

**STATE OF NORTH CAROLINA  
UTILITIES COMMISSION  
RALEIGH**

DOCKET NO. E-7, SUB 1297

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of: ) Application of Duke Energy Carolinas, ) LLC for a Certificate of Public ) Convenience and Necessity to Construct ) an 850 MW Natural Gas-Fired ) Combustion Turbine Electric ) Generating Facility in Catawba County, ) North Carolina )	<b>DUKE ENERGY CAROLINAS, LLC’S APPLICATION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY</b>
---	---

---

Pursuant to N.C.G.S. §§ 62-82 and 62-110.1, the North Carolina Utilities Commission’s (“Commission”) Rule R8-61(b), as well as the Commission’s *Order Adopting Initial Carbon Plan and Providing Direction for Future Planning*, issued in Docket No. E-100, Sub 179 pursuant to N.C.G.S. § 62-110.9 on December 30, 2022 (“Carbon Plan Order”), Duke Energy Carolinas, LLC (“DEC” or the “Company”) hereby submits this Application for a Certificate of Public Convenience and Necessity (“Application”) to construct and operate two advanced-class, simple-cycle gas combustion turbine (“CT”) units that will be approximately 425 megawatts (“MW”) each, for the generation of electricity at the site of its existing Marshall Steam Station (“Marshall”) in Catawba County, North Carolina (the “Proposed Facility”).

Constructing the Proposed Facility at Marshall is supported by the Commission’s Carbon Plan Order and DEC’s and Duke Energy Progress, LLC’s (“DEP” and, together with DEC, the “Companies”) 2023-2024 Carbon Plan and Integrated Resource Plan (“CPIRP” or the “Plan”). More specifically, the Proposed Facility is identified in the Companies’ Execution Plan as being a crucial components of the Companies’ least cost

energy transition strategy to reliably add new generation to the Companies' combined systems while enabling the orderly retirement of aging, coal-fired generating facilities. The Company currently plans to place the Proposed Facility into service by January 1, 2029, which will enable DEC to permanently retire Marshall's coal-fired Units 1 and 2. The remaining Marshall coal-fired Units 3 and 4, which will continue to operate into the early 2030s, and the two new CT units will collectively be known as the Marshall Energy Complex.

This Application is supported by the testimonies of Company witnesses Michael Quinto, Director of IRP Advanced Analytics, and John Robert Smith, Jr. (Bobby), General Manager for New Gas Generation Development, as well as the following exhibits:

- **Exhibit 1A** – (1) the Carbon Plan Order; and (2) the Companies' 2023-2024 CPIRP, 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 with the Commission on January 31, 2024, in Docket No. E-100, Sub 190.<sup>1</sup> The Carbon Plan Order and the CPIRP represent the Companies' most current and proposed executable resource plan for the Carolinas. The CPIRP is on file with the Commission and DEC

---

<sup>1</sup> Commission Rule R8-61(b)(1)(i) and (ii) cross reference a utility's most recent biennial report and most recent annual report filed pursuant to Commission Rule R8-60. However, the Commission recently promulgated Rule R8-60A, which sets forth the filing requirements applicable to the Companies' biennial CPIRP filings and to which DEC will refer in this Application. Relatedly, the General Assembly's recent enactment of Session Law 2023-138, on October 10, 2023, modifies N.C.G.S. § 62-110.1(e), establishing new requirements applicable to the Companies' CPCN applications as well as impacting the filing requirements under Rule R8-61(b)(5) applicable to coal or nuclear CPCN applications. While the Companies' have attempted to adhere to and reconcile these new requirements with existing Rule R8-61 in preparing this Application, out of an abundance of caution, the Companies respectfully request waiver of any provisions of pre-existing Rule R8-61 that may no longer apply to the Companies' operations as result of changes in law or regulations. It may also be appropriate to revise Commission Rule R8-61 in the future to reflect the Commission's adoption of Rule R8-60A and the General Assembly's recent enactment of N.C.G.S. § 62-110.9 and modifications to N.C.G.S. § 62-110.1(e).

is incorporating these documents by reference—rather than reproducing them—given the size of the documents and their public availability through the Commission’s Document Management System.

- **Exhibit 1B – Statement of Need to Construct the Proposed Facility** providing information responsive to Rule R8-61(b)(1);
- **Exhibit 2 – Siting and Permitting Information** providing limited updates to the information set forth in the Company’s preliminary plans filed on November 1, 2023, as well as additional discussion about the methodology underlying the studies and analysis presented in the preliminary plans, pursuant to Rule R8-61(b)(2);
- **Confidential Exhibit 3 – Cost Information** providing information responsive to Rule R8-61(b)(3); and
- **Confidential Exhibit 4 – Construction Information** providing information responsive to Rule R8-61(b)(4).

Witness Quinto is sponsoring Exhibits 1A and 1B, while witness Smith is sponsoring Exhibits 2, 3, and 4.

In support of this Application, DEC respectfully submits the following:

#### **GENERAL INFORMATION**

1. DEC’s general offices are located at 525 South Tryon Street, Charlotte, North Carolina, 28202, and its mailing address is:

Duke Energy Carolinas, LLC  
P.O. Box 1006  
Charlotte, North Carolina 28201-1006

2. DEC's attorneys, to whom all notice and other communications with respect to this Application should be sent, are:

Jack E. Jirak  
Jason A. Higginbotham  
Duke Energy Corporation  
P.O. Box 1551/NCRH 20  
Raleigh, North Carolina 27602  
Telephone (JEJ): (919) 546-3257  
Telephone (JAH): (704) 731-4015  
Email: Jack.Jirak@duke-energy.com  
Email: Jason.Higginbotham@duke-energy.com

E. Brett Breitschwerdt  
Mason E. Maney  
McGuireWoods LLP  
501 Fayetteville Street, Suite 500  
PO Box 27507 (27611)  
Raleigh, North Carolina 27601  
Telephone (EBB): (919) 755-6563  
Telephone (MEM): (919) 835-5948  
Email: bbreitschwerdt@mcguirewoods.com  
Email: mmaney@mcguirewoods.com

Brian L. Franklin  
McGuireWoods LLP  
201 North Tryon Street  
Suite 3000  
Charlotte, North Carolina 28202-2145  
Telephone: (704) 343-2078  
Email: bfranklin@mcguirewoods.com

3. DEC is (1) a limited liability company duly organized and existing under the laws of the State of North Carolina; (2) duly authorized by its Articles of Organization to engage in the business of generating, transmitting, distributing, and selling electric power and energy; (3) a public utility under the laws of the State of North Carolina, and its operations in this State are subject to the jurisdiction of this Commission; and (4) a public utility under the laws of the State of South Carolina, and its operations in South Carolina are subject to the jurisdiction of the Public Service Commission of South Carolina. DEC's

service territory covers approximately 24,000 square miles in the Central and Western portions of North Carolina and Western South Carolina. DEC supplies retail electric service to approximately 2 million customers in North Carolina.

#### **PROPOSED FACILITY NEEDED FOR CARBON PLAN EXECUTION**

4. Consistent with N.C.G.S. § 62-110.1(e), the Commission should authorize the construction of the Proposed Facility because it is “part of the least cost path to achieve compliance with the authorized carbon reduction goals in G.S. 62-110.9, will maintain or improve upon the adequacy and reliability of the existing grid,” and because construction and operation of the Proposed Facility is in the public interest.

5. In the Carbon Plan Order, the Commission recognized the critically important role of new gas CTs in the Companies’ plans to replace the 8,400 MW of remaining coal-fired generation in North Carolina and to maintain reliability during the Companies’ energy transition towards carbon neutrality by 2050.<sup>2</sup> More specifically, the Commission gave “substantial weight” to the Companies’ testimony that new gas CT resources were essential to achieving the carbon reduction mandates set forth in N.C.G.S. § 62-110.9, while simultaneously maintaining or improving reliability and pursuing a least cost path.<sup>3</sup> Ultimately, the Commission concluded that it was reasonable for the Companies’ to plan for approximately 800 MW of new CT generating resources.<sup>4</sup>

---

<sup>2</sup> See Carbon Plan Order at 78 (“The Commission gives substantial weight to Duke’s testimony that Duke’s planned coal unit retirements require replacement resources that can provide firm, dispatchable, and equally reliable capacity like peaking CTs ... and that without such replacement resources, Duke cannot retire coal on an accelerated schedule.”).

<sup>3</sup> Carbon Plan Order at 79 (“The Commission likewise gives substantial weight to Duke’s testimony that the limited new natural gas ... CT resources Duke identifies in the near-term action plan are essential to achieving the Interim Target, while maintaining or improving reliability, and doing so along a least cost path.”).

<sup>4</sup> Carbon Plan Order at 79.

6. Since the Commission issued the Carbon Plan Order, the Companies' need for new gas CT resources has only increased, driven by the changing energy landscape described throughout the Companies' CPIRP.<sup>5</sup> The increased need for dispatchable resources like CTs results primarily from projected customer load growth due, in large part, to the Carolinas' recent significant economic development success, as well as the Companies' increased planning reserve margin to ensure reliable system operations in the current changing energy landscape.

7. The CPIRP represents the Companies' most reasonable, least cost, and least risk plan to meet load growth while reliably retiring and replacing the 8,400 MW of coal generation operating in North Carolina today and to achieve the emission reduction objectives of N.C.G.S. § 62-110.9 over the base planning horizon, while simultaneously maintaining or improving existing grid reliability. As part of this executable resource plan for the Carolinas, the CPIRP's Near-Term Action Plan ("NTAP") identifies the need to place two new CT units into service by January 1, 2029. More specifically, the Companies' proposed CPIRP Execution Plan and proposed NTAP identifies the Companies' plans to construct the Proposed Facility at Marshall to achieve commercial operation by January 1, 2029, to reliably meet system needs.<sup>6</sup>

---

<sup>5</sup> See generally CPIRP Executive Summary at 4-9; CPIRP Chapter 1; *Supplemental Direct Testimony of Glen A. Snider on Behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC*, Docket No. E-100, Sub 190 (Nov. 30, 2023); and *Supplemental Direct Testimony of Glen Snider, Michael Quinto, Thomas Beatty, and Ben Passty on Behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC*, Docket No. E-100, Sub 190 at 4-9 (Jan. 31, 2024).

<sup>6</sup> CPIRP Chapter 4 at 10 (Table 4-2); SPA Section 4 at 48 (Table SPA 4-1).

## COST

8. The total projected cost of constructing the Proposed Facility includes commercially sensitive information and is being provided to the Commission under seal pursuant to N.C.G.S. § 132-1.2 in Confidential Exhibit 3.

9. Siting the Proposed Facility at Marshall is part of the Companies' previously referenced "replace before retire" strategy<sup>7</sup> and helps to accomplish their goal of repurposing infrastructure at existing power stations as the Companies' continue to meet load growth and transition their systems towards carbon neutrality by 2050. The CT units will be able to efficiently utilize significant portions of existing plant infrastructure currently supporting Marshall coal-fired Units 1 and 2.<sup>8</sup> For example and as further described below, generator interconnection studies indicate that the CT units will be able to utilize existing transmission infrastructure and will only require limited network upgrades to safely interconnect to the grid, thereby limiting the need for additional investment to interconnect and operate the new units. The CT units will also be able to utilize existing natural gas transmission infrastructure for the delivery of fuel. Finally,

---

<sup>7</sup> See *Verified Amended Petition for Approval of 2023-2024 Carbon Plan and Integrated Resource Plans of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC*, Docket No. E-100, Sub 190 at 26 (Jan. 31, 2024) ("Appendix F contains the Companies' Coal Retirement Analysis, which provides a comprehensive analysis of the Companies' unit retirement strategy as well as risks and challenges as the Companies plan for an orderly exit from reliance on coal-fired generation. In addition, the Companies conducted supplemental coal retirement analysis as part of the Supplemental Planning Analysis that resulted in a substantially similar retirement dates. The Companies' proposal—which continues to plan for retirement of all remaining 8,400 MW of coal capacity by 2035—is the most reasonable and appropriate path to retire coal units at this point in time to enable an orderly 'replace before retire' approach to the energy transition that ensures reliability is maintained.").

<sup>8</sup> The Commission has recognized that the ability to utilize existing infrastructure was a potential advantage of replacing coal-fired resources with new natural gas resources. Carbon Plan Order at 77 ("Additionally, the Commission recognizes Duke Witness Roberts' testimony that generator replacement (natural gas replacing coal) on existing sites may obviate the need for investment in significant transmission upgrades at certain sites.").

there is sufficient DEC-owned land at Marshall to support construction of the CTs without additional land acquisitions.

### **TECHNOLOGY**

10. The advanced class, simple-cycle gas CT units comprising the Proposed Facility will be hydrogen-capable and are more flexible, efficient, and have higher ramp rates and lower turndown than the Companies' existing F-Class CTs. Each CT will have an estimated nominal winter capacity of 425 MW.

11. The Proposed Facility will use natural gas as its primary fuel source and will be capable of utilizing ultra-low sulfur diesel as a back-up fuel source. Ultra-low sulfur diesel fuel will be kept onsite to ensure back-up fuel is available when needed.

### **TRANSMISSION AND FUEL SUPPLY**

12. The Company submitted a Generator Replacement Request ("GRR") pursuant to the Large Generator Interconnection Procedures established by the Companies' Joint Open Access Transmission Tariff to utilize the approximate 780 MW of transmission interconnection rights from Marshall's coal-fired Units 1 and 2. The GRR process facilitates expedited interconnection of replacement generation at the point of interconnection of retiring generation and can, thereby, reduce or avoid the cost of expensive network upgrades. The GRR Facilities Study indicated only minimal network upgrades were necessary to reliably interconnect the replacement generation, and DEC has now executed an associated GRR Large Generator Interconnection Agreement to support interconnecting the replacement MW.

13. For the incremental MW of the Proposed Facility beyond those included in the GRR, the Company submitted an interconnection request into the 2023 Definitive



Interconnection System Impact Study (“DISIS”) Cluster Study process. The Phase I DISIS study report indicated minimal network upgrades are necessary to support the incremental MWs. The Company anticipates executing an Interconnection Agreement for the incremental capacity by the end of 2025.

14. In addition to leveraging GRR to efficiently utilize existing transmission capacity and to avoid new transmission upgrades, the Proposed Facility provides additional benefits to customers because, in the absence of contemporaneous replacement generation at Marshall, the retirement of Marshall Units 1 and 2 would require significant transmission upgrades to maintain reliability. As described in Exhibit 1B and further detailed in CPRIP Appendix L (Transmission System Planning and Grid Transformation),<sup>9</sup> incremental and accelerated transmission upgrades to the McGuire to Marshall 230 kV lines (which the Companies currently plan to place into service in 2031 coincident with the retirement of Marshall Units 3-4) would be required to reliably operate the system without replacement generation at the site.

15. As stated above, the Proposed Facility will also be able to leverage existing natural gas delivery infrastructure that is currently delivering natural gas to Marshall. Piedmont Natural Gas Company, Inc., (“Piedmont”) already provides natural gas redelivery services to Marshall, and DEC will utilize the existing infrastructure, which Piedmont will expand with electric compression, to deliver greater volumes of higher-pressure fuel to the Proposed Facility. As addressed in greater detail in witness Smith’s testimony, DEC has developed plans, including contracting with Piedmont for intrastate transportation to facilitate firm delivered Transco Zone 5 gas supply, to ensure there is

---

<sup>9</sup> CPRIP Appendix L at 28-29.

sufficient natural gas firm transportation capacity to reliably meet the natural gas fuel needs of the Proposed Facility.<sup>10</sup>

### **ENVIRONMENTAL**

16. Operation of the Proposed Facility will result in the emission of certain pollutants that are regulated by the U.S. Environmental Protection Agency and the State of North Carolina. The North Carolina Division of Air Quality (“DAQ”) air quality permit application process will address operating impacts from these pollutants. DEC plans to submit an application to DAQ on or about March 28, 2024, requesting a permit to authorize construction and operation of the CT units and their associated systems. The application will include all required modeling and analysis to demonstrate compliance with applicable regulatory requirements and air quality standards.

17. From a technological and emissions-control perspective, the Proposed Facility will feature highly efficient generation and environmental control technologies. The Company anticipates that replacing Marshall coal-fired Units 1 and 2 with the CTs will reduce annual emissions of NO<sub>x</sub> by 82% and SO<sub>2</sub> by 92%, while also reducing CO<sub>2</sub> by 40% per megawatt hour. The Proposed Facility will control emissions via combustion controls as well as dilution Selective Catalytic Reduction, Carbon Monoxide (“CO”) Catalyst to control CO and volatile organic compounds emissions, and continuous emission monitoring systems on the exhaust stacks. Due to the size and efficiency of the units and their expected hours of operations, the permit application is not expected to trigger a Prevention of Significant Deterioration review under the Clean Air Act’s New Source

---

<sup>10</sup> Carbon Plan Order at 132 (Ordering Paragraph No. 18) (directing that “in any future CPCN filing for natural gas-fired generating resources, Duke shall provide an analysis of the sufficiency of firm natural gas transportation capacity for the proposed facility.”).

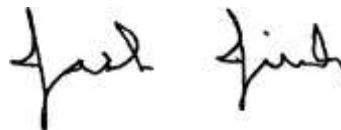
Review program requirements. The Company anticipates that DAQ will issue a final air permit within 18 months of submitting the application. The Company addresses additional permitting requirements in Exhibit 2.

### CONCLUSION

18. Commission issuance of a certificate of public convenience and necessity pursuant to N.C.G.S. § 62-110.1 for the Proposed Facility is consistent with (1) the Commission’s determination in the Carbon Plan Order that it is reasonable for the Companies to plan for new CT generating capacity; (2) the Companies’ updated CPIRP Execution Plan and NTAP to place two new CTs into service by January 1, 2029, to meet load growth, maintain system reliability, and to facilitate the orderly retirement of Marshall Units 1 and 2; and (3) N.C.G.S. § 62-110.1(e)’s framework that construction of new generating facilities be part of the least cost path to achieve compliance with statutory carbon reduction goals, maintain or improve upon the adequacy and reliability of the existing grid, and that construction and operation of the facility is in the public interest.

WHEREFORE, DEC respectfully requests that the Commission issue a certificate pursuant to N.C.G.S. § 62-110.1, determining that the public convenience and necessity requires construction of the Proposed Facility, and requests such further relief as the Commission deems just and proper.

Respectfully submitted this 14th day of March, 2024.



---

Jack E. Jirak  
Jason A. Higginbotham  
Duke Energy Corporation  
P.O. Box 1551/NCRH 20  
Raleigh, North Carolina 27602  
Telephone (JEJ): (919) 546-3257  
Telephone (JAH): (704) 731-4015  
Email: Jack.Jirak@duke-energy.com  
Email: Jason.Higginbotham@duke-energy.com

E. Brett Breitschwerdt  
Mason E. Maney  
McGuireWoods LLP  
501 Fayetteville Street, Suite 500  
Raleigh, North Carolina 27601  
Telephone (EBB): (919) 755-6563  
Telephone (MEM): (919) 835-5948  
bbreitschwerdt@mcguirewoods.com  
mmaney@mcguirewoods.com

Brian L. Franklin  
McGuireWoods LLP  
201 North Tryon Street  
Suite 3000  
Charlotte, North Carolina 28202-2145  
Telephone: (704) 343-2078  
Email: bfranklin@mcguirewoods.com

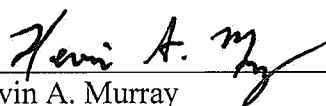
*Counsel for Duke Energy Carolinas, LLC*

VERIFICATION

STATE OF NORTH CAROLINA            )  
   )  
 COUNTY OF MECKLENBURG            )            DOCKET NO. E-7, SUB 1297

Kevin A. Murray, being first duly sworn, deposes and says:

That he is Vice President of the Project Management and Construction organization within Duke Energy Business Services, LLC; that he has read the foregoing Application and Exhibits being filed by Duke Energy Carolinas, LLC and knows the contents thereof; that the same is true except as to the matters stated therein on information and belief, and as to those matters, he believes them to be true.

  
 \_\_\_\_\_  
 Kevin A. Murray

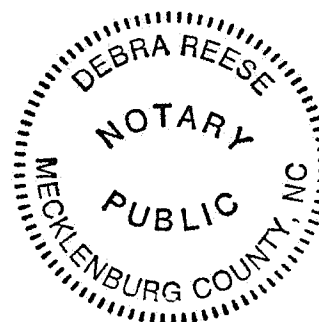
Sworn to and subscribed before me this 14<sup>th</sup> day of March, 2024.

  
 \_\_\_\_\_  
 Official Signature of Notary

(Official Seal)

Debra Reese \_\_\_\_\_, Notary Public  
 Notary's printed or typed name

My Commission Expires: October 7, 2025



**CERTIFICATE OF SERVICE**

I hereby certify that copies of the foregoing Duke Energy Carolinas, LLC's Application for a Certificate of Public Convenience and Necessity to Construct an 850 MW Natural Gas-Fired Combustion Turbine Electric Generating Facility in Catawba County, North Carolina as filed in Docket No. E-7, Sub 1297 were served electronically upon all parties of record.

This, the 14th day of March, 2024.

/s/ E. Brett Breitschwerdt  
E. Brett Breitschwerdt  
McGuireWoods LLP  
501 Fayetteville Street, Suite 500  
Raleigh, North Carolina 27601  
Telephone: (919) 755-6563  
bbreitschwerdt@mcguirewoods.com

*Attorney for Duke Energy Carolinas, LLC*