PLACE: Dobbs Building, Raleigh, North Carolina

DATE: Tuesday, June 11, 2019

TIME: 9:41 a.m. - 9:53 a.m.

DOCKET NO: E-7, Sub 1192

BEFORE: Commissioner ToNola D. Brown-Bland, Presiding
Chair Charlotte A. Mitchell
Commissioner Jerry C. Dockham
Commissioner James G. Patterson
Commissioner Lyons Gray
Commissioner Daniel G. Clodfelter

IN THE MATTER OF:

Application of Duke Energy Carolinas, LLC, for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant to N.C.G.S. § 62-133.9 and NCUC Rule R8-69

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T A B L E O F C O N T E N T S

E X H I B I T S

P R O C E E D I N G S

COMMISSIONER BROWN-BLAND: Good morning. Let's come to order and proceed with Docket Number E-7, Sub 1192. I'm Commissioner ToNola D. Brown-Bland of the North Carolina Utilities Commission, Presiding Commissioner for this hearing. And with me this morning are Chair Charlotte A. Mitchell; Commissioners Jerry C. Dockham, James G. Patterson, Lyons Gray and Daniel G. Clodfelter.

I now call for hearing Docket Number E-7, Sub 1192, In the Matter of Application by Duke Energy Carolinas, LLC, hereafter DEC, for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider pursuant to G.S. 62-133.9 and Commission Rule R8-69.

On February 26, 2019, DEC filed its annual Application for approval of its Demand-Side Management/Energy Efficiency, hereafter DSM/EE, Cost Recovery Rider pursuant to G.S. 62-133.9 and Rule R8-69 to recover costs incurred in providing Demand-Side Management and Energy Efficiency measures. Filed with the Application were the direct testimony and exhibits of Witnesses Carolyn T. Miller and Robert P. Evans.

On March 8, 2019, the Commission issued an Order Scheduling Hearing, Requiring Filing of Testimony, Establishing Discovery Guidelines and Requiring Public Notice. The Order set the hearing in this docket for Tuesday, June 4, 2019, but due to a scheduling conflict by Order issued March 19, 2019, the Commission issued an Order Rescheduling the Hearing for June 11, 2019, following the hearing in Docket E-7, Sub 1190.

Timely Petitions to Intervene were filed by Carolina Utility Customers Association, Inc.; North Carolina Sustainable Energy Association; North Carolina Justice Center and the Southern Alliance for Clean Energy, hereafter NCJC and SACE; and Carolina Industrial Group for Fair Utility Rates, III, CIGFUR III. All filed Petitions to Intervene and were granted by respective Orders of the Commission.

The Public Staff's participation and intervention is recognized pursuant to N.C.G.S. § 62-15(d) and the Commission Rule R1-19(e).

On May 14, 2019, DEC filed Affidavits of Publication of public notice.

On May 20, 2019, NCJC and SACE filed the testimony and exhibits of Forest Bradley-Wright, and the Public Staff filed the testimony of Michael C. Maness and David M. Williamson.

On May 28, 2019, DEC filed the supplemental testimony and supplemental exhibits of Witnesses Carolyn T. Miller and Robert P. Evans.

The rebuttal testimony of Robert P.Evans was filed by DEC on May 30, 2019.

On June 5, 2019, DEC, the Public Staff, and NCJC and SACE filed a Joint Motion requesting the Commission issue an Order excusing all witnesses from appearing to testify at today's hearing. The Movants represented the Motion was unopposed. The Motion was granted by Order dated June 6, 2019, and provided that the prefiled testimony and sponsored exhibits of the excused witnesses would be admitted and received into evidence at today's hearing.

In compliance with the requirements of Chapter 163A of the State Government Ethics Act, I remind the members of the Commission of our responsibility to avoid conflicts of interest, and I inquire whether any member has a known conflict of interest with respect to the matter before us this morning?

(No response)

The record will reflect that no conflicts were identified. So I will now call for appearances, beginning with the Applicant.

MS. FENTRESS: Good morning. Kendrick Fentress appearing on behalf of Duke Energy Carolinas.

COMMISSIONER BROWN-BLAND: Good morning, Ms. Fentress.

MR. SMITH: Ben Smith on behalf of the North Carolina Sustainable Energy Association.

MS. THOMPSON: Good morning. Gudrun Thompson on behalf of the North Carolina Justice Center and Southern Alliance for Clean Energy.

COMMISSIONER BROWN-BLAND: Good morning, Ms. Thompson.

MR. PAGE: Bob Page on behalf of Carolina Utility Customers Association.

MR. LITTLE: John Little, North Carolina Public Staff, Legal Division.

MS. WARREN: Good morning. Warren Hicks on behalf of the Carolina Industrial Group for Fair Utility Rates.

COMMISSIONER BROWN-BLAND: Good morning, Ms. Hicks.

Are there any preliminary matters that need to be addressed before the start of the hearing?

MR. LITTLE: Yes, there are, Your Honor. The Public Staff -- I was informed as of last night the Accounting Division has not completed their review in time for today's hearing, and the -- there are some issues that may possibly affect the rates before they go into effect. The Public Staff would request either that the evidentiary portion of this hearing be held open until June 21st so that the Public Staff can complete its review or, depending on the preference of the Commission, that the Public Staff be allowed to reserve the right to reopen the hearing if, in fact, our -- the review does affect the recommendation. I have spoken with Ms. Fentress, with the Applicant -- representing the Applicant, and my understanding is that she does not object to that.

COMMISSIONER BROWN-BLAND: So you expect that it's possible that the recommendation of the Public Staff could change? Is that what you're saying?

MR. LITTLE: Possible. Not probable, possibly.

COMMISSIONER BROWN-BLAND: And, Ms. Fentress, what say you and the other Intervenors regarding the status of the request that the Witnesses be excused and that their testimony be received?

MS. FENTRESS: Yes. Thank you for letting me be heard. I appreciate Mr. Little bringing this to my attention this morning. We do not object to either of the alternatives that he has put forward. We would like to mention that when we filed our supplemental testimony, the supplemental testimony of Carolyn Miller on May 28th, it was done with the intent to align with some of the Public Staff's recommendations. Therefore, if the Public Staff does come back with some recommendations we would like to reserve the ability to respond accordingly at this time.

COMMISSIONER BROWN-BLAND: All right. And --

MS. FENTRESS: I'm sorry.

COMMISSIONER BROWN-BLAND: Go ahead.

MS. FENTRESS: I was going to say we also would propose to go ahead and move that the testimony that has been prefiled, and I believe we've all waived cross on, be moved into the record today as previously planned.

COMMISSIONER BROWN-BLAND: All right. That's what I was going to suggest. And, Mr. Little, so what do you anticipate at this moment will be -- will need to be filed? You anticipate the evidence will change in some form, right?

MR. LITTLE: I'm hoping it won't. I'm hoping we can file just a letter saying that the review has been completed and we stand by our original recommendation, but there's a possibility that the testimony would change. I don't know though --

COMMISSIONER BROWN-BLAND: Let's do this, unless there's an objection from any of the parties, let's go ahead and proceed today and receive the evidence and then I will rely on the parties to let me know if the -- we'll hold the record open, and let me know if we need to receive additional evidence. If so, then we'll issue an Order at that time as to a date when that can all occur. Is that acceptable?

MR. LITTLE: Yes, Your Honor.

COMMISSIONER BROWN-BLAND: Does anybody have another -- a more efficient way that they'd like to propose?

MS. FENTRESS: That's acceptable to us. Thank you.

COMMISSIONER BROWN-BLAND: Then we'll go ahead. Thank you.

Mr. Little, have you identified any public witnesses that wish to present testimony this morning?

MR. LITTLE: No, I have not, Your Honor.

COMMISSIONER BROWN-BLAND: Is there present this morning anyone in the hearing room who would wish to provide testimony in this matter as a public witness?

(No response)

The record will reflect no one came forward. And so the case is with the Applicant.

MS. FENTRESS: Thank you, Commissioner Brown-Bland. As you noted, the parties have agreed to waive cross examination of the witnesses and the Commission, through its Order issued on June 6th, has allowed that and has excused the witnesses from testifying today. Therefore, we would respectfully move the prefiled testimony of the witnesses of Duke Energy Carolinas be received as evidence into the record as if given orally from the stand, and that the prefiled exhibits of the witnesses also be moved into evidence as premarked and prefiled. I can identify that testimony for you. We would like to move into the record the direct testimony and exhibits of Carolyn Miller filed February 26th; the direct testimony and exhibits of Robert P. Evans filed February 26th; the supplemental testimony and exhibits of Carolyn Miller filed May 28th; the rebuttal testimony of Robert P. Evans filed May 30th. In addition, we would like to move the Application that Duke's witnesses and exhibits support into the record as well.

COMMISSIONER BROWN-BLAND: Ms. Fentress, was there supplemental testimony for Mr. Evans?

MS. FENTRESS: No. No, ma'am. It was rebuttal testimony on May 30th, and supplemental testimony from Ms. Miller on May 28th.

COMMISSIONER BROWN-BLAND: All right. There being no objection, your motion will be allowed and the testimonies, both direct and supplemental for Witness Carolyn T. Miller, and direct and rebuttal for Witness Robert P. Evans, will be received into the record and treated as if given orally from the witness stand, and the exhibits sponsored by each witness will be received into evidence and marked as identified when prefiled. And the Application?

MS. FENTRESS: Yes, please, we would like to move the Application into the record as well.

COMMISSIONER BROWN-BLAND: And the

Application filed by DEC will be received into evidence as well.

(WHEREUPON, Miller Exhibits 1 - 7 are marked for identification as prefiled and received into evidence.)

(WHEREUPON, the prefiled direct testimony of CAROLYN T. MILLER is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1192

In the Matter of	)	
Application of Duke Energy Carolinas, LLC	)	**DIRECT TESTIMONY OF**
for Approval of Demand-Side Management	)	**CAROLYN T. MILLER**
and Energy Efficiency Cost Recovery Rider	)	**FOR**
Pursuant to N.C. Gen. Stat. § 62-133.9 and	)	**DUKE ENERGY CAROLINAS,**
Commission Rule R8-69	)	**LLC**

I. <u>INTRODUCTION AND PURPOSE</u>

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Carolyn T. Miller, and my business address is 550 South Tryon Street, Charlotte, North Carolina, 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a Rates Manager for Duke Energy Carolinas, LLC ("DEC" or the "Company" supporting both DEC and Duke Energy Progress, LLC ("DEP").

Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL QUALIFICATIONS.

A. I graduated from the College of New Jersey in Trenton, New Jersey with a Bachelor of Science in Accountancy. I am a certified public accountant licensed in the State of North Carolina. I began my career in 1994 with Ernst & Young as a staff auditor. In 1997, I began working with Duke Energy as a Senior Business Analyst and have held a variety of positions in the Finance organization. I joined the Rates Department in 2014 as Manager, Rates and Regulatory Strategy.

Q. WHAT ARE YOUR PRESENT RESPONSIBILITIES FOR DEC?

A. I am responsible for providing regulatory support and guidance on DEC's demand-side management ("DSM") and energy efficiency ("EE") cost recovery process.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I have provided testimony in support of DEC's previous applications for approval of its DSM/EE cost recovery riders as well as DEP's applications for approval of its DSM/EE cost recovery riders.

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

A. The purpose of my testimony is to explain and support DEC's proposed DSM/EE cost recovery rider (Rider 11), including prospective and Experience Modification Factor ("EMF") components, and provide information required by Commission Rule R8-69.

Q. PLEASE DESCRIBE THE EXHIBITS ATTACHED TO YOUR TESTIMONY.

A. Miller Exhibit 1 summarizes the individual rider components for which DEC requests approval in this filing. Miller Exhibit 2 shows the calculation of revenue requirements for each vintage, with separate calculations for non-residential DSM and EE programs within each vintage. Miller Exhibit 3 presents the return calculations for Vintages 2015, 2016, 2017, and 2018. Miller Exhibit 4 shows the actual and estimated prospective amounts collected from customers via Riders 6-10 pertaining to Vintages 2015 through 2019. Miller Exhibit 5 provides the calculation of the allocation factors used to allocate system DSM and EE costs to DEC's North Carolina retail jurisdiction. Miller Exhibit 6 presents the forecasted sales for the rate period (2020) and the estimated sales related to customers that have opted out of various vintages. These amounts are used to determine the forecasted sales to which the Rider 11 amounts will apply. Miller Exhibit 7 is the proposed tariff sheet for Rider 11.

Q. WERE MILLER EXHIBITS 1-7 PREPARED BY YOU OR AT YOUR DIRECTION AND SUPERVISION?

A. Yes.

II. GENERAL STRUCTURE OF RIDERS

Q. PLEASE DESCRIBE THE STRUCTURE OF RIDER 11.

A. Rider 11 was calculated in accordance with the Company's cost recovery mechanism described in the Agreement and Stipulation of Settlement DEC reached with the Public Staff, the North Carolina Sustainable Energy Association, Environmental Defense Fund, Southern Alliance for Clean Energy ("SACE"), the South Carolina Coastal Conservation League, Natural Resources Defense Council, and the Sierra Club, which was filed with the Commission on August 19, 2013 (the "Stipulation"), and approved in the Commission's *Order Approving DSM/EE Programs and Stipulation of Settlement* issued on October 29, 2013 ("Sub 1032 Order").

The approved cost recovery mechanism is designed to allow DEC to collect revenue equal to its incurred program costs[1] for a rate period plus a Portfolio Performance Incentive ("PPI") based on shared savings achieved by DEC's DSM/EE programs, and to recover net lost revenues for EE programs only.

[1] Program costs are defined under Rule R8-68(b)(1) as all reasonable and prudent expenses expected to be incurred by the electric public utility, during a rate period, for the purpose of adopting and implementing new DSM and EE measures previously approved pursuant to Rule R8-68.

The Company is allowed to recover net lost revenues associated with a particular vintage of an EE measure for the lesser of 36 months or the life of the measure, and provided that the recovery of net lost revenues shall cease upon the implementation of new rates in a general rate case to the extent that the new rates are set to recover net lost revenues.

The Company's cost recovery mechanism employs a vintage year concept based on the calendar year.[2] In each of its annual rider filings, DEC performs an annual true-up process for the prior calendar year vintages. The true-up will reflect actual participation and verified Evaluation, Measurement and Verification ("EM&V") results for completed vintages, applied in the same manner as agreed upon by DEC, SACE, and the Public Staff, and approved by the Commission in its *Order Approving DSM/EE Rider and Requiring Filing of Proposed Customer Notice* issued on November 8, 2011, in Docket No. E-7, Sub 979 ("EM&V Agreement").

The Company has implemented deferral accounting for over- and under-recoveries of costs that are eligible for recovery through the annual DSM/EE rider. Under the Stipulation, the balance in the deferral account(s), net of deferred income taxes, may accrue a return at the net-of-tax rate of return rate approved in DEC's then most recent general rate case. The methodology used for the calculation of interest shall be the same as that typically utilized for DEC's Existing DSM Program rider proceedings. Pursuant to Commission Rule R8-69(c)(3), DEC will not accrue a return on

[2] Each vintage is referred to by the calendar year of its respective rate period (*e.g.*, Vintage 2020).

net lost revenues or the PPI. Miller Exhibit 3, pages 1 through 16, shows the calculation performed as part of the true-up of Vintage 2015, Vintage 2016, Vintage 2017, and Vintage 2018.

The Company expects that most EM&V will be available in the time frame needed to true-up each vintage in the following calendar year. If any EM&V results for a vintage are not available in time for inclusion in DEC's annual rider filing, however, then the Company will make an appropriate adjustment in the next annual filing.

DEC calculates one integrated (prospective) DSM/EE rider and one integrated DSM/EE EMF rider for the residential class, to be effective each rate period. The integrated residential DSM/EE EMF rider includes all true-ups for each applicable vintage year. Given that qualifying non-residential customers can opt out of DSM and/or EE programs, DEC calculates separate DSM and EE billing factors for the non-residential class. Additionally, the non-residential DSM and EE EMF billing factors are determined separately for each applicable vintage year, so that the factors can be appropriately charged to non-residential customers based on their opt-in/out status and participation for each vintage year.

Finally, in its *Order Approving DSM/EE Rider, Revising DSM/EE Mechanism, and Requiring Filing of Proposed Customer Notice* issued on August 23, 2017 in Docket No. E-7, Sub 1130, the Commission approved certain revisions to the Company's cost recovery mechanism relating to the methodology for determining avoided costs for purposes of the PPI calculation and determination of program cost-effectiveness.

Q. WHAT ARE THE COMPONENTS OF RIDER 11?

A. The prospective components of Rider 11 include: (1) a prospective Vintage 2020 component designed to collect program costs and the PPI for DEC's 2020 vintage of DSM programs; (2) a prospective Vintage 2020 component to collect program costs, PPI, and the first year of net lost revenues for DEC's 2020 vintage of EE programs; (3) a prospective Vintage 2019 component designed to collect the second year of estimated net lost revenues for DEC's 2019 vintage of EE programs; (4) a prospective Vintage 2018 component designed to collect the third year of estimated net lost revenues for DEC's 2018 vintage of EE programs; and (5) a prospective Vintage 2017 component designed to collect the fourth year of estimated lost revenues for DEC's 2017 vintage of EE programs. The EMF components of Rider 11 include: (1) a true-up of Vintage 2015 participation for DSM/EE programs based on additional EM&V results received; (2) a true-up of Vintage 2016 participation for DSM/EE programs based on additional EM&V results received; (3) a true-up of Vintage 2017 PPI and participation for DSM/EE programs based on additional EM&V results received; (4) a true-up of Vintage 2018 program costs, PPI, and participation for DSM/EE programs.

Q. HOW DOES DEC CALCULATE THE PROPOSED BILLING FACTORS?

A. The billing factor for residential customers is computed by dividing the combined revenue requirements for DSM and EE programs by the forecasted sales for the rate period. For non-residential rates, the billing factors are computed by dividing the revenue requirements for DSM and EE programs separately by forecasted sales for the rate period. The forecasted sales exclude the estimated sales to customers who have elected to opt out of Rider EE. Because non-residential customers are allowed to opt out of DSM and/or EE programs separately in an annual election, non-residential billing factors are computed separately for each vintage.

III. COST ALLOCATION METHODOLOGY

Q. HOW DOES DEC ALLOCATE REVENUE REQUIREMENTS TO THE NORTH CAROLINA RETAIL JURISDICTION AND TO THE RESIDENTIAL AND NON-RESIDENTIAL RATE CLASSES?

A. The Company allocates the revenue requirements related to program costs and incentives for EE programs targeted at retail residential customers across North Carolina and South Carolina to its North Carolina retail jurisdiction based on the ratio of North Carolina retail kWh sales (grossed up for line losses) to total retail kWh sales (grossed up for line losses), and then recovers them only from North Carolina residential customers. The revenue requirements related to EE programs targeted at retail non-residential customers across North Carolina and South Carolina are allocated to the North Carolina retail jurisdiction based on the ratio of North Carolina retail kWh sales (grossed up for line losses) to total retail kWh sales (grossed up for line losses), and then recovered from only North Carolina retail non-residential customers. The portion of revenue requirements related to net lost revenues for EE programs is not allocated to the North Carolina retail jurisdiction, but rather is specifically computed based on the kW and kWh savings of North Carolina retail customers.

For DSM programs, because residential and non-residential programs are similar in nature, the aggregated revenue requirement for all retail DSM programs targeted at both residential and non-residential customers across North Carolina and South Carolina are allocated to the North Carolina retail jurisdiction based on North Carolina's contribution to total retail peak demand. Both residential and non-residential customer classes are allocated a share of total system DSM revenue requirements based on each group's contribution to total retail peak demand.

The allocation factors used in DSM/EE EMF true-up calculations for each vintage are based on DEC's most recently filed Cost of Service studies at the time that the Rider EE filing incorporating the initial true-up for each vintage is made. If there are subsequent true-ups for a vintage, DEC will use the same allocation factors as those used in the original DSM/EE EMF true-up calculations.

IV. <u>UTILITY INCENTIVES AND NET LOST REVENUES</u>

Q. HOW DOES DEC CALCULATE THE PPI?

A. Pursuant to the Stipulation, DEC calculates the dollar amount of PPI by multiplying the shared savings achieved by the system portfolio of DSM/EE programs by 11.5%. Company witness Evans further describes the specifics of the PPI calculation in his testimony. In addition, Evans Exhibit 1, pages 1 through 4, show the revised PPI for Vintage 2015, Vintage 2016, Vintage 2017, and Vintage 2018, respectively, based on updated EM&V results, and Evans Exhibit 1, page 5, shows the estimated PPI by program type and customer class for Vintage 2020. The system amount of PPI is then allocated to North Carolina retail customer classes in order to derive customer rates.

Q. HOW DOES DEC CALCULATE THE NET LOST REVENUES FOR THE PROSPECTIVE COMPONENTS OF RIDER EE?

A. For the prospective components of Rider EE, net lost revenues are estimated by multiplying the portion of DEC's tariff rates that represent the recovery of fixed costs by the estimated North Carolina retail kW and kWh reductions applicable to EE programs by rate schedule, and reducing this amount by estimated found revenues. The Company calculates the portion of North Carolina retail tariff rates (including certain riders) representing the recovery of fixed costs by deducting the recovery of fuel and variable operation and maintenance ("O&M") costs from its tariff rates. The lost revenues totals for residential and non-residential customers are then reduced by North Carolina retail found revenues computed using the weighted average lost revenue rates for each customer class. The testimony and exhibits of Company witness Evans provide information on the actual and estimated found revenues which offset lost revenues.

Residential lost revenues associated with participants enrolled during the test period (extended to December 31, 2017, as discussed further below) of the base rate case proceeding in Docket No. E-7, Sub 1146 have been adjusted based on specific enrollment dates, and a portion of these lost revenues have been removed from the prospective period as of August 1, 2018 and included in base rates. Non-residential lost revenues associated with the test period (twelve months ending December 31, 2016) of the Company's general rate case proceeding in Docket No. E-7, Sub 1146, have been adjusted based on specific enrollment dates, and a portion of these lost revenues have been removed from the prospective period as of August 1, 2018 and included in base rates.

In addition, in the Commission's *Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction* issued on June 22, 2018 in the Company's last base rate case (E-7, Sub 1146), the Commission directed the Company to maintain all of its federal excess deferred income taxes resulting from the passage of the federal Tax Cuts and Jobs Act in a regulatory liability account pending flow back of that liability to DEC's ratepayers with interest. The Company is to file its proposal to flow back the excess deferred taxes by June 22, 2021 or in DEC's next general rate case proceeding, whichever is sooner. In DEC's Petition for an Accounting Order to Defer Incremental Hurricanes Florence and Michael and Winter Storm Diego Storm Damage Expenses filed on December 21, 2018 in Docket No. E-7, Sub 1187, the Company indicated that it plans to file a general rate case in 2019. In accordance with the Commission's Sub 1146 Order, it is expected that the Commission will resolve the appropriate method to flow back excess deferred taxes in the next general rate case. New rates from the

Company's 2019 rate case would likely be implemented in 2020 and would likely reflect a resolution of the flow back of excess deferred taxes. For purposes of this DSM/EE proceeding only, the Company has included a reduction of $10 million to Year 2020 lost revenues collected from Vintage 2017, Vintage 2018, Vintage 2019, and Vintage 2020. This will be trued up to the actual impact on the lost revenue rate in the next DSM/EE rider filing after an order is issued in DEC's upcoming base rate case. This $10 million reduction is meant to serve as a placeholder to mitigate potential overcollection with respect to the Company's DSM/EE rider and does not reflect any particular position by DEC on the appropriate methodology or timeframe for the flow back of excess deferred taxes or any other tax issues or proposals that may be raised in the Company's next general rate case.

Q. HOW DOES DEC CALCULATE THE NET LOST REVENUES FOR THE EMF COMPONENTS OF RIDER EE?

A. For the EMF components of Rider EE, DEC calculates the net lost revenues by multiplying the portion of its tariff rates that represent the recovery of fixed costs by the actual and verified North Carolina retail kW and kWh reductions applicable to EE programs by rate schedule, then reducing this amount by actual found revenues.

V. <u>OPT-OUT PROVISIONS</u>

Q. PLEASE EXPLAIN THE OPT-OUT PROCESS FOR NON-RESIDENTIAL CUSTOMERS.

A. Pursuant to the Commission's *Order Granting Waiver, in Part, and Denying Waiver, in Part* ("Waiver Order") issued April 6, 2010, in Docket No. E-7, Sub 938 and the Sub 1032 Order, the Company is allowed to permit qualifying non-residential customers[3] to opt out of the DSM and/or EE portion of Rider EE during annual election periods. If a customer opts into a DSM program (or never opted out), the customer is required to participate for three years in the approved DSM programs and rider. If a customer chooses to participate in an EE program (or never opted out), that customer is required to pay the EE-related program costs, shared savings incentive and the net lost revenues for the corresponding vintage of the programs in which it participated. Customers that opt out of DEC's DSM and/or EE programs remain opted-out unless they choose to opt back in during any of the succeeding annual election periods, which occur from November 1 to December 31 each year, or any of the succeeding annual opt-in periods in March as described below. If a customer participates in any vintage of programs, the customer is subject to all true-up provisions of the approved Rider EE for any vintage in which the customer participates.

DEC provides an additional opportunity for qualifying customers to opt in to DEC's DSM and/or EE programs during the first five business days of March. Customers who choose to begin participating in DEC's EE and DSM programs during the special "opt-in period" during March of each year will be retroactively billed the applicable Rider EE amounts back to January 1

[3] Individual commercial customer accounts with annual energy usage of not less than 1,000,000 kWh and any industrial customer account.

of the vintage year, such that they will pay the appropriate Rider EE amounts for the full rate period.

Q. DOES DEC ADJUST THE RATE FOR NON-RESIDENTIAL CUSTOMERS TO ACCOUNT FOR THE IMPACT OF "OPT-OUT" CUSTOMERS?

A. Yes. The impact of opt-out results is considered in the development of the Rider EE billing rates for non-residential customers. Since the revenue requirements will not be recovered from non-residential customers that opt out of DEC's programs, the forecasted sales used to compute the rate per kWh for non-residential rates exclude sales to customers that have opted out of the vintage to which the rate applies. This adjustment is shown on Miller Exhibit 6.

VI. PROSPECTIVE COMPONENTS

Q. WHAT IS THE RATE PERIOD FOR THE PROSPECTIVE COMPONENTS OF RIDER 11?

A. In accordance with the Commission's *Order on Motions for Reconsideration* issued on June 3, 2010, in Docket No. E-7, Sub 938 ("Second Waiver Order") and the Sub 1032 Order, DEC has calculated the prospective components of Rider 11 using the rate period January 1, 2020 through December 31, 2020.

Q. PLEASE DESCRIBE THE BASIS FOR THE RATE PERIOD REVENUE REQUIREMENTS RELATING TO VINTAGE 2017.

A. The Company determines the estimated revenue requirements for Vintage 2017 separately for residential and non-residential customer classes and bases them on the fourth year of net lost revenues for its Vintage 2017 EE programs. The amount of lost revenue earned is based on estimated North Carolina retail kW and kWh reductions and DEC's rates approved in its most recent general rate case, which became effective August 1, 2018, adjusted as described above to recover only the fixed cost component.

Q. WHY IS DEC INCLUDING A FOURTH YEAR OF NET LOST REVENUES RELATING TO VINTAGE 2017 IN THE PROSPECTIVE COMPONENT OF RIDER 11?

A. Although the test period in the Company's most recent general rate case in Docket No. E-7, Sub 1146 was January 1, 2016 through December 31, 2016, the rates approved in that proceeding included updated revenues that reflected changes in the number of customers and, for the residential class, changes in weather-normalized usage per customer through December 31, 2017. Accordingly, in order to incorporate these revenue adjustments from the Sub 1146 rate case, for residential customers, the Company has extended the rate case test period to December 31, 2017 as the customer growth adjustment used in the rate case also included updated actual kWh sales through that time period. For non-residential customers, the Company will continue to utilize the rate case test period January 1, 2016 through December 31, 2016, as no adjustments were made to incorporate actual kWh sales past that date. In addition, the following modifications have been made to calculate how much lost revenue is included in kWh sales for the test period. Since the twelve-month rate case test period uses actual kWh sales, and participation in EE measures occurs throughout the year, in any given twelve-month period, a full year of lost revenues are not captured in test period kWh sales as all measures were not in place at the beginning of the test period. The Company believes it is appropriate to quantify the actual incremental savings by month during that twelve-month rate case test period to calculate the amount of lost revenues that is truly being reflected in the new base rates that will be recovered from customers. The difference between the annualized amount of energy savings and the actual amount of energy savings should be recovered through the Company's DSM/EE rider. This same methodology was used to calculate how much lost revenue should be included in kWh sales for the test period in DEP's most recent DSM/EE rider approved in the Commission's *Order Approving DSM/EE Rider and Requiring Customer Notice* issued on November 29, 2018 in Docket No. E-2, Sub 1174.

Q. PLEASE DESCRIBE THE BASIS FOR THE RATE PERIOD REVENUE REQUIREMENTS RELATING TO VINTAGE 2018.

A. The Company determines the estimated revenue requirements for Vintage 2018 separately for residential and non-residential customer classes and bases them on the third year of net lost revenues for its Vintage 2018 EE programs. The amounts are based on estimated North Carolina retail kW and kWh reductions and DEC's rates approved in its most recent general rate case, which became effective August 1, 2018, adjusted as described above to only recover the fixed cost component.

Q. PLEASE DESCRIBE THE BASIS FOR THE RATE PERIOD REVENUE REQUIREMENTS RELATING TO VINTAGE 2019.

A. The Company determines the estimated revenue requirements for Vintage 2019 separately for residential and non-residential customer classes and bases them on the second year of net lost revenues for its Vintage 2019 EE programs. The amounts are based on estimated North Carolina retail kW and kWh reductions and DEC's rates approved in its most recent general rate case, which became effective August 1, 2018, adjusted as described above to only recover the fixed cost component.

Q. PLEASE DESCRIBE THE BASIS FOR THE RATE PERIOD REVENUE REQUIREMENTS RELATING TO VINTAGE 2020.

A. The estimated revenue requirements for Vintage 2020 EE programs include program costs, PPI, and the first year of net lost revenues determined separately for residential and non-residential customer classes. The estimated revenue requirements for Vintage 2020 DSM programs include program costs and PPI. The program costs and shared savings incentive are computed at the system level and allocated to North Carolina based on the allocation methodologies discussed earlier in my testimony. The net lost revenues for EE programs are based on estimated North Carolina retail kW and kWh reductions and the rates approved in DEC's most recent general rate case, which became effective August 1, 2018.

VII. <u>EMF</u>

Q. WHAT IS THE TEST PERIOD FOR THE EMF COMPONENT?

A. Pursuant to the Second Waiver Order and Sub 1032 Order, the test period for the EMF component is defined as the most recently completed vintage year at the time of DEC's Rider EE cost recovery application filing date, which in this case is Vintage 2018 (January 1, 2018 through December 31, 2018). In addition, the Second Waiver Order allows the EMF component to cover multiple test periods, so the EMF component for Rider 11 includes Vintage 2015 (January 2015 through December 2015), Vintage 2016 (January 2016 through December 2016), and Vintage 2017 (January 2017 through December 2017) as well.

Q. WHAT IS BEING TRUED UP FOR VINTAGE 2018?

A. The chart below demonstrates which components of the Vintage 2018 estimate filed in 2017 are being trued up in the Vintage 2018 EMF component of Rider 11. Miller Exhibit 2, page 4 contains the calculation of the true-up for Vintage 2018. The second year of net lost revenues for Vintage 2018, which are a component of Rider 10 billings during 2019, will be trued-up to actual amounts during the next rider filing.

	Vintage 2018 Estimate (2018) As Filed (Filed 2017)	**Vintage 2018 True-Up (2018) (Filed March 2019)**
	Rider 9	**Rider 11 EMF**
Participation	Estimated participation using half-year convention	Update for actual participation for January – December 2018
EM&V	Initial assumptions of load impacts	Updated according to Commission-approved EM&V Agreement
Lost Revenues	Estimated 2018 participation using half-year convention	Update for actual participation for January – December 2018 and actual 2018 lost revenue rates

	Vintage 2018 Estimate (2018) As Filed (Filed 2017)	Vintage 2018 True-Up (2018) (Filed March 2019)
	Rider 9	**Rider 11 EMF**
Found Revenues	Estimated according to Commission-approved guidelines	Update for actual according to Commission-approved guidelines
New Programs	Only includes programs approved prior to estimated filing	Update for any new programs and pilots approved and implemented since estimated filing

In addition, DEC has implemented deferral accounting for the under/over collection of program costs and calculated a return at the net-of-tax rate of return rate approved in DEC's most recent general rate case. The methodology used for the calculation of return is the same as that typically utilized for DEC's Existing DSM Program rider proceedings. Pursuant to Commission Rule R8-69(c)(3), DEC is not accruing a return on net lost revenues or the PPI. Please see Miller Exhibit 3, pages 1 through 16 for the calculation performed as part of the true-up of Vintage 2015, Vintage 2016 Vintage 2017, and Vintage 2018.

Q. HOW WERE THE LOAD IMPACTS UPDATED?

A. For DSM programs, the contracted amounts of kW reduction capability from participants are considered to be components of actual participation. As a result, the Vintage 2018 true-up reflects the actual quantity of demand reduction capability for the Vintage 2018 period. The load impacts for EE programs were updated in accordance with the Commission-approved EM&V Agreement.

Q. HOW WERE ACTUAL NET LOST REVENUES COMPUTED FOR THE VINTAGE 2018 TRUE-UP?

A. Net lost revenues for year one (2018) of Vintage 2018 were calculated using actual kW and kWh savings by North Carolina retail participants by customer class based on actual participation and load impacts reflecting EM&V results applied according to the EM&V Agreement. The actual kW and kWh savings were as experienced during the period January 1, 2018 through December 31, 2018. The rates applied to the kW and kWh savings are the retail rates that were in effect for the period January 1, 2018 through December 31, 2018 (updated August 1, 2018 to include new rates approved in Docket No. E-7, Sub 1146), reduced by fuel and other variable costs. The lost revenues were then offset by actual found revenues for year one of Vintage 2018 as explained by Company witness Evans. The calculation of net lost revenues was performed by rate schedule within the residential and non-residential customer classes.

Q. WHAT IS BEING TRUED UP FOR VINTAGE 2017?

A. Avoided costs for Vintage 2017 DSM programs are being trued up to update EM&V participation results. Avoided costs for Vintage 2017 EE programs are also being trued up based on updated EM&V results. Net lost revenues for all years were trued up for updated EM&V participation results and impacts of Docket No. E-7, Sub 1146. The actual kW and kWh savings were as experienced during the period January 1, 2017 through December 31, 2017. The rates applied to the kW and kWh savings are the retail rates that were in effect during each period the lost revenues were earned, reduced by fuel and other variable costs.

Q. WHAT IS BEING TRUED UP FOR VINTAGE 2016?

A. Net lost revenues for all years were trued up for updated EM&V results. The actual kW and kWh savings were as experienced during the period January 1, 2016 through December 31, 2016. The rates applied to the kW and kWh savings are the retail rates that were in effect during each period the lost revenues were earned, reduced by fuel and other variable costs.

Q. WHAT IS BEING TRUED UP FOR VINTAGE 2015?

A. Net lost revenues for all years were trued up for updated EM&V results. The actual kW and kWh savings were as experienced during the period January 1, 2015 through December 31, 2015. The rates applied to the kW and kWh savings are the retail rates that were in effect during each period the lost revenues were earned, reduced by fuel and other variable costs.

VIII. PROPOSED RATES

Q. WHAT ARE DEC'S PROPOSED INITIAL BILLING FACTORS APPLICABLE TO NORTH CAROLINA ELECTRIC CUSTOMERS FOR THE PROSPECTIVE COMPONENTS OF RIDER 11?

A. The Company's proposed initial billing factor for the Rider 11 prospective components is 0.3892 cents per kWh for DEC's North Carolina retail residential customers. For non-residential customers, the amounts differ depending upon customer elections of participation. The following chart depicts the options and rider amounts:

Non-Residential Billing Factors for Rider 11 Prospective Components	¢/kWh
Vintage 2017 EE participant	0.0312

Non-Residential Billing Factors for Rider 11 Prospective Components	¢/kWh
Vintage 2018 EE participant	0.0549
Vintage 2019 EE participant	0.0509
Vintage 2020 EE participant	0.3082
Vintage 2020 DSM participant	0.1101

Q. WHAT ARE DEC'S PROPOSED EMF BILLING FACTORS APPLICABLE TO NORTH CAROLINA ELECTRIC CUSTOMERS FOR THE TRUE-UP COMPONENTS OF RIDER 11?

A. The Company's proposed EMF billing factor for the true-up components of Rider 11 is 0.0956 cents per kWh for DEC's North Carolina retail residential customers. For non-residential customers, the amounts differ depending upon customer elections of participation. The following chart depicts the options and rider amounts:

Non-Residential Billing Factors for Rider 11 EMF Components	¢/kWh
Vintage 2018 EE Participant	0.0278
Vintage 2018 DSM Participant	0.0077
Vintage 2017 EE participant	0.0645
Vintage 2017 DSM participant	0.0000
Vintage 2016 EE participant	0.0512
Vintage 2016 DSM participant	0.0001
Vintage 2015 EE participant	0.0064
Vintage 2015 DSM participant	0.0001

IX. CONCLUSION

Q. PLEASE SUMMARIZE THE SPECIFIC RATE MAKING APPROVAL REQUESTED BY DEC.

A. DEC seeks approval of the Rider 11 billing factors to be effective throughout 2020. As discussed above, Rider 11 contains (1) a prospective component, which includes the fourth year of net lost revenues for Vintage 2017, the third year of net lost revenues for Vintage 2018, the second year of net lost revenues for Vintage 2019, and the revenue requirements for Vintage 2020; and (2) an EMF component which represents a true-up of Vintage 2015, Vintage 2016, Vintage 2017, and Vintage 2018. Consistent with the Stipulation, for DEC's North Carolina residential customers, the Company calculated one integrated prospective billing factor and one integrated EMF billing factor for Rider 11. Also in accordance with the Stipulation, the non-residential DSM and EE billing factors have been determined separately for each vintage year and will be charged to non-residential customers based on their opt-in/out status and participation for each vintage year.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

(WHEREUPON, Evans Exhibits 1 - 12 and A - L are marked for identification as prefiled and received into evidence.)

(WHEREUPON, the prefiled direct testimony of ROBERT P. EVANS is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1192

In the Matter of	)	
Application of Duke Energy Carolinas, LLC	)	**DIRECT TESTIMONY OF**
for Approval of Demand-Side Management	)	**ROBERT P. EVANS**
and Energy Efficiency Cost Recovery Rider	)	**FOR**
Pursuant to N.C. Gen. Stat. § 62-133.9 and	)	**DUKE ENERGY CAROLINAS, LLC**
Commission Rule R8-69	)	

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION WITH DUKE ENERGY.

A. My name is Robert P. Evans, and my business address is 150 Fayetteville Street, Raleigh, North Carolina 27602. I am employed by Duke Energy Corporation ("Duke Energy") as Senior Manager-Strategy and Collaboration for the Carolinas in the Market Solutions Regulatory Strategy and Evaluation group.

Q. PLEASE BRIEFLY STATE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I graduated from Iowa State University ("ISU") in 1978 with a Bachelor of Science Degree in Industrial Administration and a minor in Industrial Engineering. As a part of my undergraduate work, I participated in both the graduate level Regulatory Studies Programs sponsored by American Telephone and Telegraph Corporation, and graduate level study programs in Engineering Economics. Subsequent to my graduation from ISU, I received additional Engineering Economics training at the Colorado School of Mines, completed the National Association of Regulatory Utility Commissioners Regulatory Studies program at Michigan State, and completed the Advanced American Gas Association Ratemaking program at the University of Maryland. Upon graduation from ISU, I joined the Iowa State Commerce Commission (now known as the Iowa Utility Board ("IUB") in the Rates and Tariffs Section of the Utilities Division. During my tenure with the IUB, I held several positions, including Senior Rate Analyst in charge of Utility Rates and Tariffs, and

Assistant Director of the Utility Division. In those positions, I provided testimony in gas, electric, water, and telecommunications proceedings as an expert witness in the areas of rate design, service rules, and tariff applications. In 1982, I accepted employment with City Utilities of Springfield, Missouri, as an Operations Analyst. In that capacity, I provided support for rate-related matters associated with the municipal utility's gas, electric, water, and sewer operations. In addition, I worked closely with its load management and energy conservation programs. In 1983, I joined the Rate Services staff of the Iowa Power and Light Company, now known as MidAmerican Energy, as a Rate Engineer. In this position, I was responsible for the preparation of rate-related filings and presented testimony on rate design, service rules, and accounting issues before the IUB. In 1986, I accepted employment with Tennessee-Virginia Energy Corporation (now known as the United Cities Division of Atmos Energy) as Director of Rates and Regulatory Affairs. While in this position, I was responsible for regulatory filings, regulatory relations, and customer billing. In 1987, I went to work for the Virginia State Corporation Commission in the Division of Energy Regulation as a Utilities Specialist. In this capacity, I worked on electric and natural gas issues and provided testimony on cost of service and rate design matters brought before that regulatory body. In 1988, I joined North Carolina Natural Gas Corporation ("NCNG") as its Manager of Rates and Budgets. Subsequently, I was promoted to Director-Statistical Services in NCNG's Planning and Regulatory Compliance Department. In that position, I performed a variety of work associated with financial, regulatory, and statistical analysis and presented testimony on several issues brought before the North Carolina Utilities Commission ("Commission"). I held that position until the closing of NCNG's merger with Carolina Power and Light Company, the predecessor of Progress Energy, Inc. ("Progress"), on July 15, 1999.

From July 1999 through January 2008, I was employed in Principal and Senior Analyst roles by the Progress Energy Service Company, LLC. In these roles, I provided NCNG, Progress Energy Carolinas, Inc. (now Duke Energy Progress, LLC or "DEP"), and Progress Energy Florida, Inc. with rate and regulatory support in their state and federal venues. From 2008 through the merger of Duke Energy and Progress, I provided regulatory support for demand-side management ("DSM") and energy efficiency ("EE") programs. Subsequent to the Progress merger with Duke Energy, I obtained my current position.

Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN MATTERS BROUGHT BEFORE THIS COMMISSION?

A. Yes. I have provided testimony to this Commission in matters concerning revenue requirements, avoided costs, cost of service, rate design, and the recovery of costs associated with DSM/EE programs and related accounting matters.

Q. WHAT ARE YOUR CURRENT RESPONSIBILITIES?

A. I am responsible for the regulatory support of DSM/EE programs in North Carolina for both Duke Energy Carolinas, LLC ("DEC" or the "Company") and DEP.

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

A. My testimony supports DEC's Application for approval of its DSM/EE Cost Recovery Rider, Rider EE, for 2020 ("Rider 11"), which encompasses the Company's currently effective cost recovery and incentive mechanism ("Mechanism") and portfolio of programs approved in the Commission's *Order Approving DSM/EE Programs and Stipulation of Settlement* issued October 29, 2013, in Docket No. E-7, Sub 1032 ("Sub 1032 Order"). My testimony provides (1) a discussion of items the Commission specifically directed the Company to address in this proceeding; (2) an overview of the Commission's Rule R8-69 filing requirements; (3) a synopsis of the DSM/EE programs included in this filing; (4) a discussion of program results; (5) an explanation of how these results have affected the Rider 11 calculations; (6) information on DEC's Evaluation Measurement & Verification ("EM&V") activities; and (7) an overview of the calculation of the Portfolio Performance Incentive ("PPI").

Q. PLEASE DESCRIBE THE EXHIBITS ATTACHED TO YOUR TESTIMONY.

A. Evans Exhibit 1 supplies, for each program, load impacts and avoided cost revenue requirements by vintage. Evans Exhibit 2 contains a summary of net lost revenues for the period January 1, 2015 through December 31, 2020. Evans

Exhibit 3 contains the actual program costs for North Carolina for the period January 1, 2014 through December 31, 2018. Evans Exhibit 4 contains the found revenues used in the net lost revenues calculations. Evans Exhibit 5 supplies evaluations of event-based programs. Evans Exhibit 6 contains information about and the results of DEC's programs and a comparison of actual impacts to previous estimates. Evans Exhibit 7 contains the projected program and portfolio cost-effectiveness results for the Company's current portfolio of programs. Evans Exhibit 8 contains a summary of 2018 program performance and an explanation of the variances between the forecasted program results and the actual results. Evans Exhibit 9 is a list of DEC's industrial and large commercial customers that have opted out of participation in its DSM or EE programs and a listing of those customers that have elected to opt in to DEC's DSM or EE programs after having initially notified the Company that they declined to participate, as required by Commission Rule R8-69(d)(2). Evans Exhibit 10 contains the projected shared savings incentive (PPI) associated with Vintage 2020. Evans Exhibit 11 provides a summary of the estimated activities and timeframe for completion of EM&V by program. Evans Exhibit 12 provides the actual and expected dates when the EM&V for each program or measure will become effective. Evans Exhibits A through L provide the detailed completed EM&V reports or updates for the following: PowerShare Program 2017 (Evans Exhibit A); Nonresidential Smart $aver Energy Efficient Products and Assessment – Prescriptive 2015-2017 (Evans Exhibit B); Residential Energy Efficient Appliances and Devices – Retail

Lighting 2016-2017 (Evans Exhibit C); Power Manager Load Control Service 2017 (Evans Exhibit D); Residential Smart $aver EE - HVAC 2016-2017 (Evans Exhibit E); Residential Income-Qualified EE and Weatherization Assistance 2015-2016 (Evans Exhibit F); Small Business Energy Saver 2016-2017 (Evans Exhibit G); Revised Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom 2014-2015 (Evans Exhibit H); Residential Energy Efficient Appliances and Devices – Online Savings Store 2015-2017 (Evans Exhibit I); Residential Energy Assessment 2016-2017 (Evans Exhibit J); EnergyWise for Business 2017 (Evans Exhibit K); and Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom 2016-2017 (Evans Exhibit L).

Q. WERE EVANS EXHIBITS 1-12 PREPARED BY YOU OR AT YOUR DIRECTION AND SUPERVISION?

A. Yes, they were.

II. ACTIONS ORDERED BY THE COMMISSION

Q. PLEASE DESCRIBE THE ACTIONS THE COMMISSION DIRECTED DEC TO TAKE IN THE COMMISSION'S ORDER IN DOCKET NO. E-7, SUB 1164.

A. In its September 11, 2018 *Order Approving DSM/EE Rider and Requiring Filing of Customer Notice* in Docket No. E-7, Sub 1164 ("Sub 1164") Order, the Commission ordered: (1) that the Company shall propose modifications to the Residential Smart $aver EE Program no later than October 31, 2018, with the goal of restoring the Total Resource Cost ("TRC") score to 1.0 or greater, and the Company shall include a discussion of impact of these modifications and any other actions it has taken to improve cost-effectiveness in next year's DSM/EE rider proceeding; (2) that in its next rider application, DEC shall address the continuing cost-effectiveness of the Nonresidential Smart $aver Performance Incentive Program and if it is not cost-effective, provide details of plans to modify or close the program; (3) that the EM&V report for the Nonresidential Smart $aver Custom program shall be revised as discussed by Public Staff witness Williamson and refiled in the next rider; (4) that DEC shall leverage its Collaborative to discuss the EM&V issues and program design issues raised in the testimony of Southern Alliance for Clean Energy ("SACE"), Natural Resources Defense Council, and NC Justice Center (collectively, "NCJC") witness Neme, and the results of these discussions shall be reported to the Commission in the Company's 2019 DSM/EE rider filing; and (5) that beginning in 2019, the combined DEC/DEP Collaborative shall meet every other month.

Q. DID THE COMPANY FILE PROPOSED MODIFICATIONS TO ITS RESIDENTIAL SMART $AVER EE PROGRAM WITH THE COMMISSION WITH THE GOAL OF RESTORING THE TRC SCORE TO 1.0 OR GREATER?

A. The Company filed its proposed program modifications with the Commission on October 31, 2018.

Q. WHAT ACTIONS HAS THE COMPANY TAKEN TO IMPROVE THE COST-EFFECTIVENESS SCORES OF THE RESIDENTIAL SMART $AVER EE PROGRAM?

A. The Company is: (1) recognizing the lower incremental costs of higher efficiency HVAC equipment using participant cost auditing tools allowing it to review costs across various contractors, brands, and efficiency levels; (2) improving Trade Ally engagement by making participation less costly and streamlining requirements; (3) reducing program administration costs; and (4) implementing a three-year phase-in to a referral-only channel.

Q. WHAT ARE THE ANTICIPATED COST-EFFECTIVENESS RESULTS RESIDENTIAL SMART $AVER EE PROGRAM RESULTS DUE TO THESE MODIFICATIONS?

A. The program's updated cost-effectiveness results from its October 31, 2018 filing and the previous results reported in Docket No. E-7, Sub 1164 have been provided in the following table:

Cost-Effectiveness Tests	Updated Results:	Previous Results:
Utility Cost Test *(UCT)*	1.42	0.94
Total Resource Cost Test *(TRC)*	1.01	0.59
Rate Impact Measure Test *(RIM)*	0.66	0.45
Participant Test	1.77	1.52

It is important to note that the previous estimates were based on calendar year 2019 and the updated cost-effectiveness estimates are based on the five-year period beginning in 2019. Also, in its October 31, 2018 filing, the Company had projected a 0.91 TRC score for 2020 as part of the five-year period it used for its projected overall TRC score. The Company's updated estimate for 2020 is 0.95 which in isolation would imply that the 1.01 TRC score, referenced above, had been understated.

Q. DID THE COMMISSION APPROVE THE COMPANY'S PROPOSED RESIDENTIAL SMART $AVER EE PROGRAM MODIFICATIONS?

A. Yes. The Commission approved the proposed program modifications in its January 7, 2019 Order issued in Docket No. E-7, Subs 1032 and 1164.

Q. HAVE THERE BEEN ANY CHANGES IN THE RESIDENTIAL SMART $AVER EE PROGRAM'S TRC SCORE SINCE THE COMPANY MADE ITS OCTOBER 31, 2018 FILING?

A. Yes. As indicated above, the forecasted TRC score for 2020 is greater than that contained in the October 31, 2018 filing.

Q. PLEASE ADDRESS THE COST-EFFECTIVENESS OF THE COMPANY'S NONRESIDENTIAL SMART $AVER PERFORMANCE INCENTIVE PROGRAM.

A. DEC's Nonresidential Smart $aver Performance Incentive Program is expected to have a TRC cost-effectiveness score exceeding 1.0 and as such, the program is deemed by the Company to be cost-effective. Projections of the program's cost-effectiveness results, and those previously reported in Sub 1164, have been provided in the following table:

Cost-Effectiveness Tests	Updated Results:	Previous Results:
Utility Cost Test *(UCT)*	3.29	2.70

Total Resource Cost Test *(TRC)*	1.06	0.81
Rate Impact Measure Test *(RIM)*	0.33	0.69
Participant Test	1.79	1.50

III. PUBLIC STAFF'S EM&V RECOMMENDATION

Q. PLEASE DESCRIBE PUBLIC STAFF WITNESS WILLIAMSON'S RECOMMENDATION REGARDING THE COMPANY'S NONRESIDENTIAL SMART $AVER - CUSTOM EM&V REPORT.

A. In the Sub 1164 proceeding, Public Staff witness Williamson recommended that the filed EM&V report for the Nonresidential Smart $aver - Custom should not be considered complete until a revised report, containing an adjusted net-to-gross scoring scale, is filed by the Company in the 2019 rider proceeding.

Q. HAS DEC INCLUDED A REVISED NONRESIDENTIAL SMART $AVER – CUSTOM EM&V REPORT, ADDRESSING WITNESS WILLIAM'S RECOMMENDED MODIFICATION?

A. Yes. The revised Nonresidential Smart $aver - Custom EM&V report is identified as Evans Exhibit H, and includes tracked changes to show what has changed from the version filed in Sub 1164.

IV. NCJC RECOMMENDATIONS & COLLABORATIVE

Q. HAS THE COLLABORATIVE MET AFTER THE ISSUANCE OF COMMISSION'S SUB 1164 ORDER?

A. Yes. Subsequent to the Commission's September 11, 2018 Sub 1164 Order, The Collaborative has met on three occasions: September 27, 2018; November 27, 2018; and January 31, 2019.

Q. WERE NCJC WITNESS NEME'S RECOMMENDATIONS DISCUSSED BY THE COLLABORATIVE?

A. Yes. The Collaborative discussed the key issues affecting each of the topics, which are outlined below, and considered the likelihood of the group being able to make a positive contribution at this time. The following contains a summary of the discussions and their outcome:

TRM ("Technical Resource Manual")

The Collaborative noted that the use of a TRM increases the likelihood that EM&V is transparent, reliable, consistent across utilities, and updated as technology changes. However, the creation and adoption of a TRM is an undertaking that must include all utilities, cooperatives and municipalities in North Carolina (and South Carolina for utilities that operate in both states) to be of greatest value. Given that the Collaborative's influence is inherently limited to DEC and DEP, the group decided it is not the appropriate venue to pursue questions related to a state-wide or multi-state TRM at this time. The Collaborative should, however, advise on ways to ensure that the Company's EM&V is transparent, reliable, consistent with industry standards, and updated as needed.

Residential Smart $aver EE Program Participation

The high incremental costs of equipment, the purchasing habits of customers, the market realities facing trade allies, and the economic vulnerability of regulated programs present numerous obstacles to increasing participation in the Residential Smart $aver EE Program, an issue of importance to many members of the Collaborative and to the Company. While the membership is committed to developing strategies for overcoming these obstacles, it agreed that the conversation is best located in the Collaborative's larger discussion of threats and opportunities that face EE investments at the portfolio level, especially the parts of the portfolio that promote long-lived measures. Nevertheless, the Collaborative will continue to review the Company's Residential Smart $aver EE Program through the semi-annual program reports and EM&V reviews.

Whole House Retrofits

Whole house retrofit programs face many of the same obstacles identified in the Residential Smart $aver EE Program discussion. The EE opportunities are substantial but are often eclipsed by the large upfront capital investment and the shortage of contractors willing to specialize in this field. The Collaborative will consider the obstacles to whole house retrofits as part of the larger discussion of threats and opportunities that face EE investments in long-lived measures.

Building on Midstream Channel Success

The Collaborative was unanimous in its optimism for midstream expansion in future program years. Furthermore, the Company is committed to investigating opportunities for offering new measures to new markets as it is able. The Collaborative will continue to be a forum to discuss the Company's progress in the midstream arena and make recommendations when appropriate.

My Home Energy Report Program Impact Persistence and Savings

The My Home Energy Report Program ("MyHER") and its EM&V are designed to account for the fact that the program features an opt-out design in that customers remain in the program until they opt out. Issues of persistence are consequently not currently part of EM&V testing. Additional concerns about whether savings from MyHER are being attributed to the years in which the EE treatment occurred are not immediately relevant given the absence of regulatory requirements to achieve savings targets in specific years. Rather, the focus of EM&V has been on accurately capturing savings within the continuous treatment model. The Company acknowledges that alternative program designs may shed light on potential cost savings or energy saving projections in future filings and agrees to investigate the feasibility and cost benefit analysis of incorporating persistence testing in upcoming EM&V studies. Since any testing will require several years to complete, the Collaborative decided that this issue did not warrant further discussion until more information is available. However, the role of this and other programs with short-lived measures will be part of the larger discussion of threats and opportunities at the portfolio level.

Industrial and Large Commercial Opt-Outs

All members of the Collaborative, including the Company, recognize that commercial and industrial customers represent enormous EE potential. DEC program managers explained the Company's comprehensive approach to customer education and engagement in detail. The approach includes the services of Large Account Managers and EE engineers, the utilization of customer analytics, and innovative programs that include project design assistance and performance incentives. Given current opt-out guidelines, the Collaborative agreed that the Company's strategies are in line with what members would recommend. Further discussion of opt-out policy is postponed until if/when the opt-out guidelines are modified, although the performance of programs aimed to attract commercial and industrial programs will remain part of the semi-annual program reviews and periodic EM&V. Nevertheless, commercial and industrial EE potential will be part of the larger discussion of threats and opportunities at the portfolio level.

Collaborative Effectiveness

In response to intervenor comments in DEC's last rider filing, Duke Energy made a number of modifications to the Collaborative meetings. DEC and DEP meetings are now combined and held bi-monthly. Members are asked to develop the agenda, lead portions of the discussions, and set the group's priorities. Additionally, the Company is committed to allowing ample time to review information prior to meetings and to following up periodically to ensure that members' concerns and recommendations are thoroughly understood and appropriately addressed. The Collaborative members agree that the modifications have improved the group's effectiveness. Although the Commission did not require the Collaborative to address low-income programs specifically, the need for equitable accessibility to EE is a high priority for many Collaborative members and for the Company. The Collaborative is committed to discussing the Company's income-qualified programs this year, to recommending improvements, and to examining opportunities to make existing residential programs more accessible to low- and middle-income customers.

V. RULE R8-69 FILING REQUIREMENTS

Q. WHAT INFORMATION DOES DEC PROVIDE IN RESPONSE TO THE COMMISSION'S FILING REQUIREMENTS?

A. The information for Rider 11 is provided in response to the Commission's filing requirements contained in R8-69(f)(1) and can be found in the testimony and exhibits of Company witnesses Evans and Miller as follows:

R8-69(f)(1)		Items	Location in Testimony
(i)		Projected NC retail sales for the rate period	Miller Exhibit 6
(ii)		For each measure for which cost recovery is requested through Rider 11:	
(ii)	a.	Total expenses expected to be incurred during the rate period	Evans Exhibit 1
(ii)	b.	Total costs savings directly attributable to measures	Evans Exhibit 1
(ii)	c.	EM&V activities for the rate period	Evans Exhibit 11
(ii)	d.	Expected peak demand reductions	Evans Exhibit 1
(ii)	e.	Expected energy reductions	Evans Exhibit 1
(iii)		Filing requirements for DSM/EE EMF rider, including:	
(iii)	a.	Total expenses for the test period in the aggregate and broken down by type of expenditure, unit, and jurisdiction	Evans Exhibit 3
(iii)	b.	Total avoided costs for the test period in the aggregate and broken down by type of expenditure, unit, and jurisdiction	Evans Exhibit 1
(iii)	c.	Description of results from EM&V activities	Testimony of Robert Evans and Evans Exhibits A-L
(iii)	d.	Total peak demand reductions in the aggregate and broken down per program	Evans Exhibit 1
(iii)	e.	Total energy reduction in the aggregate and broken down per program	Evans Exhibit 1
(iii)	f.	Discussion of findings and results of programs	Testimony of Robert Evans and Evans Exhibit 6
(iii)	g.	Evaluations of event-based programs	Evans Exhibit 5
(iii)	h.	Comparison of impact estimates from previous year and explanation of significant differences	Testimony of Robert Evans and Evans Exhibits 6 and 8
(iv)		Determination of utility incentives	Testimony of Robert Evans and Evans Exhibit 10
(v)		Actual revenues from DSM/EE and DSM/EE EMF riders	Miller Exhibit 4
(vi)		Proposed Rider 11	Testimony of Carolyn Miller and Miller Exhibit 1
(vii)		Projected NC sales for customers opting out of measures	Miller Exhibit 6
(viii)		Supporting work papers	CD accompanying filing

VI. PORTFOLIO OVERVIEW

Q. WHAT ARE DEC'S CURRENT DSM AND EE PROGRAMS?

A. The Company has two interruptible programs for nonresidential customers, Interruptible Service ("IS") and Standby Generation ("SG"), which are accounted for outside of the Mechanism approved by the Commission in the Sub 1032 Order. Aside from IS and SG, the following DSM/EE programs have been implemented by DEC in its North Carolina service territory:

RESIDENTIAL CUSTOMER PROGRAMS

- Energy Assessment Program
- EE Education Program
- Energy Efficient Appliances and Devices Program
- Smart $aver EE Program
- Multi-Family EE Program
- My Home Energy Report (MyHER) Program
- Income-Qualified EE and Weatherization Program
- Power Manager Load Control Service Program

NONRESIDENTIAL CUSTOMER PROGRAMS

- Nonresidential Smart $aver Energy Efficient Products and Assessment Program:
    - Energy Efficient Food Service Products
    - Energy Efficient HVAC Products
    - Energy Efficient IT Products
    - Energy Efficient Lighting Products
    - Energy Efficient Process Equipment Products
    - Energy Efficient Pumps and Drives Products
    - Custom Incentive and Energy Assessment
- PowerShare Nonresidential Load Curtailment Program

- PowerShare CallOption Program (program canceled effective January 31, 2018)
- Small Business Energy Saver Program
- Smart Energy in Offices Program (program canceled effective June 30, 2018)
- EnergyWise for Business Program
- Nonresidential Smart $aver Performance Incentive Program

Q. ARE THESE SUBSTANTIVELY THE SAME PROGRAMS DEC RECEIVED APPROVAL FOR IN DOCKET NO. E-7, SUB 1032?

A. Yes. The programs contained in the current portfolio are the same as those approved by the Commission in the Sub 1032 Order, with the exception of: the discontinuation of the PowerShare CallOption and the Smart Energy in Offices Program.

Q. PLEASE DESCRIBE ANY UPDATES MADE TO THE UNDERLYING ASSUMPTIONS FOR DEC'S PORTFOLIO OF PROGRAMS THAT HAVE ALTERED PROJECTIONS FOR VINTAGE 2020.

A. Updates to underlying assumptions that materially impact DEC's 2020 portfolio projection are related to EM&V-related impacts and the cancellation of programs.

Q. PLEASE DESCRIBE THE EM&V IMPACT TO DEC'S ESTIMATED 2020 PROGRAM PORTFOLIO.

A. Changes in the EM&V results were updated to reflect the savings impacts for those programs for which DEC received EM&V results after it prepared its application in Sub 1164. Updating EM&V for its programs results in changes to the projected avoided cost benefits associated with the projected participation and hence will impact the calculation of the specific program and overall portfolio cost-effectiveness, as well as impact the calculation of DEC's projected shared savings incentive.

Q. AFTER FACTORING THESE UPDATES INTO THE VINTAGE 2020 PORTFOLIO, DO THE RESULTS OF DEC'S PROSPECTIVE COST-EFFECTIVENESS TESTS INDICATE THAT IT SHOULD DISCONTINUE OR MODIFY ANY OF ITS PROGRAMS?

A. DEC performed a prospective analysis of each of its programs and the aggregate portfolio for the Vintage 2020 period. The cost-effectiveness results for the entire portfolio for Vintage 2020 are contained in Evans Exhibit 7. This exhibit shows that, with the exception of the Income-Qualified EE Products and Services Program, which was not cost-effective at the time of Commission approval, as well as the Residential Smart $aver EE Program, discussed earlier in my testimony, and elements of the Nonresidential Smart $aver Program, the aggregate portfolio continues to project cost-effectiveness. Based on the results of these cost-effectiveness tests, there are no reasons at this time to either discontinue or modify any of DEC's programs. It is important to note that irrespective of cost-effectiveness results, the Company for the purpose of increasing program effectiveness, continues to examine its programs for potential modifications.

Q. WHICH ELEMENTS OF THE NONRESIDENTIAL SMART $AVER WERE NOT COST EFFECTIVE?

A. The Food Service and Information Technology subcategories of the Nonresidential Smart $aver Program had TRC scores that were less than 1.0.

Q. WOULD IT BE APPROPRIATE TO DISCONTINUE THESE THE ELEMENTS?

A. No, it would not. The Company believes that these elements are important for insuring that a robust portfolio of prescriptive offerings is available for its non-residential customers. In addition, these elements are merely measure categories within a much larger program. The TRC score for the prescriptive portion of the Nonresidential Smart $aver Program is 1.92 and the TRC score for the Nonresidential Smart $aver Program, as a whole, is 1.84.

Q. DID DEC MAKE ANY MODIFICATIONS TO ITS PORTFOLIO OF PROGRAMS DURING VINTAGE 2018?

A. Yes. The Company has made several modifications to its portfolio of programs during Vintage 2018. These modifications were made in compliance with the Flexibility Guidelines approved by the Commission in its Sub 1032 Order. The six impacted programs and summaries of their modifications are provided below.

<u>Nonresidential Smart $aver Energy Efficient Products and Assessment Program</u>

Combined Heat and Power ("CHP") related incentives were removed from this program and added to the Nonresidential Smart $aver Performance

Incentive Program. In addition, incentives were modified, CFL measures were removed, and new measures were added. These new measures include those associated with high efficiency refrigeration, lighting, air circulation, and HVAC-related end-uses.

<u>Nonresidential Smart $aver Performance Incentive Program</u>

Both Bottom and Topping-cycle CHP related incentives and related eligibility guidelines were added to this program. In addition, the incentive payment structure was modified.

<u>Residential Multi-Family EE Program</u>

The program eligibility requirement that four or more multi-family dwelling units per building was removed.

<u>Residential Appliances and Devices Program</u>

New measures were added to the program. These the new measures include Wi-Fi enabled smart thermostats, Thermostatic Valve Shower Start Device enabled low flow shower heads, and Smart Power Strips.

<u>Power Manager Load Control Service</u>

An option was added to the program to allow the use of customer-owned smart thermostats to effectively function as load control devices. In addition, changes were made to provide options with respect to the manner in which incentive payments are provided to program participants (e.g., bill credits, checks, and prepaid credit cards).

<u>PowerShare Nonresidential Load Curtailment Program</u>

The program eligibility requirement which limited the maximum curtailable demand to 50 megawatts was removed.

VII. DSM/EE PROGRAM RESULTS TO DATE

Q. HOW MUCH ENERGY, CAPACITY AND AVOIDED COST SAVINGS DID DEC DELIVER AS A RESULT OF ITS DSM/EE PROGRAMS DURING VINTAGE 2018?

A. During Vintage 2018, DEC's DSM/EE programs delivered close to 862 million kilowatt-hours ("kWh") of energy savings and close to 1,048 megawatts ("MW") of capacity savings, which produced net present value of avoided cost savings of over $513 million. The 2018 performance results for individual programs are provided on page 4 of Evans Exhibit 1.

Q. DID ANY PROGRAMS SIGNIFICANTLY OUT-PERFORM RELATIVE TO THEIR ORIGINAL ESTIMATES FOR VINTAGE 2018?

A. Yes. During Vintage 2018, DEC's portfolio of programs was able to deliver energy and capacity savings that yielded avoided costs that were 105 percent of the target, and it did so while expending 112 percent of targeted program costs. While the Company's entire portfolio of programs performed well, programs in the portfolio that feature lighting measures continued to contribute the largest portion of the avoided cost impacts. In the residential market, the three highest ranked programs in terms of percentage increases in avoided costs from those forecasted for 2018 were the Energy Efficient Appliances and Devices Program, the Smart $aver EE Program, and the

Power Manager Program. These impacts were achieved largely due to elevated participation of customers adopting measures at a higher rate than originally forecasted. The avoided cost savings impacts for these three programs, compared to those originally filed for Vintage 2018, exceeded the projections by 110 percent, 20 percent, and 6 percent, respectively. The energy savings impacts for the first two of these programs, compared to those originally filed for Vintage 2018, exceeded the projections by 100 percent and 26 percent, respectively. Energy impacts are not tracked for the Power Manager DSM Program.

The nonresidential offering with the largest percentage increase in avoided cost savings impacts from those forecasted for 2018 was the Prescriptive portion of the Nonresidential Smart $aver Energy Efficient Products and Assessments Program. This produced 206 percent of expected avoided costs and 179 percent of expected energy savings.

Q. HAVE ANY PROGRAMS SIGNIFICANTLY UNDERPERFORMED RELATIVE TO THEIR ORIGINAL ESTIMATES IN VINTAGE 2018?

A. Yes. In the residential market, the two lowest ranked programs, in terms of percentage variations in avoided costs from those forecasted for 2018, are the EE Education Program and the Income-Qualified EE and Weatherization Program.

During 2018, the EE Education Program produced 75 percent of forecasted avoided costs, 87 percent of forecasted energy savings, and 87 percent of forecasted capacity savings. The underperformance of this program is due to lower than forecasted program participation.

The Income-Qualified EE and Weatherization Program produced 95 percent of forecasted avoided costs, 99 percent of forecasted energy savings, and 88 percent of forecasted capacity savings. The underperformance of this program is due to lower than forecasted program participation.

VIII. PROJECTED RESULTS

Q. PLEASE PROVIDE A PROJECTION OF THE RESULTS THAT DEC EXPECTS TO SEE FROM IMPLEMENTATION OF ITS PORTFOLIO OF PROGRAMS.

A. Consistent with its practices during the save-a-watt pilot, DEC will update the actual and projected EE achievement levels in its annual Rider EE filing to account for any program or measure additions based on the performance of programs, market conditions, economics and consumer demand. The actual results for Vintage 2018 and projection of the results for Vintages 2019 and 2020, as well as the associated projected program expense for DEC's portfolio of programs, are summarized in the following table:

DEC System (NC & SC) DSM/EE Portfolio 2018 Actual Results and 2019-2020 Projected Results			
	2018	2019	2020
Annual System MW	1,048	1,040	1,119
Annual System Net GWh	862	781	695
Annual Program Costs (Millions)	$159	$145	$136

The Vintage 2019 projections are similar to those provided by DEC and reported to the Commission in Sub 1164. The projected impacts and cost for Vintage 2020 are different as a result of updated participation estimates as well as the EM&V results that have been applied to the following programs: PowerShare; Nonresidential Smart $aver Energy Efficient Products and Assessment – Prescriptive; Residential Energy Efficient Appliances and Devices; Power Manager Load Control Service; Residential Smart $aver EE - HVAC; Residential Income-Qualified EE and Weatherization Assistance; Small Business Energy Saver; Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom; Residential Energy Efficient Appliances and Devices – Online Savings Store; Residential Energy Assessment; EnergyWise for Business; and Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom.

IX. <u>EM&V ACTIVITIES</u>

Q. CAN YOU PROVIDE INFORMATION ON THE COMPANY'S EM&V ACTIVITIES?

A. Yes. Evans Exhibit 11 provides a summary of the estimated activities and timeframe for completion of EM&V by program. Evans Exhibit 12 provides the actual and expected dates when the EM&V for each program or measure will become effective. Evans Exhibits A through L provide the detailed completed EM&V reports or updates for the following programs:

Evans Exhibit	EM&V Reports	Report Finalization Date	Evaluation Type
A	PowerShare Program: 2017	3/20/2018	Impact
B	Nonresidential Smart $aver Energy Efficient Products and Assessment – Prescriptive: 2015-2017	3/25/2018	Process and Impact
C	Residential Energy Efficient Appliances and Devices – Retail Lighting: 2016-2017	4/6/2018	Process and Impact
D	Power Manager Load Control Service: 2017	5/1/2018	Impact
E	Residential Smart $aver EE – HVAC: 2016-2017	5/25/2018	Process and Impact
F	Income-Qualified EE and Weatherization Assistance: 2015-2016	6/13/2018	Process and Impact
G	Small Business Energy Saver: 2016-2017:	9/10/2018	Process and Impact
H	Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom: 2014-2015 (Revised)	9/27/2018	Impact
I	Residential Energy Efficient Appliances and Devices – Online Savings Store: 2015-2017	10/4/2018	Process and Impact
J	Duke Energy Carolinas Residential Energy Assessments Program – 2016-2017	10/12/2018	Process and Impact
K	EnergyWise for Business: 2017	11/9/2018	Process and Impact
L	Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom: 2016-2017	11/29/2018	Process and Impact

Q. HOW WERE EM&V RESULTS UTILIZED IN DEVELOPING THE PROPOSED RIDER 11?

A. The Company has applied EM&V in accordance with the process as agreed upon by DEC, SACE, and the Public Staff and approved by the Commission in its *Order Approving DSM/EE Rider and Requiring Filing of Proposed Customer Notice* issued on November 8, 2011, in Docket No. E-7, Sub 979 ("EM&V Agreement"). In accordance with the Sub 1032 Order, DEC continues to apply EM&V in accordance with the EM&V Agreement.

Actual participation and evaluated load impacts are used prospectively to update net lost revenues estimated for 2018. In addition, the EM&V Agreement provides that initial EM&V results shall be applied retrospectively to program impacts that were based upon estimated impact assumptions derived from industry standards (rather than EM&V results for the program in the Carolinas), in particular the DSM/EE programs initially approved by the Commission in Docket No. E-7, Sub 831 ("Sub 831") programs, with the exception of the Nonresidential Smart $aver Custom Rebate Program and the Low-Income EE and Weatherization Assistance Program.

For purposes of the vintage true-ups and forecast, initial EM&V results are considered actual results for a program and continue to apply until superseded by new EM&V results, if any. For all new programs and pilots approved after the Sub 831 programs, DEC will use the initial estimates of impacts until it has EM&V results, which will then be applied retrospectively back to the beginning of the offering and will be considered actual results until a second EM&V is performed.

All program impacts from EM&V apply only to the programs for which the analysis was directly performed, though DEC's new product development may utilize actual impacts and research about EE and conservation behavior directly attributed to existing DEC program offerings.

Since program impacts from EM&V in this Application apply only to the programs for which the analysis was directly performed, there are no costs associated with performing additional EM&V for other measures, other than the original cost for EM&V for these programs. As indicated in previous proceedings, DEC estimates that 5 percent of total portfolio program costs will be required to adequately and efficiently perform EM&V on the portfolio.

The level of EM&V required varies by program and depends on that program's contribution to total portfolio, the duration the program has been in the portfolio without material change, and whether the program and administration is new and different in the energy industry. DEC estimates, however, that no additional costs above 5 percent of total program costs will be associated with performing EM&V for all measures in the portfolio.

Q. WHICH PROGRAMS CONTAIN IMPACT RESULTS BASED ON CAROLINAS-BASED EM&V?

A. The following programs have Carolinas-based EM&V applied and have been provided as Evans Exhibits A through L:

PowerShare 2017 (Evans Exhibit A); Nonresidential Smart $aver Energy Efficient Products and Assessment – Prescriptive 2015-2017 (Evans Exhibit B); Residential Energy Efficient Appliances and Devices – Retail Lighting 2016-2017 (Evans Exhibit C); Power Manager Load Control Service 2017 (Evans Exhibit D); Residential Smart $aver EE - HVAC 2016-2017 (Evans Exhibit E); Residential Income-Qualified EE and Weatherization Assistance 2015-2016 (Evans Exhibit F); Small Business Energy Saver 2016-2017 (Evans Exhibit G); Revised Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom 2014-2015 (Evans Exhibit H);

Residential Energy Efficient Appliances and Devices – Online Savings Store 2015-2017 (Evans Exhibit I); Residential Energy Assessment 2016-2017 (Evans Exhibit J); EnergyWise for Business 2017 (Evans Exhibit K); and Nonresidential Smart $aver Energy Efficient Products and Assessment – Custom 2016-2017 (Evans Exhibit L).

X. RIDER IMPACTS

Q. HAVE THE PARTICIPATION RESULTS AFFECTED THE VINTAGE 2018 EXPERIENCE MODIFICATION FACTOR?

A. Yes. The EMF in Rider 11 accounts for changes to actual participation relative to the forecasted participation levels utilized in DEC's Vintage 2016 Rider EE. As DEC receives actual participation information, it is then able to update participation-driven actual avoided cost benefits from its DSM/EE programs and the net lost revenues derived from its EE programs. For example, as previously mentioned, the EE Education Program and Income-Qualified EE and Weatherization Program underperformed relative to their original participation targets. As a result, the EMF will be reduced to reflect the lower costs, net lost revenues, and shared savings incentive (PPI) associated with these programs. On the other hand, higher-than-expected participation in programs, such as the Energy Efficient Appliances and Devices and the Residential Smart $aver EE programs, cause the EMF to reflect higher program costs, net lost revenues, and PPI. In addition to the above, the EMF is impacted by the application of EM&V results.

Q. HOW WILL EM&V BE INCORPORATED INTO THE VINTAGE 2017 TRUE-UP COMPONENT OF RIDER 11?

A. All of the final EM&V results that have been received by DEC as of December 31, 2018 have been applied prospectively from the first day of the month immediately following the month in which the study participation sample for the EM&V was completed in accordance with the EM&V Agreement. Accordingly, for any program for which DEC has received EM&V results, the per participant impact applied to the projected program participation in Vintage 2018 is based upon the actual EM&V results that have been received.

Q. PLEASE DESCRIBE HOW DEC CALCULATED FOUND REVENUES.

A. Consistent with the Sub 1032 Order and with the "Decision Tree" found in Appendix A of the Commission's February 8, 2011 order in Docket No. E-7, Sub 831, and approved for the new portfolio in the Sub 1032 Order, possible found revenue activities were identified, categorized, and netted against the net lost revenues created by DEC's EE programs. Found revenues may result from activities that directly or indirectly result in an increase in customer demand or energy consumption within DEC's service territory. Load-building activities such as these, however, would not be considered found revenues if they (1) would have occurred regardless of DEC's activity, (2) were a result of a Commission-approved economic development activity not determined to produce found revenues, or (3) were part of an unsolicited request for DEC to engage in an activity that supports efforts to grow the economy. On the other hand, found revenues would occur for load growth that did not fall into the previous categories but was directly or indirectly a result of DEC's activities. Based on the results of this work, all potential found revenue-related activities are identified and categorized in Evans Exhibit 4. Additionally, consistent with the methodology employed and approved in Docket No. E-7, Sub 1073, as discussed in detail in the testimony of Company witness Timothy J. Duff in Docket No. E-7, Sub 1050, DEC also proposes to adjust calculation of found revenues to account for the impacts of activities outside of its EE programs that it undertakes that reduce customer consumption – i.e., "negative found revenues."

Q. PLEASE DISCUSS THE ADJUSTMENT THAT DEC PROPOSES TO MAKE TO ITS FOUND REVENUE CALCULATION TO ACCOUNT FOR NEGATIVE FOUND REVENUES.

A. DEC continues to aggressively pursue, with its outdoor lighting customers, the replacement of aging Mercury Vapor lights with Light Emitting Diode ("LED") fixtures. By moving customers past the standard High Pressure Sodium ("HPS") fixture to an LED fixture in this replacement process, DEC is generating significant energy savings. These energy savings, since they come outside of DEC's EE programs, are not captured in DEC's calculation of lost revenues. Since one of the activities that DEC includes in the calculation of found revenues is the increase in consumption from new outdoor lighting fixtures added by DEC, it is logical and symmetrical to count the energy consumption reduction realized in outdoor lighting efficiency upgrades. The Company does not take credit for the entire efficiency gain from replacing Mercury Vapor lights, but rather only the efficiency gain from replacing HPS with LED fixtures. In addition, DEC has not recognized any negative found revenues in excess of the found revenues calculated; in other words, the net found revenues number will never be negative and have the effect of increasing net lost revenue calculations. In Docket No. E-7, Sub 1073, the Commission found inclusion of negative found revenues associated with the Company's initiative to replace Mercury Vapor lighting with LED fixtures in the calculation of net found revenues to be reasonable, and the Company proposes to continue to this practice in Rider 11.

Q. HAS THE OPT-OUT OF NONRESIDENTIAL CUSTOMERS AFFECTED THE RESULTS FROM THE PORTFOLIO OF APPROVED PROGRAMS?

A. Yes, the opt-out of qualifying nonresidential customers has had a negative effect on DEC's overall nonresidential impacts. For Vintage 2018, DEC had 4,514 eligible customer accounts opt out of participating in DEC's nonresidential portfolio of EE programs. In addition, DEC had 5,075 eligible customer accounts opt out of participating in DEC's nonresidential DSM programs. It is important to note that during 2018, 22 opt-out eligible customers opted-in to the EE portion of the Rider and four opt-out eligible customers opted-in to the DSM portion of the Rider.

Q. PLEASE EXPLAIN THE INCREASE IN THE NUMBER OF OPT-OUTS IN 2018 COMPARED TO 2017.

A. Because the Company does not take part in the customers' economic benefit analysis or the customers' decision-making process, it is difficult to provide a concrete explanation as to the reason for the increase in opt-outs. As nonresidential customers become better equipped at determining the economic benefit of participating in the Company's DSM/EE programs versus the costs associated with opting into the DSM/EE rider, they are more knowledgeable on the best allocation of their resources. The Company believes this knowledge, coupled with increases to the Rider EE rates, is leading to the increase in eligible customer opt-outs.

Q. IS THE COMPANY CONTINUING ITS EFFORTS TO ATTRACT THE PROGRAM PARTICIPATION OF OPT-OUT ELIGIBLE CUSTOMERS?

A. Yes. Increasing the participation of opt-out eligible customers in DSM and EE programs is very important to the Company. As discussed earlier, DEC continues to evaluate and revise its nonresidential portfolio of programs to accommodate new technologies, eliminate product gaps, remove barriers to participation, and make its programs more attractive. It also continues to leverage its Large Account Management Team to make sure customers are informed about product offerings and the March Opt-in Window.

XI. PPI CALCULATION

Q. PLEASE PROVIDE AN OVERVIEW OF THE COST RECOVERY AND INCENTIVE MECHANISM APPROVED IN DOCKET NO. E-7, SUB 1032.

A. Pursuant to the Sub 1032 Order, the Mechanism allows DEC to (1) recover the reasonable and prudent costs incurred for adopting and implementing DSM and EE measures in accordance with N.C. Gen. Stat. § 62-133.9 and Commission Rules R8-68 and R8-69; (2) recover net lost revenues incurred for up to 36 months of a measure's life for EE programs; and (3) earn a PPI based upon the sharing of 11.5% of the net savings achieved through DEC's DSM/EE programs on an annual basis.

Q. PLEASE EXPLAIN HOW DEC DETERMINES THE PPI.

A. First, DEC determines the net savings eligible for incentive by subtracting the present value of the annual lifetime DSM/EE program costs (excluding approved low-income programs as described below) from the net present value of the annual lifetime avoided costs achieved through the Company's programs (again, excluding approved low-income programs). The Company then multiplies the net savings eligible for incentive by the 11.5% shared savings percentage to determine its pretax incentive.

Q. PLEASE EXPLAIN IF DEC EXCLUDES ANY PROGRAMS FROM THE DETERMINATION OF ITS PPI CALCULATION.

A. Consistent with the Sub 1032 Order, DEC has excluded the impacts and costs associated with the Income-Qualified EE and Weatherization Program from its calculation of the PPI. At the time the program was approved, it was not cost-effective, but was approved based on its societal benefit. As such, although DEC is eligible to recover the program costs and 36 months of the net lost revenues associated with the impacts of the program, it does not earn an incentive, and the negative net savings associated with these types of programs is not factored into the calculation of the annual shared savings PPI.

XII. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

(WHEREUPON, Supplemental Miller Exhibits 1, 2, 3 and 7 are marked for identification as prefiled and received into evidence.)

(WHEREUPON, the prefiled supplemental testimony of CAROLYN T. MILLER is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1192

In the Matter of	)	
Application of Duke Energy Carolinas, LLC	)	**SUPPLEMENTAL**
for Approval of Demand-Side Management	)	**TESTIMONY OF**
and Energy Efficiency Cost Recovery Rider	)	**CAROLYN T. MILLER FOR**
Pursuant to N.C. Gen. Stat. § 62-133.9 and	)	**DUKE ENERGY CAROLINAS,**
Commission Rule R8-69	)	**LLC**

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Carolyn T. Miller. My business address is 550 South Tryon Street, Charlotte, North Carolina.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a Rates Manager for Duke Energy Carolinas, LLC ("DEC" or the "Company").

Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN SUPPORT OF DEC'S APPLICATION IN THIS DOCKET?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL TESTIMONY?

A. The purpose of my supplemental testimony is to support the filing of Supplemental Exhibits that reflect revisions to Miller Exhibits 1, 2, 3 and 7 and Evans Exhibits 1, 2 and 3 filed February 26, 2019 in this proceeding. These revisions are due to two corrections:

1. Updates to lost revenues and PPI (Program Performance Incentives) based on Evaluation, Measurement and Verification ("EM&V") adjustments for Vintages 2017, 2018, 2019 and 2020.

2. Adjustments to Vintage 2018 program costs resulting from the Public Staff of the North Carolina Utilities Commission's ("Public Staff") program cost audit.

Q. WHY IS THE COMPANY UPDATING LOST REVENUE AND PPI FOR VINTAGES 2017, 2018 AND 2020?

A. As a result of its internal review process, the Company determined that two EM&V updates were necessary. The first update is a result of an input error in the HVAC Smart $aver Evaluation Report dated May 1, 2016 - April 30, 2017. The second update is to use lighting load shapes based on assumed hours of operation instead of a ratio of hours of operation and percentage of time the lights operate. The result of these two adjustments is a decrease in lost revenue of ($74,096) and an increase in PPI of $92,837. The Public Staff was notified of these necessary updates to the HVAC Smart $aver program and the lighting program. Supporting Supplemental Evans Exhibits 1 and 2 reflecting the adjustments are attached and subject to final Public Staff review.

Q. WHY IS THE COMPANY REVISING VINTAGE 2018 PROGRAM COSTS?

A. During the course of the Public Staff's audit of Vintage 2018 program costs, the Public Staff and the Company discovered some charges that were not directly related to Demand-Side Management ("DSM") or Energy Efficiency ("EE") programs. The Company has agreed to remove the total costs in the amount of ($280.00) from Vintage 2018 program costs. In addition, it was determined that certain MYHER-related invoices totaling ($468,240) on a system basis were inadvertently misallocated. The Company is revising Evans Exhibit 1, page 4 and Evans Exhibit 3, page 1 to reflect both of these adjustments.

Q. HOW DO THESE CHANGES IMPACT DEC'S REQUESTED RATES?

A. As a result of these changes, the overall residential rate will decrease from

0.4848 to 0.4835 cents per kilowatt-hour ("kWh"). There are no changes to non-residential rates.

Q. WHAT SUPPLEMENTAL EXHIBITS WILL BE FILED IN CONJUNCTION WITH YOUR SUPPLEMENTAL TESTIMONY?

A. Only the exhibits impacted as a result of the changes outlined above will be re-filed as Supplemental Exhibits. A description of the specific pages and contents that have been revised is provided below:

- Supplemental Miller Exhibit 1: Summary of Rider EE Exhibits and Factors
- Supplemental Miller Exhibit 2, page 3: Vintage 2017 True-up of Year 1 and Year 2 Rate Calculation
- Supplemental Miller Exhibit 2, page 4: Vintage 2018 True-up of Year 1 Rate Calculation
- Supplemental Miller Exhibit 2, page 5: Vintage 2019 Estimated Year 2 Lost Revenues
- Supplemental Miller Exhibit 2, page 6: Vintage 2020 Estimated Program Costs, Earned Incentive and Lost Revenues
- Supplemental Miller Exhibit 3, pages 13 through 16: Vintage 2018 Interest Calculations
- Supplemental Miller Exhibit 7: Revised Tariff Sheet
- Supplemental Evans Exhibit 1, page 3: Vintage 2017 Load Impacts and Estimated Revenue Requirements
- Supplemental Evans Exhibit 1, page 4: Vintage 2018 Load

Impacts and Estimated Revenue Requirements

- Supplemental Evans Exhibit 1, page 5; Vintage 2020 Load Impacts and Estimated Revenue Requirements
- Supplemental Evans Exhibit 2, pages 2 through 5: North Carolina Net Lost Revenue Estimates for Vintages 2015 - 2020
- Supplemental Evans Exhibit 3, page 1: Carolinas System Level Program Costs Years 2014 through 2018

Q. WHAT ARE THE FINAL RATES REQUESTED IN THE APPLICATION OF DEC FOR APPROVAL OF ITS DSM/EE RIDER 11 FOR 2020 AS A RESULT OF THESE REVISIONS?

A. Pursuant to the provisions of N.C. Gen. Stat. § 62-133.9 and Commission Rule R8-69, the Company requests Commission approval of the following annual billing adjustments (all shown on a cents per kWh basis, including gross receipts tax and regulatory fee):

Residential Billing Factors	**¢/kWh**
Residential Billing Factor for Rider 11 Prospective Components	0.3891
Residential Billing Factor for Rider 11 EMF Components	0.0944

Non-Residential Billing Factors for Rider 11 Prospective Components	**¢/kWh**
Vintage 2017 EE Participant	0.0312
Vintage 2018 EE Participant	0.0549
Vintage 2019 EE Participant	0.0509

Non-Residential Billing Factors for Rider 11 Prospective Components	¢/kWh
Vintage 2020 EE Participant	0.3082
Vintage 2020 DSM Participant	0.1101

Non-Residential Billing Factors EMF Component	¢/kWh
Vintage 2018 EE Participant	0.0278
Vintage 2018 DSM Participant	0.0077
Vintage 2017 EE Participant	0.0645
Vintage 2017 DSM Participant	0.0000
Vintage 2016 EE Participant	0.0512
Vintage 2016 DSM Participant	0.0001
Vintage 2015 EE Participant	0.0064
Vintage 2015 DSM Participant	0.0001

Q. DOES THIS CONCLUDE YOUR PRE-FILED SUPPLEMENTAL TESTIMONY?

A. Yes.

(WHEREUPON, Supplemental Evans Exhibits 1, 2 and 3 are marked for identification as prefiled and received into evidence.)

(WHEREUPON, the rebuttal testimony of ROBERT P. EVANS is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1192

In the Matter of	)	
Application of Duke Energy Carolinas, LLC	)	**REBUTTAL TESTIMONY OF**
for Approval of Demand-Side Management	)	**ROBERT P. EVANS FOR**
and Energy Efficiency Cost Recovery Rider	)	**DUKE ENERGY CAROLINAS,**
Pursuant to N.C. Gen. Stat. § 62-133.9 and	)	**LLC**
Commission Rule R8-69	)	

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION WITH DUKE ENERGY.

A. My name is Robert P. Evans, and my business address is 410 S. Wilmington Street, Raleigh, North Carolina. I am employed by Duke Energy Corporation ("Company") as Senior Manager-Strategy and Collaboration for the Carolinas in the market solutions regulatory strategy and evaluation group.

Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN SUPPORT OF DEC'S APPLICATION IN THIS DOCKET?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to portions of the testimony of Forest Bradley-Wright filed on behalf of the North Carolina Justice Center ("NCJC") and the Southern Alliance for Clean Energy ("SACE"). I would like to clarify some interactions between the Company and the Collaborative described by Witness Bradley-Wright.

Q. ARE YOU TESTIFYING ON BEHALF OF THE COLLABORATIVE?

A. No. While a longtime member and former Collaborative facilitator, I cannot speak or testify on behalf of the Collaborative.

Q. IS WITNESS BRADLEY-WRIGHT TESTIFYING ON BEHALF OF THE COLLABORATIVE?

A. No. Because the Collaborative was created as an advisory forum, participants may neither testify nor speak on behalf of the Collaborative without its unanimous consent as a whole. Members of the Collaborative may submit comments to this

Commission representing the positions of their respective organizations on matters related to the Collaborative and the Company's programs in general.

Q. YOU INDICATED THAT CERTAIN INTERACTIONS BETWEEN THE COMPANY AND THE COLLABORATIVE NEED TO BE CLARIFIED. CAN YOU ELABORATE ON YOUR STATEMENT?

A. Yes. Although Witness Bradley-Wright has not had the opportunity to participate in the Collaborative until recently, the Company welcomes his enthusiasm and active participation. However, several of his statements warrant a response from the Company. I am concerned by the statement beginning on line 16 of page 12 of his testimony:

> *Despite the dedication of extensive time, energy, and resources by Duke and participating stakeholders, these efforts have produced little to no tangible results, having neither been implemented by Duke directly nor resulted in further specific action by the Commission.*

I am also concerned about that statement when it is coupled with the statement beginning on line 15 of page 16 of his testimony:

> *Over the past few months Duke has presented several program changes for discussion, but rather than engaging stakeholders earlier in the process, this typically occurs after their ideas about how to proceed have been nearly or fully baked.*

Finally, I would like to respond to the statement on line 18 of page 24 of his testimony:

> *Stakeholders are aware of, and frustrated by, the lack of tangible results from the work of the Collaborative in past years.*

Q. DO YOU AGREE THAT THE COLLABORATIVE HAS NOT ALLOWED PARTICIPANTS INPUT WITH RESPECT TO PROGRAM CHANGES?

A. No. Witness Bradley-Wright provided examples based on his concerns that the Collaborative has had limited potential to provide the Company feedback, thereby diminishing the value that the Collaborative could bring with respect to program modification and development. The programs identified were the Residential Smart $aver ("Smart $aver"), Pay for Performance, and Neighborhood Energy Saver ("NES") programs. The following are comments relating to his concerns.

- **Smart $aver**: The Smart $aver program's difficulties in achieving cost effectiveness have been noted in the semi-annual program updates and have been discussed for some time by the Collaborative. In 2016, the addition of the quality installation procedure was cited as a means of increasing program cost effectiveness. In 2017, the Company added referral fees to reduce program costs because of cost effectiveness challenges. In addition, the Commission's directive to file program modifications was well known to Collaborative members, many of whom are also intervenors. The presentation in September 2018 may have been the first time Witness Bradley-Wright became aware of the issue because it was his first time joining the Collaborative.
- **Pay for Performance:** In response to questions and recommendations from the Collaborative, the Company added language to the vendor contract prior to executing it, initiated talks with additional non-profits regarding their willingness to participate in the program, and consulted with the program development team to ensure that if the program is expanded beyond a pilot,

members' recommendations will be considered. In fact, the delay in implementing the recommendations regarding non-profits from the outset of the pilot program reflected the first non-profit's staffing capabilities, not the Company's unwillingness to include input from the Collaborative.

- **NES:** The Company began to solicit feedback from the Collaborative in December 2018 when background information about the proposed NES program expansion was distributed via email. The topic was covered again in January 2019 with program management staff. In February 2019, program staff joined the conference call with the Collaborative to hear suggestions and respond to questions. Witness Bradley-Wright is correct when he says the Company did not offer a detailed description initially. The Company intentionally did not distribute the detailed list of measures being considered internally, to keep the discussion open-ended so that members would feel free to make suggestions beyond the scope of the ones the Company was already proposing. Nevertheless, Collaborative members asked to be given the technical list for reference, and the Company emailed it to them the same day. Additionally, the window for the Collaborative to offer suggestions was open from the January 2019 Collaborative meeting to February 22, approximately three weeks.

Finally, I note that some changes to programs need to be made quickly, because program managers are encouraged to respond to customer needs and market changes as quickly as possible. In those cases, the Collaborative membership is consulted as soon as possible for input.

Q. DO YOU AGREE THAT THE EFFORTS OF THE COLLABORATIVE HAVE NOT PRODUCED TANGIBLE RESULTS?

A. No. Witness Bradley-Wright provided examples of what the Collaborative has worked on developing. These include: On-Bill Financing, Combined Heat and Power, Development of a Technical Resource Manual, and others including Non-energy benefits.

The On-Bill Financing ("OBF") working group determined that it was not cost effective to modify the Company's existing Customer Information / Billing System ("CIBS") to accommodate OBF at this time; however, it was agreed that OBF functionality would be included in the Company's next generation CIBS. It is expected that this effort should come to fruition in 2022.

As to Combined Heat and Power ("CHP"), consistent with the outcome of the Collaborative's discussions on potential changes to enhance the Company's programs' ability to incentivize CHP, upon clarification of the definition of eligible CHP, the Company modified its program tariffs to promote both Topping and Bottom Cycling CHP.

With respect to the development of a Technical Resource Manual ("TRM"), this issue has come up before. A taskforce was put together to evaluate the implementation of a TRM. Given the varied interests and perceived lack of benefits from a TRM, this taskforce was disbanded. The TRM issue has been discussed by the Collaborative several times, but it reached no consensus with respect to benefits. Therefore, continuing to discuss the TRM was not a productive use of the Collaborative's time and resources.

The topic of Non-Energy Benefits ("NEBs") has been brought up several times by Collaborative members for use in program cost effectiveness studies. The Collaborative seemed to agree that NEBs do exist; however, there was no consensus as to the use of NEBs in determining program cost effectiveness.

These examples illustrate that the Collaborative has produced tangible results and explored implementing the proposals mentioned by Witness Bradley-Wright. The Collaborative is not intended to rubber-stamp any and all proposals that come before it. Thus, when some proposals are ultimately not implemented, it does not represent a failure on the part of the Collaborative. Additionally, if circumstances were to change, the Collaborative could re-examine these proposals.

Q. HAS THE COMPANY REACHED OUT TO THE COLLABORATIVE MEMBERSHIP FOR IDEAS RELATED TO NEW PROGRAMS?

A. Yes. To facilitate proposals for new programs, the Company developed a new program template ("template"). The template lays out what information program staff needs to evaluate a program's cost effectiveness and implementation strategies. The Company has distributed the template to stakeholders in the past (the most recent distribution was February 21, 2019), regularly reminds the Collaborative members regarding the template and offers to provide it directly via email to Collaborative members upon request, to keep it easily accessible.

Collaborative members are encouraged to provide feedback with respect to both new and existing programs. The Company's programs are not static; they can and do evolve over time. That is why the template must be utilized so that specific recommendations can be evaluated based on the data at the time, which is a more effective and useful process than generalized requests for program additions and modifications.

Q. **DO YOU AGREE WITH WITNESS BRADLEY-WRIGHT THAT IT IS NECESSARY FOR THE COMMISSION TO SEEK COMMENT FROM COLLABORATIVE PARTICIPANTS ON WHETHER ON NOT THE COLLABORATIVE HAS "SUFFICIENTLY CORRECTED ITS COURSE"?**

A. No, I do not. Collaborative members can intervene in DSM/EE related proceedings and provide input with respect to any perceived inadequacies. This would be the appropriate method to put such opinions into the record before the Commission so that the Company may respond, as appropriate, on the record.

Q. **DO YOU AGREE WITH WITNESS BRADLEY-WRIGHT REGARDING THE NEED TO REVISE THE COMPANY'S ANNUAL RIDER FILING TO ADHERE TO THE FORMAT USED IN ARKANSAS?**

A. No. The Company believes that its already voluminous annual filing (over 1,700 pages) complies with the Commission's well-considered Rule R8-68 and contains all the pertinent information associated with the Company's programs' performance and the associated requested cost recovery. Additionally, an interested party to the proceeding may submit data requests to ascertain relevant information not included in the filing, to make that information part of the record if necessary. Stakeholders in both North and South Carolina are familiar with the format employed today, and making a change would likely only lead to stakeholder confusion and unnecessary time to adopt a format that differs from the Commission's already comprehensive procedures set out in its Rule.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

(WHEREUPON, Application of Duke Energy Carolinas, LLC, is admitted into evidence.)

COMMISSIONER BROWN-BLAND: The intervenors --

MR. SMITH: I have nothing to enter.

COMMISSIONER BROWN-BLAND: Thank you.

MS. THOMPSON: Yes. Thank you, Madam Chair. The North Carolina Justice Center and Southern Alliance for Clean Energy filed the direct testimony of Forest Bradley-Wright. Two corrections are needed to Witness Bradley-Wright's direct testimony. On page 11, lines 3 and 5, the references to the Commission should instead read the Commission-approved settlement, and the same change should be made on page 18, line 15. And with those corrections, I would move that Mr. Bradley-Wright's prefiled direct testimony consisting of 28 pages be admitted into the record as though given orally from the stand and that his five exhibits premarked as FWB-1 to FWB-5 also be admitted into the record.

COMMISSIONER BROWN-BLAND: All right. Without objection -- and I note that the corrections to the direct testimony of Witness Bradley-Wright are just small cleanup items so, if there's no objection, we will receive that testimony with the corrections of Witness Bradley-Wright and it will be received into evidence as if given orally from the witness stand, and his five exhibits will also be received into evidence and they will be identified -- marked as they were identified when prefiled.

MS. THOMPSON: Thank you.

(WHEREUPON, Exhibits FBW-1 through FBW-5 are marked for identification as prefiled and received into evidence.)

(WHEREUPON, the prefiled direct testimony of FOREST BRADLEY-WRIGHT is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. E-7, SUB 1192

In the Matter of: Application of Duke Energy Carolinas, LLC, for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant to N.C.G.S. §62-133.9 and Commission Rule R8-69	))))))))	**TESTIMONY OF FOREST BRADLEY-WRIGHT ON BEHALF OF THE NORTH CAROLINA JUSTICE CENTER AND SOUTHERN ALLIANCE FOR CLEAN ENERGY**

EXHIBITS

FBW-1	Forest Bradley-Wright Resume
FBW-2	Direct Testimony of Chris Neme on behalf of NC Justice Center, Southern Alliance for Clean Energy, and Natural Resources Defense Council in N.C.U.C. Docket E-7, Sub 1164 (May 22, 2018)
FWB-3	PowerPoint from DEC Collaborative
FBW-4	DEC Community Outreach Programs Chart
FWB-5	Arkansas Public Service Commission Standardized Annual Reporting Workbook

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I. Introduction and Qualifications

Q: PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A: My name is Forest Bradley-Wright. I am the Energy Efficiency Director for Southern Alliance for Clean Energy ("SACE"), and my business address is 3804 Middlebrook Pike, Knoxville, Tennessee.

Q: ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A: I am testifying on behalf of SACE and the North Carolina Justice Center ("NC Justice Center").

Q: PLEASE SUMMARIZE YOUR QUALIFICATIONS AND WORK EXPERIENCE.

A: I graduated from Tulane University in 2001 and in 2013 received my Master of Arts degree from Tulane in Latin America Studies with an emphasis on international development, sustainability, and natural resource planning. My work experience in the energy sector began in 2001 at Shell International Exploration and Production Co., where I served as Sustainable Development Team Facilitator.

From 2005 to 2018, I worked for the Alliance for Affordable Energy. As the Senior Policy Director, I represented the organization through formal intervenor filings and before regulators at both the Louisiana Public Service Commission and the New Orleans City Council on issues such as integrated resource planning, energy-efficiency rulemaking and program design, rate cases, utility acquisition, power plant certifications, net metering, and utility scale renewables. As a consultant, I also prepared and filed intervenor comments on renewable energy dockets before the Mississippi and Alabama Public Service Commissions.

Since 2018, I have been the Energy Efficiency Director for SACE. In this role, I am responsible for leading dialogue with utilities and regulatory officials on issues related to energy efficiency in resource planning, program design, budgets, and cost recovery. This takes the form of formal testimony, comments, presentations, and/or informal meetings in the states of Georgia, Florida, North Carolina, South Carolina, Mississippi and in jurisdictions under the Tennessee Valley Authority. A copy of my resume is included as Exhibit FBW-1.

Q: HAVE YOU BEEN AN EXPERT WITNESS ON ENERGY-EFFICIENCY MATTERS BEFORE OTHER REGULATORY COMMISSIONS?

A: Yes, I have filed expert witness testimony in Georgia related to Georgia Power Company's 2019 Demand Side Management application. This is my first time submitting testimony to the North Carolina Utilities Commission ("Commission").

II. Testimony Overview

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A: The purpose of my testimony is to provide a high-level review of the performance of DEC's DSM/EE portfolio and to comment on ongoing work with the Duke Collaborative. I will discuss the following topics:

- DEC's performance in delivering energy-efficiency savings to its customers over the past year
- The Company's energy-savings projections

- Activity at the Duke Collaborative and its role in supporting continued success of DEC DSM/EE efforts
- Recommendations concerning Commission oversight and the benefits of adopting a standardized annual reporting template

Q: PLEASE SUMMARIZE YOUR OVERALL IMPRESSION OF DEC'S DSM/EE PERFORMANCE.

A: DEC continues to be a regional leader for energy efficiency in the Southeast, while delivering significant energy and cost savings to its customers. For the second consecutive year, DEC has surpassed the one-percent annual savings target agreed to in a settlement with SACE and other parties in the Duke-Progress merger. DEC remains the only utility to have achieved this level of savings in the Southeast. DEC continues to prioritize refinement of its portfolio of programs to achieve increased participation and maintain cost effectiveness.

But there remains room for improvement. DEC continues to rely too heavily on short-term, behavioral programs, particularly My Home Energy Report, which accounted for 57% of all energy savings achieved from residential energy-efficiency programs in 2018 (a modest decline from 63% in 2017).

Additionally, SACE and NC Justice Center continue to stress the importance of providing energy and bill savings for DEC's low-income customers. More efforts should be targeted at these customers, who have the highest energy burdens (the highest percentage of income spent on residential energy bills), and consequently, the most need for cost-saving energy-efficiency programs. SACE and NC Justice Center appreciate the increased strides made over the last year and continued engagement on this question at the Collaborative.

III. <u>DEC's Energy Savings Achievements and Projections</u>

Q: DID DEC MEET THE ENERGY SAVINGS TARGETS ESTABLISHED DURING THE DUKE ENERGY AND PROGRESS MERGER?

A: DEC again met the one-percent annual savings target, but appears to have fallen short of reaching the seven-percent cumulative target by 2018 that the Company committed to in settlement during the Progress Merger ("Merger Settlement").[1] In 2018, DEC delivered 811 gigawatt-hours ("GWh") of efficiency savings at the meter, equal to 1.05% of the previous year's retail sales.[2] This reflects a 7.8% decline in incremental savings from the previous year, for which DEC reported annual savings of 1.11% of the previous year's retail sales.[3] Nevertheless, DEC should be commended for having again having met and exceeded the one-percent annual savings target. This performance is even more remarkable against the backdrop of a disappointing further decline in commercial and industrial customers contributing to the DSM/EE rider.

By contrast, it does not appear that DEC met its seven-percent cumulative savings target from 2014 to 2018. Despite achieving one-percent annual savings in 2017 and 2018, the Company came up short in 2014, 2015, and 2016, thereby

[1] The Merger Settlement with SACE, South Carolina Coastal Conservation League, and Environmental Defense Fund calls for annual energy savings of at least 1% of prior-year retail sales beginning in 2015 and cumulative savings of at least 7% over the period from 2014 through 2018. The Merger Settlement was approved by the Public Service Commission of South Carolina ("PSCSC") in Docket No. 2011-158-E.
[2] Identify calculation methodology and provide citation.
[3] DEC reports energy savings as "Net at Plant" or at the generator level.

undermining overall cumulative savings, which were 4.58%.[4] In light of this, and the persistent need for more savings from efficiency programs in DEC's service territory, establishment of new goals for the coming years is warranted. We believe that the Commission's request for comment in Dockets E-2, Sub 931 and E-7, Sub 1032 is the correct place for discussion of new targets. Going forward, we also believe it would also be appropriate for the Company to report on annual and cumulative savings achievements as a leading component of its filing, rather than requiring intervenor data requests or independent calculations.

Q: DID DEC MEET ITS OWN ENERGY SAVINGS PROJECTIONS IN 2018?

A: Almost. After years of substantially exceeding its projections for savings, DEC came up just short of its forecast for 2018 in last year's Application. However, DEC had historically underestimated savings in its forecasts by a substantial degree - typically in the range of about 40%— a trend the NC Justice Center and SACE have identified in previous DEC DSM/EE Recovery Rider filings. For 2018, the Company broke with this trend and provided a forecast that was much closer to actual achieved savings. As a matter of practice, we support the closer correlation between projections and actuals, if the focus on achieving high levels of savings is sustained.

Q: DOES DEC PROJECT THAT IT WILL SUSTAIN THESE SAVINGS LEVELS IN THE FUTURE?

[4] DEC response to SACE 2-2(b) in South Carolina Public Service Commission Docket No. 2019-89-E. Note that Counsel for DEC indicated that it did not object as a general matter to reliance on system-wide information provided by counsel for DEC in response to data requests from SACE *et al.* in the companion DEC rider application docket before the Public Service Commission, reserving the right to object in any particular instance. Also, DEC calculated that had achieved the seven-percent savings target when accounting for opt outs.

A: No. DEC projects a decline in efficiency saving of more than 150 GWh in 2020, with a corresponding drop in the percent of annual sales down to 0.84%.[5] If these projections were to be realized, the corresponding 19.3% drop in GWh savings would be highly concerning. However, it is unclear whether the reduction in savings for 2020 is a return to the previous tendency of understating future performance, or an indication that significant corrective action is needed—for example, in response to changing federal lighting standards—in order to maintain or grow efficiency savings going forward.

Q: WAS THE COMPANY'S EE PORTFOLIO COST-EFFECTIVE IN 2018?

A: Yes. DEC's DSM/EE portfolio continues to be cost-effective with benefits of the programs significantly exceeding costs, thereby demonstrating that DEC's customers are realizing real value from the Company's programs. As indicated by the Utility Cost Test ("UCT") score, the net benefits ratio grew considerably in 2018, going to 3.98 from 3.45 in the previous year. The total net present value ("NPV") of avoided cost in 2018 was $633,175,954. The increased UCT ratio partially overcame the reduction in total kWh saved from 2017 noted above, though the NPV benefit still declined by 4.5%.

Q: HOW DID RESIDENTIAL AND NON-RESIDENTIAL SAVINGS RELATE TO TOTAL SAVINGS IN 2018?

A: Total savings declined by a relatively modest degree overall from 2017 to 2018, but this masks much larger changes seen between residential and non-residential programs. The decline in non-residential savings was dramatic, and clearly

[5] DEC response to SACE DR 2-1) in South Carolina Public Service Commission Docket No. 2019-89-E.

represents a drag on DEC's overall efficiency-savings performance. In 2017, DEC reported non-residential programs generated 440 GWh of system energy reduction, but that figure fell to 300 GWh in 2018, a more than 30% drop. Declines in non-residential savings, largely as a result of non-residential opt outs, have been a consistent issue raised by SACE and the NC Justice Center in previous filings. A single year drop of this magnitude is quite alarming.

By contrast, residential program savings grew by 13.8%, from 494 GWh in 2017 to 562 GWh in 2018. Most of this growth was from the Energy Efficient Appliances and Devices program, which grew over 57 GWh, a 42% increase. While higher total savings is good news overall, it appears likely that much of these saving came from lighting measures, which along with My Home Energy Reports, have historically dominated DEC's residential portfolio. Last year, Mr. Chris Neme of the Energy Futures Group provided testimony on behalf of the NC Justice Center, SACE, and the Natural Resources Defense Council in DEC's 2018 Application for its DSM/EE Rider (N.C.U.C. Docket E-7, Sub 1164).[6] witness Neme testified that overreliance on these types of measures was cause for concern, especially in light of changing federal lighting standards. He recommended a focus on deeper and longer lived measures to maintain a more balanced and robust program going forward, a view that I share.[7]

Q: WHAT EFFECT DO COMMERICAL AND INDUSTRIAL OPT OUTS HAVE ON PERCENT OF ENERGY SAVINGS?

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[6] Exhibit FBW-2, Direct Testimony of Chris Neme on behalf of NC Justice Center, Southern Alliance for Clean Energy, and Natural Resources Defense Council in N.C.U.C. Docket E-7, Sub 1164, pp. 27-36 (May 22, 2018).

[7] *Id.*

A: In 2018, 56% of the non-residential load opted out of DEC's energy-efficiency rider. The percentage of non-residential opt-out is considerably higher in South Carolina (70%) than it is in North Carolina (51%). But both reflect large amounts of lost opportunity for additional potential energy savings with utility efficiency programs.[8]

Because commercial and industrial efficiency savings can be among the most economic, greater savings among these customers would likely translate into even higher utility-system cost reductions. While we recognize that commercial and industrial customers who opt out also certify that they have implemented their own energy-efficiency or demand-side management measures, there is no requirement to report any resulting savings to the Company or the Commission, which inhibits DEC's ability to plan.

Adjusted to exclude non-residential opt-outs, DEC's savings as a percentage of sales in 2018 was 1.67%, compared to 1.05% overall, suggesting that were it not for the large number of opt-outs Duke could be on the path to national leadership in efficiency.[9] Removing opt-out customers from the calculation, DEC reports cumulative savings from 2014 through 2018 of 7.11%. This indicates that if all non-residential customers had been part of the efficiency

[8] While we encourage DEC to continue doing everything possible to retain non-residential customers, we recognize that both the statute and the Commission's interpretation of the statute make it difficult for Duke to achieve full potential with non-residential efficiency programs. Historically, the opt-out was meant as a tool for companies that are pursuing their own energy-efficiency measures, not as a back-door method to fully eliminate the program for an entire class of customers. At some point, the Commission may want to revisit its policy, and also communicate to the legislature that this is a problem that needs to be addressed.

[9] Again, it is notable that DEC has the highest savings as a percentage of sales in the Southeast, but the region as a whole lags far behind the national average and most other regions.

programs, and saved at comparable levels to those who were, DEC would have met their Merger Settlement cumulative savings targets.

Q: HOW DID DEC'S LOW-INCOME EFFICIENCY IMPACTS COMPARE TO PREVIOUS YEARS?

A: The DEC Income Qualified Energy Efficiency and Weatherization Assistance program and Neighborhood Energy Saver program[10] dipped somewhat in 2018 from the previous year.

We believe DEC has made increasing savings for low-income customers a priority and strongly encourage them to continue pursuing this objective. We are currently supporting this effort alongside a robust group of interested advocates through our work at the Collaborative, and offer a variety of suggestions below. We look forward to continuing this work together and feel important progress has already been made over the past several months.

Q: WHAT ARE SOME OF THE ISSUES ASSOCIATED WITH DELIVERING EFFICIENCY PROGRAMS TO LOW-INCOME CUSTOMERS?

A: In last year's proceeding, witness Neme provided testimony that identified several important issues related to serving low-income customers, including equity concerns and the need for program designs that match their particular financial and housing circumstances (for example, programs for renters, multifamily and manufactured homes). His testimony for the DEP DSM/EE Recovery Rider went a step further in noting that Company investment in low-income programs as a percentage of total efficiency budgets lagged behind peer

[10] Exhibit FWB-3, PowerPoint presentation from January 31, 2019 Collaborative meeting.

utilities and was insufficient to meet the needs of low-income customers, who also contribute to the DSM/EE Rider. witness Neme also noted that improving low-income customers' ability to pay provides utility system benefits to all customers. His recommendation was for Duke to engage the Collaborative in working to expand and enhance the deployment of low-income efficiency programs. While such discussion has begun in earnest at the Collaborative, the issues identified in witness Neme's testimony persist and there is considerable work ahead if better results are to be achieved.

Q: WHAT IS THE RELATIONSHIP BETWEEN THE DEC DSM/EE RECOVERY RIDER PROCEEDING AND THE COLLABORATIVE WORKING GROUP?

A. Stakeholder engagement with Duke on energy efficiency-related matters in North Carolina dates back more than a decade. A settlement agreement concluding the 2009 proceeding for Duke Energy Carolinas' Save-a-Watt Approach established a regional stakeholder advisory group that has since been formalized as the Collaborative. Key components of the role that the Commission-approved settlement envisions for the Collaborative include:

- Collaborating on new program ideas, reviewing modifications to existing programs, ensuring an accurate public understanding of the programs and funding;
- Reviewing the EM&V process, giving periodic status reports on program progress, helping to set EM&V priorities;
- Providing recommendations for the submission of applications to revise or extend programs and rate structures; and

- Guiding efforts to expand cost-effective programs for low-income customers.[11]

The Commission called for regular meetings involving a broad spectrum of regional stakeholders representing balanced interests, as well as national energy-efficiency advocates and experts. The Commission stated:

> *"The advisory group will determine its own rules of operation, including the process for setting the agendas and activities of the group, consistent with these terms. Members agree to participate in the advisory group in good faith consistent with mutually-agreed upon rules of participation."*[12]

Over the years, the Commission has routinely referred work to the group on a range of matters arising in recovery rider dockets, and required Duke to report back to the Commission on progress made on these issues.

Q. WHAT ARE SOME OF THE HISTORIC STRENGTHS OF THE COLLABARATIVE?

A: EM&V and program progress reporting have been strengths of the Collaborative experience in recent years, with Duke providing substantial documentation and involving a wide range of relevant efficiency program staff in the Collaborative meetings.

Q. PLEASE IDENTIFY SOME OF THE HISTORIC CHALLENGES OR DEFICIENCIES OF THE COLLABORATIVE PRIOR TO SEPTEMBER 2018?

11 *Application of Duke Energy Carolinas, LLC For Approval of Save-a-Watt Approach, Energy Efficiency Rider and Portfolio of Energy Efficiency Programs, Agreement and Joint Stipulation of Settlement*, N.C.UC. Docket No. E-7, Sub 831, at p. 26 (June 12, 2009).
12 *Id.*

A: In the past, the Collaborative' s efforts to develop new program ideas, modify existing programs, or otherwise impact the overall efficiency savings of Duke's efficiency program portfolio for customers in general, or for low-income customers in particular, were not as strong as it could be. However, as I set forth below, there are some encouraging signs that this may improve.

Specifically, in recent years, the Collaborative has worked on developing:

- On-Bill Financing
- Combined Heat and Power
- Development of a Technical Resource Manual
- Strategies for addressing Commercial and Industrial Opt outs[13]
- Multi-family efficiency programs
- Maximization of cross-program marketing
- Non-energy benefits
- Manufactured housing
- Residential new construction

Despite the dedication of extensive time, energy, and resources by Duke and participating stakeholders, these efforts have produced little to no tangible results, having neither been implemented by Duke directly nor resulted in further specific action by the Commission. While no single factor likely explains this failure to achieve more substantive accomplishments, it is important to consider the various factors that could lead to greater success in the future, which are discussed in further detail below.

[13] Including through strategic energy management.

Fortunately, over the past several months, DEC and Collaborative stakeholders have given renewed attention to fulfilling the original guidance from the Commission-approved settlement. There are encouraging signs since September 2018 with regard to this original guidance from ten years ago in terms of how meetings are run, relationships between participants are being built, and the "good faith" responsibility to engage in the process is being embraced.

Q. WOULD ADDRESSING THESE ISSUES ENHANCE THE VALUE OF THE COLLABORATIVE AND THE OVERALL SUCCESS OF DEC EFFICIENCY EFFORTS?

A: We continue to believe that the Collaborative is useful because detailed efficiency program implementation issues are best addressed through joint problem solving and collaboration. Moreover, many efficiency issues do not fit effectively into formal docketed proceedings. My recommendation to continue using the Collaborative for these types of issues is consistent with, and I endorse, witness Neme's testimony on the subject from last year.[14]

Therefore, despite disappointment with the low level of impact resulting from the Collaborative' s work in recent years, we remain committed to its original purpose and strive to understand and overcome past limitations. As noted below, we see encouraging signs that Duke also recognizes the importance of these issues and is willing to try new approaches going forward.

My recommendation, therefore, is to continue using the Collaborative for these types of issues but to monitor whether the effort proves more effective this year than in the past. At the end of the year, it would be appropriate to evaluate

[14] Exhibit FBW-2, Direct Testimony of Chris Neme, pp. 39-45.

whether better results have been achieved, or whether additional operational changes or Commission direction is warranted.

Q. WHAT STEPS HAVE BEEN TAKEN TOWARD COLLABORATIVE IMPROVEMENT IN THE PAST YEAR?

A: Beginning in September 2018, we have worked closely with Duke to implement a number of positive changes that improve the likelihood of current and future work at the Collaborative showing concrete results than in the past.

These include:

- More frequent in-person meetings to achieve greater momentum on Collaborative priorities;
- Shared agenda setting to identify pertinent topics, achieve greater stakeholder buy-in, and increase discussion among participants
- Higher levels of stakeholder involvement;
- A shift in focus away from formulaic reporting by the Company towards a greater emphasis on problem-solving opportunities and the development of program enhancement recommendations;
- Group decision-making on setting the Collaborative's annual work priorities;
- More communication and project work occurring between regular Collaborative meetings; and
- New expectations around tangible project deliverables.

It is encouraging that even with more frequently scheduled meetings, Stakeholder participation in the Collaborative has been robust, and Duke Energy has provided significant investment by enlisting participation by a large number of their program management staff. In addition to SACE and NC Justice Center, active participants in the Collaborative currently include:

- North Carolina Public Staff
- South Carolina Office of Regulatory Staff
- North Carolina Sustainable Energy Association
- South Carolina Coastal Conservation League
- Duke University Nicholas Institute
- Environmental Defense Fund
- National Housing Trust
- North Carolina Building Performance Association
- Green Built Alliance
- Natural Resource Defense Fund
- Carolina Utility Customers Association
- NC DENR, Weatherization Office
- Advanced Energy

To expand our own capacity, SACE has also enlisted the support of Jim Grevatt of the Energy Futures Group to aid the work of stakeholders at the Collaborative. He brings valuable additional technical expertise, and personal perspective from efficiency working groups in other jurisdictions.

Duke's willingness to accommodate the changes above, and stakeholders' commitment of greater time and resources to the Collaborative, are encouraging.

Without this, there would be little reason to anticipate better outcomes with the way the Collaborative is currently constituted.

Q. ARE THERE STILL CHALLENGES TO ACHIEVING HIGHER LEVELS OF EFFECTIVENESS AT THE COLLABORATIVE?

A: Yes. While numerous process steps have already been taken to improve the Collaborative, there are still challenges that warrant attention.

As noted in the 2009 settlement agreement, making recommendations on potential modifications to existing programs and making suggestions concerning the addition of new programs are among the main purposes of the Collaborative. In order to do so, timely provision of pertinent information is essential, as is having sufficient time and space for group discussion to work through issues and develop practical recommendations.

Since last September, Duke has proposed modifications to several existing programs and proposed one new program and appears to be genuinely interested in engaging the Collaborative in the process, but this is a work in progress. Over the past few months Duke has presented several program changes for discussion, but rather than engaging stakeholders earlier in the process, this typically occurs after their ideas about how to proceed have been nearly or fully baked. In addition, we have had almost no insight into what they have researched, considered, or ruled out in the process of getting to their final idea.

This limits the potential for DEC to receive and incorporate feedback and likely diminishes the value that the Collaborative could otherwise bring to program modification and development. Ultimately, this represents a significant lost opportunity and one of the principal challenges to effectiveness at the Collaborative today.

A summary of recent experience with program changes is illustrative:

- Residential Smart $aver – In response to a Commission directive, DEC submitted a filing to the Commission resolving a cost effectiveness issue. We support DEC's efforts in this area, and encourage the Company to engage the Collaborative at an early stage for assistance with solving these types of challenges.
- Pay for Performance[15] – This new program concept was also introduced at the September 2018 Collaborative meeting, but received very little time for discussion. Instead, Duke opted to seek approval from the Commission prior to engaging Collaborative participants in its development. Expanding efficiency program offerings for low-income customers is one of the highest priorities among stakeholders, making this a natural topic for work at the Collaborative. Instead, the only available opportunity for input was via filing a letter with the Commission. SACE joined North Carolina Sustainable Energy Association in doing so, and provided a number of recommendations that we believe could improve the impact and likelihood of success for the program in its pilot phase and beyond. DEC did not accept or incorporate any of the recommendations.
- Neighborhood Energy Saver - At the November 2018 Collaborative meeting, Duke announced its intention to modify the Neighborhood Energy Saver program and provided background information the following month. When the

[15] While this is a program of Duke Energy Progress, the same staff are represented at the Collaborative and we feel the experience is therefore relevant to interactions with both companies.

subject was discussed as an agenda item at the January 2019 Collaborative meeting, DEC indicated that there would be an opportunity for input from interested stakeholders and offered to host a call for more in-depth discussion. During that call Duke described details of its proposed modifications for the first time and, when asked, indicated that the deadline for any feedback was the following day. Unfortunately, this was both impractical from a timing perspective and lacked the kind of structure needed for deliberative review, problem solving, and development of recommendations. In this case, it should be noted that SACE supported the specific changes Duke indicated.

Each of these examples is meant to illustrate opportunities for improved process at the Collaborative, and is not intended to contest specific changes made to these programs. However, we believe that improvements in how Duke engages the Collaborative during the development of new programs and modification of existing programs is extremely important for fulfillment of the purpose the Commission directed for stakeholder engagement.

Some of the challenges to success are that there currently is no common understanding of protocol and timelines for Collaborative review and development of recommendations for new programs or modifications to existing programs. This uncertainty around specific deliverables, timelines, and pathways for implementation at the collaborative contributes to a lack of clarity on what it will take for the work of the Collaborative to have an effect on Duke decision making.

As previously noted, we recognize the Company is making strides to move in the right direction, and appears to genuinely desire substantive contributions from the group. To this end, DEC has been making meaningful attempts to improve the flow of information and refine their methods of engagement as continued dialogue with stakeholders leads to more common understanding. Most recently, the Company signaled a desire to engage discussion on the topic of expanding the midstream channel for delivery of efficiency measures, work that has only just begun.

We believe these efforts represent a good direction for the Collaborative and move away from the perception that it is merely a checkbox for compliance and reporting.

IV. DEC'S Complaince with the Commission's Order in Docket E-7, SUB 1164

Q. PLEASE DESCRIBE THE COMMISSION'S DIRECTIVE WITH REGARD TO SACE'S RECOMMENDATIONS IN DOCKET E-7, SUB 1164.

A. The Order approving Rider 10 included a directive that DEC address the following issues raised in witness Neme's testimony, then report back to the Commission as part of the Company's 2019 Rider filing:

- Improving participation in Residential Smart $aver;
- Promoting whole house retrofits;
- Building on recent success of the midstream channel in the non-residential Smart $aver prescriptive rebate program;
- Assessing potential to reduce opt-outs;

- Considering implementation of a Technical Resource Manual;
- Improving effectiveness of the Collaborative;
- Addressing Persistence and savings from MyHER;
- The impact of upcoming changes in lighting standards; and
- DEC/DEP collaborative combination and more frequent meetings.

Q. WHAT IS THE STATUS OF COLLABORATIVE RELATED ISSUES INCLUDED IN THE COMMISSION'S 2018 ORDER IN THIS DOCKET?

A: In general, we agree with DEC's characterization of discussions at the Collaborative on these topics. However, we feel it important to note that attention and discussion on many of these topics were of a very limited nature.

One reason for such limited discussions is that the time between the Commission's order on September 11, 2018 and DEC's filing in this proceeding was short, less than six months. Even with more frequent meetings, this was not enough time to take an in-depth look at most of these issues.

Another reason why many issues were not addressed at much depth was that the group decided to first dedicate time toward improving the way the Collaborative operates, rather than repeat the experience of past efforts, which yielded little substantive result.

Finally, the group decided to focus the majority of its efforts on two overarching priorities for 2019, described further below, rather than attempt to tackle a much longer list of topics that would have exceeded our time or bandwidth.

Nevertheless, we would reiterate that many of the issues that were identified in the Commission's Rider 10 Order, even those that did not receive detailed attention, remain topics of interest that will likely warrant work at the Collaborative in the future.

One of the important lessons drawn from previous experience with the Collaborative is that some important issues cannot be resolved in one year or less. Therefore, decisions to prioritize certain issues in the short term will result in other issues being deferred until a later date.

Q. WHAT ARE THE 2019 PRIORITIES OF THE COLLABORATIVE?

A: This January, the Collaborative selected two key work priorities for 2019:

- Evaluation of portfolio level opportunities and challenges; and
- Expansion of energy-efficiency impact for low-income customers.

Additionally, the Collaborative will continue to participate in reviews of existing program progress and discuss opportunities for program modifications and additions.

Q. WHAT APPROACHES TO EVALUATING THE PORTFOLIO LEVEL OPPORTUNITIES AND CHALLENGES IS THE COLLABORATIVE CONSIDERING?

A. This topic has generated considerable interest among participants and the focus of work is still largely under development. There is, however, a recognition that the topic overlaps with the Commission's request for comment on June 7, 2019 regarding the current incentive mechanism, rate impact, and program performance targets, as well as issues related to cost-effectiveness.

Q. WHAT APPROACHES TO EXPANDING LOW-INCOME EFFICIENCY IS THE COLLABORATIVE CONSIDERING?

A: North Carolinians experience high levels of poverty and correspondingly high customer energy burdens.[16] Energy-efficiency programs for low-income households are key to addressing this issue. While Duke is to be commended for its low-income energy-efficiency achievements to date, more is needed going forward.

The Collaborative has identified low-income energy efficiency as one of its top priorities for 2019. Discussion has centered on increasing total budgets and savings impact for low-income customers and refining approaches for designing and implementing programs to do so.

Several broad strategies have been discussed that would increase the impact of efficiency programs for the benefit of low-income customers:

1. Expand budget allocations for programs targeted to low-income customers

To be effective, increased spending must be matched with well-designed programs, effective delivery channels, and evaluation approaches that properly inform and support periodic refinements to overcome challenges to serving this segment of customers. Without higher levels of spending, however, there is little hope of achieving substantially more than has be accomplished in the past. This is particularly true following the end of the Helping Home Fund, which we

[16] US Census Bureau, American Community Survey 5-year Estimates (2013-2017); South East Energy Efficiency Alliance and the North Carolina Justice Center, "The Power of Energy Efficiency: Expanding Access to Energy Efficiency Improvements for Low and Moderate Income North Carolina Households," http://www.ncjustice.org/sites/default/files/ENERGY%20EFFICIENCY%20report-REVISED-web.pdf.

continue to think could be a model for inclusion in the Company's ratepayer programs funded through the DSM/EE Rider.

2. Refine and expand existing program offerings

Over the past year, Duke has shown a willingness to modify current program offerings to deliver more impact to low-income customers, like adding measures to the Neighborhood Energy Saver (NES) program,[17] aiming to overcome bottlenecks in the delivery of its Income Qualified Energy Efficiency and Weatherization program, and potentially reallocating funds between the programs to reach more low-income customers. While Duke has initiated some discussions with the Collaborative on these subjects, more still needs to be done to meaningfully engage the group on changes to existing program offerings. For instance, we agree with Duke that there is a need for careful attention to the Income Qualified program, which has fallen short of budget and participation projections every year since its inception.

3. Deploy new programs

Delivering effective low-income efficiency programs is a priority for utilities, Commissions, and stakeholders across the country. There are numerous examples of programs aimed at meeting the unique needs of low-income customers that could be adapted and implemented by DEC, such as programs for

[17] While this program does not have income qualification eligibility requirements, the neighborhood selection process involves evaluation of US Census data to target communities with high levels of poverty.

manufactured homes, multifamily housing, and on-bill financing. Each of these has been the subject of previous SACE and NC Justice Center testimony.[18]

4. Prioritize increasing low-income customer impact through non-income qualified programs

While the NES program does not require income qualification for participation, the program is designed to reach low-income customers, which is part of how program performance is tracked. At the January Collaborative meeting, Duke presented a chart[19] showing low-income impact tracking across its portfolio of residential programs. We strongly support this attention and look forward to working with Duke to use data such as this to inform strategies for capturing more impact for low-income customers in all residential programs going forward.

We are committed to supporting DEC in each of the above areas, while giving attention to achieving levels of cost effectiveness that are appropriate for serving low-income customers.

Q: WHAT ARE YOUR EXPECTATIONS REGARDING THE COLLABORATIVE IN 2019?

A: Stakeholders are aware of, and frustrated by, the lack of tangible results from the work of the Collaborative in past years. Despite this, the NC Justice Center, SACE, and a robust group of advocates have stepped up our commitments of time and resources in the hopes of achieving more tangible results going forward. If successful, we believe there is an opportunity to strengthen and expand

[18] *See, e.g.*, Exhibit FBW-2, Direct Testimony of Chris Neme, pp. 36-38.
[19] Exhibit FBW-4, Duke Energy Community Outreach Programs Chart.

programs, increase portfolio savings impact, and enhance the value of program and portfolio performance reporting. This in turn, we hope, could also narrow the range of issues handled through contested dockets before the Commission. Whether this goal is realized remains to be seen and will require additional good faith efforts by all parties.

If, despite this additional effort, more substantive and tangible outcomes are not achieved, there may be a need for deeper structural changes to the Collaborative that would involve more direction and oversight by the Commission.

Q: WHAT LESSONS CAN BE LEARNED FROM STAKEHOLDER GROUPS IN OTHER JURISDICTIONS?

A: Some of the different structural approaches used by energy-efficiency stakeholder working groups in other jurisdictions are instructive, a theme that witness Neme explored in testimony last year. For additional context, we add the following example from Arkansas.

The Arkansas Public Service Commission has a significant role in setting the agenda for its stakeholder group, known as Parties Working Collaboratively ("PWC") and sets specific deliverables and deadlines that the group is required to meet. In recent years, the Arkansas Commission has referred numerous important issues to the group with expectations that they will work together to jointly develop recommendations for consideration and final decision making by the Commission. In recent years, these have included:

- setting 3-year utility energy savings targets

- coordination of gas and electric efficiency programs
- development of low-income programs
- standard annual reporting protocols

The work is supported by an independent facilitator selected through a Commission administered RFP. Recommendations are submitted jointly by the PWC following a Commission prescribed deadline. The approach is aimed at building consensus between parties.

By comparison, the North Carolina Utilities Commission has historically referred issues raised in testimony to the Collaborative, without established deliverables, timelines or requirements beyond DEC submitting a report stating that the topics have been discussed.

Q: WHAT SPECIFIC REQUESTS DO YOU HAVE OF THE COMMISSION REGARDING THE COLLABORATIVE?

Our primary ask is that the Commission observe the work of the Collaborative this year to determine whether significant additional progress has been made, particularly with regards to tangible impact resulting from the Collaborative's work. Specifically, the current work tasks of the Collaborative involve:

- Portfolio-level assessment of opportunities and challenges
- Expansion of efficiency savings impact for low-income customers
- Modification and additions to DEC efficiency programs reflecting direct input from the work of the Collaborative

We respectfully request that in 2020, the Commission seek comment from Collaborative participants on whether the Collaborative has sufficiently corrected its course or indicate if changes are needed that would warrant Commission action.

As part of the portfolio-level assessment of opportunities and challenges, we suggest the Collaborative address the projected decline of annual savings from over one-percent down to 0.84% in annual savings DEC forecasts for 2020, such that there is a plan to maintain and grow current savings levels from what DEC achieved in 2017 and 2018.

Finally, we suggest initiating development of a standard annual reporting protocol akin to the one used in Arkansas and incorporating the tools developed by the Lawrence Berkeley National Laboratory, as discussed below.

Q: ARE THERE ANY OTHER ACTIONS THAT YOU RECOMMEND WITH REGARD TO THIS DOCKET?

A: Establishing standard annual reporting protocols for Duke's DSM/EE Recovery Rider filings would provide numerous benefits for intervenors, Staff, the Commission, and the public. While the majority of information needed for such reporting is already prepared by Duke to support its annual filings, much of it can only be acquired through data requests, which means only parties to the proceeding have access to them.

Currently, the DEC DSM/EE Recovery Rider Application is not organized in a way that is convenient for review and analysis, nor presented in a way that would allow the Commission or the public to efficiently identify topline trends and takeaways. For instance, the Merger Settlement set annual and cumulative savings targets, but DEC does not report on progress towards meeting the target in its Application filings.

As a point of comparison, Exhibit FWB-5 is the Excel workbook filed by Entergy Arkansas. This document is provided alongside the narrative of its annual efficiency performance filing and makes a considerable amount of topline analysis available in an easy to use format. Key features of the reports are:

- Planned Versus Actuals - Side-by-side comparisons of projected and actual program budgets, demand saving, and energy savings;
- Budget breakdowns - indicating expenditures on incentives / direct install costs compared to marketing, administration, and EM&V costs;
- Cost / Benefit - TRC and Program Administrator Cost test results (also known as the Utility Cost Test), TRC Net Present Value;
- Levelized cost of energy saved;
- Annual % of savings compared to baseline year; and
- Historic comparisons on budgets and energy savings.

The Lawrence Berkeley National Laboratory has also developed a set of standard annual reporting tools that can be used by adopted by individual jurisdictions.[20]

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes.

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[20] Alex Hofman, *et al.*, *Energy Efficiency Reporting Tool for Public Power Utilities*, Lawrence Berkeley National Lab, (March 2016), https://emp.lbl.gov/publications/energy-efficiency-reporting-tool.

COMMISSIONER BROWN-BLAND: All right.

MR. LITTLE: Yes. Your Honor, the Public Staff would move into evidence the direct testimony and exhibits of Michael C. Maness, the Director of the Accounting Division, and the direct testimony and exhibits of David Williamson, the Staff Engineer with the Public Staff's Electric Division, and ask that it be entered into the record as if given orally from the stand as marked.

COMMISSIONER BROWN-BLAND: That motion will be allowed, Mr. Little, and the testimony of Witnesses Maness and Williamson that were filed on May 20, 2019, along with their appendix and exhibit will be received into evidence. The testimony will be treated as if given orally from the witness stand.

(WHEREUPON, the prefiled direct testimony and Appendix A of MICHAEL C. MANESS is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1192

In the Matter of Application of Duke Energy Carolinas, LLC, for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant to N.C.G.S. § 62-133.9 and Commission Rule R8-69	))))))	TESTIMONY OF MICHAEL C. MANESS PUBLIC STAFF – NORTH CAROLINA UTILITIES COMMISSION

May 20, 2019

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND PRESENT POSITION.

A. My name is Michael C. Maness. My business address is 430 North Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am Director of the Accounting Division of the Public Staff – North Carolina Utilities Commission (Public Staff).

Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.

A. A summary of my qualifications and duties is set forth in Appendix B of this testimony.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to present my recommendations regarding the overall Demand-Side Management/Energy Efficiency (DSM/EE) rider (Rider 11) proposed by Duke Energy Carolinas, LLC (DEC or the Company), in its Application filed in this docket on February 26, 2019, pursuant to N.C. Gen. Stat. § 62-133.9 and Commission Rule R8-69.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony begins with a review of the statutory framework for DSM/EE cost recovery by electric utilities and the historical background of DEC's Application in this docket. I then discuss the Company's proposed billing factors and other aspects of its filing.

Following a summary of my investigation, I present my findings, conclusions, and recommendations regarding approval of proposed Rider 11.

THE RATE-SETTING PROCESS FOR DEC'S DSM/EE REVENUE REQUIREMENTS

Q. PLEASE DESCRIBE THE BASIS FOR THE COMPANY'S FILING.

A. N.C. Gen. Stat. § 62-133.9(d) allows a utility to petition the Commission for approval of an annual rider to recover: (1) the reasonable and prudent costs of new DSM and EE measures; and (2) other incentives to the utility for adopting and implementing new DSM and EE measures. However, N.C. Gen. Stat. § 62-133.9(f) allows industrial and certain large commercial customers to opt out of participating in the power supplier's DSM/EE programs or paying the DSM/EE rider, if each such customer notifies its electric power supplier that it has implemented or will implement, at its own expense, alternative DSM and EE measures. Commission Rule R8-69, which was adopted by the Commission pursuant to N.C. Gen. Stat. § 62-133.9(h), sets forth the general parameters and procedures governing approval of the annual rider, including but not limited to: (1) provisions for both (a) a DSM/EE rider to recover the estimated costs and utility incentives applicable to the "rate period" in which that DSM/EE rider will be in effect; and (b) a DSM/EE experience modification factor (EMF) rider to recover the difference between the DSM/EE rider in effect for a given test period (plus a possible extension) and the actual recoverable amounts incurred during that test period; and (2) provisions for interest or return on amounts deferred and on refunds to customers.

The costs and utility incentives proposed to be recovered via Rider 11 are all related to DSM and EE measures actually or expected to be installed or implemented during calendar years 2015-2020 (Vintage Years 2015 through 2020). Therefore, DEC has calculated each proposed Rider 11 billing factor by use of the Cost Recovery and Incentive Mechanism for Demand-Side Management and Energy Efficiency Programs approved on October 29, 2013, in Docket No. E-7, Sub 1032 (the Sub 1032 Order), as revised in the 2017 DSM/EE rider proceeding, Docket No. E-7, Sub 1130 (Revised Mechanism). In the following paragraphs, I will describe the essential characteristics of the Revised Mechanism; however, the Revised Mechanism includes and is subject to many additional and more detailed criteria than are set forth in this testimony.

Q. PLEASE DESCRIBE THE DEVELOPMENT OF THE REVISED MECHANISM AND ITS MAJOR COMPONENTS.

A. In the Sub 1032 Order, the Commission approved an Agreement and Stipulation of Settlement, filed on August 19, 2013, and amended on

September 23, 2013, by and between DEC, the Public Staff, and certain other intervenors[1] (Sub 1032 Settlement), which incorporated the mechanism at that time. However, as the result of discussions that took place during the Company's 2017 Sub 1130 proceeding, the Company and the Public Staff recommended certain changes to Paragraphs 19, 23, and 69 of the mechanism, and the addition of new Paragraphs 23A through 23D. These revisions were set forth in Public Staff witness Maness Exhibit II filed in Sub 1130, and were approved as set forth therein by the Commission in its *Order Approving DSM/EE Rider, Revising DSM/EE Mechanism, and Requiring Filing of Proposed Customer Notice*, issued August 23, 2017 (Sub 1130 Order).

The overall purpose of the Revised Mechanism is to: (1) allow DEC to recover all reasonable and prudent costs incurred for adopting and implementing new DSM and new EE measures; (2) establish certain requirements, in addition to those of Commission Rule R8-68, for requests by DEC for approval, monitoring, and management of DSM and EE programs; (3) establish the terms and conditions for the recovery of certain utility incentives - net lost revenues (NLR) and a Portfolio Performance Incentive (PPI) to reward DEC for adopting

[1] The parties to the Sub 1032 Settlement were DEC; the North Carolina Sustainable Energy Association; the Environmental Defense Fund; the Southern Alliance for Clean Energy; the South Carolina Coastal Conservation League; the Natural Resources Defense Council; the Sierra Club; and the Public Staff.

and implementing new DSM and EE measures and programs; and (4) provide for an additional incentive to further encourage kilowatt-hour (kWh) savings achievements. The Revised Mechanism includes provisions addressing mechanism continuity and review, program modification flexibility, and the treatment of opted-out and opted-in customers, as well as provisions directly affecting the calculation of the DSM/EE and DSM/EE EMF riders. A summary of these provisions is set forth in Appendix A of this testimony.[2] The Revised Mechanism adopted and continued certain requirements from several prior Commission orders.

THE COMPANY'S PROPOSED BILLING FACTORS AND OTHER ASPECTS OF ITS FILING

Q. PLEASE DESCRIBE THE BILLING FACTORS AND VINTAGE YEARS BEING CONSIDERED IN THIS PROCEEDING.

A. In its Application and the supporting testimony and exhibits, DEC requested approval of 14 billing factors [including the North Carolina Regulatory Fee (NCRF)] comprising Rider 11, which is to be charged for service rendered during the rate period January 1, 2020, through December 31, 2020. These proposed billing factors are set forth on Company witness Miller Exhibit 1,

[2] A consolidated version of the entire Revised Mechanism was filed on May 22, 2018 as Maness Exhibit II in DEC's 2018 DSM/EE rider proceeding, Docket No. E-7, Sub 1164.

Pages 1 and 2.

For purposes of the Company's filing, the identified vintage years correspond to the following time periods:

Vintage Year 2015:	The year ended December 31, 2015.
Vintage Year 2016:	The year ended December 31, 2016.
Vintage Year 2017:	The year ended December 31, 2017.
Vintage Year 2018:	The year ended December 31, 2018.
Vintage Year 2019:	The year ended December 31, 2019.
Vintage Year 2020:	The year ended December 31, 2020.

Q. WHAT ARE THE GENERAL CHARACTERISTICS OF DEC'S PROPOSED DSM/EE BILLING FACTORS?

A. DEC's proposed billing factors have the following general characteristics[3]:

1. For Vintage Year 2020, proposed Rider 11 includes billing factors (or components of billing factors) intended to recover estimated program costs and a PPI, as well as estimated calendar year 2020 NLR, applicable to DSM and EE measures projected to be installed or implemented during Vintage Year 2020, all subject to future true-up;

[3] In addition to the Revised Mechanism, particular billing factors may also be subject to Commission rulings in Docket No. E-7, Subs 831, 938, 979, and 1032, as well as DEC's various annual DSM/EE cost and incentive recovery proceedings and individual program approval proceedings.

2. For Vintage Year 2019, the proposed Rider includes billing factors (or components of billing factors) intended to prospectively recover estimated calendar year 2020 NLR associated with Vintage Year 2019 installations, subject to future true-up;

3. For Vintage Year 2018, the proposed Rider includes billing factors (or components of billing factors) intended to: (a) prospectively recover estimated calendar year 2020 NLR associated with Vintage Year 2018 installations, subject to future true-up; and (b) true up 2018 program cost and, to the extent evaluation, measurement, and verification (EM&V) of these results has been completed, Vintage Year 2018 participation and per-participant avoided cost savings and calendar year 2018 NLR;

4. For Vintage Year 2017, the proposed Rider includes billing factors (or components of billing factors) intended to: (a) prospectively recover estimated calendar year 2020 NLR associated with Vintage Year 2017 installations, subject to future true-up; and (b), to the extent EM&V of these results has been completed, true up Vintage Year 2017 participation and per-participant avoided cost savings and calendar years 2017 and/or 2018 NLR;

5. For Vintage Year 2016, the proposed Rider includes billing factors intended to, to the extent EM&V of these results has been completed, true up calendar years 2016, 2017, and/or 2018 NLR; and

6. For Vintage Year 2015, the proposed Rider includes billing factors intended to, to the extent EM&V of these results has been completed, true up calendar years 2015, 2016, 2017, and/or 2018 NLR.

The calculations of the billing factors for each vintage year may also include adjustments to the return on undercollections or overcollections of DSM/EE revenue requirements, as well as to amounts to be collected to compensate DEC for the NCRF.

Q. COULD THERE BE FUTURE TRUE-UPS OF THE DSM/EE REVENUE REQUIREMENTS?

A. Certain components of the revenue requirements related to certain prior, current, and future years will remain subject to prospective update adjustments and/or retrospective true-ups in the future. The various types of other expected or possible adjustments to the revenue requirements for these vintage years include prospective recovery of NLR requirements; true-ups of program cost; and true-ups of the PPI and NLR requirements to reflect the results; and possible adjustments to participation and EM&V analyses.

Q. WHAT IS THE IMPACT OF THE COMPANY'S PROPOSED BILLING FACTORS IN THIS PROCEEDING ON CUSTOMERS' RATES?

A. Based on the pro forma kWh sales used by the Company to calculate the DSM/EE riders in this case, the Company-proposed Residential DSM/EE combined prospective and EMF revenue requirement is approximately $104.2 million, an approximate $10.1 million reduction from the revenue that would be produced by the rates currently in effect. The decrease in the monthly bill of a Residential customer using 1,000 kilowatt-hours of energy resulting from this revenue requirement decrease would be $0.47. For the Non-Residential class, the proposed overall combined revenue requirement is approximately $125.0 million, an approximate $20.8 million reduction. The change in a Non-Residential customer's bill would depend on which particular Vintage Years of DSM and/or EE rates for which the customer is opted out or opted in.

INVESTIGATION AND CONCLUSIONS

Q. PLEASE DESCRIBE YOUR INVESTIGATION OF DEC'S FILING.

A. My investigation of DEC's filing in this proceeding focused on whether the Company's proposed DSM/EE billing factors were: (a) calculated in accordance with the Sub 1032 Settlement, the Sub 1130 Order, and the Revised Mechanism; and (b) otherwise adhered to sound ratemaking concepts and principles. The procedures I and other members of the Public Staff's Accounting Division utilized included a review of the Company's filing, relevant Commission proceedings and orders, and workpapers and source documentation used by the Company to develop the proposed billing factors. Performing the investigation required the review of responses to written and verbal data requests, as well as discussions with Company personnel. As part of its investigation, the Public Staff performed a review of the DSM/EE program costs incurred by DEC during the 12-month period ended December 31, 2018. To accomplish this, the Public Staff selected and reviewed samples of source documentation for test year costs included by the Company for recovery through the DSM/EE riders. Review of this sample, which is still underway as of the filing date of this testimony, is intended to test whether the costs included by the Company in the DSM/EE riders are valid costs of approved DSM and EE programs.

Q. WHAT ARE YOUR FINDINGS AND CONCLUSIONS?

A. With the exception of items specifically described later in this testimony, as well as subject to the outcome of the Public Staff's program cost review described above, I am of the opinion that the Company has calculated the Rider 11 billing factors in a manner consistent with N.C. Gen. Stat. § 62-133.9, Commission Rule R8-69, the Sub 1032 Settlement, the Sub 1130 Order, the Revised Mechanism, and other relevant Commission Orders. However, this conclusion is subject to the caveat that the Public Staff is still in the process of reviewing certain data responses received from the Company, including documentation of costs selected for review in the Public Staff's sample; once this review is complete, the Public Staff will file with the Commission any findings not already set forth in testimony.

I would like to note the following regarding the Public Staff's investigation:

1 <u>Review of Vintage Year 2018 Program Costs</u> – The Public Staff's review of the selected sample items from the population of 2018 DSM/EE program costs resulted in three exceptions. Two of the exceptions, totaling $280 on a system basis, consisted of the use of Company procurement cards for non-DSM/EE purposes. This dollar amount is not material, even if generalized to the population; however, it is the Public Staff's understanding that the Company intends to reflect correction of this item in supplemental testimony and exhibits filed in this proceeding. The third exception consists of an erroneous distribution of program costs related to the My Home Energy Report (MyHER) program between DEC and its

affiliates (most notably Duke Energy Progress, LLC (DEP). The Company's investigation of this item, after the Public Staff's inquiry, identified an overstatement of invoiced program costs totaling approximately $468,000, on a system basis. Although this sample item exception could possibly be considered for some sort of generalization to the population, I am not recommending any generalization in this case, because DEC has informed the Public Staff that it has reviewed all of the 2018 invoicing for the MyHER program and has not identified any errors other than the $468,000.

As with the first two exceptions, it is the Public Staff's understanding that DEC intends to file supplemental testimony and exhibits reflecting correction of this third item. Once this filing is made, the Public Staff will review it and apprise the Commission of the results of that review. It should be noted that these reductions in program costs will also result in an increase in the PPI for the affected programs.

As noted previously, the Public Staff's review of samples of Vintage Year 2018 program costs is not yet completed. If any concerns, issues, or necessary adjustments are found during the completion of this process, the Public Staff will file supplemental information in this proceeding related to such; and

2 Return on Deferred Program Costs and Interest on Overrecoveries – As stated in past proceedings, the Public Staff reserves the right to raise the issue of the appropriate interest rate on overrecoveries of utility incentives.

Q. WHAT IS THE IMPACT OF PUBLIC STAFF WITNESS WILLIAMSON'S TESTIMONY ON YOUR CONCLUSIONS REGARDING THE DSM/EE REVENUE REQUIREMENTS IN THIS PROCEEDING?

A. Public Staff witness Williamson has filed testimony in this proceeding discussing several topics related to the Company's filing. None of the matters discussed by Mr. Williamson necessitate an adjustment in this particular proceeding to the Company's billing factor calculations, although some of them may affect the determination of the factors in future proceedings.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE RIDER 11 BILLING FACTORS.

A. In summary, I have identified three program cost adjustments that should be made to the Rider 11 DSM/EE revenue requirement and flowed through to the DSM/EE billing factors: the adjustment to 2018 DSM/EE program costs to remove the expenses related to the

MYHER program erroneously included by the Company; and the two small adjustments to procurement card expenses. Other than these adjustments, the Public Staff has found no errors or other issues necessitating an adjustment to the Rider 11 billing factors, subject to completion of our program cost sample review.

RECOMMENDATION

Q. WHAT IS YOUR RECOMMENDATION IN THIS PROCEEDING?

A. Based on the results of the Public Staff's investigation (subject to completion of its review of 2018 program costs), I recommend that the adjustments I have recommended be incorporated into the DSM/EE billing factors. These factors should be approved subject to any true-ups in future cost recovery proceedings consistent with the Sub 1032 Settlement, the Sub 1130 Order, and the Revised Mechanism, as well as other relevant orders of the Commission, including the Commission's final order in this proceeding. In making this recommendation, the Public Staff notes that reviewing the calculation of the DSM/EE rider is a process that involves reviewing numerous assumptions, inputs, and calculations, and its recommendation with regard to this proposed rider is not intended to indicate that the Public Staff will not raise questions in future proceedings regarding the same or similar assumptions, inputs, and calculations.

Q. DO YOU HAVE ANY OTHER COMMENTS?

A. Yes. As previously stated, it is my understanding that the Company intends to file supplemental testimony and exhibits in this proceeding reflecting the Public Staff's recommended adjustments, along with certain other adjustments proposed by the Company. Once the Public Staff has had the opportunity to complete its review of the supplemental filing, it will present its conclusions and recommendations regarding the filing to the Commission.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Appendix A

SUMMARY OF CERTAIN PORTIONS OF DEC'S DSM/EE MECHANISM

1. With the exception of Low-Income Programs or certain other societally beneficial non-cost-effective programs approved by the Commission, all programs submitted for approval will have an estimated Total Resource Cost (TRC) and Utility Cost (UC) test result greater than 1.00. For purposes of calculating cost-effectiveness for program approval, the Company shall use projected avoided capacity and energy benefits specifically calculated for the program, as derived from the underlying resource plan, production cost model, and cost inputs that generated the avoided capacity and avoided energy credits reflected in the most recent Commission-approved Biennial Determination of Avoided Cost Rates as of the date of the program approval filing, but using, for program-specific avoided energy benefits, the projected EE portfolio hourly shape rather than an assumed 24x7 100 MW reduction.

2. In each annual DSM/EE cost recovery filing, DEC shall perform and file (a) prospective cost-effective test evaluations for each of its approved DSM and EE programs, and (b) prospective aggregated portfolio-level cost-effectiveness test evaluations for its approved DSM/EE programs, using the same methodology for determining avoided capacity and energy benefits as set forth in the Revised Mechanism for program approval, except that the reference Commission-approved avoided cost credits shall be derived from those approved as of December 31 of the year immediately preceding the date of the annual DSM/EE rider filing. For any program that initially demonstrates a TRC result, determined pursuant to paragraph 23A above, of less than 1.00, the Company shall either terminate the program or undertake a process over the next two years to improve program cost-effectiveness. For programs that demonstrate a prospective TRC result of less than 1.00 in a third DSM/EE rider proceeding after the initial non-cost-effective result, the Company shall terminate the program effective at the end of the year following the DSM/EE rider order, unless otherwise ordered by the Commission.

3. Industrial and large commercial customers have the flexibility to opt out of either or both of the DSM and EE categories of programs for one or more vintage years, as well as the ability to opt back into either or both the categories for a later vintage year. If a customer opts back into the DSM category, it cannot opt out again for three years; however, a customer has the freedom to opt in or out of the EE category for each vintage year. Additionally, if a customer opts out of paying the rider for a vintage year after

one or more years in which the customer was “opted in,” DEC may charge the customer subsequent DSM/EE and DSM/EE EMF riders only for those vintage years in which the customer actually participated in a DSM/EE program.

4. DSM/EE and DSM/EE EMF riders will be calculated on a vintage year basis, with separate riders being calculated for the Residential customer class and for those rate schedules within the Non-Residential customer class that have DEC DSM/EE program options in which they can participate.

5. Incurred DSM and EE program costs will be directly recovered as part of the annual riders. Deferral accounting for over- and underrecoveries of costs is allowed, and the balance in the deferral account(s), net of deferred income taxes, may accrue a return at the net-of-tax rate of return approved in DEC’s then most recent general rate case.

6. DEC will be allowed to recover NLR as an incentive (with the exception of those amounts related to research and development or the promotion of general awareness and education of EE and DSM activities), but will be limited for each measurement unit installed in a given vintage year to those dollar amounts resulting from kWh sales reductions experienced during the first 36 months after the installation of the measurement unit. NLR related to pilot programs are subject to additional qualifying criteria.

7. The eligibility of kWh sales reductions to generate recoverable NLR during the applicable 36-month period will cease upon the implementation of a Commission-approved alternative recovery mechanism that accounts for NLR, or new rates approved by the Commission in a general rate case or comparable proceeding.

8. NLR will be reduced by net found revenues (as defined in the Revised Mechanism) that occur in the same 36-month period. Net found revenues will continue to be determined according to the “Decision Tree” process approved by the Commission on February 8, 2011, in Docket No. E-7, Sub 831.[4]

9. DEC will be allowed to recover a PPI for its DSM and EE portfolio based on a sharing of actually achieved and verified energy and peak demand savings (excluding those related to general programs and measures and research and development activities). Any PPI related to pilot programs is subject to additional qualifying criteria. Unless the Commission determines otherwise in an annual DSM/EE rider proceeding, the amount of the pre-

[4] Additionally, in its Order issued on August 21, 2015, in Docket No. E-7, Sub 1073, the Commission found that “it is reasonable, for purposes of this proceeding, for DEC to include negative found revenues associated with its current initiative to replace mercury vapor (MV) lighting with light emitting diode (LED) fixtures in the calculation of net found revenues used in the Company’s calculation of NLR.”

income-tax PPI initially to be recovered for the entire DSM/EE portfolio for a vintage year will be equal to 11.5% multiplied by the present value of the estimated net dollar savings associated with the DSM/EE portfolio installed in that vintage year. Low-income programs with expected UC test results less than 1.00 and other non-cost-effective programs with similar societal benefits as approved by the Commission will not be included in the portfolio for purposes of the PPI calculation. The PPI for each vintage year will ultimately be trued up based on net dollar savings as verified by the EM&V process and approved by the Commission. For Vintage Years 2019 and afterwards, the program-specific per kilowatt (kW) avoided capacity benefits and per kWh avoided energy benefits used for the initial estimate of the PPI and any PPI true-up will be derived from the underlying resource plan, production cost model, and cost inputs that generated the avoided capacity and avoided energy credits reflected in the most recent Commission-approved Biennial Determination of Avoided Cost Rates as of December 31 of the year immediately preceding the date of the annual DSM/EE rider filing, but using, for program-specific avoided energy benefits, the projected EE portfolio hourly shape rather than an assumed 24x7 100 MW reduction.

10. If the Company achieves incremental energy savings of 1% of its prior year's system retail electricity sales in any year during the five-year 2014-2018 period, the Company will receive a bonus incentive of $400,000 for that year.

Appendix B

MICHAEL C. MANESS

I am a graduate of the University of North Carolina at Chapel Hill with a Bachelor of Science degree in Business Administration with Accounting. I am a Certified Public Accountant and a member of both the North Carolina Association of Certified Public Accountants and the American Institute of Certified Public Accountants.

As Director of the Accounting Division of the Public Staff, I am responsible for the performance, supervision, and management of the following activities: (1) the examination and analysis of testimony, exhibits, books and records, and other data presented by utilities and other parties under the jurisdiction of the Commission or involved in Commission proceedings; and (2) the preparation and presentation to the Commission of testimony, exhibits, and other documents in those proceedings. I have been employed by the Public Staff since July 12, 1982.

Since joining the Public Staff, I have filed testimony or affidavits in a number of general, fuel, and demand-side management/energy efficiency rate cases of the utilities currently organized as Duke Energy Carolinas, LLC, Duke Energy Progress, LLC., and Virginia Electric and Power Company (Dominion Energy North Carolina) as well as in several water and sewer general rate cases. I have also filed testimony or affidavits in other proceedings, including applications for certificates of public convenience and necessity for the construction of generating facilities, applications for approval of self-generation deferral rates, applications for approval of cost and incentive recovery mechanisms for electric utility demand-side management and energy efficiency (DSM/EE) efforts, and applications for approval of cost and incentive recovery pursuant to those mechanisms.

I have also been involved in several other matters that have come before this Commission, including the investigation undertaken by the Public Staff into the operations of the Brunswick Nuclear Plant as part of the 1993 Carolina Power & Light Company fuel rate case (Docket No. E-2, Sub 644), the Public Staff's investigation of Duke Power's relationship with its affiliates (Docket No. E-7, Sub 557), and several applications for business combinations involving electric utilities regulated by this Commission. Additionally, I was responsible for performing an examination of Carolina Power & Light Company's accounting for the cost of Harris Unit 1 in conjunction with the prudence audit performed by the Public Staff and its consultants in 1986 and 1987.

I have had supervisory or management responsibility over the Electric Section of the Accounting Division since 1986, and also was assigned management duties over the Water Section of the Accounting Division during the 2009-2012 time frame. I was promoted to Director of the Accounting Division in late December 2016.

(WHEREUPON, D. Williamson Exhibit 1 is marked for identification as prefiled and received into evidence.)

(WHEREUPON, the prefiled direct testimony and Appendix A of DAVID M. WILLIAMSON is copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1192

In the Matter of Application of Duke Energy Carolinas, LLC, for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant to N.C.G.S. 62-133.9 and Commission Rule R8-69	)))))	TESTIMONY OF DAVID M. WILLIAMSON PUBLIC STAFF – NORTH CAROLINA UTILITIES COMMISSION

May 20, 2019

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND PRESENT POSITION.

A. My name is David M. Williamson. My business address is 430 North Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am a Utilities Engineer with the Electric Division of the Public Staff, North Carolina Utilities Commission.

Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.

A. My qualifications and duties are included in Appendix A.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to present the Public Staff's analysis and recommendations with respect to the following aspects of the February 26, 2019, application of Duke Energy Carolinas, LLC (DEC), for approval of its demand-side management (DSM) and energy efficiency (EE) cost recovery rider for 2020 (Rider 11). This testimony discusses: (1) the portfolio of DSM and EE programs included in the proposed Rider 11, including modifications of those programs made pursuant to the joint motion regarding program modifications approved on July 16, 2012, in Docket No. E-7, Sub 831 (Flexibility Guidelines); (2) the ongoing cost-effectiveness of each DSM and EE program; and (3) the evaluation, measurement, and evaluation (EM&V) studies filed as Exhibits A through L to the testimony of Company witness Robert P. Evans.

Q. WHAT DOCUMENTS HAVE YOU REVIEWED IN YOUR INVESTIGATION OF DEC'S PROPOSED RIDER 10?

A. I reviewed the application and supporting testimony and exhibits, as well as DEC's responses to Public Staff data requests. In addition, I reviewed previous Commission orders related to DEC's DSM and EE programs and cost recovery rider proceedings, including the following documents:

1. The Agreement and Joint Stipulation of Settlement (Sub 831 Agreement) approved on February 9, 2010, in Docket No. E-7, Sub 831;
2. The agreement regarding EM&V approved on November 8, 2011, in Docket No. E-7, Sub 979 (EM&V Agreement);
3. The Flexibility Guidelines;
4. The Agreement and Stipulation of Settlement (Sub 1032 Agreement) approved on October 29, 2013, in Docket No. E-7, Sub 1032 (Sub 1032 Order), which approved a new DSM/EE Cost Recovery Mechanism that incorporated the EM&V Agreement and the Flexibility Guidelines (Sub 1032 Mechanism); and
5. The Commission's *Order Approving DSM/EE Rider, Revising DSM/EE* Mechanism*, and Requiring Filing of Proposed Customer Notice* issued August 23, 2017, in Docket No.

E-7, Sub 1130 (Sub 1130 Order) that approved revisions to the Sub 1032 Mechanism (Revised Mechanism).

Q. DO YOU HAVE ANY EXHIBITS?

A. Yes. I have included one exhibit with my testimony. Williamson Exhibit No. 1 shows the changes in the projected cost-effectiveness of the Company's portfolio of programs as calculated by the Company in its 2017, 2018, and current DSM/EE rider proceedings.

<u>DSM and EE Programs in Rider 11</u>

Q. PLEASE IDENTIFY THE DSM AND EE PROGRAMS FOR WHICH DEC IS SEEKING COST RECOVERY THROUGH THE DSM/EE RIDER IN THIS PROCEEDING.

A. In its proposed Rider 11, DEC included the costs and incentives associated with the following programs:

- Energy Assessments;
- EE Education;
- Residential Smart $aver® Energy Efficient Appliances and Devices;
- Residential Smart $aver® EE (formerly the HVAC EE Program);
- Multi-Family EE;
- My Home Energy Report (MyHER);

- Income-Qualified (formerly Low Income) Energy Efficiency and Weatherization Assistance;
- Power Manager;
- Nonresidential Smart $aver® Energy Efficient Products and Assessments Program:
  - Energy Efficiency Food Service Products;
  - Energy Efficiency HVAC Products;
  - Energy Efficiency IT Products;
  - Energy Efficiency Lighting Products;
  - Energy Efficiency Process Equipment Products;
  - Energy Efficiency Pumps and Drives;
  - Custom Incentive and Energy Assessments;
- PowerShare®;
- Power Share® Nonresidential Call Option[1];
- Small Business Energy Saver;
- Smart Energy in Offices[2];
- EnergyWise for Business; and
- Nonresidential Smart $aver® Performance Incentive.

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[1] Commission Order in Sub 1130 dated August 23, 2017, approving program cancellation effective January 31, 2018.

[2] Commission Order dated February 7, 2018, approving program cancellation effective June 30, 2018.

Each of these programs has received Commission approval as a new DSM or EE program and is eligible for cost recovery in this proceeding under N.C. Gen. Stat. § 62-133.9, subject to certain program-specific conditions imposed by the Commission.

Since program approval, DEC has modified several of these programs to add or remove measures, consistent with the Flexibility Guidelines, to enhance the programs' cost-effectiveness and address changing market conditions and technologies. In each case, DEC either sought Commission approval or provided notice of those modifications in compliance with those guidelines.

I also note that since the last rider proceeding, DEC has received Commission approval to modify the Multi-Family EE, PowerShare, and Residential $aver® EE programs. These modifications were intended to expand the availability of the programs and/or improve cost-effectiveness.

<u>Program Performance</u>

Q. PLEASE DISCUSS THE PERFORMANCE OF THE PORTFOLIO.

A. While the testimony and exhibits of DEC witness Evans provide information regarding the performance of each program in DEC's portfolio, I want to bring certain information to the Commission's attention regarding the performance of particular programs, as well as the performance of DEC's overall portfolio. While the portfolio of programs seems generally to be performing satisfactorily, the federal rules imposing minimum requirements on the production of lighting-related measures, and the North Carolina market in which these measures are offered, merit further discussion. I also discuss the performance of other programs that are struggling to remain cost-effective.

Q. PLEASE DISCUSS YOUR OBSERVATIONS CONCERNING LIGHTING-RELATED MEASURES.

A. Over the years and in various dockets before the Commission, the Public Staff has highlighted several trends surrounding the adoption of EE lighting measures, i.e., that the EE lighting market for North Carolina is being transformed and that non-specialty light emitting diode (LED) lighting will likely become the baseline standard for general service bulb technologies by January 2020, thereby decreasing savings from any EE program that continues to include general service bulb technologies.

On January 19, 2017, the U.S. Department of Energy (DOE) published final rules adopting a revised definition for the general service lamp (GSL) and general service incandescent lamp (GSIL), among other modifications to other definitions, which are to become effective January 1, 2020[3]. These updates are from a DOE rulemaking to implement the second phase of the 2007 Energy Independence and Security Act (EISA) set to go into effect on January 1, 2020, otherwise known as EISA 2020.

However, on February 11, 2019, the DOE issued a notice of proposed rulemaking and request for comment that potentially could withdraw the currently approved language on GSL and GSIL.[4] As a result of this filing, further rulemaking may occur, but until such time, the current ruling is the assumed path going forward.

Market transformation is difficult to determine because the metrics associated with market transformation are subjective. However, one of the goals of utility-sponsored EE programs is to build customer awareness of, and confidence in, EE technologies, and, as a result, encourage consumers to adopt EE even without incentives. As technologies become even more energy efficient, costs decrease, and consumer acceptance improves, adoption of EE should become more routine, at which point there is "market transformation."

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[3] Energy Conservation Program: Conservation Standards for General Service Lamps, 82 Fed. Reg. 7276-7322 (January 19, 2017).

[4] Energy Conservation Program: Conservation Standards for General Service Lamps, 84 Fed. Reg. 3120-3131 (February 2, 2019), https://www.federalregister.gov/documents/2019/02/11/2019-01853/energy-conservation-program-energy-conservation-standards-for-general-service-lamps

Q. DO YOU BELIEVE THAT NORTH CAROLINA'S LIGHTING MARKET HAS TRANSFORMED OR IS ON THE VERGE OF TRANSFORMING?

A. Yes. Since the Company began distributing lighting measures to its customers through DSM/EE programs, the acceptance of more efficient lighting measures has been increasing. When the Company began issuing lighting measures, the efficient bulb offering was the compact fluorescent lamp (CFL) bulb was the primary offering. As LEDs became more accessible economically to both the utilities and the customers who would receive them via discount or free incentives, the market slowly began migrating even further toward the LED market as the "go to" bulb.

For example, in DEC's Retail LED Program (Evans Exhibit C)[5], DEC's third party evaluator, Opinion Dynamics, discusses on page 16 of its report on the original intentions for the program. Opinion Dynamics explains that

> "DEC launched the Retail LED program in March 2016 with the goal of reducing electric energy consumption and peak demand through increased awareness and

[5] This report's investigation period covers bulb sales from March 21, 2016 through March 12, 2017. During this period DEC discounted 1.3 million lighting products.

> adoption of energy efficient lighting technologies. The program addresses two key barriers to the purchase of efficient lighting: (1) the higher prices of LEDs compared to less energy-efficient alternatives, such as incandescent and halogens, and (2) customer awareness and knowledge of the benefits of efficient lighting."

Opinion Dynamics also provides insight into the current state of the program's customer awareness when it discusses Net-to-Gross ratio (NTGR) and how it is calculated. The NTGR is calculated under a triangulation approach that uses sales data modeling, retailer interviews, and manufacturer interviews to determine the appropriate NTGR for use during the time period of the reports investigation. Additionally, this NTGR will be applied to the measures associated with this program until another EM&V report for the program is published, effectively superseding the current report. Focusing only on the sales data modeling of the NTGR determination, which is a reflection of customers who actually purchase bulbs, Opinion Dynamics states on page 53 of the report that:

> "…according to the results of the sales data modeling, customers would have purchased fewer LEDs in the

> absence of program discounts. We found that 73% of all LED program sales would have occurred regardless of the program discounts, i.e., a NTGR of 0.27. The NTGR is the highest for specialty LEDs (0.39) and lowest for standard LEDs and LED fixtures (0.21 and 0.16, respectively)."

A NTGR of 21% for standard LED and 16% for LED fixtures demonstrate that North Carolina's market no longer needs discounted or free non-specialty LED bulbs as part of utility EE program lighting portfolios going forward.

Q. DOES THE COMPANY STILL OFFER NON-SPECIALTY LED BULBS IN ITS PORTFOLIO DURING THIS PROCEEDING?

A. Yes, however, the Company has been working to minimize the impacts of EISA 2020, and as such, has been updating its lighting measure offerings to those focused on specialty LED bulbs. When looking at the list of measure offerings for each program, the number of non-specialty LED bulbs has been greatly reduced since the last rider proceeding. In fact, the majority of the bulbs offered by the Company across all of its residential programs are specialty LED bulbs.

In addition to the notion of market transformation mentioned in the above paragraphs, both specialty and non-specialty bulbs are cost-effective measures that can be offered to customers.

Q. WHAT IS THE PUBLIC STAFF'S ASSESSMENT OF NON-SPECIALTY LED BULBS IN THE COMPANY'S RESIDENTIAL PORTFOLIO FOR THIS PROCEEDING?

A. Regardless of the currently scheduled EISA 2020 standard and taking into consideration the Company's efforts on migrating to primarily specialty LED bulbs, and barring any updates, withdrawals, or new technologies for lighting, it appears that the North Carolina lighting market is adopting EE lighting technologies as a baseline, and because of that, an incentive for non-specialty LED bulbs will no longer be needed after Vintage 2020.

Even though cost effectiveness tests for lighting measures under this program are still showing positive scores, the Public Staff believes that the acceptance of the EE measures, shown through the NTGR, is another primary source when determining the impacts of a program and its need to remain in the portfolio.

Q. ARE THERE OTHER PROGRAMS THAT ARE STRUGGLING TO BE OR REMAIN COST-EFFECTIVE?

A. Yes. As seen in Williamson Exhibit 1, the Residential Smart Saver EE (formerly, the HVAC program), Residential Low-Income, Non-Residential Smart Saver Efficient Food Service Products, and Non-Residential Smart Saver Efficient IT Products programs are not cost-effective under the Total Resource Cost (TRC) test.

The two Non-Residential Smart Saver programs are have lower cost-effectiveness that is attributable to both level of participation and the avoided costs.

The Residential Smart Saver EE program, as mentioned above, was recently granted approval on modifications to increase its cost-effectiveness. This program has greatly increased its cost-effectiveness, even though it still remains not cost-effective. Notwithstanding the Company's efforts to maintain cost-effectiveness of this program, the Public Staff continues to be skeptical that it can be cost-effective. The Public Staff also acknowledges that HVAC programs are a staple EE program, and that the Commission's previous rulings on continuing such programs, despite the cost-effectiveness, could ultimately diminish the role of cost-effectiveness in the evaluation of EE programs.

For the Residential Low-Income program, the Public Staff has inquired about the trends of the Company's low income program (as seen in Williamson Exhibit 1). The Company has informed the Public Staff that an update in the Company's cost-effectiveness calculation and methodology has been made to better align with the California Standard Practice Manual[6]. This update impacts the way that an incentive is treated on both the cost and benefit side of the cost-effectiveness test. This update impacts all programs that provide an incentive in the form of a discount or freebie to the participant. The Public Staff is still in discussions with the Company on the inner workings of this updated methodology, however, while reserving the right to comment on this topic in a later proceeding, we do not see an immediate issue with the application of the methodology.

Cost Effectiveness

Q. HOW IS THE COST EFFECTIVENESS OF DEC'S DSM AND EE PROGRAMS EVALUATED?

A. The Public Staff reviews the cost-effectiveness of the individual DSM/EE programs when they are proposed for approval and then annually in the rider proceedings. Pursuant to the Revised Mechanism, cost-effectiveness is evaluated at both the program and

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6 https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/CPUC_STANDARD_PRACTICE_MANUAL.pdf

portfolio levels. The Public Staff reviews cost-effectiveness using the Utility Cost (UC), TRC, Participant, and Ratepayer Impact Measure (RIM) tests. Under each of these four tests, a result above 1.0 indicates that a program is cost-effective.

A program may be above 1.0 on one or more tests, and at the same time below 1.0 on other tests. The Public Staff and the Revised Mechanism place greater weight on the UC and TRC tests.

The TRC test represents the combined utility and participant benefits that will result from implementation of the program; a result greater than 1.0 indicates that the benefits outweigh the costs of a program to both the utility and the program's participants. A UC test result greater than 1.0 means that the program is cost beneficial[7] to the utility (the overall system benefits are greater than the utility's costs, including incentives paid to participants). The Participant test is used to evaluate the benefits against the costs specific to those ratepayers who participate in a program. The RIM test is used to understand

[7] "Cost beneficial" in this sense represents the net benefit achieved by avoiding the need to construct additional generation, transmission, and distribution facilities related to providing electric utility service, and/or avoiding energy generation from existing or new facilities or purchased power.

how ratepayers who <u>do not</u> participate in a program will be impacted by the program.

Q. HOW IS COST-EFFECTIVENESS EVALUATED IN DSM/EE RIDER PROCEEDINGS?

A. In each DSM/EE rider proceeding, DEC files the expected cost-effectiveness of each program and the portfolio as a whole for the upcoming rate period (Evans Exhibit 7). New DSM/EE programs are approved under Commission Rule R8-68, which evaluates cost-effectiveness over a three to five year period using estimates of participation and measure attributes that can be reasonably expected over that period. The evaluations in DSM/EE rider proceedings look more specifically at the actual performance of a typical measure, providing an indication of what to expect in the next year. Each year's rider filing is updated with the most current EM&V data and other program performance data.

Q. HOW DOES THE PUBLIC STAFF ASSESS COST-EFFECTIVENESS IN EACH RIDER?

A. The Public Staff compares the cost-effectiveness test results in previous DSM/EE proceedings to the current filing, and develops a trend of cost-effectiveness that serves as the basis for the Public Staff's recommendation on whether a program should (1) continue as currently implemented, (2) be placed under watch for signs of decreasing cost-effectiveness combined with modifications to attempt to sustain cost-effectiveness, or (3) be terminated.

Q. HOW DO THE COST-EFFECTIVENESS TEST SCORES FILED IN THIS RIDER COMPARE TO SCORES IDENTIFIED IN PREVIOUS RIDERS?

A. While many programs continue to be cost effective, the TRC scores as filed by the Company for all programs have a natural ebb and flow over the years of DSM/EE rider proceeding, mainly due to the changes in avoided cost rate determinations, as mentioned earlier. These changes are shown in Williamson Exhibit No. 1.

Q. ARE THERE OTHER REASONS FOR THESE DIFFERENCES?

A. The decreasing cost-effectiveness is also partially attributable to a reduction in the unit savings from the original estimates of savings as determined through EM&V of the program. Also, as programs mature, baseline standards increase, or avoided cost rates decrease, it becomes more difficult for a program to produce cost-effective savings. On the other hand, greater than expected participation usually results in greater savings per unit cost, which increases cost-effectiveness.

EM&V

Q. HAVE YOU REVIEWED THE EM&V REPORTS FILED BY DEC?

A. Yes. The Public Staff contracted the services of GDS Associates, Inc. (GDS), to assist with review of EM&V. With GDS's assistance, I have reviewed the EM&V reports filed in this proceeding as Evans Exhibits A through L.

I also reviewed previous Commission orders to determine if DEC complied with provisions regarding EM&V contained in those orders. In the Sub 1164 DSM/EE rider proceeding for DEC, the Commission approved Public Staff's recommendations concerning:

> Adjusting the NTGR scoring scale for the Non-Residential Smart Saver Custom program so that it is symmetrical, as opposed to asymmetrical, giving equal weight to survey responses that favor the Company as well as those that do not favor the Company. The Public Staff also recommended refiling this report to verify that the change had been made and updates had been issued. This recommendation has no impact on this proceeding. However, DEC has indicated that it will incorporate this recommendation into future EM&V of this program.

Q. DO YOU HAVE ANY RECOMMENDATIONS CONCERNING THE EM&V REPORTS YOU REVIEWED?

A. I have reviewed the testimony and exhibits of DEC witness Evans concerning the EM&V of DEC's DSM and EE programs. Based upon my review and upon the analysis performed by GDS, I do not have any recommendations for the EM&V reports filed in this proceeding.

Q. WERE THERE ANY EM&V REPORTS THAT WERE CARRIED OVER FROM LAST YEAR'S RIDER PROCEEDING AND LEFT OPEN FOR REVISION?

A. Yes. In the Sub 1164 proceeding in 2018, Public Staff recommended that the EM&V reports for the Non-Residential Smart Saver Custom program (Evans Exhibits B in Sub 1164) be revised before accepting the report as complete, and that the My Home Energy Report program (Evans Exhibits C in Sub 1164) be conditionally accepted until the Public Staff completed its review.

The Non-Residential Smart Saver Custom report from Sub 1164 has been revised and submitted as Evans Exhibit H in this proceeding. The Public Staff's review indicates that the Company appropriately incorporated the Public Staff's previous recommendations into this EM&V report. Therefore, I recommend that Evans Exhibit H be considered complete for purposes of calculating program impacts in this proceeding.

The review of the My Home Energy Report has been completed and the Public Staff, through discussions with the Company, GDS Associates, and the EM&V report's evaluator Nexant, concludes that this report should be considered complete. The Public Staff was able to resolve the inconsistencies that resulted in delaying our review. Due to the significant contribution of the MyHER program to the Company's portfolio, the Public Staff believes that the level of rigor associated with the EM&V review warrants a thorough analysis of the savings. The Public Staff will continue to work with the Company and the EM&V consultants to ensure that the necessary rigor is maintained for future EM&V efforts of the MyHER program.

Q. SHOULD THE EM&V REPORTS FILED IN THIS PROCEEDING BE ACCEPTED AS COMPLETE?

A. Yes. The reports filed in this proceeding, labeled as Evans Exhibits A through L, should be considered complete.

Q. HAVE YOU CONFIRMED THAT THE COMPANY'S CALCULATIONS INCORPORATE THE VERIFIED SAVINGS OF THE VARIOUS EM&V REPORTS?

A. Yes. As in previous cost recovery proceedings, I was able, through sampling, to verify that the changes to program impacts and participation were appropriately incorporated into the rider calculations for each DSM and EE program, as well as the actual participation and impacts calculated with EM&V data. I reviewed: (1) workpapers provided in response to data requests; (2) a sampling of the EE programs; and (3) Evans Exhibit 1, which incorporates data from various EM&V studies. I also met with DEC personnel to review the calculations, EM&V, DSMore, and other data related to the program/measure participation and impacts. Based on my ongoing review of this data, I believe DEC has appropriately incorporated the findings from EM&V studies and annual participation into its rider calculations consistent with Commission orders and the Revised Mechanism. I will continue to review this information and, if necessary, file further information with the Commission should my review reveal any relevant issues that would cause me to alter my recommendations or conclusions.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

APPENDIX A

DAVID M. WILLIAMSON

I am a 2014 graduate of North Carolina State University with a Bachelor of Science Degree in Electrical Engineering. I began my employment with the Public Staff's Electric Division in March of 2015. My current responsibilities within the Electric Division include reviewing applications and making recommendations for certificates of public convenience and necessity of small power producers, master meters, and resale of electric service; reviewing applications and making recommendations on transmission proposals for certificates of environmental compatibility and public convenience and necessity; and also interpreting and applying utility service rules and regulations.

My primary responsibility within the Public Staff is reviewing and making recommendations on DSM/EE filings for initial program approval, program modifications, EM&V evaluations, and on-going program performance of DEC, DEP, and DENC's portfolio of programs. I filed an affidavit in DEP's 2016 DSM/EE rider proceeding in Docket No. E-2, Sub 1108, and I have also filed testimony in various DEC, DEP, and DENC's DSM/EE rider proceedings.

COMMISSIONER BROWN-BLAND: Does that conclude the evidence that we have today?

MR. LITTLE: Yes, Your Honor.

COMMISSIONER BROWN-BLAND: Then for the time being that will conclude this matter. We will hold the record open and deal with proposed orders after such time as we hear from the parties and make a decision as to whether the record can be closed.

MS. FENTRESS: Thank you, Madam Chair.

COMMISSIONER BROWN-BLAND: Thank you, everybody.

MR. LITTLE: Thank you.

(The hearing was adjourned at 9:53 a.m.)

C E R T I F I C A T E

I, KIM T. MITCHELL, DO HEREBY CERTIFY that the Proceedings in the above-captioned matter were taken before me, that I did report in stenographic shorthand the Proceedings set forth herein, and the foregoing pages are a true and correct transcription to the best of my ability.

Kim T. Mitchell
____

Kim T. Mitchell
Court Reporter