

JENNINGS CONFIDENTIAL EXHIBIT NO. 14
DOCKET NO. E-7, SUB 1191

CONFIDENTIAL – FILED UNDER SEAL

JENNINGS CONFIDENTIAL EXHIBIT NO. 15
DOCKET NO. E-7, SUB 1191

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JENNINGS CONFIDENTIAL EXHIBIT NO. 16
DOCKET NO. E-7, SUB 1191

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JENNINGS CONFIDENTIAL EXHIBIT NO. 17
DOCKET NO. E-7, SUB 1191

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JENNINGS CONFIDENTIAL EXHIBIT NO. 18
DOCKET NO. E-7, SUB 1191

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JENNINGS CONFIDENTIAL EXHIBIT NO. 19
DOCKET NO. E-7, SUB 1191

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Office of Research Contracts

3040 Cornwallis Road ■ PO Box 12194 ■ Research Triangle Park, NC 27709-2194 ■ USA
Telephone 919.541.6000 ■ Fax 919.541.7148 ■ www.rti.org

October 16, 2018

Mr. Travis Payne
Business Development Manager Distributed Energy Resources
Duke Energy Corporation

Dear Mr. Payne,

RTI is pleased to conduct a study titled "Biogas Utilization in North Carolina: Opportunities and Impact Analysis" with grant funding of \$250,000 per year for two years from Duke Energy. The objectives of the study will be to:

- a. Determine the potential bioenergy/biogas resources available in North Carolina
- b. Identify the most beneficial and optimum utilization of resources to maximize economic, environmental and societal advantages.

RTI will collaborate with Duke University, East Carolina University, North Carolina State University and University of North Carolina at Chapel Hill to carry out the tasks based on recommendations laid out in the NC Department of Environmental Quality's Energy Policy Council Report. The following will be the deliverables from this study:

1. Bioenergy/Biogas inventory for North Carolina
2. Impact analysis for various products from biogas
3. Decision-support tool
4. Optimal resource utilization plan

A preliminary budget breakdown is shown in Table 1. The budget splits between the subcontractors will be finalized during sub-award negotiations.

| | Year 1 | Year 2 |
|------------------------------|------------------|------------------|
| RTI | \$25,000 | \$25,000 |
| <i>Sub-Contractors</i> | | |
| Duke University | | |
| East Carolina University | | |
| NC State University | | |
| <i>Total Sub-Contractors</i> | <i>\$225,000</i> | <i>\$225,000</i> |
| Total Grant Award | \$250,000 | \$250,000 |

Table 1: Proposed preliminary budget

If this is acceptable to you, we would be pleased to authorize this effort as a grant pursuant to RTI's standard terms and conditions (https://www.rti.org/sites/default/files/ffp_quote_terms_final.pdf). Please note that any reference to a "fixed price contract" in the incorporated terms and conditions is hereby replaced with the term "grant."

If acceptable, please sign and return this offer letter at your earliest convenience. We plan to commence this two-year period of performance upon your acceptance of this offer and will submit an invoice for Year 1 promptly.



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Thank you for your consideration. If you have any questions regarding this submission, please contact me at kehayes@rti.org or 919-541-7482.

Sincerely,

A handwritten signature in blue ink that reads "Katie Hayes".

Katie Hayes
Senior Contracting Officer

DUKE ENERGY CORPORATION ACCEPTANCE

A handwritten signature in black ink that reads "David B. Johnson".

Name David B. Johnson

Title Director

Date 10/23/18

OFFICIAL COPY

Feb 26 2019

JENNINGS CONFIDENTIAL EXHIBIT NO. 21
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JENNINGS CONFIDENTIAL EXHIBIT NO. 22
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JENNINGS CONFIDENTIAL EXHIBIT NO. 23
DOCKET NO. E-7, SUB 1191

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1191

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)

**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 (“Duke Power”) (now known as Duke Energy Carolinas) as an internal
21 auditor and subsequently worked in various departments in the finance
22 organization. I 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 1175
4 regarding Duke Energy Progress' 2017 REPS compliance report and
5 application for approval of its REPS cost recovery rider, and in Docket No.
6 E-7, Sub 1162 regarding Duke Energy Carolinas' 2017 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, 2018 and ending on December
15 31, 2018 ("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, 2019 and ending on August 31, 2020 ("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, 2018. 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”), recently placed into service.

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 last year’s annual REPS cost recovery
11 proceeding, Docket No. E-7, Sub 1162, DEC filed supplemental testimony
12 and exhibits updating the calendar year 2017 EMF Period to include the
13 months of January through April of 2018, as allowed by Commission Rule
14 R8-67(e)(5). The REPS rider approved by the Commission included the
15 overcollection applicable to the additional four months of January through
16 April of 2018. Accordingly, calendar year 2018 EMF Period costs in this
17 current REPS docket are adjusted to remove the compliance costs for
18 January through April 2018 that were included in the overcollection
19 reflected in the REPS rider approved in Docket No. E-7, Sub 1162. In
20 addition to an EMF component, the current proposed rider includes a
21 component to recover the costs expected to be incurred for the Billing
22 Period.

1 **Q. PLEASE DESCRIBE THE METHODOLOGY DUKE ENERGY**
2 **CAROLINAS USED TO CALCULATE THE INCREMENTAL**
3 **COSTS OF COMPLIANCE WITH THE REPS REQUIREMENTS.**

4 A. Company witness Jennings describes the costs Duke Energy Carolinas
5 incurred during the Test Period and the costs the Company projects to incur
6 during the Billing Period to comply with its REPS requirements. G.S. § 62-
7 133.8(h)(1) provides that “incremental costs” means “all reasonable and
8 prudent costs incurred by an electric power supplier” to comply with the
9 REPS requirements “that are in excess of the electric power supplier’s
10 avoided costs other than those costs recovered pursuant to G.S. § 62-133.9.”

11 For purchased power agreements with a renewable energy facility,
12 the Company subtracted its avoided cost from the total cost associated with
13 the renewable energy purchase to arrive at the incremental cost for the
14 renewable energy purchase during the period in question. Consistent with
15 Rule R8-67(e)(2), which provides that the cost of an unbundled renewable
16 energy certificate (“REC”) “is an incremental cost and has no avoided cost
17 component,” the total costs incurred during the Test Period for REC
18 purchases are included in incremental costs. Further, the projected costs for
19 REC purchases during the Billing Period are included as incremental costs.

20 With respect to the Company’s utility-owned solar generating
21 facilities, an annual revenue requirement, including capital and operations
22 and maintenance costs, was calculated for each facility for the period
23 covering the expected service life of the project. The present value of the

1 total facility revenue requirement was levelized over the asset life to
2 produce a level annual revenue requirement that was compared to avoided
3 cost to determine annual incremental cost subject to cost recovery through
4 the REPS rider. For biogas purchases used to generate renewable energy at
5 the Company's generating stations, the incremental cost is calculated by
6 subtracting the applicable avoided cost from the total biogas cost associated
7 with the MWhs generated. Similar calculations are made to estimate the
8 incremental biogas costs for the prospective Billing Period.

9 As described in detail by Company witness Jennings in her direct
10 testimony filed in this docket, the REPS EMF and Billing Period
11 components of the proposed REPS rider also include compliance-related
12 incremental administration costs, labor costs, and costs related to research
13 incurred during the 2018 EMF Period and estimated to be incurred during
14 the Billing Period, respectively. Additionally, as further detailed in the
15 testimony of Company witness Jennings, amounts reflecting the
16 amortization of Solar Rebate Program costs incurred pursuant to G.S. § 62-
17 155(f) applicable to the EMF and Billing Periods are included for recovery in
18 the proposed REPS rider.

19 **Q. PLEASE EXPLAIN FURTHER THE CALCULATION OF**
20 **INCREMENTAL COST RELATED TO THE COMPANY'S SOLAR**
21 **GENERATING FACILITIES PROPOSED FOR RECOVERY IN ITS**
22 **REPS RIDER.**

23 **A.** The revenue requirements for recovery of capital and operating costs for the
24 Duke Energy North Carolina Solar Photovoltaic Distributed Generation

1 Program (“Duke Energy PV DG Program” or “Solar PVDG Program”) are
2 levelized and then reduced by avoided cost to determine incremental cost.
3 The incremental cost for which the Company seeks recovery through the
4 REPS rider is limited, in compliance with the Commission’s May 6, 2009
5 *Order on Reconsideration* in Docket No. E-7, Sub 856 and the
6 Commission’s August 23, 2011 *Order Approving REPS and REPS EMF*
7 *Riders and 2010 REPS Compliance* in Docket No. E-7, Sub 984 (“*2011*
8 *REPS Order*”).

9 On May 16, 2016, the Commission issued orders approving the
10 transfers of the certificates of public convenience and necessity to DEC for
11 both the Company’s Mocksville solar facility (“Mocksville,” Docket No. E-
12 7, Sub 1098) and the Company’s Monroe solar facility (“Monroe,” Docket
13 No. E-7, Sub 1079). On June 16, 2016, the Commission issued its Order
14 Granting Certificate of Public Convenience and Necessity (“*Woodleaf*
15 *Order*”) in Docket No. E-7, Sub 1101, approving the certificate of public
16 convenience and necessity (“CPCN”) for construction of Woodleaf.
17 Collectively, these orders are referred to herein as the “*DEC Solar PV*
18 *Orders*” and collectively, Mocksville, Monroe, and Woodleaf are referred
19 to herein as the “DEC Solar PV facilities”. In its *DEC Solar PV Orders*,
20 the Commission limited cost recovery for the DEC Solar PV facilities
21 through the Company’s REPS rider to the equivalent of the standard REC
22 offer price that DEC was offering to new renewable energy facilities at the
23 time the purchase agreements were executed for the facilities. The current

1 annual levelized total revenue requirement per megawatt hour (“MWh”) for
2 each facility, computed based on updated tax benefit assumptions and actual
3 completed or estimated project cost, is greater than the applicable levelized
4 avoided cost per MWh, as was the case when each project was submitted
5 for approval in the applicable CPCN proceeding. Accordingly, the
6 Company is including for cost recovery in this REPS rider only the
7 percentage of annual levelized total cost equivalent to the standard REC
8 offer price as approved by the Commission in its *DEC Solar PV Orders*.

9 The Company’s costs associated with its Solar PVDG Program,
10 Mocksville, and Monroe were reflected in base rates approved in its most
11 recent general rate case in Docket No. E-7, Sub 1146. Adjustments to rate
12 base in the general rate case were made, as necessary, to remove
13 incremental REPS costs associated with the facilities that were being
14 recovered in the REPS rider instead. In the REPS rider currently proposed,
15 the Company is holding the percentage of incremental cost recovered in the
16 REPS rider for each facility constant with the incremental cost percentage
17 for each facility that was excluded from rates approved in Docket No. E-7,
18 Sub 1146. The purpose of this step is to avoid calculating a REPS cost
19 recovery amount for these facilities that includes a portion of cost already
20 currently included in base rates, created by any small difference in the
21 incremental cost percentage recovered in REPS versus the incremental cost
22 percentage excluded from base rates.

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 **Q. DID THE COMPANY COMPLY WITH THE TWO CONDITIONS**
2 **OUTLINED ABOVE IN THE APPROPRIATE REPS RIDER AND**
3 **GENERAL RATE CASE PROCEEDINGS WITH RESPECT TO ITS**
4 **MOCKSVILLE SOLAR FACILITY AND ITS MONROE SOLAR**
5 **FACILITY?**

6 Yes. In the Company's 2017 annual REPS rider filing in Docket No. E-7,
7 Sub 1131 and its 2018 annual REPS rider filing in Docket No. E-7, Sub
8 1162, the Company updated its original models of estimated annual revenue
9 requirements to reflect its actual experience to date for each of the specified
10 tax-related benefits, and the Company updated its estimates of the timing of
11 realization of the relevant tax benefits in future tax years. In addition, in
12 each docket, the incremental costs from the updated revenue requirement
13 models that were included for recovery in the REPS rider were limited to
14 the percentage of annual levelized total cost equivalent to the standard REC
15 offer price as approved by the Commission in its *DEC Solar PV Orders*.

16 On August 25, 2017, DEC filed its *Application to Adjust Retail*
17 *Rates, Request for an Accounting Order and to Consolidate Dockets* in
18 Docket No. E-7, Sub 1146, the Company's only general rate case
19 proceeding since the date of the *DEC Solar PV Orders*. Mocksville and
20 Monroe costs were included (reduced by the percentage of cost recovered
21 in the REPS rider as capped by the Commission in its *DEC Solar PV*
22 *Orders*) in the revenue requirement calculated and subject to recovery in
23 base rates in the general rate case docket. The Commission issued its June

1 22, 2018 *Order Accepting Stipulation, Deciding Contested Issues, and*
2 *Requiring Revenue Reduction* (“2018 Rate Order”) in Docket No. E-7, Sub
3 1146, in which the Commission accepted DEC’s conclusion that the facility
4 costs included in its proposed base rates were prudently incurred and
5 approved applicable recovery through base rates. The Company is limiting
6 recovery of costs related to Mocksville and Monroe in its current REPS
7 rider filing to the percentage equivalent to the REC price cap established in
8 the *DEC Solar PV Orders*, and holding that percentage constant with the
9 percentage used to adjust cost of the facilities included in the E-7, Sub 1146
10 general rate case (as discussed above).

11 The Company respectfully submits that it has now met in full the
12 cost recovery conditions of the *DEC Solar PV Orders* specific to
13 Mocksville and Monroe, and its compliance requirement has been
14 completed with respect to those facilities.

15 **Q. DISCUSS THE COMPANY’S COMPLIANCE WITH THE TWO**
16 **CONDITIONS OUTLINED ABOVE IN THE APPROPRIATE REPS**
17 **RIDER AND GENERAL RATE CASE PROCEEDINGS WITH**
18 **RESPECT TO ITS WOODLEAF SOLAR FACILITY.**

19 A. As noted in Company witness Jennings’ testimony, Woodleaf was placed
20 in service in December 2018. Costs for the facility have not yet been
21 included in a DEC general rate case. As of last year’s annual REPS rider
22 filing in Docket No. E-7, Sub 1162, Woodleaf was not yet under
23 construction, and no costs were included in the EMF Period at that time. A

1 complete analysis of tax benefit assumptions specific to the project was not
2 available, and the Company only included in its prospective Billing Period
3 a forecast of levelized cost limited to the approved avoided cost plus the
4 incremental cost calculated at the cap specified by the Commission in its
5 *DEC Solar PV Orders*.

6 In this current REPS docket, the Company updated its revenue
7 requirement calculation for Woodleaf to reflect its current assumptions
8 regarding the availability of the following tax benefits listed in the
9 Woodleaf Order, and its estimates of the timing of realizing the tax benefits:

- 10 (a) The federal Section 199 deduction;
11 (b) The federal Investment Tax Credit (“ITC”) of 30% of the cost
12 of eligible property;
13 (c) The five-year Modified Accelerated Cost Recovery System
14 (“MACRS”) tax depreciation; and
15 (d) A property tax abatement of 80% on solar property.

16 The Company’s current assumptions regarding tax benefits
17 continue to reflect Woodleaf qualifying for MACRS tax depreciation, and
18 that it will realize the benefit of 80% property tax abatement on the facility.
19 The assumptions related to realizing the tax benefits of MACRS tax
20 depreciation and 80% property tax abatement are the same as those
21 presented as part of the original Woodleaf CPCN proceeding.

22 The Federal Tax Cuts and Jobs Act (the “Tax Act”) was enacted on
23 December 22, 2017. Among other provisions, it eliminated the federal
24 Section 199 manufacturing deduction. Accordingly, the associated
25 reduction is removed from the composite tax rate utilized in the updated

1 revenue requirement calculations. Federal ITC benefits were originally
2 assumed to be realized in 2021 for Woodleaf. However, DEC expects to
3 experience a delay in realizing the federal ITC benefits because it
4 anticipates lacking sufficient taxable income against which it can take the
5 tax credit. The Company currently estimates realizing the federal ITC
6 benefits beyond the current forecast window of year 2023. The Company's
7 ability to take federal bonus depreciation related to many of its assets placed
8 in service prior to the bonus depreciation expiration deadline established by
9 the Tax Act, combined with the updated forecast timing of utilization of
10 other tax credits, contribute to the estimated lack of taxable income for
11 utilization of ITC¹.

12 In addition to the tax benefits discussed above, the Tax Act reduced
13 the corporate federal income tax rate to 21% from 35%, which affects the
14 revenue requirement calculation for Woodleaf as well. The return on
15 equity, debt rate, and capital ratios were also updated in the revenue
16 requirement model to reflect amounts approved according to the 2018 Rate
17 Order.

18 **Q. HOW DOES THE COMPANY INTERPRET THESE RESULTS IN**
19 **TERMS OF AMOUNTS TO BE RECOVERED THROUGH THE**
20 **REPS RIDER FOR WOODLEAF?**

21 A. In summary, although DEC expects to experience some delay in realizing
22 the ITC benefit, the accelerated benefits of bonus depreciation to Duke

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

1 Energy Corporation, and the overall benefit of a lower federal tax rate
2 mitigate the effect of the delay. The tax benefit updates taken together with
3 current general rate case assumption inputs, result in a calculated revenue
4 requirement that is not materially different from that presented during the
5 original Woodleaf CPCN proceeding. Williams Exhibit No. 7 summarizes
6 levelized cost recovery amounts reflecting original assumptions, as well as
7 updated tax monetization estimates, and updated project capital
8 expenditures.

9 **Q. DOES THE COMPANY SEEK RECOVERY OF COSTS FOR THE**
10 **WOODLEAF SOLAR FACILITY IN ITS PROPOSED REPS**
11 **RIDER?**

12 A. The Woodleaf facility was placed in service in late December 2018. The
13 Company is electing to update its annual revenue requirement calculation
14 to begin computing a REPS rider recovery amount beginning January 2019,
15 so it included no Woodleaf costs in the EMF Period. The revenue
16 requirement calculation updated for the tax and rate case inputs described
17 above produced a projected incremental cost recovery amount for the
18 Billing Period. In compliance with the conditions included in the
19 Commission's Woodleaf Order, the Company limited the estimated amount
20 included for recovery in the proposed REPS rider to the percentage of
21 annual levelized cost equivalent to the standard offer REC price established
22 in that CPCN proceeding.

1 **Q. HOW DID DUKE ENERGY CAROLINAS DETERMINE THE**
2 **AVOIDED COST ASSOCIATED WITH REPS COMPLIANCE**
3 **COSTS?**

4 A. In all cases where Duke Energy Carolinas has determined incremental
5 compliance costs as the excess amount above avoided cost, the Company
6 has applied an avoided cost rate in cents per kilowatt-hour (“kWh”) to the
7 expected kWh of renewable energy for each compliance initiative. In
8 determining the avoided costs associated with purchased power agreements,
9 Rule R8-67(a)(2) provides that:

10 “Avoided cost rates” mean an electric power supplier’s most
11 recently approved or established avoided cost rates in this
12 state, as of the date the contract is executed, for purchases of
13 electricity from qualifying facilities pursuant to Section 210
14 of the Public Utility Regulatory Policies Act of 1978. If the
15 Commission has approved an avoided cost rate for the
16 electric power supplier for the year when the contract is
17 executed, applicable to contracts of the same nature and
18 duration as the contract between the electric power supplier
19 and the seller, that rate shall be used as the avoided cost.
20 Therefore, for example, for a contract by an electric public
21 utility with a term of 15 years, the avoided cost rate
22 applicable to that contract would be the comparable,
23 Commission-approved, 15-year, long-term, levelized rate in
24 effect at the time the contract was executed. In all other
25 cases, the avoided cost shall be a good faith estimate of the
26 electric power supplier’s avoided cost, levelized over the
27 duration of the contract, determined as of the date the
28 contract is executed, taking into consideration the avoided
29 cost rates then in effect as established by the Commission.
30 In any event, when found by the Commission to be
31 appropriate and in the public interest, a good faith estimate
32 of an electric public utility’s avoided cost, levelized over the
33 duration of the contract, determined as of the date the
34 contract is executed, may be used in a particular REPS cost
35 recovery proceeding. Determinations of avoided costs,
36 including estimates thereof, shall be subject to continuing

1 Commission oversight and, if necessary, modification
2 should circumstances so require.

3
4 Duke Energy Carolinas' approved avoided cost rates are set forth in
5 its Purchased Power Non-Hydroelectric, Schedule PP-N, Purchased Power
6 Hydroelectric, Schedule PP-H, and Schedule PP rate schedules (collectively
7 "Schedule PP"). For executed purchased power agreements, where the
8 price of the REC and energy are bundled, the Company used annualized
9 combined capacity and energy rates as shown on the Company's Exhibit
10 No. 3, filed in Docket No. E-100, Sub 106; Exhibit No. 3 in Docket No. E-
11 100, Sub 117; Exhibit No. 3 in Docket No. E-100, Sub 127; Exhibit No. 3
12 in Docket No. E-100, Sub 136; Exhibit No. 3 in Docket No. E-100, Sub
13 140; or Attachment H in Docket No. E-100, Sub 148 (depending on the
14 execution date of the contract). For those purchased power agreements with
15 terms that did not correspond with the durational terms for which rates were
16 established in the avoided cost proceeding (i.e., two, five, ten, or fifteen year
17 durations), Duke Energy Carolinas computed avoided cost rates for the
18 particular term of the purchased power agreements using the same inputs
19 and methodology used for the Schedule PP rates approved in Docket Nos.
20 E-100, Sub 106, E-100, Sub 117, E-100, Sub 127, E-100, Sub 136, E-100,
21 Sub 140 or E-100, Sub 148, respectively. The avoided cost components of
22 energy and REC purchased power agreements effective during the
23 prospective billing period were estimated in the same manner.

24 For the Duke Energy Carolinas PVDG Program, the Company
25 determined the avoided cost using a process similar to that described above

1 for a purchased power agreement with a non-standard duration. The inputs
2 and methodology used for the Schedule PP rates approved in Docket No. E-
3 100, Sub 117 were used to determine the annualized combined capacity and
4 energy rates for a twenty-year term, corresponding to the expected life of
5 the solar facilities. The Company estimated its avoided cost and
6 incremental cost in a similar fashion for its new DEC Solar PV facilities.

7 **Q. DOES DUKE ENERGY CAROLINAS PROVIDE SERVICES TO**
8 **WHOLESALE CUSTOMERS TO MEET THEIR REPS**
9 **REQUIREMENTS?**

10 A. Yes. As part of its 2018 REPS Compliance Plan, Duke Energy Carolinas
11 continues to provide services to native load priority wholesale customers
12 that contract with the Company for REPS compliance services, including
13 delivery of renewable energy resources and compliance planning and
14 reporting. These wholesale customers, including distribution cooperatives
15 and municipalities, rely on Duke Energy Carolinas to provide this
16 renewable energy delivery service in accordance with G.S. § 62-
17 133.8(c)(2)e. For REPS compliance year 2018, the Company provided
18 renewable energy resources and compliance reporting services for the
19 following native load priority wholesale customers: Blue Ridge Electric
20 Membership Corporation (“Blue Ridge EMC”), Rutherford Electric
21 Membership Corporation (“Rutherford EMC”), City of Concord, Town of
22 Dallas, Town of Forest City, Town of Highlands, and City of Kings
23 Mountain.

1 Effective January 1, 2019, the Company's contractual obligation to
2 provide REPS compliance services to City of Concord and City of Kings
3 Mountain ended. These two municipalities are included in DEC's 2018
4 Compliance Report and share in REPS compliance costs incurred for the
5 calendar year 2018 EMF Period, which are applicable to 2018 REPS
6 compliance requirements.

7 **Q. PLEASE EXPLAIN HOW THE COMPANY ALLOCATES**
8 **INCREMENTAL REPS COSTS BETWEEN ITS RETAIL**
9 **CUSTOMERS AND ITS WHOLESALE CUSTOMERS RECEIVING**
10 **THIS SERVICE.**

11 A. The incremental cost of REPS compliance represents the cost to meet the
12 combined total MWh requirement for native load customers, based on the
13 sum of Duke Energy Carolinas' NC retail sales and Wholesale NC retail
14 sales. To properly allocate incremental costs between Duke Energy
15 Carolinas and its Wholesale customers, the class allocation methodology
16 was performed using a combined aggregate cost cap as shown in Williams
17 Exhibit Nos. 2 and 3 for the EMF Period and the Billing Period,
18 respectively. The class allocation methodology combines the number of
19 accounts subject to a REPS charge by customer class for both Duke Energy
20 NC retail accounts and Wholesale NC retail accounts. In the cases where a
21 Wholesale customer self-supplied a portion of its annual REPS requirement
22 (for example, using its Southeastern Power Administration allocation to
23 partially meet the requirement as provided in G.S. § 62-133.8(c)), or where

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

18 **Q. PLEASE ALSO DESCRIBE HOW DUKE ENERGY CAROLINAS**
19 **ALLOCATES ITS EE SAVINGS AMONG ITS CUSTOMER**
20 **CLASSES FOR REPS AND REPS EMF RIDER PURPOSES.**

21 A. Incremental costs assigned to Duke Energy Carolinas’ NC Retail customers
22 are separated into two categories: costs related to solar, poultry and swine
23 compliance requirements, and research, other incremental and Solar Rebate

1 Program costs (“Set-Aside and Other Incremental Costs”); and costs related
2 to the General Requirement² (“General Incremental Costs”). This
3 separation is based on the percentage of Set-Aside and Other Incremental
4 Costs and General Incremental Costs calculated on Williams Exhibit No. 1.

5 Set-Aside and Other Incremental Costs are allocated among
6 customer classes based on per-account cost caps. General Incremental
7 Costs are allocated among customer classes in a manner that gives credit for
8 EE RECs (for which there are no General Incremental Costs) according to
9 the relative energy reduction contributed by each customer class. As a
10 result, General Incremental Costs are allocated among customer classes
11 based on each class’ pro-rata share of requirements for non-EE general
12 RECs. The calculations for allocating General Incremental Costs are
13 updated to reflect the modifications recommended by the Public Staff, and
14 accepted by the Commission in its November 17, 2017 *Order Approving*
15 *REPS and REPS EMF Rider and Approving REPS Compliance Report*, in
16 DEP’s 2017 REPS rider filing in Docket No. E-2, Sub 1144. The Company
17 notes that any deviation from allocating costs according to the statutory per-
18 account cost cap ratios creates the potential for the resulting charges
19 computed for one or more classes to exceed the per-account cost cap(s). If
20 that occurs, the Company would continue to reallocate the costs in excess
21 of the cap for the affected customer class to the other customer classes to

² 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 the extent required to produce charges for all classes that do not exceed the
2 respective caps.

3 **Q. PLEASE DESCRIBE HOW DUKE ENERGY CAROLINAS**
4 **CALCULATED THE PROJECTED PORTION OF THE REPS**
5 **RIDER THAT THE COMPANY PROPOSES FOR THE BILLING**
6 **PERIOD.**

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

19 **Q. PLEASE EXPLAIN THE CALCULATION OF THE PROPOSED**
20 **REPS EMF.**

21 A. Using the allocation methods described above, and as shown on Williams
22 Exhibit No. 2, the Set-Aside and Other Incremental Costs and the General
23 Incremental Costs are calculated by customer class for the Company's NC

1 Retail customers. The Set-Aside and Other Incremental Costs and General
2 Incremental Costs are summed for the Test Period by customer class to
3 illustrate the total REPS costs assigned to the Company's NC Retail
4 customers. The actual NC Retail revenues realized during the Test Period
5 by customer class are then subtracted from the total REPS costs by customer
6 class to arrive at the EMF for each class. As described above, Test Period
7 costs were adjusted to exclude costs incurred for January through April
8 2018, that were included in the updated EMF period in the REPS rider filed
9 in Docket No, E-7, Sub 1162. Likewise, the REPS revenues realized for
10 the Test Period were adjusted to remove revenues collected in January
11 through April 2018 to calculate the EMF under- or over-collection by class.
12 On Williams Exhibit No. 4, the total EMF over/under collection to be
13 recovered from each customer class is adjusted to include any credits to
14 customers not considered a refund of amounts advanced by customers, and
15 then divided by the total projected number of Duke Energy Carolinas' NC
16 Retail accounts within each customer class to arrive at the total EMF to be
17 recovered from each account over the Billing Period. The monthly EMF
18 for each customer class is one-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, Town of
23 Forest City, and City of Concord have a methodology for determining
24 Wholesale year-end number of accounts that is generally consistent with
25 that used by Duke Energy Carolinas. The modifications and exclusions are
26 similarly intended to avoid charging customers twice, as in the case of
27 customers with additional lighting accounts, or to exclude small auxiliary
28 service loads. Town of Highlands, Town of Dallas, and City of Kings
29 Mountain define an account in the manner the information is reported to the

1 Energy Information Administration for annual electric sales and revenue
2 reporting.

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

7 A. Yes. In NC House Bill 589, the General Assembly revised G.S. § 62-
8 133.8(h)(4) to lower the annual cost cap for the Residential customer class
9 from \$34.00 to \$27.00 in years subsequent to 2014, for cost recovery
10 proceedings initiated on or after July 1, 2017. Accordingly, the Company
11 has applied that revision to the cost caps in this cost recovery proceeding.
12 As shown in Williams Exhibit No. 4, the annual charges for each customer
13 class are below the per-account caps defined in G.S. § 62-133.8(h)(4).

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

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

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

- 1 A. The Company proposes the following monthly REPS charges to be effective
2 September 1, 2018.

| 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 | \$ 0.87 | \$ 0.87 | \$ 10.44 | \$ 27.00 |
| General | \$ 4.64 | \$ 4.65 | \$ 55.80 | \$ 150.00 |
| Industrial | \$ 21.28 | \$ 21.31 | \$ 255.72 | \$ 1,000.00 |

3

- 4 **Q. WHAT IS THE MONTHLY CHANGE IN REPS CHARGE**
5 **PROPOSED BY THE COMPANY FOR EACH CUSTOMER CLASS?**

6 Excluding the regulatory fee, the following table shows the EMF and rider
7 components of the proposed rider and the currently-effective riders
8 established in Docket No. E-7, Sub 1162:

| Customer class | <i>Proposed</i> | | | <i>Current</i> | | | <i>Change</i> | | |
|----------------|-----------------|----------------|----------------|----------------|---------|----------|---------------|--------|---------|
| | EMF | Rider | Total | EMF | Rider | Total | EMF | Rider | Total |
| Residential | \$(0.07) | \$0.94 | \$0.87 | \$(0.67) | \$0.74 | \$0.07 | \$0.60 | \$0.20 | \$0.80 |
| General | \$(0.18) | \$4.82 | \$4.64 | \$(2.79) | \$3.82 | \$1.03 | \$2.61 | \$1.00 | \$3.61 |
| Industrial | \$ 0.75 | \$20.53 | \$21.28 | \$(19.04) | \$12.61 | \$(6.43) | \$19.79 | \$7.92 | \$27.71 |

10

- 11 **Q. PLEASE DESCRIBE THE EEC INVENTORY DETAILS**
12 **PRESENTED IN WILLIAMS EXHIBIT NO. 6.**

- 13 A. Williams Exhibit No. 6 shows a reconciliation of the Company's EEC
14 inventory balance available for REPS compliance as of December 31, 2018,
15 as well as references to the evaluation, measurement and verification
16 ("EM&V") reports the results of which are incorporated into current EEC

1 balances. The Company annually determines the level of EECs generated
2 and available for REPS compliance, and this update includes the results of
3 any periodic EM&V performed to-date, adjustments identified during the
4 Company's ongoing analysis of energy efficiency program effectiveness, as
5 well as any other corrections. The updated cumulative level of EECs
6 generated to date is compared to the number of EECs previously reported
7 for compliance, less any EECs used for compliance, to determine the EECs
8 to be added to inventory for the most recent calendar year. Williams Exhibit
9 No. 6 shows the calculation for EECs added to inventory for 2018, including
10 details of the adjustments incorporated therein.

11 **Q. DOES THE COMPANY CONTINUE TO INCORPORATE THE**
12 **COMMISSION'S ORDER ADDRESSING THE DURATION OF**
13 **ENERGY EFFICIENCY SAVINGS AS CALCULATED FOR REPS**
14 **COMPLIANCE PURPOSES?**

15 A. Yes. In its January 17, 2017 *Order Approving REPS and REPS EMF Rider*
16 *and REPS Compliance Report* ("DEP REPS Order") in the Duke Energy
17 Progress REPS Docket No. E-2, Sub 1109, the Commission directed DEP
18 to limit its continued recognition of EE savings initiated in a particular EE
19 program year to the life of the measure or program as established in DEP's
20 energy efficiency rider proceedings held pursuant to G.S. § 62-133.9.
21 Consistent with that Order, in this rider filing DEC also continues to
22 calculate EE savings only for the duration of the established measure life of
23 each program or measure.

- 1 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**
- 2 A. Yes.

REDACTED VERSION

Williams Exhibit No. 1

Page 1 of 2

February 26, 2019

DUKE ENERGY CAROLINAS, LLC

Docket No. E-7, Sub 1191

Compliance Costs for the EMF Period January 1, 2018 to December 31, 2018

| Line No. | Renewable Resource | RECs | MWh (Energy) | Total Cost | Avoided Cost | Incremental Cost | Avoided Cost Recovered in Fuel Cost Adjustment Rider | Deduct: Incremental Cost January 2018 through April 2018 (1) | Incremental Cost Adjusted EMF Period May 2018 through December 2018 (1) | |
|----------|---------------------------|------|-----------------|------------------------|---------------------------|---------------------|---------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------|
| 1 | | | | | | | | | | (p) |
| 2 | | | | | | | | | | (q) |
| 3 | | | | | | | | | | (r) |
| 4 | | | | | | | | | | (s) |
| 5 | | | | | | | | | | (t) |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | (u) |
| 8 | | | | | | \$ 26,159,370 | | \$ 6,942,007 | \$ 19,217,363 | |
| 9 | Other Incremental | | | \$ 1,030,461 | Jennings Exhibit No. 2 | \$ 1,030,461 | (g) | \$ 163,562 | \$ 866,899 | (v) |
| 10 | Solar Rebate Program | | | \$ 135,912 | | \$ 135,912 | (h) | \$ - | \$ 135,912 | (w) |
| 11 | Research | | | \$ 938,393 | | \$ 938,393 | (i) | \$ 145,949 | \$ 792,444 | (x) |
| 12 | Total | | | | | \$ 28,264,136 | (below) | \$ 7,251,518 | \$ 21,012,618 | (below) |
| | | | | Jennings Exhibit No. 2 | | | | | | |
| | Incremental cost category | | | | | Incremental Cost | Percent of Total Incremental Cost | | Incremental Cost | Percent of Total Incremental Cost |
| 13 | | | | | | | | | | |
| 14 | | | | | | | | | | |
| 15 | Total | | | | | \$ 28,264,136 | (above) | \$ 21,012,618 | (above) | |

Allocate incremental cost of solar resources between solar compliance requirement and general compliance requirement:

to Williams Exhibit No. 2, page 1

- (1) In Docket No. E-7, Sub 1162, the EMF Period was updated to include the months of Jan - Apr 2018. Total REPS compliance activity and costs for the calendar year period Jan - Dec 2018 are included for review and audit in the current docket E-7, Sub 1191, however, incremental costs for Jan - Apr 2018 are excluded from the rider calculation.

Projected Compliance Costs for the Billing Period September 1, 2019 to August 31, 2020

February 26, 2019

Allocate estimated incremental cost of solar resources between solar compliance requirement and general compliance requirement:

18
19
20
21
22
23

Compliance Costs for the adjusted EMF Period May 1, 2018 to December 31, 2018

Removed incremental compliance costs incurred January 1, 2018 through April 30, 2018 - recovered in updated EMF Period in docket No. E-7, Sub 1162

Allocate Incremental Cost per Customer Class - adjusted EMF Period May 2018 through December 2018

| Combined North Carolina Retail and Wholesale | | | | | | | | | |
|----------------------------------------------|----------------|----------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|--------------------------------|----------------------------------|--------------------------------------------------|------------------------------------------------|
| Line No. | Customer Class | Total Unadjusted Number of Accounts ⁽¹⁾ | Adjustment for Self- supplied Requirements ⁽¹⁾ | Total Adjusted Number of Accounts ⁽¹⁾ | Annual Rider Cap per Customer Class Account | Annual Adjusted Revenue Cap | Cost Cap Allocation Factor | Actual Incremental Costs for REPS Recovery | Annual Per Account Charge ⁽²⁾ |
| 1 | Residential | 1,883,228 | 462,139 | 1,421,089 | \$ 27 | \$ 38,369,403 | 53.17% | \$ 11,172,409 | \$ 7.86 |
| 2 | General | 264,748 | 64,877 | 199,871 | \$ 150 | \$ 29,980,650 | 41.54% | \$ 8,728,642 | \$ 43.67 |
| 3 | Industrial | 5,068 | 1,247 | 3,821 | \$ 1,000 | \$ 3,821,000 | 5.29% | \$ 1,111,567 | \$ 290.91 |
| 4 | Total | 2,153,044 | 528,263 | 1,624,781 | | \$ 72,171,053 | 100.00% | \$ 21,012,618 | (b) |

Williams Exhibit No. 1,
page 1 Line No. 12

Calculate NC Retail-only annual REPS cost per Customer Class - adjusted EMF Period:

| North Carolina Retail Only | | | | | | |
|----------------------------|----------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------|-----------------------------------|------------------------------------------------------|
| Line No. | Customer Class | Total Adjusted Number of Accounts - DEC Retail ⁽¹⁾ | Annual Per Account Charge ⁽²⁾ | Incremental Costs Allocated to DEC Retail | Percent of Incremental Cost | NC Retail Percent of Total Incremental Cost |
| 5 | Residential | 1,289,168 | \$ 7.86 | \$ 10,132,860 | | |
| 6 | General | 183,807 | \$ 43.67 | \$ 8,026,852 | | |
| 7 | Industrial | 3,596 | \$ 290.91 | \$ 1,046,112 | | |
| 8 | Total | 1,476,571 | | 19,205,824 | (a) | 91.40% (a) / (b) |
| 9 | Set-aside, Other Incremental, Solar Rebate, and Research | | | \$ 12,157,287 | 63.3% | Williams Exhibit No. 1, page 1 Line Nos. 13,14 |
| 10 | General RECs | | | \$ 7,048,537 | 36.7% | |
| 11 | Total Incremental Cost for Retail | | | 19,205,824 | | |

Notes:

- (1) Average number of accounts subject to REPS charge during 2018.
- (2) Annual per account charges are the result of the allocation of REPS costs between Duke Energy Carolinas Retail customers and the Company's Wholesale REPS customers, and are used only for calculating the total cost obligations of Duke Energy Carolinas Retail customers and the wholesale REPS customers, respectively. Proposed REPS rider charges per account are instead calculated using unadjusted REPS account totals by class - see Williams Exhibit No. 4.

Compliance Costs for the adjusted EMF Period May 1, 2018 to December 31, 2018

Calculate Set-aside and other incremental costs per customer class - adjusted EMF Period May 2018 through December 2018:

| North Carolina Retail Only | | | | | | |
|----------------------------|----------------|-------------------------------------------------------|------------------------------------------------------|-------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------|
| Line No. | Customer Class | Total Unadjusted Number of Accounts ⁽¹⁾ | Annual Rider Cap per Customer Class Account | Calculated Annual Revenue Cap | Cost Cap Allocation Factor | Allocated Annual Set- aside, Other Incremental, Solar Rebate Program, and Research Cost |
| 1 | Residential | 1,718,891 | \$ 27 | 46,410,057 | 52.76% | \$ 6,414,113 |
| 2 | General | 245,076 | \$ 150 | 36,761,400 | 41.79% | \$ 5,080,618 |
| 3 | Industrial | 4,794 | \$ 1,000 | 4,794,000 | 5.45% | \$ 662,556 |
| 4 | Total | 1,968,761 | | 87,965,457 | | \$ 12,157,287 |

Williams Ex. No. 2 Pg 1
Line No. 9

Calculate General Requirement incremental costs per customer class - adjusted EMF Period May 2018 through December 2018:

| North Carolina Retail Only | | | | | | |
|----------------------------|----------------|---------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------|
| Line No. | Customer Class | Number of RECs for General compliance ^(a) | % of EE REC supplied by Class ⁽²⁾ | REC Requirement supplied by EE by class ^(b) | Number of General RECs net of EE (c) = (a) - (b) | General Cost Allocation Factor (e) = (c) / (d) |
| 5 | Residential | | 40.00% | | | 60.83% |
| 6 | General | | 45.60% | | | 39.38% |
| 7 | Industrial | | 14.40% | | | -0.21% |
| 8 | Total | | 100.00% | | | 100.00% |

Williams Ex. No. 2 Pg 1
Line No. 10

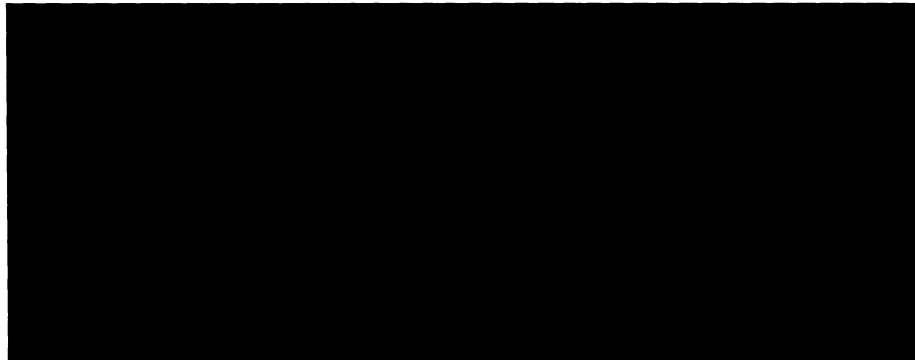
Total cost allocation by customer class - adjusted EMF Period:

| | | Total Incremental REPS cost by class | % Incremental REPS cost by class |
|----|--------------|-----------------------------------------|----------------------------------------|
| 9 | Residential | \$ 10,701,738 | 55.72% |
| 10 | General | \$ 7,856,332 | 40.91% |
| 11 | Industrial | \$ 647,754 | 3.37% |
| 12 | Total | \$ 19,205,824 | 100.00% |

Williams Ex. No. 2 Pg 1
Line No. 11

- (1) Average number of accounts subject to REPS charge during 2018.
(2) EE allocated to account type according to actual relative contribution by customer class of EE RECs.
(3) Total General RECs per note (4) * "Cost Cap Allocation Factor" by class per line Nos. 1-3 above.

(4)



(5)

(4)

(5)

(6)

(6)

Compliance Costs for the adjusted EMF Period May 1, 2018 to December 31, 2018

Calculate Incremental Cost Under/(Over) Collection per Customer Class - adjusted EMF Period

| North Carolina Retail Only | | | | | | | | | | |
|----------------------------|--------------|-----------------------------------|--------------------|--------------------|------------------|--------------------|---------------|--------------------------------------------|------------|--|
| Line No. | Account Type | Total | | | | | | | | |
| | | Allocated Annual Set-aside, Other | Allocated | Incremental | Actual NC Retail | REPS EMF - | | Interest on Over-collection ⁽¹⁾ | REPS EMF - | |
| | | Incremental, Solar | Annual General | Costs Incurred | REPS Revenues | Under/(Over)- | Under/(Over)- | | | |
| | | Rebate Program, and | Incremental | May 2018 | Realized - May | Collection, before | Collection | | | |
| | | Research Cost | Costs | December 2018 | December 2018 | Interest | | | | |
| 1 | Residential | \$ 6,414,113 | \$ 4,287,625 | \$ 10,701,738 | \$ 11,538,330 | \$ (836,592) | \$ (125,489) | \$ (962,081) | | |
| 2 | General | \$ 5,080,618 | \$ 2,775,714 | \$ 7,856,332 | \$ 7,989,270 | \$ (132,938) | \$ (19,941) | \$ (152,879) | | |
| 3 | Industrial | \$ 662,556 | \$ (14,802) | \$ 647,754 | \$ 574,064 | \$ 73,690 | \$ - | \$ 73,690 | | |
| 4 | Total | \$ 12,157,287 | \$ 7,048,537 | \$ 19,205,824 | \$ 20,101,664 | \$ (895,840) | \$ (145,430) | \$ (1,041,270) | | |
| | | Williams Ex. No. 2 Pg 2 | Williams Ex. No. 2 | Williams Ex. No. 2 | | | | | | |
| Note: | | Line No. 4 | Pg 2 Line No. 8 | Pg 2 Line No. 12 | | | | | | |

Note:

(1) Interest calculated at annual rate of 10% for number of months from mid-point of EMF period to mid-point of prospective rider billing period.

DUKE ENERGY CAROLINAS, LLC
Docket No. E-7, Sub 1191
For the Period September 1, 2019 to August 31, 2020

Williams Exhibit No. 3
Page 1 of 3
February 26, 2019

Allocate Incremental Cost per Customer Class - Billing Period

| Combined North Carolina Retail and Wholesale | | | | | | | | | |
|----------------------------------------------|----------------|-------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------|--------------------------------|----------------------------------|-----------------------------------|------------------------------------------------|
| Line No. | Customer Class | Total Unadjusted Number of Accounts ⁽¹⁾ | Adjustment for Self- supplied Requirements ⁽¹⁾ | Total Adjusted Number of Accounts ⁽¹⁾ | Annual Rider Cap per Customer Class Account | Annual Adjusted Revenue Cap | Cost Cap Allocation Factor | Projected Incremental Costs | Annual Per Account Charge ⁽²⁾ |
| 1 | Residential | 1,877,424 | 460,360 | 1,417,064 | \$ 27 | \$ 38,260,728 | 53.46% | \$ 20,117,822 | \$ 14.20 |
| 2 | General | 261,151 | 63,971 | 197,180 | \$ 150 | \$ 29,577,000 | 41.33% | \$ 15,553,116 | \$ 78.88 |
| 3 | Industrial | 4,947 | 1,218 | 3,729 | \$ 1,000 | \$ 3,729,000 | 5.21% | \$ 1,960,603 | \$ 525.77 |
| 4 | Total | 2,143,522 | 525,549 | 1,617,973 | | \$ 71,566,728 | 100.00% | \$ 37,631,541 | |

Williams Exhibit No.
1, page 2 Line No. 14

Calculate NC Retail-only annual REPS cost per Customer Class - Billing Period

| North Carolina Retail Only | | | | |
|----------------------------|----------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------|
| Line No. | Customer Class | Total Adjusted Number of Accounts - Duke Retail ⁽¹⁾ | Annual Per Account Charge ⁽²⁾ | Incremental Costs Allocated to Duke Retail |
| 5 | Residential | 1,307,450 | \$ 14.20 | \$ 18,565,790 |
| 6 | General | 184,358 | \$ 78.88 | \$ 14,542,159 |
| 7 | Industrial | 3,570 | \$ 525.77 | \$ 1,876,999 |
| 8 | Total | 1,495,378 | | 34,984,948 |
| 9 | Set-aside, Other Incremental, Solar Rebate, and Research | | | \$ 23,055,081 |
| 10 | General RECs | | | \$ 11,929,867 |
| 11 | Total Incremental Cost for Retail | | | 34,984,948 |

Williams Exhibit No.
1, page 2 Line Nos.
15, 16

Notes:

- (1) Projected number of accounts subject to REPS charge during the billing period.
- (2) Annual per account charges are the result of the allocation of REPS costs between Duke Energy Carolinas Retail customers and the Company's Wholesale REPS customers, and are used only for calculating the total cost obligations of Duke Energy Carolinas Retail customers and the wholesale REPS customers, respectively. Proposed REPS rider charges per account are instead calculated using unadjusted REPS account totals by class - see Williams Ex. No. 4.

REDACTED VERSION

DUKE ENERGY CAROLINAS, LLC
Docket No. E-7, Sub 1191
For the Period September 1, 2019 to August 31, 2020

Williams Exhibit No. 3
Page 2 of 3
February 26, 2019

Calculate Set-aside and other incremental costs per customer class - Billing Period:

| North Carolina Retail Only | | | | | | |
|----------------------------|----------------|----------------------------------------------------|---------------------------------------------|-------------------------------|----------------------------|----------------------------------------------------------------------------------------|
| Line No. | Customer Class | Total Unadjusted Number of Accounts ⁽¹⁾ | Annual Rider Cap per Customer Class Account | Calculated Annual Revenue Cap | Cost Cap Allocation Factor | Allocated Annual Set-aside, Other Incremental, Solar Rebate Program, and Research Cost |
| 1 | Residential | 1,743,267 | \$ 27 | 47,068,209 | 53.06% | \$ 12,234,103 |
| 2 | General | 245,810 | \$ 150 | 36,871,500 | 41.57% | \$ 9,583,745 |
| 3 | Industrial | 4,760 | \$ 1,000 | 4,760,000 | 5.37% | \$ 1,237,233 |
| 4 | Total | 1,993,837 | | 88,699,709 | 100.00% | \$ 23,055,081 |

Williams Ex. No. 3 Pg 1
Line 9

Calculate General costs per customer class - Billing Period:

| North Carolina Retail Only - Billing Period | | | | | | |
|---------------------------------------------|----------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------|--------------------------------------------------|------------------------------------------------|--------------------------------------------|
| Customer Class | Number of RECs for General compliance ⁽³⁾ (a) | % of EE REC supplied by Class ⁽²⁾ (b) | REC Requirement supplied by EE by class ^(b) | Number of General RECs net of EE (c) = (a) - (b) | General Cost Allocation Factor (e) = (c) / (d) | Allocated Annual General Incremental Costs |
| 5 Residential | | 40.00% | | | 61.61% | \$ 7,349,991 |
| 6 General | | 45.60% | | | 38.93% | \$ 4,644,297 |
| 7 Industrial | | 14.40% | | | -0.54% | \$ (64,421) |
| 8 Total | | 100.00% | | | 100.00% | \$ 11,929,867 |

Williams Ex. No. 3 Pg 1
Line 10

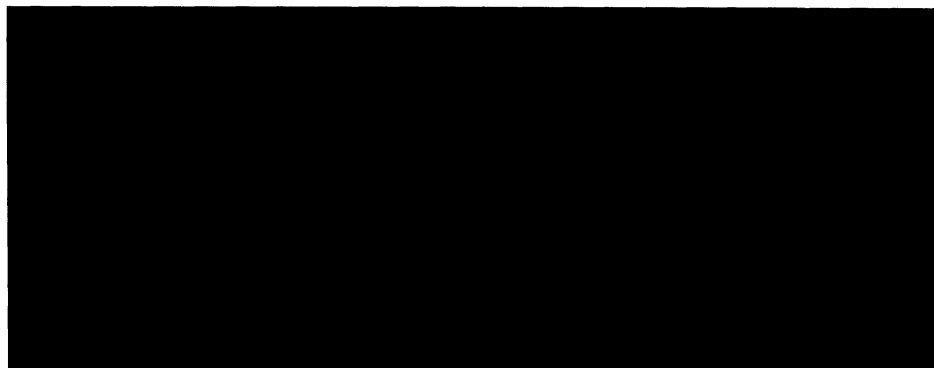
Total cost allocation by customer class - Billing Period:

| | Total Incremental REPS cost by class | % Incremental REPS cost by class |
|-----------------|--------------------------------------|----------------------------------|
| 9 Residential | \$ 19,584,094 | 55.98% |
| 10 General | \$ 14,228,042 | 40.67% |
| 11 Industrial | \$ 1,172,812 | 3.35% |
| 12 Total | \$ 34,984,948 | 100.00% |

Williams Ex. No. 3 Pg 1
Line 11

- (1) Projected number of accounts subject to REPS charge during the billing period.
(2) EE allocated to account type according to actual projected contribution by customer class of EE RECs.
(3) Total General RECs per note (4) * "Cost Cap Allocation Factor" by class per line Nos. 1-3 above.

(4)



(5)

(4)

(5)

(6)

(6)

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Calculate Incremental Cost to Collect by Customer Class - Billing Period:

| North Carolina Retail Annual Rider Cost by Account Type | | | | |
|---------------------------------------------------------|----------------|-----------------------------------------------------------------|-----------------------------------------------------|------------------------------------------|
| Line No. | Customer Class | Allocated Annual Set-aside and Other Incremental costs | Allocated Annual General Incremental Costs | Total Incremental Costs |
| 1 | Residential | \$ 12,234,103 | \$ 7,349,991 | \$ 19,584,094 |
| 2 | General | \$ 9,583,745 | \$ 4,644,297 | \$ 14,228,042 |
| 3 | Industrial | \$ 1,237,233 | \$ (64,421) | \$ 1,172,812 |
| 4 | Total | \$ 23,055,081 | \$ 11,929,867 | \$ 34,984,948 |
| | | Williams Exhibit No. 3, Pg 2, line 4 | Williams Exhibit No. 3, Pg 2, line 8 | Williams Exhibit No. 3, Pg 2, line 12 |

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Calculate DEC NC Retail monthly REPS rider components:

| North Carolina Retail | | | | | | | | |
|---------------------------------------|----------------|----------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------|---------------------------|----------------------------------|---------------------------------------|-----------------------------------|
| Line No. | Customer Class | Total Projected Number of Accounts -Duke Retail ⁽¹⁾ | Annual REPS EMF Under/(Over)-Collection | Contract Amendments, Penalties, Change-of-control, Etc. ⁽³⁾ | Total EMF costs/(credits) | Monthly EMF Rider ⁽²⁾ | Projected Total Incremental Costs | Monthly REPS Rider ⁽²⁾ |
| 1 | Residential | 1,743,267 | \$ (962,081) | \$ (509,884) | \$ (1,471,965) | \$ (0.07) | \$ 19,584,094 | \$ 0.94 |
| 2 | General | 245,810 | \$ (152,879) | \$ (374,315) | \$ (527,194) | \$ (0.18) | \$ 14,228,042 | \$ 4.82 |
| 3 | Industrial | 4,760 | \$ 73,690 | \$ (30,862) | \$ 42,828 | \$ 0.75 | \$ 1,172,812 | \$ 20.53 |
| 4 | | <u>1,993,837</u> | <u>\$ (1,041,270)</u> | <u>\$ (915,061)</u> | <u>\$ (1,956,331)</u> | | <u>\$ 34,984,948</u> | |
| Williams Ex. No. 2 Pg 3 Line No. 4 | | | | | | | Williams Ex. No. 3 Pg 3 Line No. 4 | |

Compare total annual REPS charges per account to per-account cost caps:

| North Carolina Retail | | | | | | | | |
|-----------------------|----------------|----------------------------------|-----------------------------------|---------------------------------------|---------------------------|----------------------------------------------------|---------------------------------------------------|----------------------|
| Line No. | Customer Class | Monthly EMF Rider ⁽²⁾ | Monthly REPS Rider ⁽²⁾ | Combined Monthly Rider ⁽²⁾ | Regulatory Fee Multiplier | Total Monthly REPS Charge including Regulatory Fee | Total Annual REPS Charge including Regulatory Fee | Per-Account Cost Cap |
| 5 | Residential | \$ (0.07) | \$ 0.94 | \$ 0.87 | 1.001402 | \$ 0.87 | \$ 10.44 | \$ 27.00 |
| 6 | General | \$ (0.18) | \$ 4.82 | \$ 4.64 | 1.001402 | \$ 4.65 | \$ 55.80 | \$ 150.00 |
| 7 | Industrial | \$ 0.75 | \$ 20.53 | \$ 21.28 | 1.001402 | \$ 21.31 | \$ 255.72 | \$ 1,000.00 |

Notes:

- (1) Projected number of accounts subject to REPS charge during the billing period.
- (2) Per account rate calculations apply to Duke Energy Carolinas NC Retail customers only.
- (3) Credit for receipts for contract amendments, penalties, change-of-control, etc for adjusted EMF Period May 2018 through December 2018:

| Customer Class | Total contract receipts - Adjusted EMF Period May 2018 - Dec 2018 | NC retail percentage of EMF Period costs - Williams Exhibit No. 2, Pg 1 | Allocation to customer class - Williams Exhibit No. 2, Pg 2 | Receipts for contract amendments, penalties, change-of-control, etc. |
|----------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------|
| Residential | | | 55.72% | \$ (509,884) |
| General | | | 40.91% | \$ (374,315) |
| Industrial | | | 3.37% | \$ (30,862) |
| Total contract payments received | <u>\$ (1,001,160)</u> | <u>\$ (915,061)</u> | | <u>\$ (915,061)</u> |
| | (a) | 91.40% | | |

| | |
|------------------------------------------------------------------------------------------------------------|-------------------------------|
| Contract payments received Jan-Dec 2018 (Jennings Exhibit No 2) | \$ (1,011,160) |
| Less: Contract Payments payments received Jan-Apr 2018 (updated in EMF Period in Docket No. E-7, sub 1162) | <u>\$ (10,000)</u> |
| Contract payments received - adjusted EMF Period May-Dec 2018 | \$ (1,001,160) ^(a) |

REPS (NC)
RENEWABLE ENERGY PORTFOLIO STANDARD RIDER

APPLICABILITY (North Carolina Only)

Service supplied to the Company's retail customer agreements is subject to a REPS Monthly Charge. This charge is adjusted annually, pursuant to North Carolina General Statute 62-133.8 and North Carolina Utilities Commission Rule R8-67 as ordered by the North Carolina Utilities Commission. This Rider is not applicable to agreements for the Company's outdoor lighting rate schedules, OL, PL, NL, nor for services defined as auxiliary to another agreement. An auxiliary service is defined as a non-demand metered, nonresidential service, provided on Schedule SGS, at the same premises, with the same service address, and with the same account name as an agreement for which a monthly REPS charge has been applied.

APPROVED REPS MONTHLY CHARGE

The Commission has ordered that a REPS Monthly Charge, which includes an Experience Modification Factor (EMF), be included in the customers' bills as follows:

RESIDENTIAL SERVICE AGREEMENTS

| | |
|---------------------------------------------------|------------------|
| REPS Monthly Charge | \$ 0.94 |
| Experience Modification Factor | <u>(\$ 0.07)</u> |
| Net REPS Monthly Charge | \$ 0.87 |
| Regulatory Fee Multiplier | <u>1.001402</u> |
| Total REPS Monthly Charge per agreement per month | \$ 0.87 |

GENERAL SERVICE AGREEMENTS

| | |
|---------------------------------------------------|------------------|
| REPS Monthly Charge | \$ 4.82 |
| Experience Modification Factor | <u>(\$ 0.18)</u> |
| Net REPS Monthly Charge | \$ 4.64 |
| Regulatory Fee Multiplier | <u>1.001402</u> |
| Total REPS Monthly Charge per agreement per month | \$ 4.65 |

INDUSTRIAL SERVICE AGREEMENTS

| | |
|---------------------------------------------------|-----------------|
| REPS Monthly Charge | \$ 20.53 |
| Experience Modification Factor | <u>\$ 0.75</u> |
| Net REPS Monthly Charge | \$ 21.28 |
| Regulatory Fee Multiplier | <u>1.001402</u> |
| Total REPS Monthly Charge per agreement per month | \$ 21.31 |

USE OF RIDER

The REPS Billing Factor is not included in the Company's current rate schedules and will apply as a separate charge to each agreement for service covered under this Rider as described above, unless the service qualifies for a waiver of the REPS Billing Factor for an auxiliary service. An auxiliary service is a non-demand metered nonresidential service, on Schedule SGS for the same customer at the same service location.

To qualify for an auxiliary service, not subject to this Rider, the Customer must notify the Company and the Company must verify that such agreement is considered an auxiliary service, after which the REPS Billing Factor will not be applied to qualifying auxiliary service agreements. The Customer shall also be responsible for notifying the Company of any change in service that would no longer qualify the service as auxiliary.

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Worksheet detailing energy efficiency certificate ("EEC") inventory

EEC inventory reconciliation - as of December 31, 2018

| EECs ⁽¹⁾ | Reference |
|-----------------------------------------------------|--------------------------------------------------------------|
| EECs carried forward at Dec 31, 2012 | 1,587,596 2012 Compliance Report - Docket No. E-7, Sub 1034 |
| EECs generated for 2013 per Company's annual update | 1,530,891 E-7, Sub 1052, Williams Exhibit No. 6 |
| Less: EECs used for compliance for 2013 | 409,169 2013 Compliance Report - Docket No. E-7, Sub 1052 |
| EECs carried forward at Dec 31, 2013 | 2,709,318 2013 Compliance Report - Docket No. E-7, Sub 1052 |
| EECs generated for 2014 per Company's annual update | 2,011,450 E-7, Sub 1074, Williams Exhibit No. 6 |
| Less: EECs used for compliance for 2014 | 415,459 2014 Compliance Report - Docket No. E-7, Sub 1074 |
| EECs carried forward at Dec 31, 2014 | 4,305,309 2014 Compliance Report - Docket No. E-7, Sub 1074 |
| EECs generated for 2015 per Company's annual update | 2,310,608 E-7, Sub 1106, Williams Exhibit No. 6 |
| Less: EECs used for compliance for 2015 | 855,980 2015 Compliance Report - Docket No. E-7, Sub 1106 |
| EECs carried forward at Dec 31, 2015 | 5,759,937 2015 Compliance Report - Docket No. E-7, Sub 1106 |
| EECs generated for 2016 per Company's annual update | 2,152,597 E-7, Sub 1131, Williams Exhibit No. 6 |
| Less: EECs used for compliance for 2016 | 866,492 2016 Compliance Report - Docket No. E-7, Sub 1131 |
| EECs carried forward at Dec 31, 2016 | 7,046,042 2016 Compliance Report - Docket No. E-7, Sub 1131 |
| EECs generated for 2017 per Company's annual update | 2,531,010 E-7, Sub 1162, Williams Exhibit No. 6 |
| Less: EECs used for compliance for 2017 | 863,135 2017 Compliance Report - Docket No. E-7, Sub 1162 |
| EECs carried forward at Dec 31, 2017 | 8,713,917 2017 Compliance Report - Docket No. E-7, Sub 1162 |
| EECs generated for 2018 per Company's annual update | 3,060,454 Company workpapers ^(a) |
| Less: EECs used for compliance for 2018 | 1,400,307 2018 Compliance Report - Docket No. E-7, Sub 1191 |
| EECs carried forward at Dec 31, 2018 | 10,374,064 2018 Compliance Report - Docket No. E-7, Sub 1191 |

Summary workpapers - EECs generated

Update for 2018 EECs generated - as of year-end 2018:

| | Program year | | | | | | Total |
|----------------------------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|------------------|
| | 2009 - 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| Current view at year-end 2018 | 2,017,592 | 1,561,044 | 1,881,130 | 2,195,026 | 2,292,223 | 2,613,127 | 3,044,208 |
| Previously reported current view at year-end 2017 | 2,017,592 | 1,561,044 | 1,881,130 | 2,194,959 | 2,291,703 | 2,597,468 | 12,543,896 |
| Total Adjustments to previously reported results | 0 | 0 | 0 | 67 | 520 | 15,659 | |
| Updated EECs created and available for 2018 | | | | (b) | (c) | (d) | 3,060,454 |

detail of adjustments at page 2 of 2

(a)

Footnote:

⁽¹⁾ Calculated EECs originate from details contained in the databases supporting Duke Energy Carolinas' energy efficiency filings, and are specific to North Carolina, calculated at the generation station level, are inclusive of free-ridership EE savings, and assume savings initiated in a program year continue for the duration of the life of the applicable measure.

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Detail for adjustments to previously reported results through program year 2017:

| Adjustment type | Program | Program year | | | | | | Total |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------|------|------|------|------|--------|--------|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | |
| Evaluation, Measurement, & Verification ("EM&V"): | | | | | | | | |
| | Non Residential Smart Saver Energy Efficient Lighting Products (NRLTG) | - | - | - | - | - | 10,538 | 10,538 |
| | Energy Efficient Appliances and Devices (EEAD) | - | - | - | - | - | 5,969 | 5,969 |
| | Income Qualified Energy Efficiency and Weatherization Assistance (IQEE & WA) | - | - | - | 67 | 520 | 987 | 1,574 |
| | Small Business Energy Saver (SBES) | - | - | - | - | - | (879) | (879) |
| | Non Residential Smart Saver Energy Efficient Food Service Products (NRFS) | - | - | - | - | - | (632) | (632) |
| | HVAC Energy Efficiency (HVAC EE) | - | - | - | - | - | (468) | (468) |
| | Residential Energy Assessments (EA) | - | - | - | - | - | 7 | 7 |
| | Non Residential Smart Saver Energy Efficient HVAC Products (NRHVAC) | - | - | - | - | - | 3 | 3 |
| | Non Residential Energy Efficient Process Equipment Products (NRPROC) | - | - | - | - | - | (4) | (4) |
| | Non Residential Energy Efficient Pumps and Drives Products (NRP&D) | - | - | - | - | - | 1 | 1 |
| Total EM&V adjustments | | - | - | - | 67 | 520 | 15,522 | 16,109 |
| | | | | | | | | |
| Participation updates/adjustments | | | | | | | | |
| | Non Residential Smart Saver Custom Technical Assessments (NRCAMT) | - | - | - | - | - | 137 | 137 |
| Total participation adjustments | | - | - | - | - | - | 137 | 137 |
| | | | | | | | | |
| Total adjustments to prior program years incorporated into 2018 current view - EE savings for REPS | | 0 | 0 | 0 | 67 | 520 | 15,659 | 16,246 |
| | | | | | (b) | (c) | (d) | |

EM&V reports applicable to results reported above - filed as exhibits to the testimony of DEC witness Robert Evans in DEC's energy efficiency Docket No. E-2, Sub 1192:

| Evans Exhibit | Program | Report Finalization Date | EM&V Report | Evaluation Type |
|---------------|------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------|--------------------|
| B | Non Residential Smart Saver Energy Efficient Lighting Products (NRLTG) | 3/25/2018 | Nonresidential Smart Saver® Energy Efficient Products and Assessment – Prescriptive: 2015-2017 | Process and Impact |
| C | Energy Efficient Appliances and Devices (EEAD) | 4/6/2018 | Residential Energy Efficient Appliances and Devices – Retail Lighting: 2016-2017 | Process and Impact |
| I | Energy Efficient Appliances and Devices (EEAD) | 10/4/2018 | Residential Energy Efficient Appliances and Devices – Online Savings Store: 2015-2017 | Process and Impact |
| F | Income Qualified Energy Efficiency and Weatherization Assistance (IQEE & WA) | 6/13/2018 | Income-Qualified Energy Efficiency and Weatherization Assistance: 2015-2016 | Process and Impact |
| G | Small Business Energy Saver (SBES) | 9/10/2018 | Small Business Energy Saver: 2016-2017 | Process and Impact |
| B | Non Residential Smart Saver Energy Efficient Food Service Products (NRFS) | 3/25/2018 | Nonresidential Smart Saver® Energy Efficient Products and Assessment – Prescriptive: 2015-2017 | Process and Impact |
| E | HVAC Energy Efficiency (HVAC EE) | 5/25/2018 | Residential Smart Saver® Energy Efficiency - HVAC: 2016-2017 | Process and Impact |
| J | Residential Energy Assessments (EA) | 10/12/2018 | Duke Energy Carolinas Residential Energy Assessments Program: 2016-2017 | Process and Impact |
| B | Non Residential Smart Saver Energy Efficient HVAC Products (NRHVAC) | 3/25/2018 | Nonresidential Smart Saver® Energy Efficient Products and Assessment – Prescriptive: 2015-2017 | Process and Impact |
| B | Non Residential Energy Efficient Process Equipment Products (NRPROC) | 3/25/2018 | Nonresidential Smart Saver® Energy Efficient Products and Assessment – Prescriptive: 2015-2017 | Process and Impact |
| B | Non Residential Energy Efficient Pumps and Drives Products (NRP&D) | 3/25/2018 | Nonresidential Smart Saver® Energy Efficient Products and Assessment – Prescriptive: 2015-2017 | Process and Impact |

REDACTED VERSION

Summary cost recovery worksheet - DEC utility-owned solar project

| | |
|-----------------------------------------------------|-----------------|
| Project: | Woodleaf |
| Project size: | 6 MWac |
| CPCN docket No. | E-7, Sub 1101 |
| CPCN filing date: | March 3, 2016 |
| NCUC Order date: | June 16, 2016 |
| Original CPCN estimate: | |
| Total capital expenditure (\$000s) | |
| Total annual levelized revenue requirement (\$000s) | |
| Updated tax benefit monetization estimates: | |
| Total capital expenditure (\$000s) | (Note 1) |
| Total annual levelized revenue requirement (\$000s) | |

Levelized cost recovery summary - annual:

| Woodleaf | \$/MWH | Percent to total | Annual Levelized cost (\$000s) |
|---------------------------------------------------------|--------|------------------|--------------------------------|
| Total cost - original estimate | | | |
| Avoided cost | | | |
| Incremental cost | | | |
| Cap for REPS cost recovery | | | |
| Total cost - updated tax benefit monetization estimates | | | |
| Avoided cost | | | |
| Incremental cost | | | |
| Cap for REPS cost recovery | | | |

Note 1: The Woodleaf facility was placed in service in late December 2018, and final remaining project costs are still being recorded to the asset balance in 2019. Levelized incremental costs of the facility will be reflected in the future EMF Period beginning January 1, 2019, and will be subject to the cap for cost recovery in the REPS rider as established by the Commission in the CPCN Docket No. E-7, Sub 1101. In the current proposed rider calculation, the Company included only in its Billing Period a forecast of levelized cost limited to the approved avoided cost plus the incremental cost calculated at the cap.