STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-2, SUB 1190

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application of Duke Energy Carolinas, LLC, Pursuant to G.S. 62-133.2 and NCUC Rule R8-55 Relating to Fuel and Fuel-Related Charge Adjustments for Electric Utilities	))))	AFFIDAVIT OF JAY B. LUCAS

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Jay B. Lucas, first being duly sworn, do depose and say:

I am an engineer with the Electric Division of the Public Staff – North Carolina Utilities Commission. A summary of my education and experience is attached to this affidavit as Appendix A.

The purpose of this affidavit is to present the Public Staff's recommendations regarding the proposed fuel and fuel-related cost factors for the residential, general service/lighting, and industrial customers of Duke Energy Carolinas, LLC (DEC or the Company), as set forth in the Company's February 26, 2019, application and testimony, April 30, 2019 supplemental testimony and revised exhibits, and May 15, 2019 supplemental testimony and revised exhibits. I have reviewed DEC's application, its prefiled testimony and exhibits, fuel-related costs, test period baseload power plant performance reports, the current coal, natural gas, nuclear fuel, and reagents markets, and various documents

related to test year power plant outages and purchased power costs. I have also reviewed the affidavit of Public Staff witness Jenny Li.

For this proceeding, the test period is January 1, 2018, through December 31, 2018, and the billing period is September 1, 2019, through August 31, 2020.

Of particular concern to the Public Staff in its investigation of the test year fuel costs was the significant under-recovery that took place due to the Company's greater than expected fuel costs in January 2018. After reviewing discovery and discussing the issue with DEC employees, the Public Staff is satisfied that the January 2018 fuel costs were reasonable and prudently incurred. However, DEC, like other utilities, has increased its reliance on natural gas to produce electricity and serve load.[1] As utilities have significantly increased their reliance on a fuel with greater price variances (compared to nuclear and coal) in order to more economically serve their customers, these same customers are exposed to greater risk of fuel cost under- and over-recoveries despite the overall decreasing cost of natural gas. Increased natural gas consumption, coupled with recent winter weather events of the last few years, have caused exposure to higher than anticipated short-term natural gas prices. Given the increased risk of under-recoveries if natural gas prices are not forecasted as accurately as possible, the Public Staff believes that the Company should evaluate historic price fluctuations and whether its current method of

[1] In 2017, the Company's natural gas burn was 80.8 MMBTU, while the current billing period is expected to result in consumption of 147.2 MMBTU. Dual Fuel Optionality conversion of some plants (Cliffside, Belews Creek, Marshall) to allow them to burn both coal and natural gas contributes to natural gas consumption projections.

forecasting and hedging programs should be adjusted to mitigate the risk of significant under-recovery of fuel costs.

I believe the projected fuel and reagent prices set forth in the testimony of DEC witnesses McGee, Grant, and Houston were calculated appropriately for purposes of this proceeding. DEC's proposed fuel and fuel-related costs are based on a 92.95% system nuclear capacity factor.[2] Based on my investigation, I have determined that the projected fuel and fuel-related costs set forth in DEC's testimony, and the prospective components of the total fuel factor, have been calculated in accordance with the requirements of N.C. Gen. Stat. § 62-133.2.

Public Staff witness Li describes the Public Staff's review of the test period Experience Modification Factor in her affidavit, and I have incorporated her recommendations in Table 1 below.

The Public Staff recommends approval of the fuel components and total fuel factors (excluding the regulatory fee) shown in Table 1:

[2] The Company's actual system nuclear capacity factor for the test year was 95.29%. In comparison, the most recent North American Electric Reliability Council (NERC) five-year average weighted for the size and type of reactors in DEC's nuclear fleet was 90.21% during the test period.

TABLE 1 – Total Proposed Fuel and Fuel-Related Cost Factors (¢ per kWh)

Rate Class	Base & Prospective	EMF and EMF Interest	Total Fuel Factor
Residential	1.8126	0.1375	1.9501
General Service/Lighting	1.9561	0.0927	2.0488
Industrial	1.8934	0.2089	2.1023

For comparison, Table 2 below provides the existing fuel and fuel-related cost factors (excluding the regulatory fee) approved in Docket No. E-7, Sub 1163:

TABLE 2 – Total Existing Fuel and Fuel-Related Cost Factors (¢ per kWh)

Rate Class	Base & Prospective	EMF	Total Fuel Factor
Residential	1.7003	0.0980	1.7983
General Service/Lighting	1.8314	0.1068	1.9382
Industrial	1.8020	0.2213	2.0233

This completes my affidavit.

Jay B. Lucas

Sworn to and subscribed before me,

this the 20th day of May, 2019.

Notary Public

Joanne M. Berube
NOTARY PUBLIC
WAKE COUNTY, N.C.
My Commission Expires 12-17-2022.

JOANNE M. BERUBE
Printed Name

My Commission Expires: 12/17/2022

Appendix A

Jay B. Lucas

I graduated from the Virginia Military Institute in 1985, earning a Bachelor of Science Degree in Civil Engineering. Afterwards, I served for four years as an officer in the U. S. Air Force performing many civil and environmental engineering tasks. I left the Air Force in 1989 and attended the Virginia Polytechnic Institute and State University (Virginia Tech), earning a Master of Science degree in Environmental Engineering. After completing my graduate degree, I worked for an engineering consulting firm and worked for the North Carolina Department of Environmental Quality in its water quality programs. Since joining the Public Staff in January 2000, I have worked on utility cost recovery, renewable energy program management, customer complaints, and other aspects of utility regulation. I am a licensed Professional Engineer in North Carolina.