

June 12, 2024

Via Electronic Filing

Ms. A. Shonta Dunston
Chief Clerk, North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

RE: *Biennial Consolidated Carbon Plan and Integrated Resource Plans of Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC, Pursuant to N.C.G.S. § 62-110.9 and § 62-110.1(c)*
Docket No. E-100 Sub 190
Submission of Technical Conference Presentation Materials

Dear Ms. Dunston:

Pursuant to the Commission's January 17, 2024 *Order Scheduling Public Hearings, Establishing Interventions and Testimony Due Dates and Discovery Deadlines, Requiring Public Notice, and Providing Direction Regarding Duke's Supplemental Modeling* and June 10, 2024 *Order Granting Extension of Time to File Technical Conference Presentation Materials*, Intervenor TotalEnergies Carolina Long Bay, LLC ("TotalEnergies") hereby provides its Presentation Materials for the June 17, 2024 Technical Conference in the above-referenced matter.

As stated in TotalEnergies' June 10, 2024 *Letter Regarding Notice of Presentation at June 17th Technical Conference*, Matthew W. Tanner, PhD, will present these materials on TotalEnergies' behalf.

If you have any questions, please feel free to call me or e-mail at any time. Thank you for your assistance in this matter.

Very truly yours,



Weston Adams, III

June 2024
Dkt. No. E-100 Sub 190

BRG POWER AND RENEWABLES

Path To Offshore Wind

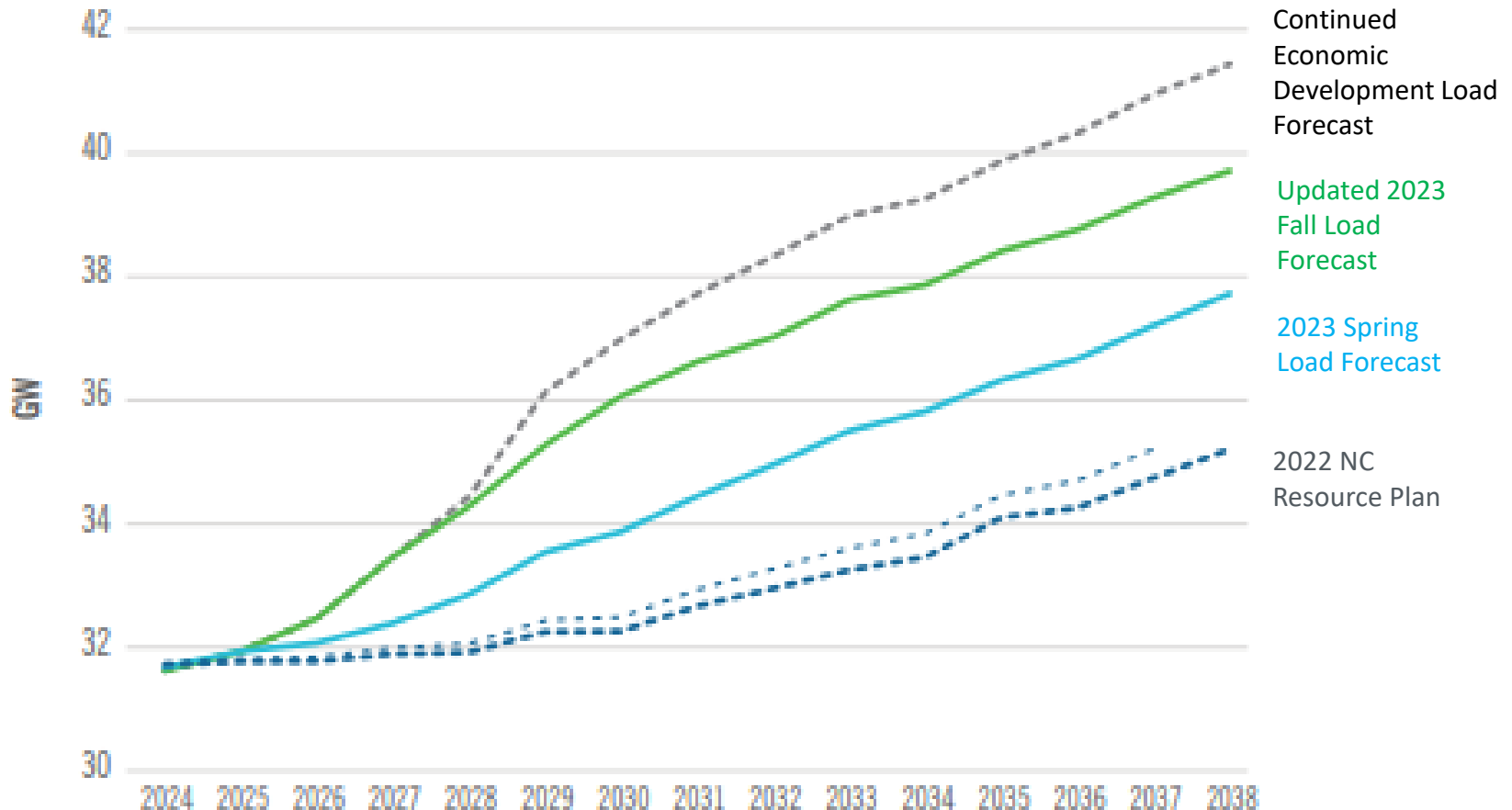
Enabling Energy Transition and Decarbonization in the Carolinas

LOAD GROWTH

THE CAROLINAS NEED FOR OFFSHORE WIND

Recent modeling by Duke in their supplemental analysis to its 2023 Carbon Plan and Integrated Resource Plan (CPIRP) indicate the need for over 2 GW of new capacity by 2033 compared to their spring forecast. Combined with the need for Clean Energy to meet HB 951, Duke forecasts the need for 2.4 GW of offshore wind by 2035.

DEC and DEP Combined Peak Demand (GW)



OFFSHORE WIND

VALUE AND OPPORTUNITY

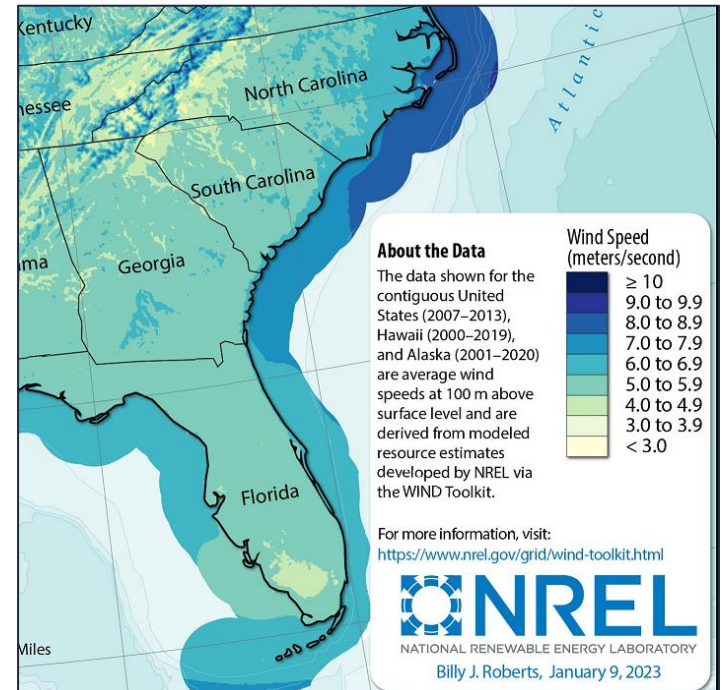
Offshore wind provides the best capacity and energy benefits of any renewable energy resource.

- Offshore Wind is a mature technology with nearly 60 GW operating globally, and 400 GW in the pipeline.
 - Dominion Energy’s CVOW is 2.6 GW that is expected to begin operation in 2026.
 - Other U.S. projects including South Fork Wind Farm (132 MW) and Vineyard Wind (800 MW) beginning operation in 2024.
- Capacity factors for offshore wind in the Carolinas exceed 50%, surpassing what is possible for land-based wind or solar.
- Seasonal offshore wind patterns allow for high-capacity contribution during peak winter months, even at high penetrations.
- **Offshore wind in the Carolinas is an untapped resource with enormous potential.**

Onshore and Offshore Wind ELCC			
DEP Onshore Wind		DEP Offshore Wind	
Onshore Wind Capacity (MW)	Average ELCC %	Offshore Wind Capacity (MW)	Average ELCC %
300	43.8%	800	74.9%
600	36.8%	1,600	72.9%
900	32.8%	2,400	71.9%
1,200	31.8%	3,200	70.3%

Note: Duke’s service territory peaks during winter mornings making solar ELCCs negligible, between 0%-10%.

Average Wind Speed at 100 m above surface Level (m/s)

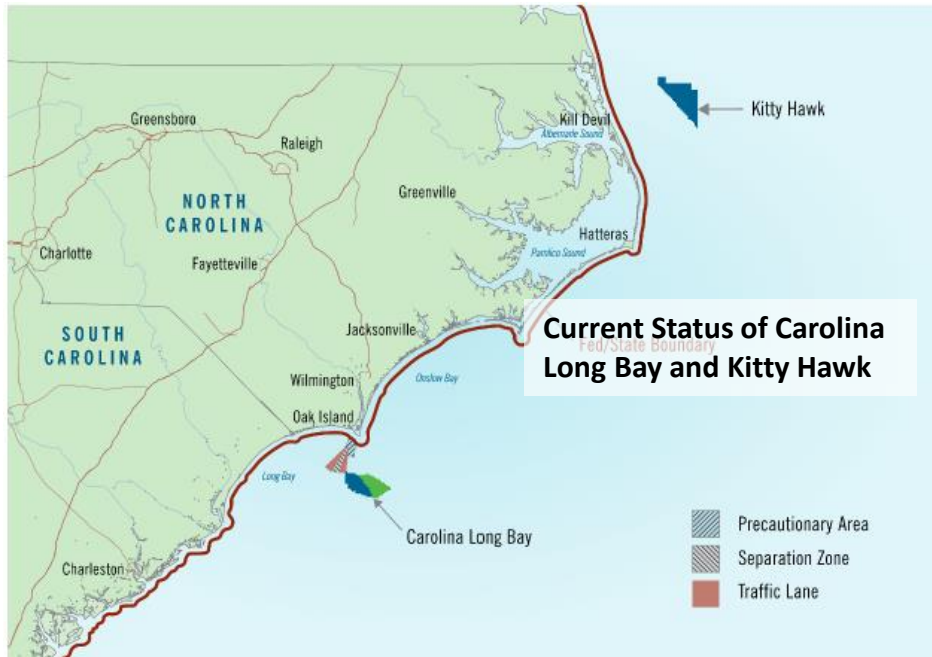


OFFSHORE WIND DEVELOPMENT TIMELINE

Offshore Wind development, like other large utility projects, requires around 10 years to complete.

- The development process is largely linear, moving forward with activities as soon as possible is critical to avoiding delays.
- With Leases awarded to Carolina Long Bay and Kitty Hawk, continuing with environmental studies and site surveying is critical to ensuring that offshore wind is operational by the 2035 target.
- Constraints on supply chains, port infrastructure, and offshore wind vessels could all extend timelines, particularly as more projects advance through their development timeline and compete for the same resources.

Existing Leased Wind Energy Projects



10 Year Development Timeline

Year	Development Activity
1	<ul style="list-style-type: none"> • Lease award • Permitting for surveying
2 - 4	<ul style="list-style-type: none"> • Environmental studies • Site surveying • Transmission design • Initial site design
5 - 7	<ul style="list-style-type: none"> • Environmental review • Final site surveying and design
8 - 10	<ul style="list-style-type: none"> • Construction and operation

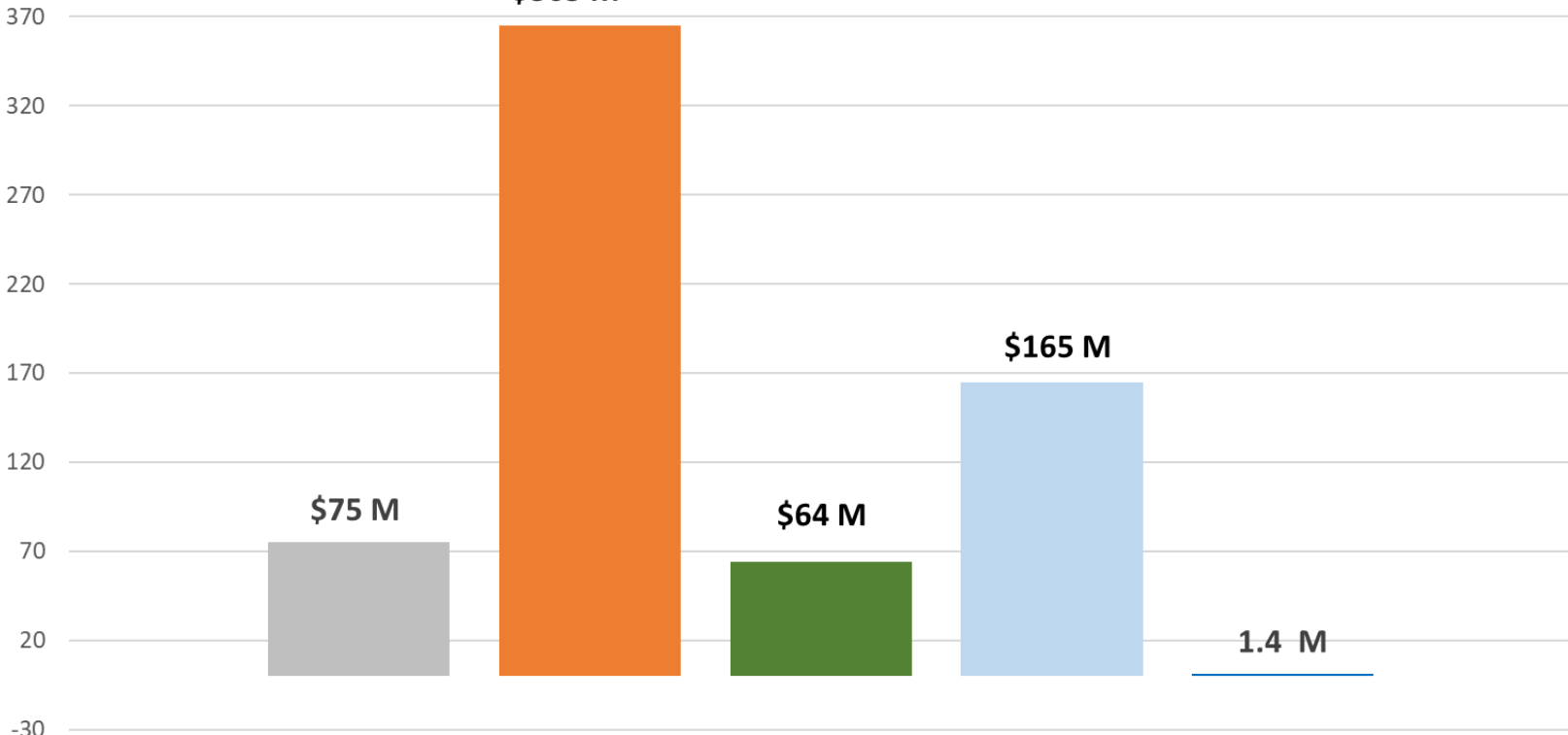
OFFSHORE WIND

INDEPENDENTLY SUCCESSFUL

While more mature than other long lead time resources, significantly less funding has been earmarked for offshore wind than more nascent technologies or technologies with lower potential.

Duke Funding for Long Lead Time Resource (\$ MM)

\$365 M



Through 2026

- SMR
- Additional SMR
- Onshore Wind
- Pumped Hydro
- Offshore wind

OFFSHORE WIND

NEED FOR IMMEDIATE ACTION

Meeting the 2035 target is not only critical to meet the Carolinas growing demand and clean energy goals, it is also needed to maintain project viability.

- Including the 30% - 50% capital cost reduction from the Investment Tax Credit (ITC) makes offshore wind cost competitive with other technologies.
- ITC benefits are scheduled to begin rolling off in the mid-2030s. Missing this deadline could be disastrous for project viability and ratepayers.
- Federal funds for the IRA tax incentives (\$370 billion overall, with a smaller portion allocated to clean electricity) are limited and cover the program through 2031, as per the Congressional Budget Office.
- Advancing projects to the construction phase minimizes the risk of missing out on full tax benefits.
- **Construction begins in year 8 of the proposed 10 year offshore wind development timeline, making 2025 the latest possible year to start the process to receive full value.**

ITC Benefits Summary

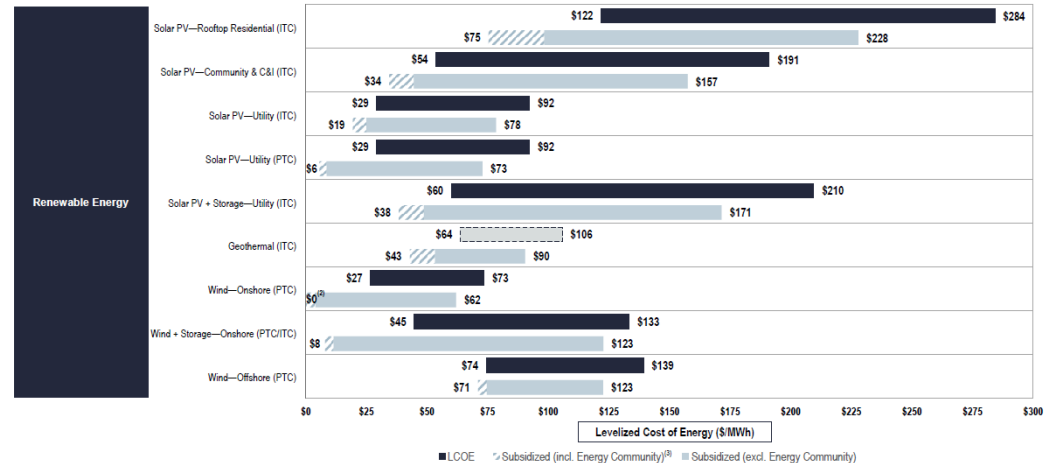
Start of Construction Year	Base ITC Value	Max ITC Value
2024 - 2033	30.0%	50.0%
2034	22.5%	37.5%
2035	15.0%	25.0%
2036	0.0%	0.0%

LCOE

II LAZARD'S LEVELIZED COST OF ENERGY ANALYSIS—VERSION 17.0

Levelized Cost of Energy Comparison—Sensitivity to U.S. Federal Tax Subsidies⁽¹⁾

The Investment Tax Credit (“ITC”), Production Tax Credit (“PTC”) and Energy Community adder, among other provisions in the IRA, are important components of the LCOE for renewable energy technologies



To maintain project timelines, immediate action, ideally in 2024, is needed.

Duke should request and the commission approve \$200 Million for near-term development activities to advance procurement of 2,400 MW of offshore wind.

- Consistent with requests made for small modular reactors and onshore wind.
- Consistent with expenses reported by Dominion Energy as they started offshore wind development.

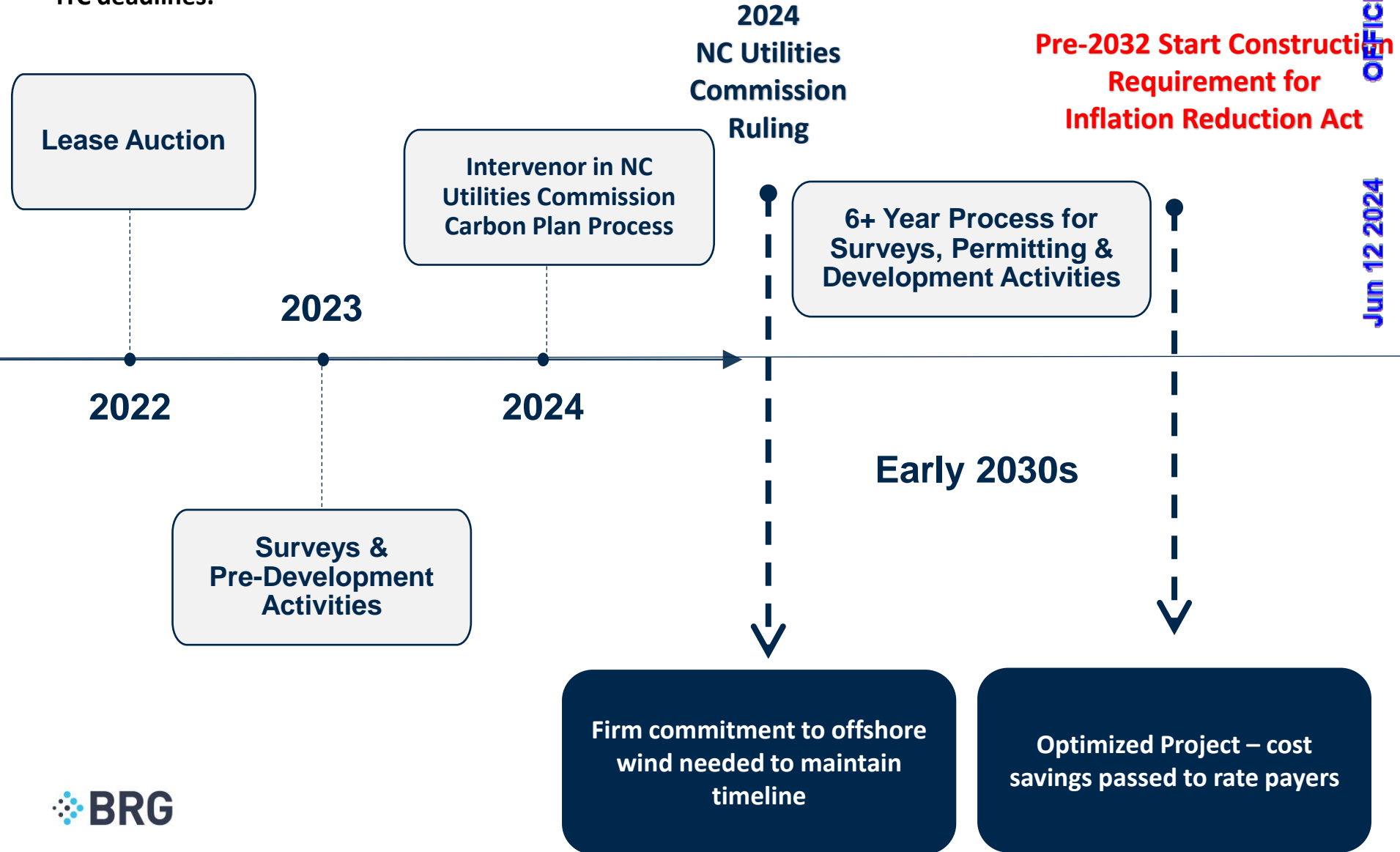
Duke should initiate commercial discussions with developers on contracting structures.

- The negotiations can be completed in parallel with other development activities to maintain the overall schedule.
- Accelerate the timeline between completion of the Acquisition Request for Information (ARFI) and construction.

Duke should advance a structured procurement process ASAP.

- This will maintain industry momentum and help ensure continued investment in the projects by developers.

Providing regulatory clarity in 2024 and advancing with studies and surveys will allow offshore wind to meet the ITC deadlines.



TotalEnergies has a global offshore wind portfolio over 16 GW in development and 1 GW currently operational.



>16 GW

from projects in development or under construction



● Floating



● Fixed

U.S. Involvement

US RENEWABLES PORTFOLIO CONTRIBUTES TO 25% OF GLOBAL TARGET OF 100GW BY 2030

6,000+ EMPLOYEES IN THE US

LARGEST EXPORTER OF US LNG IN 2023

\$100M AWARDED IN 2022 TO CONTRACTORS FOR GOODS AND SERVICES

10 MTPA LNG BEING EXPORTED FROM 5 DIFFERENT LIQUEFACTION TERMINALS

TOP 5 PRODUCERS IN SOLAR AND WIND POWER





Certificate of Service

The undersigned attorney for TotalEnergies Carolina Long Bay, LLC hereby certifies that he served the foregoing upon the parties of record in this proceeding by electronic mail and/or depositing copies in the United States mail, postage prepaid.

This 12th day of June 2024.



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