STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-2, SUB 1318
DOCKET NO. EC-67, SUB 55

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Joint Application of Duke Energy Progress, LLC and North Carolina Electric Membership Corporation for a Certificate of Public Convenience and Necessity to Construct a 1,360 MW Natural Gas-Fueled Combined Cycle Electric Generating Facility in Person County, North Carolina	**DIRECT TESTIMONY OF DANIEL DONOCHOD ON BEHALF OF DUKE ENERGY PROGRESS, LLC**

I. INTRODUCTION AND OVERVIEW

Q. MR. DONOCHOD, PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Daniel Donochod, and my business address is 525 South Tryon Street, Charlotte, North Carolina 28202.

Q. BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?

A. I am employed by Duke Energy as General Manager ("GM"), Generation Execution and Technologies.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I earned a Bachelor of Science in Civil Engineering from North Carolina State University in 1991 and a Master of Business Administration from the University of North Carolina at Chapel Hill in 2001. I have been a registered Professional Engineer in the state of North Carolina since 1997. Prior to joining Duke Energy, I worked in the Town of Cary Engineering Department and then in private sector engineering consulting for a total of 13 years. I have 20 years of experience with Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP" or the "Company," and collectively with DEC, the "Companies"). I joined Progress Energy, Inc. ("Progress Energy") in 2003 as a Lead Engineer. In that role, I performed technical analysis and business case development for major DEP strategic initiatives, including strategies to enable DEP generation units to expand their fuel mix and deliver customer savings. In 2007, I was promoted to Regional Engineering Manager, where I managed a

multi-disciplinary team of engineers providing tactical support to seven generating stations. I served as Finance Manager from 2009-2010, where I prepared business evaluations of transformative DEP initiatives, and from 2010-2012, I served as Manager of Outage Support, where I helped overhaul long-range planning and budgeting tools and led efforts to refine DEP's outage scheduling process. In 2012, after completion of the Duke Energy – Progress Energy merger, I was promoted to Fuel Flexibility Strategy Manager, where I was responsible for outlining the strategy of the Companies' respective coal fleets burning non-traditional fuels to deliver fuel savings to customers. In 2014, I was promoted to Director, Generation and Regulatory Strategy, where I oversaw new generation and power generation unit retirement strategy, as well as the development of the Companies' fuel hearing testimony. In 2017, I was promoted to GM – Strategic Engineering, where I led enterprise teams providing strategic, tactical, analytical engineering, process and environmental engineering, new integration and generation, and regulatory strategy support to multiple business units. I was promoted to GM - Fleet Transition Strategy in 2021 and served in that role until March 2024, when I assumed my current role as GM – Generation Execution and Technologies.

Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?

A. I lead a team that helps prepare the generation fleet transition strategy and coordinates execution of the Companies' generation transition. My team works closely with many cross-departmental teams to support and achieve execution

of the Companies' 2023-2024 Carbon Plan and Integrated Resource Plan ("CPIRP" or the "Plan") including the initial Plan filed with the Commission on August 17, 2023, in Docket No. E-100, Sub 190, and the Supplemental Planning Analysis ("SPA") filed in the same docket on January 31, 2024. Our scope includes proposing strategic decisions, preparing business cases and/or seeking approvals of special projects (e.g., gas co-firing), coal retirements, and significant new construction. My team also helps inform and then execute aspects of the Companies' CPIRP supply-side Near-Term Action Plan ("NTAP") and Execution Plan. Additionally, my team coordinates and supports research, studies, and pilot projects related to hydrogen as a potential fuel source for electric generation, carbon capture and sequestration ("CCS"), and potential emerging generation technologies.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

A. Yes. I submitted pre-filed direct testimony to the North Carolina Utilities Commission ("Commission") in support of the CPIRP in Docket No. E-100, Sub 190.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to support DEP's Joint Application with the North Carolina Electric Membership Corporation for a certificate of public convenience and necessity ("CPCN") to construct an advanced class, combined cycle gas turbine ("CC") facility for the generation of electricity at the site of its existing Roxboro Plant ("Roxboro") in Person County, North Carolina ("Proposed Facility"). Construction of the Proposed Facility will facilitate

permanent retirement of two of the four coal-fired generating units at Roxboro. The remaining two coal-fired units, together with the Proposed Facility, will collectively be known as the Person County Energy Complex.

More specifically, my testimony will focus on how the Proposed Facility supports the Companies' Carolinas energy transition strategy presented in the CPIRP and aligns with the least cost path to achieve compliance with the carbon reduction mandates in N.C.G.S. § 62-110.9, while also maintaining or improving upon the adequacy and reliability of the Companies' existing grid. In doing so, I will describe the Company's site selection process, provide information about the projected retirement of the existing coal-fired facilities at Roxboro, and discuss the Proposed Facility's critical role in reliably advancing the Carolinas energy transition. I will also describe the Company's ongoing assessment of the U.S. Environmental Protection Agency's ("EPA") proposed regulations under Section 111 of the Clean Air Act ("CAA") and the planned compliance options for the Proposed Facility under the proposed rule.

II. THE PROPOSED FACILITY AND PLANNED COAL UNIT RETIREMENTS

Q. PLEASE GENERALLY DESCRIBE THE PROPOSED FACILITY.

A. The Company proposes to construct a highly efficient, hydrogen-capable dispatchable CC facility with an estimated nominal winter capacity of 1,360 megawatts ("MW"). The Proposed Facility will both facilitate the retirement of the existing coal-fired Roxboro Units 1 and 4, rated at 380 MW and 711 MW, respectively, and support projected load growth on the system. Company witness Bobby Smith provides additional information about the technical

specifications of the Proposed Facility in his pre-filed direct testimony.

Q. CAN YOU EXPLAIN WHY DEP STATED IN ITS PRELIMINARY PLAN FILING THAT IT WOULD RETIRE ROXBORO UNITS 1 AND 2, BUT, IN THIS CPCN APPLICATION, INDICATES IT WILL RETIRE ROXBORO UNITS 1 AND 4?

A. The Company updated plans to retire Roxboro Unit 4 instead of Unit 2 due to differences in their respective heat rates, performance, operational requirements, and operating costs, as well as the ability to utilize Roxboro Unit 1's and Roxboro Unit 4's transmission capability as part of the Generator Replacement Request ("GRR") for the Proposed Facility. Accordingly, DEP delayed Roxboro Unit 2's retirement to January 2034 in the SPA, consistent with Roxboro's Unit 4's retirement date as listed in the initial Plan. The Company currently plans to retire Roxboro Units 1 and 4 in January 2029 after the Proposed Facility becomes operational and plans for Roxboro Units 2 and 3 to remain in service until January 2034.[1]

III. THE PROPOSED FACILITY'S ROLE IN THE ENERGY TRANSITION

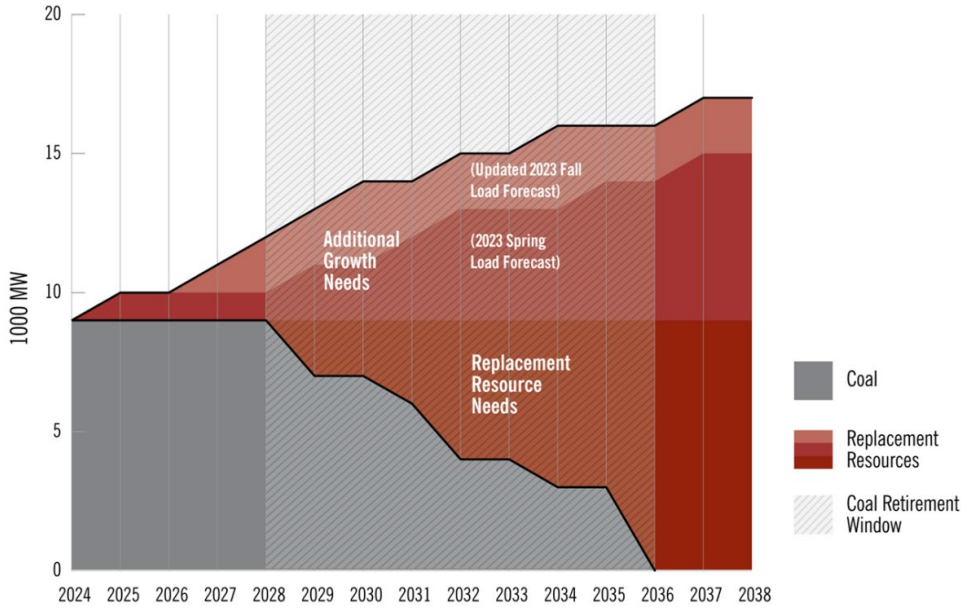
Q. PLEASE EXPLAIN THE MAGNITUDE OF THE ENERGY TRANSITION FACING THE COMPANIES AT THIS TIME.

A. The Companies must reliably meet current and future customers' energy needs over the next 15 years, while also planning for their longer-term energy transition to achieve carbon neutrality by 2050. To achieve this goal, the

[1] Exhibit 1A Supplemental Planning Analysis Section 3 at 34 (Table SPA 3-1).

Companies must retire and replace approximately 8,400 MW of coal-fired generating capacity with equally reliable resources while simultaneously planning for the incremental generating resources necessary to meet customers' future needs and to ensure reliability of the system. Figure 1 below visually demonstrates the magnitude of the challenge the Companies face in maintaining reliability while both meeting load growth and retiring coal-fired generating resources on the path to achieving their long-term goal of carbon neutrality by 2050.

Figure 1: Capacity Resource Need Created by Load Growth and Coal Retirements



Company witness Michael Quinto provides additional detail on how the Companies' CPIRP ensures that that Companies are planning for an orderly energy transition designed to reliably replace coal with a diverse portfolio of new generation while also planning to build new capacity to serve the additional load growth resulting from the Carolinas' recent economic development

success. My testimony focuses more on the Companies' execution of that plan.

Q. PLEASE DESCRIBE THE PROPOSED FACILITY'S ROLE IN THE COMPANIES' PLANS TO RELIABLY SERVE INCREASING ELECTRICITY DEMAND IN THE CAROLINAS.

A. New dispatchable generation resources, such as the Proposed Facility, are critical to the Companies' ability to balance supply of, and demand for, electricity and to maintain reliable system operations as coal-fired generation is retired and significant new customer load is planned to be added to the system. Additionally, and as further discussed in CPIRP Appendix M (Reliability and Operational Resilience), the increasing amount of renewables on the Companies' system increases the need for generating resources that can complement and balance their operating characteristics. More specifically, dispatchable generation resources with the ability to quickly ramp, which is the ability to increase or decrease output to help match load, are necessary to respond to the intermittency of renewable resources by serving as a flexible backup source of energy when renewable output is low.

Q. DOES THE CPIRP IDENTIFY THE NEED TO CONSTRUCT THE PROPOSED FACILITY?

A. Yes. The CPIRP Execution Plan and NTAP [2] identify constructing the Proposed Facility to commence commercial operation by January 1, 2029, to replace the retiring coal units at Roxboro and as the first step in procuring needed new gas-fueled generation to reliably accomplish the CPRIP's executable energy

[2] Exhibit 1A Supplemental Planning Analysis Section 4 at 47-48 (Table SPA 4-1).

transition objectives. The Proposed Facility is the first of five CCs identified as needed by 2033 across both DEP and DEC to progress coal unit retirements and meet the growing forecasted customer loads, as detailed in the CPIRP NTAP and highlighted by Figure 2.

Figure 2: Planned Natural Gas Generation in 2023-2024 CPIRP Execution Plan[3]

Near-Term Actions (2024–2026)	
2024	• Submit CPCNs and air permit applications for Marshall Advanced CTs and Person County Advanced CC1 & CC2. • Submit Person County Advanced CC2, SC-located CC3 and CTs 3 & 4 into 2024 Definitive Interconnection System Impact Study ("DISIS"). • Receive Marshall Advanced CTs and Person County Advanced CC1 CPCN orders to commence construction activities.
2025	• Receive Person County Advanced CC2 CPCN order to commence construction activities. • Receive interconnection agreements for Marshall Advanced CTs and Person County Advanced CC1. • Submit CPCNs and air permits for CC3 (SC-located beginning of year ("BOY") 2031), CC4 (BOY 2032) and CTs 3 & 4 (BOY 2030). • Submit GRR and/or DISIS for CC4 and CT5.
2026	• Submit CPCN for CT5 (BOY 2031 in-service). • Receive interconnection agreements for Person County Advanced CC2, CC3 (SC-located) and CTs 3 & 4. • Submit CC5 into 2026 DISIS (BOY 2033 in-service). • Submit CPCN for CC5 (BOY 2033 in-service).

As identified in Figure 2, the Companies have decided to site the second CC

[3] Exhibit 1A Supplemental Planning Analysis Section 4 at 57 (Table SPA 4-8).

facility at Roxboro, with commercial operation targeted for January 1, 2030, and to site CCs 3-5 within DEC's service territory targeting commercial operation between 2031-2033.

Q. IS THE CRITICAL ROLE OF DISPATCHABLE NEW GAS GENERATION INCREASINGLY BEING RECOGNIZED AS A CENTRAL FOCUS OF RELIABLY ACHIEVING THE ENERGY TRANSITION?

A. Yes. The Commission's *Order Adopting Initial Carbon Plan and Providing Direction for Future Planning*, issued on December 30, 2022, in Docket No. E-100, Sub 179 ("Carbon Plan Order"), recognized the Companies' testimony that "Duke's planned coal unit retirements require replacement resources that can provide firm, dispatchable, and equally reliable capacity like … baseload CCs" and that "[w]ithout such replacement resources, Duke cannot retire coal on an accelerated schedule."[4] The Companies' view is consistent with recent testimony by Mr. Jim Robb, President and Chief Executive Officer of the North American Electric Reliability Corporation ("NERC"), the organization responsible for developing rules and protocols designed to ensure the reliability of North America's bulk power transmission systems, to the United States Senate highlighting the critical role natural gas-fueled facilities have to play in the energy transition to a lower-carbon emitting grid. Specifically, Mr. Robb testified that:

> Natural gas will remain essential to reliability [during the energy transition] for total energy and as a balancing resource. In many

[4] Exhibit 1A Carbon Plan Order at 76-77.

> areas, natural gas-fueled generation is needed to meet energy demand during shoulder periods between times of high and low renewable energy availability … And on a daily basis in areas with significant solar generation, the natural gas fleet is a flexible generation resource to fill the gap. The criticality of natural gas as the "fuel that keeps the lights on" will remain until very large-scale and long duration battery deployments are feasible or an alternative flexible fuel such as hydrogen, or small nuclear reactors can be developed at scale.[5]

The Proposed Facility will have the operating characteristics that Mr. Robb recognized as necessary to "keep […] the lights on" through the energy transition, providing flexible dispatchable generation to complement the increasing amount of renewables on the Companies' systems. For example, the Proposed Facility will be able to ramp at a rate five times faster than Roxboro's coal-fired Units 1 and 4, with a significantly improved cycling ability. In addition, the Proposed Facility will not only replace the capacity from Roxboro's coal-fired Units 1 and 4 but will provide an estimated 270 incremental MW of dispatchable capacity to help meet load growth. The Proposed Facility will also reduce carbon dioxide ("CO_2") emission rates per megawatt hour by approximately 60% and provide approximately 33% improved efficiency at full load compared to the retiring Roxboro coal units. In light of these characteristics, DEP believes the Proposed Facility is essential to addressing the Company's need to maintain or improve the reliability and operational resilience of the grid through the energy transition on the path to

[5] The Reliability and Resiliency of Electric Service in the United States in Light of Recent Reliability Assessments and Alerts. Testimony of James B. Robb, President and CEO of NERC, before the United States Senate Committee on Energy and Natural Resources (June 1, 2023), *available at* https://www.energy.senate.gov/services/files/D47C2B83-A0A7-4E0B-ABF2-9574D9990C11.

carbon neutrality.

Q. WILL CONSTRUCTING THE PROPOSED FACILITY ALSO HELP MANAGE THE GROWING RISKS OF CONTINUED OPERATION OF THE COMPANIES' AGING COAL FLEET?

A. Yes. As highlighted in the CPIRP, deteriorating industry economics and increasing environmental regulations are driving a decline in the coal industry and its supporting infrastructure.[6] Company witness John Verderame recently explained in testimony filed in Docket No. E-100, Sub 190, how the electric utility industry's transition away from coal generation has impacted every aspect of domestic coal production, supply chain, and transportation. This changing environment, coupled with current inflationary pressures, results in risks and uncertainties for coal supply assurance and continued reliable operations of the Companies' coal generation facilities. As further addressed in the CPIRP, the changing economics of coal generation supports the planned retirement of Roxboro Units 1 and 4 and replacement with the Proposed Facility given the economics and environmental regulations driving the ongoing decline in the coal industry and its supporting infrastructure, including coal production, supply chain and transportation, as well as increasing challenges in maintaining the Companies' aging coal units.

[6] *See* Exhibit 1A CPIRP Appendix F at 2-6.

IV. SITE SELECTION FOR THE PROPOSED FACILITY

Q. PLEASE DESCRIBE DEP'S PROCESS FOR SELECTING ROXBORO AS THE LOCATION FOR THE PROPOSED FACILITY.

A. As discussed in more detail in CPIRP Chapter 4 (Execution Plan), replacing retiring coal-fired generation with other forms of equally reliable dispatchable generation is central to the Companies' plan to execute an orderly transition of its generating fleet towards carbon neutrality while maintaining the generating capacity to provide the energy and capacity required to reliably serve system growth. Consistent with that plan, DEP evaluated site locations using several factors including, but not limited to, projected retirement dates of existing units, transmission capacity, access to fuel supply, available land, and water supply. To meet the planning need for CC1 in DEP, the Company considered existing generation sites with planned unit retirement dates that aligned with the planning needs for new CC gas generation in the 2028-2029 timeframe, as well as DEP-owned sites at which it had previously retired generating resources. DEP primarily considered active sites including Roxboro and the Mayo Generating Station ("Mayo"), and preliminarily evaluated sites with retired generation such as the Robinson Plant ("Robinson"), the Darlington Plant ("Darlington"), Cape Fear Station ("Cape Fear"), and the W.H. Weatherspoon Plant ("Weatherspoon").

The Company ruled out the Robinson, Darlington, Cape Fear, and Weatherspoon locations relatively early in its analysis due to execution challenges and costs associated with supplying fuel to the locations and a lack

of transmission rights. Existing plant infrastructure at the Roxboro and Mayo locations—especially electric transmission facilities—necessary to support a CC allowed for accelerated deployment of the Proposed Facility. Timing with respect to constructing the planned CC addition to achieve the target in-service date was also a material consideration, as performing due diligence on a greenfield site (i.e., undeveloped land without existing plant infrastructure) can take up to two years, and up to roughly six years after site selection to plan and construct a new CC along with its associated infrastructure. Accordingly, constructing the Proposed Facility at a greenfield location with access to adequate fuel likely would have delayed its in-service date beyond the planning need identified in the CPIRP and would have required more extensive transmission projects associated with interconnecting the new resources and retiring the coal units at Roxboro.

Overall, the Roxboro location had more favorable construction attributes with respect to the Proposed Facility than Mayo. For example, DEP currently plans to operate Mayo's coal-fired generator until 2031, which does not align with 2028-2029 planning need for new CC generation. Additionally, Roxboro's coal-fired generating units that DEP plans to retire have greater capacity (1,091 MW) than the to-be-retired Mayo coal-fired generating units (713 MW), which supports using the Roxboro location because any necessary transmission network upgrades are likely to be less extensive (and therefore less expensive) at the site of retiring generation with greater capacity. Roxboro is also approximately 15 miles closer to natural gas infrastructure than Mayo,

which means it will cost less to construct the natural gas facilities necessary to transport fuel to Roxboro than Mayo. Finally, available Company-owned land was an additional consideration that weighed in Roxboro's favor as the selected site location. Today, Roxboro's four coal units sit on approximately 3,000 acres of DEP property, with sufficient space to site the CC in an area southwest of and outside the footprint of the existing units.

Q. ARE THERE ANY OTHER BENEFITS TO SITING THE PROPOSED FACILITY AT THE ROXBORO SITE?

A. Yes. Prior to DEP selecting Roxboro as the site for the Proposed Facility, DEP's Transmission department indicated that there was a particular need for generation located in the northern portion of DEP's service territory to support system voltages, and that the need would increase in magnitude as DEP retires existing dispatchable generating facilities in the area.

Q. HAS DEP ENGAGED WITH PERSON COUNTY REGARDING THE COMPANY'S PLANS TO CONSTRUCT THE PROPOSED FACILITY?

A. Yes. As the Company indicated in its preliminary plans that it filed in this docket on September 1, 2023, DEP has communicated with Person County officials throughout the development of its plans for the Proposed Facility. The Company has operated Roxboro within the community since Unit 1 began commercial operations in 1966. Since that time, DEP has enjoyed a collaborative partnership with the residents and officials in Person County, as subsequent additions to Roxboro came online in 1968, 1973, and 1980, and Mayo began commercial operation in 1983. Roxboro and Mayo have produced

hundreds of jobs in the county over the decades, bolstered the tax base, added to economic development, and many employees of both plants have called Person County home for themselves and their families.[7]

Person County officials have expressed strong support for DEP locating replacement generation in Person County as the aging coal units are scheduled for retirement, with Person County and the City of Roxboro going so far as to adopt a Joint Comprehensive Land Use Plan in November 2021 (the "Land Use Plan"). One of the Land Use Plan's stated "objectives" is for the City and County to "work to advocate for the reuse of [the Roxboro Plant] to be redeveloped with a new energy generating plant … to provide a reliable local energy source to help support industrial development in the community." Confidential Exhibit 2 to the Application provides additional information on the Land Use Plan.

On February 5, 2024, the Person County Board of Commissioners issued a Resolution of Support for Duke Energy in Person County, specifically supporting the Company's plans to site two CCs at the Roxboro plant. Additionally, as an example of seeking community input and sharing information, the Company held an open house on the project at Piedmont Community College in Roxboro on February 21, 2024, and also hosted a webinar on February 27, 2024. In all, the Company looks favorably upon this mutual interest in locating the Proposed Facility in Person County.

[7] *See* Comments of Person County, North Carolina, Docket No. E-100, Sub 179 at 7 (July 15, 2022).

V. PLANNING FOR EPA SECTION 111 COMPLIANCE

Q. HOW MIGHT THE EPA'S PROPOSED REGULATIONS UNDER SECTION 111 OF THE CAA IMPACT THE PROPOSED FACILITY?

A. As addressed in the CPIRP,[8] on May 23, 2023, the EPA published a Proposed Rule under its CAA Section 111 authority in the Federal Register ("EPA Proposed Rule") to address CO_2 emissions from new (gas) and existing (coal and gas) fossil-fired power plants. The EPA Proposed Rule, which is not yet finalized, would impose emission limitations on new natural gas-fueled CCs, with the standard varying by capacity factor. Assuming a final rule is promulgated by the EPA that is similar to the EPA Proposed Rule, the new regulation would apply to the Proposed Facility. The Companies are actively monitoring developments related to the EPA Proposed Rule.

As further discussed by witness Quinto and addressed in Exhibit 1B to the Application, the Companies' CPIRP evaluated compliance scenarios under the EPA Proposed Rule and the Companies continue to evaluate longer-term compliance options related to hydrogen or carbon capture sequestration ("CCS"). The Proposed Facility is expected to able to be compliant with the phase 1 requirement for new baseload gas units, with an emissions rate under 770 lbs. CO_2 per megawatt-hour (gross) in EPA Proposed Rule for new gas generation as currently proposed. With an eye toward Phase II of the EPA Proposed Rule that could become effective in the 2030s, and long-term strategy for hydrogen-enabled gas units, the Companies are incorporating improvements

[8] Exhibit 1A CPIRP Appendix C at 99-100.

in the new CC facility with the potential of enabling a future conversion to operate solely using hydrogen should the fuel source become available. Since the EPA Proposed Rule allows for CCS as a potential "best system of emissions reduction" technology for CAA Section 111, DEP has retained a consulting firm specializing in permanent subsurface sequestration to screen the Carolinas for CCS potential. The Companies expect the final rule to be published in 2024 and will continue to analyze the potential impacts of the finalized rule on the Proposed Facility.

VI. CONCLUSION

Q. IN SUMMARY, WHY SHOULD THE COMMISSION AUTHORIZE CONSTRUCTION OF THE PROPOSED FACILITY?

A. The Proposed Facility will be industry-leading in efficiency and will therefore achieve low emission rates while providing needed dispatchable capacity and flexibility to maintain reliable system operations as Roxboro Units 1 and 4 are retired. Accordingly, for the reasons presented in the Companies' Application and supported by my testimony, the Commission should grant the Companies request for issuance of a CPCN.

Q. MR. DONOCHOD, DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.