

2024 Carbon Plan Update

Peter Ledford
May 2, 2024

Wait, didn't we already do this?

The screenshot shows a Webex meeting interface. At the top, the browser tab is labeled '11-02 NC TOWE...' and the Webex logo is visible. The main content area displays a slide with a dark blue background. On the left side of the slide is the Great Seal of the State of North Carolina, which features two female figures: Liberty holding a staff with a Phrygian cap and Justice holding a scale. The seal is encircled by the text 'THE GREAT SEAL OF THE STATE OF NORTH CAROLINA' and the dates 'MAY 20, 1775' and 'APRIL 12, 1776'. Below the seal is the motto 'ESSE QUAM VIDERI'. To the right of the seal, the slide title '2024 Carbon Plan Update' is displayed in white text. Below the title, the presenter's name 'Bailey Recktenwald' and the meeting details 'NCTOWERS Meeting' and 'November 2, 2023' are listed. In the top right corner of the meeting window, a video thumbnail shows a participant named 'Sandoval, Reginald A' with a '+6' icon indicating other participants. A search bar with the text 'Find text or tools' is also visible in the top right.

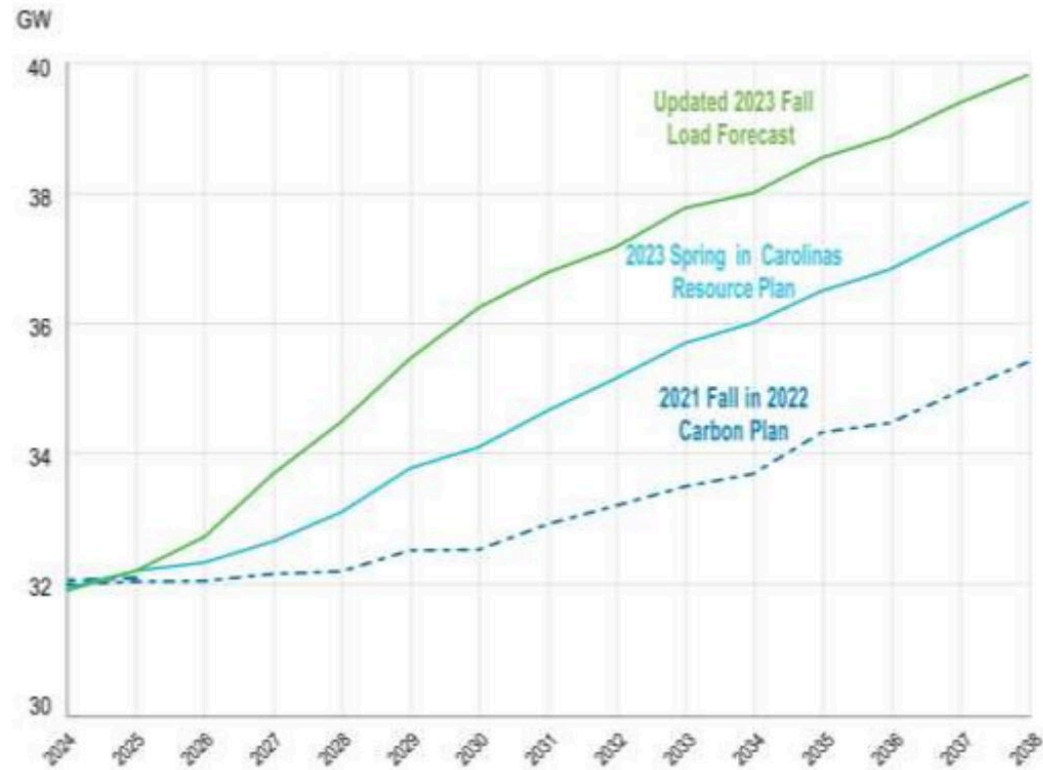


So why are we talking about this again?

The purpose of my supplemental direct testimony is to update the North Carolina Utilities Commission (“Commission”), the Public Staff-North Carolina Utilities Commission (“Public Staff”), and all intervenors in this docket on substantial, material changes in the Companies’ load forecast since the preparation of the Companies’ 2023-2024 Carbon Plan and Integrated Resource Plan (“CPIRP” or the “Plan”). My supplemental direct testimony describes the Companies’ plans to make the updated load forecast information available in early December and to further evaluate potential next steps in light of these increases.

So what changed?

Figure 1 – Load Forecast Evolution, 2021 to 2023
(Carolinas Combined Winter Peak)



So why should we care?

Q. PLEASE COMMENT ON THE POTENTIAL ACCELERATION OF THE NEED FOR OFFSHORE WIND GENERATION.





A. In Chapter NC of the Plan, the Companies noted that while offshore wind was not selected in the Core Portfolio P3 Base until the 2040s, the need for offshore wind could be accelerated under a variety of potential circumstances, including under the high load case sensitivity. Because the Companies now believe that load is increasing relative to the assumptions made in the initial Plan, it is likely that further actions with respect to offshore wind off the coast of North Carolina are warranted and the Companies will present such actions to the Commission for further consideration at the appropriate time.

Ok, so what does the modeling say?





Figure SPA 1-2: Supplemental Portfolio Analysis Results - Incremental Resource Additions by 2035 and 2038



Alright, what's the new proposed plan?

August NTAP Resource	August NTAP MW Amounts	Supplemental Incremental Resource MW Amounts	Total August NTAP + Supplemental Resource MW Amounts	Total August NTAP + Supplemental Proposed Near-Term Actions 2024–2026 and Development Activities
 Solar	6,000 by 2031	460 by 2031	6,460 by 2031	<ul style="list-style-type: none"> - Continue RZEP 1.0 projects and advance RZEP 2.0 projects.¹ - 2024: Procurement targeting 1,585 MW of solar and solar paired with battery energy storage ("SPS") (approximate 2028 in-service date). - 2025–2026: Procurements targeting approximately 2,700 to 3,460 MW of solar and dependent on RZEP 2.0 (approximate 2029-2030 in-service date) and future RFP attrition of procured solar.
 Battery Storage ²	2,700 by 2031	175 MW of Standalone Storage now planned for Storage paired with Solar	2,700 by 2031	<ul style="list-style-type: none"> - 2024 to 2026: Develop and study additional 475 MW of stand-alone battery storage incremental to 2022 NC Plan. - 2024 to 2026: Target procurement of 965 MW of SPS (625 MW of SPS incremental to 2022 NC Plan).
 Onshore Wind	1,200 by 2033	-	1,200 by 2033	<ul style="list-style-type: none"> - Select development partner(s), perform site feasibility studies and begin activities associated with siting and development for onshore wind projects.³ - Submit interconnection requests into 2025-2026 DISIS interconnection clusters.
 CT ⁴	1,700 by 2032	425 by 2031	2,125 by 2031	<ul style="list-style-type: none"> - 2024: File Certificate of Public Convenience and Necessity ("CPCN") for 2 Marshall Advanced CTs at 900 MW (BOY 2029 in-service), submit air permits, begin transmission build-out engineering/modifications. - 2024: Evaluate siting options and submit interconnection Study requests for 850 MW CT 3 & 4 (BOY 2030 in-service). - 2025: File CPCN and air permit for 850 MW (CT 3 and 4) (BOY 2030 in-service). - 2025: Evaluate siting options and submit interconnection request/GRR for 425 MW CT 5 (BOY 2031 in-service). - 2026: File CPCN and air permit for 425 MW (CT 5) (2031 BOY in-service).

Alright, what's the new proposed plan?

August NTAP Resource	August NTAP MW Amounts	Supplemental Incremental Resource MW Amounts	Total August NTAP + Supplemental Resource MW Amounts	Total August NTAP + Supplemental Proposed Near-Term Actions 2024–2026 and Development Activities
 CC ⁴	4,080 by 2031	2,720 by 2033	6,800 by 2033	<ul style="list-style-type: none"> - 2024: File CPCNs for Person County Advanced CC1 and CC2 (each at 1,360 MW) (BOY 2029 & 2030 in-service, respectively); submit air permit, begin transmission build-out engineering/modifications. - 2024: Submit Interconnection Requests for 2 CCs (Person County Advanced CC2 and SC-located CC3; 1,360 MW each; BOY 2030 and 2031 in-service, respectively). - 2025: File SC Certificate of Environmental Compatibility and Public Convenience and Necessity ("CECPCN") for CC3 (2031 in-service), submit air permit. - 2025: Evaluate siting options and submit Interconnection Requests and/or GRR for 2 additional CCs (CC4 and CC5; 1,360 MW each; BOY 2032 and 2033 in-service, respectively). - 2025: File CPCN and submit air permit for CC4 (2032 in-service). - 2026: File CPCN and submit air permit for CC5 (2033 in-service). - 2026: Begin transmission build-out engineering/modifications for CC4 & CC5 (BOY 2032 and 2033 in-service, respectively).
 Pumped Storage Hydro ^{5,6}	1,700 by 2034	134 by 2034	1,834 by 2034	<ul style="list-style-type: none"> - 2025: Subject to necessary regulatory guidance and support, target SC CECPCN. - 2025 and 2026: File NC Out of State CPCN, file final FERC licensing application, prepare for construction.
 Advanced Nuclear ⁶	600 by 2035	-	600 by 2035	<ul style="list-style-type: none"> - Site 1 – 2024 to 2026: Choose reactor technology, submit early site permit ("ESP"), develop construction permit/license application, contract with reactor vendor, and order long-lead equipment. - Site 2 – 2025 to 2026: Develop and submit ESP.
 Offshore Wind ⁶	-	2,400 by 2035	2,400 by 2035	<ul style="list-style-type: none"> - Conduct Acquisition Request for Information ("ARFI") with current Carolinas Wind Energy Area (off NC coast) lessees. - Conduct stakeholder engagement and outreach in connection with ARFI. - Report results of ARFI in next Carolinas Resource Plan filings. - Continue limited development of onshore transmission to support offshore wind.



Wait, what's an ARFI?

Specifically, the Companies believe that additional information is needed to allow the Commissions to better assess offshore wind, particularly in light of the fact that the Companies do not currently hold a wind energy area (“WEA”) lease. Thus, to facilitate more detailed consideration of offshore wind, the Companies propose to issue an Acquisition Request for Information (“ARFI”) to provide a structure in which the WEA lessees can provide more detailed information regarding proposed acquisition structures (including proposed acquisition or development fees, structures to ensure financing and construction capability, payment structuring and risk sharing), along with updated pricing. While the WEA comparative analysis conducted in 2023 provided valuable pricing information to inform the Companies’ modeling, it did not result in definitive feedback from the WEA lessees regarding key variables that will shape and define a future potential acquisition of an offshore wind generating facility, including the many varied ways in which such acquisition could be structured and designed. In addition, an ARFI would allow for updated pricing, since offshore wind prices were not updated in the Supplemental Planning Analysis, unlike most of the other resource options.

Ok, so how does this work?

Table SPA 4-5: Supplement to Execution Plan – Offshore Wind (Initial Plan Execution Plan Table 4-11)

Near-Term Actions (2023–2026)	
2023	<ul style="list-style-type: none">• Submit findings of WEA comparative Analysis.
2024	<ul style="list-style-type: none">• Request NCUC approval to pursue ARFI.• Continue limited development of onshore transmission to support offshore wind.• Monitor Offshore Wind projects along the United States East Coast (all years).
2025	<ul style="list-style-type: none">• Engage stakeholders for feedback regarding structure, approach and timing of ARFI.• Issue ARFI.• Receive and evaluate responses from WEA lessees.
2026	<ul style="list-style-type: none">• Provide information to Commissions and assess appropriate further actions.
Intermediate-Term Actions (2027–2032)	
2027–2032	<ul style="list-style-type: none">• Further actions in the intermediate term will be guided by necessary regulatory approvals and support.

Wait, won't this slow things down?

Given the expected timeline to execute the ARFI and obtain further necessary approvals, it will likely not be possible to achieve a 2033 in-service date for the first 800- MW block of offshore wind as currently modeled in Fall P3 Base. However, a 2034 in-service date may be achievable assuming proposed NTAP actions progress.

Some people think so

NOW COMES THE PUBLIC STAFF – North Carolina Utilities Commission (Public Staff), by and through its Executive Director, Christopher J. Ayers, and respectfully requests that the Commission issue an order directing Duke Energy Progress, LLC, and Duke Energy Carolinas, LLC (together, Duke or the Companies), to proceed with the development and issuance of the Acquisition Request for Information (ARFI) for the three federal offshore Wind Energy Areas (WEAs) on an expedited basis. In support thereof, the Public Staff shows the following:

Some people think so

17. It is imperative that Duke proceed with the development and issuance of the ARFI as soon as possible, rather than waiting until early 2025 following issuance of a final Commission order in the current CPIRP proceeding.

Some people think so

The parties are aware of the urgency inherent in meeting the emission reduction goals set forth in House Bill 951 (N.C. Sess. Law 2021-165) in a least-cost manner while ensuring a reliable grid. Resource planning in this context requires accurate and up-to-date resource information, and when such information must be obtained by third parties, solicitation must be conducted in a timely manner. Waiting until early 2025 to issue the ARFI, as currently planned by the Companies, will unnecessarily delay the receipt of key information necessary for examining the role of offshore wind in North Carolina's resource portfolio.

Alright, you're boring me. What's next?

- DONE – Public Hearings
- Maybe an order on the Public Staff's motion?
- May 28 – Intervenor Testimony
- June 17 – Technical Conference
- July 1 – Duke Rebuttal Testimony
- July 22 – Expert Hearing
- December 31 – Order Due

He's finally done!
