

REGIONAL ROUNDTABLE: SECURING LOUISIANA'S ROLE IN THE OFFSHORE WIND INDUSTRY

March 15, 2023

Cross-cutting takeaways

- Louisiana is well positioned to play a significant role in the growth of the offshore wind industry nationwide. The state's potential includes not only hosting projects developed in the Gulf of Mexico, but also helping to advance wind projects in other regions by leveraging its skilled workforce and vessel, engineering, and supply chain companies. Louisiana has already done the latter, with multiple companies in the state playing a pivotal role in Rhode Island's Block Island project.
- While Louisiana's governor and legislature have already signaled interest in offshore wind through policy and target-setting, there is more to be done to kickstart the industry's growth in the state. Priority actions include studying the supply chain opportunities and transmission needs for offshore wind in the state and educating lawmakers and regulators on the offshore wind opportunity.
- A clearer view of the potential project pipeline in the Gulf of Mexico is essential to advancing a responsible offshore wind industry in numerous ways. A robust pipeline gives companies and others the confidence to invest in localized manufacturing and supply chains, workforce development programs, and long-term, large-scale infrastructure projects that can more seamlessly connect large amounts of power to the grid with the least environmental impact.

Offshore wind design for the Gulf of Mexico

- The Gulf of Mexico offers unique challenges to developing offshore wind, including lower average wind speeds compared to the Northeast, as well as strong and unpredictable hurricane seasons. Compounding the challenge, the strategies needed to address lower wind speeds (e.g., creating larger turbine rotors and blades to capture more energy) can make those turbines more vulnerable to hurricane-strength winds.
- Strategies to manage for hurricanes include adding more material to turbines to strengthen them or coupling them with battery backups so that, in the event the grid goes out, the turbines can still be controlled to orient them in a way that would sustain the least damage. Louisiana-based companies and federal researchers are exploring unique manufacturing approaches and other solutions that would tailor designs for the Gulf and other extreme weather-prone regions globally.
- While data on hurricanes exists, additional research and modeling are needed to gain a more granular understanding of wind behavior inside hurricanes, particularly at the height that Gulf of Mexico turbines will be operating, in order to design and build turbines that are resilient to harsh conditions.

Supply chains and workforce: Matching industry needs with Louisiana's expertise

Maritime industry

- Louisiana's port network is among the largest in the western hemisphere and can be a significant asset to establishing a robust offshore wind industry in the Gulf. In particular, Louisiana's deep-water ports (adjacent to well-connected rail yards) and ample space to accommodate large offshore wind components can give it an advantage over states in the Northeast with less developed or more space-constrained port capacity.
- Multiple ports in Louisiana are proactively preparing for offshore wind investments (e.g., dredging, building bulkhead, acquiring land to accommodate the size and weight of turbine components). High upfront costs, uncertain project timelines, and a lack of a long-term project pipeline in the Gulf can impede this investment. To meet the high capital requirements of port improvements, a combination of federal, state, and private sector dollars will be needed.
- Different ports in Louisiana will play different roles in the offshore wind industry. Some are exploring wind component manufacturing, while others are planning investments in shipbuilding, marshalling (i.e., staging turbine components before installation), or operations and maintenance.

Comprehensive state planning to map out the comparative advantages of each of Louisiana's ports could help foster collaboration among the port system and create a cohesive support structure for the Louisiana offshore wind industry.

- Louisiana's history as a shipbuilding state is a competitive advantage for offshore wind. Already, multiple Louisiana vessel manufacturers and operators have been contracted for offshore wind projects. There remain significant needs for domestic vessels to support the industry, though, and especially for wind turbine installation vessels (WTIVs), of which there are currently no operational U.S.-flagged vessels. While Louisiana companies can help meet these needs, company education on this market opportunity is required to help them realize their potential in the offshore wind industry.
- It can often be too risky for vessel companies to make multi-million-dollar investments (e.g., in building new vessels) without more certainty on return on investment. A clearer project pipeline in the Gulf, certainty of work, and other risk-reducing mechanisms for manufacturers can provide the confidence to expand domestic vessel manufacturing to serve the offshore wind industry.
- Existing energy infrastructure at some ports in Louisiana can make them an attractive spot to bring wind energy to shore (via substations, rights-of-way, etc.). Additional grid analysis and planning will be needed to clarify this potential role for ports.

Manufacturing industry

- Louisiana's manufacturing capacity can be an asset for offshore wind, and multiple manufacturing companies that have traditionally served offshore oil and gas (O&G) have already begun growing their offshore wind businesses. The state can compete particularly well in manufacturing below-water structures like jackets and foundations (i.e., anything created with steel or concrete).
- Still, Louisiana companies do not have the manufacturing capacity to meet the large demand for components required to support a robust offshore wind industry. Utility-scale projects will require hundreds of structures (e.g., jackets) be made per year, and Louisiana companies can currently produce only a handful annually. Helping these companies leverage and develop automated processes can significantly increase their capacity.
- Manufacturing of the above-water components in a turbine (e.g., nacelles, gearboxes) is extremely limited, if nonexistent, in the United States. If Louisiana can distinguish itself early as an investment destination for these components, it can gain a strategic advantage over other states.
- While there are numerous components that Louisiana could, in theory, manufacture to support the offshore wind industry, additional research is needed to better understand the distinct manufacturing advantages Louisiana offers relative to other states. Participants emphasized that not all states will be able to create an entire offshore wind supply chain locally. This means regional coordination that recognizes each state's strategic advantages is essential to creating a cohesive national supply chain.
- Thoughtful siting of offshore wind manufacturing facilities is needed to ensure that these facilities do not exacerbate environmental injustice in communities already heavily impacted by industrial activity in the state. Depending on what this manufacturing activity is, localized pollution impacts may be greater or lesser (e.g., welding creates fewer pollutants compared to steel manufacturing).

Workforce and education system

- Participants expressed confidence about the ability of Louisiana's workforce and education system to meet the needs of the offshore wind industry. Getting the timing right when it comes to workforce investments is a central challenge, though. Multiple universities and colleges have created offshore wind focused curricula, but a clear industry signal and assurances of job demand are needed to give schools the certainty they need to ramp up their programs.
- While Louisiana's community and technical colleges and universities are a clear asset for training offshore wind workers in the state, a large portion of the population does not pursue higher education. Developing short-term training and certificate programs and allowing for 'stacking' of

those certifications toward a degree equivalent can provide opportunities for those in need of near-term employment and recognize multiple pathways for workers' professional development.

- Louisiana's offshore O&G workers (including workers who tangentially support the industry) offer numerous transferrable skills for offshore wind, including a strong track record on safety. Still, workforce preparation for offshore wind needs to go beyond engaging those historically involved in O&G and find opportunities for new entrants to cultivate greater diversity and economic equity in the field. This includes awareness raising efforts to encourage youth to enter skilled trades.
- Economic development professionals noted that workforce considerations—more so than tax incentives—are the number one reason why companies locate in Louisiana. Investing in a strong offshore wind workforce can be a central factor that attracts national and multi-national companies to invest in offshore wind supply chains in Louisiana.
- Participants disagreed on the impact that Louisiana's status as a right-to-work state would have on its ability to compete in the national offshore wind industry. Some saw a lack of unionization in Louisiana's maritime and manufacturing industries as a competitive advantage, as Louisiana companies may complete work for lower prices than competitors from other regions. Pro-union participants disagreed with this characterization, though, and asserted that low wages benefit investors, but not workers. There was also an open question among the group as to whether a lack of unionization in Louisiana would negatively impact the state's ability to secure contracts in states that require union labor for offshore wind projects, or to secure tax credits and other federal funding that incentivizes certain project labor standards.
- Areas where additional training may be required to prepare Louisiana workers for offshore wind include operations and maintenance (i.e., anything 'above-water' related to servicing the turbine) and safety considerations specific to offshore wind.

Mitigating and managing for environmental impacts

- While offshore wind development will have impacts to birds and marine animals, these impacts pale in comparison to the impacts that climate change has already begun and will continue to have on wildlife, making swift and responsible development of offshore wind an environmental imperative.
- The Gulf of Mexico is a significant migratory pathway for many bird species, and unique approaches will be needed to reduce impacts to them during peak migratory times. These can include design strategies (e.g., painting a single turbine blade black to make the structure more visible to birds) or operational strategies (e.g., shutting the turbines down certain times of day or weeks of the year that are particularly high-risk).
- Gathering baseline data on wildlife populations in the Gulf of Mexico is critical to understanding the impacts of offshore wind on these populations. Research is also needed to fill in knowledge gaps about the way offshore wind might impact wildlife. Central questions to examine include how noise may impact marine animals underwater; the height at which birds in the Gulf fly; and the times of year and times of day with greatest risk for bird collision.
- Wildlife monitoring will be needed to increase understanding of the real-time impacts of offshore wind during operations. Adaptive management strategies (i.e., changing operations and maintenance approaches based on the results of that monitoring) are also essential to minimize risks and impacts that may arise after a project begins.
- The environmental impacts of offshore wind need to be thought about proactively and comprehensively. Strategically planning for not just a single project, but a broader set of infrastructure that can support a full pipeline of projects (i.e., transmission lines) can minimize environmental harms in the industry. This strategic planning also needs to consider the potential for offshore wind leases in state waters, which pose unique environmental and coastal challenges relative to federal waters.
- The multiple uses of the Gulf of Mexico (e.g., for fishing, O&G development, and coastal community uses) need to be better mapped and understood to paint a comprehensive picture of the

interactions between them and identify strategies to minimize negative impacts while still allowing access to Gulf waters for these uses.

- Oil and gas revenues and settlement dollars from the Deepwater Horizon oil spill are central funding sources for coastal restoration efforts in Louisiana at present. With declines in the O&G industry and Deepwater Horizon funds set to expire in 2032, though, there is a strong local interest in cultivating new revenue sources, including from offshore wind development. Creating mechanisms to direct wind leasing revenue to Louisiana, and dedicating that revenue to coastal protection efforts, can diversify the state's revenue sources and ensure the longevity of coastal resilience funding.

Ensuring effective community engagement and benefits sharing

- There is a need for community education on offshore wind in Louisiana, as the industry is unfamiliar to many. Creating educational materials, written in layman's terms, that highlight both the costs and benefits of offshore wind in people's daily lives, can help close this knowledge gap.
- Understanding the ways a wind project may impact communities in Louisiana necessitates analysis of race, gender, and class dynamics that could result in disparate impacts across demographic groups.
- Successful community engagement starts with developers being genuinely curious about communities, including having a desire to understand their own plans and visions for their community. Helping communities work toward that vision, rather than imposing an external vision on them, can result in more genuine and trusting relationships.
- Community engagement on offshore wind projects needs to go beyond just involving the most vocal or most obviously impacted groups. Developers and state government should work in tandem to identify groups that must be involved in project planning, but should also allow flexibility for other interested communities to gain a seat at the decision-making table. When doing so, decision-makers should be fully aware of who is authorized to speak on behalf of certain communities.
- The wind lease auctioning process can be a complicating factor for early community engagement by developers. Some developers may put in effort to conduct outreach and build relationships pre-bidding, but ultimately not win a lease, which can leave communities with false expectations. Aggregating information through state and federal government to create continuity between developers participating in a lease can help overcome this challenge.
- In communicating the costs and benefits of offshore wind to impacted communities, it is important to consider benefits that are not easily quantifiable (e.g., reduced exposure to natural gas market volatility) that offshore wind could foster. Such benefits should be built into models to provide a fuller picture of offshore wind's potential advantages.
- Community benefit agreements are an attractive way to ensure those impacted by renewable energy projects get to share in the benefits those projects create. They have been used across Europe and in the United States in the offshore wind industry. Strong enforcement mechanisms must accompany the creation of these agreements, though, to ensure they result in the agreed-upon benefits.

Connecting wind power to users in Louisiana

- A lack of certainty as to how offshore wind power will be used in Louisiana, and whether regulators will approve the connection of projects to the grid, is perhaps the most central stymying factor for project investment in the state given it creates significant uncertainty for developers. While other states have sought to boost investor confidence by setting procurement targets for offshore wind power, Louisiana has not yet set such a goal.
- The interconnection of offshore wind power to the grid in Louisiana would have to be approved by the state's Public Service Commission (PSC) and likely by the Midcontinent Independent System Operator (MISO), a regional transmission organization. The group expressed uncertainty about both these organizations' interest and expedience in approving offshore wind interconnections. Maintaining system reliability and reasonable costs for customers are central mandates for these entities that must be considered in approving any offshore wind projects.

- A central question affecting the connection of offshore wind in Louisiana’s power grid is how costs will be distributed among a relatively small residential customer base in the state. Some presented concerns about burdening ratepayers with potentially higher electricity costs. Strategies to counteract this impact could include creating cost caps to limit how much project costs consumers absorb; this strategy was used in creating New Orleans’ Renewable and Clean Portfolio Standard.
- The long-range transmission planning process through MISO is an attractive vehicle to help Louisiana prepare for offshore wind and strengthen its grid more broadly. While the City of New Orleans has been engaged in this regional process, Louisiana as a whole has not been, meaning it may miss out on the reliability, costs savings, and decarbonization benefits that process would provide.
 - Even in the absence of participating in this process, the PSC has the power to investigate the transmission needs for offshore wind in the state and make investments to meet those needs. New Jersey offers a strong model to follow; the state funded research and proactively solicited transmission investments to support offshore wind development.
- The group was split on the best strategy for users to access offshore wind power: via the electric grid or via green hydrogen production. Grid interconnection would result in power being more widely dispersed to users across the state, including the commercial and residential sectors. Using offshore wind to produce green hydrogen would direct that hydrogen into industrial uses.
 - *Potential advantages of green hydrogen:* Some participants felt using offshore wind power for green hydrogen production could sidestep challenges and delays with connecting to Louisiana’s power grid. Proponents also pointed to the large amount of fossil-produced hydrogen Louisiana industry consumes and noted that offshore wind-derived hydrogen can help quickly decarbonize the state’s industrial sector (the largest source of emissions in the state).
 - *Potential disadvantages of green hydrogen:* Some participants expressed concern about whether using offshore wind power solely for industrial hydrogen use would concentrate the benefits of offshore wind too strongly in a single user group. They felt doing so could diminish offshore wind’s widespread political support and create opposition to offshore wind from communities opposed to industrial activity.
- In considering how to connect offshore wind power to users, Louisiana needs to plan not for just a single lease, but for a full pipeline of projects. Doing so can allow the state to invest in transmission and distribution infrastructure in a way that significantly minimizes both costs to consumers and environmental impacts.