In cooperation with other developers, agreeing to lay out Beacon Wind on a 1 x 1 nautical mile grid;
- Founding member of the RODA Joint Industry Task Force;
- Board member of the Responsible Offshore Science Alliance (ROSA);
- Member of the New England Fishery Management Council Habitat Advisory Panel;
- Establishing a fisheries communications and outreach strategy to effectively engage with and solicit input from a wide range of fishers and stakeholders in multiple regions; and
- Applying feedback in early spatial planning and setting “Layout Rules” for the thoughtful development of project areas.

### **Floating Offshore Wind**

With tried and tested floating wind turbines already in production, Equinor is the world’s leading floating offshore wind developer. We expect floating wind to be the next big breakthrough in renewables due to the numerous benefits it provides. For example, up to 80 % of the world’s offshore wind potential is in water depths that are not suited for bottom-fixed foundations. Moreover, floating wind farms can capture winds that are stronger and more consistent further out to sea. In addition, removing water depth constraints allows us to select the best sites in the world, thereby taking advantage of higher capacity factors because of the better wind conditions farther offshore. Finally, floating turbines can be placed almost anywhere the water is deeper than about 200 feet, thereby opening a world of new markets and opportunities.

We believe that our offshore experience from the North Sea and around the world makes us uniquely qualified to lead the way and further develop floating offshore wind. Indeed, most floating offshore wind designs originated in the oil and gas industry. Equinor’s Hywind technology, for example, is based on a spar buoy design with stability provided by gravity. In addition, our proprietary floating wind turbine motion controller uses sensors and computers to regulate the turbine blades in relation to the wind gusts, dampening tower

movements, reducing strain on the moorings and maximizing electricity production. As a technology-agnostic developer, however, we will select the substructures and designs for our floating wind installations best suited to the local conditions where they will be used. Our experience with the Hywind demo floating wind turbine offshore Norway and our Hywind Scotland wind farm has given us valuable experience to build on.

Currently, we are developing Hywind Tampen, the first floating wind farm in the North Sea and the world's first floating wind farm to power offshore oil and gas platforms. Hywind Tampen will also be the world's largest floating wind farm and it will be a test case for further development of floating wind, exploring the use of new and larger turbines, installation methods, simplified moorings, concrete substructures and integration between gas and wind power generation systems. The project will consist of 11 wind turbines based on Equinor's Hywind floating offshore wind technology and will have a combined capacity of 88 MW. The project is estimated to meet about 35% of the annual power demand of the Snorre A and B, and Gullfaks A, B and C platforms in the Norwegian North Sea. In periods of higher wind speed this percentage will be significantly higher. Hywind Tampen will help reduce the use of gas turbine power, while also offsetting 200,000 tons of CO<sub>2</sub> emissions and 1000 tons of NO<sub>x</sub> emissions per year. Together with our partners in the Snorre and Gullfaks fields, we reached a final investment decision (FID) in October 2019 and awarded key contracts for project in the same month.

Floating wind technology is in an early phase compared with bottom fixed. Relatively few megawatts have been installed worldwide, and the supply chain is immature. This makes the current cost of floating offshore wind higher than bottom fixed. This is about to change, and we expect gigawatt projects in Asia and Europe within the next 5-10 years. We are seeing a cost reduction of 40% from Hywind Scotland to Hywind Tampen, and we believe floating wind will compete with bottom fixed prices/cost by the end of this decade.

### **Partnership with BP**

On September 10, 2020 Equinor announced an agreement with BP to sell 50% non-operated interests in the Empire Wind and Beacon Wind assets for a total consideration before adjustments of \$1.1 billion. Currently, Equinor holds a 100% interest in the Empire Wind lease, and the Beacon Wind lease. The transaction is in line with Equinor's renewable strategy to access attractive acreage early and at scale, mature projects, and capture value by de-risking high equity ownership positions.

Equinor will remain the operator of the projects in these leases through the development, construction and operations phases and it is anticipated that the wind farms will be equally staffed, during the operations phase. The partnership underlines both companies' strong commitment to accelerate the energy transition and demonstrates Equinor's ability to create value from developing offshore wind projects. Combining our strengths will enable us to grow a profitable offshore wind business together in the U.S.

Through this partnership Equinor and BP will consider future joint opportunities in the U.S. for both bottom-fixed and floating offshore wind and will leverage relevant expertise to jointly grow scale. As the partnership develops, both companies hope to expand this cooperation further in a market that is forecast to grow to between 600 and 800 GW globally by 2050.

BP's acquisition of the interests in Empire Wind and Beacon Wind has an effective date of 1 January 2020 and is expected to close in early 2021, subject to customary conditions including purchase price adjustments and authority approval.

## Permitting in the United States

Equinor Wind is closely following BOEM's review of the Vineyard Wind project, and we commend the agency for its efforts in the Draft Supplemental Environmental Impact Statement (DSEIS) to fulfill its obligations under the National Environmental Policy Act (NEPA) and to advance its statutory mandate under the Outer Continental Shelf Lands Act to develop the nation's offshore renewable resources subject to appropriate environmental safeguards.

Equinor submitted comments to BOEM on the DSEIS and we would like to highlight for the Committee a few of the issues that we addressed.

### Turbine Spacing

BOEM presented many alternatives for turbine spacing in the DSEIS. We have agreed to a uniform 1 x 1 nautical mile spacing between wind turbines in the New England wind energy areas in order to enhance safety and navigation, reflected in alternative D.2. This option best balances the needs of developers, other offshore users, and navigation safety. Alternative D.2 involves arranging the wind turbines with a minimum spacing of one nautical mile between all turbines in the east-west orientation so that vessels have an unobstructed path between rows of turbines. As the DSEIS explained, this alternative should reduce conflicts with existing ocean uses, such as commercial fishing, by facilitating the established methods of mobile and fixed gear fishing practices and vessels fishing in an east-west direction. This uniform layout was presented to the Coast Guard for its consideration in November 2019, and the uniform spacing concept was reviewed in the Massachusetts Rhode Island Port Access Route Study (MARIPARS). Coast Guard's final MARIPARS report, issued on May 27, 2020, clearly supports the selection of Alternative D.2. In our comments, we urged BOEM to closely consider Coast Guard's expertise and advice, as reflected in the MARIPARS report.

In addition, we urged that the 1 x 1 nautical mile spacing agreement not be used to pre-ordain turbine spacing requirements for other offshore wind projects. These projects will be subject to individual and specific review by BOEM, with Coast Guard's input as a cooperating agency.

### Economic Impact

The starting point for BOEM's cumulative effects analysis in the DSEIS broadly included all development that would meet the renewable energy goals of the states, within the available wind resource. These states, in turn, require or expect significant economic development within the state as part of awarding offtake agreements. For instance, Equinor has committed \$792 million in economic benefits to New York. The efforts to develop offshore wind projects will result in significant economic development in many forms, such as increased tax revenues and thousands of jobs, as well as intangible benefits such as increased energy security. The DSEIS mentions little of the considerable contributions offshore wind development is expected to make. For instance, the DSEIS does not address the significant direct and indirect jobs offshore wind development is expected to generate, nor does it appear to account for the domestic supply chain that will be developed to support the burgeoning industry.

Congress should join industry in urging that BOEM give greater consideration and weight to the beneficial impacts from offshore wind development off the Atlantic Coast and should appropriately compare the full scope of the expected economic benefits, not just those from New England, to the potentially adverse impacts.

## Looking Forward

Several policy considerations should be considered by the Department of the Interior, the Department of Energy, and Congress to help ensure a thriving offshore wind industry.

- We urge the Department of the Interior to issue Notices of Intent to prepare Environmental Impact Statements (NOIs) for leased offshore wind projects. There are many projects in the queue awaiting BOEM's issuance to begin the environmental review and public comment period. By moving forward with NOIs, certainty will be provided not only to the developers, but the market will see forward progress leading to investments in the supply chain as well.
- Unlike the mature offshore oil and gas leasing program, there currently is no schedule for offshore wind auctions. Now that the offshore wind program is more mature, development has gained momentum and attracted significant capital. To continue the orderly and expeditious development of OCS wind resources, developers and other participants in the offshore wind sector need more certainty around future leasing. Consequently, we urge BOEM, working in consultation with state partners, to develop an offshore wind leasing schedule. Doing so will provide better information for planning and prioritizing investments, and it would be another step in demonstrating the Department's commitment to offshore wind.
- With respect to the Investment Tax Credit (ITC), Congress should provide an option to satisfy the continuity requirement by meeting "continuous efforts" and extend the Continuity Safe Harbor deadline for the "start of construction" to seven years. Making these changes will allow taxpayers to demonstrate that a business may show either continuous efforts or continuous construction, regardless of how construction started, for purposes of meeting the continuity requirement. Additionally, it will allow continuous efforts for projects in any start year regardless of whether a project started under the physical work test or the five percent test. This will ease the administrative burden for both IRS and taxpayers if continuous efforts, rather than continuous construction, is applied. Along with these efforts, Equinor supports an extension of the ITC for offshore wind projects beyond the end of 2020 expiration.
- Congress should increase funding to BOEM, in line with the President's budget, for permitting review to provide reliable schedules, which will alleviate uncertainty for the offshore industry about the feasibility of getting through the relevant permitting processes. Additional funding will allow BOEM to ensure timely permitting, reliable access, and a predictable regulatory environment throughout the American energy sector. This certainty will provide schedules, which are critical to attracting investment, securing supply chain commitments, and addressing workforce development needs in the offshore industry.
- We encourage Congress to provide robust funding for the Office of Energy Efficiency and Renewable Energy and the Wind Energy Technologies Office at the Department of Energy (DOE). As members of the National Offshore Wind Research & Development Consortium, and frequent partners with the DOE National Labs, Equinor supports funding for needed research and development efforts by DOE.

## Conclusion

We appreciate the Committee's interest in offshore wind development in the U.S. and we are looking forward to working with you to move this burgeoning industry forward.

I look forward to answering your questions.