NORTH CAROLINA TASKFORCE *for* OFFSHORE WIND ECONOMIC RESOURCE STRATEGIES

2022-2023 ANNUAL REPORT

TO THE GOVERNOR AND THE GENERAL ASSEMBLY

NORTH CAROLINA
DEPARTMENT of
COMMERCE

Roy Cooper
GOVERNOR

Machelle Baker Sanders
SECRETARY

August 1, 2023

Dear Governor Cooper, Senator Berger, and Speaker Moore,

The **North Carolina Taskforce for Offshore Wind Economic Resource Strategies** (NC TOWERS) has met quarterly since February 2022 to identify economic and workforce opportunities and challenges presented by the offshore wind industry and to develop policy recommendations that will advance offshore wind projects along North Carolina's coastline.

The US offshore wind energy industry and its supply chain will create an estimated 85,000 new family-sustaining jobs and $140 billion in capital expenditures by 2035. North Carolina has the greatest potential for offshore wind energy generation and the largest manufacturing presence of any state on the East Coast. North Carolina's geography, workforce, and business climate has the potential to attract considerable investments and jobs to the state.

However, significant new investments in the offshore wind industry and its supply chain, NC Ports, and workforce and safety training programs are necessary to secure North Carolina's competitiveness among Atlantic Coast States.

The attached **NC TOWERS Annual Report** includes an overview of the NC TOWERS' activities from July 1, 2022, through June 30, 2023, and recommendations based on those activities to advance offshore wind energy development in North Carolina. The table on page 4, *Public Investments in Offshore Wind for Atlantic Coast States*, compares the investments in offshore wind energy procurement, workforce development, and infrastructure among Atlantic Coast States. The recommendations in the NC TOWERS Annual Report will prepare North Carolina's workforce to secure jobs in offshore wind energy, businesses to enter the supply chain, and communities across the state to benefit from the economic impact of the industry.

The NC Department of Commerce welcomes the opportunity to collaborate and discuss the future work of NC TOWERS. Thank you for your partnership and consideration of these recommendations.

Sincerely,

DocuSigned by:
Machelle Sanders
2477295D5C524FB...

Machelle Baker Sanders
Secretary

NORTH CAROLINA TASKFORCE *for* OFFSHORE WIND ECONOMIC RESOURCE STRATEGIES

2022-2023 ANNUAL REPORT

TO THE GOVERNOR AND THE GENERAL ASSEMBLY

Submitted by:

Machelle Baker Sanders, Secretary of the NC Department of Commerce

On behalf of the NC TOWERS Taskforce

June 30, 2023

As directed by Section 3.C. of Executive Order 218

NC TOWERS

North Carolina Taskforce for Offshore Wind Economic Resource Strategies

NORTH CAROLINA DEPARTMENT of COMMERCE

On the cover (Left to Right): Tobias Rossel, Royal Danish Embassy; Dr. Balu Gokaraju, NC A&T; Secretary Machelle Baker Sanders and Commerce leaders: Jennifer Mundt, John Hardin, Marqueta Welton; Nick Jensen, Royal Danish Embassy; Tilde Hellsten, Danish Energy Agency (DEA); Simon Hansen, DEA; Dr. Tracy Mancini, Carteret Community College; Anders Victor, EDPNC; Birgitte Torntoft, DEA.

EXECUTIVE SUMMARY & OVERVIEW *of* THE ATLANTIC COAST OFFSHORE WIND INDUSTRY

In June 2021, Governor Roy Cooper established the North Carolina Taskforce for Offshore Wind Economic Resource Strategies (NC TOWERS or Taskforce) in Section 3 of Executive Order No. 218, *Advancing North Carolina's Economic and Clean Energy Future with Offshore Wind*.

The Taskforce provides expert advice to Governor Cooper and state policymakers on ways to advance offshore wind energy projects in North Carolina, with a special focus on economic development and job creation.

The Taskforce first convened in February 2022, and has since met quarterly to:

- Identify economic and workforce opportunities and challenges presented by the offshore wind industry.
- Recommend policies and programs to capture strategic opportunities that foster a thriving offshore wind workforce and business community.
- Provide advice for developing the state's offshore wind supply chain, workforce, and infrastructure.
- Foster and support equitable access to opportunities for underserved communities.
- Recommend policies and guidelines that responsibly advance offshore wind energy projects.

This report is an overview of the NC TOWERS' activities from July 1, 2022, through June 30, 2023,[1] makes findings and recommendations based on those activities, and sets out next steps for future Taskforce work.

[1] *All Taskforce-related materials, including meeting agendas, PowerPoint slides, meeting recordings, and accompanying reports are available on the NCTOWERS webpage (https://www.nccommerce.com/about-us/boards-commissions/nc-taskforce-off-shore-wind-economic-resource-strategies-nc-towers).*

Based on the presentations, content, and deliberations over the course of this year, the Taskforce finds that:

- North Carolina lags most Atlantic Coast states in developing offshore wind infrastructure assets, preparing existing businesses to enter the supply chain, and training our workforce.
- States that have enacted offshore wind energy development or procurement targets have a competitive advantage over North Carolina in securing supply chain commitments from original equipment manufacturers and Tier 1 suppliers.
- North Carolina risks losing its estimated share of the $140 billion in economic investment and 85,000 jobs the offshore wind industry is projected to create along the Atlantic Coast over the next 12 years if the state does not leverage its unique assets to support the offshore wind energy sector.

Table 1: Public Investments in Offshore Wind from Atlantic Coast States

State	Legislated Offshore Wind Energy Procurement / Development Goal	Investments in Offshore Wind Workforce Training / Education	Investments in Offshore Wind Infrastructure, including Ports
Maine [2]			
Massachusetts [3]			
Rhode Island [4]			
New York [5]			
New Jersey [6]			
Maryland [7]			
Virginia [8]			
North Carolina	-	-	-

= *known public investments in key factors for offshore wind development*

---

[2] *Key OSW Investments in Maine Available at: https://www.maine.gov/energy/initiatives/offshorewind; https://www.governing.com/next/maine-bill-would-buy-huge-amounts-of-offshore-wind-power; https://umaine.edu/news/blog/2022/12/05/umaine-receives-award-from-governors-energy-office-to-launch-new-programs-and-courses-on-offshore-wind*

[3] *Key OSW Investments in Massachusetts Available at: https://www.mass.gov/news/offshore-wind-update-2022-q1-and-q2; https://www.masscec.com/program/offshore-wind-works-workforce-training-development-grants; https://www.masscec.com/press/baker-polito-administration-announces-180m-funding-through-offshore-wind-ports-infrastructure*

[4] *Key OSW Investments in Rhode Island Available at: https://governor.ri.gov/press-releases/governor-mckee-labor-and-higher-ed-officials-join-orsted-and-eversource-announce*

[5] *Key OSW Investments in New York Available at: https://www.nyserda.ny.gov/All-Programs/Offshore-Wind/About-Offshore-Wind#:~:text=New%20York's%20Commitment%20to%20Clean%20Energy&text=The%20law%20mandates%20that%20at,offshore%20wind%20energy%20by%202035; https://www.nyserda.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/Supply-Chain-Economic-Development/Workforce-Development*

[6] *Key OSW Investments in New Jersey Available at: https://www.njeda.gov/offshorewind; https://www.njeda.gov/offshore-wind-workforce-and-skills-development-grant-challenge; https://www.choosenj.com/news/governor-murphy-announces-investment-in-manufacturing-facility-to-build-wind-turbine-components/#:~:text=NJ%20Dashboards-,Governor%20Murphy%20Announces%20%24250%20Million%20Total%20Investment%20in%20State%2Dof,Entire%20U.S.%20Offshore%20Wind%20Industry*

[7] *Key OSW Investments in Maryland Available at: https://energy.maryland.gov/Pages/Info/renewable/offshorewind.aspx; https://energy.maryland.gov/Pages/Info/renewable/offshorewindworkforce.aspx*

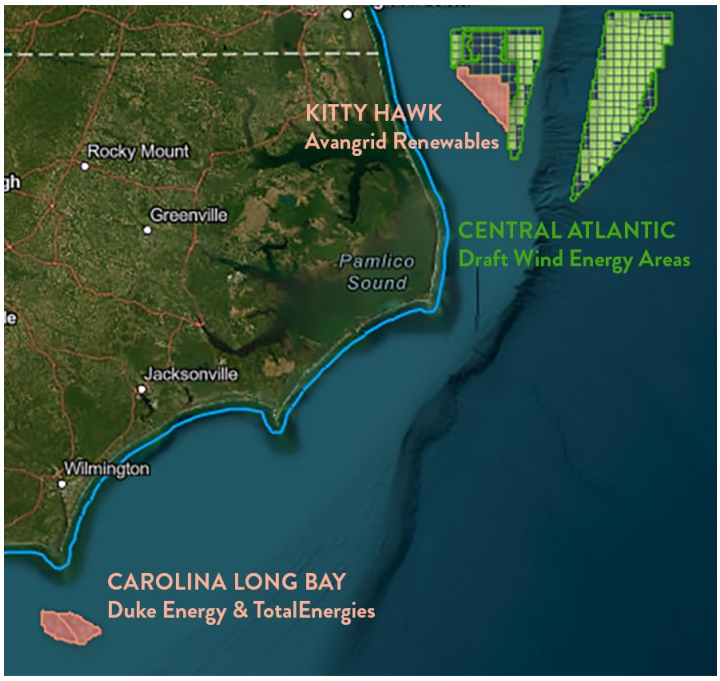
[8] *Key OSW Investments in Virginia Available at: https://www.energy.virginia.gov/offshore-wind/Landing-page.shtml*

Nearly every week, another significant offshore wind-related announcement is made across the United States. A shipyard in Brownsville, Texas is nearing completion of the Charybdis, the first domestic purpose-built offshore wind turbine installation vessel for Dominion Energy. In January, Nucor Steel announced its new sustainable heavy gauge steel plate product made specifically to meet the growing demands of America's offshore wind energy producers at its new $1.7 billion state-of-the-art steel mill in Brandenburg, Kentucky.

Recognizing the lucrative, yet competitive clean energy landscape, South Carolina Governor McMaster recently signed Executive Order 2023-18, that directs state entities to work with energy stakeholders to ensure South Carolina has the energy capacity to meet the needs of the state's record-breaking economic development and population growth.[9] This E.O. combined with the locational proximity to the Carolina Long Bay lease areas, and the recently enacted 2023-2024 Appropriation Act, which allocates $250,000 to the South Carolina Department of Commerce to "conduct an economic development study to evaluate the state's business advantages, economic climate, workforce readiness, and any other relevant state assets to create a roadmap for South Carolina to effectively compete in attracting offshore wind energy supply chain industries to the State" demonstrates South Carolina's rising ambition to leapfrog North Carolina in the race for claiming clean energy economic development opportunities for its own.[10]

And in Virginia, the 2020 Virginia Clean Economy Act has attracted international investment and industry expansion opportunities, like the 2021 announcement by Denmark's Siemens Gamesa to build a blade finishing facility at the Portsmouth Marine Terminal[11] or the recent announcement by the United Kingdom's Correll Group to locate its U.S. headquarters in Virginia Beach, Virginia mainly due to its strategic position along the Mid-Atlantic coast, which provides access to current and future offshore wind projects. According to the Correll Group, Virgnia's "pro-business environment and skilled workforce make it an attractive destination for companies seeking to invest in this burgeoning sector. *Virginia's commitment to renewable energy and its favorable regulatory framework also contribute to the [Virginia Beach's] swift rise as a leader in offshore wind development*." (emphasis added)[12] Adding to Virginia's growing offshore wind ecosystem, on July 11, Governor Glenn

FIGURE 01. North Carolina's Offshore Wind Development Areas



North Carolina Offshore Wind Leases and Draft Wind Energy Areas

Youngkin announced the establishment of the Virginia Offshore Wind Supplier Development Grant, committing $2.5 million for each of the next 3 years for competitive grants to eligible Virginia companies seeking to enter the supply chain.[13]

According to the 2021 Department of Commerce Report, *Building North Carolina's Offshore Wind Supply Chain: The roadmap for leveraging manufacturing and infrastructure advantages*,[14] North Carolina possesses attributes similar to Virginia: (i) a strategic position along the Mid-Atlantic Coast; (ii) a pro-business environment; (iii) a skilled workforce; and (iv) a favorable utility regulatory framework. North Carolina can compete for these investments, but they are being made elsewhere because our state lacks the legislative commitment to offshore wind that Virginia and other states have that create a path of regulatory certainty and de-risks these billion-dollar energy infrastructure and manufacturing investments.

---

[9] *Press Release. Gov. Henry McMaster Issues Executive Order to Ensure South Carolina's Power Generation Future. Available at: https://governor.sc.gov/news/2023-06/gov-henry-mcmaster-issues-executive-order-ensure-south-carolinas-power-generation*

[10] *South Carolina 2023-2024 Appropriation Act (H.4300), Section 1B(118.19)(87)(m). Available at: https://www.scstatehouse.gov/sess125_2023-2024/appropriations2023/gab4300.php, and South Carolina (R270) Directing the Department of Commerce to Study Offshore Wind, Available at: https://www.scstatehouse.gov/sess124_2021-2022/bills/4831.htm*

[11] *Siemens Games. Global leadership grows: Siemens Gamesa solidifies offshore presence in U.S. with Virginia blade facility. Available at: https://www.siemensgamesa.com/en-int/newsroom/2021/10/offshore-blade-facility-virginia-usa*

[12] *East Anglican Daily Times. Offshore Wind is Building Momentum in Virginia Beach. Available at: https://www.eadt.co.uk/news/23570667.offshore-wind-building-momentum-virginia-beach*

[13] *Governor Youngkin Press Release. Available at: https://www.governor.virginia.gov/newsroom/news-releases/2023/july/name-1007675-en.html*

[14] *NC Department of Commerce. Building North Carolina's Offshore Wind Supply Chain: The roadmap for leveraging manufacturing and infrastructure advantages. Available at: https://www.commerce.nc.gov/report-building-north-carolinas-offshore-wind-supply-chain/open*

TASKFORCE ACTIVITIES

The NC TOWERS Taskforce met quarterly across the State between July 1, 2022, and June 30, 2023. Each meeting is chaired by Marqueta Welton, who calls the Taskforce to order, reads a conflict-of-interest statement, and provides the Chair's report. The Assistant Secretary for Clean Energy Economic Development also presents relevant updates on federal, state, and local offshore wind activities. Taskforce members engage with offshore wind energy experts from partnering states in the northeast and Europe through panel discussions and round table conversations. Finally, the quarterly meetings include time for the subcommittees to share updates on their activities. Additional details about the subcommittee's activities and their next steps are included later in this report.

Taskforce Chair, Marqueta Welton, welcomes new members John Szoka, CEO of the Conservative Energy Network and former N.C. Representative for the 45th district, and Jason Semple, Director of Business Development for Brunswick Business and Industry Development.

Q1 MEETING

On ***August 4, 2022***, NC TOWERS convened at Elizabeth City State University (ECSU) in Elizabeth City, NC. This meeting focused on ***North Carolina-specific offshore wind activities***, including a panel discussion with representatives from each of three offshore wind lease areas (Avangrid Renewables, Duke Energy Renewables Wind, and TotalEnergies). The Taskforce received a briefing on the Offshore Wind Wildlife Summit from Taskforce member Greg Andeck, [proceedings available here: https://www.youtube.com/watch?v=ScOYubydnic] and learned about the ECSU Aviation and Unmanned Aircraft System Program from faculty. Unmanned aircraft systems are widely used in the offshore wind industry.

At this meeting, Chairwoman Welton described the cooperative memorandum of understanding (MOU) that the State of North Carolina entered with the Government of the United Kingdom (UK) to strengthen economic ties in our transition to a clean energy economy, including offshore wind. On July 20, Commerce Secretary Machelle Baker Sanders presented the MOU signed by Governor Cooper to the UK Secretary for International Trade while visiting London. The MOU promotes the exchange of best practices, encourages virtual and in-person missions between the two parties to deepen coordination on policy and market development, and facilitates introductions and partnerships among private sector companies and institutes of higher learning.

Governor Cooper joined the Taskforce meeting after he toured the Coastal Virginia Offshore Wind (CVOW) Project located 27 miles off the coast of Virginia Beach. Taskforce member and Dominion Energy's Manager for North Carolina State and Local Affairs, John White, coordinated the Governor's tour as well as the tour of the CVOW project for several Taskforce members the following day.

AUGUST MEETING KEY TAKEAWAYS

- Avangrid Renewables (at least for the 2nd tranche of the Kitty Hawk Project), TotalEnergies and Duke Energy have not yet shored up their supply chains or their workforce commitments for their respective projects. North Carolina can fill these needs with strategic investments in offshore wind energy and existing workforce programs.
- The CVOW project located 27 miles from the coast is not visibly distinguishable from the shore and the towers were not visible until at least 10 miles into the group's sail.

Q2 MEETING

On ***November 1, 2022***, NC TOWERS convened at Carteret Community College in Morehead City, NC. Taskforce member Perry Harker, Vice President of Corporate and Community Education for Carteret Community College, and college President, Dr. Tracy Mancini, hosted the quarterly meeting and highlighted CCC's training programs that prepare students for jobs in offshore wind.

This meeting focused on ***information sharing and experiential learning from a delegation of offshore wind industry experts visiting North Carolina from the United Kingdom***. The UK is a leader in developing offshore wind energy resources, having generated offshore wind energy for the power sector for several decades. Over the course of the day, delegates provided their first-hand experience in how the Commonwealth develops offshore wind projects and procures offshore wind energy, the history of purpose-built port investments and associated infrastructure upgrades, and UK models for offshore wind workforce training and education. On October 31, the day before the NC TOWERS meeting, several members of the Taskforce participated in a fisheries and offshore wind meeting with local fishermen and the UK delegates that was organized by Taskforce members Glenn Skinner, Michele Querry, and Justin Sosne.

NOVEMBER MEETING KEY TAKEAWAYS

- UK ports representatives saw value "around the corner" in upgrading and repurposing UK port assets to support offshore wind. Previously used for fishing and other commercial products, these ports now have new life breathed into them and surrounding communities from offshore wind.

Q3 MEETING

On ***February 9, 2023***, NC TOWERS convened in the Nature Research Center of the North Carolina Museum of Natural Sciences in Raleigh, NC. This meeting focused on ***developing and financing port infrastructure for the offshore wind industry***. Taskforce member Michele Querry moderated a panel of leaders representing the Port of Virginia, the New Jersey Wind Port, the Connecticut Port Authority, and the NC Ports Authority [beginning at 2:05, the panel discussion can be viewed in full here: https://www.youtube.com/watch?v=X03RZ5I9Gjg]. The Taskforce heard a presentation on the 2022 Carbon Plan Order issued by the Utilities Commission. Lastly, the Executive Director of the NC Department of Commerce's Office of Science, Technology, and Innovation presented an NC-centered overview of the National Renewable Energy Laboratory's *Supply Chain Road Map for Offshore Wind Energy in the U.S.*,[15] published in January 2023. This *Road Map* projects that North Carolina will be a leading state for offshore wind manufacturing supply chain facilities with our strengths in the Tier 2 and Tier 3 subassemblies and subcomponents manufacturing, which is estimated to employ tens of thousands of North Carolinians.

FEBRUARY MEETING KEY TAKEAWAYS

- North Carolina cannot meet energy targets without offshore wind energy and cannot support the offshore wind industry without fit-for-purpose ports.
- Forward-thinking bi-partisan support is essential for establishing offshore wind as a new industry sector for bringing the state's fair share of jobs and supply chain investment.
- North Carolina has two attractive and underutilized port assets (Morehead City and Radio Island) that could support different segments of the offshore wind industry.
- Port assets can be leveraged for capital investment by developers to defray the cost to the state for upgrading facilities.

Q4 MEETING

On ***May 10, 2023***, NC TOWERS convened at East Carolina University in Greenville, NC. The meeting focused on the topic of ***the offshore wind supply chain***. The agenda included a presentation of North Carolina's competitive advantage in offshore wind sector development, supply chain perspectives from representatives of US Wind and Dominion Energy (project developers), a panel of experts on supply chain financing for offshore wind development, and a primer on supply chain readiness through ISO certification.

At this meeting, Chairwoman Welton described the cooperative MOU that the Department of Commerce entered with the Danish Energy Agency (DEA) on offshore wind and related clean energy sectors. In a virtual signing ceremony on March 1, Commerce Secretary Sanders, and Director General of the DEA Kristoffer Böttzauw committed the agencies to promote and foster a mutually beneficial relationship regarding offshore wind energy through shared knowledge, experiences, data, and best practices relevant to the development of offshore wind energy and related sectors.

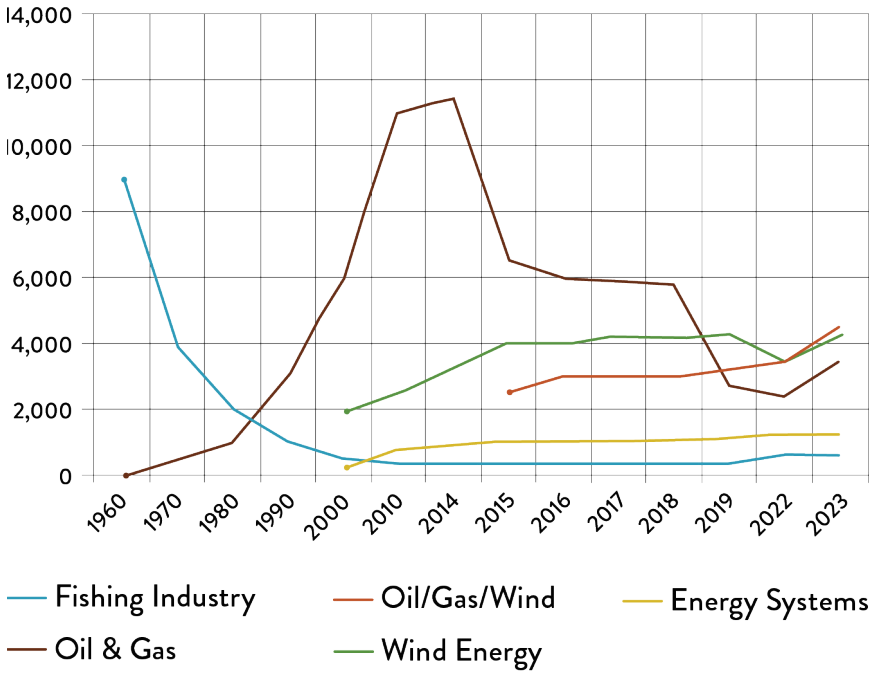
In execution of the MOU, the agencies developed a workplan and a delegation from North Carolina traveled to Denmark in April to meet with DEA counterparts, attend WindEurope 2023, visit offshore wind OEM facilities, and tour the "Energy" Port of Esbjerg, once Denmark's principal fishing harbor but now Europe's leading port for shipping offshore wind turbines. Handling 65 percent of all Danish wind turbines, the port has also shipped components to various British wind farms.

[15] *NREL. Supply Chain Road Map for Offshore Wind Energy in the United States. Available at: https://www.nrel.gov/wind/offshore-supply-chain-road-map.html*

In execution of the MOU, a delegation from North Carolina traveled to Denmark in April to meet with DEA counterparts, attend WindEurope 2023, visit offshore wind OEM facilities, and tour the "Energy" Port of Esbjerg.

The City and Port of Esbjerg have seen a dramatic transition over the past 60 years from a fishing community to an energy community. Esbjerg is a working example of how the Port and City met the needs of changing industry – quotas established for fish catches resulted in a sharp decline in fishing industry jobs while the explosion of oil and gas development in the North Sea yielded exponential job growth. As fossil fuel development began to trail off in the mid-2010's, wind and other diversified energy systems emerged to take their place. Now, of the roughly 60,000 jobs in the Esbjerg area, 25% are energy related. [Figure 02]

FIGURE 02. Esbjerg Job Numbers



Graph courtesy of the Port of Esbjerg.

In conjunction with the May Taskforce meeting and commemorating teacher appreciation week, on May 9th, Taskforce staff visited with 43 second graders at nearby South Greenville Elementary School to talk with students about clean energy, read a children's book on offshore wind energy, and answered questions from curious minds.[16] The Taskforce is committed to visiting schools in host communities for all future Taskforce meetings.

MAY MEETING KEY TAKEAWAYS

- The repeated comments from the experts on the financing panel recommending that the State adopt a development/procurement goal to help investors and financiers de-risk projects in North Carolina, this goes for private, PPP, and public grants, loans, and other financing mechanisms.
- The Taskforce will continue to partner with K-12 educators to raise awareness of careers in offshore wind energy.

[16] *WITN. Educators Across Country Celebrating Teacher Appreciation Week. Available at: https://www.witn.com/2023/05/10/educators-across-country-celebrating-teacher-appreciation-week*

2022-2023 NC TOWERS KEY FINDINGS AND RECOMMENDATIONS

Over the course of this year, the Taskforce heard from regional, state, national, and international experts in offshore wind project development; growing the offshore wind component supply chain; identifying and creating complementary workforce training and educational resources; necessary supporting infrastructure investments; power markets and the NC Carbon Plan; legislative and regulatory approaches; and project financing. Several common themes emerged and are the foundation for the following findings and recommendations.

RECOMMENDATION 01.

The next 10 years of offshore wind project development on the U.S. East Coast has the potential to attract to North Carolina up to $100 billion in offshore wind supply chain investments and tens of thousands of good-paying, family-sustaining wage jobs.[17] ***However, without legislative, regulatory, or clear market signals, the window of opportunity for our state to capture these investments and jobs for North Carolinians diminishes every day.***

With every announcement an original equipment manufacturer (OEM) and the partners in their supply chain makes in other states, a North Carolina opportunity is lost. Atlantic Coast states from Virginia north to Massachusetts have each enacted offshore wind development and procurement mandates into law that create a certain legislative and regulatory framework in which the nascent industry is investing billions of dollars.[18] Banks, financiers, and the Loan Program Office in the U.S. Department of Energy are seeking smart investment/loan opportunities to drive down the cost to produce offshore wind energy. Each entity recommends establishing unambiguous state commitments for offshore wind development and/or procurement.

Given the potential for North Carolina to reap billions of dollars in investments and create tens of thousands of jobs is predicated on regulatory certainty, **NC TOWERS recommends that the North Carolina General Assembly: (i) enacts legislation that recognizes offshore wind as a viable clean energy resource that will help the State meet its zero-carbon goals as required in HB951;**[19] **(ii) finds that utility-owned or utility-operated offshore wind energy generating facilities – when energy can be produced at least cost – is in the public interest; and (iii) codify the offshore wind development goals set out in E.O. 218, 2.8 GW by 2030, and 8.0 GW by 2040.**

RECOMMENDATION 02.

Independent of the projects under development in North Carolina's offshore wind lease areas, the State has considerable potential to secure opportunities for this burgeoning domestic industry that will serve the entire United States. Our State can unlock its potential and fully realize its ability to serve the domestic offshore wind industry with strategic investments in our waterside/quayside infrastructure assets. Each coastal state with offshore wind development or procurement mandates (including Virginia and Louisiana) has invested in its waterside/quayside assets to support and grow the industry. Without competing assets, North Carolina is unnecessarily constrained in its ability to similarly grow the industry and limits the opportunities for coastal and regional supply chain investments and jobs.

More than 50 GW of offshore wind energy projects are in various stages of development right now. As of the date of this report, in total, coastal states in the Atlantic, Gulf of Mexico, and Pacific have adopted OSW procurement and development mandates exceeding 80 GW. And the federal government has a goal of developing at least 110 GW of offshore wind by 2050. With the existing 50 GW pipeline of projects and the promise that it will more than double in the next 25 years, the timing has never been better for North Carolina to position itself to draw manufacturing and marshaling attention to our waterside/quayside assets, namely Radio Island in Carteret County.

The size and scale of offshore wind turbines, blades, towers, and foundations require that they are manufactured, fabricated, and finished near and transported by water. They are simply too large to transport over highway or rail. A small number of sites nationwide are available and capable of housing such activities. Of those, an even smaller number meet the channel depth and overhead height parameters sought after by the OEMs. And of those that

---

[17] *NC Department of Commerce. Building North Carolina's Offshore Wind Supply Chain: The roadmap for leveraging manufacturing and infrastructure advantages. Available at: https://www.commerce.nc.gov/report-building-north-carolinas-offshore-wind-supply-chain/open*

[18] *According to S&P Global, in 2022, offshore wind industry investments tripled from the previous year to $9.8 billion and including $4.4B in port investments. Available at: https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/electric-power/022123-us-offshore-wind-investments-more-the-tripled-in-2022-ira-to-boost-alternative-uses*

[19] *In its Carbon Plan Order, the N.C. Utilities Commission stated it "supports offshore wind" (p102). Available at: https://starw1.ncuc.gov/NCUC/ViewFile.aspx?Id=7b947adf-b340-4c20-9368-9780dd88107a*

qualify, like Radio Island, no site in the U.S. is "offshore wind ready," meaning they require significant infrastructure upgrades to accommodate the pressures associated with the weight, size, and scale of the equipment.[20] To date, the Economic Development Partnership of NC, the State Ports Authority, and the Department of Commerce have received no fewer than 10 queries of interest or proposals from offshore wind-related companies for the use of Radio Island, including OEMs, Tier 1 suppliers, and marine terminal operations, logistics, and marshaling firms. There is significant demand for upgrading this asset for the offshore wind industry and a nominal state investment can return economic benefits and create good-paying jobs for the region.

To improve these waterside assets, other states have pooled resources including state appropriations, federal loans and grants, and financial commitments from offshore wind developers, OEMs, investors, and public and private banks to finance offshore wind-ready waterside infrastructure upgrades.

Because North Carolina can be a part of the burgeoning domestic offshore wind industry, beyond developing projects off our own shores, **NC TOWERS recommends that: the North Carolina General Assembly include up to $50 million in its 2023-2024 budget to support infrastructure improvements and readiness preparation at Radio Island to support economic development at the site. NC TOWERS further recommends that these monies be used to unlock additional public or private financing to support necessary improvements.**

RECOMMENDATION 03.

Offshore wind developers should invest in North Carolina's workforce and leverage the Offshore Wind Tax Credit Provision in the Inflation Reduction Act. A 30% tax credit is available for offshore wind projects that begin construction before January 1, 2026, and pay prevailing wages and meet registered apprenticeship requirements. Developers in North Carolina should pay family-sustaining wages and hire workers that enroll in registered apprenticeship programs.

RECOMMENDATION 04.

Increase capacity for education, training, and workforce development programs offered by North Carolina's colleges, universities, and public school systems. The US offshore wind industry and its supply chain will bring an estimated 85,000 new family-sustaining jobs along the Atlantic Coast by 2035. Increased capacity is needed for faculty to administer in-demand workforce training programs and to secure these job opportunities for North Carolinians. Increased funding is needed to expand capacity for associate degree programs, bachelor's degree programs, and apprenticeships in concentrations relevant to clean energy occupations.

RECOMMENDATION 05.

As one of the 11 member states in the Fisheries Mitigation Project (Project),[21] North Carolina should financially contribute to the design and development phase of the Regional Fisheries Administrator. In May 2023, North Carolina was the 10th state to join the Project, the goal of which is to develop a common and robust framework, methodology, criteria, and process for compensatory mitigation for fishermen in the event of loss attributed to offshore wind. Trish Murphey, Executive Assistant for Councils, Division of Marine Fisheries in the Department of Environmental Quality and Taskforce member, is leading the North Carolina delegation.

In addition to funding from OSW project developers, sector associations, and foundations, support from the member states is requested and encouraged. With a commitment of financial support, North Carolina and our marine fisheries interests will have not only a seat, but a voice to leverage at the table.

As an alternative to funding the Project directly, the Taskforce recommends the General Assembly appropriate funds to study North Carolina's marine fisheries resources and the avoidance, minimization, and mitigation practices best suited for our marine fisheries industry to co-exist with offshore wind development activities.

RECOMMENDATION 06.

Grow tools to encourage new and expanding businesses by identifying new sites, critical assets and resources, and broaden the supply chain database. Establishing a domestic offshore wind supply chain would provide numerous economic benefits, including providing existing suppliers with the ability to produce thousands of components while creating tens of thousands of U.S. jobs. Achieving these benefits will require a significant ramp-up in domestic OSW manufacturing, however, which is currently too limited to support the needed levels of commercial-scale offshore wind energy deployment. Three of the biggest factors limiting the rate of that ramp-up are (i) uncertainty about the location of sites that are well positioned to serve the industry, (ii) a lack of sites with the appropriate level of investment or certification to develop the capabilities to manufacture offshore wind components domestically, and (iii) a scarcity of information about which companies are well suited to serve the OSW supply chain market. A concerted effort to address these rate-limiting factors would enable North Carolina to gain market share sooner rather than later, gain a strong foothold in the industry, and build a resilient, equitable, and comprehensive offshore wind energy supply chain.

---

[20] *No fewer than 26 OSW-focused port investments were made between 2018 and 2021 in every state developing OSW projects along the Atlantic Coast (MA, RI, CT, NY, NJ, MD, VA) totaling more than $1.21B. In 2022 alone, $4.4B was invested in port infrastructure. For additional details, see attached Table 15 Port Infrastructure Investments to Support Offshore Wind Energy, from the U.S. Department of Energy Offshore Wind Market Report: 2022 Edition. Available at: https://www.energy.gov/sites/default/files/2022-09/offshore-wind-market-report-2022-v2.pdf*

[21] *Special Initiative for Offshore Wind. Fisheries Mitigation Plan. Available at: https://offshorewindpower.org/fisheries-mitigation-project*

NC TOWERS 2023-2024 NEXT STEPS

TASKFORCE MEETINGS

NC TOWERS will continue to meet quarterly in pursuit of its work. The next business meeting is scheduled for August 10, 2023, in Fayetteville, NC. The quarterly meeting will feature presentations from North Carolina's veteran and military partners. Additional details regarding the venue, timing, and meeting agendas will be announced.

GOALS AND ACTIONS FOR 2023-2024

The Taskforce and its four subcommittees will plan actions items to advance the following goals in FY2023-2024:

- Schedule and provide for ongoing engagement with Avangrid, Duke Energy Renewables, and TotalEnergies to ensure the companies' alignment with the charge and duties of the Taskforce and work towards meeting the OSW development goals set out in EO 218.
- Identify, develop, and implement measurable actions for the Taskforce and the subcommittees to accomplish by July 2024.
- Create, publish, and maintain a master OSW engagement calendar that lists all state, federal, local government, as well as related stakeholder and advocate meetings on the topic of OSW, to be maintained and updated accordingly.
- Monitor activities in other Atlantic Coast states that either complement or compete with North Carolina's opportunity to grow the offshore wind industry, including the implementation of South Carolina Governor McMaster's June 9, 2023, Executive Order 2023-18 that directs state entities to work with energy stakeholders to develop strategic plans to ensure South Carolina has the energy capacity to meet the needs of the state's record-breaking economic development and population growth.
- Increase awareness of the opportunities that offshore wind poses for North Carolina through continued outreach to policy makers, businesses in the offshore wind supply chain, and education and workforce partners.
- Develop resources and capacity to educate North Carolina businesses about the offshore wind supply chain and the opportunities and expectations for entering the supply chain.
- Evaluate mechanisms to de-risk projects with or without development or procurement goals.
- Continue to partner with K-12 educators to raise awareness of careers in offshore wind energy.

SUBCOMMITTEE ON ECONOMIC OPPORTUNITY AND BUSINESS DEVELOPMENT (ECONOMIC OPPORTUNITY)

Cochairs
Michele Querry, Justin Sosne

Members
Chris Chung, Brian Clark, Dave Goss, Hayes Framme, Katharine Kollins, Bob Peele, Jason Semple, Norris Tolson, John White

Staff Liaisons
Susan Fleetwood, John Hardin

FY2022-2023 Review and Next Steps

The charge of the Subcommittee on Economic Opportunity and Business Development is to research, evaluate, and recommend policies and programs to help grow North Carolina's OSW industry supply chain and build strategic economic partnerships. To this end, the subcommittee's activities focus on ways the state can:

- Identify, articulate, map & publicize its strategic advantages/priorities;
- Educate, assist & train existing North Carolina industries/companies about OSW opportunities;
- Recruit new industries/companies to North Carolina to serve OSW opportunities;
- Develop new industries/companies/technologies in North Carolina to serve OSW opportunities;
- Identify organizations and entities with which to partner and champion outcomes;
- Increase OSW industry research, development, and innovation in the state.

OUTCOMES AND DELIVERABLES

The Subcommittee met two times per quarter during the past fiscal year to develop strategies and report on actions taken to advance the Subcommittee's following three workstreams, established in 2022:

1. **Existing Industry Support:** Helping existing businesses learn about the OSW industry, find supply chain opportunities, and overcome obstacles to enter the OSW supply chain and expand via the following targeted activities:
   - ***Enhance the North Carolina OSW Online Supply Chain Registry:*** Key tasks involved developing specific objective(s) for the registry and how it will be utilized, researching other states' (MD, ME, NJ, VA) experience with connecting to the Business Network for Offshore Wind's (BNOW) registry, determining the timeline and cost for possibly integrating the North Carolina registry with BNOW's registry, and connecting with the Southeastern Wind Coalition (SEWC) on potential for collaboration. Based on the Subcommittee's work, the full Taskforce decided to merge the existing North Carolina OSW supply chain data, which is not yet online, with the SEWC supply chain map and database. Users will access the map and database via Commerce's website, companies will be able to enter and update their information, and SEWC staff review and maintain the integrity of the data and functionality of the site. The data merger and site development are expected to be complete by July 15, 2023.
   - ***Convene Regional Workshops for Businesses:*** Key tasks involved determining audiences and objectives for the workshops, connecting and coordinating with the Outreach Subcommittee, and developing a budget, schedule, content, and presenters for workshops. The Subcommittee is currently developing webinars for late-summer/early-fall 2023, to involve an introductory presentation and multiple panelists discussing topics such as the U.S. Offshore Wind Opportunity, Becoming Part of the Offshore Wind Supply Chain, and Resources for North Carolina Companies. The Subcommittee will also plan and host, in collaboration with the UK government's North Carolina Office, a series of webinars focused on OSW infrastructure, supply chain, etc., and that includes speakers from the UK.
   - ***Develop commerce.nc.gov Landing Page of Existing Businesses:*** In order to support the needs of existing North Carolina businesses interested in learning more about and becoming part of the offshore wind supply chain, a new landing page for existing businesses is being finalized for www.commerce.nc.gov. The new landing page will provide an overview of the U.S. offshore wind industry in North Carolina and along the U.S. Atlantic coastline, so that businesses are aware of the potential size and scope of the offshore wind supply chain. The page will also provide links to various offshore wind supply chain registries that developers and suppliers have created to match

their needs and requirements. Because there is no centralized supply chain registry, businesses may want to register their capabilities with several different entities, including the North Carolina Offshore Wind Supply Chain Registry. The page will also provide additional resources that would be helpful to North Carolina businesses, including training available from the Business Network for Offshore Wind (BNOW), and support available to existing businesses including information on where to find the necessary workforce at NCWorks Online.

2. **New Business Recruitment:** Articulating North Carolina's value proposition, identifying gaps in the supply chain, and recruiting external businesses to fill the gaps via the following activities:

   - ***Develop Collection of OSW Assets:*** In order to promote North Carolina as a prime location for businesses in the offshore wind supply chain, the Economic Development Partnership (EDPNC), which contracts with the Department of Commerce to perform the sales and marketing activities for the state, has developed two promotional pieces to outline the state's assets for offshore wind. The first document is a Clean Energy Whitepaper outlining the State's commitment to and leadership in the development of clean energy. The second document is a Wind Energy Brochure that outlines the opportunity, background, labor force and industry resources that are of interest to those in the industry.
   - ***Identify/Target Workboat Manufacturers:*** Several types of vessels will be needed for offshore wind project development, and while there is currently a shortage of vessels capable of performing the build-out of offshore wind projects, there is also a need for vessels that can transport technicians and equipment to service offshore wind developments once constructed. Due to North Carolina's success as a location for world class boat builders, the subcommittee has worked to identify a handful of potential workboat manufacturers that might consider joining the offshore wind supply chain and might be good targets for a potential North Carolina location. EDPNC's business development team is working to connect with and develop relationships with these target businesses.
   - ***Identify/Target Supply Chain Categories and Businesses:*** Members of the Taskforce, subcommittee, and EDPNC participated in two major trade shows to promote North Carolina as a business location. The 2023 International Offshore Wind Partnering Forum (IPF) was held in Baltimore, MD in March. IPF is the premier offshore wind energy conference in North America with more than 4,000 attendees and 300 exhibitors. There were also several attendees at Wind Europe in Copenhagen, Denmark in April. More than 10,000 visitors and over 500 companies exhibited at WindEurope. North Carolina representatives met with dozens of businesses in the offshore wind industry during these two conferences and international business development trips.

3. **Infrastructure Support:** Identifying and assessing site and infrastructure needed to serve OSW supply chain expansion/attraction/recruitment opportunities via key activities such as:

   - ***Identify and Assess Available Sites with Direct Water Access or that are Well Suited for OSW Supply Chain:*** In order to augment the obviously attractive offshore wind supply chain location of Radio Island at the Morehead City Port, the subcommittee has also assembled a catalogue of available sites that meet the following criteria: 1) direct access to navigable waterway, 2) minimum of five acres and 3) zoned industrial. A link to these properties can be found at: EDPNC Available OSW Supply Chain Sites.
   - ***Complete Environmental Impact Statement (EIS) of Radio Island:*** The North Carolina Ports Authority is currently conducting an Environmental Impact Statement (EIS) for the vacant 154-acre site on Radio Island. The EIS is predicated on the potential for a multi-use terminal, suitable for different uses, including auto manufacturing supply chain activities, as well as offshore wind supply chain support. The EIS also considers the potential impact to approximately 31 acres within the waterfront access to the island. In April 2022, a scoping notification letter was provided to various state and federal agencies informing them of the potential uses and agency representatives were requested to identify any potential environmental resources or other factors that should be considered and included in the environmental analysis. The EIS is expected to be completed by December 2023, and will give the North Carolina Ports a better understanding of whether the potential for a multi-use terminal is compatible with the property.

RECOMMENDATIONS

These recommendations are intended for the Office of the Governor, the North Carolina General Assembly, North Carolina's workforce and education Leaders, employers, and offshore wind stakeholders.

1. **Conduct outreach and education activities with existing and potential suppliers to increase awareness of offshore wind energy opportunities.** According to the National Renewable Energy Laboratory's (NREL) 2023 Supply Chain Road Map for Offshore Wind Energy in the United States, the majority of U.S. offshore wind manufacturing facilities have yet to be announced. Moreover, due to the sheer number of components (~8,000) making up an offshore wind energy project , there is a greater U.S. job market opportunity in the supporting supply chain (tier 2 and 3 suppliers) than in major (tier 1) manufacturing facilities. Because the offshore wind market in the U.S. is so nascent, efforts centered around knowledge sharing (e.g., mentoring and educational programs) and industry networking are the most important steps toward facilitating the transition into the offshore wind industry for many companies. These outreach and education activities will lead to increased engagement and contracting between major manufacturers and North Carolina businesses.

2. **Expand tools to encourage new and expanding businesses by identifying new sites, critical assets and resources, and expanding the supply chain database.** Establishing a domestic offshore wind supply chain would provide numerous economic benefits, including providing existing suppliers with the ability to produce thousands of components while creating tens of thousands of U.S. jobs. Achieving these benefits will require a significant ramp-up in domestic offshore wind manufacturing, however, which currently is too limited to support the needed levels of commercial-scale offshore wind energy deployment. Three of the biggest factors limiting the rate of that ramp up are (i) uncertainty about the location of sites that are well positioned to serve the industry, (ii) a lack of sites with the appropriate level of investment or certification to develop the capabilities to manufacture offshore wind components domestically, and (iii) a scarcity of information about which companies are well suited to serve the OSW supply chain market. A concerted effort to address these rate-limiting factors would enable North Carolina to gain market share sooner rather than later, gain a strong foothold in the industry, and build a resilient, equitable, and comprehensive offshore wind energy supply chain.

NEXT STEPS

As the subcommittee has made significant progress in or successfully completed its key tasks over the last year, the subcommittee will be working to identify a new slate of initiatives in the coming fiscal year.

SUBCOMMITTEE ON WORKFORCE, EDUCATION, AND TRAINING OPPORTUNITY DEVELOPMENT (WORKFORCE)

Cochairs
Perry Harker, Dan Segovia

Members
Kevin Dick, Secretary Walter Gaskin, Steve Kalland, Bob Peele, Alvin Warwick, Phyliss Craig-Taylor

Staff Liaisons
Dr. Andrea DeSantis, Dr. Jenni Harris, Joshua Levy, Emily Roach

FY2022-2023 Review and Next Steps

The Subcommittee on Workforce, Education, and Training Opportunity Development (Workforce Subcommittee or Subcommittee) met monthly over the past fiscal year to develop strategies and report on actions taken to advance the Subcommittee's three goals, established in 2022:

Goal 1: Conduct a job skills analysis for offshore wind occupations.

Goal 2: Develop an inventory of industry-relevant training already available in North Carolina for offshore industry occupations.

Goal 3: Promote new and existing offshore wind training opportunities to North Carolina and the offshore wind industry.

In addition to planning actions aligned with the Workforce Subcommittee's goals, the Subcommittee used monthly meetings to build relationships with workforce partners that have a role in the offshore wind supply chain. The Workforce Subcommittee invited the following stakeholders to join the Subcommittee as non-voting subject matter experts:

- Brandi Bragg, North Carolina Career Pathways
- Allison Carr, North Carolina State University Clean Energy Technology Center, STEPS4GROWTH Backbone Organization
- Lauren Dudley, Northeast Regional Director for Customized Training, North Carolina Community College System (NCCCS)
- Munashe Magarira, Southern Environmental Law Center

OUTCOMES AND DELIVERABLES

In Fiscal Year 2022-2023, the Subcommittee completed or advanced each of the three goals established to prepare North Carolina's workforce for future jobs in the offshore wind industry.

1. **Conduct a skills analysis for offshore wind occupations.** The Workforce Subcommittee partnered with the NC Department of Commerce's Labor and Economic Analysis Division (LEAD) to complete an offshore wind occupational skills analysis for construction and installation jobs. To scope the work of the skills analysis, the Workforce Subcommittee and LEAD referred to two reports, *Building an Offshore Wind Supply Chain* and the National Renewable Energy Lab's *Offshore Wind Energy Workforce Assessment*. The Subcommittee found that North Carolina is well positioned to recruit and train workers for manufacturing jobs within the offshore wind supply chain. North Carolina has the largest manufacturing presence on the East Coast and a well-established workforce to meet industry's needs. However, Construction and Extraction Occupations are estimated to make up 10% of offshore wind jobs, while Installation, Maintenance and Repair Occupations are estimated to account for 20% of offshore wind jobs. Jobs in these categories are timely and require specific offshore wind credentials.

   LEAD identified 24 key occupations within Construction and Installation job categories to narrow the scope of the study. Then, LEAD compiled the knowledge, skills, and abilities (KSAs) of the key occupations, determined the associated occupations with transferrable KSAs, and compared the employment estimates in those occupations to the average annual job openings. The analysis determined that several of the occupations needed for offshore wind are currently in high demand by other industries, including heavy-duty truck drivers, maintenance and repair workers and construction laborers. Other important occupations for the industry include skilled trade workers such as electricians, welders, structural metal fabricators and fitters and structural iron and steel workers. North Carolina also has relatively low numbers of workers such as crane and tower operators, pilots and crews of marine vessels, riggers, reinforcing iron and rebar workers and other workers needed to support construction and installation projects at the state's ports.

In response to the data, several recommendations were identified to help prepare the offshore wind workforce in North Carolina:

- Increase existing levels of workers in skilled trades to support the increased demand from other renewable energy industries.
- Develop and expand North Carolina's offshore wind capacity by partnering with other states and countries with an existing offshore wind workforce.
- Develop and expand safety training capacity in North Carolina by offering Global Wind Organization Basic Safety Training.

2. **Develop an inventory of industry-relevant training already available in North Carolina for offshore industry occupations.** To identify existing training programs that are relevant to offshore wind, the Workforce Subcommittee requested a list of clean energy training programs, including apprenticeship programs, that are currently offered by the North Carolina Community College System, the University of North Carolina System, North Carolina Independent Colleges and Universities, and statewide labor organizations. The training inventory currently includes associate degree programs, bachelor's degree programs, and apprenticeships offered in North Carolina and is enclosed and available on the NC TOWERS website here. Complementary to this work is a dashboard that includes all Sustainability and Clean Energy coursework that was developed by the North Carolina Community College System. Next, the Subcommittee plans to assess potential military occupation specialties (MOS) available through the NC Department of Military and Veteran's Affairs for transitioning service members that could fill workforce needs in the supply chain, transportation, construction, and maintenance fields. The Subcommittee plans to update the training inventory annually to reflect new programs that more closely relate to offshore wind as they are established.
3. **Promote new and existing offshore wind training opportunities to stakeholders in North Carolina and the offshore wind industry.** To advance the work of the Workforce Subcommittee's third goal, guest speakers were invited to present to the subcommittee to share best practices related to recruitment and diversity and inclusion. In April the following guest speakers presented to the subcommittee:

- **Van Smith, Director, Human Resources, LS Cable & Systems, USA**
- **Bobby Piner, Manufacturing Manager, LS Cable & Systems, USA**

  LS Cable designs, develops, and manufactures energy cable products that are currently used in renewable energy supply chains. Van Smith, the Director of Human Resources for LS Cable, highlighted their partnerships with local high schools, community colleges, and the NCWorks System. LS Cable offers several internship programs for college students, including a corporate leadership and engineering internship program. Additionally, LS Cable spotlights employees from diverse backgrounds on their recruitment materials to ensure public facing materials accurately represent the diversity of their workforce. Anecdotally, Ms. Smith believes that including real employees in their recruitment materials helps them recruit a more diverse workforce.

- **Allison Carr, NC Clean Energy Technology Center, STEPS4GROWTH Partner**

  The North Carolina Clean Energy Technology Center is the clean energy backbone organization for the STEPS4GROWTH grant program. The NCCETC will partner with the Workforce Subcommittee to develop educational pyramid models in renewable energy and to identify new training opportunities. The Workforce Subcommittee will continue to develop partnerships with statewide grant programs that are focused on clean energy workforce development.

- **Brandi Bragg, Northeast Regional Coordinator, NC Career Pathways**

  The Northeast North Carolina Career Pathways includes 20 counties in the northeastern corner of the state and is led by three Workforce Development Boards: Northeastern, Rivers East and Turning Point. This partnership of Education, Workforce, Industry and Community partners collaborates to advance Certified Career Pathways in health care, advanced manufacturing, agriscience and biotechnology, and business support services which are endorsed by the NCWorks Commission. Brandi Bragg echoed the information provided by Allison Carr around the STEPs4GROWTH programs being offered in the region, and shared information about the Blue/Green Economy focused Good Jobs Challenge grant awarded to Hampton Roads which includes the Northeastern Workforce Development Board.

The Workforce Subcommittee will continue to partner with local areas that offer certified career pathways in industries with transferable skills that lend themselves to jobs in offshore wind.

RECOMMENDATIONS

These recommendations are intended for the Office of the Governor, the North Carolina General Assembly, North Carolina's workforce and education leaders, employers, and offshore wind stakeholders.

1. **Offshore wind developers should invest in North Carolina's workforce and leverage the Offshore Wind Tax Credit Provision in the Inflation Reduction Act.** A 30% tax credit is available for offshore wind projects that begin construction before January 1, 2026, and pay prevailing wages and meet registered apprenticeship requirements. Developers in North Carolina should pay family-sustaining wages and hire workers that enroll in registered apprenticeship programs.
2. **Increase the number of skilled workers in North Carolina's labor pool by increasing funding for apprenticeship programs offered by community colleges and labor organizations.** Currently, the

Capital Area, Durham, Kerr-Tarr, and Eastern Carolina local area workforce development boards offer a Certified Career Pathway in Construction Trades. The Iron Workers and International Brotherhood of Electrical Workers currently offer the Building Trades Registered Apprenticeship programs. Participants earn wages while they learn new skilled trades through on-the-job training. North Carolina should fund and promote these programs, starting with high school students, to diverse workers in Tier 1 and 2 counties to build the state's talent pipeline for offshore wind jobs that require skilled trades.

3. **Establish and fund a Clean Energy Career Pathway that is recognized by the NCWorks Commission.** The NCWorks Commission, the state's workforce development board, is currently partnering with large-scale clean energy workforce grant programs, educational institutions, and employers to develop a clean energy career pathway. The Commission's Employer Leadership Committee partners with stakeholders to increase sector partners in targeted growth industries. This should include clean energy industries and will require investment from statewide partners.
4. **Identify the non-degree credentials that are valued by offshore wind employers and submit the credentials for consideration to be added to the NC Workforce Credentials list on NCCareers.org.** According to NREL's Offshore Wind Workforce Assessment, job roles in construction and manufacturing make up the largest number of job categories in offshore wind. Most of the jobs require specialized training and experience in a skilled trade, but only a portion of the jobs require a bachelor's degree. Workforce Development Boards, NC Community Colleges, CTE Directors from a NC Public School Unit, NC four-year non-profit colleges or universities, and employers can complete an application online to be reviewed by the NC Workforce Credentials Advisory Council. Credentials approved by the NC Workforce Credentials Council are in high demand, lead to higher wages, and can often be earned quickly and at a low cost.
5. **Expand access to Global Wind Organized (GWO) Training in North Carolina.** Standardized safety training is required for people working at sea to build and operate wind turbines and to meet the industry requirements. GWO Basic Safety Training includes five modules, working at height, fire awareness, first aid, manual handling, and sea survival. North Carolina's colleges, universities, unions, and employers should partner to increase access to GWO Training, particularly in counties in close proximity to offshore wind installation projects. North Carolina should invest in GWO training programs to grow the state's offshore wind workforce.
6. **Incentivize employers to "hire and train" rather than "hire trained workers."** In many cases, training programs are under-enrolled because a student is not promised a job after completing a program and earning a credential. Some employers prefer to hire applicants that are already trained. However, incentivizing employers with on-the-job-training (OTJ) funds, apprenticeships, and Incumbent Worker training programs allows employers to hire untrained workers, giving them a much larger labor pool to choose from. For instance, employers participating in WIOA OTJ training programs can be reimbursed 50% of the employees' salaries while they are training. OTJ gives the employee/student a better applied learning experience because they are seeing in real time what they are learning. Increased employer engagement in these programs will increase enrollment numbers and benefit community colleges that receive state funding, while broadening the talent pool for employers.
7. **Employers should recruit and hire transitioning military servicemen and servicewomen through the Department of Defense SkillBridge Training Program.** The DOD SkillBridge training program offers on-the-job training in many of the fields that are needed to support the offshore wind industry. The trainings last between 90-120 days, allowing employers to quickly hire workers with quality experience and training. Employers should recruit transitioning military personnel to fill in-demand jobs and to build North Carolina's offshore wind workforce. Eligible servicemembers must obtain command approval to participate.
8. **Advance the recommendations from the Governor's Climate Change Workforce Diversity Report**, specifically the strategies to coordinate career planning and training across all levels of education, to leverage NCcareers.org to connect educators, job seekers, and employers to information about careers in industries that address climate change, and to invest in programs that provide opportunities for youth that prepare them to work in industries and occupations related to climate change.

NEXT STEPS

In Fiscal Year 2023-24, the Workforce Subcommittee will:

- Update the NC Offshore Wind Training Inventory to reflect new programs created in FY23-24.
- Partner with similar clean energy industry segments to raise awareness of training programs and career opportunities in offshore wind.
- Share the Subcommittee's recommendations with workforce, education, and industry partners.

SUBCOMMITTEE ON INFRASTRUCTURE

FY2022-2023 Review and Next Steps

Cochairs
Daniel Govoni, Arketa Howard, Trish Murphey

Members
Steve Kalland, Mark McIntire, Glen Skinner, John White

Staff Liaisons
Jennifer Mundt, Dana Magliola

At the first quarterly meeting of the year, Chairwoman Welton announced that concepts of environmental justice (EJ), economic equity, and inclusion would be considered in the work of all the Taskforce subcommittees. With this announcement, the Subcommittee on Infrastructure, EJ, and Inclusion was renamed the Subcommittee on Infrastructure and the subcommittee members adopted the following revised scope of work, activities, and goals.

SCOPE

To research, evaluate, and make recommendations for the Taskforce's consideration, regarding transmission and other OSW-related infrastructure and components. To provide content for the Subcommittee, and to NC TOWERS broadly, to educate in detail on the infrastructure required to develop the OSW sector and support OSW supply chain growth in North Carolina.

ACTIVITIES

1. Review and synthesize information regarding OSW energy infrastructure and transmission.
2. Understand how OSW infrastructure interacts with natural resources and the natural and built environment (including communities and existing infrastructure).
3. Learn and evaluate how transmission infrastructure considerations are addressed for projects underway in the Northeast and for those installed around the world.
4. Encourage collaboration with other knowledge partners.
5. Identify organizations and entities with which to partner and champion outcomes.
6. Engage subject matter experts across the OSW spectrum to provide insight and education – in context – about components of the OSW industry relevant to developing the sector in North Carolina.

GOALS

1. Enable the understanding of infrastructure in the context of OSW for the Subcommittee the broader NC TOWERS Taskforce, and the stakeholder community – serve to educate.
2. Articulate specific concerns about the interaction of OSW infrastructure and the natural and built environment to be addressed in research, engagement, and education by NC TOWERS.
3. Articulate opportunities for the most efficient and responsible OSW resource development off North Carolina's coast.

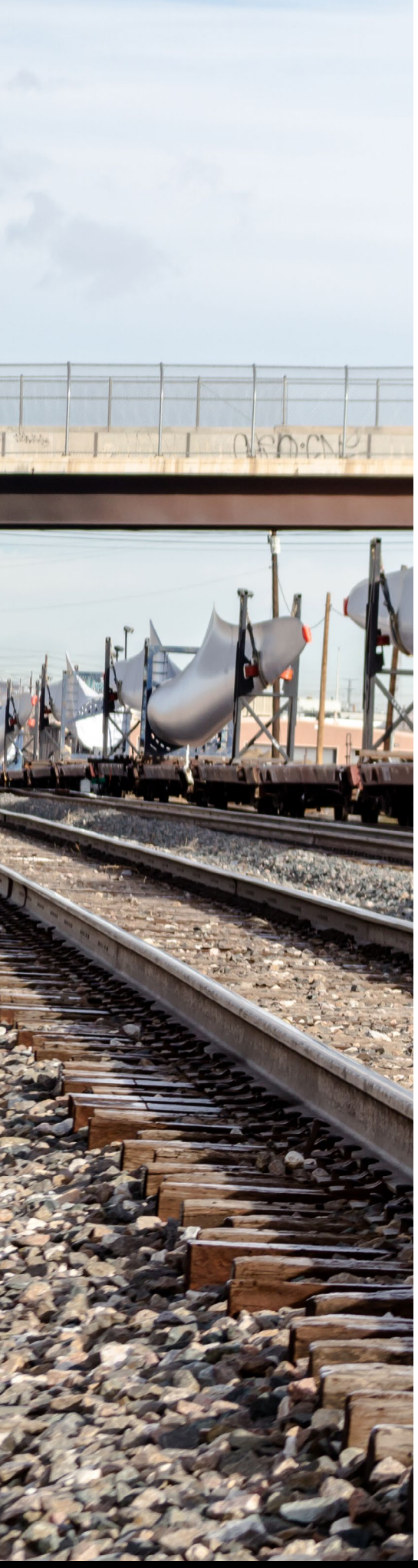
OUTCOMES AND DELIVERABLES

Following several meetings held to adopt its revised scope and activities, the Subcommittee convened several meetings to review and synthesize information regarding OSW infrastructure and transmission. In a meeting held in October, the Subcommittee received an overview of the main physical equipment components (foundations, towers, nacelles, blades, cabling, etc.) involved in developing the Coastal Virginia Offshore Wind project from Dominion Energy.[22] In January, the Subcommittee received an early briefing from the U.S. Department of Energy's Grid Deployment Office OSW Transmission Lead on the Atlantic Offshore Wind Transmission Study. [23]

The Subcommittee Staff Liaisons served as leads in the content development for the August 2022 Taskforce Quarterly meeting focused on North Carolina-specific OSW activities and in May 2023, delivered a presentation on the State supply chain's infrastructure as a competitive advantage in OSW industry development.

[22] *Dominion Energy. Coastal Virginia Offshore Wind. Available at: https://coastalvawind.com*

[23] *NREL. Atlantic Offshore Wind Transmission Study landing page. Available at: https://www.nrel.gov/wind/atlantic-offshore-wind-transmission-study.html*



The North Carolina Department of Transportation (NCDOT) created three asset maps that depict the State's offshore wind supply chain assets and infrastructure. The asset maps are available on the NCDOT website linked below:

- North Carolina Statewide Supply Chain Assets**:** All transportation modes including road, rail, maritime, aviation, and assets intermodal, transload and industrial megasites
- North Carolina Maritime, Intermodal, and Transload Assets**, including Road and Rail**
- North Carolina Aviation and Roads Assets Map

RECOMMENDATIONS

1. **As one of the 11 member states in the Fisheries Mitigation Project (Project),**[24] **North Carolina should financially contribute to the design and development phase of the regional fisheries administrator.** In May 2023, North Carolina was the 10th state to join the Project, the goal of which is to develop a common and robust framework, methodology, criteria, and process for compensatory mitigation for fishermen in the event of loss. In addition to funding from OSW project developers, sector associations, and foundations, support from the member states is requested and encouraged. With a commitment of financial support, North Carolina and our marine fisheries interests will have not only a seat, but a voice to leverage at the table.
2. **North Carolina should join the National Offshore Wind Research & Development Consortium (NOWRDC).** NOWRDC is a nationally focused, not-for-profit organization collaborating with industry on prioritized R&D activities to reduce the levelized cost of energy (LCOE) of OSW in the U.S. while maximizing other economic and social benefits. The Consortium aims to produce innovations that directly respond to the technical and supply chain barriers faced by OSW project developers in the U.S., build strong networks connecting technology innovators, investors, and industry, and increase U.S. content and job opportunities. Each of these aims aligns with the goals and objectives of the Taskforce. NOWRDC was initially created with financial contributions from the U.S. Department of Energy matched by the New York Energy Research and Development Authority (NYSERDA) and now receives funds from agencies in other member states (including New Jersey, Massachusetts, Maine, California, Maryland, and Virginia). Other members include Kitty Hawk Wind developer Avangrid Renewables, Carolina Long Bay developer TotalEnergies, and Hitachi Energy.

NEXT STEPS AND FUTURE STRATEGIES

In the coming year, the Subcommittee will:

1. Continue liaising with Duke Energy Renewables and TotalEnergies representatives with regard to their company's plans to develop their Carolina Long Bay leases.
2. Liaise with Avangrid Renewables representatives with regard to their plans to develop the Kitty Hawk Wind lease area.
3. Work with Avangrid Renewables, Duke Energy Renewables, and TotalEnergies to determine specific communities which may be impacted by infrastructure investments; catalog and better understand relevant stakeholders for now-defined area(s).
4. Continue to collaborate with other NC TOWERS subcommittees on relevant crossover issues and constituencies, including efforts to provide insight and education as appropriate.

---

[24] *Special Initiative for Offshore Wind. Fisheries Mitigation Plan. Available at: https://offshorewindpower.org/fisheries-mitigation-project*

SUBCOMMITTEE ON OUTREACH & ENGAGEMENT

FY2022-2023 Review and Next Steps

Cochairs
Ben Cahoon, Susi Hamilton

Members
Natalie English, David Kelly, Karly Lohan, Wit Tuttell

Staff Liaisons
Lex Janes, Gena Renfrow

The Subcommittee on Outreach & Engagement (Subcommittee) and/or working groups of the subcommittee have met monthly over the past fiscal year. Monthly meetings covered actions and strategies to:

- Identify and engage offshore wind stakeholders in North Carolina
- Promote recommendations from the NC TOWERS Taskforce to stakeholders and policy-makers
- Connect governments and organizations working on offshore wind advancement in North Carolina.

OUTCOMES AND DELIVERABLES

In Fiscal Year 2022-2023, the Subcommittee:

- **Conducted NC TOWERS' first statewide stakeholder engagement survey to gauge information needs and level of engagement of key stakeholders.**
  - Survey was e-mailed to 700+ offshore wind stakeholders in North Carolina.
  - Stakeholders were identified through consultation with Taskforce members, staff and their organizations.
  - Survey link was also promoted by Department of Commerce social media channels, NC TOWERS webpage, press release from the Governor's Office, and during public NC TOWERS Taskforce meeting livestreamed on YouTube.
  - 465 survey responses were received with 275 of those respondents electing to subscribe to new offshore wind newsletter launched in December 2022.
  - Nearly two-thirds of respondents (64%) said they were very interested in learning more about offshore wind energy in North Carolina and one-fourth said they were somewhat interested.
- **Held open house event in Brunswick County on March 21, 2023.**
  - 132 survey respondents indicated that they live in Brunswick County and were interested in attending an offshore wind discussion in their community.
  - 91 people attended the open house.
  - Event featured subject matter experts from: Bureau of Ocean Energy Management (BOEM); United State Coast Guard (USCG); Visit NC (part of the Economic Development Partnership of NC); Dominion Energy; Duke Energy Renewables; TotalEnergies; the Southeastern Wind Coalition (SEWC); Chambers for Innovation and Clean Energy; Wilmington Chamber of Commerce; NC Coastal Federation; NC Sierra Club; and UNC Wilmington.
  - The event also featured presentations by BOEM, SEWC and the NC Department of Commerce.
  - Nearly three-fourths of event attendees (72%) provided feedback. Nearly half of responses were categorized as positive (47%). Nearly one quarter of responses were categorized as negative (24%). Just over one quarter were categorized as neutral or mixed (29%).
- **Held stakeholder roundtable discussions in Elizabeth City and Morehead City.**
  - Participants at Elizabeth City roundtable on August 3, 2022 included representatives of: College of the Albemarle; Currituck County Travel and Tourism; Dominion Energy; Economic Development Partnership of NC; Elizabeth City State University; NC Commission of Indian Affairs; NC Fisheries Association; NC Watermen United; and Pasquotank County Board of Commissioners.
  - Participants at Morehead City roundtable on November 15, 2022 included representatives of: Carteret Community College; Carteret County Chamber of Commerce; Eastern NC Workforce Development Board; Ironworkers District Council; Mayor of Havelock; NC Fisheries Association; NC Ports; NC Watermen United; NC Works Jacksonville Office; Pamlico County Economic Development Office; and several offshore wind supply chain companies.
- **Created content for and staffed an information booth at the NC State Energy Conference.**
  - Annual event at NC State University attracted approximately 850 attendees.
- **Developed fact sheet on offshore wind economic development opportunities in North Carolina and shared with attendees at Brunswick County open house, roundtable discussions and State Energy Conference.**

- **Assisted with pilot K-12 outreach event at South Greenville Elementary School.**
- **Launched monthly offshore wind e-newsletter.**
  - Since launch in December of 2022, the number of newsletter subscribers has increased by 40% (377 subscribers as of 5/15/23, up from 275 subscribers at launch)

NEXT STEPS

In Fiscal Year 2023-24, the Subcommittee will:

- Conduct second stakeholder survey – survey will be available to public on NC TOWERS webpage
- Create additional informational materials to increase level of awareness and understanding of offshore wind opportunities in North Carolina
- Assist with Taskforce K-12 outreach
- Partner with other NC TOWERS subcommittees to conduct outreach events with key stakeholders – including existing and potential offshore wind supply chain companies

APPENDIX A

NCTOWERS MEMBERSHIP 2022-2023

Member	Role/Organization
Marqueta Welton, Chair	Chief of Staff, NC Dept. of Commerce
Jen Banks	Permitting & Development Director (NC), TotalEnergies
Ben Cahoon	Mayor, Nags Head, NC
Christopher Chung	CEO, Economic Development Partnership of NC
Brian Clark	Executive Director, NC Ports
Phyliss Craig-Taylor	Professor of Law, NCCU School of Law
Kevin Dick	President & CEO, Carolina Small Business Development Fund
Hayes Framme	Senior Manager Government Relations & Communications, Orsted
Walter Gaskin	Secretary, NC Dept. of Military & Veterans Affairs
David Goss	Economic Development Consultant, Perquimans County
Daniel Govoni	Policy Analyst, NC Dept. of Environmental Quality
Susi Hamilton	Economic Development Advisor, NC Dept. of Transportation
Perry Harker	VP, Corporate and Community Education, Carteret Community College
Arketa Howard	Mid-Atlantic Regional Director of Business & Policy Affairs for OSW, Crowley
Stephen Kalland	Executive Director, NC Clean Energy Technology Center
David Kelly	NC Office Director, Environmental Defense Fund
Karly Lohan	Communication and Outreach Associate, Southeastern Wind Coalition
Mark McIntire	Director, Government Affairs, Energy & Stakeholder Engagement, Duke Energy
Ashley McLeod	Stakeholder Engagement Director, Avangrid Renewables-Kitty Hawk Offshore
Trish Murphey	Executive Assistant for Councils, NC Division of Marine Fisheries
Bob Peele	Director, NC Marine Industrial Park Authority
Michele Querry	Southeast Regional Director, Chambers for Innovation & Clean Energy
Greg Richardson	Executive Director, NC Commission for Indian Affairs, Dept. of Administration
Dan Segovia	Business Manager, Ironworkers Local 848
Jason Semple	Director of Business Development, Brunswick Business & Industry Development
Glenn Skinner	Executive Director, NC Fisheries Association
Justin Sosne	Head of the UK Government's North Carolina Office
John Szoka	CEO, Conservative Energy Network
Norris Tolson	CEO and President, Carolinas Gateway Partnership
Wit Tuttell	Director, Visit NC, EDPNC
Alvin Warwick	Business Manager, International Brotherhood of Electrical Workers
John White	Chief Lobbyist and Manager of NC State and Local Affairs, Dominion Energy

NORTH CAROLINA TASKFORCE *for* OFFSHORE WIND ECONOMIC RESOURCE STRATEGIES

2022-2023 ANNUAL REPORT *to* THE COVERNOR AND THE GENERAL ASSEMBLY

NC TOWERS
North Carolina Taskforce for Offshore Wind Economic Resource Strategies

NORTH CAROLINA DEPARTMENT *of* COMMERCE