

PLACE: WebEx Video Conference

DATE: Tuesday, June 9, 2020

TIME: 1:15 p.m. - 1:19 p.m.

DOCKET NO.: E-7, Sub 1229

BEFORE: Commissioner Daniel G. Clodfelter, Presiding  
Chair Charlotte A. Mitchell  
Commissioner Tonola D. Brown-Blair  
Commissioner Lyons Gray  
Commissioner Kimberly W. Duffley  
Commissioner Jeffrey A. Hughes  
Commissioner Floyd B. McKissick, Jr.

IN THE MATTER OF:

Application of Duke Energy Carolinas, LLC, for  
Approval of Renewable Energy and Energy Efficiency  
Portfolio Standard Cost Recovery Rider Pursuant to  
N.C.G.S. 62-133.8 and NCUC Rule R8-67.

VOLUME: 2



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## P R O C E E D I N G S

1  
2 COMMISSIONER CLODFELTER: Good afternoon  
3 again, and let's come back order. I'm now going to  
4 call for hearing Docket Number E-7, Sub 1229, which  
5 is the Application of Duke Energy Carolinas, LLC  
6 for Approval of Renewable Energy and Energy  
7 Efficiency Portfolio Standard Cost Recovery Rider  
8 Pursuant to North Carolina General Statute 62-133.8  
9 and Commission Rule R8-67.

10 I have been -- I'm  
11 Commissioner Dan Clodfelter. I have been assigned  
12 to preside over this docket. Joining me this  
13 afternoon are Commission Chair Charlotte Mitchell,  
14 along with Commissioners ToNola Brown-Blair,  
15 Lyons Gray, Kimberly Duffley, Jeff Hughes, and  
16 Floyd McKissick, Jr.

17 In compliance with the requirements of  
18 the State Government Ethics Act, I remind the  
19 Commission members of our duty to avoid conflicts  
20 of interest. At this time, inquire whether any  
21 member of the Commission has a known conflict of  
22 interest with respect to this docket.

23 (No response.)

24 COMMISSIONER CLODFELTER: Going once.

1           Going twice. Madam Court Reporter, please let the  
2           record reflect that no commissioner came forward  
3           with any conflict of interest in this matter.

4                       At this point, I'm going to ask for  
5           appearances of counsel, beginning with the  
6           applicant. Mr. Kaylor, you're still on mute.

7                       MR. KAYLOR: Robert Kaylor appearing on  
8           behalf of Duke Energy Carolinas.

9                       COMMISSIONER CLODFELTER: Thank you.  
10          Anyone else for the applicant? If not, let's move  
11          to the intervenors and take appearances. I'm  
12          sorry.

13                      MS. FENTRESS: I'm sorry. It's  
14          Kendrick Fentress appearing on behalf of Duke  
15          Energy Carolinas.

16                      COMMISSIONER CLODFELTER: Good  
17          afternoon. Anyone else for the applicant?

18                      (No response.)

19                      COMMISSIONER CLODFELTER: Okay. We will  
20          go to the intervenors. Ms. Hicks, I see you there.  
21          Would you like to announce your appearance?

22                      MS. HICKS: Good afternoon,  
23          Chair Clodfel ter. This is Warren Hicks on behalf  
24          of the Carolina Industrial Group for Fair Utility

1 Rates, III.

2 COMMISSIONER CLODFELTER: Anyone joining  
3 you?

4 MS. HICKS: No, sir.

5 COMMISSIONER CLODFELTER: Okay. All  
6 right. Let's take NCSEA.

7 MR. SMITH: Good afternoon. Ben Smith  
8 on behalf of the North Carolina Sustainable Energy  
9 Association.

10 COMMISSIONER CLODFELTER: Good  
11 afternoon, Mr. Smith. Anyone else with you?

12 MR. SMITH: No.

13 COMMISSIONER CLODFELTER: Okay. And  
14 CUCA? Anyone appearing on behalf of the Carolina  
15 Utilities Customers Association this afternoon?

16 (No response.)

17 COMMISSIONER CLODFELTER: Let the record  
18 reflect no appearances. And finally --

19 (Commissioner Clodfelter's microphone  
20 went out briefly.)

21 COURT REPORTER: Mr. Clodfelter, could  
22 you repeat that?

23 COMMISSIONER CLODFELTER: Yes. I'm  
24 sorry. I had a screen freeze. I'll call for

1 appearances from Public Staff.

2 MR. DODGE: Good afternoon,  
3 Commissioner Clodfelter. This is Tim Dodge with  
4 the Public Staff representing the Using and  
5 Consuming Public.

6 COMMISSIONER CLODFELTER: Anyone with  
7 you, Mr. Dodge?

8 MR. DODGE: Yes. Also appearing with me  
9 are Gina Holt and Nadi a Luhr.

10 COMMISSIONER CLODFELTER: Great. Have I  
11 missed any appearances of counsel?

12 (No response.)

13 COMMISSIONER CLODFELTER: We thank you  
14 all. Ladies and gentlemen, I'm not going to read  
15 out the clerk's docket. Instead, I'm going to  
16 ask -- I will hear you on any objections or  
17 comments. I gonna ask whether all counsel have had  
18 an adequate opportunity to inspect the clerk's  
19 docket and the filings reflected in the docket and  
20 have satisfied themselves that those filings have  
21 been properly made in this docket, that there are  
22 no procedural or other filings that are admitted  
23 that are required to be filed in the docket, that  
24 all filings are complete and correct as they were



1           made, and that no corrections to the filings with  
2           the clerk are required at this time, that all  
3           confidentiality designations have been properly  
4           preserved in the public version of the filings  
5           posted by the clerk. If any of those things is not  
6           correct and you have an objection, I will hear from  
7           you now.

8                               (No response.)

9                               COMMISSIONER CLODFELTER: All right.  
10           Madam Court Reporter, let the record reflect that  
11           there were no objections, and to that extent, then  
12           the Commission will take notice of the clerk's  
13           docket and all filings made therein.

14                            At this point, also on the Commission's  
15           own motion, and unless there is an objection -- and  
16           I will hear you-all on your objection -- at this  
17           time, the Commission will receive into the  
18           evidentiary record the application of all prefiled  
19           testimony and supporting exhibits and schedules  
20           submitted by the applicant, by the intervenors --  
21           although I do not believe there was any by the  
22           intervenors -- and also by the Public Staff, as I  
23           said, together with all supporting schedules and  
24           exhibits, and with all confidentiality designations

1           preserved in those files as they were submitted to  
2           the clerk's office.

3                       If there is any objection to the  
4           Commission's receipt of any of those prefiled  
5           evidentiary materials, I will hear that objection  
6           now.

7                       (No response.)

8                       COMMISSIONER CLODFELTER: If not, they  
9           are received into the record.

10                      (Application by Duke Energy Carolinas,  
11           LLC; Confidential Jennings Exhibits 1  
12           through 3, 5 through 8, 11 through 14,  
13           and 18 through 20; Jennings Exhibits 4,  
14           9, 10, 15, and 17; Supplemental Jennings  
15           Exhibit 1, Revised Page 6; Confidential  
16           Supplemental Revised Jennings Exhibits 2  
17           and 3; Confidential Williams Exhibits 1  
18           through 3 and 7; Williams Exhibits 4  
19           through 6; Confidential Supplemental  
20           Revised Williams Exhibits 1 through 3;  
21           Supplemental Revised Williams Exhibits 4  
22           and 5; were admitted into evidence.)

23                      (Whereupon, the prefiled direct and  
24           supplemental testimony of

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Megan Jennings, prefilled direct and supplemental testimony of Veronica Williams, prefilled direct testimony and Appendix A of Jay B. Lucas, and Affidavit and Appendix A of Michelle M. Boswell was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1229

In the Matter of )

)  
Application of Duke Energy Carolinas, LLC )  
for Approval of Renewable Energy and )  
Energy Efficiency Portfolio Standard (REPS) )  
Compliance Report and Cost Recovery Rider )  
Pursuant to N.C. Gen. Stat. 62-133.8 and )  
Commission Rule R8-67 )

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**DIRECT TESTIMONY OF  
MEGAN W. JENNINGS**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Megan W. Jennings, and my business address is 400 South  
3 Tryon Street, Charlotte, North Carolina.

4 **Q. PLEASE STATE YOUR POSITION WITH DUKE ENERGY AND**  
5 **DESCRIBE YOUR CURRENT RESPONSIBILITIES.**

6 A. In my capacity as Renewable Compliance Manager, I am responsible for the  
7 development and implementation of renewable energy compliance strategies  
8 for Duke Energy Carolinas, LLC (“Duke Energy Carolinas,” “DEC” or “the  
9 Company”), Duke Energy Progress, LLC (“Duke Energy Progress” or  
10 “DEP”) and Duke Energy Ohio, LLC. My responsibilities include  
11 compliance with North Carolina’s Renewable Energy and Energy  
12 Efficiency Portfolio Standard (“REPS”), compliance with Ohio’s  
13 Renewable Portfolio Standard and evaluation of renewable generation  
14 initiatives and customer programs that relate to renewable compliance.

15 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL**  
16 **BACKGROUND.**

17 A. I received a Bachelor of Science in Mathematical Sciences from Clemson  
18 University and a Master of Financial Mathematics from North Carolina  
19 State University.

20 **Q. PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND**  
21 **EXPERIENCE.**

22 A. I joined Progress Energy, Inc. in 2008, where I held positions in Investor  
23 Relations and Regulatory Planning. Following the merger of Progress

1 Energy, Inc. with Duke Energy Corporation, I worked in the Rates and  
2 Regulatory Strategy Department until June of 2015, when I moved to my  
3 current position as Renewable Compliance Manager in the Distributed  
4 Energy Technology Department.

5 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH**  
6 **CAROLINA UTILITIES COMMISSION?**

7 A. Yes, I most recently provided testimony in Docket No. E-7, Sub 1191 on  
8 Duke Energy Carolinas' 2018 REPS compliance report and application for  
9 approval of its REPS cost recovery rider.

10 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

11 A. The purpose of my testimony is to describe Duke Energy Carolinas'  
12 activities and the costs it has incurred, or projects it will incur, in support of  
13 compliance with North Carolina's Renewable Energy and Energy  
14 Efficiency Portfolio Standard under N.C. Gen. Stat. ("G.S.") § 62-133.8  
15 during the twelve months beginning on January 1, 2019 and ending on  
16 December 31, 2019 ("Test Period"), as well as during the twelve months  
17 beginning on September 1, 2020 and ending on August 31, 2021 ("Billing  
18 Period").

19 **Q. PLEASE DESCRIBE THE EXHIBITS TO YOUR TESTIMONY.**

20 A. My testimony includes twenty exhibits: Jennings Confidential Exhibit No.  
21 1 is the Company's 2019 REPS Compliance Report, and Jennings  
22 Confidential Exhibit No. 2 provides actual and forecasted REPS compliance  
23 costs, by resource, that the Company has incurred during the Test Period

1 and projects to incur during the Billing Period in support of compliance with  
2 REPS. Jennings Confidential Exhibit No. 3 is a worksheet detailing the  
3 other incremental costs included in the DEC REPS filing, listing the labor  
4 costs by activity, as directed by the North Carolina Utilities Commission  
5 (“Commission”) in its August 17, 2018 Order in Docket No. E-7, Sub 1162.  
6 Jennings Exhibit Nos. 4-20 are the results of studies the costs of which the  
7 Company is recovering via the REPS Rider.

8 **Q. WERE THESE EXHIBITS PREPARED BY YOU OR AT YOUR**  
9 **DIRECTION AND UNDER YOUR SUPERVISION?**

10 A. Jennings Confidential Exhibit Nos. 1-3 were prepared by me or under my  
11 supervision. Jennings Exhibit Nos. 4-20 include the results of studies not  
12 prepared under my supervision. In my role at Duke Energy, however, I am  
13 familiar with the studies.

14 **Compliance with REPS Requirements**

15 **Q. WHAT ARE DUKE ENERGY CAROLINAS’ REPS**  
16 **REQUIREMENTS UNDER G.S. § 62-133.8?**

17 A. Pursuant to G.S. § 62-133.8,<sup>1</sup> as an electric power supplier, Duke Energy  
18 Carolinas is required to comply with the overall REPS requirement (“Total  
19 Requirement”) by submitting for retirement a total volume of RECs  
20 equivalent to the following percentages of its North Carolina retail sales in  
21 the prior year:

<sup>1</sup> In its *Order Clarifying Electric Power Suppliers’ Annual REPS Requirements*, Docket No. E-100, Sub 113 (November 26, 2008), the Commission clarified that the calculation of these requirements for each year shall be based upon the electric utility’s North Carolina retail sales for the prior year.

- 1           ▪ Beginning in 2012, three percent (3%);
- 2           ▪ In 2015, six percent (6%);
- 3           ▪ In 2018, ten percent (10%); and
- 4           ▪ In 2021 and thereafter, twelve point five percent (12.5%).

5           Furthermore, each electric power supplier must comply with the  
6 requirements of G.S. § 62-133.8 (d), (e), and (f) (individually referred to as  
7 the “Solar Set-Aside,” “Swine Waste Set-Aside,” and “Poultry Waste Set-  
8 Aside,” respectively). That is, within the Total Requirement described  
9 above, each electric power supplier is to ensure that specific quantities of  
10 qualifying solar RECs, swine waste RECs, and poultry waste RECs are also  
11 submitted for retirement. The Company generally refers to its Total  
12 Requirement net of the three set-asides as its “General Requirement.”

13           Specifically, each electric power supplier is to comply with the Solar  
14 Set-Aside by submitting for retirement a volume of qualifying solar RECs  
15 equivalent to the following percentages of its North Carolina retail sales in  
16 the prior year:

- 17           ▪ Beginning in 2010, two-hundredths of one percent (0.02%);
- 18           ▪ In 2012, seven-hundredths of one percent (0.07%);
- 19           ▪ In 2015, fourteen-hundredths of one percent (0.14%); and
- 20           ▪ In 2018 and thereafter, two-tenths of one percent (0.2%).

21           Each electric power supplier is also to comply with the Swine Waste  
22 Set-Aside by submitting for retirement a volume of qualifying swine waste  
23 RECs equivalent to its pro-rata share of total retail electric power sold in



- 1 North Carolina multiplied by the statewide, aggregate Swine Waste Set-  
2 Aside Requirement.<sup>2</sup> Duke Energy Carolinas' Swine Waste Set-Aside  
3 Requirements, as modified by the Commission<sup>3</sup>, are as follows:
- 4       ▪ In 2018, its pro-rata share of two-hundredths of one percent (0.02%)  
5           of the total retail electric power sold in North Carolina in the year  
6           prior;
  - 7       ▪ In 2019, its pro-rata share of four-hundredths of one percent (0.04%)  
8           of the total retail electric power sold in North Carolina in the year  
9           prior;
  - 10      ▪ In 2020, its pro-rata share of seven-hundredths of one percent  
11           (0.07%) of the total retail electric power sold in North Carolina in  
12           the year prior;
  - 13      ▪ In 2022, its pro-rata share of fourteen-hundredths of one percent  
14           (0.14%) of total retail electric power sold in North Carolina in the  
15           year prior; and
- 16

<sup>2</sup> In its *Order on Pro Rata Allocation of Aggregate Swine and Poultry Waste Set-Aside Requirements and Motion for Clarification* in Docket No. E-100, Sub 113 (March 31, 2010), the Commission approved the electric power suppliers' proposed pro-rata allocation of the statewide aggregate swine and poultry waste set-aside requirements, such that the aggregate requirements will be allocated among the electric power suppliers based on the ratio of each electric power supplier's prior year retail sales to the total statewide retail sales.

<sup>3</sup> In its *Order Modifying the Swine and Poultry Waste Set-Aside Requirements And Providing Other Relief* (December 16, 2019) and its *Errata Order* (February 13, 2020) Docket No. E-100, Sub 113, the Commission modified the 2019 Swine Waste Set-Aside Requirement for electric public utilities to 0.04% and delayed by one year the scheduled increases to the requirement. The Commission also modified the 2019 Poultry Waste Set-Aside Requirement to 500,000 MWh, and delayed by one year the scheduled increases in the requirement.

1           ▪ In 2025 and thereafter, its pro-rata share of two-tenths of one percent  
2           (0.2%) of total retail electric power sold in North Carolina in the  
3           year prior.

4           Finally, each electric power supplier is also to submit for retirement  
5           a volume of qualifying poultry waste RECs equivalent to its pro-rata share  
6           of the aggregate state-wide Poultry Waste Set-Aside requirement. Duke  
7           Energy Carolinas' Poultry Waste Set-Aside Requirements, as modified by  
8           the Commission, are as follows:

- 9           ▪ Beginning in 2014, its pro-rata share of 170,000 megawatt-hours  
10          ("MWh");
- 11          ▪ In 2018, its pro-rata share of 300,000 MWh;
- 12          ▪ In 2019, its pro-rata share of 500,000 MWh; and
- 13          ▪ In 2020, its pro-rata share of 700,000 MWh; and
- 14          ▪ In 2021 and thereafter, its pro-rata share of 900,000 MWh.

15          The requirements that are described in this testimony and  
16          accompanying exhibits reflect the aggregation of the REPS requirements of  
17          Duke Energy Carolinas' retail customers as well as those wholesale  
18          customers, specifically Blue Ridge Electric Membership Corporation,  
19          Rutherford Electric Membership Corporation, Town of Dallas, Town of  
20          Forest City and Town of Highlands (collectively "Wholesale"), for which  
21          the Company has been contracted to provide REPS compliance services.

22       **Q. PLEASE DISCUSS DUKE ENERGY CAROLINAS' REPS**  
23       **REQUIREMENTS FOR THE TEST AND BILLING PERIODS.**

1 A. For the Test Period, the Company has submitted for retirement 6,170,047  
2 RECs, which includes 23,822 Senate Bill 886 (“SB 886”) RECs, each of  
3 which counts for two poultry waste and one general REC, to meet its Total  
4 Requirement of 6,217,691 RECs. Within this total, the Company has  
5 submitted for retirement 124,357 RECs to meet the Solar Set-Aside  
6 Requirement, 176,285 RECs, along with 23,822 SB 886 RECs (which  
7 count as 47,644 Poultry Waste Set-Aside RECs), to meet the Poultry Waste  
8 Set-Aside Requirement, and 23,793 RECs to meet the Swine Waste Set-  
9 Aside Requirement. During the prospective Billing Period, which spans  
10 two calendar years, with different requirements in each year, the Company’s  
11 estimated requirements are as follows<sup>4</sup>:

12 In 2020, the Company estimates that it will be required to submit for  
13 retirement 6,126,401 RECs to meet its Total Requirement. Within this total,  
14 the Company is also required to retire the following: 122,532 solar RECs,  
15 42,888 swine waste RECs and 313,499 poultry waste RECs.

16 In 2021, the Company estimates that it will be required to submit for  
17 retirement 7,563,137 RECs to meet its Total Requirement. Within this total,  
18 the Company estimates that it will be required to retire approximately  
19 122,064 solar RECs, 42,725 swine waste RECs and 403,068 poultry waste  
20 RECs.

21 **Q. HAS THE COMPANY COMPLIED WITH ITS GENERAL**  
22 **REQUIREMENT FOR 2019?**

<sup>4</sup> The Company’s projected requirements are based upon retail sales estimates and will be subject to change based upon actual prior-year North Carolina retail sales data.

1 A. Yes. The Company has met its 2019 General Requirement of 5,845,612  
2 RECs. Specifically, the RECs to be used for 2019 compliance have been  
3 transferred from the North Carolina Renewable Energy Tracking System  
4 (“NC-RETS”) Duke Energy Electric Power Supplier account to the Duke  
5 Energy Compliance Sub-Account and the Sub-Accounts of its Wholesale  
6 customers. Upon completion of this regulatory proceeding, the Commission  
7 will finalize retirement of the RECs.

8 **Q. WILL THE COMPANY COMPLY WITH ITS GENERAL**  
9 **REQUIREMENT IN 2020?**

10 A. Yes, the Company is in a position to comply with its General Requirement  
11 in 2020.

12 **Q. WHAT ACTIONS HAS DUKE ENERGY CAROLINAS TAKEN**  
13 **DURING THE TEST PERIOD TO SATISFY ITS CURRENT AND**  
14 **FUTURE REPS REQUIREMENTS?**

15 A. During the Test Period, Duke Energy Carolinas has continued to produce  
16 and procure RECs to satisfy its REPS requirements. Specifically, the  
17 Company has taken the following actions: (1) executed and continued  
18 negotiations for additional REC purchase agreements with renewable  
19 facilities; (2) operated three utility-scale solar projects, the Mocksville,  
20 Monroe and Woodleaf Solar Facilities, totaling 76 megawatts (“MW”) and  
21 generating RECs for compliance purposes; (3) continued operations of its  
22 solar and hydroelectric facilities, including completing the sale of five  
23 hydroelectric facilities and subsequently executing contracts to purchase the

1 RECs produced by these facilities, which can now be used by DEC for  
2 REPS compliance<sup>5</sup>; (4) enhanced and expanded energy efficiency programs  
3 that will generate savings that can be counted towards the Company's REPS  
4 requirement; (5) performed research studies, both directly and through  
5 strategic partnerships, to enhance the Company's ability to comply with its  
6 future REPS requirements; and (6) issued a second Request for Proposals  
7 as part of the Competitive Procurement of Renewable Energy ("CPRE")  
8 Program of North Carolina House Bill 589 ("NC HB 589"), the RECs from  
9 which will be used to meet the Company's future REPS requirements.

10 **Q. IS THE COMPANY ABLE TO USE RECS GENERATED FROM**  
11 **NET METERING FACILITIES TO SATISFY ITS FUTURE REPS**  
12 **REQUIREMENTS?**

13 A. Yes. Under the current Net Metering for Renewable Energy Facilities Rider  
14 offered by DEC (Rider NM), a customer receiving electric service under a  
15 schedule other than a time-of-use schedule with demand rates ("NMNTD  
16 customer") shall provide any RECs to DEC at no cost. Per the  
17 Commission's June 5, 2018 *Order Approving Rider and Granting Waiver*  
18 *Request* ("NMNTD Order") in Docket Nos. E-2, Sub 1106 and E-7, Sub  
19 1113, for NMNTD customers, DEC may use the PVWatts<sup>TM</sup> Solar  
20 Calculator developed by the National Renewable Energy Laboratory

<sup>5</sup> On August 16, 2019, DEC sold the Bryson Hydroelectric Station, Franklin Hydroelectric Station, Gaston Shoals Hydroelectric Station, Mission Hydroelectric Station and Tuxedo Hydroelectric Station to Northbrook Carolina Hydro II, LLC and Northbrook Tuxedo, LLC. Following the sale, DEC signed Renewable Purchase Power Agreements to purchase power and RECs from the facilities. These RECs can be used by DEC for REPS compliance as the facilities are now considered New Renewable Energy Facilities.

1 (“NREL”) for estimating the generation from NMNTD customers’ solar  
2 facilities, as permitted by Commission Rule R8-67(g)(2). Commission Rule  
3 R8-67(g)(2) allows the use of a scalable conversion factor for estimating  
4 annual generation from program participants. DEC shall then report the  
5 total amount of electricity produced by facilities under the Rider directly  
6 into NC-RETS in a separately identified generation project. DEC has  
7 complied with these requirements and reported generation from NMNTD  
8 customers to NC-RETS. The RECs from these facilities are currently in  
9 DEC’s REC inventory and available for use for future compliance  
10 requirements.

11 **Q. ARE THERE OTHER COMPLIANCE REQUIREMENTS IN THE**  
12 **NMNTD ORDER WITH WHICH DEC MUST COMPLY?**

13 A. Yes. The NMNTD Order also requires that DEC shall provide NC-RETS  
14 on a monthly basis with a list of participating customers, including location  
15 and the kW capacity of their installations, to be made available on the NC-  
16 RETS website. DEC has complied, and continues to comply, with this  
17 requirement. In addition, the NMNTD Order requires that for two years,  
18 DEC shall verify through site visits to a statistically significant number of  
19 participating residences that the solar installations covered by this Rider  
20 continue to be operating and shall include the findings of its site visits in its  
21 annual REPS compliance filing.

22 **Q: HAS DEC PERFORMED THE SITE VISITS REQUIRED BY THE**  
23 **NMNTD ORDER?**

1    **A:**    Yes, DEC hired a third-party contractor, Pure Power Contractors, Inc., to  
2           perform the required site visits. A total of eighty-five site visits took place  
3           between February 18, 2019 and April 23, 2019, with inspections taking  
4           place in Charlotte, Durham, Hickory and Salisbury. The inspection process  
5           consisted of a visual inspection of the facility equipment, with the following  
6           data points collected at each facility:

- 7           • Energy production readings were taken from the inverter displays or  
8           monitoring equipment;
- 9           • Equipment make and model numbers;
- 10          • Weather conditions;
- 11          • Array tilt, azimuth and insolation readings; and
- 12          • Meter numbers.

13    **Q.    THROUGH THESE SITE VISITS, WAS IT DETERMINED THAT**  
14           **PRODUCTION FROM INSTALLED SYSTEMS MET**  
15           **EXPECTATIONS?**

16    **A:**    Yes, the site visits determined that production from installed systems has  
17           met expectations. For the net metering facilities included in the sample, the  
18           PVWatts™ Solar Calculator produced an average generation estimate of  
19           9.14 MWh/yr. The historical production data collected from inverter  
20           readings during the site visits demonstrated an average production for the  
21           sample group of 8.85 MWh/yr. This resulted in an overall average  
22           realization rate of 96%, which is calculated by dividing the verified annual  
23           production by the expected annual production for each customer and taking

1 the sample average. These findings indicate that the PVWatts™ production  
2 estimate methodology remains accurate for predicting future MWh/yr. for  
3 program participants.

4 **Q. HOW WILL THE CPRE PROGRAM OF NC HB 589 IMPACT**  
5 **DEC'S COMPLIANCE WITH ITS GENERAL REQUIREMENT?**

6 A. Under G.S. § 62-110.8(a), DEC and DEP are responsible for procuring  
7 renewable energy and capacity through a competitive procurement program  
8 with the purpose of adding renewable energy to the state's generation  
9 portfolio in a manner that allows DEC and DEP to continue to reliably and  
10 cost-effectively serve their customers' future energy needs. To meet the  
11 CPRE Program requirements, the Companies must issue requests for  
12 proposals to procure energy and capacity from renewable energy facilities  
13 in the aggregate amount of 2,660 MW (subject to adjustment in certain  
14 circumstances) reasonably allocated over a term of 45 months beginning on  
15 February 21, 2018, when the Commission approved the CPRE Program.

16 Renewable energy facilities eligible to participate in the CPRE  
17 solicitation(s) include those facilities that use renewable energy resources  
18 identified in G. S. § 62-133.8(a)(8), the REPS statute. The renewable energy  
19 facilities, to be developed or acquired by the Companies or procured from  
20 a third party through a power purchase agreement under the CPRE Program,  
21 must also deliver to the Companies the environmental and renewable  
22 attributes, or RECs, associated with the power. The Company's annual  
23 CPRE Program Plan, filed on September 1, 2019 in Docket No. E-100, Sub



1 157, includes a planned allocation of ~1,230 to ~1,880 MWs between the  
2 DEC and DEP service territories, as well as a planned timeline for each  
3 solicitation. DEC plans to use the RECs acquired through the CPRE RFP  
4 solicitations for its future REPS compliance requirements and has therefore  
5 included the planned MW allocation and timeline in its REPS compliance  
6 planning process. Because the Company will use the RECs acquired  
7 through CPRE for REPS compliance, CPRE program implementation costs  
8 could be recovered through the REPS Rider. However, as I noted in my  
9 testimony in last year's annual REPS cost-recovery proceeding in Docket  
10 No. E-7, Sub 1191, the Company has elected to recover the reasonable and  
11 prudent costs incurred to implement the CPRE Program through the CPRE  
12 Rider (see Docket No. E-7, Sub 1231), as contemplated under Commission  
13 Rule R8-71(j).

14 **Q. HAS THE COMPANY COMPLIED WITH ITS SOLAR SET-ASIDE**  
15 **REQUIREMENT FOR 2019?**

16 A. Yes. The Company has met the 2019 Solar Set-Aside Requirement of  
17 124,357 solar RECs. Pursuant to the NC-RETS Operating Procedures, the  
18 Company has submitted for retirement 124,357 solar RECs. Specifically,  
19 the RECs to be used for 2019 compliance have been transferred from the  
20 NC-RETS Duke Energy Electric Power Supplier account to the Duke  
21 Energy Compliance Sub-Account and the Sub-Accounts of its Wholesale  
22 customers. Upon completion of this regulatory proceeding, the Commission  
23 will finalize retirement of the RECs.

1 **Q. WILL THE COMPANY COMPLY WITH ITS SOLAR SET-ASIDE**  
2 **REQUIREMENT IN 2020?**

3 A. Yes, the Company is well-positioned to comply with its Solar Set-Aside  
4 Requirement in 2020.

5 **Q. PLEASE PROVIDE AN UPDATE ON THE COMPANY'S EFFORTS**  
6 **TO COMPLY WITH ITS SOLAR SET-ASIDE REQUIREMENT.**

7 A. The Company is well-positioned to comply with its Solar Set-Aside  
8 Requirement in 2020 through a diverse and balanced portfolio of solar  
9 resources. The Company's efforts to comply with the Solar Set-Aside  
10 Requirement include REC generation and procurement from solar  
11 renewable energy facilities.

12 As previously noted, the Company constructed three DEC-owned  
13 solar photovoltaic ("PV") facilities, which will generate an estimated  
14 140,000 RECs per year over the life of the projects. These facilities include  
15 the Monroe Solar Facility, 55 MW located in Union County, the Mocksville  
16 Solar Facility, 15 MW located in Davie County, and the Woodleaf Solar  
17 Facility, 6 MW located in Rowan County.

18 **Q. PLEASE DESCRIBE THE OPERATIONAL STATUS OF THE**  
19 **COMPANY'S PV DISTRIBUTED GENERATION ASSETS.**

20 A. The Company's approximately 10 MW-DC of solar PV generation facilities  
21 were operational and generating power for the benefit of its customers  
22 during the test period. In 2020, the Company plans to complete updates to  
23 the monitoring equipment at its nonresidential sites. The Marshall site will

1 be decommissioned in 2020 due to work that needs to be completed on the  
2 coal ash storage site where the solar facility is located. Also, in 2020,  
3 contracts for the seven residential sites expire with the option to renew. One  
4 customer has notified the Company that it does not wish to continue, and  
5 the Company plans to contact the other customers to determine their desire  
6 to renew their contracts.

7 **Q. HAS THE COMPANY COMPLIED WITH ITS POULTRY WASTE**  
8 **SET-ASIDE REQUIREMENT FOR 2019?**

9 A. Yes. The Company has met the 2019 Poultry Waste Set-Aside  
10 Requirement of 223,929 RECs. Pursuant to NC-RETS Operating  
11 Procedures, the Company has submitted for retirement 176,285 poultry  
12 RECs and 23,822 SB 886 RECs (which count as 47,644 Poultry Waste Set-  
13 Aside RECs). Accordingly, the Company has submitted the equivalent of  
14 223,929 poultry RECs for compliance. Specifically, the RECs to be used  
15 for 2019 compliance have been transferred from the NC-RETS Duke  
16 Energy Electric Power Supplier account to the Duke Energy Compliance  
17 Sub-Account and the Sub-Accounts of its Wholesale customers. Upon  
18 completion of this regulatory proceeding, the Commission will finalize  
19 retirement of the RECs.

20 **Q. WILL THE COMPANY COMPLY WITH ITS POULTRY WASTE**  
21 **SET-ASIDE REQUIREMENT IN 2020?**

22 A. The Company's ability to comply with its Poultry Waste Set-Aside  
23 Requirement in 2020 is dependent on the performance of current poultry

1 waste-to-energy contracts, several of which are ramping up production  
2 during 2020. To help meet future requirements of the poultry waste set-  
3 aside, four new poultry waste-to-energy facilities are currently scheduled to  
4 come online in 2021, two of which are gas injection facilities.

5 **Q. WHAT ACTIONS HAS THE COMPANY TAKEN DURING THE**  
6 **TEST PERIOD TO PROCURE OR DEVELOP POULTRY WASTE-**  
7 **TO-ENERGY RESOURCES TO SATISFY ITS POULTRY WASTE**  
8 **SET-ASIDE REQUIREMENTS?**

9 A. In the Test Period, the Company (1) continued direct negotiations for  
10 additional supplies of both in-state and out-of-state resources with multiple  
11 counterparties; (2) secured contracts for additional poultry waste-to-energy  
12 resources; (3) worked diligently to understand the technological, permitting,  
13 and operational risks associated with various methods of producing  
14 qualifying poultry RECs to aid developers in overcoming those risks; when  
15 those risks could not be overcome, the Company worked with developers  
16 via contract amendments to adjust for more realistic outcomes; (4) explored  
17 leveraging current biomass contracts by working with developers to add  
18 poultry waste to their fuel mix; (5) explored adding thermal capabilities to  
19 current poultry sites to bolster REC production; (6) explored poultry-  
20 derived directed biogas at facilities located in North Carolina and directing  
21 such biogas to combined cycle plants for combustion and electric  
22 generation; and (7) utilized the Company's REC trader to search the broker  
23 market for out-of-state poultry RECs available in the market. Additional

1 information on the Company's compliance with the Poultry Waste Set-  
2 Aside requirement can be found in the Company's Joint Semiannual  
3 Progress Report, filed on November 20, 2019 in Docket No. E-100, Sub  
4 113A.

5 The Company remains committed to satisfying its statutory  
6 requirements for the Poultry Waste Set-Aside and will continue to  
7 reasonably and prudently pursue procurement of these resources.

8 **Q. HAS THE COMPANY COMPLIED WITH ITS SWINE WASTE**  
9 **SET-ASIDE REQUIREMENT FOR 2019?**

10 A. Yes. The Company has met the 2019 Swine Waste Set-Aside Requirement  
11 of 23,793 swine RECs. Pursuant to the NC-RETS Operating Procedures,  
12 the Company has submitted for retirement 23,793 swine RECs.  
13 Specifically, the RECs to be used for 2019 compliance have been  
14 transferred from the NC-RETS Duke Energy Electric Power Supplier  
15 account to the Duke Energy Compliance Sub-Account. Upon completion of  
16 this regulatory proceeding, the Commission will finalize retirement of the  
17 RECs.

18 **Q. WILL THE COMPANY COMPLY WITH ITS SWINE WASTE SET-**  
19 **ASIDE REQUIREMENT IN 2020?**

20 A. The Company's ability to comply with its Swine Waste Set-Aside  
21 Requirement in 2020 is dependent on the performance of swine waste-to-  
22 energy developers on current contracts, particularly achievement of  
23 projected delivery requirements and commercial operation milestones.

1           The Company understands that current swine waste-to-energy  
2 projects have encountered difficulties in achieving the full REC output of  
3 their contracts due to issues including local opposition to siting of the  
4 facilities, the inability to secure firm and reliable sources of swine waste  
5 feedstock from waste producers in North Carolina, difficulties securing  
6 project financing and technological challenges encountered when ramping  
7 up production.

8 **Q.   WHAT ACTIONS HAS DUKE ENERGY CAROLINAS TAKEN**  
9 **DURING THE TEST PERIOD TO PROCURE OR DEVELOP**  
10 **SWINE WASTE-TO-ENERGY RESOURCES TO MEET ITS SWINE**  
11 **WASTE SET-ASIDE REQUIREMENTS?**

12 A.   In the Test Period, the Company (1) continued direct negotiations for  
13 additional supplies of both in-state and out-of-state resources; (2) continued  
14 support of the Loyd Ray Farms research and development project; (3)  
15 worked diligently to understand the technological, permitting, and  
16 operational risks associated with various methods of producing qualifying  
17 swine RECs to aid developers in overcoming those risks; when those risks  
18 could not be overcome, the Company worked with developers via contract  
19 amendments to adjust for outcomes that the developers believe are  
20 achievable based on new experience; (4) explored and is engaging in  
21 modification of current biomass and set-asides contracts by working with  
22 developers to add swine waste to their fuel mix; (5) continued pursuit of  
23 swine-derived directed biogas from North Carolina facilities including

1 continuing discussions with Align Renewable Natural Gas (“RNG”) who  
2 has announced that they will deploy millions of dollars in North Carolina,  
3 covering swine lagoons and cleaning up the related RNG; (6) utilized the  
4 Company’s REC trader to search the broker market for out-of-state swine  
5 RECs available in the market; and (7) engaged the North Carolina Pork  
6 Council (“NCPC”) in a project evaluation collaboration effort that will  
7 allow the Company and the NCPC to discuss project viability, as  
8 appropriate, with respect to the Company’s obligations to keep certain  
9 sensitive commercial information confidential. Additional information on  
10 the Company’s compliance with the Swine Waste Set-Aside requirement  
11 can be found in the Company’s Joint Semiannual Progress Report, filed on  
12 November 20, 2019 in Docket No. E-100, Sub 113A.

13 The Company remains committed to satisfying its statutory  
14 requirements for the Swine Waste Set-Aside and will continue to reasonably  
15 and prudently pursue procurement of these resources.

16 **Q. IS DUKE ENERGY CAROLINAS CONTINUING TO EXECUTE**  
17 **ADDITIONAL REC PURCHASE AGREEMENTS?**

18 A. Yes. The Company continues to execute additional REC purchase  
19 agreements and maintains an open solicitation for proposals from  
20 developers of renewable energy resources.

21 **Q. DID THE COMPANY SELL ANY RECS DURING THE TEST**  
22 **PERIOD?**

23 A. No, the Company did not sell any RECs during the test period.

1   **Q.   HAS THE COMPANY COMPLIED WITH THE COMMISSION’S**  
2       **AUGUST 2019 ORDER IN DOCKET NO. E-7, SUB 1191,**  
3       **PERTAINING TO REC SALES?**

4   A.   The Commission’s August 15, 2019 *Order Approving REPS and REPS*  
5       *EMF Riders and 2018 REPS Compliance Report* in Docket. No. E-7, Sub  
6       1191, directed the Company and the Public Staff to work together to  
7       evaluate sales prices of set-aside RECs sold by DEC and address the five  
8       considerations below, as set forth in witness Boswell’s testimony. The  
9       Commission further directed the Company to include the results of this  
10      evaluation, and any resolution of issues, in its direct testimony in this  
11      current DEC cost recovery proceeding.

12           (1) overhead costs associated with obtaining the REC and  
13           subsequent sale of the REC;

14           (2) an amount to mitigate the interest DEC may pay ratepayers on  
15           any REPS EMF overcollection that results from the sale of set-aside  
16           RECs;

17           (3) an amount to ensure that DEC’s customers do not bear any risk  
18           of REC contracts not materializing or resulting in lower quantities  
19           of RECs being generated;

20           (4) an amount to provide a price signal to other electric power  
21           suppliers to encourage them to continue to participate in the  
22           development of swine and poultry waste-to-energy resources



1 without relying solely on DEC to provide the needed set-aside  
2 RECs; and

3 (5) an amount to encourage DEC to sell RECs, when available, to  
4 other North Carolina electric power suppliers for the purpose of  
5 assisting with their compliance with the REPS requirements.

6 The Company has submitted its recommendations regarding the  
7 above considerations to the Public Staff, which are as follows.

8 The Company proposes that, when selling set-aside RECs to other  
9 electric suppliers, the sale price of these RECs will be determined by taking  
10 a weighted average price of all contracts in DEC's and DEP's combined  
11 portfolio that were executed for compliance with the respective set-aside for  
12 which RECs are being sold, which is the same practice the Company has  
13 followed for past REC sales. In addition to this weighted average price, the  
14 Company proposes two adders to address items (1) through (4) above as  
15 suggested in Witness Boswell's testimony. One adder would be to address  
16 item (2), an amount to mitigate the interest DEC is required to pay  
17 customers on any REPS EMF overcollection that includes the proceeds  
18 from the sale of set-aside RECs. This adder would be retained by the  
19 Company to mitigate interest paid to customers in the event of an  
20 overcollection for the EMF period, and would be credited in full to  
21 customers in the REPS rider calculation if the Company is not over  
22 collected for the EMF period. The second adder would be charged to REC  
23 buyers to address items (1), (3) and (4) and would be credited to customers

1 in the relevant REPS EMF rider calculation. Regarding item (5), the  
2 Company does not propose a specific adder to create an incentive to sell  
3 RECs.

4 **Q. DOES THE COMPANY HAVE IN ITS INVENTORY ANY RECS**  
5 **THAT IT CANNOT USE FOR ITS OWN REPS COMPLIANCE**  
6 **REQUIREMENTS?**

7 A. Yes. DEC has RECs in its inventory that it cannot use for its own REPS  
8 compliance requirements. The RECs were generated by specific  
9 hydroelectric generating facilities owned by the Company, each of which  
10 has a generation capacity of 10 MW or less and was placed into service prior  
11 to January 1, 2007.

12 **Q. PLEASE EXPLAIN WHY THE COMPANY CANNOT USE THESE**  
13 **RECS TO MEET ITS OWN COMPLIANCE REQUIREMENTS.**

14 A. Under G.S. § 62-133.8(b)(2), an electric public utility, such as DEC, may  
15 meet its REPS compliance requirement through several methods, including  
16 by “generat[ing] electric power at a new renewable energy facility.” The  
17 Commission accepted the registration of these DEC-owned hydroelectric  
18 facilities as renewable energy facilities, but not as *new* renewable energy  
19 facilities, in its July 31, 2009 *Order Accepting Registration of Renewable*  
20 *Energy Facilities* in Docket Nos. E-7, Subs 886, 887, 888, 900, 903 and 904  
21 (“*June 31, 2009 Registration Order*”) and its December 9, 2010 *Order*  
22 *Accepting Registration of Renewable Energy Facilities* in Docket Nos. E-7,  
23 Subs 942, 943, 945 and 946 (collectively, “*Registration Orders*”). In the

1           *Registration Orders*, the Commission specifically cited its June 17, 2009  
2           *Order on Public Staff's Motion for Clarification* in Docket No. E-100, Sub  
3           113, where it concluded that these utility-owned hydroelectric facilities do  
4           not meet the delivery requirement of G.S. § 62-133.8(a)(5)(c), which  
5           requires the delivery of electric power to an electric power supplier, such as  
6           DEC, by an entity other than the electric power supplier to qualify as a *new*  
7           renewable energy facility.

8       **Q.    WHAT HAS THE COMPANY PROPOSED TO DO WITH THESE**  
9       **HYDROELECTRIC RECS THAT IT CANNOT USE FOR ITS OWN**  
10       **REPS COMPLIANCE?**

11      A.    In the REPS cost recovery proceedings in Docket Nos. E-7, Sub 1162 and  
12           E-7, Sub 1191, the Company proposed to exchange a portion of these  
13           hydroelectric RECs for RECs within the inventory of the North Carolina  
14           Electric Membership Corporation (“NCEMC”). Unlike DEC, NCEMC can  
15           use these hydroelectric RECs to comply with its REPS requirements  
16           because G.S. § 62-133.8(c)(2)(d) allows electric membership corporations  
17           and municipalities to meet their REPS requirements through the purchase  
18           of RECs derived from renewable, as opposed to new renewable, energy  
19           facilities. Additionally, the Company noted that the REC exchange would  
20           benefit DEC’s customers because it would allow DEC to meet part of its  
21           general REPS requirements through the RECs exchanged with NCEMC at  
22           no cost to DEC’s customers rather than through the purchase of additional  
23           RECs from new renewable energy facilities. NCEMC’s customers are held

1 harmless in the transaction as this exchange simply replaces RECs in  
2 NCEMC's inventory with different RECs that NCEMC will use to meet its  
3 General Requirement. The Public Staff of the North Carolina Utilities  
4 Commission supported the Company's proposed REC transfers with  
5 NCEMC, and the Commission concluded that the proposed transfer was  
6 reasonable and served the public interest in its *Order Approving REPS and*  
7 *REPS EMF Riders and 2017 REPS Compliance Report*, issued on August  
8 17, 2018 in Docket No. E-7, Sub 1162.

9 **Q. HAS THE COMPANY EXCHANGED ANY OF THESE**  
10 **HYDROELECTRIC RECS WITH NCEMC?**

11 A. Yes. The Company has executed contracts with NCEMC exchanging a  
12 portion of these hydroelectric RECs for an equal number of General  
13 Requirement RECs in NCEMC's inventory that DEC can use for REPS  
14 compliance.

15 **Cost of REPS Compliance**

16 **Q. WHAT ARE THE COMPANY'S COSTS ASSOCIATED WITH REPS**  
17 **COMPLIANCE DURING THIS TEST PERIOD AND THE**  
18 **UPCOMING BILLING PERIOD?**

19 A. Duke Energy Carolinas' costs associated with REPS compliance are  
20 reflected in Jennings Confidential Exhibit No. 2 and are categorized by  
21 actual costs incurred during the Test Period and projected costs for the  
22 Billing Period.

1 **Q. IN ADDITION TO RENEWABLE ENERGY AND REC COSTS,**  
2 **WHAT OTHER COSTS OF REPS COMPLIANCE DOES THE**  
3 **COMPANY SEEK TO RECOVER IN THIS PROCEEDING?**

4 A. Jennings Confidential Exhibit Nos. 2 and 3 identify “Other Incremental  
5 Cost,” “Solar Rebate Program Cost” and “Research Cost” that the Company  
6 has incurred, and estimates it will incur, in association with REPS  
7 compliance.

8 **Other Incremental Costs and Solar Rebate Program Costs**

9 **Q. PLEASE EXPLAIN THE OTHER INCREMENTAL COSTS**  
10 **INCLUDED FOR RECOVERY IN THIS PROCEEDING.**

11 A. Other Incremental Costs include labor costs associated with REPS  
12 compliance activities and non-labor costs associated with administration of  
13 REPS compliance. Among the non-labor costs associated with REPS  
14 compliance are the Company’s subscription to NC-RETS, and accounting  
15 and tracking tools related to RECs, reduced by agreed-upon liquidated  
16 damages paid by sellers for failure to meet contractual milestones, and  
17 amounts paid for administrative contractual amendments requested by  
18 sellers.

19 **Q. PLEASE PROVIDE INFORMATION ON THE NC HB 589 SOLAR**  
20 **REBATE PROGRAM (“SOLAR REBATE PROGRAM”).**

21 A. As required by G.S. § 62-155(f), DEC developed a Solar Rebate Program  
22 offering reasonable incentives to residential and nonresidential customers  
23 for the installation of small customer owned or leased solar energy facilities

1 participating in the Company's net metering tariff. The incentive is limited  
2 to 10 kilowatts alternating current ("kW AC") for residential solar  
3 installations and 100 kW AC for nonresidential solar installations. The  
4 program incentive shall be limited to 10,000 kW of installed capacity  
5 annually starting January 1, 2018 and continuing until December 31, 2022.

6 Consistent with the Commission's April 3, 2018 order and  
7 subsequent orders in Docket Nos. E-7, Sub 1166 and E-2, Sub 1167, the  
8 Solar Rebate Program launched on July 9, 2018. In every year since its  
9 launch, the Solar Rebate Program's annual participation limits for the  
10 residential and non-residential class have been met, although the two  
11 thousand five hundred kW of capacity limit for nonprofit organizations has  
12 not been met. On January 3, 2020, DEC filed a notice that the 2020 annual  
13 participation limits for residential and non-residential customers under the  
14 Solar Rebate Program, exclusive of the non-profit participation set-aside,  
15 had been reached.

16 Beginning in 2019, for a residential customer who obtains a rebate  
17 reservation prior to installation, the installation must be completed no later  
18 than December 31 in the year in which the reservation was obtained. For a  
19 nonresidential customer, with a project size under 20 kW-AC, who obtains  
20 a rebate reservation prior to installation, the installation must be completed  
21 no later than 365 days from the date the rebate reservation was obtained.  
22 For a nonresidential customer, with a project size over 20kW-AC, who  
23 obtains a rebate reservation prior to installation, the installation must be

1 completed no later than 365 days from the date of an executed  
2 interconnection agreement. Therefore, rebate payments for the 2018  
3 program year continued into 2019, and the same principle will apply for  
4 subsequent program years, with payments continuing into 2023 after the  
5 final program year of 2022. In accordance with the September 20, 2018  
6 Order issued by the Commission in Docket Nos. E-2, Sub 1167 and E-7,  
7 Sub 1166, after December 31, 2018, a reallocation was completed to assign  
8 capacity and pay rebates to those defined as ‘Affected Customers’ within  
9 the Order. This resulted in an increase in rebate payments made at the  
10 beginning of 2019.

11 **Q. ARE COSTS RELATED TO THE NC HB 589 SOLAR REBATE**  
12 **PROGRAM INCLUDED FOR RECOVERY IN THIS FILING?**

13 A. Yes. Pursuant to G.S. § 62-155(f), each public utility required to offer a  
14 solar rebate program “shall be authorized to recover all reasonable and  
15 prudent costs of incentives provided to customers and program  
16 administrative costs by amortizing the total program incentives distributed  
17 during a calendar year and administrative costs over a 20-year period,  
18 including a return component adjusted for income taxes at the utility's  
19 overall weighted average cost of capital established in its most recent  
20 general rate case, which shall be included in the costs recoverable by the  
21 public utility pursuant to G.S. 62-133.8(h).” G.S. § 62-133.8(h) provides for  
22 an electric power supplier’s cost recovery and customer charges under the  
23 REPS statute; NC HB 589 amended it by adding a provision to allow for

1 the recovery of incremental costs incurred to “provide incentives to  
2 customers, including program costs, incurred pursuant to G.S. § 62-155(f).”  
3 Therefore, DEC has included for recovery in this filing costs incurred  
4 during the EMF period, and projected to be incurred in the Billing Period,  
5 related to the implementation of the NC HB 589 Solar Rebate Program. As  
6 detailed on Jennings Confidential Exhibit No. 3, these costs include the  
7 annual amortization of incentives paid to customers and program  
8 administration costs, which includes labor, information technology and  
9 marketing costs. Projected incentive costs for the Billing Period are within  
10 the capacity limits established by G.S. § 62-155(f).

11 **Q. PLEASE PROVIDE DETAIL ON THE INTERNAL LABOR COSTS**  
12 **THAT ARE ASSOCIATED WITH REPS COMPLIANCE AND NC**  
13 **HB 589 SOLAR REBATE PROGRAM ACTIVITIES THAT ARE**  
14 **INCLUDED IN DEC’S CURRENT APPLICATION FOR REPS**  
15 **COST RECOVERY.**

16 A. DEC charges only the incremental cost of REPS compliance and the NC  
17 HB 589 Solar Rebate Program to the REPS cost recovery rider. Consistent  
18 with that policy and DEC’s practices in previous applications for cost  
19 recovery for REPS compliance, internal employees that work to comply  
20 with G.S. § 62-133.8 and G.S. § 62-155(f) charge only that portion of their  
21 labor to REPS. The departments/functions that charged labor to REPS  
22 during the Test Period are detailed in Jennings Confidential Exhibit No. 3.



1 **Q. HOW DO EMPLOYEES CHARGE THEIR REPS-RELATED AND**  
2 **NC HB 589 SOLAR REBATE PROGRAM-RELATED LABOR**  
3 **COSTS TO REPS?**

4 A. Employees positively report their time, which means that each employee is  
5 required to submit a timesheet every two weeks in DEC's time reporting  
6 system. The hours reported for the period are split according to the  
7 accounting entered in the time reporting system for that specific employee.  
8 The division of hours is updated for the reporting period as necessary, as  
9 the nature of the employee's work changes.

10 To educate employees to account for their time properly, DEC  
11 annually provides instructions for charging time to REPS to affected  
12 employees and the management of the employee groups performing REPS  
13 work. Additionally, every year prior to filing for approval of the DEC REPS  
14 Compliance Report and Cost-Recovery Rider, the labor hours charged are  
15 carefully reviewed and confirmed.

16 **Q. ARE THERE ANY LABOR AND NON-LABOR**  
17 **INTERCONNECTION-RELATED COSTS INCLUDED FOR**  
18 **RECOVERY IN THIS FILING?**

19 A. No. As directed by the Commission in Docket No. E-2, Sub 1109, all  
20 internal interconnection-related labor costs, such as those related to  
21 employees in the Distributed Energy Resources Standard PPAs and  
22 Interconnection Team and the Renewables Service Center, contract labor  
23 costs, such as those for temporary employees working on interconnection

1 information technology projects and non-labor costs, such as PowerClerk  
2 platform costs, have not been included for recovery in this filing.

3 **Research Costs**

4 With respect to Research and Development (“R&D”) activities during the  
5 Test Period and projected for the Billing Period, the Company has incurred  
6 or projects to incur costs associated with the support of various pilot projects  
7 and studies related to distributed energy technology and the Company’s  
8 REPS compliance.

9 **Q. THE COMMISSION’S ORDER APPROVING REPS AND REPS EMF**  
10 **RIDERS AND 2012 REPS COMPLIANCE REQUIRES DUKE**  
11 **ENERGY CAROLINAS TO FILE WITH ITS 2019 REPS RIDER**  
12 **APPLICATION STUDY RESULTS FOR ANY STUDIES THE**  
13 **COSTS OF WHICH IT HAS RECOVERED VIA THE REPS RIDER.**  
14 **IS THE COMPANY SUPPLYING SUCH STUDIES IN THIS**  
15 **FILING?**

16 **A.** Yes. The Company’s R&D efforts are an integral part of its REPS  
17 Compliance efforts. The following summary outlines efforts undertaken by  
18 the Company in the test period and specifies the availability of applicable  
19 study results.

- 20 • CAPER Photovoltaic Synchronous Generator (“PVSG”) – Started  
21 in 2017, the Company worked with North Carolina State University  
22 and Clemson University, through CAPER (Center for Advanced  
23 Power Engineering Research), on a project to develop and

- 1 demonstrate a 40 kW three-phase PVSG system. This project  
2 concluded in 2019. The results of this project can be found in  
3 Jennings Exhibit No. 4.
- 4 • Closed Loop Biomass – The Company has completed the closed-  
5 loop biomass research project, which was designed to better  
6 understand yield potential for various woody crops, including  
7 Loblolly Pine, Hybrid Poplar, Hybrid Aspen, Sweetgum, Willow  
8 and Cottonwood trees. American Forest Management provided  
9 project management support and periodic updates to the Company.  
10 While the work on this project concluded in 2018, the final invoice  
11 was not paid until 2019, which is why this project is included again  
12 in this year’s REPS filing. The final reports from the project were  
13 included as Jennings Exhibit Nos. 8-9 in Docket No. E-7, Sub 1191.
  - 14 • Coalition for Renewable Natural Gas – The Company renewed its  
15 membership to the Coalition for Renewable Natural Gas in 2019, to  
16 add a valuable resource of knowledge and public policy advocacy  
17 in this growing sector of potential animal waste supply. The  
18 Coalition for Renewable Natural Gas provides its members with  
19 exclusive whitepapers, support on model pipeline gas specifications  
20 and access to other members for discussions on current and future  
21 projects.
  - 22 • DER Risks to Transformers and Transmission – Started in 2018, the  
23 Company worked with ABB and Pike Engineering on a project to

1 evaluate the distribution energy resource interconnection impacts to  
2 the Transmission to Distribution transformers and the transmission  
3 system. While the work on this project concluded in 2018, the final  
4 invoice was not paid until 2019, which is why this project is included  
5 again in this year’s REPS filing. The final report from the project  
6 was included as Jennings Exhibit No. 10 in Docket No. E-7, Sub  
7 1191.

- 8 • Eos Energy Storage Technology Development – The Company and  
9 Eos Services started a collaborative technology development  
10 program to validate, demonstrate, and quantify the benefits of an  
11 Eos Aurora Battery System that is DC coupled to a PV facility at the  
12 McAlpine Creek Substation 50 kW Solar Facility. The installation  
13 of the Eos Aurora Battery System was completed in 2019, and  
14 operational tests will continue in 2020. The progress report of this  
15 project can be found in Jennings Confidential Exhibit No. 5.
- 16 • Electric Power Research Institute (“EPRI”) – In 2019, the Company  
17 subscribed to the following EPRI programs, the costs of which were  
18 recovered via the REPS rider: Program 174 – Integration of  
19 Distributed Energy Resources. The company participated in a  
20 supplemental project under this program – “DER Interconnection  
21 Standards & Practices.” The company also extended the support of  
22 the “EPRI - PV monitoring project” which originally started in  
23 2017. EPRI designates such study results as proprietary or as trade

1 secrets and licenses such results to EPRI members,  
2 including Duke Energy Carolinas. As such, the Company may not  
3 disclose the information publicly. Non-members may access these  
4 studies for a fee. Information regarding access to this information  
5 can be found at <http://www.epri.com/Pages/Default.aspx>.

- 6 • Emerging Technology Office (“ETO”) – Mitigation of Transformer  
7 High Inrush Current – In 2019, the Company continued working  
8 with multiple vendors on a project to test and evaluate different  
9 options to mitigate the transformer high inrush current.  
10 Transformers are very expensive components of the electric power  
11 system. The transformers installed in the utility scale solar  
12 generating facilities are experiencing high inrush current during  
13 energization. Transformer inrush currents are short duration currents  
14 that flow into the transformer primary every time the transformer is  
15 energized. These currents are typically high magnitude (up to 20  
16 times the nominal current), harmonic currents with some DC  
17 component. These high inrush currents can cause numerous  
18 problems on the electrical system, such as breaker tripping, voltage  
19 sags, voltage flicker, mechanical stress on the transformer windings,  
20 oscillatory torque in motors and system resonance. The results of  
21 this project can be found in Jennings Confidential Exhibit Nos. 6  
22 and 7.

- 1                   • Institute for Electrical and Electronics Engineers (“IEEE”) 1547  
2                   Conformity Assessment – The IEEE 1547 Conformity Assessment  
3                   Steering Committee has been working to develop industry standard  
4                   tools and methodologies to assure consistent and comprehensive  
5                   compliance prior to utility grid interconnection sign off. IEEE and  
6                   the Company share a common goal to accelerate and broaden  
7                   industry adoption through the development and publication of well-  
8                   designed and managed conformity assessment and certification  
9                   programs. In 2019, the Company piloted the IEEE 1547 Conformity  
10                  Assessment process at a 6 MW utility-scale solar plant located in  
11                  Duke Energy Carolinas. The results of this project can be found in  
12                  Jennings Confidential Exhibit No. 8.
- 13                  • Loyd Ray Farms – The Company partnered with Duke University  
14                  to develop a pilot-scale, sixty-five kW swine waste-to-energy  
15                  facility, which initiated operation and began producing renewable  
16                  energy in 2011. Jennings Exhibit Nos. 9 and 10 summarize the  
17                  project’s progress through December 31, 2019.
- 18                  • NC State University (“NCSU” or “NC State”) – Adopting DVAR to  
19                  Mitigate PV Impacts on a Distribution System – In 2019, the  
20                  Company started a project with NC State to assess the effectiveness  
21                  of the American Superconductor Corp. Dynamic Volt-Amp  
22                  Reactive Compensation Solution (“mini-DVAR”) in mitigating  
23                  various power quality issues on distribution circuits due to

1 increasing penetration of PV. The scope of the project also includes  
2 the optimal placement of mini-DVAR and its optimal volt-var  
3 control. The project is expected to continue in 2020. The progress  
4 report of this project can be found in Jennings Confidential Exhibit  
5 No. 11.

6 • NCSU – Feeder Anti-islanding Detection Using HIL Modeling and  
7 Simulation – In 2019, the Company started a project with NC State  
8 to evaluate the challenge from increasing penetration of PV and  
9 installation of mini-DVAR to the islanding protection scheme. The  
10 scope of this project is to use a Hardware-in-the-loop (“HIL”) setup  
11 to simulate different fault conditions with Schweitzer Engineering  
12 Laboratories (“SEL”) relays at PV sites and different operating  
13 conditions. The progress report of this project can be found in  
14 Jennings Confidential Exhibit No. 12.

15 • NCSU – ETO – Grid-forming Battery Energy Storage System  
16 Characterization and Testing – Starting from late 2018, the  
17 Company worked with NC State on a project to install and  
18 commission a Battery Energy Storage System (“BESS”) and to  
19 study the loading capabilities of the BESS operating in grid-forming  
20 mode. A BESS may need to power up a microgrid after an outage,  
21 thus supplying all of the magnetizing currents to line-start machines  
22 as well as isolation transformers in the microgrid. There is a need to  
23 understand the capabilities of the state-of-the art BESS inverters to

- 1 support these loads. Though simulating such behavior is feasible,  
2 experimental validation is required to guarantee that the system will  
3 operate as expected, and the BESS inverter protection will not trip.  
4 The project continued in 2019 and the progress report can be found  
5 in Jennings Confidential Exhibit No. 13.
- 6 • NC State University – Interactions of PV Installations with  
7 Distribution Systems – Starting from late 2018, the Company  
8 worked with NC State on a project to construct a testbed and  
9 analysis framework for investigating how large PV penetration on a  
10 feeder affects the operation of the distribution system. The project  
11 continued in 2019, and the progress report can be found in Jennings  
12 Confidential Exhibit No. 14.
  - 13 • NC State University’s Future Renewable Electric Energy Delivery  
14 and Management (“FREEDM”) Systems Center – Duke Energy  
15 supports NC State’s FREEDM Center through annual membership  
16 dues. The FREEDM partnership provides Duke Energy with the  
17 ability to influence and focus research on materials, technology, and  
18 products that will enable the utility industry to transform the electric  
19 grid into a 2-way power flow system supporting distributed  
20 generation.
  - 21 • NREL – Carbon-Free Resource Integration Study – In 2019, the  
22 Company contracted with NREL, an industry-respected, leading  
23 research institution, to conduct a study of the Carolinas’ system to



1 help us understand the operational impacts, benefits and limitations  
2 of solar. The study will also inform other fleet transformation  
3 analyses, including how different clean energy technologies can  
4 contribute to a carbon-free future. The study will be conducted in  
5 two phases. Phase 1 was completed in 2019, and Phase 2 has started  
6 and will continue in 2020. The results of the Phase 1 study of this  
7 project can be found in Jennings Exhibit Nos. 15-17.

8 • PNNL – Dynamic Var Compensator (“DVC”) Pilot – Started in  
9 2018, the Company worked with One-Cycle Control, Inc. and  
10 Pacific Northwest National Laboratory (“PNNL”) on a project,  
11 which is part of DOE SunAmp Contract: 0000-1714, to install and  
12 commission two DVC devices in the Company’s distribution  
13 system, and to evaluate its performance in mitigating the voltage  
14 variability due to high penetration of distributed photovoltaic on a  
15 distribution feeder. The project concluded in 2019, and the results  
16 can be found in Jennings Confidential Exhibit No. 18.

17 • Research Triangle Institute – Biogas Utilization in North Carolina –  
18 In 2019, the Company continued support of the Research Triangle  
19 Institute project for the NC Energy Policy Council to determine the  
20 potential bioenergy/biogas resources available in NC, and to  
21 identify the most beneficial and optimum utilization of resources to  
22 maximize economic, environmental and societal advantages. An

- 1 overview of the project can be found in Jennings Confidential  
2 Exhibit No. 19.
- 3 • Rocky Mountain Institute (“RMI”) – The Company participates in  
4 eLab, a forum sponsored by RMI, composed of several North  
5 Carolina and nationally based entities, and organized to overcome  
6 barriers to economic deployment of distributed energy resources in  
7 the U.S. electric sector. Specifically, the Company seeks to gauge  
8 customer desires related to distributed resources and provide ideas  
9 of potential long-term solutions for distributed energy resources and  
10 microgrids. Please visit RMI’s website at <http://www.rmi.org/elab>  
11 for more information on eLab.
  - 12 • Swine Extrusion/Poultry Mortality – The Animal and Poultry Waste  
13 Management Center (“APWMC”) at NC State University – In  
14 2019, the Company continued support of the various projects being  
15 undertaken by the APWMC. This work is centered around drying  
16 swine lagoon solids, bagged lagoon sludge and lagoon sludge mixed  
17 with agricultural wastes at a farm-based level to create a higher  
18 MMBtu fuel that can be safely and easily transported to a central  
19 plant for combustion. An update on the project can be found in  
20 Jennings Confidential Exhibit No. 20. Note that there are no costs  
21 related to this project included in the test period, but the Company  
22 continues to support the project and has included projected costs in  
23 the billing period.

1 **Q. ARE YOU SATISFIED THAT THE ACTUAL COSTS INCURRED**  
2 **IN THE TEST PERIOD HAVE BEEN, AND THAT THE**  
3 **PROJECTED COSTS OF THE BILLING PERIOD WILL BE,**  
4 **PRUDENTLY INCURRED?**

5 A. Yes. Duke Energy Carolinas believes it has incurred and projects to incur  
6 all of these costs associated with REPS compliance in a prudent manner.  
7 The Company continues to exercise thorough and rigorous technical and  
8 economic analysis to evaluate all options for compliance with its REPS  
9 requirements. Duke Energy Carolinas has developed strong foundational  
10 market knowledge related to renewable resources. The Company continues  
11 to enhance and develop expertise in this field through the Company's  
12 various solicitations for renewable energy and the operation of its  
13 unsolicited bid process, its implementation of the Duke Energy North  
14 Carolina Solar PV Distributed Generation Program, its construction of  
15 DEC-owned utility-scale solar facilities, its participation in industry  
16 research, and daily interaction with developers of renewable energy  
17 facilities. As a result of these efforts, the Company has been able to identify,  
18 procure, and develop a diverse portfolio of renewable resources to meet its  
19 REPS requirements in a prudent, reasonable and cost-effective manner.

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

21 A. Yes.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1229

In the Matter of )  
 )  
 Application of Duke Energy Carolinas, LLC )  
 for Approval of Renewable Energy and )  
 Energy Efficiency Portfolio Standard (REPS) )  
 Compliance Report and Cost Recovery Rider )  
 Pursuant to N.C. Gen. Stat. 62-133.8 and )  
 Commission Rule R8-67 )

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**SUPPLEMENTAL  
 TESTIMONY OF MEGAN  
 W. JENNINGS**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Megan W. Jennings, and my business address is 400 South  
3 Tryon Street, Charlotte, North Carolina.

4 **Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN THIS**  
5 **MATTER BEFORE THE NORTH CAROLINA UTILITIES**  
6 **COMMISSION?**

7 A. Yes. I filed direct testimony on behalf of Duke Energy Carolinas, LLC  
8 (“DEC” or the “Company”) in this matter on February 25, 2020.

9 **Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL**  
10 **TESTIMONY?**

11 A. The purpose of my supplemental testimony is to update the North Carolina  
12 Utilities Commission on information presented in the exhibits filed with my  
13 direct testimony, as well as provide an update to the Company’s proposed  
14 animal waste REC sale price calculation resulting from recent discussions  
15 with the Public Staff.

16 **Q. WHAT UPDATES NEED TO BE MADE TO THE EXHIBITS FILED**  
17 **WITH YOUR DIRECT TESTIMONY?**

18 A. The total cost and total cost per unit amounts reflected on Line No. 4 on  
19 Confidential Jennings Exhibit No. 2 for the January 1, 2019 through  
20 December 31, 2019 experience modification factor (“EMF”) test period  
21 were incorrect. The total number of units and renewable energy certificates  
22 (“REC”) were shown correctly and not affected by the error. The result was  
23 an overstatement of \$158,000 in incremental REPS recovery cost for the

1 January 1, 2019 through December 31, 2019 EMF test period. There is no  
2 effect on quantities or cost for the September 1, 2020 through August 31,  
3 2021 estimated billing period. Details of the error and the corrections  
4 required to amounts originally reported on Line No. 4 of Confidential  
5 Jennings Exhibit No. 2 for the EMF period are as follows: **[BEGIN**  
6 **CONFIDENTIAL]** [REDACTED]  
7 [REDACTED]  
8 [REDACTED]  
9 [REDACTED]  
10 [REDACTED]  
11 [REDACTED]  
12 [REDACTED]  
13 [REDACTED]  
14 [REDACTED] **[END**  
15 **CONFIDENTIAL]**. Confidential Revised Jennings Exhibit No. 2 filed  
16 with this supplemental testimony reflects corrections to amounts on Line  
17 No. 4, and to the corresponding subtotals and totals shown on Line Nos.  
18 118, 139, 185, and 191.

19 In addition, during the discovery process, the Company noticed  
20 some minor errors in a few individual input cost items recorded in the solar  
21 rebate program amortization schedule. Correcting these minor errors results  
22 in a change to Line No. 26 on Jennings Exhibit No. 3 for the EMF Period,  
23 “Annual Amortization of Program Administrative Contract Labor & Other

1 Administrative Costs, plus return on unamortized balance,” from [BEGIN  
2 CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]. This in  
3 turn changes the Total Solar Rebate Program Cost, shown on Line No. 27  
4 of Jennings Exhibit No. 3, for the EMF period from \$886,014 to \$886,071,  
5 a net cost increase of \$57. These corrections can be found on Confidential  
6 Revised Jennings Exhibit No. 3 and are reflected in amounts reported on  
7 Line Nos. 188, 190, and 191 of Confidential Revised Jennings Exhibit No.  
8 2.

9 Also filed with this supplemental testimony is Revised Page No. 6  
10 of Jennings Exhibit No. 1, the 2019 Compliance Report. Tables in section  
11 Nos. IV and V are updated to incorporate the corrections noted above. The  
12 cost adjustments noted above are also identified in the supplemental  
13 testimony of Veronica I. Williams and reflected in Revised Williams  
14 Exhibit Nos. 1, 2, and 4, filed in this docket.

15 **Q. PLEASE DESCRIBE THE UPDATES TO THE COMPANY’S**  
16 **PROPOSED ANIMAL WASTE REC SALE PRICE CALCULATION**  
17 **RESULTING FROM RECENT DISCUSSIONS WITH THE PUBLIC**  
18 **STAFF.**

19 A. Since the Company filed direct testimony in this docket, the Company and  
20 the Public Staff have continued to work together to evaluate the sales prices  
21 of set-aside RECs, as directed by the Commission in its August 15, 2019  
22 *Order Approving REPS and REPS EMF Riders and 2018 REPS*  
23 *Compliance Report* in Docket. No. E-7, Sub 1191. Through these

1 discussions, the Company and the Public Staff have come to an agreement  
2 on a proposed REC sale price calculation that will be used when the  
3 Company, or Duke Energy Progress, LLC, sell animal waste RECs to other  
4 electric suppliers to help those suppliers comply with N.C. Gen. Stat. §§ 62-  
5 133.8(e) and (f).

6 In my direct testimony, the Company proposed that the sale price of  
7 set-aside RECs sold to other electric suppliers should be determined by  
8 taking a weighted average price of all contracts in DEC's and DEP's  
9 combined portfolio that were executed for compliance with the respective  
10 set-aside for which RECs are being sold. In subsequent discussions, the  
11 Public Staff recommended calculating the weighted average price of RECs  
12 from only those contracted facilities that were operational in the combined  
13 portfolio, rather than all executed contracts. The Company agrees with this  
14 recommendation.

15 Also in my direct testimony, the Company proposed an adder to  
16 mitigate the interest DEC is required to pay customers on any REPS EMF  
17 overcollection that includes the proceeds from the sale of set-aside RECs.  
18 This adder would be retained by the Company to mitigate interest paid to  
19 customers in the event of an overcollection for the EMF period, and would  
20 be credited in full to customers in the REPS rider calculation if the Company  
21 is not over collected for the EMF period. The Company's proposed adder  
22 was 10% calculated at 20 months, the amount of time between the mid-  
23 point of the EMF period and the mid-point of the billing period, which is



1 consistent with the interest calculation on other overcollections. The Public  
2 Staff proposed a revision to reduce this over-collection interest mitigation  
3 factor by the Company's prior-year short-term borrowing rate. This revision  
4 would recognize the value that the Company receives from holding the sales  
5 proceeds during the period of time between the sales transaction and when  
6 the funds are credited back to customers during the prospective billing  
7 period. The Company agrees with the Public Staff's proposal.

8 **Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?**

9 A. Yes.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1229

In the Matter of )

)  
Application of Duke Energy Carolinas, LLC )  
for Approval of Renewable Energy and )  
Energy Efficiency Portfolio Standard (REPS) )  
Compliance Report and Cost Recovery Rider )  
Pursuant to N.C. Gen. Stat. § 62-133.8 and )  
Commission Rule R8-67 )

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**DIRECT TESTIMONY OF  
VERONICA I. WILLIAMS**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Veronica I. Williams, and my business address is 550 South  
3 Tryon Street, Charlotte, North Carolina.

4 **Q. PLEASE STATE YOUR POSITION WITH DUKE ENERGY AND**  
5 **DESCRIBE YOUR CURRENT RESPONSIBILITIES.**

6 A. In my capacity as Rates and Regulatory Strategy Manager, I am responsible  
7 for providing regulatory support related to retail and wholesale rates,  
8 providing guidance on Renewable Energy and Energy Efficiency Portfolio  
9 Standard (“REPS”) compliance and cost recovery for Duke Energy  
10 Carolinas, LLC (“Duke Energy Carolinas,” “DEC,” or the “Company”) and  
11 Duke Energy Progress, LLC (“Duke Energy Progress” or “DEP”), and  
12 preparing and filing testimony and exhibits in annual DEC and DEP REPS  
13 rider proceedings.

14 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL**  
15 **BACKGROUND, BUSINESS BACKGROUND AND**  
16 **PROFESSIONAL AFFILIATIONS.**

17 A. I received a Bachelor of Science degree in Business from the University of  
18 North Carolina at Charlotte. I am a certified public accountant licensed in  
19 the state of North Carolina. I began my career with Duke Power Company  
20 (now known as Duke Energy Carolinas) as an internal auditor and  
21 subsequently worked in various departments in the finance organization. I  
22 joined the Rates Department in 2001.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH**  
2 **CAROLINA UTILITIES COMMISSION?**

3 A. Yes. I most recently provided testimony in Docket No. E-2, Sub 1205  
4 regarding Duke Energy Progress' 2018 REPS compliance report and  
5 application for approval of its REPS cost recovery rider, and in Docket No.  
6 E-7, Sub 1191 regarding Duke Energy Carolinas' 2018 REPS compliance  
7 report and application for approval of its REPS cost recovery rider.

8 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

9 A. The purpose of my testimony is to describe the calculation of and present  
10 the support for the REPS rider proposed by Duke Energy Carolinas under  
11 N.C. Gen. Stat. ("G.S.") § 62-133.8 and to present the information and data  
12 required by Commission Rule R8-67 as set forth in Williams Exhibit Nos.  
13 1 through 4. The test period used in supplying this information and data is  
14 the twelve months beginning on January 1, 2019 and ending on December  
15 31, 2019 ("Test Period" or "EMF Period"), and the billing period for the  
16 REPS rider requested in the Company's application is the twelve months  
17 beginning on September 1, 2020 and ending on August 31, 2021 ("Billing  
18 Period").

19 **Q. PLEASE DESCRIBE THE EXHIBITS TO YOUR TESTIMONY.**

20 A. Williams Confidential Exhibit No. 1 ("Williams Exhibit No. 1") identifies  
21 the total REPS compliance costs for which the Company seeks recovery  
22 from Duke Energy Carolinas' North Carolina Retail ("NC Retail")  
23 customers and from the Company's wholesale customers that receive REPS

1 compliance services from the Company (“Wholesale”). Williams  
2 Confidential Exhibit No. 2 (“Williams Exhibit No. 2”) shows the allocation  
3 of the total REPS compliance costs, identified in Williams Exhibit No. 1, to  
4 the Company’s NC Retail customers for the Test Period. Williams  
5 Confidential Exhibit No. 3 (“Williams Exhibit No. 3”) shows the allocation  
6 of the total expected REPS compliance costs, identified on Williams Exhibit  
7 No. 1, to the Company’s NC Retail customers for the Billing Period.  
8 Williams Exhibit No. 4 shows the total REPS rider amounts proposed,  
9 including the REPS Experience Modification Factor (“EMF”), by customer  
10 class, compared to the cost cap for each customer class. Williams Exhibit  
11 No. 5 is the tariff sheet for the proposed REPS Rider. Williams Exhibit No.  
12 6 is a worksheet detailing the Company’s energy efficiency certificate  
13 (“EEC”) inventory balance as of December 31, 2019. Finally, Williams  
14 Confidential Exhibit No. 7 (“Williams Exhibit No. 7”) is a summary cost  
15 recovery worksheet related to the Company’s Woodleaf solar facility  
16 (“Woodleaf”), placed into service in December 2018.

17 **Q. WERE THESE EXHIBITS PREPARED BY YOU OR AT YOUR**  
18 **DIRECTION AND UNDER YOUR SUPERVISION?**

19 A. Yes.

20 **Q. WHAT COSTS ARE INCLUDED IN DUKE ENERGY CAROLINAS’**  
21 **PROPOSED REPS RIDER?**

22 A. The proposed REPS rider intends to recover Duke Energy Carolinas’  
23 incremental costs of compliance with the renewable energy requirements

1 pursuant to G.S. § 62-133.8. The costs incurred by the Company to comply  
2 with its REPS compliance requirements are described comprehensively in  
3 the testimony of Company witness Jennings, and detailed in Jennings  
4 Confidential Exhibits Nos. 2 and 3, filed in this docket. The costs incurred  
5 during the Test Period are presented in this filing to demonstrate their  
6 reasonableness and prudence as provided in North Carolina Utilities  
7 Commission (“Commission”) Rule R8-67(e).

8 The rider includes the REPS EMF component to recover the  
9 difference between the compliance costs incurred and revenues realized  
10 during the Test Period. In addition to an EMF component, the proposed  
11 rider includes a component to recover the costs expected to be incurred for  
12 the Billing Period.

13 **Q. PLEASE DESCRIBE THE METHODOLOGY DUKE ENERGY**  
14 **CAROLINAS USED TO CALCULATE THE INCREMENTAL**  
15 **COSTS OF COMPLIANCE WITH THE REPS REQUIREMENTS.**

16 A. Company witness Jennings describes the costs Duke Energy Carolinas  
17 incurred during the Test Period and the costs the Company projects to incur  
18 during the Billing Period to comply with its REPS requirements. G.S. § 62-  
19 133.8(h)(1) provides that “incremental costs” means “all reasonable and  
20 prudent costs incurred by an electric power supplier” to comply with the  
21 REPS requirements “that are in excess of the electric power supplier’s  
22 avoided costs other than those costs recovered pursuant to G.S. § 62-133.9.”

1           For purchased power agreements with a renewable energy facility,  
2           the Company subtracted its avoided cost from the total cost associated with  
3           the renewable energy purchase to arrive at the incremental cost for the  
4           renewable energy purchase during the period in question. Consistent with  
5           Rule R8-67(e)(2), which provides that the cost of an unbundled renewable  
6           energy certificate (“REC”) “is an incremental cost and has no avoided cost  
7           component,” the total costs incurred during the Test Period for REC  
8           purchases are included in incremental costs. Further, the projected costs for  
9           REC purchases during the Billing Period are included as incremental costs.

10           With respect to the Company’s utility-owned solar generating  
11           facilities, an annual revenue requirement, including capital and operations  
12           and maintenance costs, was calculated for each facility for the period  
13           covering the expected service life of the project. The present value of the  
14           total facility revenue requirement was levelized over the asset life to  
15           produce a levelized annual revenue requirement that was compared to  
16           avoided cost to determine annual incremental cost subject to cost recovery  
17           through the REPS rider. For biogas purchases used to generate renewable  
18           energy at the Company’s generating stations, the incremental cost is  
19           calculated by subtracting the applicable avoided cost from the total biogas  
20           cost associated with the MWhs generated. Similar calculations are made to  
21           estimate the incremental biogas costs for the prospective Billing Period.

22           As described in detail by Company witness Jennings in her direct  
23           testimony filed in this docket, the REPS EMF and Billing Period

1 components of the proposed REPS rider also include compliance-related  
2 incremental administration costs, labor costs, and costs related to research  
3 incurred during the 2019 EMF Period and estimated to be incurred during  
4 the Billing Period, respectively. Additionally, as further detailed in the  
5 testimony of Company witness Jennings, amounts reflecting the  
6 amortization of Solar Rebate Program costs incurred pursuant to G.S. § 62-  
7 155(f) applicable to the EMF and Billing Periods are included for recovery in  
8 the proposed REPS rider.

9 **Q. PLEASE EXPLAIN FURTHER THE CALCULATION OF**  
10 **INCREMENTAL COST RELATED TO THE COMPANY'S SOLAR**  
11 **GENERATING FACILITIES PROPOSED FOR RECOVERY IN ITS**  
12 **REPS RIDER.**

13 A. The revenue requirements for recovery of capital and operating costs for the  
14 Duke Energy North Carolina Solar Photovoltaic Distributed Generation  
15 Program (“Duke Energy PV DG Program” or “Solar PVDG Program”) are  
16 levelized and then reduced by avoided cost to determine incremental cost.  
17 The incremental cost for which the Company seeks recovery through the  
18 REPS rider is limited, in compliance with the Commission’s May 6, 2009  
19 *Order on Reconsideration* in Docket No. E-7, Sub 856 and the  
20 Commission’s August 23, 2011 *Order Approving REPS and REPS EMF*  
21 *Riders and 2010 REPS Compliance* in Docket No. E-7, Sub 984 (“*2011*  
22 *REPS Order*”).

23 On May 16, 2016, the Commission issued orders approving the  
24 transfers of the certificates of public convenience and necessity to DEC for



1 both the Company’s Mocksville solar facility (“Mocksville,” Docket No. E-  
2 7, Sub 1098) and the Company’s Monroe solar facility (“Monroe,” Docket  
3 No. E-7, Sub 1079). On June 16, 2016, the Commission issued its Order  
4 Granting Certificate of Public Convenience and Necessity (“*Woodleaf*  
5 *Order*”) in Docket No. E-7, Sub 1101, approving the certificate of public  
6 convenience and necessity (“CPCN”) for construction of Woodleaf.  
7 Collectively, these orders are referred to herein as the “*DEC Solar PV*  
8 *Orders*” and collectively, Mocksville, Monroe, and Woodleaf are referred  
9 to herein as the “DEC Solar PV facilities”. In its *DEC Solar PV Orders*,  
10 the Commission limited cost recovery for the DEC Solar PV facilities  
11 through the Company’s REPS rider to the equivalent of the standard REC  
12 offer price that DEC was offering to new renewable energy facilities at the  
13 time the purchase agreements were executed for the facilities. The current  
14 annual levelized total revenue requirement per megawatt hour (“MWh”) for  
15 each facility, computed based on updated tax benefit assumptions and actual  
16 completed project cost, is greater than the applicable levelized avoided cost  
17 per MWh, as was the case when each project was submitted for approval in  
18 the applicable CPCN proceeding. Accordingly, the Company is including  
19 for cost recovery in this REPS rider only the percentage of annual levelized  
20 total cost equivalent to the standard REC offer price as approved by the  
21 Commission in its *DEC Solar PV Orders*.

1    **Q.    WHAT CONDITIONS RELEVANT TO THIS PROCEEDING DID**  
2           **THE COMMISSION INCLUDE IN ITS APPROVAL OF THE CPCN**  
3           **FOR EACH OF THE DEC SOLAR PV FACILITIES?**

4    A.    In its *DEC Solar PV Orders*, the Commission included two conditions  
5           related to cost recovery for the DEC Solar PV facilities that are relevant to  
6           this proceeding. First, the Company agreed to the condition noted above,  
7           limiting the cost recovery amount in REPS to the standard offer REC price.  
8           The second condition relates to DEC's ability to realize certain tax benefits  
9           included in the Company's revenue requirements analysis for each facility  
10          as presented during the CPCN proceedings. The condition provides that, in  
11          the appropriate REPS rider and general rate case proceedings, DEC will  
12          separately itemize the actual monetization of the tax benefits listed in the  
13          Commission's orders within its calculation of the levelized revenue  
14          requirement per MWh for each facility, so that it may be compared with the  
15          monetization of such tax benefits included in the Company's revenue  
16          requirement analysis of each facility presented during the CPCN  
17          proceedings. To the extent the Company fails to fully realize the tax  
18          benefits it originally assumed in its estimated revenue requirements, costs  
19          associated with the increased revenue requirements (with a limited  
20          exception) will be presumed to be imprudent and unreasonably incurred.  
21          The condition further provides that DEC may rebut this presumption with  
22          evidence supporting the reasonableness and prudence of its actual  
23          monetization of the tax credits.

1           In its August 15, 2019 *Order Approving REPS and REPS EMF*  
2           *Rider and 2018 REPS Compliance Report*, the Commission concluded that  
3           DEC appropriately complied with the applicable requirements of the  
4           Commission's DEC Solar PV Orders, and that DEC's obligation related to  
5           reporting the status of realizing tax benefits was complete, with respect to the  
6           Company's Monroe and Mocksville solar facilities.

7   **Q.   DISCUSS THE COMPANY'S COMPLIANCE WITH THE TWO**  
8           **CONDITIONS OUTLINED ABOVE IN THE APPROPRIATE REPS**  
9           **RIDER AND GENERAL RATE CASE PROCEEDINGS WITH**  
10           **RESPECT TO ITS WOODLEAF SOLAR FACILITY.**

11   A.   The Company's Woodleaf solar facility was placed in service in December  
12           2018. Recovery of costs for this facility have been requested in the pending  
13           DEC general rate case, Docket No. E-7, Sub 1214. In this current REPS  
14           docket, the Company updated its revenue requirement calculation for  
15           Woodleaf to reflect the actual net plant balance for the facility, and its  
16           current assumptions regarding the availability of the following tax benefits  
17           listed in the Woodleaf Order, and its estimates of the timing of realizing the  
18           tax benefits:

- 19           (a) The federal Section 199 deduction;  
20           (b) The federal Investment Tax Credit ("ITC") of 30% of the cost  
21           of eligible property;  
22           (c) The five-year Modified Accelerated Cost Recovery System  
23           ("MACRS") tax depreciation; and  
24           (d) A property tax abatement of 80% on solar property.

1           The Company’s current assumptions regarding tax benefits continue  
2 to reflect Woodleaf qualifying for MACRS tax depreciation, and that it will  
3 realize the benefit of 80% property tax abatement on the facility. The  
4 assumptions related to realizing the tax benefits of MACRS tax depreciation  
5 and 80% property tax abatement are the same as those presented as part of  
6 the original Woodleaf CPCN proceeding.

7           The Federal Tax Cuts and Jobs Act (the “Tax Act”) was enacted on  
8 December 22, 2017. Among other provisions, it eliminated the federal  
9 Section 199 manufacturing deduction. Accordingly, the associated  
10 reduction is removed from the composite tax rate utilized in the updated  
11 revenue requirement calculations. Federal ITC benefits were originally  
12 assumed to be realized in 2021 for Woodleaf. However, DEC expects to  
13 experience a delay in realizing the federal ITC benefits because it  
14 anticipates lacking sufficient taxable income against which it can take the  
15 tax credit. The Company currently estimates realizing the federal ITC  
16 benefits at approximately tax year 2026. The Company’s ability to take  
17 federal bonus depreciation related to many of its assets placed in service  
18 prior to the bonus depreciation expiration deadline established by the Tax  
19 Act, combined with the updated forecast timing of utilization of other tax  
20 credits, contribute to the estimated lack of taxable income for utilization of  
21 ITC<sup>1</sup>.

<sup>1</sup> Woodleaf is not eligible for bonus depreciation based on its construction start date in 2018.

1           In addition to the tax benefits discussed above, the Tax Act reduced  
2           the corporate federal income tax rate to 21% from 35%, which affects the  
3           revenue requirement calculation for Woodleaf as well. The return on equity  
4           (“ROE”), debt rate, and capital ratios were also updated in the revenue  
5           requirement model to reflect amounts approved by the Commission in its  
6           June 22, 2018 *Order Accepting Stipulation, Deciding Contested Issues, and*  
7           *Requiring Revenue Reduction* in Docket No. E-7, Sub 1146.

8   **Q.   HOW DOES THE COMPANY INTERPRET THESE RESULTS IN**  
9           **TERMS OF AMOUNTS TO BE RECOVERED THROUGH THE**  
10          **REPS RIDER FOR WOODLEAF?**

11   A.   In summary, although DEC expects to experience some delay in realizing  
12          the ITC benefit, the accelerated benefits of bonus depreciation to Duke  
13          Energy Corporation, and the overall benefit of a lower federal tax rate  
14          mitigate the effect of the delay. Updating the tax benefit estimates only  
15          resulted in a calculated annual revenue requirement that is slightly higher  
16          than that presented during the original Woodleaf CPCN proceeding.  
17          Incorporating actual facility capital expenditures, the federal income tax  
18          rate reduction, and updating ROE, debt rate, and capital structure to reflect  
19          recently approved base rates, resulted in a calculated annual revenue  
20          requirement below the original CPCN estimate. Williams Exhibit No. 7  
21          summarizes levelized cost recovery amounts reflecting original  
22          assumptions, as well as updated tax monetization estimates, and actual  
23          project capital expenditures and other updates.

1 **Q. DOES THE COMPANY SEEK RECOVERY OF COSTS FOR THE**  
2 **WOODLEAF SOLAR FACILITY IN ITS PROPOSED REPS**  
3 **RIDER?**

4 A. The Woodleaf facility was placed in service in late December 2018, and the  
5 Company's revenue requirement calculation reflects a beginning month of  
6 January 2019. In compliance with the conditions included in the  
7 Commission's Woodleaf Order, the Company limited the amount included  
8 for recovery in the proposed REPS rider to the percentage of annual  
9 levelized cost equivalent to the standard offer REC price established in that  
10 CPCN proceeding.

11 **Q. HOW DID DUKE ENERGY CAROLINAS DETERMINE THE**  
12 **AVOIDED COST ASSOCIATED WITH REPS COMPLIANCE**  
13 **COSTS?**

14 A. In all cases where Duke Energy Carolinas determined incremental  
15 compliance costs as the excess amount above avoided cost, the Company  
16 applied an avoided cost rate in cents per kilowatt-hour ("kWh") to the  
17 expected kWh of renewable energy for each compliance initiative. In  
18 determining the avoided costs associated with purchased power agreements,  
19 Rule R8-67(a)(2) provides that:

20 "Avoided cost rates" mean an electric power supplier's most  
21 recently approved or established avoided cost rates in this  
22 state, as of the date the contract is executed, for purchases of  
23 electricity from qualifying facilities pursuant to Section 210  
24 of the Public Utility Regulatory Policies Act of 1978. If the  
25 Commission has approved an avoided cost rate for the  
26 electric power supplier for the year when the contract is  
27 executed, applicable to contracts of the same nature and

1 duration as the contract between the electric power supplier  
2 and the seller, that rate shall be used as the avoided cost.  
3 Therefore, for example, for a contract by an electric public  
4 utility with a term of 15 years, the avoided cost rate  
5 applicable to that contract would be the comparable,  
6 Commission-approved, 15-year, long-term, levelized rate in  
7 effect at the time the contract was executed. In all other  
8 cases, the avoided cost shall be a good faith estimate of the  
9 electric power supplier's avoided cost, levelized over the  
10 duration of the contract, determined as of the date the  
11 contract is executed, taking into consideration the avoided  
12 cost rates then in effect as established by the Commission.  
13 In any event, when found by the Commission to be  
14 appropriate and in the public interest, a good faith estimate  
15 of an electric public utility's avoided cost, levelized over the  
16 duration of the contract, determined as of the date the  
17 contract is executed, may be used in a particular REPS cost  
18 recovery proceeding. Determinations of avoided costs,  
19 including estimates thereof, shall be subject to continuing  
20 Commission oversight and, if necessary, modification  
21 should circumstances so require.  
22

23 Duke Energy Carolinas' approved avoided cost rates are set forth in  
24 its Purchased Power Non-Hydroelectric, Schedule PP-N, Purchased Power  
25 Hydroelectric, Schedule PP-H, and Schedule PP rate schedules (collectively  
26 "Schedule PP"). For executed purchased power agreements, where the  
27 price of the REC and energy are bundled, the Company used (or will use)  
28 annualized combined capacity and energy rates as shown on the Company's  
29 Exhibit No. 3, filed in Docket No. E-100, Sub 106; Exhibit No. 3 in Docket  
30 No. E-100, Sub 117; Exhibit No. 3 in Docket No. E-100, Sub 127; Exhibit  
31 No. 3 in Docket No. E-100, Sub 136; Exhibit No. 3 in Docket No. E-100,  
32 Sub 140; Attachment H in Docket No. E-100, Sub 148; or Attachment G in  
33 Docket No. E-100, Sub 158 (depending on the execution date of the  
34 contract). For those purchased power agreements with terms that did not

1 correspond with the durational terms for which rates were established in the  
2 avoided cost proceeding (i.e., two, five, ten, or fifteen year durations), Duke  
3 Energy Carolinas computed avoided cost rates for the particular term of the  
4 purchased power agreements using the same inputs and methodology used  
5 for the Schedule PP rates approved in Docket Nos. E-100, Sub 106, E-100,  
6 Sub 117, E-100, Sub 127, E-100, Sub 136, E-100, Sub 140, E-100, Sub 148,  
7 or E-100, Sub 158 respectively. The avoided cost components of energy  
8 and REC purchased power agreements effective during the prospective  
9 billing period were estimated in the same manner.

10 For the Duke Energy Carolinas PVDG Program, the Company  
11 determined the avoided cost using a process similar to that described above  
12 for a purchased power agreement with a non-standard duration. The inputs  
13 and methodology used for the Schedule PP rates approved in Docket No. E-  
14 100, Sub 117 were used to determine the annualized combined capacity and  
15 energy rates for a twenty-year term, corresponding to the expected life of  
16 the solar facilities. The Company calculated its avoided cost and  
17 incremental cost in a similar fashion for its DEC Solar PV facilities.

18 **Q. DOES DUKE ENERGY CAROLINAS PROVIDE SERVICES TO**  
19 **WHOLESALE CUSTOMERS TO MEET THEIR REPS**  
20 **REQUIREMENTS?**

21 A. Yes. As part of its 2019 REPS Compliance Plan, Duke Energy Carolinas  
22 continues to provide services to native load priority wholesale customers  
23 that contract with the Company for REPS compliance services, including



1 delivery of renewable energy resources and compliance planning and  
2 reporting. These wholesale customers, including distribution cooperatives  
3 and municipalities, rely on Duke Energy Carolinas to provide this  
4 renewable energy delivery service in accordance with G.S. § 62-  
5 133.8(c)(2)e. For REPS compliance year 2019, the Company provided  
6 renewable energy resources and compliance reporting services for the  
7 following native load priority wholesale customers: Blue Ridge Electric  
8 Membership Corporation (“Blue Ridge EMC”), Rutherford Electric  
9 Membership Corporation (“Rutherford EMC”), Town of Dallas, Town of  
10 Forest City, and Town of Highlands.

11 **Q. PLEASE EXPLAIN HOW THE COMPANY ALLOCATES**  
12 **INCREMENTAL REPS COSTS BETWEEN ITS RETAIL**  
13 **CUSTOMERS AND ITS WHOLESALE CUSTOMERS RECEIVING**  
14 **THIS SERVICE.**

15 A. The incremental cost of REPS compliance represents the cost to meet the  
16 combined total MWh requirement for native load customers, based on the  
17 sum of Duke Energy Carolinas’ NC Retail sales and Wholesale NC retail  
18 sales. To properly allocate incremental costs between Duke Energy  
19 Carolinas and its Wholesale customers, the class allocation methodology  
20 was performed using a combined aggregate cost cap as shown in Williams  
21 Exhibit Nos. 2 and 3 for the EMF Period and the Billing Period,  
22 respectively. The class allocation methodology combines the number of  
23 accounts subject to a REPS charge by customer class for both Duke Energy

1 NC Retail accounts and Wholesale NC retail accounts. In the cases where  
2 a Wholesale customer self-supplied a portion of its annual REPS  
3 requirement (for example, using its Southeastern Power Administration  
4 allocation to partially meet the requirement as provided in G.S. § 62-  
5 133.8(c)), or where the Company met its compliance requirement by  
6 reduced energy consumption through implementation of energy efficiency  
7 (“EE”) measures, the combined total number of accounts on which the cost  
8 allocation is based was adjusted on a pro-rata basis. This adjustment  
9 recognizes that a portion of the compliance requirement was not supplied  
10 by RECs generated or acquired by Duke Energy Carolinas as part of the  
11 combined total requirements. The adjusted totals by class were multiplied  
12 by the per-account cost caps to determine the combined total cost cap dollar  
13 amounts by customer class and in total. Each customer class is allocated its  
14 share of the incremental costs based on its pro-rata share of the customer  
15 cost cap dollar amounts. The cost allocated to each customer class is  
16 divided by the total adjusted number of accounts within each customer class  
17 to arrive at an annual per-account charge. The annual per-account charge  
18 for each customer class is multiplied by the Company’s NC Retail adjusted  
19 number of accounts within each customer class and totaled to arrive at the  
20 incremental cost to be allocated to Duke Energy Carolinas’ NC Retail  
21 customers.

1 **Q. PLEASE ALSO DESCRIBE HOW DUKE ENERGY CAROLINAS**  
2 **ALLOCATES ITS EE SAVINGS AMONG ITS CUSTOMER**  
3 **CLASSES FOR REPS AND REPS EMF RIDER PURPOSES.**

4 A. Incremental costs assigned to Duke Energy Carolinas' NC Retail customers  
5 are separated into two categories: costs related to solar, poultry and swine  
6 compliance requirements, and research, other incremental and Solar Rebate  
7 Program costs ("Set-Aside and Other Incremental Costs"); and costs related  
8 to the General Requirement<sup>2</sup> ("General Incremental Costs"). This  
9 separation is based on the percentage of Set-Aside and Other Incremental  
10 Costs and General Incremental Costs calculated on Williams Exhibit No. 1.

11 Set-Aside and Other Incremental Costs are allocated among  
12 customer classes based on per-account cost caps. General Incremental  
13 Costs are allocated among customer classes in a manner that gives credit for  
14 EE RECs (for which there are no General Incremental Costs) according to  
15 the relative energy reduction contributed by each customer class. As a  
16 result, General Incremental Costs are allocated among customer classes  
17 based on each class' pro-rata share of requirements for non-EE general  
18 RECs. The calculations for allocating General Incremental Costs are  
19 updated to reflect the modifications recommended by the Public Staff, and  
20 accepted by the Commission in its November 17, 2017 *Order Approving*  
21 *REPS and REPS EMF Rider and Approving REPS Compliance Report*, in  
22 DEP's 2017 REPS rider filing in Docket No. E-2, Sub 1144. The Company

<sup>2</sup> The Company generally refers to the "General Requirement" as its overall REPS requirement, set forth in G.S. § 62-133.8(b), net of the three set-asides.

1 notes that any deviation from allocating costs according to the statutory per-  
2 account cost cap ratios creates the potential for the resulting charges  
3 computed for one or more classes to exceed the per-account cost cap(s). If  
4 that occurs, the Company would continue to reallocate the costs in excess  
5 of the cap for the affected customer class to the other customer classes to  
6 the extent required to produce charges for all classes that do not exceed the  
7 respective caps.

8 **Q. PLEASE DESCRIBE HOW DUKE ENERGY CAROLINAS**  
9 **CALCULATED THE PROJECTED PORTION OF THE REPS**  
10 **RIDER THAT THE COMPANY PROPOSES FOR THE BILLING**  
11 **PERIOD.**

12 A. Using the allocation methods described above, and as shown on Williams  
13 Exhibit No. 3, the Set-Aside and Other Incremental Costs and the General  
14 Incremental Costs are calculated by customer class for the Company's NC  
15 Retail customers. The Set-Aside and Other Incremental Costs and General  
16 Incremental Costs are summed for the Billing Period by customer class to  
17 arrive at a total REPS cost to be collected from the Company's NC Retail  
18 customers. On Williams Exhibit No. 4, the cost allocated to each customer  
19 class is then divided by the total projected number of Duke Energy  
20 Carolinas NC Retail accounts within each customer class to arrive at the  
21 total annual cost to be recovered from each account over the Billing Period.  
22 The monthly NC Retail REPS rider for each customer class is one-twelfth  
23 of the total annual cost.

1 **Q. PLEASE EXPLAIN THE CALCULATION OF THE PROPOSED**  
2 **REPS EMF.**

3 A. Using the allocation methods described above, and as shown on Williams  
4 Exhibit No. 2, the Set-Aside and Other Incremental Costs and the General  
5 Incremental Costs are calculated by customer class for the Company's NC  
6 Retail customers. The Set-Aside and Other Incremental Costs and General  
7 Incremental Costs are summed for the Test Period by customer class to  
8 illustrate the total REPS costs assigned to the Company's NC Retail  
9 customers. The actual NC Retail revenues realized during the Test Period  
10 by customer class are then subtracted from the total REPS costs by customer  
11 class to arrive at the EMF for each class. On Williams Exhibit No. 4, the  
12 total EMF over/under collection to be recovered from each customer class  
13 is adjusted to include any credits to customers not considered a refund of  
14 amounts advanced by customers, and then divided by the total projected  
15 number of Duke Energy Carolinas' NC Retail accounts within each  
16 customer class to arrive at the total EMF to be recovered from each account  
17 over the Billing Period. The monthly EMF for each customer class is one-  
18 twelfth of the total EMF.

19 **Q. HOW DOES DUKE ENERGY CAROLINAS DEFINE A**  
20 **CUSTOMER ACCOUNT FOR PURPOSES OF REPS BILLING?**

21 A. In its December 15, 2010 *Order Approving REPS Riders*, in Docket No. E-  
22 7, Sub 872, the Commission approved Duke Energy Carolinas' proposed  
23 method of determining the number of customer accounts. The Company

1 defines “account” as an “agreement” or “tariff rate” between Duke Energy  
2 Carolinas and a customer to determine the per-account REPS charge with  
3 certain exceptions, which are listed below. The following service schedules  
4 are not considered accounts for purposes of the per-account charge because  
5 of the near certainty that customers served under these schedules already  
6 will pay a per-account charge under another residential, general service, or  
7 industrial service agreement and because they represent small auxiliary  
8 service loads. The following agreements fall within this exception:

- 9 • Outdoor Lighting Service (Schedule OL)
- 10 • Floodlighting Service (Schedule FL and FL-N)
- 11 • Street and Public Lighting Service (Schedule PL)
- 12 • Yard Lighting (Schedule YL)
- 13 • Governmental Lighting (Schedule GL)
- 14 • Nonstandard Lighting (Schedule NL)
- 15 • Off-Peak Water Heating (Schedule WC is a sub-metered  
16 service)
- 17 • Non-demand metered, nonresidential service, provided on  
18 Schedule SGS, at the same premises, with the same service  
19 address, and with the same account name as an agreement for  
20 which a monthly REPS charge has been applied.

21  
22 Within Wholesale, Blue Ridge EMC, Rutherford EMC, and Town  
23 of Forest City have a methodology for determining Wholesale year-end  
24 number of accounts that is generally consistent with that used by Duke  
25 Energy Carolinas. The modifications and exclusions are similarly intended  
26 to avoid charging customers twice, as in the case of customers with  
27 additional lighting accounts, or to exclude small auxiliary service loads.  
28 Town of Highlands and Town of Dallas define an account in the manner the  
29 information is reported to the Energy Information Administration for annual  
30 electric sales and revenue reporting.

1 **Q. DOES DUKE ENERGY CAROLINAS PROJECT THE REPS**  
2 **CHARGE TO EACH CUSTOMER ACCOUNT FOR THE BILLING**  
3 **PERIOD TO BE WITHIN THE ANNUAL COST CAPS DEFINED IN**  
4 **G.S. § 62-133.8?**

5 A. Yes. The annual total of the monthly REPS and REPS EMF charges  
6 proposed by the Company for each customer class are shown on Williams  
7 Exhibit No. 4. For purposes of comparing the annual charges for REPS  
8 compliance costs to the per-account caps defined in G.S. § 62-133.8(h)(4),  
9 the exhibit also presents annual charges calculated to exclude Solar Rebate  
10 Program costs. This calculation demonstrates that REPS compliance costs  
11 to be collected from customers are within the per-account cost caps.

12 **Q. HOW DOES DUKE ENERGY CAROLINAS PROPOSE TO**  
13 **COLLECT THE REPS CHARGES FROM EACH CUSTOMER**  
14 **CLASS?**

15 A. Duke Energy Carolinas proposed Renewable Energy Portfolio Standard  
16 Rider (“REPS-NC”) is attached as Williams Exhibit No. 5. As shown on  
17 the rider, Duke Energy Carolinas proposes that a fixed monthly charge be  
18 added to the bill for each class of customer.

19 **Q. WHAT IS THE MONTHLY REPS CHARGE PROPOSED BY THE**  
20 **COMPANY FOR EACH CUSTOMER CLASS?**

21 A. The Company proposes the following monthly REPS charges to be effective  
22 September 1, 2020.

Customer class	Per Month – excluding regulatory fee	Per Month – including regulatory fee	Total annual REPS charge – including regulatory fee	Annual per-account cost cap
Residential	\$0.78	\$0.78	\$9.36	\$ 27.00
General	\$3.84	\$3.84	\$46.08	\$ 150.00
Industrial	\$18.51	\$18.53	\$222.36	\$ 1,000.00

1

2 **Q. WHAT IS THE MONTHLY CHANGE IN REPS CHARGE**  
3 **PROPOSED BY THE COMPANY FOR EACH CUSTOMER CLASS?**

4 Excluding the regulatory fee, the following table shows the EMF and rider  
5 components of the proposed rider and the currently-effective riders  
6 established in Docket No. E-7, Sub 1191:

7

Customer class	<i>Proposed</i>			<i>Current</i>			<i>Change</i>		
	EMF	Rider	Total	EMF	Rider	Total	EMF	Rider	Total
Residential	<b>\$(0.01)</b>	<b>\$0.79</b>	<b>\$0.78</b>	\$(0.07)	\$0.94	\$0.87	\$0.06	\$(0.15)	\$(0.09)
General	<b>\$(0.15)</b>	<b>\$3.99</b>	<b>\$3.84</b>	\$(0.18)	\$4.82	\$4.64	\$0.03	\$(0.83)	\$(0.80)
Industrial	<b>\$ 1.84</b>	<b>\$16.67</b>	<b>\$18.51</b>	\$ 0.71	\$20.53	\$21.24	\$1.13	\$(3.86)	\$(2.73)

8

9 **Q. PLEASE DESCRIBE THE EEC INVENTORY DETAILS**  
10 **PRESENTED IN WILLIAMS EXHIBIT NO. 6.**

11 A. Williams Exhibit No. 6 shows a reconciliation of the Company's EEC  
12 inventory balance available for REPS compliance as of December 31, 2019,  
13 as well as references to the evaluation, measurement and verification  
14 ("EM&V") reports the results of which are incorporated into current EEC  
15 balances. The Company annually determines the level of EECs generated  
16 and available for REPS compliance, and this update includes the results of  
17 any periodic EM&V performed to-date, adjustments identified during the



1 Company's ongoing analysis of energy efficiency program effectiveness, as  
2 well as any other corrections. The updated cumulative level of EECs  
3 generated to date is compared to the number of EECs previously reported  
4 for compliance, less any EECs used for compliance, to determine the EECs  
5 to be added to inventory for the most recent calendar year. Williams Exhibit  
6 No. 6 shows the calculation for EECs added to inventory for 2019, including  
7 details of the adjustments incorporated therein.

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

9 A. Yes.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1229

In the Matter of )  
 )  
 Application of Duke Energy Carolinas, LLC )  
 for Approval of Renewable Energy and )  
 Energy Efficiency Portfolio Standard (REPS) )  
 Compliance Report and Cost Recovery Rider )  
 Pursuant to N.C. Gen. Stat. § 62-133.8 and )  
 Commission Rule R8-67 )

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**SUPPLEMENTAL  
 TESTIMONY OF  
 VERONICA I. WILLIAMS**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Veronica I. Williams, and my business address is 550 South  
3 Tryon Street, Charlotte, North Carolina.

4 **Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN THIS**  
5 **MATTER BEFORE THE NORTH CAROLINA UTILITIES**  
6 **COMMISSION?**

7 A. Yes. I filed direct testimony on behalf of Duke Energy Carolinas, LLC  
8 (“DEC” or the “Company”) in this matter on February 25, 2020.

9 **Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL**  
10 **TESTIMONY?**

11 A. The purpose of my supplemental testimony is to update the North Carolina  
12 Utilities Commission on information presented in the exhibits filed with my  
13 direct testimony. The Company determined that Confidential Jennings  
14 Exhibit No. 2, filed in this docket on February 25, 2020, reflected a line  
15 item error in the incremental cost component of the total cost shown,  
16 resulting in an overstatement of incremental REPS rider cost. In addition,  
17 Jennings Exhibit No. 2 included a minor error in the solar rebate  
18 amortization cost total. Both errors affected cost for the January 1, 2019  
19 through December 31, 2019 experience modification factor (“EMF”) period  
20 only. The updated information presented in my supplemental testimony and  
21 exhibits incorporates the Company’s corrections of these errors, which are  
22 described in detail by Company witness Megan W. Jennings in her  
23 supplemental testimony filed in this docket.

1 Q. PLEASE IDENTIFY THE CORRECTIONS INCORPORATED IN  
2 THE REVISED EXHIBITS FILED WITH THIS SUPPLEMENTAL  
3 TESTIMONY AND THE RESULTING DIFFERENCES WHEN  
4 COMPARED TO THE SAME EXHIBITS FILED PREVIOUSLY  
5 WITH YOUR DIRECT TESTIMONY.

6 A. Confidential Revised Williams Exhibit No. 1, Page 1 incorporates the  
7 decrease to incremental REPS rider cost of \$(158,000) and the \$57 increase  
8 to incremental REPS rider cost identified by witness Jennings in her  
9 supplemental testimony. The following adjustments are reflected in the  
10 appropriate cost components shown on Confidential Revised Williams  
11 Exhibit No. 1, Page 1: **[BEGIN CONFIDENTIAL]** [REDACTED]  
12 [REDACTED]  
13 [REDACTED]  
14 [REDACTED]  
15 [REDACTED] **[END CONFIDENTIAL]**. The \$57 increase in  
16 Solar Rebate costs is included in the revised total on Line No. 13, and the  
17 net decrease of \$(157,943) for these adjustments is reflected in total  
18 incremental cost on Line No. 15 on Confidential Revised Williams Exhibit  
19 No. 1, Page 1. Confidential Revised Williams Exhibit No. 2, Page 1 shows  
20 the net decrease in incremental REPS cost for the EMF period of \$(157,943)  
21 on Line No. 4, and the associated \$(148,240) North Carolina retail portion  
22 of the decrease is reflected in the total on Line No. 8, and amounts shown  
23 on Line Nos. 9-12 are updated accordingly. These updated amounts carry

1 forward to, and are included in, totals shown on Confidential Revised  
2 Williams Exhibit No. 2, Page 2 and Revised Williams Exhibit No. 2, Page  
3 3. The result is a final decrease of \$148,240, from an original net total  
4 \$427,425 undercollection for the EMF Period to an updated net total  
5 undercollection of \$279,185 for the EMF Period, before the effect of  
6 interest. The General service customer class shows an overcollection for  
7 the EMF Period before and after the update, but the overcollection amount  
8 is greater than originally calculated as shown on Confidential Revised  
9 Williams Exhibit No. 2, Page 3, and the corresponding interest credit on the  
10 overcollection increased by a total of \$(10,455) as well. Including the  
11 change in overcollection interest, the updated EMF Period shows a net total  
12 undercollection of \$263,703, compared to a net total undercollection in the  
13 original February 25, 2020 rider filing of \$422,398, reflecting a final cost  
14 decrease of \$158,695.

15 **Q. ARE THERE OTHER ADJUSTMENTS INCORPORATED IN THE**  
16 **REVISED EXHIBITS FILED WITH THIS SUPPLEMENTAL**  
17 **TESTIMONY?**

18 A. Yes. Per request of the Public Staff, the Company updated the “% of EE  
19 RECs supplied by Class” included on Line Nos. 5 – 7 on Confidential  
20 Revised Williams Exhibit No. 2, Page 2 and Confidential Revised Williams  
21 Exhibit No. 3, Page 2. In order to be consistent with these amounts in prior  
22 year filings, the Company extended the percentages to one-tenth of a  
23 percent, rather than rounding to the percentage point as shown on

1 Confidential Williams Exhibit No. 2, Page 2 and Confidential Williams  
2 Exhibit No. 3, Page 2, originally filed on February 25, 2020. These  
3 adjustments resulted in no change to total incremental REPS cost for the  
4 EMF or prospective billing periods but affected the allocation of  
5 incremental REC costs among customer classes as calculated on  
6 Confidential Revised Williams Exhibit No. 2, Page 2 and No. 3, Page 2.

7 **Q. INCORPORATING THE CORRECTIONS AND ADJUSTMENTS**  
8 **IDENTIFIED ABOVE, WHAT ARE THE REVISED PROPOSED**  
9 **RIDERS AND WHAT ARE THE DIFFERENCES BETWEEN THE**  
10 **UPDATED PROPOSED RIDERS AND THOSE PREVIOUSLY**  
11 **PROPOSED IN THIS DOCKET, AS WELL AS THE RIDERS**  
12 **CURRENTLY IN EFFECT?**

13 A. Revised Williams Exhibit No. 4 includes the cost changes by customer class  
14 for the EMF and billing periods discussed above. The revised proposed  
15 monthly REPS charges and the REPS charges originally proposed are  
16 compared below. The rates proposed are also reflected in Revised Williams  
17 Exhibit No. 5, filed with this testimony.

1

Customer class	Monthly EMF Rider	Monthly REPS rider	Combined Monthly Rider – excl. regulatory fee	Combined Monthly Rider – incl. regulatory fee
<b>Revised – filed May 15, 2020</b>				
Residential	\$ (0.02)	\$ 0.80	\$ 0.78	\$ 0.78
General	\$ (0.18)	\$ 3.99	\$ 3.81	\$ 3.81
Industrial	\$ 1.37	\$16.18	\$ 17.55	\$ 17.57
<b>Original – filed February 25, 2020</b>				
Residential	\$(0.01)	\$ 0.79	\$0.78	\$0.78
General	\$(0.15)	\$ 3.99	\$3.84	\$3.84
Industrial	\$1.84	\$16.67	\$18.51	\$18.53
<b>Change – increase/(decrease)</b>				
Residential	\$ (0.01)	\$ 0.01	\$ 0.00	\$ 0.00
General	\$ (0.03)	\$ 0.00	\$ (0.03)	\$ (0.03)
Industrial	\$ (0.47)	\$ (0.49)	\$ (0.96)	\$ (0.96)

2

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The following tables show the currently-proposed revised monthly combined REPS rider charges, and a comparison to the monthly combined REPS rider charges proposed and filed with my direct testimony on February 25, 2020, as well as a comparison to the combined monthly REPS rider charges currently in effect through September 30, 2020 - with and without the regulatory fee applied.

Excluding regulatory fee:

Customer class	<b>REVISED proposed REPS rider filed May 15, 2020</b>	Proposed REPS rider filed Feb 25, 2020	Difference – increase/ (decrease)	Rider currently in effect through Sep 30, 2020	Difference – increase/ (decrease)
	(a)	(b)	(c) = (a) – (b)	(d)	(e) = (a) – (d)
Residential	\$ 0.78	\$ 0.78	\$ 0.00	\$ 0.87	\$ (0.09)
General	\$ 3.81	\$ 3.84	\$ (0.03)	\$ 4.64	\$ (0.83)
Industrial	\$17.55	\$18.51	\$ (0.96)	\$ 21.24	\$ (3.69)

10

1 Including regulatory fee:

Customer class	<b>REVISED proposed REPS rider filed May 15, 2020</b>	Proposed REPS rider filed Feb 25, 2020	Difference – increase/ (decrease)	Rider currently in effect through Sep 30, 2020	Difference – increase/ (decrease)
	(a)	(b)	(c) = (a) – (b)	(d)	(e) = (a) – (d)
Residential	\$ 0.78	\$0.78	\$ 0.00	\$ 0.87	\$ (0.09)
General	\$ 3.81	\$3.84	\$ (0.03)	\$ 4.65	\$ (0.84)
Industrial	\$17.57	\$18.53	\$ (0.96)	\$ 21.27	\$ (3.70)

2

3 In summary, the Company’s revised proposed monthly combined  
 4 REPS and REPS EMF riders by class, including regulatory fee are: \$0.78  
 5 residential, \$3.81 general service, and \$17.57 industrial. The proposed  
 6 monthly rider decreases by customer class, including regulatory fee are:  
 7 \$(0.09) residential, \$(0.84) general service, and \$(3.70) industrial.

8 **Q. PLEASE EXPLAIN THE COMPANY’S RATEMAKING**  
 9 **TREATMENT OF AN AMOUNT HELD IN ABEYANCE FROM**  
 10 **DEC’S 2019 ANNUAL REPS RIDER FILING IN DOCKET NO. E-7,**  
 11 **SUB 1191.**

12 A. The Company sold poultry renewable energy certificates (“RECs”) to other  
 13 North Carolina electric power suppliers during the test period applicable to  
 14 Docket No. E-7, Sub 1191 (“2019 Docket”), to enable the state’s electric  
 15 power suppliers to comply with the aggregate poultry waste set-aside  
 16 requirement. Proceeds were credited back to the Company’s North  
 17 Carolina retail customers and to the Company’s wholesale customers to  
 18 which it provides REPS compliance services. In its *Order Approving REPS*  
 19 *and REPS EMF Rider and 2018 REPS Compliance Report* (“2019 Order”),



1 the Commission concluded that the REC sales were properly accounted for  
2 and reflected for cost recovery purposes in the REPS rider  
3 calculations. Public Staff witness Boswell provided direct testimony in the  
4 2019 Docket recommending the Company and the Public Staff work  
5 together to review and evaluate the sales prices of set-aside RECs,  
6 enumerating a number of considerations to be addressed, and  
7 recommending any resolution of issues be addressed by DEC in this current  
8 docket. Witness Boswell's testimony also indicated the Public Staff  
9 disagreed with one assumption of the Company's calculation applicable to  
10 the REC sales reflected in the 2019 Docket and stated that the component  
11 of the sales price in question resulted in no adjustment to REPS compliance  
12 costs included in the computation of the REPS riders calculated in the 2019  
13 Docket. Witness Boswell further recommended that the amount in question  
14 be held in abeyance until the determination of appropriate pricing for RECs  
15 is resolved. The Commission accepted Public Staff witness Boswell's  
16 recommendations in its 2019 Order.

17 In the current docket, Company witness Jennings describes the  
18 Company's compliance with the Commission's 2019 Order with respect to  
19 the Public Staff's recommendations pertaining to REC sales  
20 prices. Witness Jennings' direct testimony details the Company's proposed  
21 method for determining REC sales prices, and specifically addresses each  
22 one of the considerations outlined in witness Boswell's testimony in the  
23 2019 Docket. Witness Jennings' direct testimony further states that the

1           Company's recommendations were also submitted to the Public  
2           Staff. Witness Jennings' supplemental testimony filed in this docket  
3           describes modifications to the proposed REC sales price calculation method  
4           resulting from additional discussions with the Public Staff since the  
5           Company filed direct testimony. The Company and the Public Staff are in  
6           agreement regarding the revised REC sales price method proposal.

7           The amount held in abeyance from the 2019 Docket is not included in  
8           the calculation of REPS compliance costs used to compute the REPS riders  
9           in the current docket. This ratemaking treatment is consistent with DEC's  
10          proposed method for calculating REC sales prices described in the Witness  
11          Jennings' direct and supplemental testimony, that were agreed upon by the  
12          Company and the Public Staff. The Company submits that this treatment  
13          of the amount held in abeyance should be considered appropriate and final,  
14          upon acceptance by the Commission of the REC pricing method proposed  
15          by the Company.

16   **Q.    DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?**

17    A.    Yes.

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION  
DOCKET NO. E-7, SUB 1229**

**TESTIMONY OF JAY B. LUCAS  
ON BEHALF OF THE PUBLIC STAFF  
NORTH CAROLINA UTILITIES COMMISSION**

**May 18, 2020**

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

3 A. My name is Jay B. Lucas. 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 Electric Division of the Public Staff.

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

9 A. Yes. My education and experience are summarized in Appendix A to  
10 my testimony.

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

12 A. The purpose of my testimony is to make recommendations to the  
13 Commission on the Renewable Energy and Energy Efficiency  
14 Portfolio Standard (REPS) Compliance Report and the Application  
15 for Approval of the REPS Cost Recovery Rider (REPS Rider) filed by  
16 Duke Energy Carolinas, LLC (DEC, or the Company), on February  
17 25, 2020. I also provide an overview of the discussions and

1 agreements reached between DEC and the Public Staff regarding  
2 the sales prices of certain renewable energy certificates (RECs) sold  
3 by DEC, consistent with the Commission's August 15, 2019, *Order*  
4 *Approving REPS and REPS EMF Riders and 2018 REPS*  
5 *Compliance Report* in Docket. No. E-7, Sub 1191 (*Sub 1191 Order*),  
6 which directed DEC and the Public Staff to work together to evaluate  
7 the sales prices of animal waste RECs<sup>1</sup> sold by DEC.

8 **REPS Compliance**

9 **Q. IS DEC PROVIDING REPS COMPLIANCE SERVICES TO ANY**  
10 **OTHER ELECTRIC POWER SUPPLIERS?**

11 A. Yes. For 2019 REPS compliance, DEC was contractually obligated  
12 to acquire RECs and provide reporting services to meet the REPS  
13 compliance requirements of the following wholesale customers: Blue  
14 Ridge Electric Membership Corporation, Rutherford Electric  
15 Membership Corporation, Town of Dallas, Town of Forest City, and  
16 Town of Highlands (collectively, Wholesale Customers). DEC  
17 maintains separate accounts in the North Carolina Renewable  
18 Energy Tracking System (NC-RETS) for itself and for each  
19 Wholesale Customer. Commission Rule R8-67(h)(2) requires that all

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<sup>1</sup> Animal waste RECs include those RECs generated or purchased by an electric power supplier to comply with the swine waste set-aside and poultry waste set-aside requirements of G.S. § 62-133.8 (e), and (f), respectively.

1 RECs used for REPS compliance in North Carolina be tracked in NC-  
2 RETS.

3 The REPS compliance costs for the Wholesale Customers are not  
4 included in DEC's requested REPS cost recovery rider.

5 **Q. PLEASE DESCRIBE THE 2019 REPS COMPLIANCE**  
6 **REQUIREMENTS FOR DEC AND ITS WHOLESALE CUSTOMERS.**

7 A. For 2019 compliance, DEC needed to pursue retirement of a  
8 sufficient number of general RECs,<sup>2</sup> energy efficiency certificates  
9 (EECs), and RECs derived from other eligible sources so that the  
10 total equaled 10% of the 2018 North Carolina retail electricity sales  
11 of itself and the Wholesale Customers. To meet the solar energy  
12 requirement in N.C. Gen. Stat. § 62-133.8(d), DEC needed to pursue  
13 retirement of sufficient solar RECs to match 0.2% of retail sales in  
14 2018 for itself and the Wholesale Customers.

15 The Commission's December 16, 2019, *Order Modifying the Swine*  
16 *and Poultry Waste Set-Aside Requirements and Providing Other*  
17 *Relief* in Docket No. E-100, Sub 113, modified the requirements in  
18 N.C. Gen. Stat. § 62-133.8(e) and (f) for swine and poultry waste  
19 energy, respectively, as described below. To meet the swine waste

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<sup>2</sup> General RECs include all RECs other than those used to meet the solar, swine waste, and poultry waste set-asides. Unlike RECs used for the set-asides, general RECs and EECs are interchangeable for REPS compliance purposes, with the exception that EECs are limited to 25 percent of the total compliance requirement for the investor-owned utilities.

1 set-aside requirement, DEC needed to pursue retirement of sufficient  
2 swine waste-derived RECs to match 0.04% of retail sales in 2018.  
3 To meet the poultry waste set-aside requirement, DEC needed to  
4 pursue retirement of sufficient poultry waste-derived RECs to match  
5 its pro-rata share of the poultry waste set-aside of 500,000 MWh or  
6 the thermal equivalent.

7 **Q. HAVE YOU REVIEWED THE REPS COMPLIANCE REPORT?**

8 A. Yes. DEC's REPS Compliance Report is included as Exhibit 1 to the  
9 direct testimony of DEC witness Megan Jennings. Based on our  
10 review, the Public Staff believes that DEC's REPS Compliance  
11 Report meets the requirements of N.C. Gen. Stat. § 62-133.8 and  
12 Commission Rule R8-67(c) for both DEC and the Wholesale  
13 Customers. Accordingly, the Public Staff recommends that the  
14 Commission approve DEC's 2019 REPS Compliance Report.

15 **Research Costs**

16 **Q. PLEASE DISCUSS THE RESEARCH COSTS DEC HAS**  
17 **INCLUDED FOR COST RECOVERY.**

18 A. On pages 31 through 39 of her direct testimony, DEC witness Megan  
19 Jennings summarizes the results of the 20 research expenditures for  
20 which DEC is seeking cost recovery in this proceeding. The  
21 anticipated research costs total \$822,933 in the test period, which is  
22 below the \$1,000,000 maximum annual amount allowed, as

1 specified in N.C. Gen. Stat. § 62-133.8(h)(1)(b). The included  
2 projects generally deal with operation of distributed energy resources  
3 (DERs) and advancing the understanding of optimal ways to  
4 integrate DERs into the power grid. Also included are fees for  
5 membership in research organizations.

6 **Q. DO YOU BELIEVE THAT ALL OF THE COSTS DEC HAS**  
7 **INCLUDED QUALIFY AS RESEARCH “THAT ENCOURAGES**  
8 **THE DEVELOPMENT OF RENEWABLE ENERGY, ENERGY**  
9 **EFFICIENCY, OR IMPROVED AIR QUALITY,” CONSISTENT**  
10 **WITH N.C. GEN. STAT. § 62-133.8(h)(1)(b)?**

11 A. Yes.

12 **Competitive Procurement of Renewable Energy (CPRE)**

13 **Program Costs**

14 **Q. HAS DEC REQUESTED TO RECOVER ANY COSTS RELATED TO**  
15 **THE CPRE PROGRAM IN THIS PROCEEDING?**

16 A. No, DEC has not included any costs related to the CPRE Program,  
17 enacted in Session Law 2017-192 as part of North Carolina House  
18 Bill 589 (HB 589), in this proceeding. DEC witness Jennings on page  
19 14 of her direct testimony states that since DEC will use the RECs  
20 acquired through CPRE for REPS compliance, DEC believes that  
21 CPRE Program implementation costs could be recovered through  
22 the REPS Rider. She states, however, that DEC has elected to

1 recover the reasonable and prudent costs incurred to implement the  
 2 CPRE Program through the CPRE Rider and included those costs in  
 3 its CPRE Program Rider filing in Docket No. E-7, Sub 1231, as  
 4 contemplated under Commission Rule R8-71(j).

5 **Q. DO YOU AGREE THAT DEC SHOULD RECOVER CPRE COSTS**  
 6 **THROUGH THE REPS RIDER?**

7 A. For the same reasons discussed in the testimony of Public Staff  
 8 witness Evan Lawrence in the 2019 DEC REPS Rider Proceeding in  
 9 Docket No. E-7, Sub 1191, I do not agree that DEC should recover  
 10 CPRE implementation costs through the REPS Rider. I agree,  
 11 however, that it is difficult to definitively make such a conclusion  
 12 before this Commission has fully considered CPRE costs in CPRE  
 13 Program Rider filings or other proceedings.

14 **Q. HAS DEC DISCUSSED THE RECOVERY OF CPRE COSTS IN**  
 15 **THE REPS RIDER IN OTHER PROCEEDINGS?**

16 A. Yes. In Docket No. E-100, Sub 150, DEC and Duke Energy Progress,  
 17 LLC (DEP), jointly filed their Reply Comments and Amended  
 18 Proposed Rule to Implement N.C. Gen. Stat. § 62-110.8 on  
 19 September 8, 2017. On page 13 of those comments, DEC and DEP  
 20 state:

21 Specific to the interrelationship with REPS, the  
 22 Companies do not anticipate any CPRE Program costs  
 23 being recovered through the REPS rider because N.C.  
 24 Gen. Stat. § 62-110.8(b)(2) caps CPRE Program PPA



1 purchases, including the cost of RECs, at or below the  
 2 Companies' avoided cost. Therefore, the full cost of  
 3 bundled CPRE Program RECs would be recovered  
 4 through the CPRE Program rider mechanism. Similar  
 5 to the approach used today for energy efficiency  
 6 credits applied towards REPS compliance, the cost of  
 7 RECs associated with renewable energy resources  
 8 procured under the CPRE Program would simply be  
 9 assigned \$0 cost for REPS compliance.

10 **Q. WHAT IS THE PUBLIC STAFF'S RECOMMENDATION WITH**  
 11 **REGARD TO THE RECOVERY OF CPRE COSTS IN THE REPS**  
 12 **RIDER?**

13 A. The Public Staff maintains its position that it is appropriate for CPRE  
 14 Program implementation costs to be recovered in a CPRE Program  
 15 Rider filing pursuant to Commission Rule R8-71(j).

16 **Sale of RECs**

17 **Q. PLEASE DESCRIBE THE DISCUSSIONS PERTAINING TO REC**  
 18 **SALES IN THE PRIOR DEC REPS PROCEEDING.**

19 A. In Docket No. E-7, Sub 1191, Public Staff witness Michelle Boswell  
 20 raised the issue of the pricing of animal waste set-aside RECs sold  
 21 by DEC in her direct testimony and recommended that DEC and the  
 22 Public Staff work together over the next year to review and evaluate  
 23 the sale price of set-aside RECs sold by DEC. In its Sub 1191 Order,  
 24 the Commission directed DEC and the Public Staff to work together  
 25 to determine what, if any, adjustments should be made to the current  
 26 calculation of sales prices of RECs sold by DEC to other electric

1 power suppliers for the purpose of those suppliers meeting their  
2 animal waste set-aside requirements.

3 **Q. WHAT ASPECT OF THE SALE OF RECS ARE YOU DISCUSSING**  
4 **IN YOUR TESTIMONY?**

5 A. One component of determining the sale price of RECs is to  
6 determine the price at which DEC has purchased the RECs from  
7 REC suppliers. I discuss my recommendation on the purchase costs  
8 more fully below. My recommendation is in addition to those made in  
9 the affidavit of Public Staff witness Michelle Boswell in this  
10 proceeding.

11 **Q. WHAT HAS OCCURRED THAT REQUIRED AN INVESTIGATION**  
12 **ON THE SALE OF RECS BY DEC?**

13 A. Over the past four years, DEC has periodically sold set-aside RECs  
14 to other electric power suppliers in order to assist with their REPS  
15 compliance. The sale price of these RECs was determined using a

16 **[BEGIN CONFIDENTIAL]** [REDACTED]  
17 [REDACTED]  
18 [REDACTED]  
19 [REDACTED]  
20 [REDACTED]  
21 [REDACTED]  
22 [REDACTED]

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED] [END  
5 **CONFIDENTIAL].**

6 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE**  
7 **PURCHASE PRICE OF RECS THAT DEC RESELLS?**

8 A. DEC and the Public Staff have had productive discussions on the  
9 purchase price of these RECs and reached an agreement. As  
10 discussed in the supplemental testimony of DEC witness Megan  
11 Jennings filed on May 15, 2020, DEC will calculate the sale price of  
12 any animal waste set-aside RECs based on a weighted average  
13 price of RECs from all contracted and operational facilities in DEC's  
14 and DEP's combined portfolio for each respective set-aside. The  
15 Public Staff agrees with this proposal.

16 **REPS Rates**

17 **Q. WHAT RATES HAS DEC REQUESTED FOR ITS EMF AND REPS**  
18 **RIDERS?**

19 A. In its Application, DEC requested the following monthly charges for  
20 the Billing and Experience Modification Factor (EMF) components of  
21 the total REPS rate, excluding the regulatory fee:

<b>DEC's Rider Request Filed on February 25, 2020</b>			
<b>Customer Class</b>	<b>Billing Period Rate</b>	<b>EMF Rate</b>	<b>Total REPS Rate</b>
Residential	\$0.79	\$(0.01)	\$0.78
General	\$3.99	\$(0.15)	\$3.84
Industrial	\$16.67	\$1.84	\$18.51

1 **Q. WHAT RATES DOES THE PUBLIC STAFF RECOMMEND FOR**  
2 **THE EMF AND REPS RIDERS?**

3 A. The Public Staff agrees with the rates in the supplemental testimony  
4 filed by DEC witness Veronica Williams on May 15, 2020. The Public  
5 Staff recommends the following Billing and EMF components of the  
6 total REPS rate, excluding the regulatory fee:

<b>Public Staff's Recommended Rates</b>			
<b>Customer Class</b>	<b>Billing Period Rate</b>	<b>EMF Rate</b>	<b>Total REPS Rate</b>
Residential	\$0.80	\$(0.02)	\$0.78
General	\$3.99	\$(0.18)	\$3.81
Industrial	\$16.18	\$1.37	\$17.55

7 These monthly rates are below the cost caps set forth in N.C. Gen.  
8 Stat. § 62-133.8(h)(4). With these recommended rates, the

1 residential customer class is the closest to the cost cap at  
2 approximately 35% of the annual per account charges allowed. The  
3 general service and industrial classes are at approximately 30% and  
4 21% of their cost caps, respectively.

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

6 A. Yes, it does.

**QUALIFICATIONS AND EXPERIENCE**

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 engineer in the 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.

## DOCKET NO. E-7, SUB 1229

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of		
Application of Duke Energy Carolinas, LLC, for	)	<u>AFFIDAVIT</u>
Approval of Renewable Energy and Energy Efficiency	)	<u>OF</u>
Portfolio Standard Cost Recovery Rider Pursuant to	)	<u>MICHELLE BOSWELL</u>
<u>N.C.G.S. 62-133.8 and Commission Rule R8-67</u>	)	

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Michelle Boswell, first being duly sworn, do depose and say:

I am an accountant in the Accounting Division of the Public Staff - North Carolina Utilities Commission. A summary of my education and experience is attached to this affidavit as Appendix A.

N. C. Gen. Stat. § 62-133.8(h) provides that the State's electric power suppliers may recover their reasonable and prudently incurred incremental costs of compliance with the Renewable Energy and Energy Efficiency Portfolio Standard (REPS) through an annual rider charge. Pursuant to Commission Rule R8-67, the REPS rider will be recovered over the same period as the utility's fuel and fuel-related cost rider. Commission Rule R8-67 also provides for a REPS experience modification factor (REPS EMF) rider, which is utilized to "true-up" the recovery of reasonable and prudently incurred incremental REPS compliance costs incurred during the test period established for each annual rider proceeding.

The purpose of my affidavit is to present the results of the Public Staff's investigation of the REPS EMF rider proposed by Duke Energy Carolinas, LLC (DEC or the Company), in its application filed in this proceeding on February 25, 2020, based on incremental REPS compliance costs incurred and revenues recorded from January 2019 through December 2019 (REPS EMF period or test period).

On May 15 2020, DEC filed the Supplemental Testimony and Revised Exhibits of Megan W. Jennings and Veronica I. Williams. The purpose of DEC's Supplemental Testimony and the revised exhibits was to: 1) correct an error in the calculation of a line item in the incremental costs affecting the EMF period; 2) correct an error in the calculation of the solar rebate amortization cost affecting the EMF period; 3) update the percentage of EE RECs supplied by class to be more precise, as has been done in previous cases; 4) modify the proposal for the calculation of animal waste REC sales prices to reflect the agreement reached between the Company and Public Staff; and 5) include the proposed treatment for the amount related to the sales price of RECs held in abeyance from the Company's last REPS proceeding in Docket No. E-7, Sub 1191 (Sub 1191 proceeding). The proposed annual EMF decrement riders (excluding the regulatory fee) requested in the Company's Supplemental Testimony for the residential and general customers are, respectively, \$(0.19) and \$(2.12) per retail customer account, and the EMF increment rider (excluding the regulatory fee) requested for the industrial customers is \$16.41 per retail customer account. These rates are calculated by dividing the "Total EMF Costs/Credits" amount, as



shown on Revised Williams Exhibit No. 4 for each customer class, by the “Total Projected Number of Accounts – Duke Retail” for that class. The proposed monthly EMF decrement riders for residential and general customers are \$(0.02) and \$(0.18), respectively, per retail customer account, and the EMF increment rider for industrial customers is \$1.37 per retail customer account, all excluding the regulatory fee.

The Public Staff’s investigation included procedures intended to evaluate whether the Company properly determined its per books incremental compliance costs and revenues, as well as the annual revenue cap for REPS requirements, during the test period. These procedures included a review of the Company’s filings and other Company data provided to the Public Staff. Additionally, the procedures included a review of certain specific types of expenditures impacting the Company’s costs, including labor costs and research and development costs. Performing the Public Staff’s investigation required the review of numerous responses to written and verbal data requests, as well as discussions with the Company.

Since the Company filed direct testimony in this docket, the Company and the Public Staff have worked together to evaluate the sales prices of set-aside RECs, as directed by the Commission in its August 15, 2019 *Order Approving REPS and REPS EMF Riders and 2018 REPS Compliance Report* in the Sub 1191 proceeding. Through these discussions, the Company and the Public Staff have come to an agreement on a proposed REC sale price calculation that will be used when the Company sells animal waste RECs to other electric suppliers

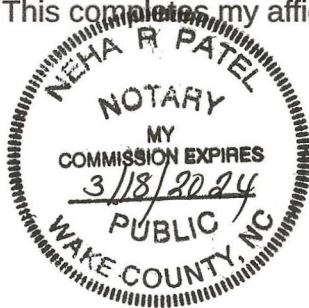
to help those suppliers comply with N.C. Gen. Stat. §§ 62-133.8(e) and (f). The calculation of the sale price in the agreement is reflected in the Supplemental Testimony of Company witnesses Jennings and Williams, and includes (1) the calculation of the purchase price of the animal waste RECs, as discussed in Public Staff witness Lucas's testimony, (2) the calculation of an overhead adder, and (3) the calculation of an interest adder.

I reviewed the Company's proposal, as revised in its Supplemental Testimony, regarding the calculation of the overhead and interest adders included in the sale price of animal waste RECs to third parties, and believe the proposed calculation (a) appropriately accounts for and balances the costs associated with the sales and (b) addresses the concerns raised by the Public Staff in the Sub 1191 proceeding. The Public Staff recommends the calculation continue to be reviewed on an annual basis to verify that it is working as designed. Furthermore, with regard to the Company's proposed ratemaking treatment of a component of the REC sales proceeds that were held in abeyance in the Sub 1191 proceeding, the Public Staff recommends that the Commission approve the Company's proposal as described in the Supplemental Testimony of DEC witness Williams.

Based upon the Public Staff's investigation, including information received from the Company, the Company's Supplemental Testimony, and the recommendation of Public Staff witness Lucas, I recommend that DEC's proposed annual and monthly REPS EMF decrement riders for the residential and general customer classes, and the EMF increment rider for the industrial

customer class, be approved. These amounts produce annual REPS EMF decrement riders of \$(0.19) and \$(2.12), respectively, for residential and general customers, an annual increment rider of \$16.41 for industrial customers, monthly REPS EMF decrement riders of \$(0.02) and \$(0.18) for residential and general customers, respectively, and a monthly increment rider of \$1.37 for industrial customers, per customer account, all excluding the regulatory fee.

This completes my affidavit.



Michelle Boswell  
Michelle Boswell

Sworn to and subscribed before me  
this the 18th day of May, 2020.

Neha R Patel  
Notary Public

My Commission Expires: 3/18/2024



## APPENDIX A

## MICHELLE BOSWELL

Qualifications and Experience

I graduated from North Carolina State University in 2000 with a Bachelor of Science degree in Accounting. I am a Certified Public Accountant.

I joined the Public Staff in September 2000. I have performed numerous audits and/or presented testimony and exhibits before the Commission addressing a wide range of electric, natural gas, and water topics. I have performed audits and/or presented testimony in DEC's 2010, 2015, 2017, and 2019 REPS Cost Recovery Rider; DEP's 2014, 2015, 2017, 2018, and 2019 REPS Cost Recovery Rider; the 2014 REPS Cost Recovery Rider for Dominion North Carolina Power (DNCP); the 2008 REPS Compliance Reports for North Carolina Municipal Power Agency 1, North Carolina Eastern Municipal Power Agency, GreenCo Solutions, Inc., and EnergyUnited Electric Membership Corporation; four recent Piedmont Natural Gas (Piedmont) rate cases; the 2016 rate case of Public Service Company of North Carolina (PSNC); the 2012 and 2019 rate case for Dominion Energy North Carolina (DENC, formerly Dominion North Carolina Power); the 2013, 2017, and 2019 DEP rate cases; , the 2017 and 2019 DEC rate case; the 2018 fuel rider for DENC; , several Piedmont, NUI Utilities, Inc. (NUI), and Toccoa annual gas cost reviews; the merger of Piedmont and NUI; and the merger of Piedmont and North Carolina Natural Gas (NCNG).

Additionally, I have filed testimony and exhibits in numerous water rate cases and performed investigations addressing a wide range of topics and issues related to the water, electric, and telephone industries.

1                   COMMISSIONER CLODFELTER: In addition to  
2                   the docket items, let the public record -- let's  
3                   note for the record that the public witness hearing  
4                   in this matter was conducted earlier this morning  
5                   by Chair Mitchell at a time and place that had been  
6                   duly and properly noticed, and that no public  
7                   witnesses appeared to provide any testimony at that  
8                   time.

9                   With that taken care of, I will turn to  
10                  the applicant and ask if the applicant has any  
11                  supplemental evidentiary submissions or other  
12                  matters for consideration today.

13                  Mr. Kaylor, you are, again, on mute.

14                  MR. KAYLOR: Commissioner, we do not  
15                  have any further evidence to offer, and we are  
16                  satisfied with the record as you stated.

17                  COMMISSIONER CLODFELTER: Great. All  
18                  right. We will move to the intervenors.

19                  Ms. Hicks for CIGFUR-III. Any  
20                  supplemental evidence or additional matters the  
21                  Commission should consider?

22                  MS. HICKS: No, sir. Thank you very  
23                  much.

24                  COMMISSIONER CLODFELTER: All right.

1 Mr. Smith for NCSEA?

2 MR. SMITH: None for NCSEA. Thank you.

3 COMMISSIONER CLODFELTER: Mr. Dodge for  
4 the Public Staff?

5 MR. DODGE: None from the Public Staff.  
6 Thank you.

7 COMMISSIONER CLODFELTER: Okay. Are  
8 there any other matters the Commission needs to  
9 consider on this docket? I will listen to counsel  
10 if there are.

11 MR. KAYLOR: None for the applicant.

12 COMMISSIONER CLODFELTER: All right.  
13 Hearing nothing further, then, we will, at this  
14 point, close the evidentiary record on this matter,  
15 and we will call for proposed orders according to  
16 the same schedule as was outlined in the fuel  
17 docket earlier. Unless there is anything further,  
18 we will close the record of this proceeding. Thank  
19 you all.

20 (Hearing concluded at 1:19 p.m.)

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CERTIFICATE OF REPORTER

STATE OF NORTH CAROLINA )  
COUNTY OF WAKE )

I, Joann Bunze, RPR, the officer before whom the foregoing hearing was taken, do hereby certify that the witnesses whose testimony appear in the foregoing hearing were duly sworn; that the testimony of said witnesses were taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this hearing was taken, and further that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

This the 17th day of June, 2020.

*Joann Bunze*



JOANN BUNZE, RPR

Notary Public #200707300112