

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1250

In the Matter of)	TESTIMONY OF
Application of Duke Energy Carolinas,)	DUSTIN R. METZ
LLC Pursuant to G.S. 62-133.2 and)	PUBLIC STAFF – NORTH
NCUC Rule R8-55 Relating to Fuel and)	CAROLINA UTILITIES
Fuel-Related Charge Adjustments for)	COMMISSION
Electric Utilities)	

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Testimony of Dustin R. Metz

On Behalf of the Public Staff

North Carolina Utilities Commission

May 10, 2021

1 **Q. PLEASE STATE YOUR NAME AND ADDRESS FOR THE**
2 **RECORD.**

3 A. My name is Dustin R. Metz. My business address is 430 North
4 Salisbury Street, Raleigh, North Carolina.

5 **Q. WHAT IS YOUR POSITION WITH THE PUBLIC STAFF?**

6 A. I am an engineer in the Energy Division of the Public Staff
7 representing the using and consuming public.

8 **Q. WOULD YOU BRIEFLY DISCUSS YOUR EDUCATION AND**
9 **EXPERIENCE?**

10 A. Yes. My education and experience are outlined in detail in
11 Appendix A of my testimony.

12 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
13 **PROCEEDING?**

1 A. The purpose of my testimony is to present the results of the Public
2 Staff's investigation and recommendations regarding the proposed
3 fuel and fuel-related cost factors for the residential, general
4 service/lighting, and industrial customers of Duke Energy Carolinas,
5 LLC (DEC or the Company), as set forth in the Company's February
6 23, 2021 application and testimony and April 29, 2021 supplemental
7 testimony.

8 **Q. WHAT ARE THE TEST AND BILLING PERIODS FOR THIS**
9 **PROCEEDING?**

10 A. For this proceeding, the test period is January 1, 2020, through
11 December 31, 2020, and the billing period is September 1, 2021,
12 through August 31, 2022.

13 **Q. PLEASE DESCRIBE THE SCOPE OF THE PUBLIC STAFF'S**
14 **INVESTIGATION.**

15 A. The Public Staff's investigation included a review of the Company's
16 test period and projected fuel and fuel-related costs and also the
17 following: (1) the Company's application, testimony, supplemental
18 testimony, and responses to Public Staff data requests; (2)
19 documents related to the performance of the Company's power
20 plants, including the specific performance of the Company's nuclear
21 facilities; (3) the Company's purchased power transactions; (4) the
22 cost of renewable energy and associated fuel prices; and (5) the

1 Company's coal, natural gas, nuclear, and reagent procurement
2 practices and contracts.

3 **Q. PLEASE SUMMARIZE THE RESULTS OF YOUR**
4 **INVESTIGATION AND YOUR RECOMMENDATIONS.**

- 5 • For the test year, the Company achieved the capacity factor
6 standard in Commission Rule R8-55(k), and calculated the
7 proposed base system average fuel factor for the billing period
8 appropriately.
- 9 • The Company correctly calculated the proposed fuel and fuel-
10 related cost factors in this proceeding.
- 11 • The inadvertent overstatement of power purchased from Duke
12 Energy Progress, LLC (DEP) will be reviewed/audited in DEC's
13 next annual fuel rider.

14 **Q. DID THE COMPANY ACHIEVE THE STANDARDS OF**
15 **COMMISSION RULE R8-55(K) FOR THE TEST YEAR?**

16 A. Yes. For the test year, the Company achieved the standards found
17 in Commission Rule R8-55(k) with an actual system-wide nuclear
18 capacity factor that exceeded the NERC (North American Electric
19 Reliability Corporation) weighted average nuclear capacity factor.
20 Additionally, the Company's two-year simple average of its system-
21 wide nuclear capacity factor exceeded the NERC weighted average
22 nuclear capacity factor.

1 **Q. DID THE PUBLIC STAFF REVIEW THE BILLING PERIOD OR**
2 **PROJECTED FUEL AND FUEL-RELATED COSTS AS SET**
3 **FORTH BY THE COMPANY IN THIS FILING?**

4 A. Yes. The projected fuel and reagent costs are reasonable and were
5 calculated appropriately. The projected fuel and fuel-related costs
6 are impacted by minor projected fluctuations in the costs of nuclear
7 fuel, coal, and natural gas. DEC based its proposed fuel and fuel-
8 related costs on a 93.21% system nuclear capacity factor, which the
9 Company anticipates for the billing period.¹

10 **Q. PLEASE PROVIDE THE PROPOSED FUEL AND FUEL-**
11 **RELATED COST FACTORS.**

12 A. Metz Exhibit No. 1 shows the Proposed Fuel and Fuel-Related Cost
13 Factors. The Public Staff recommends approval of the fuel
14 components and total fuel factors (excluding the regulatory fee),
15 shown in Metz Exhibit No. 1, Table 1, effective for the twelve months
16 beginning September 1, 2021.

17 Public Staff witness June Chiu discusses the Public Staff's review
18 of the test period Experience Modification Factor (EMF) and EMF
19 interest in her affidavit, and I have incorporated her
20 recommendations in Metz Exhibit No. 1.

¹ The Company's actual system nuclear capacity factor for the test year was 95.05%. 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 91.05% during the test period.

1 **Q. YOU STATED PREVIOUSLY THAT YOU REVIEWED TEST YEAR**
2 **POWER PLANT PERFORMANCE. DID ANY PARTICULAR**
3 **OUTAGES OR EVENTS OCCUR THAT YOU WOULD LIKE TO**
4 **BRING TO THE COMMISSION'S ATTENTION?**

5 A. Yes. In previous Orders,² the Commission instructed the Public Staff
6 to continue to investigate and present its concerns to the
7 Commission regarding test year outages. For the test period in this
8 proceeding, the Public Staff identified two outages at the Catawba
9 Nuclear Station that merited in-depth investigations.

10 **Q. ARE YOU RECOMMENDING DISALLOWANCE OF**
11 **REPLACEMENT POWER COSTS FOR THESE TWO OUTAGES?**

12 A. No.

13 **Q. IF YOU ARE NOT RECOMMENDING DISALLOWANCE OF**
14 **REPLACEMENT POWER COSTS, PLEASE EXPLAIN WHY YOU**
15 **ARE BRINGING THESE OUTAGES TO THE COMMISSION'S**
16 **ATTENTION.**

17 A. First, the Public Staff believes the Commission and the Company
18 should be aware of the Public Staff's investigation and conclusions
19 should the issues continue or recur.

² Docket No. E-22, Sub 546, Order Approving Fuel Charge Adjustment, Evidence and Conclusions for Findings of Fact Nos. 6-9, p. 19, January 25, 2018; and Docket No. E-7, Sub 1163, Order Approving Fuel Charge Adjustment, Evidence and Conclusions for Findings of Fact Nos. 4-6, p. 28, August 20, 2018.

1 Second, while the Public Staff did not find imprudence or
2 mismanagement on the Company's part, the Public Staff believes
3 the Company should implement and continue mitigation actions to
4 prevent future similar outages, while evaluating the costs (both
5 monetary and non-monetary) against potential gains in safety and
6 reliability.

7 Third, the replacement power costs to DEC retail customers for the
8 outages in the test year are relatively small, primarily due to the joint
9 ownership of Catawba Nuclear Station³, along with continued low
10 natural gas costs, and the relatively short outage durations. As a
11 result, the replacement power costs do not change the proposed
12 fuel factors.

13 Fourth, to the extent these issues continue or recur at Catawba or
14 at other nuclear stations, the Public Staff may find imprudence or
15 mismanagement on the Company's part that justifies a disallowance
16 of replacement power costs.

17 **Q. PLEASE DISCUSS YOUR PARTICULAR OBSERVATIONS AND**
18 **FINDINGS ABOUT THE NUCLEAR-RELATED OUTAGES FROM**
19 **THE TEST PERIOD.**

20 **A.** The two outages of concern were distinct, but occurred at the same
21 facility.

³ Duke Energy Carolinas has a ~19.2% ownership.

1 The first outage occurred on February 12, 2020, and was the result
2 of a component failure on a generator exciter in the proximity of the
3 exciter's brush⁴ location. The failure resulted in a turbine trip and
4 subsequent reactor trip. Based upon my review of the event, and
5 interviews with Company staff, the outage and the contributing
6 events that led up to the unit trip are very complex and stem from
7 procedural changes over the past decade. While some of the
8 Company's actions that contributed to this outage were not ideal,
9 the Company had completed on-schedule general bi-weekly
10 inspections (preventative maintenance activities) to ensure
11 component operation. I give substantial weight to the Company's
12 completion of bi-weekly inspections per schedule just prior to the
13 turbine trip. Based on my professional experience, I understand the
14 risk and conditions associated with entering, inspecting, and
15 working in the limited space in which the generator exciter is
16 located. Based on my interviews and discussion with Company
17 staff, I believe the Company has identified potential program
18 enhancements to mitigate exciter failure while balancing worker and
19 equipment safety.

20 The second outage occurred on September 8, 2020, and was the
21 result of a technician performing a routine scheduled calibration. In

⁴ A brush is a component used to transmit electric current from a non-moving (static) device to a rotating piece of equipment (generator or exciter).

1 doing so, the technician inadvertently performed an action on an
2 incorrect piece of equipment. This inadvertent action resulted in a
3 reactor trip. Based upon my review of the events, as well as
4 interviews with Company staff, the Company adhered to the proper
5 procedures and general work practices. The Company considered
6 the event to be human error/performance deficiency. In my
7 professional opinion, I agree with the Company's determination. To
8 my knowledge, all safety control systems responded in accordance
9 with technical specifications.

10 **Q. PLEASE DISCUSS THE INADVERTENT OVERSTATED**
11 **PURCHASES FROM DEP.**

12 A. Just prior to the filing of Company witness Sykes' supplemental
13 testimony, the Company informed the Public Staff of an internal
14 finding related to the inadvertent overstatement of power purchased
15 under the Joint Dispatch Agreement (JDA) between DEC and DEP.
16 The Company's supplemental filing provides supporting information
17 on the error that started in September 2020 and was corrected in
18 March 2021. The Public Staff requests that the Commission allow
19 the correction to flow through the as-filed revised exhibits of witness
20 Sykes, but to allow the Public Staff to review the costs in DEC's next
21 annual fuel rider. If an error is found in the September 2020 through
22 March 2021 correction, an adjustment will be made in DEC's next

1 annual fuel rider and likely cause an accompanying offset in DEP's
2 annual fuel rider.

3 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

4 A. Yes, this concludes my testimony.

APPENDIX A

QUALIFICATIONS AND EXPERIENCE

DUSTIN R. METZ

Through the Commonwealth of Virginia Board of Contractors, I hold a current Tradesman License certification of Journeyman and Master within the electrical trade, awarded in 2008 and 2009, respectively. I graduated from Central Virginia Community College, receiving Associate of Applied Science degrees in Electronics and Electrical Technology (Magna Cum Laude) in 2011 and 2012, respectively, and an Associate of Arts in Science in General Studies (Cum Laude) in 2013. I graduated from Old Dominion University in 2014, earning a Bachelor of Science degree in Engineering Technology with a major in Electrical Engineering and a minor in Engineering Management. I completed engineering graduate course work in 2019 and 2020 from North Carolina State University.

I have over twelve years of combined experience in engineering, electromechanical system design, troubleshooting, repair, installation, commissioning of electrical and electronic control systems in industrial and commercial nuclear facilities, project planning and management, and general construction experience. My general construction experience includes six years of employment with Framatome, where I provided onsite technical support, craft oversight, and engineer design change packages, as well as participated in root cause analysis teams at commercial nuclear

power plants, including plants owned by both Duke and Dominion. I also worked for six years for an industrial and commercial construction company, where I provided field fabrication and installation of electrical components that ranged from low voltage controls to medium voltage equipment, project planning and coordination with multiple work groups, craft oversight, and safety inspections.

I joined the Public Staff in the fall of 2015. Since that time, I have worked on general rate cases, fuel cases, applications for certificates of public convenience and necessity, service and power quality, customer complaints, North American Electric Reliability Corporation (NERC) Reliability Standards, nuclear decommissioning, National Electric Safety Code (NESC) Subcommittee 3 (Electric Supply Stations), avoided costs and PURPA, interconnection procedures, integrated resource planning, and power plant performance evaluations. I have also participated in multiple technical working groups and been involved in other aspects of utility regulation.

METZ EXHIBIT 1

Proposed Fuel and Fuel-Related Cost Factors in cents per kWh
effective September 1, 2021
(excludes regulatory fee)

TABLE 1 – Company PROPOSED Fuel and Fuel-Related Cost Factors
(¢ per kWh)

Rate Class	Base & Prospective	EMF	EMF Interest	Total Fuel Factor
Residential	1.5337	(0.0282)	(0.0041)	1.5014
General Service/Lighting	1.6895	0.0476	0	1.7371
Industrial	1.7243	0.1391	0	1.8634

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 1228:

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

Rate Class	Base & Prospective	EMF	EMF Interest	Total Fuel Factor
Residential	1.6027	0.0364	0	1.6391
General Service/Lighting	1.7583	0.0666	0	1.8249
Industrial	1.6652	0.2658	0	1.9310