



February 12, 2024

TO: Illinois Power Agency

FROM: Diamond Offshore Wind

Diamond Offshore Wind is pleased to offer comments to the Illinois Power Agency on the *2024 Policy Study, DRAFT for Public Comment* ("Study"). Diamond Offshore Wind (DOW) is a wholly owned subsidiary of Diamond Generating Corporation, a U.S.-based wholly owned subsidiary of Mitsubishi Corporation. Building on Mitsubishi Corporation's success in the global offshore wind market and Diamond Generating Corporation's deep experience and outstanding performance as a U.S. independent power producer for over 3 decades, we are uniquely positioned to be a strong, long-term leader in the burgeoning U.S. offshore wind market.

Our company has considerable experience exploring the many aspects of offshore wind in the Great Lakes. We see tremendous potential for offshore wind in the Great Lakes and are excited about the leadership that the state of Illinois is exhibiting by pursuing a pilot project in Lake Michigan. We offer the following comments to the Study.

1. Offshore wind in the Illinois waters of Lake Michigan can make significant contributions to meeting Illinois's decarbonization goals. The aggressive and bold targets set forth in the Climate and Equitable Jobs Act in 2021 (40% renewable energy by 2030, 50% by 2040, 100% by 2050, and carbon-free power grid by 2045) are an appropriate response to the threats posed by climate change.

There have been and will continue to be challenges in deploying enough clean energy to meet those ambitious goals. **As of December 2023, Illinois is only at approximately 11% renewable energy (per CEJA definitions) – significantly behind the pace needed to meet the mandated targets.**¹ Clearly, an all-of-the-above strategy is needed.

The National Renewable Energy Laboratory (NREL), in its March 2023 report entitled *Great Lakes Wind Energy Challenges and Opportunities Assessment*, states that the overall theoretical capacity of offshore wind energy in the Illinois waters of Lake Michigan is 19,000 MW. Illinois simply cannot afford to ignore this vast resource in close proximity to load centers.

¹ Adams, Andrew. "Pritzker touts climate investments despite renewables lagging state goals." Capitol News Illinois, 23 Jan. 2024, <https://capitolnewsillinois.com/NEWS/pritzker-touts-climate-investments-despite-renewables-lagging-state-goals>.

2. A pilot project is a prudent first step on a path to harnessing this abundant resource responsibly. Renewable energy at scale (capable of making meaningful progress toward CEJA goals) will come from a fleet of offshore wind farms in Lake Michigan over many years. This pilot project is the catalyst to create a robust Great Lakes offshore industry in Illinois that can deliver such a pipeline of projects, prudently, after the pilot project demonstrates the compatibility of offshore wind with other uses. **While the pilot project alone will already deliver significant economic benefits, a thriving offshore wind industry will be truly transformational, creating thousands of local jobs and billions of dollars of economic impact to the region.**

Such a pipeline of offshore wind projects will also drive investments in infrastructure and the supply chain that will fuel further growth. That scenario is playing out now on the East Coast; each new project brings millions of dollars of new investments in port infrastructure, factories, vessels, community benefits, and more. According to the Oceanic Network (an offshore wind industry organization), the industry – which, at the beginning of 2023, had a 17.5 GW pipeline of projects under contract – is currently committed to investing 22.7 billion dollars in supply chain facilities, ports, shipbuilding, and transmission developments. There are many more projects in earlier stages of development which will continue to drive up those impacts.

But you don't get to that point without a pilot project. The first offshore wind project in the U.S. became operational at the end of 2016; Block Island Wind Farm, a pilot project sited in the waters off the coast of Rhode Island, consists of five wind turbines with a total capacity of 30 MW. Block Island was the catalyst that demonstrated the promise of offshore wind, helping propel the U.S. offshore wind industry to become one of the fastest growing offshore wind markets in the world, with a massive pipeline of projects, in a matter of a few years.

Block Island also served to answer several questions on the minds of the many stakeholders. For example, Block Island demonstrated that wind turbines aren't a detriment to fishing; rather, the fishing was more robust near the turbines than it had been before.² Block Island became an inspirational symbol of accomplishment and possibility for policy makers, the industry, and stakeholders. It is a platform for studying actual impacts of offshore wind turbines on birds, bats, and aquatic species, as well as impacts to tourism due to the wind farm, and public opinion.

In a similar manner, a pilot project in Lake Michigan (the first in the Great Lakes) will serve as the research platform to monitor and study the environmental impacts of offshore wind, which will then be used to inform future development. In this way, the pilot project is a critical element to the responsible development of offshore wind in Lake Michigan and throughout the Great Lakes. A Lake Michigan pilot project will become a symbol of the state of Illinois' leadership and its role in launching a new industry, while also cementing its status as the regional nexus of that industry.

² Dara H Wilber, Lorraine Brown, Matthew Griffin, Gregory R DeCelles, Drew A Carey, Demersal fish and invertebrate catches relative to construction and operation of North America's first offshore wind farm, ICES Journal of Marine Science, Volume 79, Issue 4, May 2022, Pages 1274–1288, <https://doi.org/10.1093/icesims/fsac051slkjdsa>

3. The challenges of constructing a single pilot project in Lake Michigan are minimal and surmountable. The Study highlighted several constraints/challenges involving infrastructure, vessels, and supply chain facing offshore wind farm construction in the Great Lakes (reference pages 103-105, 130-132). However, it is important to consider those challenges in the proper context.

The discrete obstacles facing the construction of a single, 200 MW offshore wind project in Lake Michigan are marginal in comparison to those facing the build out of a large-scale offshore wind industry in the Great Lakes. The timeline is a critical consideration. Solutions and the associated investments necessary to overcome the barriers on a large-scale aren't necessary all at once. Rather, the challenges will be met in stages, at the pace of the growth of the industry – just like what's happening in the U.S. East Coast offshore wind market now. **The European offshore wind market experienced this same dynamic years ago.** Early projects were built by adapting available infrastructure, followed by a pipeline of projects securing the investments to build the massive, special purpose installation vessels that are in use today.

The Block Island Wind Farm serves as a good example. Prior to the end of 2016, the supply chain assets, port infrastructure, and vessels available to serve offshore wind farms in the U.S. were very limited. Nonetheless, Block Island Wind Farm was constructed successfully by creatively utilizing the assets that were available: foundations from the Gulf of Mexico, vessels built to serve the offshore oil and gas industry, and port facilities adapted with minimal investment to accommodate a 5-turbine pilot-scale project.

Creative and cost-effective heavy-lift vessel solutions, modeled after actual experience building offshore wind farms in inland lakes in Europe, can be adapted for a Lake Michigan pilot project. The NREL report, *Great Lakes Wind Energy Challenges and Opportunities Assessment*, highlighted these examples. Such a vessel can be fabricated and configured in the Great Lakes, thereby eliminating the need for a vessel to come through the St. Lawrence Seaway.

Port infrastructure is also not a significant concern for a 200 MW Lake Michigan pilot project. There is sufficient infrastructure to support a small project that would require only minimal investment. The relatively low number of turbines and foundations required for a small-scale pilot project limit the scale of the port infrastructure required. A small project can tolerate some logistical inefficiencies brought about by limited or constrained port infrastructure. However, those same constraints, when applied to a much larger project – many more turbine components and foundations that require more space, more heavy-lift equipment and more dockside access – compound those inefficiencies to an unacceptable level and only then requiring the extensive investment cited in the Study.

The investments required for both the vessel solution and the port infrastructure for a pilot project can be amortized over the single pilot project, thereby eliminating the need for complex, interrelated investment decisions by different investors.

4. There are unique advantages to building offshore wind farms in the Great Lakes, especially the pilot project. As noted in the NREL report, *Great Lakes Wind Energy Challenges and Opportunities Assessment*, and confirmed in the Study, **the pilot project would likely utilize land-based wind turbines, as opposed to the massive ocean-based wind turbines** currently being deployed for East Coast projects. A large, land-based turbine is suitable in the freshwater

of the Great Lakes, whereas deployment in the caustic saltwater of the oceans requires special, maritized wind turbines.

The land-based turbines are smaller and lighter than the ocean-based wind turbines. Thus, the heavy lift vessel capabilities needed are much less. A project in the Great Lakes will not be competing for the scarce and extremely expensive vessel resources that are in high demand for oceanic projects, thereby reducing the risks of a Great Lakes project.

As noted in Item 3, an alternative heavy-lift vessel solution can be fabricated/configured in the Great Lakes, based on standardized barge construction materials and methods. The cost to build such a vessel is much less than the cost to rent the specialized installation vessels needed to install the large ocean-based wind turbines. This drives down the cost of a Great Lakes project.

There are several other benefits to utilizing a land-based wind turbine. First, it avoids competition with the extremely stressed ocean-based wind turbine supply chain. These severe supply chain pressures have dramatically driven up costs for ocean-based wind turbines and introduced serious risks. **Although costs have certainly risen for land-based turbines due to inflation, the increases are significantly less than those for ocean-based wind turbines, and the supply chain is much more stable. This further drives down the cost of a Great Lakes project.**

Second, most of the supply chain for the land-based turbines is in the U.S., whereas the ocean-based supply chain is in Europe. Consequently, the land-based turbines contribute significantly to qualifying the project for the Inflation Reduction Act's 10% Investment Tax Credit bonus by meeting the required domestic content thresholds. This reduces the LCOE by lowering the capital requirements of a Great Lakes project.

As the industry grows, a pipeline of projects will support ongoing investments in port infrastructure, vessel assets, and the supply chain at the pace warranted by the project pipeline, driving costs down.

5. The pilot project will create hundreds of jobs and tens of millions of dollars of local economic impact (reference pages vi, 95, 143, 225-226). The majority of these jobs are good union jobs – laborers, iron workers, carpenters, operating engineers, electricians, etc. – that offer a lifetime career, not just a job.

The pilot project will also attract significant investment to the regional economy. The economic impacts will drive MWBE participation in the supply chain, bringing new business opportunities.

Although the pilot project will deliver significant economic benefits on its own, the robust offshore wind industry that follows will generate thousands of jobs and billions of dollars of economic impacts, for decades to come. Opportunities like this are rare, especially on the Southeast side. The community deserves this, and the state of Illinois cannot afford to let this opportunity pass by.

6. The pilot project will benefit environmental justice communities, especially the Southeast side (reference pages 27-28, 124-125). **The Study rightly shows that the pilot project alone would be highly beneficial to historically marginalized communities, with particular focus in the Southeast side, that have suffered disinvestment and environmental racism since the shuttering of the steel mills.**

DOW supports the provisions in HB 2132 that call for a robust equity and inclusion plan and community benefits agreements concentrated in environmental justice communities. In addition to mandating the requirement for an equity and inclusion plan, HB 2132 goes further and makes the weight of the inclusion plan the most significant element of the scoring of proposals; the equity and inclusion plan accounts for 34 out of 100 total points.

7. Ratepayers are protected by the RPS impact rate cap provision in HB 2132 (reference pages v, 26, 141, 212-213). **The Study confirms that the amount the ratepayers will have to pay is capped, thereby protecting the ratepayers. And there is zero payment due, and thus zero ratepayer impact, unless and until the pilot project begins generating electricity.** Thus, all the risk of cost overruns or insufficiency of the revenue is borne by the company that wins the bid to build the pilot project and neither the ratepayers nor the state of Illinois bears any risk.
8. The magnitude of the potential interconnection costs appears to be vastly overestimated – as much as 10 times (reference pages 140-141, 190-191, 194, Appendix B). **Interconnection of a 200 MW project would not require the extensive transmission upgrades as shown in the Study.** The Study significantly overestimates the interconnection costs attributed to the pilot project by allocating 100% of the costs for already overloaded transmission facilities to the offshore wind project. However, the detailed analysis in Appendix B shows that the offshore wind project does not create any new transmission system facility overloads and only has minor (less than 6%) impacts to the existing baseline overloads caused by other projects in the study model.

For example: for the Stateline 138 kV POI, a cost allocation based on the pro rata effects of the offshore wind farm on the overloaded facilities results in an interconnection upgrade cost of **approximately \$30.6 million, as opposed to the cost stated in the Study of \$331.2 million** – a factor of over 10x. This pro rata allocation method is similar to the PJM cost allocation method under its new rules.

Beyond the pilot project, there are many factors that will affect the interconnection capacity for additional offshore wind generation. As the state moves to decarbonize its electricity generation portfolio per CEJA, fossil fuel generators will continue to be retired, thereby freeing up interconnection capacity in the region.

9. The competitive market will determine the pilot project's commercial viability, with all the risk shouldered by the private sector. (reference pages v, 26, 141, 212-213) The Study asserts that the RPS impact rate cap increase in HB 2132, combined with revenue from the energy and capacity sales, will not generate sufficient revenue to render the pilot project commercially viable.

It is difficult to assess the Study's conclusion, as the source and rationale for some of the key parameters required to perform such an analysis were not provided. **The cost per MWh figures in the Study appear to be substantially higher than necessary to support the pilot**

project. It isn't clear if the full benefit of the federal tax incentives (which would bring federal dollars to Illinois) are considered in the Study.

One of the main purposes of the pilot project is to prove out all of the facets of offshore wind in Lake Michigan, including the cost. It's difficult to assess the costs and consequent ratepayer impact until developers work out the details for specific approaches. Competition will drive the most effective and viable solutions, and, in turn, competition will drive down costs.

The companies competing to win the rights to build the pilot project will ultimately be the ones to decide if the revenue from the sale of RECs is sufficient, considering the specific financial and commercial factors of each company's approach. If the competitive market cannot offer commercially viable projects, then the ratepayers and the state of Illinois will NOT be on the hook for anything; the companies bidding on the pilot project bear all of the risk.

In fact, HB 2132 specifies that no REC contract shall be awarded to a company that fails to score at least 75 points, thereby protecting against companies that have a low score due to an excessively high price.

10. The cost/benefit analysis of offshore wind in Lake Michigan should consider the avoided costs of new transmission that would be needed to move power from distant wind and solar farms to Chicagoland, as nearby fossil fuel plants are retired. According to EIA data, 41% of the fossil fuel power plant capacity in Illinois (representing over 12,000 MW) is located within 75 miles of Chicago.

Per CEJA requirements, all 12,000 MW of that generation must be retired by 2045, which will create a major deficit that must be filled with renewables. Most of the feasible land-based wind and solar resources yet to be developed is far from Chicagoland. Thus, significant investment in the transmission infrastructure would be needed to deliver power from those remote onshore wind and solar farms.

Offshore wind in Lake Michigan, proximal to the load centers in Chicagoland, would avoid the need for some new transmission. The cost avoidance of that transmission should be considered as an offset to the cost of offshore wind generation, which would result in a lower true cost of offshore wind.

11. Development must be undertaken prudently, addressing the environmental and wildlife impact concerns identified in the Study (reference pages 132-136). DOW supports extensive wildlife studies, surveys, and research to characterize the baseline conditions and inform the assessment of potential environmental impacts prior to construction. Some specific topics include: i) spatial data for birds and bats flying over a planned project site, ii) altitudinal distribution of the flight paths of migratory song birds, iii) density of birds and bats in the area, iv) changes in flight patterns relative to weather conditions, time of day, and season, v) the habitat use patterns and movements of fish, and vi) the distribution and use patterns of fisheries, etc.

The permit applications, pre-construction wildlife studies and monitoring, risk assessments, mitigation plans, etc. must be completed by the company that wins the bid to build the pilot project. During the permitting process, many state and federal agencies responsible for protecting wildlife and the environment will determine if the risks of potential environmental

impacts fall under the regulatory thresholds. Before any construction activities can begin, those agencies would have to approve relevant permits. If the permits aren't issued, the pilot project does not go forward; the company bears all the risk of securing those permits.

It is imperative that the pilot project is sited, planned, and developed responsibly to avoid and/or mitigate the potential impacts. DOW supports a robust post-construction monitoring and research program to validate the assessments made pre-construction and to refine mitigation plans and future research plans.

The pilot project will serve as a research platform to monitor and study the environmental impacts of offshore wind in the Great Lakes, answering the unanswered questions. This will then be used to inform future development, just as the Block Island Wind Farm serves the East Coast offshore wind stakeholders. Without the pilot project, many of those questions would simply go answered, likely blocking any Great Lakes offshore wind progress and potential.

In closing, Diamond Offshore Wind remains extremely optimistic about Great Lakes offshore wind, which can make significant contributions to meeting Illinois's decarbonization goals while creating jobs and delivering economic opportunities to historically disinvested communities on the Southeast side of Chicago. Based on our knowledge concerning many aspects of offshore wind in the Great Lakes, some of which was shared in these comments, we are convinced that a pilot project can be completed successfully, with manageable risks and minimal impact to ratepayers.

We applaud the leadership that the state of Illinois is exhibiting by pursuing a pilot project in Lake Michigan. The Illinois Power Agency *2024 Policy Study* is an important work that will serve to shape this area of public policy. We are grateful for the opportunity to add our voice to the public discourse.

Comments submitted by:

*Dave Karpinski
Vice President, Development
Diamond Offshore Wind*