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May 26, 2022

VIA ELECTRONIC FILING

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

**RE: Duke Energy Carolinas, LLC's Rebuttal Testimony
Docket No. E-7, Sub 1263**

Dear Ms. Dunston:

Please find enclosed Duke Energy Carolinas, LLC's Rebuttal Testimony of John A. Verderame, in the above-referenced proceeding.

If you have any questions, please do not hesitate to contact me. Thank you for your assistance with this matter.

Sincerely,

A handwritten signature in blue ink that reads "Ladawn S. Toon".

Ladawn S. Toon

Enclosure

cc: Parties of Record

OFFICIAL COPY

May 26 2022

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-7, SUB 1263

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)

**REBUTTAL TESTIMONY OF
JOHN A. VERDERAME FOR
DUKE ENERGY CAROLINAS, LLC**

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH THE COMPANY.

A. My name is John A. Verderame. My business address is 526 South Church Street, Charlotte, North Carolina 28202. I am employed as Vice President, Fuels & Systems Optimization for Duke Energy Corporation (“Duke Energy”). In that capacity, I lead the organization responsible for the purchase and delivery of coal, natural gas, fuel oil, and reagents to Duke Energy’s regulated generation fleet, including Duke Energy Carolinas, LLC (“Duke Energy Carolinas,” “DEC,” or the “Company”) and Duke Energy Progress, LLC (“DEP”) (collectively, the “Companies”). In addition, I manage the fleet’s power trading, system optimization, energy supply analytics, and contract administration functions.

Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN SUPPORT OF THE COMPANY’S APPLICATION IN THIS DOCKET?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the testimony and recommendations of Mr. Gregory Lander filed on behalf of Sierra Club as it relates to DEC’s natural gas hedging and forecasting processes.

Q. WHAT IS THE PURPOSE OF THIS PROCEEDING?

A. It is my understanding that the purpose of this fuel proceeding is to obtain Commission approval of the Company’s proposed fuel rates pursuant to N.C. Gen. Stat. § 62-133.2 and Commission Rule R8-55.

1 **Q. HAS ANY PARTY RECOMMENDED AN ADJUSTMENT TO THE**
2 **FUEL RATES PROPOSED BY THE COMPANY?**

3 A. No.

4 **Q. PLEASE PROVIDE YOUR GENERAL RESPONSE TO THE**
5 **TESTIMONY OF SIERRA CLUB WITNESS GREGORY LANDER.**

6 A. Witness Lander and I agree that natural gas prices are “volatile and are subject
7 to domestic – and increasingly, international– supply and demand factors.”¹
8 We also seem to agree, at a high level, that in addition to normal supply and
9 demand pressures recent factors such as the energy crisis in Europe and gas
10 producers lack of production response could continue to put upward pressure
11 on gas prices in the near term. Finally, we agree that hedging does “help reduce
12 volatility and to stabilize prices for a portion of...generation fuel supply”² and
13 that customers experienced the benefits, not only over the test period, but in the
14 estimated billing period as well. In fact, for the review period, the Company
15 hedged nearly 50% of its actual natural gas volumes resulting in a total savings
16 of approximately \$114M. The Company’s billing period estimates are also
17 inclusive of the Company’s forward hedging positions in place at the time the
18 estimate is calculated. Accordingly, my testimony briefly discusses the
19 Company’s financial natural gas hedging program as well as its physical
20 hedging approach in response to Witness Lander’s testimony on these topics.
21 Witness Lander also discusses the Company’s approach to forecasting but does

¹ Direct testimony of Gregory M. Lander, pg. 8, lines 23 & 24

² Lander Direct, pg. 11, lines 8 & 9

1 not make any recommendation that is germane to the purpose of this
2 proceeding.

3 **Q. HAS THE COMPANY PROVIDED SUFFICIENT INFORMATION IN**
4 **THIS PROCEEDING TO ESTABLISH THAT ITS BILLING PERIOD**
5 **ESTIMATES WERE REASONABLE AND PRUDENTLY**
6 **FORECASTED, INCLUDING THAT INFORMATION THAT IS**
7 **REQUIRED UNDER APPLICABLE LAW?**

8 A. Yes. The content and structure of the Company's application in this proceeding
9 conforms with North Carolina General Statutes ("N.C. Gen. Stat.") § 62-133.2(c)
10 and (d) and Commission Rule R8-55, including the specific information required
11 to be included in a fuel rider application under Rule R8-55(e) and is
12 substantially identical to that of all recent fuel rider applications. Furthermore,
13 no party has alleged that the Company's fuel application failed to conform to
14 applicable law. Compliance with the Commission's clear and objective
15 information requirements is the appropriate standard for evaluating the
16 sufficiency of the Company's application.

17 **Q. WHAT WERE THE COMMISSION'S CONCLUSIONS IN REGARD**
18 **TO PREVIOUS ADDITIONAL REPORTING RECOMMENDATIONS**
19 **IN THE 2020 DEC AND DEP FUEL PROCEEDINGS?**

20 A. The Commission rejected the recommendation of the Sierra Club witness in the
21 2020 fuel proceedings for DEC and DEP. Specifically, in the DEP fuel order,
22 the Commission confirmed "that the sufficiency of the Company's fuel

1 application should be evaluated based on the requirements of applicable law.”³
2 The Commission further noted that it had previously rejected similar
3 recommendations from the Sierra Club witness and observed that “the scope
4 and level of detail contained in the Company’s application, testimony, exhibits,
5 and workpapers as filed in this proceeding conforms with applicable law and is
6 consistent with prior applications.”⁴ The Commission has rejected similar
7 recommendations from a Sierra Club witness in the two recent fuel proceedings
8 and should, for the same reasons, reject the recommendation of the Sierra Club
9 witness in this proceeding.

10 **Q. PLEASE RESPOND TO WITNESS LANDER’S RECOMMENDATION**
11 **THAT THE COMPANY SHOULD USE WIND AND SOLAR ENERGY**
12 **TO THE FULLEST EXTENT POSSIBLE TO HEDGE AGAINST**
13 **FOSSIL FUEL PRICE VOLATILITY, INCLUDING BUILDING**
14 **ADDITIONAL UTILITY SCALE WIND AND SOLAR FACILITIES.**

15 A. There is no basis under applicable law to suggest that a fuel rider proceeding is
16 the appropriate forum in which to evaluate inclusion of utility scale wind and
17 solar generation into the Company generating mix. This recommendation
18 should be completely disregarded.

19 **II. NATURAL GAS FUEL HEDGING**

20 **Q. PLEASE DESCRIBE GENERALLY THE COMPANY’S APPROACH**
21 **TO FUEL HEDGING.**

³ Order Approving Fuel Charge Adjustment, Docket No. E-2, Sub 1250 (November 30, 2020), at 12-13.

⁴ *Id.* at 13.

1 A. The Company uses a phased hedging approach where financial hedges are
2 executed over time for a percentage of the Company's forecasted natural gas
3 burns. The strategy includes utilizing fixed price financial instruments
4 including fixed price swaps and cost-less collar options to hedge price exposure
5 to natural gas markets on a rolling 60-month period. DEC maintains target
6 hedge percentages for each of the 12-month periods within the rolling 60-month
7 period. The volumes hedged over time represent a portion of DEC's forecasted
8 burns with higher hedging targets in the first 12 to 24 months and lower hedging
9 targets in the 36 to 60-month period. The actual hedge percentage positions can
10 change as commodity price relationships between coal and natural gas impact
11 the economic dispatch order, but the hedge targets provide a framework for
12 executing a layered hedging strategy. DEC's multi-year rolling approach to
13 executing fixed price transactions for a portion of projected natural gas burns
14 over time provides a reasonable and prudent approach to mitigate price
15 volatility in the uncertain fuel markets. This strategy also allows DEC more
16 flexibility to adjust hedging volumes to accommodate changes in its forecasted
17 natural gas consumption that will occur as market conditions change.

18 **Q. DOES THE COMPANY REVIEW AND UPDATE ITS HEDGING**
19 **PROGRAM AS A RESULT OF CHANGING MARKET CONDITIONS?**

20 A. The Company continuously evaluates its hedging program to ensure that it
21 remains appropriate based on market conditions and the Company's strategy.
22 In late 2020 the Company extended its hedging program from 36 months to 60
23 months to mitigate customers exposure to future upward pressure on U.S.
24 market prices as the Company's forecasted gas usage continued to grow over

1 time. During its review in 2021, the Company further increased the hedging
2 target ranges for the periods 25 to 60 months by an additional five percent as
3 this higher percentage in the outer periods continues to decrease gas price
4 exposure and smooth the transition from one hedging period to another as the
5 outer periods move closer to prompt.

6 **Q. DOES THE COMPANY ENGAGE IN ANY PHYSICAL HEDGING OF**
7 **NATURAL GAS SUPPLY?**

8 A. Yes. As an example, to reduce exposure to Transco Zone 5 monthly and daily
9 prices, the Company contracts for optional physical natural gas supply through
10 monthly calls and daily optimization of its physical gas storage. The Company
11 can call on these products to be utilized when generation is needed to meet
12 system demand. Additionally, following a review of the physical hedging
13 program in late 2014, the Company increased its percentage of base load first
14 of the month fixed price gas purchased to supply its combined cycle generation
15 in order to mitigate the risk of daily gas price spikes.

16 **III. PROPOSED FORECASTING REQUIRMENT**

17 **Q. HAS THE COMPANY REVIEWED ITS FORECASTING PROCESS TO**
18 **EVALUATE THE RISK OF SIGNIFICANT UNDER-RECOVERY OF**
19 **FUEL COSTS FROM CHANGING NATURAL GAS PRICES?**

20 A. Yes. Following the North Carolina Utilities Commission (“NCUC”) Order
21 Approving Fuel Charge Adjustment (“2019 Fuel Order”) in Docket No. E-7,
22 Sub 1190, directing the Company to “evaluate historic price fluctuations and
23 whether its current method of forecasting and hedging programs should be
24 adjusted to mitigate the risk of significant under-recovery of fuel costs and

1 report the results of that evaluation in the Company's next fuel proceeding," the
2 Company conducted a review and filed the results in Docket No. E-7, Sub 1228.

3 **Q. WHAT WERE THE RESULTS OF THE REVIEW?**

4 A. In summary, the Company reviewed both its fuel forecasting and physical hedging
5 methodology and "determined that no adjustments were needed to its current
6 method of forecasting or to its physical hedging program...The Company also
7 recommend[ed] extending financial hedging activities for a lower percentage in
8 rolling years four and five to mitigate costs risks for customers."⁵ The results
9 were laid out in NCUC Order Approving Fuel Charge Adjustment in Docket
10 No. E-7, Sub 1228 under the evidence and conclusions for Finding of Fact No. 5.
11 Finding of Fact No. 5 states "The Company's fuel and reagent procurement and
12 power purchasing practices during the test period were reasonable and prudent."⁶

13 **Q. DURING THIS REVIEW, DID THE COMPANY CONSIDER AN**
14 **APPROACH SUCH AS WITNESS LANDER'S RECOMMENDATION OF**
15 **INCORPORATING PERIODIC GAS PRICE SPIKES INTO ITS**
16 **FORECASTED FUEL COSTS?**

17 A. The Company performed a review of its forecasting method and historical
18 natural gas price fluctuations to determine if adjustments, including those
19 similar to Witness Lander's recommendation, would be warranted to mitigate
20 the risk of significant under recoveries. Following this review the Company
21 found that: 1) the observed natural gas market prices utilized for the applicable

⁵ Order Approving Fuel Charge Adjustment, Docket No. E-7, Sub 1228 (August 19, 2020), at 12-13.

⁶ *Id.* at 4.

1 forecast are the market forward Henry Hub prices and observed locational basis
2 that are observed in the market at the time the forecast is prepared and represents
3 the best estimate of forecasted prices at that time; 2) mild weather or an extreme
4 winter weather event and corresponding impacts to the balance of supply and
5 demand were a significant driver of differences in the actual market natural gas
6 prices from those utilized in the applicable forecast; 3) weather trends over a
7 season or short-term extreme weather events and their corresponding impacts to
8 the balance of supply and demand are not known and cannot be fully predicted
9 nor forecasted without introducing significant speculation into the forecasting
10 process; and, 4) given the time lag between the forecast and the end of the
11 applicable billing period, numerous changes will occur between the actual
12 outcomes versus the inputs that existed at the time of the forecast. Only with the
13 benefit of hindsight could inputs such as actual weather events, prices, and system
14 cost impacts be known. Additionally, the forward natural gas market curves that
15 are incorporated into the Company's fuel forecasts at any point in time represent
16 what is known about supply and demand and are reflective of supply and demand
17 dynamics and trends. Currently, forward market prices reflect tightening supply
18 and demand fundamentals. Tight supply and demand fundamentals are expected
19 to remain until there is a responsive increase in natural gas production or a
20 decrease to demand due to factors such as but not limited to mild weather trends
21 or other economic shifts that could result in lower consumption.

22 Therefore, in the Company's view, incorporating historical high market
23 price events or other speculative forecasting assumptions into the Company's
24 current forecasting processes to potentially mitigate large under-recoveries is

1 speculative and could arbitrarily increase forecasted costs billed to customers with
2 the unwanted consequence of more consistent over-recoveries over the long-term.

3 **Q. HAS THE COMPANY CONSIDERED INCORPORATING ANY**
4 **CHANGES THAT COULD PROVIDE THE COMPANY WITH**
5 **ADDITIONAL FORECASTING MODELING CAPABILITIES?**

6 A. Yes. Beginning in 2020, the Company began incorporating the outputs of its Fleet
7 Analytics Stochastic Tool “FAST” model into its fuel planning, procurement, and
8 hedging processes for 2021 and beyond. The Company continues to review
9 additional opportunities to expand the use of stochastic production cost modeling
10 and related outputs into its overall forecasting process to better calculate the range
11 of costs that could occur throughout the forward period.

12 **Q. PLEASE EXPLAIN THE MODEL CHANGES UTILIZING**
13 **STOCHASTIC CAPABILITIES.**

14 A. In summary, the stochastic production cost model uses historical weather
15 information to simulate numerous iterations or scenarios of future weather and
16 load. For each of these iterations, system load and commodity prices (gas, coal,
17 oil, and power) are all calculated in a correlated manner using historical
18 correlations with each other and with weather. For example, if in a simulated
19 iteration winter is particularly cold, then that iteration would have higher load and
20 higher gas and power prices. It should be noted that the average of all simulated
21 commodity prices matches the underlying market forward price while providing
22 a range of daily prices that can occur throughout forward periods. The resulting
23 forecasts produced from the stochastic production cost model give the Company

1 not only expected fuel burns, but also the probability associated with various
2 ranges of fuel burns.

3 **Q. PLEASE COMMENT GENERALLY ON THE PURPOSE OF THIS**
4 **PROCEEDING AS IT RELATES TO THE TESTIMONY OF SIERRA**
5 **CLUB WITNESS LANDER.**

6 A. Once again, the purpose of this proceeding is to establish fuel rates for
7 DEC. Witness Lander has not recommended any changes to the fuel rates
8 proposed by DEC. Instead, witness Lander has sought to leverage this
9 proceeding into an opportunity to opine on a number of topics that are either
10 properly addressed in other proceedings, some currently open, or have
11 previously been rejected by the Commission. In the Company's view, such
12 efforts are not an efficient use of regulatory resources.

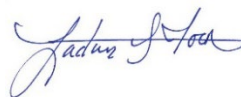
13 **Q. DOES THIS CONCLUDE YOUR PRE-FILED REBUTTAL**
14 **TESTIMONY?**

15 A. Yes, it does.
16

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC's Rebuttal Testimony, in Docket No. E-7, Sub 1263, has been served by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid to the parties of record.

This the 26th day of May, 2022.



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