PLACE: WebEx Video Conference

DATE: Tuesday, June 9, 2020

TIME: 1:33 p.m. - 5:17 p.m.

DOCKET NO.: E-7, Sub 1230

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

IN THE MATTER OF:

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

VOLUME: 2

Noteworthy Reporting Services, LLC

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

E X A M I N A T I O N S

EXHIBITS

P R O C E E D I N G S

COMMISSIONER BROWN-BLAND: Good afternoon. Let's come to order and go on the record. I'm Commissioner ToNola D. Brown-Bland with the North Carolina Utilities Commission, presiding commissioner for this hearing. With me this afternoon are Chair Charlotte A. Mitchell, Commissioners Lyons Gray, Daniel G. Clodfelter, Kimberly W. Duffley, Jeffrey A. Hughes, and Floyd McKissick, Jr.

I now call for hearing Docket Number E-7, Sub 1230, In the Matter of Application of Duke Energy Carolinas, LLC for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant to G.S. 62-133.9 and Commission Rule R8-69.

G.S. 62-133.9 establishes the procedure for cost recovery of demand-side management, DSM, and energy efficiency, EE, expenditures. G.S. 62-133.9(d) provides for an annual DSM/EE rider for electric public utilities to recover all reasonable and prudent costs incurred and appropriate incentives for adoption and implementation of new DSM and EE measures.

On February 25, 2020, Duke Energy Carolinas, LLC -- DEC or applicant -- filed its application for approval of DSM and EE cost recovery rider pursuant to G.S. 62-133.9 and Commission Rule R8-69 along with direct testimony and exhibits of Robert P. Evans and Carolyn T. Miller in support of the application.

On March 17, 2020, the Commission issued an order scheduling this hearing for Tuesday, June 9, 2020, to be held after the hearing in Docket Number E-7, Sub 1228, which was scheduled to begin at 9:30 a.m. in the Commission Hearing Room, the Dobbs Building, in Raleigh, North Carolina. In addition, the order required DEC to publish notice of the date and time of the hearing. Based on their timely petitions to intervene, the following parties were allowed to intervene by order of the Commission: North Carolina Sustainable Energy Association, NCSEA; Carolina Utilities Customers Association, Inc., CUCA; Southern Alliance for Clean Energy, SACE, or SACE; North Carolina Housing Coalition, North Carolina Justice Center, and -- as the joint intervenors; and the Carolina Industrial Group for Fair Utility Rates, III, CIGFUR-III. The intervention and participation of the Public Staff is recognized pursuant to G.S. 62-15(d) and Commission Rule R1-19(e).

On May 11, 2020, DEC filed the supplemental testimony and exhibits of witnesses Evans and Miller. On May 12, 2020, DEC filed a motion for additional public hearing and revised public notice. On May 13, 2020, the Commission issued an order requiring DEC to publish a second public notice of the hearing. On May 22, 2020, the Public Staff filed the direct testimony and exhibits of David M. Williamson, John R. Hinton, and Michael C. Maness. Also on May 22nd, joint intervenors, the North Carolina Justice Center; North Carolina Housing Coalition, or NCHC; and SACE filed the testimony and exhibits of Forest Bradley-Wright.

On May 29, 2020, the Commission issued an order scheduling remote hearing for expert witness testimony, which order rescheduled the expert witness portion of the hearing for the same day, June 9, 2020, at 1:00 p.m. and gave notice that the expert witness hearing would be by remote means on WebEx. The order also required the parties to make a filing by June 3, 2020, stating whether they consent or object to holding a hearing by remote means.

On June 2, 2020 DEC filed rebuttal testimony of witnesses Robert P. Evans and Timothy J. Duff. Also on June 2nd, all parties filed individual statements informing the Commission that they consent to holding the expert witness hearing by remote means. On June 3rd, DEC and the Public Staff filed a joint motion requesting that DEC witness Carolyn Miller and Public Staff witness Michael Maness be excused from testifying at the hearing. On June 5th, the Commission issued an order excusing DEC witness Miller and Public Staff witness Maness from testifying at the hearing, and DEC filed affidavits of publication for initial and second public notices of public hearing.

On June 8, 2020, the Public Staff filed the supplemental testimony and exhibits of witnesses Williamson and Maness.

On June 9th, earlier today, the public witness portion of the hearing was held as scheduled this morning in the Commission hearing room and there were no public witnesses who appeared.

In compliance with the requirements of the State Government Ethics Act, I now remind members of the Commission of our responsibility to avoid conflicts of interest, and I inquire at this time whether any member has any known conflict of interest with respect to the matter now before us. Now I will pause.

(No response.)

COMMISSIONER BROWN-BLAND: And I'm hearing no one or seeing no one trying to come in with a conflict. So, Madam Court Reporter, let the record reflect no conflicts were identified.

I will now call for appearances, and I will start with the applicant.

MS. FENTRESS: Good afternoon, commissioners. My name is Kendrick Fentress, and I'm appearing on behalf of Duke Energy Carolinas.

COMMISSIONER BROWN-BLAND: Good afternoon. I guess I will go with the intervenors here. Who wants to speak up? Anyone to make an appearance?

MR. SMITH: Thank you,

Commissioner Brown --

COMMISSIONER BROWN-BLAND: Go ahead, Mr. Neal.

MR. NEAL: I thank you, Commissioner Brown-Bland. Good afternoon. David Neal appearing on behalf of the North Carolina Justice Center, North Carolina Housing Coalition, and the Southern Alliance for Clean Energy. With me is Tirrill Moore and Gudrun Thompson.

COMMISSIONER BROWN-BLAND: All right. Welcome to all of you to this historical occasion.

Mr. Smith, did you want to go next?

MR. SMITH: Sure. This is Ben Smith appearing on behalf of the North Carolina Sustainable Energy Association.

COMMISSIONER BROWN-BLAND: All right. And I think Ms. Hicks?

MS. HICKS: Good afternoon. This is Warren Hicks appearing on behalf of the Carolina Industrial Group for Fair Utility Rates, III.

COMMISSIONER BROWN-BLAND: And I have

not seen anyone for CUCA. Is there anyone on appearing for CUCA?

(No response.)

COMMISSIONER BROWN-BLAND: All right. And one more, I believe. Public Staff?

MS. EDMONDSON: Lucy Edmondson and Nadia Luhr with the Public Staff on behalf of the Using and Consuming Public.

COMMISSIONER BROWN-BLAND: Good afternoon. Anyone else needing to make an appearance? Have I missed anyone?

(No response.)

COMMISSIONER BROWN-BLAND: All right. Is there any -- are there any preliminary matters that we need to take up? Any other questions we haven't already dealt with?

(No response.)

COMMISSIONER BROWN-BLAND: Seeing none, the case is with Duke.

MS. FENTRESS: Thank you. I will begin with, as you noted, Commissioner Brown-Bland, referencing the order of June 5th issued by the Commission excusing from testifying Duke witness Carolyn Miller, and I will enter into the record --

or move to enter into the record at this time her direct testimony and exhibits filed February 25th and her supplemental testimony and exhibits filed May 11th, as well as moving in the application which supports our -- which is supported by Ms. Miller, Mr. Evans, and Mr. Duff's testimony.

COMMISSIONER BROWN-BLAND: All right. Looking around, and I'm not seeing anyone. Are there any objections to the motion? If not, that motion by Ms. Fentress on behalf of Duke will be allowed, and the testimony and exhibits of witness Miller, both direct and supplemental, will be received into evidence as if given orally from the witness stand with regard to the testimony, and exhibits will be received and identified as they were when they were prefiled.

MS. FENTRESS: Thank you.

(Application by Duke Energy Carolinas, LLC; Miller Exhibits 1 through 7, and Supplemental Miller Exhibits 1 through 7 were admitted into evidence.)

(Whereupon, the prefiled direct and supplemental testimony of Carolyn T. Miller was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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. INTRODUCTION AND PURPOSE

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 12), 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 2017, 2018, and 2019. Miller Exhibit 4 shows the actual and estimated prospective amounts collected from customers via Riders 8-11 pertaining to Vintages 2017 through 2020. 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 (2021) 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 12 amounts will apply. Miller Exhibit 7 is the proposed tariff sheet for Rider 12.

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 12.

A. Rider 12 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 net lost revenues or the PPI.

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

Miller Exhibit 3, pages 1 through 12, shows the calculation performed as part of the true-up of Vintage 2017, Vintage 2018, and Vintage 2019.

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 12?

A. The prospective components of Rider 12 include: (1) a prospective Vintage 2021 component designed to collect program costs and the PPI for DEC's 2021 vintage of DSM programs; (2) a prospective Vintage 2021 component to collect program costs, PPI, and the first year of net lost revenues for DEC's 2021 vintage of EE programs; (3) a prospective Vintage 2020 component designed to collect the second year of estimated net lost revenues for DEC's 2020 vintage of EE programs; (4) a prospective Vintage 2019 component designed to collect the third year of estimated net lost revenues for DEC's 2019 vintage of EE programs; and (5) a prospective Vintage 2018 component designed to collect the fourth year of estimated lost revenues for DEC's 2018 vintage of non-residential EE programs. The EMF components of Rider 12 include: (1) a true-up of Vintage 2017 lost revenues; (2) a true-up of Vintage 2018 PPI and participation for DSM/EE programs based on additional EM&V results received; (3) a true-up of Vintage 2019 program costs, PPI, and lost revenues 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. UTILITY INCENTIVES AND NET LOST REVENUES

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 3, shows the revised PPI for Vintage 2017, Vintage 2018, and Vintage 2019, respectively, based on updated EM&V results, and Evans Exhibit 1, page 4, shows the estimated PPI by program type and customer class for Vintage

2021. 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 January 31, 2020, as discussed further below) of the base rate case proceeding in Docket No. E-7, Sub 1214 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, 2020 and included in base rates. Non-residential lost revenues associated with the test period (twelve months ending December 31, 2018) of the Company's general rate case proceeding, Docket No. E-7, Sub 1214 , 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, 2020 and included in base rates.

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.

Q. HAVE EXCESS DEFERRED INCOME TAXES RESULTING FROM THE TAX CUTS AND JOBS ACT BEEN INCORPORATED INTO THE CALCULATION OF NET LOST REVENUES FOR YEAR 2020?

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 excess deferred income taxes ("EDIT") 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. Per that Order, DEC was directed 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 the incremental costs incurred in connection with the response to Hurricane Florence, Hurricane Michael and Winter Storm Diego filed on December 21, 2018 in Docket No. E-7, Sub 1187, the Company indicated that it planned to file a general rate case in 2019. As of February 26, 2019, when DEC filed for EE/DSM cost recovery in Rider 11, it was expected that the Commission would resolve the appropriate method to flow EDIT back to customers during the planned 2019 rate case, but the timing and methodology of that anticipated flowback of EDIT was yet to be determined. Due to that uncertainty, DEC decided to incorporate a placeholder for the return of EDIT into Rider 11 in an attempt to mitigate potential overcollection with respect to the Company's EE/DSM rider. To achieve this goal, for Rider 11 only, the Company 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 EDIT 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, Docket No. E-7, Sub 1214.

Q. **HAS EDIT RESULTING FROM THE TAX CUTS AND JOBS ACT BEEN INCORPORATED INTO THE CALCULATION OF NET LOST REVENUES FOR YEAR 2021?**

A. No. As of February 25, 2020, the Company has filed a general rate case in Docket No. E-7, Sub 1214 in which it has proposed that all excess deferred taxes be returned to customers through a separate rider. As such, there is no need in this current proceeding to include a placeholder to mitigate potential overcollections of lost revenues since the full balance of excess deferred taxes will be returned through the proposed EDIT-related rider. If the mechanism for returning EDIT to customers changes as part of the final outcome in Docket No. E-7, Sub 1214, the Company will file supplemental exhibits incorporating the appropriate adjustments.

V. OPT-OUT PROVISIONS

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

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

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 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 12?

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 12 using the rate period January 1, 2021 through December 31, 2021.

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 based on the fourth year of net lost revenues for non-residential customer classes and based on their participation in Vintage 2018 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.

Certain non-residential lost revenues associated with vintages through the test period January 1, 2018 through December 31, 2018 of Docket No. E-7, Sub 1214, "*Application for General Rate Case*", have been removed from the prospective period as of August 1, 2020, assuming new base rates recover the net lost revenues associated with those specific kWh sales reductions. All amounts will be "trued up" pending resolution of Docket No. E-7, Sub 1214 during the next EMF period.

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 third 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.

Certain residential lost revenues through the updated test period February 1, 2019 through January 31, 2020 of Docket No. E-7, Sub 1214, *"Application for General Rate Case"*, have been removed from the prospective period as of August 1, 2020, assuming new base rates recover the net lost revenues associated with those specific kWh sales reductions. All amounts will be "trued up" pending resolution of Docket No. E-7, Sub 1214 during the next EMF period.

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

A. The Company determines the estimated revenue requirements for Vintage 2020 separately for residential and non-residential customer classes and bases them on the second year of net lost revenues for its Vintage 2020 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.

Certain residential lost revenues through the updated test period February 1, 2019 through January 31, 2020 of Docket No. E-7, Sub 1214, *"Application for General Rate Case"*, have been removed from the prospective period as of August 1, 2020, assuming new base rates recover the net lost revenues associated with those specific kWh sales reductions. All amounts will be "trued up" pending resolution of Docket No. E-7, Sub 1214 during the next EMF period.

Q. PLEASE DESCRIBE THE BASIS FOR THE RATE PERIOD REVENUE REQUIREMENTS RELATING TO VINTAGE 2021.

A. The estimated revenue requirements for Vintage 2021 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 2021 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 the 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 2019 (January 1, 2019 through December 31, 2019). In addition, the Second Waiver Order allows the EMF component to cover multiple test periods, so the EMF component for Rider 12 includes Vintage 2017 (January 2017 through December 2017) and Vintage 2018 (January 2018 through December 2018) as well.

Q. WHAT IS BEING TRUED UP FOR VINTAGE 2019?

A. The chart below demonstrates which components of the Vintage 2019 estimate filed in 2018 are being trued up in the Vintage 2019 EMF component of Rider 12. Miller Exhibit 2, page 3 contains the calculation of the true-up for Vintage 2019. The second year of net lost revenues for Vintage 2019, which are a component of Rider 11 billings during 2020, will be trued up to actual amounts during the next rider filing.

	Vintage 2019 Estimate (2019) As Filed (Filed 2018)	**Vintage 2019 True-Up (2019) (Filed March 2020)**
	Rider 10	**Rider 12 EMF**
Participation	Estimated participation using half-year convention	Update for actual participation for January – December 2019
EM&V	Initial assumptions of load impacts	Updated according to Commission-approved EM&V Agreement
Lost Revenues	Estimated 2019 participation using half-year convention	Update for actual participation for January – December 2019 and actual 2019 lost revenue rates
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

	Vintage 2019 Estimate (2019) As Filed (Filed 2018)	Vintage 2019 True-Up (2019) (Filed March 2020)
	Rider 10	**Rider 12 EMF**
		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 12 for the calculation performed as part of the true-up of Vintage 2017 Vintage 2018, and Vintage 2019.

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 2019 true-up reflects the actual quantity of demand reduction capability for the Vintage 2019 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 2019 TRUE-UP?

A. Net lost revenues for year one (2019) of Vintage 2019 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, 2019 through December 31, 2019. The rates applied to the kW and kWh savings are the retail rates that were in effect for the period January 1, 2019 through December 31, 2019 reduced by fuel and other variable costs. The lost revenues were then offset by actual found revenues for year one of Vintage 2019 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 2018?

A. Avoided costs for Vintage 2018 DSM programs are being trued up to update EM&V participation results. Avoided costs for Vintage 2018 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, 2018 through December 31, 2018. 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 2017?

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, 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. ARE ANY TRUE-UPS FOR VINTAGE 2016 INCLUDED IN THIS FILING?

A. No. All EM&V received during the past year was for periods subsequent to December 31, 2016. In addition, all net lost revenues associated with Vintage 2016 were rolled into the most recently completed base rate case with rates effective August 1, 2018. No further true-ups for Vintage 2016 are deemed necessary.

VIII. PROPOSED RATES

Q. WHAT ARE DEC'S PROPOSED INITIAL BILLING FACTORS APPLICABLE TO NORTH CAROLINA ELECTRIC CUSTOMERS FOR THE PROSPECTIVE COMPONENTS OF RIDER 12?

A. The Company's proposed initial billing factor for the Rider 12 prospective components is 0.4184 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 12 Prospective Components	¢/kWh
Vintage 2018 EE participant	0.0137
Vintage 2019 EE participant	0.0687
Vintage 2020 EE participant	0.0612
Vintage 2021 EE participant	0.3522

Non-Residential Billing Factors for Rider 12 Prospective Components	**¢/kWh**
Vintage 2021 DSM participant	0.1200

Q. WHAT ARE DEC'S PROPOSED EMF BILLING FACTORS APPLICABLE TO NORTH CAROLINA ELECTRIC CUSTOMERS FOR THE TRUE-UP COMPONENTS OF RIDER 12?

A. The Company's proposed EMF billing factor for the true-up components of Rider 12 is 0.1046 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 12 EMF Components	**¢/kWh**
Vintage 2019 EE Participant	(0.0225)
Vintage 2019 DSM Participant	0.0018
Vintage 2018 EE participant	(0.0049)
Vintage 2018 DSM participant	(0.0014)
Vintage 2017 EE participant	0.0342
Vintage 2017 DSM participant	0.0000

IX. CONCLUSION

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

A. DEC seeks approval of the Rider 12 billing factors to be effective throughout 2021. As discussed above, Rider 12 contains (1) a prospective component, which includes the fourth year of net lost revenues for non-residential Vintage 2018, the third year of net lost revenues for Vintage 2019, the second year of net lost revenues for Vintage 2020, and the revenue requirements for Vintage 2021; and (2) an EMF component which represents a true-up of Vintage 2017, Vintage 2018, and Vintage 2019. 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 12. 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.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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, 4, 6 and 7 and Evans Exhibits 1, 2 and 3 filed February 25, 2020 in this proceeding. These revisions are due to three corrections:

1. Updates to lost revenues based on Evaluation, Measurement and Verification ("EM&V") adjustments for Vintages 2018, 2019 and 2021.

2. Adjustments to Vintage 2019 program costs resulting from the Public Staff of the North Carolina Utilities Commission's ("Public Staff") program cost audit.

3. Inclusion of Vintage 2016 lost revenues due to inadvertent omission of exhibits from original filing.

Q. WHY IS THE COMPANY UPDATING LOST REVENUE AND PPI FOR VINTAGES 2018, 2019 AND 2021?

A. As a result of its internal review process, the Company determined that one EM&V update was necessary. The update is a result of an incorrect calculation of first-year in-service rate components for LEDs, showerheads and HVAC filters in the NES Evaluation Report dated July 1, 2017 – June 30, 2018. The result of this adjustment is a decrease in lost revenue of ($34,729). The Public Staff was notified of this necessary update to the NES program. Supporting Supplemental Evans Exhibit 2 reflecting the adjustment is attached and subject to final Public Staff review.

Q. WHY IS THE COMPANY REVISING VINTAGE 2019 PROGRAM COSTS?

A. During the course of the Public Staff's audit of Vintage 2019 program costs, the Public Staff discovered that certain corrections to the 2018 program cost audit that were entered into the general ledger in 2019 had not been removed. This results in a reduction of system level program cost expenses in the amount of $992,045.69, and an increase of PPI (Program Performance Incentives) in the amount of $83,560. The Company is revising Evans Exhibit 1, page 3 and Evans Exhibit 3, page 1 to reflect both of these adjustments.

Q. WHY IS THE COMPANY INCLUDING VINTAGE 2016 IN RIDER 12?

A. The Company determined that Vintage 2016 had been inadvertently excluded from the original Rider 12 filing. A modification was made as part of Docket No. E-7, Sub 1192 in the calculation of how much lost revenue is included in kWh sales for the test period of a rate case. 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 were adjusted based on specific enrollment dates, and a portion of these lost revenues was removed from the prospective period as of August 1, 2018 and included in base rates. The remaining portion of lost revenues should have been included in calendar year 2019 for Vintage 2016. Although there were no changes to residential lost revenue or the non-residential Vintage 2016 DSM calculation, the 2016 revenues collected have been incorporated into the exhibits and any applicable interest has been calculated. Miller Exhibit 2, page 1a, Miller Exhibit 3, pages 13-16 and Evans Exhibit 2, page 6 reflect the inclusion of those lost revenues. In addition, Miller Exhibits 4 and 6 have been updated to include 2016 revenues and the 2016 forecast with opt-outs.

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

A. As a result of these changes, the following rates will be impacted:

Description	Filed Rate	Revised Rate
Residential EMF Rate	0.1046	0.1011
Non-residential Vintage Year EE 2016 EMF Rate	0.0000	0.0193
Non-residential Vintage Year DSM 2016 EMF Rate	0.0000	(0.0001)
Non-residential Vintage Year DSM 2019 EMF Rate	0.0018	0.0019

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 1a: Vintage 2016 True-up of Year 1, Year 2, Year 3 and Year 4 Rate Calculation
- Supplemental Miller Exhibit 2, page 2: Vintage 2018 True-up of Year 1 and Year 2 Rate Calculation
- Supplemental Miller Exhibit 2, page 3: Vintage 2019 True-up of Year 1 rate Calculation
- Supplemental Miller Exhibit 2, page 5: Vintage 2021 Estimated Program Costs, Earned Incentive and Lost Revenues
- Supplemental Miller Exhibit 3, pages 5 through 16: Vintage 2018, 2019 and 2016 Interest Calculations
- Supplemental Miller Exhibit 4: DSM/EE Actual Revenues Collected 2016-2019 and Estimated 2020 Collections
- Supplemental Miller Exhibit 6: Forecasted 2021 kWh Sales for Rate period for Vintage Years 2016-2021
- Supplemental Miller Exhibit 7: Revised Tariff Sheet
- Supplemental Evans Exhibit 1, page 3: Vintage 2019 Load Impacts and Estimated Revenue Requirements

- Supplemental Evans Exhibit 2, pages 2, 3, 5 and 6: North Carolina Net Lost Revenue Estimates for Vintages 2016, 2018, 2019 and 2021
- Supplemental Evans Exhibit 3, page 1: Carolinas System Level Program Costs Years 2017 through 2019

Q. WHAT ARE THE FINAL RATES REQUESTED IN THE APPLICATION OF DEC FOR APPROVAL OF ITS DSM/EE RIDER 12 FOR 2021 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 12 Prospective Components	0.4184
Residential Billing Factor for Rider 12 EMF Components	0.1011

Non-Residential Billing Factors for Rider 12 Prospective Components	**¢/kWh**
Vintage 2018 EE Participant	0.0137
Vintage 2019 EE Participant	0.0687
Vintage 2020 EE Participant	0.0612
Vintage 2021 EE Participant	0.3522
Vintage 2021 DSM Participant	0.1200

Non-Residential Billing Factors EMF Component	**¢/kWh**
Vintage 2019 EE Participant	(0.0225)
Vintage 2019 DSM Participant	0.0019
Vintage 2018 EE Participant	(0.0049)
Vintage 2018 DSM Participant	(0.0014)
Vintage 2017 EE Participant	0.0342
Vintage 2017 DSM Participant	0.0000
Vintage 2016 EE Participant	0.0193
Vintage 2016 DSM Participant	(0.0001)

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

A. Yes.

MS. FENTRESS: With that, Duke would call Mr. Duff and Mr. Evans to the stand as a panel for direct and rebuttal, reserving the right to recall them for rebuttal if necessary after the hearing.

COMMISSIONER BROWN-BLAND: But you are doing both at the same time is your plan?

MS. FENTRESS: Yes, yes.

COMMISSIONER BROWN-BLAND: All right. All right. Mr. Evans, let me just find you here. Mr. Duff, you found your way on my screen back to each other. All right.

ROBERT P. EVANS AND TIMOTHY J. DUFF,
having first been duly affirmed, were examined
and testified as follows:

COMMISSIONER BROWN-BLAND: All right. Ms. Fentress?

MS. FENTRESS: Thank you. I will start with Mr. Evans.

DIRECT EXAMINATION BY MS. FENTRESS:

Q. Mr. Evans, can you please state your full name and --

COURT REPORTER: Excuse me. I'm having some feedback. I didn't hear what you had said there.

MS. FENTRESS: I'm sorry.

COMMISSIONER BROWN-BLAND: Ms. Fentress, if you will repeat, I'm sure our -- if you will repeat.

MS. FENTRESS: Certainly.

Q. Mr. Evans, would you please state your full name and business address for the record?

COMMISSIONER BROWN-BLAND: Mr. Evans, are you --

THE WITNESS: (Robert P. Evans) I am muted. I am no longer muted. I'm sorry, Commissioner. My name is Robert P. Evans. I am employed by Duke Energy Corporation. My office is in downtown Raleigh, North Carolina.

Q. Mr. Evans, what is your position with Duke Energy?

A. I am responsible for DSM/EE regulatory-related items on behalf of Duke Energy Carolinas and Duke Energy Progress.

Q. And, in that position, what are your responsibilities?

A. Managing regulatory items associated with Duke Energy Carolinas and Duke Energy Progress as a

DSM-and-EE-related activities.

Q. Thank you. And did you cause to be prefiled in this case, on February 25, 2020, direct testimony of approximately 30 pages and Exhibits 1 through 13 and Exhibits A through E?

A. Yes, I did.

Q. And did you cause to be prefiled in this case on May 11th Supplemental Evans Exhibits 1, 2, and 3?

A. Yes.

Q. And did you cause to be prefiled in this case rebuttal testimony on June 1, 2020, of approximately eight pages?

A. Yes, I did.

Q. Do you have any changes or corrections to make to your prefiled testimony?

A. No, I do not.

Q. And if I were to ask you the same questions as written in your prefiled direct testimony and your prefiled rebuttal testimony today from the stand, would your answers be the same?

A. Yes, they would be.

MS. FENTRESS: Madam Chair, I would move that the prefiled direct testimony and exhibits, rebuttal testimony and exhibits, and Supplemental

Evans Exhibits 1 through 3 be entered into the record as if given orally from the stand.

COMMISSIONER BROWN-BLAND: That motion will be allowed and the testimony will be received into the record as if given orally from the stand.

(Whereupon, the prefiled direct and rebuttal testimony of Robert P. Evans was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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 2021 ("Rider 12"), 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 12 calculations; (6) information on DEC's Evaluation Measurement & Verification ("EM&V") activities; (7) an overview of the calculation of the Portfolio Performance Incentive ("PPI"); and (8) information relating to the Collaborative.

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, 2017 through December 31, 2021. Evans Exhibit 3 contains the actual program costs for North Carolina for the period January 1, 2017 through December 31, 2019. 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 2019 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 2021. 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 Exhibit 13 provides a table showing program cost and avoided costs savings for the test period ending December 31, 2019 and for the previous five test periods. Evans Exhibits A through E provide the detailed completed EM&V reports or updates for the following: Income-Qualified EE and Weatherization Program (Neighborhood Energy Saver) - 2017 (Evans Exhibit A); My Home Energy Report Program Evaluation 2017-2018 (Evans Exhibit B); PowerShare Program - 2018 (Evans Exhibit C); Energy Efficiency Education in Schools 2017-2018 (Evans Exhibit D); and Residential Smart $aver EE 2016-2017 (Revised) (Evans Exhibit E).

Q. WERE EVANS EXHIBITS 1-13 PREPARED BY YOU OR AT YOUR DIRECTION AND SUPERVISION?

A. Yes, they were.

II. <u>ACTIONS ORDERED BY THE COMMISSION</u>

Q. PLEASE DESCRIBE THE ACTIONS THE COMMISSION DIRECTED DEC TO TAKE IN THE COMMISSION'S ORDER IN DOCKET NO. E-7, SUB 1192.

A. In its October 18, 2019 *Order Approving DSM/EE Rider and Requiring Filing of Customer Notice* in Docket No. E-7, Sub 1192 ("Sub 1192"), the Commission ordered: (1) that the combined DEC/DEP Collaborative should continue to meet every other month; and (2) that DEC shall include in its future DSM/EE applications a table that shows DEC's test period DSM/EE costs and savings, and that same information for the previous five years.

Q. HAS THE COMBINED DEC/DEP COLLABORATIVE CONTINUED MEETING EVERY OTHER MONTH?

A. Yes, the combined DEC/DEP collaborative has continued to meet every other month. Further information associated with the DEC/DEP Collaborative is been provided in Section X of my testimony.

Q. HAS THE COMPANY INCLUDED A TABLE IN ITS FILING THAT SHOWS DEC'S TEST PERIOD DSM/EE COSTS AND SAVINGS, AND THAT SAME INFORMATION FOR THE PREVIOUS FIVE YEARS?

A. Yes. The requested table is identified as Evans Exhibit 13.

III. <u>RULE R8-69 FILING REQUIREMENTS</u>

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

A. The information for Rider 12 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 12:	
(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-E
(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 12	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

IV. 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

- Small Business Energy Saver Program
- 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 and the addition of the Nonresidential Smart $aver Performance Incentive Program.

Q. PLEASE DESCRIBE ANY UPDATES MADE TO THE UNDERLYING ASSUMPTIONS FOR DEC'S PORTFOLIO OF PROGRAMS THAT HAVE ALTERED PROJECTIONS FOR VINTAGE 2021.

A. Updates to underlying assumptions that materially impact DEC's 2021 portfolio projection are related to EM&V-related impacts and changes in avoided costs.

Q. PLEASE DESCRIBE THE EM&V IMPACT TO DEC'S ESTIMATED 2021 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 1192. Updating EM&V for its programs results in changes to the projected avoided cost benefits associated with the projected participation. Hence, these EM&V updates 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. PLEASE DESCRIBE THE AVOIDED COST IMPACT TO DEC'S ESTIMATED 2021 PROGRAM PORTFOLIO.

A. Changes in the avoided cost rates directly impact the cost effectiveness of the Company's programs. Because the avoided cost rates have declined, the cost effectiveness of the Company's programs have tended to decline as well.

Q. AFTER FACTORING THESE UPDATES INTO THE VINTAGE 2021 PORTFOLIO, DO THE RESULTS OF DEC'S PROSPECTIVE TOTAL RESOURCE 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 2021 period. The cost-effectiveness results for the entire portfolio for Vintage 2021 are contained in Evans Exhibit 7. The aggregate portfolio continues to project cost-effectiveness, with the exception of the Income-Qualified EE Products and Services Program, which was not cost-effective at the time of Commission approval, the Residential Smart $aver EE Program, which is continuing its transformation to an all referral channel, and elements of the Nonresidential Smart $aver Program. Based on the results of these cost-effectiveness tests, there are no reasons to discontinue any of DEC's programs. Notably, the Company continues to examine its programs for potential modifications to increase their effectiveness, regardless of the current cost-effectiveness results.

Q. PLEASE IDENTIFY THE ELEMENTS OF THE NONRESIDENTIAL SMART $AVER PROGRAM THAT WERE FORECASTED TO BE LESS THAN 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 ELEMENTS?

A. No, it would not. These elements are integral for insuring that a robust portfolio of prescriptive offerings is available for its nonresidential 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 2.05, and the TRC score for the Nonresidential Smart $aver Program, as a whole, is 1.71.

Q. DID DEC MODIFY ITS PORTFOLIO OF PROGRAMS DURING VINTAGE 2019?

A. Yes. The Company has made several modifications to its portfolio of programs during Vintage 2019 that were intended to increase its cost effectiveness. During 2019, the Company implemented several changes to its Residential Smart $aver Energy Efficiency Program. The most important of these is the continued transformation to an all referral channel. Additional modifications were made in compliance with the Flexibility Guidelines approved by the Commission in its Sub 1032 Order. The impacted programs and summaries of their modifications are provided below:

Nonresidential Smart $aver Energy Efficient Products and Assessment Program – Prescriptive Measures

New measures were added to the program. These new measures included pipe insulation, LED lamps, LED signs, vending controls, refrigeration timers and controls.

Residential Appliances and Devices Program

Additional water measures were added to the program.

V. 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 2019?

A. During Vintage 2019, DEC's DSM/EE programs delivered over 844 million kilowatt-hours ("kWh") of energy savings and slightly over 1,103 megawatts ("MW") of capacity savings, which produced net present value of avoided cost savings of close to $438 million. The 2019 performance results for individual programs are provided on page 3 of Evans Exhibit 1.

Q. DID ANY PROGRAMS SIGNIFICANTLY OUT-PERFORM RELATIVE TO THEIR ORIGINAL ESTIMATES FOR VINTAGE 2019?

A. Yes. During Vintage 2019, DEC's portfolio of programs was able to deliver energy and capacity savings that yielded avoided costs that were 123 percent of the target, and it did so while expending 104 percent of targeted program costs. Although 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 2019 were the Income-Qualified Energy Efficiency and Weatherization Assistance, Energy Efficient Appliances and Devices Program, and the Smart $aver EE 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 2019, exceeded the projections by 239 percent, 196 percent, and 157 percent, respectively. The energy savings impacts for these programs, compared to those originally filed for Vintage 2019, exceeded the projections by 223 percent, 193 percent and 143 percent, respectively.

The nonresidential offering with the largest percentage increase in avoided cost savings impacts from those forecasted for 2019 was the Energy Efficient Lighting portion of the Nonresidential Smart $aver Energy Efficient Products and Assessments Program. This produced 158 percent of expected avoided costs and 173 percent of expected energy savings.

Q. HAVE ANY PROGRAMS SIGNIFICANTLY UNDERPERFORMED RELATIVE TO THEIR ORIGINAL ESTIMATES IN VINTAGE 2019?

A. In the high performing residential portfolio, none of the Company's residential programs can be considered as significantly underperforming.

In the nonresidential market, elements of the Nonresidential Smart $aver Energy Efficient Products and Assessments Program, the Nonresidential Smart Saver Performance Incentive Program, and the Small Business Energy Saver did not deliver the impacts expected relative to their forecast.

Several of the prescriptive product lines contained in the Nonresidential Smart $aver Energy Efficient Products and Assessments Program, such as those applicable to information technology and food services delivered less than optimal results when viewed in isolation. The prescriptive measures contained in the Nonresidential Smart $aver Energy Efficient Products and Assessments Program collectively produced 123 percent of forecasted avoided costs, 127 percent of forecasted capacity savings, and 98 percent of forecasted energy savings. These results are optimal when considering that program costs were 85 percent of those that were forecasted for the period.

The Custom Technical Assessments portion of the Nonresidential Smart $aver Energy Efficient Products and Assessments Program, as a standalone, did not meet forecasted expectations; however, the aggregated Custom portion of the Program produced close to 133 percent of forecasted avoided costs, 129 percent of forecasted capacity savings, and 78 percent of forecasted energy savings, while expending only 78 percent of forecasted costs.

The Nonresidential Smart Saver Performance Incentive Program did not meet forecasted expectations. The Nonresidential Smart Saver Performance Incentive Program is an adjunct to the Nonresidential Smart $aver Energy Efficient Products and Assessments Program, which was specifically designed for use with non-standard measures or in situations where anticipated savings are difficult to measure. The Nonresidential Smart $aver Energy Efficient Products and Assessments family of programs produced close to 120 percent of forecasted avoided costs, 122 percent of forecasted capacity savings, and 91 percent of forecasted energy savings, while expending only 82 percent of forecasted costs.

The Small Business Energy Saver program, due to lower than expected participation, only produced approximately 68 percent of forecasted avoided costs, 63 percent of forecasted capacity savings, and 71 percent of forecasted energy savings. Program costs during 2019 were 78 percent of the forecasted amount.

VI. 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 2019 and projection of the results for Vintages 2020 and 2021, 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 2019 Actual Results and 2020-2021 Projected Results			
	2019	2020	2021
Annual System Net MW	1,103	1,119	1,187
Annual System Net GWh	844	695	760
Annual Program Costs (Millions)	$150	$136	$143

The Vintage 2020 projections are similar to those provided by DEC and reported to the Commission in Sub 1192. The projected impacts and cost for Vintage 2021 are different due to updated participation estimates and the EM&V results that have been applied to the following programs: Income-Qualified EE and Weatherization Program (Neighborhood Energy Saver) Program; My Home Energy Report Program (MyHER); PowerShare Program; Energy Efficiency Education in Schools; and Residential Smart $aver EE Program.

VII. EM&V ACTIVITIES

Q. PLEASE DESCRIBE THE COMPANY'S EM&V ACTIVITIES RELEVANT TO THIS PROCEEDING.

A. Evans Exhibit 11 summarizes 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 E provide the detailed completed EM&V reports or updates for the following programs:

Evans Exhibit	EM&V Reports	Report Finalization Date	Evaluation Type
A	Income-Qualified EE and Weatherization Program (Neighborhood Energy Saver) Program Evaluation Report: 2017	11/30/2019	Process and Impact
B	My Home Energy Report Program Evaluation: 2017-2018	7/10/2019	Process and Impact
C	PowerShare Program Evaluation: 2018	5/2/2019	Process and Impact
D	Energy Efficiency Education in Schools Evaluation Report: 2017-2018	2/1/2019	Process and Impact
E	Smart $aver Evaluation Report: 2016–2017 (Revised)	3/15/19	Process and Impact

Q. HOW WERE EM&V RESULTS UTILIZED IN DEVELOPING THE PROPOSED RIDER 12?

A. The Company has applied EM&V consistently with the agreement among 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 estimates. 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"), 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.

Because 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 E:

Income-Qualified EE and Weatherization Program (Neighborhood Energy Saver) Program - 2017 (Evans Exhibit A); My Home Energy Report Program Evaluation 2017-2018 (Evans Exhibit B); PowerShare Program - 2018 (Evans Exhibit C); Energy Efficiency Education in Schools 2017-2018 (Evans Exhibit D); and Residential Smart $aver EE 2016-2017 (Revised) (Evans Exhibit E).

VIII. <u>RIDER IMPACTS</u>

Q. HAVE THE PARTICIPATION RESULTS AFFECTED THE VINTAGE 2019 EXPERIENCE MODIFICATION FACTOR?

A. Yes. The EMF in Rider 12 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 information technology and food service related prescriptive measures offered as a part of the Nonresidential Smart $aver Energy Efficient Products and Assessment 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 Residential Energy Efficient Appliances and Devices Program, causes 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 2019 TRUE-UP COMPONENT OF RIDER 12?

A. All of the final EM&V results that have been received by DEC as of December 31, 2019 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 2019 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 this practice in Rider 12.

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 2019, DEC had

4,962 eligible customer accounts opt out of participating in DEC's nonresidential portfolio of EE programs. In addition, DEC had 5,537 eligible customer accounts opt out of participating in DEC's nonresidential DSM programs. It is important to note that during 2019, 11 opt-out eligible customers opted-in to the EE portion of the Rider, and 28 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 2019 COMPARED TO 2018.

A. Because the Company does not take part in the customers' economic benefit analysis or the customers' decision-making process, providing a concrete explanation why opt-outs increased is difficult. 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. Thus, 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.

IX. 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 WHETHER 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.

X. COLLABORATIVE

Q. PLEASE SUMMARIZE THE COLLABORATIVE ACTIVITIES OCCURRING AFTER THE JUNE 11, 2019 HEARING IN DOCKET NO. E-7, SUB 1192.

A. The Collaborative continued to meet bimonthly for formal meetings in July, September and November of last year and in January of this one. Between meetings, interested stakeholders joined conference calls (in June, September, October and February) and informal meetings (in July and November) to zero in on certain agenda items or priorities that could not be fully explored during the formal meetings. The Company believes that Collaborative members gained a deeper understanding of the issues facing the Company's DSM/EE programs and, as a result, brought the Company valuable feedback and perspective. Meetings and calls will continue in a similar fashion through 2020 as well.

Q. HAS THE COMPANY UTILIZED INPUT FROM THE COLLABORATIVE IN A TANGIBLE WAY?

A. The Company has improved the flow of information and refined its methods of engagement in response to feedback from the membership. Company staff works with Collaborative members to set meeting dates and locations approximately six weeks in advance. Additionally, each formal meeting ends with an opportunity for members to suggest topics for future meetings. Three weeks before a meeting, Company staff sends a draft agenda to the members to ensure that all their requested items have been included and are allotted adequate time. One week prior to its Collaborative meetings, Company staff emails every Collaborative member a final agenda and a draft of the materials that will be presented. Because keeping programs fresh and responsive to the market is a high priority for program management staff, the Company has asked the Collaborative on occasion to review program modifications on a compressed timeline. To ensure that members can contribute meaningfully to proposals for new programs or modifications to existing ones in the future, the Company has begun to bring program ideas during the research phase before all assumptions or program details have been decided. While that approach may result in some of the group's time being used to explore ideas that ultimately do not pan out, it may also lead to discovering ideas that would not have been discovered without the lively and diverse discussion. The

Company has used input from the Collaborative to expand the reach of our programs as well. For example, the Collaborative drew program management staff's attention to a tax credit that is available to low-income multifamily housing developments. Although some participants in the Company's Smart $aver Custom Design Assistance program could have qualified for the tax credit, the program was not targeting that population specifically and was missing the chance to leverage program dollars with federal money. Members of the Collaborative spotted the opportunity and introduced the Company's program team to developers who needed help incorporating energy efficiency upgrades into their low-income tax credit applications. Since this opportunity was flagged last year, thirty-one multifamily housing projects have enrolled in the Custom Design Assistance program, and seven of those have been low-income housing properties that have used the program to provide more affordable energy efficient housing for low-income families in the Carolinas.

Q. IS THE COLLABORATIVE EVALUATING ANY OTHER PROGRAM OPPORTUNITIES?

A. Yes, the Collaborative has identified several programs for low- and middle-income families, manufactured homes, renters, and small and medium commercial and industrial customers in which they have insight or experience that they can share with the Company. The Company looks forward to working with members on each of these opportunities.

Q. HAS THE COMPANY CONSIDERED THE DEVELOPMENT OF A STANDARD REPORTING PROTOCOL?

A. The format of DEC's regulatory filing is designed to present information relevant to cost recovery. The Company does not wish to alter the format of its rider filings unless the Commission or Public Staff directs it to do so. However, in response to the desire some have expressed to have a standard reporting protocol that is convenient for review and analysis and that allows for topline trends and takeaways to be easily identified, the Company is developing a new structure for reporting both DEC's and DEP's program performance metrics to the Collaborative. The new structure will show historical participation, impacts, and costs by program. It will also compare actual results to plans, break down budgets by category, identify cost/benefit test results, and situate the savings in the context of the broader utility. Company staff will present the analysis in the formal March Collaborative meeting and make ongoing improvements based on member feedback.

XI. <u>CONCLUSION</u>

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

A. Yes.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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. Gen. Stat. § 62-133.9 and Commission Rule R8-69	))))))	**REBUTTAL TESTIMONY OF ROBERT P. EVANS FOR DUKE ENERGY CAROLINAS, LLC**

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 as Senior Manager-Strategy and Collaboration for the Carolinas in the Portfolio Analysis and Regulatory Strategy group**.**

Q. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN SUPPORT OF DUKE ENERGY CAROLINAS, LLC'S ("COMPANY") 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 David Williamson filed on behalf of the Public Staff and Forest Bradley-Wright filed on behalf of the North Carolina Justice Center ("NCJC"), the North Carolina Housing Coalition, and the Southern Alliance for Clean Energy ("SACE").

Q. WILL YOU DESCRIBE THE PORTIONS OF WITNESS DAVID WILLIAMSON'S TESTIMONY TO WHICH YOU ARE RESPONDING?

A. Yes. There are several portions of Witness Williamson's testimony that cause concerns, specifically, those portions related to witness Williamson's recommendation regarding lighting transformation in North Carolina and his recommendations concerning the Company's Grid Improvement Plan ("GIP").

Q. WHAT ARE YOUR CONCERNS RELATING TO WITNESS WILLIAMSON'S RECOMMENDATION REGARDING LIGHTING TRANSFORMATION IN NORTH CAROLINA?

A. Starting on line 7 on page 19 of his testimony, witness Williamson recommended the following:

> *Based on the Public Staff's review of lighting-related EM&V reports over the last three years, and the Company's acknowledgement of upcoming lighting standard changes as they alter their program offerings, I recommend that the Commission require that, beginning in 2021, only specialty LED lighting be considered for recognition as energy efficiency.*

Although the Company agrees in part with witness Williamson that significant market transformation with respect to LED non-specialty lighting has taken place, this transformation has not been universal, particularly with respect to low-income and multifamily residences. The Company still sees an ongoing need for non-specialty energy efficient A-line bulbs in both low income and multifamily residences to enable those customers to participate in the benefits of energy efficient lighting. For this reason, the Company intends to continue providing A-line bulbs to low income customers through its direct install Neighborhood Energy Saver Program and provide them through outlets such as Good Will, Dollar General, Dollar Tree and Habitat stores. In addition, the Company intends to continue replacing inefficient lighting through its Multifamily direct install program. Future needs in low income and multifamily residences will be closely monitored as independent EM&V

studies for these programs determine their saturation with standard high efficiency lighting.

Q. DO YOU AGREE WITH WITNESS DAVID WILLIAMSON'S RECOMMENDATIONS THAT AN ANALYSIS BE PERFORMED BY THE COMPANY TO EXPLAIN HOW GIP WILL AFFECT THE PERFORMANCE OF DSM/EE PROGRAMS?

A. No, I do not. In response to Public Staff and other intervenors' data requests, the Company has provided voluminous amounts of data, analyses, and general information regarding the Company's GIP program, including its Integrated Volt/Var Controls ("IVVC") program, as part of Docket No. E-7, Sub 1214 and Duke Energy Progress, LLC's Docket No. E-2, Sub 1219, which are both pending general rate cases. Specifically, information has been shared regarding the Company's IVVC program. Although the Company is certainly not opposed to reporting information about IVVC, as it has stated in Witness Jay W. Oliver's testimony in the Company's pending rate case, the additional analysis recommended by witness Williamson is not necessary. Any influence or interaction between GIP and DSM/EE programs will be evaluated and captured in the existing reporting protocols.

Q. HOW DOES THE COMPANY RESPOND TO WITNESS WILLIAMSON'S RECOMMENDATIONS THAT THE NEXT DSM/EE RIDER FILING INCLUDE REPORTING ON GIP IMPLEMENTATION AND ITS IMPACTS ON THE COMPANY'S DSM/EE PORTFOLIO?

A. I do not agree with Witness Williamson's recommendation. As previously mentioned, recommendations on reporting on the GIP status are addressed extensively in testimony filed in the pending rate cases, including in the direct and rebuttal testimony of Witness Jay W. Oliver. Accordingly, integrating additional GIP status reporting in the separate DSM/EE proceedings is unnecessary and will likely lead to confusion because the programs are separate initiatives designed to accomplish clearly defined, distinguishable goals. Because the Company (or any other party for that matter) has not recommended to have any of the programs in the GIP be filed or considered as part of the DSM/EE rider recovery proceeding, the DSM/EE rider recovery docket is not the appropriate forum for the types of information witness Williamson is recommending for reporting. Once again, any influence or interaction between GIP and DSM/EE program will be evaluated and captured in the existing reporting protocols.

Q. WHAT IS YOUR RESPONSE TO WITNESS BRADLEY-WRIGHT'S ASSERTION THAT DUKE SHOULD FIND ADDITIONAL SAVINGS IN AN EFFORT TO REACH THE 1% EVEN IF THOSE SAVINGS ARE DIFFICULT TO ACHIEVE?

A. I find Mr. Bradley-Wright's insinuation that the Company's projected decline in savings is the result of a lack of effort is disappointing. Program or measure ideas that may garner additional savings must sometimes be set aside because the benefits will not exceed the costs, but they are not set aside because they are "difficult." He knows from his active participation in the Collaborative that the Company's approach to program development and design is what has made

DEC the leader in EE savings across the Southeast, that the program managers actively seek ways to improve and expand their programs, and that the Company is committed to offering all cost-effective energy efficiency opportunities.

Q. DO DEC'S PROJECTIONS OF SAVINGS BELOW PREVIOUS YEARS DEMONSTRATE A LACK OF COMMITMENT TO OFFERING ROBUST PROGRAMS ACROSS CUSTOMER CLASSES?

A. No, the lower projections reflect market conditions and projected participation. DEC remains committed to offering robust programs across customer classes. The Company continues to seek opportunities for new and improved programs within the cost effectiveness guidelines approved by this Commission.

Q. SHOULD DEC SET HIGHER PROJECTIONS TO INDICATE ITS ASPIRATION TO ACHIEVE MORE SAVINGS?

A. No, it should not. Projections in the Rider filings are used to set rates. Therefore, the Company is often conservative to avoid raising rates unnecessarily and over-collecting from customers. The Company does not use projections as a cap, as Witness Bradley-Wright's acknowledges when he notes that Duke exceeded its projections in 2019.

Q. DOES DEC NEED TO PREPARE A PLAN OUTLINING TARGETED EE PROGRAMS TO ADDRESS THE EFFECTS OF THE PANDEMIC ON CUSTOMERS?

A. Because Duke has launched a corporate strategy to address the needs of customers during the pandemic, DEC does not plan to file an EE-specific plan. The corporate strategy to aid customers includes initiatives that DEC has brought to the Commission beginning in early March, such as the moratorium on disconnections; the suspension of all fees associated with connection, reconnection and payments, and Duke Foundation financial support for food banks and agencies that provide bill assistance. Although the Company has had to suspend programs that require in-home consultations or installations temporarily, it has updated its customer communication with more tips related to working from home, and it continues to offer energy saving kits and free LEDs by mail to qualifying customers. Additionally, all programs will resume once the Company is confident that the safety of its customers and employees can be ensured.

Q. WHAT IS YOUR RESPONSE TO WITNESS BRADLEY-WRIGHT'S RECOMMENDATION THAT THE COMMISSION REQUEST A REPORT DIRECTLY FROM THE COLLABORATIVE?

A. The Collaborative's formation by this Commission in Docket No. E-7, Sub 831 was as an advisory group to provide "an important forum for Duke to receive input from a variety of stakeholders." Witness Bradley-Wright acknowledges throughout his testimony that DEC is receiving input on new programs, discussing potential program modifications with members, and sharing information freely on a variety of topics from program performance to the IRP. If members feel it necessary to communicate directly with the Commission, they can do so by intervening in this or future dockets, as the organizations for which Witness Bradley-Wright represents did. I do not think it is necessary or consistent with the purpose of the Collaborative to assign a written report to organizations which choose not to intervene.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

MS. FENTRESS: Thank you.

COMMISSIONER BROWN-BLAND: And the exhibits will be identified as they were marked when prefiled.

(Evans Exhibits 1 through 13, Evans Exhibits A through E, and Supplemental Evans Exhibits 1 through 3 were identified as they were marked when prefiled.)

MS. FENTRESS: Thank you.

Q. Mr. Evans, do you have a summary of your direct and rebuttal testimony?

A. Yes, I do.

Q. Can you please read it?

A. Yes. My direct testimony supports Duke Energy Carolinas' application for approval of its DSM/EE cost recovery rider for 2021, which encompasses the Company's currently effective cost recovery and incentive mechanism and portfolio of programs approved by the Commission. In particular, my testimony includes discussion of items that the Commission specifically directed the Company to address in its proceeding; an overview of the Commission's Rule R8-69 filing requirements; a synopsis of the DSM/EE programs included in this filing; a discussion of program results and an explanation of how these results have affected DSM/EE rate calculations; information on the Company's evaluation, measurement, and verification, or EM&V activities; an overview of the calculation of the Company's portfolio performance incentive, or PPI; and information pertaining to the DSM/EE Collaborative.

First, I discuss actions that the Commission directed the Company to take in the last cost recovery proceeding, which includes confirmation that the Collaborative has continued to meet every other month, and that DEC included in its DSM/EE application a table showing test period DSM/EE costs and savings, and also showing DSM/EE costs and savings for the previous five years.

DEC's cost recovery mechanism allows it to, one, recover the reasonable and prudent cost incurred for adopting and implementing DSM and EE measures; two, recover net lost revenues incurred for up to 36 months of a measure's life for DSM and EE programs; and earn a PPI based upon the sharing of 11.5 percent of the net savings achieved through DEC's DSM/EE programs on an annual basis. The experience modification factor, or EMF, in the rider accounts for changes to actual participation relative to the forecasted participation levels utilized in the prior DSM/EE riders and also reflects the application of EM&V results.

EM&V results were updated to reflect the savings impacts for those programs which DEC received EM&V reports after it prepared its application in last year's DSM/EE proceeding. After factoring in these EM&V updates, DEC performed a portfolio -- excuse me -- a prospective analysis for each program and the aggregate portfolio for the vintage 2021 period. In the aggregate, DEC's portfolio programs continue to project cost-effectiveness, with the exception of the Income-Qualified EE Products and Services Program, which is not cost-effective at the time of Commission approval, the Residential Smart $aver EE Program, which is continuing its transformation to an all-referral channel, and elements of the Nonresidential Smart $aver Program.

In my testimony, I include a comprehensive list of all of the DSM and EE programs in the Company's current portfolio. During vintage 2019, DEC's DSM/EE programs delivered almost 844 million kilowatt hours of energy savings and slightly over 1,103 megawatts, which produce a net present value of avoided cost savings of close to $438 million.

The purpose of our rebuttal testimony is to respond to the testimony David Williamson filed on behalf of the Public Staff, and then, of course, Bradley-Wright filed on behalf of the North Carolina Justice Center and Southern Alliance for Clean Energy.

First, the Company agrees with the witness -- excuse me -- agrees with witness Williamson's statement that significant market transformation has taken place in North Carolina with respect to LED non-specialty lighting. However, to enable low-income and multifamily customers participate in the benefits of energy efficiency -- efficient lighting, the Company, with Commission approval, plans to continue providing A-line bulbs to low-income customers through its Neighborhood Energy Saver Program and through outlets such as, Goodwill, Dollar General, Dollar Tree, and Habitat stores, and also continue replacing insufficient lighting through its Multifamily Direct Install Program.

Next, the Company disagrees with witness Williamson's recommendation for additional analysis and reporting related to the Grid Improvement Plan, or GIP. The status of the GIP has been addressed extensively in the pending rate case and none of the programs filed in the GIP has been considered for recovery through the DSM/EE rider. This is not the appropriate forum for the types of information witness Williamson recommends for the report.

In response to witness Bradley-Wright's comments on the Company's efforts to achieve 1 percent savings, I explain that DEC continues to seek opportunities for new and improved programs, but that lower projections of savings reflect market conditions and projected participation. The projections of savings in these riders are used to set rates. They are not a cap. And the Company sets conservative projections to avoid raising rates unnecessarily.

Next, I disagree with witness Bradley-Wright's recommendation that the Company develop a plan outlining targeted EE programs to address the effects of the COVID-19 pandemic on customers. The Company has launched a corporate strategy to address the needs of customers during the pandemic which includes tips related to working from home, continuing to offer energy-savings kits and free LEDs by mail to qualifying customers, as well as the moratorium on the disconnection, the suspension of fees related to connection and payment, and Duke Energy Foundation's financial support for agencies that provide assistance.

Finally, I disagree with Bradley-Wright's recommendations that the Commission request a report directly from the Collaborative. The Collaborative was formed as an advisory group to provide a forum for the Company to receive input from a variety of stakeholders, and witness Bradley-Wright acknowledges throughout his testimony that DEC is receiving input on the programs, discussing potential program modifications with members, and sharing information freely on a variety of topics from program performance to the IRP. If members feel it necessary to communicate directly with the Commission, they can intervene in this or future dockets as organizations which witness Bradley-Wright represents it. I do not think it's necessary or consistent with the purpose of the Collaborative to assign a written report to organizations which choose not to intervene.

This concludes my summary.

Q. Thank you, Mr. Evans.

COMMISSIONER BROWN-BLAND: Ms. Fentress, you are on mute. I heard you say, "Thank you, Mr. Evans," and then you were on mute.

MS. FENTRESS: With the Commission's permission, I will now move to witness Duff.

COMMISSIONER BROWN-BLAND: All right. You may. Thank you.

Q. Mr. Duff, could you please state your full name and business address for the record?

A. (No audible response.)

Q. Mr. Duff, what is your position at Duke Energy?

COMMISSIONER BROWN-BLAND: Ms. -- hold on. Ms. Fentress, could you start that over when you asked Mr. Duff for his name?

MS. FENTRESS: Sure.

Q. Mr. Duff, could you please state your full name and business address for the record?

A. (Timothy J. Duff) Yes. My name is Timothy J. Duff. I am located at 400 South Tryon Street, Charlotte, North Carolina 28202.

Q. And, Mr. Duff, what is your position at Duke Energy?

A. I'm the general manager of customer strategy and -- I'm sorry -- customer strategy and regulatory evaluation.

Q. In that position, what are your responsibilities?

A. I oversee the regulatory strategy and filings associated with the Company's energy efficiency and demand response programs, as well as other customer offerings in all of the jurisdictions, including Duke Energy Carolinas.

Q. Did you cause to be prefiled in this case on June 1, 2020, rebuttal testimony of approximately 27 pages?

A. Yes, I did.

Q. And do you have any changes or corrections to that rebuttal testimony?

A. Yes. I have two minor changes. First, on page 15, line 8, there is a typographical error. It should read, "Company witness Stevie," not, "Company witness Steve." And Stevie is spelled S-T-E-V-I-E. Likewise, there is another typographical error on page 27, line 16. Where it reads, "Improved avoided capacity rated," and it should read, "The approved avoided capacity rates," R-A-T-E-S.

COMMISSIONER BROWN-BLAND: Ms. Fentress and Mr. Duff, is it possible that you-all are colocated right now?

MS. FENTRESS: Yes.

COMMISSIONER BROWN-BLAND: And so we're getting echo effect.

MS. FENTRESS: Oh, all right. I'll --

COMMISSIONER BROWN-BLAND: You might be a little too close to each other. But I know that in a minute Ms. Fentress will probably not be talking, so it may not be a problem, but.

MS. FENTRESS: I had neglected to mute when Mr. Duff was talking. I was colocated with Mr. Evans too, and that usually solved the problem, but please let me know if you hear more.

COMMISSIONER BROWN-BLAND: All right. We are all learning, so thank you very much.

Q. Mr. Duff, with those changes, if I were to ask you the same questions as written in your prefiled dir- -- I'm sorry, your prefiled rebuttal testimony today from the stand, would your answers be the same?

A. Yes, they would.

MS. FENTRESS: Madam Chair, I would move at this time that Mr. Duff's prefiled rebuttal testimony be entered into the record as if given orally from the stand.

COMMISSIONER BROWN-BLAND: All right.

Seeing and hearing no objection, that motion will be allowed, and Mr. Duff's prefiled rebuttal testimony will be received into evidence as if given orally from the stand.

MS. FENTRESS: Thank you.

(Whereupon, the prefiled rebuttal testimony of Timothy J. Duff was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

<table>
<tr><td>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. Gen. Stat. § 62-133.9 and
Commission Rule R8-69</td><td>)
)
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)
)</td><td>REBUTTAL
TESTIMONY OF TIMOTHY J. DUFF
FOR DUKE ENERGY CAROLINAS,
LLC</td></tr>
</table>

Q. MR. DUFF, PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Timothy J. Duff. My business address is 400 South Tryon Street, Charlotte, North Carolina 28202.

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

A. I am employed by Duke Energy Business Services LLC as General Manager, Customer Regulatory Strategy and Evaluation.

Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL QUALIFICATIONS.

A. I graduated from Michigan State University with a Bachelor of Arts in Political Economics and a Bachelor of Arts in Business Administration, and received a Master of Business Administration degree from the Stephen M. Ross School of Business at the University of Michigan. I started my career with Ford Motor Company and worked in a variety of roles within the company's financial organization, including Operations Financial Analyst and Budget Rent-A-Car Account Controller. After five years at Ford Motor Company, I started working with Cinergy in 2001, providing business and financial support to plant operating staff. Eighteen months later I joined Cinergy's Rates Department, where I provided revenue requirement analytics and general rate support for the company's transfer of three generating plants. After my time in the Rates Department, I spent a short period of time in the Environmental Strategy Department, and then I joined Cinergy's Regulatory and Legislative Strategy Department. After Cinergy merged with Duke Energy Corporation ("Duke Energy") in 2006, I was employed as Managing Director, Federal Regulatory

Policy. In this role, I was primarily responsible for developing and advocating Duke Energy's policy positions with the Federal Energy Regulatory Commission. I became General Manager, Energy Efficiency & Smart Grid Policy and Collaboration in 2010, was named General Manager, Retail Customer and Regulatory Strategy in 2011, and assumed my current position of General Manager, Customer Regulatory Strategy and Evaluation in 2013.

Q. PLEASE DESCRIBE YOUR DUTIES AS GENERAL MANAGER, CUSTOMER REGULATORY STRATEGY AND EVALUATION.

A. I am responsible for the development of strategies and policies related to energy efficiency and other retail products and services. I also oversee the analytics functions associated with evaluating and tracking the performance of Duke Energy's retail products and services.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION OR ANY OTHER REGULATORY BODIES?

A. Yes. I testified in Duke Energy Carolinas, LLC's ("DEC" or the "Company") applications to update its demand-side management ("DSM") and energy efficiency ("EE") cost recovery rider, Rider EE, in Docket Nos. E-7, Subs 941, 979, 1001, 1031, 1050, 1130, and 1164, as well as the Company's application for approval of its new portfolio of DSM and EE program and new cost recovery mechanism in Docket No. E-7, Sub 1032. I also provided Supplemental Testimony in Duke Energy Progress, LLC's ("DEP") DSM/EE rider proceeding in Docket No. E-2, Sub 1145 and Rebuttal Testimony in Docket E-2, Sub 1174. In addition, I provided Rebuttal Testimony in DEP's

Renewable Energy Portfolio Standard Compliance Report in Docket No. E-2, Sub 1109. In addition to testifying on behalf of DEC and DEP in North Carolina, I also testified in South Carolina in Docket 2013-298-E in support of the Company's application for approval of its new portfolio of DSM and EE programs and new cost recovery mechanism. Beyond providing testimony in the Carolinas, I also have testified in matters pertaining to DSM and EE before the state regulatory commissions in the other four states in which Duke Energy subsidiaries provide utility service: Florida, Indiana, Kentucky and Ohio.

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

A. The purpose of my testimony is to address the Public Staff's recommendations, as described in the testimony of Public Staff witness John R. Hinton, that the avoided capacity cost benefits for purposes of the Portfolio Performance Incentive ("PPI") and cost-effectiveness of the Company's legacy DSM programs be calculated using a seasonal allocation of avoided capacity value. Witness Hinton's testimony also disagrees with the Company's application of a reserve margin factor in calculating the avoided cost value of energy efficiency programs. In my testimony, I will discuss why the Company's allocation of 100% of avoided capacity to legacy summer DSM resources is reasonable, consistent with past Commission Orders, and aligns with both North Carolina public policy and resource planning assumptions. I will also discuss why the Company's application of a reserve margin to the avoided capacity costs for EE programs is consistent with past Commission approved practices and how EE resources are treated in the Company's approved Integrated Resource Plan.

Q. MR. DUFF, WILL YOU PLEASE SUMMARIZE THE AGREEMENT DEC REACHED WITH THE PUBLIC STAFF IN DOCKET NO. E-7, SUB 1130 ("SUB 1130 AGREEMENT")?

A. In pertinent part, the Sub 1130 Agreement establishes, beginning with Vintage 2019 and for all future Vintages, a uniform method for determining cost-effectiveness for DSM/EE programs and calculating the Company's PPI for the purposes of both the projection and true-up of programs offered in a given Vintage Year. Under this method, the Company uses the projected avoided capacity and energy benefits specifically calculated for each EE or DSM program, as derived from the underlying resource plan, production cost model, and cost inputs used to determine the avoided capacity and avoided energy credits reflected in the most recent Commission-approved biennial determination of avoided cost rates for electric utility purchases from qualifying facilities ("Avoided Cost Proceeding") as of December 31 of the year immediately preceding the date of the annual DSM/EE rider in which the Vintage was projected. The Sub 1130 Agreement specifies that the Public Utility Regulatory Policies Act ("PURPA") -based avoided energy costs are derived by taking the difference between one production cost run that includes an assumed 24x7, 100 megawatts ("MW") of no-cost qualified facility ("QF") energy and one without the 100 MW of QF energy. The avoided energy costs used in the revised cost recovery mechanism are derived by taking a similar differencing approach, except that the projected hourly load shapes and load reductions associated with the proposed bundle of DSM/EE programs are used rather than the 24x7 100 MW reduction typically used to represent a QF. To ensure that new program requests and existing programs are being evaluated with up-to-date avoided costs, the Sub 1130 Agreement also establishes that 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 approved in the most recent Commission-approved Avoided Cost Proceeding as of the date of the filing for the new program approval. The Commission approved the Sub 1130 Agreement and the resulting revisions to the Company's cost recovery mechanism in the *Order Approving DSM/EE Rider, Revising DSM/EE Mechanism, And Requiring Filing of Proposed Customer Notice* in Docket No. E-7, Sub 1130 ("Sub 1130 Order").

Q. WHY DID THE COMPANY AND PUBLIC STAFF PROPOSE THESE CHANGES TO THE MECHANISM?

A. One of the primary purposes for the revisions to the mechanism was to eliminate the previous "trigger" approach for updating avoided costs. Prior to the changes approved in the Sub 1130 Agreement, the previous version of DEC's DSM/EE cost recovery mechanism provided that the per kW avoided capacity costs used to calculate the avoided cost savings were those reflected in the filing by DEC in Docket No. E-100, Sub 136 (the 2012 Avoided Cost Proceeding). The per kilowatt-hour ("kWh") avoided energy costs were those reflected in the Company's most recent integrated resource plan ("IRP") at the time that version of the mechanism was approved (the 2012 IRP). These avoided costs were only updated if certain triggers were hit – if avoided energy costs calculated for purposes of the IRP increased or decreased by 20% or more, or if avoided capacity costs reflected in the rates approved in the biennial avoided cost proceedings increased or decreased by 15% or more.

Under the old trigger approach, if the trigger thresholds were not hit, avoided cost rates could potentially remain unchanged for years. Under the Sub 1130 Agreement and approved modifications to the mechanism, these triggers are eliminated and instead, DSM and EE programs are evaluated for cost effectiveness utilizing Commission-approved avoided cost rates that are updated every two years as part of the biennial avoided cost proceeding.

The second primary purpose of the revisions in the Sub 1130 Agreement was to update the source and methodology for calculating avoided energy costs, which previously had been based on the IRP. Under the Sub 1130 Agreement, avoided energy costs are now derived similarly to avoided capacity costs - from the biennial Avoided Cost Proceedings. Absent the revision, the existing language in the mechanism could have resulted in DSM and EE programs being evaluated using avoided energy rates from the Company's IRP that were not based on the same fundamental assumptions used in the determination of the avoided capacity rates, which are those approved in the Company's Avoided Cost Proceedings. This potential mismatch could have undermined the validity of the cost effectiveness evaluation. The new language eliminates this potential problem by aligning and updating the assumptions approved for both avoided energy and avoided capacity rates, as the proposed revisions to the mechanism call for using the most recently approved avoided energy cost and most recently approved avoided capacity cost from the same proceeding – i.e., the Company's biennial avoided cost proceeding.

Q. WHAT WAS THE DATA SOURCE FROM WHICH THE COMPANY DERIVED THE AVOIDED CAPACITY RATE AND AVOIDED ENERGY RATE USED IN THE COMPANY'S APPLICATION IN THIS PROCEEDING?

A. Consistent with the revisions to DEC's DSM/EE cost recovery mechanism that the Commission approved in Sub 1130 Order, the Company derived both the avoided energy and avoided capacity using the underlying resource plan, production cost model, and cost inputs approved in the Company's most recent Avoided Cost Proceeding, which in this case is Docket No. E-100, Sub 158. Notably, the final order from the Commission in Docket No. E-100, Sub 158 was not issued until April 15, 2020, after the required December 31 deadline; however, the Company chose to implement the final proposed values in anticipation of the final approval and consistent with the Commission's October 2019 Notice of Decision in Docket No. E-100, Sub 158.

<u>Seasonal Allocation Factor</u>

Q. FOR PURPOSES OF THIS DISCUSSION, WHAT DOES THE COMPANY MEAN WHEN IT REFERS TO ITS "LEGACY" DSM PROGRAMS?

A. "Legacy" in this context and for this proceeding means the capacity resource that has been built from historic and planned DSM programs, or, in other words, the amount of DSM capacity included in the Company's 2018 IRP forecast as a load serving resource. Incremental or new DSM capacity refers to capacity resources that are built from new participation in DSM programs that were not factored into the Company's IRP as a load serving resource.

Q. PLEASE EXPLAIN HOW THE COMPANY CALCULATED THE AVOIDED CAPACITY COST RATE ASSOCIATED WITH ITS LEGACY DSM PROGRAMS.

A. The Company utilized the avoided capacity value calculated using the Peaker Method consistent with the Sub 1130 Agreement and the Commission's recent DSM/EE cost-recovery orders, including the Commission's *Order Approving DSM/EE Rider and Requiring Filing of Customer Notice*, issued on September 11, 2018 in Docket No. E-7, Sub 1164.

Q. DO YOU AGREE WITH WITNESS HINTON THAT THE COMPANY ACTED INCONSISTENTLY WITH THE COMMISSION'S ORDER IN DOCKET NO. E-7, SUB 1130 IN NOT APPLYING A 10% SEASONAL ALLOCATION FACTOR TO THE AVOIDED COST ASSOCIATED WITH ITS LEGACY DSM PROGRAMS?

A. No, I do not agree. The Company updated the avoided capacity cost rate used for estimating program cost effectiveness and the Company's projected PPI consistently with the method agreed upon and approved in Docket No. E-7, Sub 1130.

Q. DID THE COMPANY EXPECT THE PUBLIC STAFF TO ADOPT THE POSITION THAT THE REVISIONS TO THE COMPANY'S DSM/EE COST RECOVERY MECHANISM APPROVED IN THE DOCKET NO. E-7, SUB 1130 ORDER WOULD ALTER THE WAY AVOIDED CAPACITY ASSOCIATED WITH LEGACY DSM RESOURCES WAS TO BE UPDATED?

A. No, the Company did not believe the Sub 1130 Agreement's revisions to the mechanism would amend how the Company calculates the avoided capacity costs used to evaluate existing programs that have already been approved by the Commission and are part of the Company's existing portfolio of programs.

Q. DO YOU BELIEVE THAT THE COMPANY'S APPLICATION OF THE UPDATED AVOIDED CAPACITY RATES APPROVED IN DOCKET NO. E-100 SUB 158 IS CONSISTENT WITH THE AGREEMENT IN DOCKET NO. E-7, SUB 1130 AND VALIDATED AND APPROVED IN DOCKET NO. E-7, SUB 1164?

A. Yes, the avoided capacity cost used in determining the projected Vintage 2021 cost effectiveness and PPI was calculated consistently with both the Company's most recent annual DSM/EE cost recovery proceeding in Docket No. E-7, Sub 1164 and with the Sub 1130 Agreement. To recognize the growing need for winter capacity and to encourage EE and DSM programs that will provide winter capacity savings, however, the Company made one change to its application of avoided capacity costs in this proceeding from previous proceedings. Beginning with Vintage 2021, the Company voluntarily applied the 90% Winter/10% Summer allocation approved in the most recent Avoided Cost Proceeding to avoided capacity savings for all new incremental participation in both EE and DSM programs. The Company believes this approach is consistent with the treatment of new QF capacity as discussed in the Commission's Notice of Decision and April 15, 2020 *Order Establishing Standard Rates and Contract Terms for Qualifying Facilities* in Docket No. E-100, Sub 158 ("Sub 158 Order"). Furthermore, although the Commission's discussion of its findings and conclusions in the Sub 158 Order were not before the Company when it filed this DSM/EE application, the Company's adjustment to its avoided capacity savings in this proceeding is consistent with the Commission's encouraging Duke to place additional emphasis on defining and implementing cost-effective DSM programs that will be available to respond to winter demands.

Q. WHAT DID THE COMMISSION CONCLUDE ABOUT SEASONAL ALLOCATIONS IN THE PREVIOUS AVOIDED COST PROCEEDING?

A. The Commission concluded that DEC's seasonal allocation weightings for future capacity need of 90% for winter and 10% for summer were appropriate for use in weighting capacity value between winter and summer.[1] In so concluding, the Commission acknowledged that the currently high solar penetrations in Duke's service territory that it expects to continue in the future will have different impacts on summer versus winter loads net of solar contribution than in the past.[2]

Q. WAS THE COMPANY REQUIRED TO ADOPT THIS SEASONAL ALLOCATION TO NEW INCREMENTAL PROGRAMS AND PARTICIPATION BY THE COMMISSION'S SUB 158 ORDER AND SUB 1130 ORDER?

A. No, neither the Commission's previous avoided cost order or the Sub 1130 Agreement expressly required adoption of this seasonal allocation for purposes of this cost-recovery proceeding. As I mentioned previously, the Company *voluntarily* adopted the recently approved seasonal allocation of avoided capacity values for new incremental programs and participation in this proceeding to encourage the development and specific promotion of EE and DSM programs that provide winter capacity savings. Additionally, the Company feels that adopting this seasonal allocation approach better aligns with how new QFs receive capacity value consistent with the Sub 158 Order. Although this is the first time the Company has applied a seasonal allocation factor to new incremental programs and participation for this purpose, the reality is that the Commission's order in the Docket No. E-100, Sub 148

[1] Sub 158 Order at 28.

[22] *Id.*

Avoided Cost Proceeding also included a seasonal allocation for capacity of 80% for winter and 20% for summer. Neither the Company nor any party to the previous DSM/EE proceedings, however, raised the argument after the Docket No. E-100, Sub 148 Avoided Cost Proceeding that the Sub 1130 Agreement required the Company to apply those Sub 148 seasonal allocations to the EE and DSM programs. The Company voluntarily applied the seasonal allocation to incremental new participation in both EE and DSM programs for the first time in this proceeding for the reasons previously mentioned.

Q. DO YOU BELIEVE THAT THE COMPANY'S APPLICATION OF THE SEASONAL ALLOCATION FACTOR ONLY TO NEW AND INCREMENTAL DEMAND RESPONSE PROGRAMS IS APPROPRIATE?

A. Yes, the Company believes that it is appropriate and consistent to only apply the seasonal allocation factor to new and incremental program participation while at the same time continuing to recognize 100% of the avoided capacity value of the Company's legacy summer demand response programs.

Q. WHY DOES THE COMPANY BELIEVE THAT LINKING TREATMENT OF LEGACY DSM PROGRAMS AND TREATMENT OF EXISTING QFS WITH RESPECT TO APPLICATION OF THE COMMISSION'S AVOIDED COST DETERMINATIONS IS APPROPRIATE IN THIS PROCEEDING?

A. The Commission has previously concluded that the net benefits and financial incentives for DEC's DSM/EE programs are linked (although not identical) to the avoided cost rates DEC pays QFs for avoided energy and capacity. As the Commission itself noted in its Sub 158 Order, seasonal allocation factors may change based on the then prevailing circumstances reviewed in biennial avoided cost proceedings.[3] Therefore, just as the Commission approved applying the seasonal allocation factors of 90% winter and 10% summer to future QF capacity in its order in Docket No. E-100, Sub 158, the Company applied the approved seasonal allocation factors to new and incremental demand response programs in this proceeding. As a corollary, just as the Commission did not retroactively apply its Sub 158 seasonal allocation factors to QFs that had previously established power purchase agreements ("PPAs") at avoided cost rates that were approved based on past prevailing circumstances, the Company did not retroactively apply the seasonal allocations approved in Sub 158 to its legacy DSM programs.

Additionally, the Commission's review of the Company's 2018 DSM/EE application is supportive of the Company's treatment of its legacy DSM/EE in this proceeding. In the 2018 DSM/EE cost recovery proceeding, Docket No. E-7, Sub 1164, the Public Staff asserted that legacy DSM programs should receive zero capacity value until the year of first need shown in the Company's most recent IRP, based on the Commission's avoided cost determination in Docket No. E-100, Sub 148 and House Bill 589's recent amendments to N.C. Gen. Stat. §62-156(b)(3). The Company opposed this recommendation and argued, among other things, that the MW reductions of those programs were

[3] Sub 158 Order at 28.

already included in the IRP and that the policy reasons behind this shift in the Commission's PURPA implementation in Docket No. E-100, Sub 148 did not likewise compel the Commission to duplicate application of the zero capacity value to existing DSM/EE programs. The Company also noted that its DSM programs had been established over a number of years and were a useful resource and that legacy DSM programs should be treated similarly to QFs that had established legally enforceable obligations ("LEOs") or had signed PPAs prior to November 15, 2016. Company witness Steve argued in his testimony that, as the Commission or House Bill 589 had not retroactively ended the capacity payments for those QFs, the Commission should not discontinue attributing capacity value to legacy DSM programs.[4] The Commission declined to accept the Public Staff's recommendation and ruled that the Company's method of assigning full avoided capacity cost value in every year was correct. Thus, one of the main arguments that the Commission reviewed in its conclusion was that the treatment of existing legacy DSM programs as a resource could be linked to treatment of existing PPAs with QFs. Just as it would be incorrect to change the avoided capacity value for an existing QF, it would likewise be incorrect to change the avoided capacity value for an existing DSM resource. Accordingly, the Company continues to believe that, for purposes of this proceeding, it is appropriate to recognize the similarity between the continuing capacity value for these legacy summer DSM programs and QFs that had established LEOs or had signed PPAs with the Company.

[4] NCUC Final Order, Docket No. E-7, Sub 1164 at 40-41

Q. PLEASE DESCRIBE HOW FROM AN INTEGRATED RESOURCE PLANNING STANDPOINT THE LEGACY DSM PROGRAMS, SPECIFICALLY THE POWER MANAGER PROGRAM, ARE VIEWED?

A. From the perspective of the Company's IRP, the Company's Legacy DSM Programs are considered a dispatchable resource that is available for the entire fifteen-year IRP planning horizon. In particular, the Power Manager Program resource has the flexibility to dispatch any time throughout the day depending on the net load on the system after accounting for must-take solar output onto the grid. As such, Power Manager is available to dispatch into the evening hours when net load is still high due to diminished solar output, a phenomenon often referred to as the "duck-curve." Conversely, if solar is lost due to mid-afternoon cloud cover, DR can be utilized earlier to make up for diminished irradiance. As an IRP resource, both existing AC DR and existing solar resources are oriented toward summer peak demand reduction helping to meet consumer peak demand in the summer. This summer capacity value from these resources, at least in part, is why incremental resource decisions are now geared toward winter peak demand needs. Importantly, this does not imply that existing summer-oriented resources such as AC DR and QF solar are not valuable, but rather implies that incremental additions to such resources would have diminished incremental value.

Q. DO YOU AGREE WITH WITNESS HINTON'S CONTENTION THAT THE LEGACY DSM PROGRAMS ARE SHORT-LIVED AND HENCE

EACH YEAR'S CUSTOMER PARTICIPATION IS NEW AND INCREMENTAL?

A. No, I do not agree with his contention. While the Company recognizes a one-year measure life associated with its demand response programs, this is purely a function of its recovery mechanism rather than a representation of the projected program participation and impact. The fact is that while the Company recognizes one year of participation at a time in its cost recovery, the legacy DSM resource has been built over time, and the term of implicit contract with customers likely more closely resembles the life of the load control switch than it does a one-year measure life. Based on the Company's experience, the Company's legacy DSM program experiences about a 1% annual net attrition rate after factoring in that in the vast majority of the residences where an existing DSM-participating customer moves out, the new customer in that residence chooses to continue participation in the DSM program.

In addition, from a system planning perspective, the peak MW capability of the DSM programs is included for all 15 years of the IRP. In fact, as noted in the Commission Order in Docket No. E-7, Sub 1164, Public Staff Witness Williams acknowledged that the DSM programs in the DSM/EE IRP block are "stable and expected to continue for the foreseeable future".

Finally, the fallacy of Mr. Hinton's argument is even more obvious, when one observes that for DEP, the Company recognizes 25 years of peak reduction impacts at the point a new customer signs up for DSM; however, customers in

DEP have the same ability to drop out of the program as those in DEC's DSM programs.

Q. WITNESS HINTON STATES THAT HE BELIEVES THAT THE CAPACITY VALUE OF SUMMER DSM RESOURCES HAS CHANGED DUE TO CHANGES IN THE COMPANY'S SYSTEM LAMBDA. DO YOU AGREE WITH THIS ASSESSMENT?

A. No, I do not. With his confidential testimony on the Company's system lambda, it appears that Witness Hinton is attempting to show that during the most recent four years of actual DSM activations, the Company has had fewer activations of summer DSM programs, which he attributes to a change in the Company's system lambda. Although it is true that the metric Mr. Hinton is using, the Company's system lambda, appears to show that the expected avoided energy costs during peak summer hours have become lower over time, this type of behavior in avoided energy costs does not clearly refute the Company's legacy DSM summer capacity value or justify reducing its value now. This change in the summer avoided costs could just as easily be explained by the milder 2017-19 summers when compared to the summer of 2016 where the DSM programs were activated a significant number of times. The Company has not performed a rigorous analysis of the Cooling Degree Days during these summer periods versus a weather normal period. A cursory examination of historical temperatures, however, indicates that the summer of 2016 was much hotter than normal. In contrast, the 2017-19 summers were very close to normal summer periods.

Additionally, the full value of a summer DSM resource occurs during extreme weather days where that ability to dispatch a summer DSM program provides peak load reduction that is less expensive than starting up and running more expensive peaking generation. Thus attempting to show that summer DSM has become less valuable over time by highlighting system lambdas during normal weather years (2017-19) when compared to an extremely hot summer year, is misleading.

Q. DO YOU AGREE WITH WITNESS HINTON'S CONTENTION THAT RECOGNIZING THE SEASONAL ALLOCATED CAPACITY VALUE OF 10% ON ITS LEGACY DEMAND RESPONSE PROGRAMS WOULD BETTER ENCOURAGE THE COMPANY TO PROMOTE WINTER CAPACITY FOCUSED EE AND DSM PROGRAMS?

A. No. While as stated previously, the Company agrees that recognizing a seasonal capacity allocation factor applied to new and incremental EE and DSM programs and participation will encourage the Company's portfolio to achieve more winter capacity savings, it struggles to understand how devaluing an existing approved summer resource that is heavily relied upon in system planning in any way encourages more winter capacity savings. The reality is that the recognition of full capacity value for an existing legacy resource has virtually no influence on the value or emphasis placed on a promoting new participation and savings; they are in fact independent of each other.

Q. DO YOU AGREE WITH WITNESS HINTON'S CONTENTION THAT APPLYING THE SEASONAL ALLOCATION FACTOR TO LEGACY

DSM PROGRAMS SHOULD NOT MATTER BECAUSE THE PROGRAMS STILL PROJECT TO BE COST EFFECTIVE EVEN AFTER SUCH AN APPLICATION WOULD OCCUR?

A. No, I do not agree. While Mr. Hinton is correct that the Company's legacy DSM program still project to be cost effective for Vintage Year 2021 if it applied the 10% seasonal allocation factor, that does not mean it is appropriate now and would not have negative longer-term impacts on this important legacy summer capacity resource.

First, as discussed earlier, failure to factor in the full avoided capacity is simply not correct, as the legacy DSM programs were implemented assuming that the avoided capacity value would exist beyond the one year measure life assumed for the purposes of cost recovery, as is clearly shown in the Company's IRP documents where the contribution from DSM programs is included in all 15 years of system planning analysis.

Second, as acknowledged by Mr. Hinton, with only 10% of the avoided capacity value being recognized, the majority of the avoided costs associated with the legacy resource comes from avoided Transmission and Distribution ("T&D") value. The avoided T&D rates are required by the Commission to be studied and updated prior to 2022. Given the uncertainty regarding the avoided T&D values beyond 2021, the Company does not believe it is appropriate to adopt Mr. Hinton's short-sighted justification that the unwarranted application of the seasonal allocation factor to the avoided capacity associated with legacy DSM resources is appropriate because the programs project to be cost effective in

2021. By establishing a precedent that the avoided capacity value for these existing summer DSM resources is arbitrarily reduced to only 10%, this could easily create a situation where these programs are no longer cost effective if there is a drop in the value of avoided T&D values.

Finally, in the Commission's final order in Docket No. E-7, Sub 1164, the Commission stated that it was "persuaded by the arguments of DEC, [the North Carolina Sustainable Energy Association] NCSEA and NC Justice Center that assigning a zero-capacity value to DSM programs would under-value the contributions of those programs and send the wrong pricing signal." In the same way, it logically follows that assigning a 10% value for avoided capacity to an existing summer DSM resource would under-value the value of this capacity resource.

Q. IF THE COMPANY DID AGREE WITH WITNESS HINTON AND THE PUBLIC STAFF'S POSITION REGARDING THE APPLICATION OF THE SEASONAL ALLOCATION FACTORS TO THE AVOIDED CAPACITY VALUES ASSOCIATED WITH LEGACY DSM PROGRAM, DO YOU AGREE WITH THE FINANCIAL ADJUSTMENT ASSOCIATED WITH THE PUBLIC STAFF' POSITION DISCUSSED IN WITNESS MANESS TESTIMONY?

A. No. The proposed reduction in the Company's PPI of $5,093,947 discussed in Witness Maness's testimony was based on an Company response to Data Request that contained a scrivener error in one of the formulas related to the Power Share Program which resulted in the net present value of avoided capacity being understated. The Company notified the Public Staff of a corrected response on May 18, 2020; however, it appears that the correction was not incorporated into Witness Maness's Testimony. Upon correction of this error, the updated difference in the PPI resulting from assigning the 90%/10% seasonal allocation of avoided capacity would be $3,624,753.

Reserve Margin

Q. DO YOU AGREE WITH WITNESS HINTON'S CONTENTION THAT IT IS INAPPROPRIATE FOR THE COMPANY TO APPLY A RESERVE MARGIN FACTOR IN THE DETERMINATION OF THE AVOIDED COST VALUE ASSOCIATED WITH THE COMPANY'S EE PROGRAMS FOR VINTAGE 2021?

A. No, I do not agree. Because EE is treated as a load reduction resource in the IRP, rather than like a load serving resource, it is appropriate that it should have a 17% reserve margin factor applied to it just as it would be appropriate to apply a 17% planning reserve margin factor to an increase to the system load. For every KW of load reduction that comes from EE, the Company does not need to plan for 1.17 KW of load serving capacity. For this reason, it is both mathematically logical and prudent from a planning standpoint to apply a 17% reserve margin factor to the avoided capacity associated with EE programs.

Q. DO YOU HAVE ANY OTHER COMMENTS REGARDING WITNESS HINTON'S DISCUSSION OF THE APPLICATION OF A 17% RESERVE MARGIN TO THE AVOIDED CAPACITY ASSOCIATED WITH EE PROGRAMS?

A. Yes. I have several additional comments and concerns with witness Hinton's testimony.

First, Mr. Hinton states on Page 5 lines 19 through Page 6, line 2 that the reserve margin adjustment was applied by the Company to "all of the megawatt (MW) reductions (demand reduction benefits) associated with the Company's EE programs beginning with vintage year 2021." This statement requires clarification that the Company only applied the adjustment to the avoided capacity benefits, not the avoided T&D benefits. Technically, a reduction in avoided T&D costs could also be considered a demand reduction benefit, and the Company wants to clarify that the reserve margin adjustment is only applied to the reduction in avoided capacity.

Second, on Page 8, line 4 of Mr. Hinton's testimony, he provides a table showing an example for a 100 MW reduction in peak demand from EE. However, this table is not entirely representative of the way in which the Company applied the reserve margin adjustment. The concept is correct; however, the result in row 26 of his table does not accurately reflect DEC's proposal. DEC is proposing that a hypothetical 100 MW customer load reduction from EE program should be increased by the planning reserve margin of 17%, not the actual reserve margin in any given year. In this case, a 100 MW load reduction would yield a 117 MW reduction in generating capacity needs, rather than the 119 MW shown for the year 2020 in row 26. Thus, it is not "DEC's position . . . that due to that 100 MW load reduction from EE, it is able to reduce its existing generating capacity by 119 MW to maintain the Actual Reserve Margin," as stated on page 8, lines 14-18 of Mr. Hinton's testimony. Third, Mr. Hinton states on Page 9, lines 5-7 of his testimony that "DEC's customers will not realize this claimed value." This statement is not correct. Just because the 2019 IRP shows DEC's actual reserve margin is greater than 17% in the near-term is no reason to assume that there is no capacity value to building new EE resources several years before the in-service date of a new generating unit. The EE measures in DEC's vintage 2021 portfolio have a life greater than 6 years, which is about the time DEC's 2019 IRP demonstrates the need for new combustion turbine generation, so those EE measures with longer lives directly contribute peak load, and reserve margin, savings during and after the in-service date of the next planned generating unit. Even Mr. Hinton recognizes that " . . . DEC's customers will ultimately see a benefit of the 100 MW of load reduction due to an EE program" (page 9, lines 7-9) and "It is likely in the future that supply side resources will be below the 17% margin and the customer would see the value of 100 MW of added demand reduction from EE programs." (page 9, lines 10-13). EE programs are built one customer or one measure (e.g., one LED light bulb) at a time, so it typically takes several years to build a significant amount of peak load savings from EE resources. As such, EE needs to start being implemented well in advance of when it is needed.

Fourth, Mr. Hinton states on page 9, line 16 through page 10, line 4 that "DEC maintains customers should pay (100 MW * approved avoided capacity rate per kW-yr. * 1.17) while, historically the value of MW reductions has been calculated (100 MW * approved avoided capacity rate per kW-yr.)." This statement is not accurate. The appearance is that the two calculations only differ by the inclusion of a 1.17 reserve margin adjustment factor in the DEC proposal, which is generally correct. However, there is more information in the "approved avoided capacity rate per kW-yr" term that needs to be considered. For example, the "approved avoided capacity cost rate" from Docket E-100, Sub 158 can also be viewed as (Avoided Capacity Rate * Performance Adjustment Factor).

As Mr. Hinton notes on page 11, lines 9-22, the Performance Adjustment Factor (PAF) was 1.20 from the 1991 Avoided Cost Proceeding (Docket No. E-100, Sub 59) up until October 11, 2017 when the Commission approved a lower PAF of 1.05. Mr. Hinton also explained on page 11 that the 1.20 PAF was originally based on a 20% reserve margin, which at that point in time was an accepted margin for long-range planning. At that time, it was also known as a 20% Reserve Margin Adjustment that was applied to avoided capacity payments made to QFs, until it was renamed the PAF in the 1991 Avoided Cost Proceeding. This means that, prior to October 11, 2017, the value of a 100 MW load reduction was calculated as (100 MW * avoided capacity rate per kW-yr. * 1.20), which is very close to, and greater than, DEC's proposed calculation of (100 MW * avoided capacity rate per kW-yr. * 1.17). In essence, therefore, DEC's proposed reserve margin adjustment factor of 1.17, which reflects the current 17% margin used for long-term planning, is no different than the application of the 1.20 PAF that existed for the roughly 15-year historical period ending October 11, 2017. The outliers are the last two years when the PAF was changed to 1.05 so that it no longer represents a reserve margin adjustment.

Fifth, on page 10, lines 4-6 of Mr. Hinton's testimony, he states that, "A weakness in DEC's argument is the inequity of asking customers to pay 17% more for the same MW reduction from an EE program, as compared to a MW reduction from a DSM program." The Company disagrees with this statement because the IRP addresses EE programs differently than DSM programs. Because the IRP treats EE program as a reduction to the load forecast, EE programs also eliminate the need to build a reserve, which is why EE programs should include the 1.17 reserve margin adjustment factor. DSM programs, on the other hand, are treated as a dispatchable resource, much like a generating unit. As such, DSM programs are recognized within the IRP as additional supply-side capacity, not as a peak load reduction to the load forecast. If there is no load forecast reduction, then there is also no reserve margin savings. Thus, DEC's proposal is both the correct and equitable solution and the fact that it properly recognizes this important distinction is a strength, not a weakness.

Finally, Mr. Hinton argues that "…this is not the appropriate proceeding to evaluate such a significant change to the avoided energy rates" as stated on Page 12, lines 19-21. The Company assumes that Mr. Hinton intended to use the term "avoided capacity rates" rather than "avoided energy rates" in his testimony because there was a significant drop in the avoided energy cost rates for vintage 2021 based on the new results from Docket E-100, Sub 158 and the Company has applied those rates appropriately in this proceeding.

Q. IF ONE WERE TO AGREE WITH WITNESS HINTON'S CONTENTION THAT THE PAF UTILIZED IN THE DETERMINATION OF THE COMPANY'S AVOIDED CAPACITY RATES APPROPRIATELY REFLECTS A RESERVE MARGIN, AND NOT SIMPLY AN EFFECTIVE FORCED OUTAGE RATE, SHOULD THE COMPANY BE REQUIRED TO REMOVE THE 17% RESERVE MARGIN ADDER IT APPLIED TO AVOIDED CAPACITY ASSOCIATED WITH EE PROGRAMS?

A. No, even in the case that someone agreed that the PAF included in avoided capacity calculations was equivalent to a reserve margin adjustment, it would only account for part of an appropriate adjustment for the reserve margin associated with avoided capacity coming from EE programs. In other words, an appropriate adjustment would be to only apply an 11.429% reserve margin adder to the avoided capacity to make the capacity reduction reflect a 17% reserve margin after factoring the 5% PAF already factored into the Company's approved avoided capacity rated in Docket No. E-100, Sub 158.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

Q. Mr. Duff, do you have a summary of your rebuttal testimony?

A. Yes, I do.

Q. Please read it.

A. The purpose of my rebuttal testimony is to re- -- I think there is an echo. Okay. I'm gonna start again.

The purpose of my rebuttal testimony is to address recommendations of Public Staff witness John Hinton that, one, the avoided capacity cost benefits for the purposes of the Portfolio Performance Incentive, or the PPI, and the cost-effectiveness of the Company's legacy DSM programs be calculated using a seasonal allocation of avoided capacity value; and two, the Company's application of reserve margin factor is not appropriate in calculating the avoided capacity cost value of EE programs.

First, I summarize and provide some history regarding the proceedings of updating avoided cost used in the evaluation of the Company's EE and DSM programs, specifically on the agreement reached with the Public Staff in Docket E-7, Sub 1130, which the Commission approved in August 2017.

Then I discuss why the Company's allocation of 100 percent of avoided capacity cost to legacy summer DSM programs is reasonable, consistent with past Commission orders, and aligns with both North Carolina public policy and resource planning assumptions. Beginning with vintage 2021, the Company voluntarily applied the 90 percent winter and percent [sic] summer seasonal allocation approved in the most recent avoided cost proceeding to avoided capacity savings for all new incremental participation in both EE and DSM programs. The Company believes, however, that applying 100 percent of avoided capacity cost value to legacy or established DSM programs reflected as an ongoing resource in the IRP is correct and appropriate. My testimony explains why this approach is not inconsistent with the treatment of new QF capacity as discussed in the Commission's decision in Docket E-100, Sub 158. Furthermore, the Company's adjustment to its avoided capacity savings in this proceeding is consistent with the Commission's encouragement to place additional emphasis on defining and implementing cost-effective DSM programs that will be available to respond to winter demands.

Finally, I discuss why the Company's application of reserve margin to the avoided capacity costs for EE programs is consistent with past Commission-approved practices and how EE resources are treated in the approved IRP. Because EE is treated as a low reduction in the IRP rather than a load-serving resource, it is appropriate that it should have a 17 percent reserve margin factor applied to it, just as it would be appropriate to apply a 17 percent planning reserve margin factor to an increase in the system load. It is both mathematically logical and prudent from a planning standpoint to apply a 17 percent reserve margin factor to the avoided capacity associated with EE programs.

This concludes the summary of my prefiled rebuttal testimony.

Q.   Thank you, Mr. Duff.

MS. FENTRESS: The witnesses are available for cross examination.

COMMISSIONER BROWN-BLAND: All right. Do any intervenors have cross examination? It's my understanding that only the Public Staff does. Seeing no disagreement with that, is it Ms. Luhr or Ms. Edmondson?

MS. LUHR: Good afternoon. I would like to ask questions based on the Company's rebuttal to

Mr. Williamson's testimony, and Ms. Edmondson will be asking questions based on the Company's rebuttal to Mr. Hinton's testimony.

COMMISSIONER BROWN-BLAND: All right. You may proceed whichever order you wish.

CROSS EXAMINATION BY MS. LUHR:

Q. Mr. Evans, good afternoon.

A. (Robert P. Evans) Good afternoon.

Q. On pages 4 and 5 of your rebuttal testimony, you discuss Mr. Williamson's recommendations related to the Grid Improvement Plan, or GIP; is that correct?

A. That is correct.

Q. And the GIP proposed by the Company in its pending rate case would include integrated volt/VAR controls, or IVVC; is that right?

A. That's correct.

Q. And the benefits of IVVC include voltage reduction and a reduction in peak demand; is that right?

A. I understand it provides voltage reduction. I cannot comment on the peak demand elements. I'm not that familiar with the program, itself.

Q. Okay. Do you agree that the Company's DSM programs are dependent upon the level of system demand on the grid at any given time?

A. That is correct.

Q. If IVVC is implemented and the Company sees a reduction in system demand, the Company's DSM programs would see a reduction in demand savings, wouldn't they?

A. Operated -- I guess if you could rephrase that question. I must apologize. I'm seeing as -- are you saying is that necessary, or do we run as often, or will they need -- will they provide as much of a demand peak savings benefit or the like? That could be answered several ways. That's why I'm asking for clarification.

Q. Sure. So, you know, if IVVC is implemented and the Company sees a reduction in system demand, would the Company's DSM program be called upon less frequently, resulting in less of a demand savings?

A. All of the things being equal, one would expect that to be the case.

Q. Thank you. And if the Company's DSM programs saw a reduction in demand savings, their cost-effectiveness would decrease as well, wouldn't it?

A. Not necessarily.

Q. And why is that?

A. You have different types of DSM programs on the system. For example, if you are looking at a motor operating an HVAC device, you would see a reduction in voltage and potentially a small drop in demand savings. If you have a contractual demand offset reduction, for example, in our nonresidential market, it would have no impact whatsoever, because it would be an agreed-upon megawatt reduction. As such, there would be no change in cost-effectiveness.

Q. Okay. But it is possible that cost-effectiveness could decrease?

A. On the residential side, it is possible. And we have a small business demand response program as well, which might be impacted slightly; that's correct. It could be impacted, as I believe Jay Oliver had testified. I think he used more of a generalization, but he was, I think, very correct when he indicated something approaching the CVR-related reduction percentage.

Q. Okay. Thank you. So given that potential, Mr. Evans, wouldn't you agree that it's important to quantify any such impacts on the Company's DSM program?

A. This is not a DSM program. Any -- and as such -- and will not be in place until 2024. We would evaluate those through additional EM&V analyses. And that was a point in my testimony. You would be -- it would be quite extensive and a very lengthy process to analyze the impacts of IVVC on the Company's measures, because every measure would be impacted slightly differently, and you're talking about thousands of measures. And as such, that's why I recommended that we look at this entity, EM&V. And the EM&V would take into account activations, it would take into account impacts of lower voltage reduction on the individual measures associated with a program. So I'm not against -- I didn't really want to testify against a study, it's just the mode of study in which the Public Staff was proposing.

Q. Okay. Thank you. And I'd like to briefly discuss the GIP proposed by the Company with respect to its smart meter infrastructure, and many of those smart meters have already been installed, correct?

A. Yes.

Q. And they provide customers with direct access to their energy usage data via a smart meter usage app; is that right?

A. Yes. They are provided information relative to -- well, they are provided information on a more timely basis relating to their use; that's correct.

Q. And the Company's My Home Energy Report, or MyHER, program also provides customers with energy-usage data; isn't that right?
A. Yes, but it provides so much more.
Q. So it provides homeowners also with a comparison of their energy-usage data to that of similar customers; is that right?
A. That's correct, where you would not see that in the usage app that you had described previously. It's a motivational component which has significant impacts on customer usage.
Q. And the MyHER program also provides homeowners with tips for reducing their energy usage; correct?
A. That's correct, yes.
Q. And the energy savings tips provided by the MyHER program, those could potentially be provided in a number of ways outside the program; isn't that right? For example, they could be printed on a monthly bill or provided in a newsletter?
A. The portions probably could go on an individual bill, although customers are so different from one another, you would maybe want to tailor that message on those bills. I -- as far as a report you

are talking about, or a letter of sorts, that's what MyHER is all about. So that's really what you've already got.

Q. Okay. Are you aware of energy-savings tips currently being sent to customers through channels other than the MyHER program?

A. Yes. They do show up occasionally on bills. I'm afraid I'm an electronically billed customer, and I just recently had paper copies being delivered, because of the new format and my interest in the new format, and this monthly bill did have a -- information on the home energy audit program, which unfortunately is not being provided at this point in time, but it will be in the near future.

Q. So with the recent deployment of the Company's smart meters and with the energy-usage data they provide to customers, wouldn't it be appropriate for the Company to assess the costs and benefits of continuing to offer the MyHER program?

A. Again, they are different. The one we are providing through smart usage app is informational. What we are providing through the MyHER report are motivational aspects and actionable tips, which is different. Right now -- and you have been able to get information comparing your use on a month-to-month basis as well as your use this year versus last year. So that's been provided to customers for years. What you are providing is greater precision with respect to intervals under the smart usage app. So customers have gotten this information all along, but yet you see MyHER providing significant benefits to our customer base. So I don't think it can be replaced, if that is, you know, one's motivation.

Q. Okay. Thank you. That's all I have.

A. Thank you.

CROSS EXAMINATION BY MS. EDMONDSON:

Q. Good afternoon. This could go to either Mr. Duff or Mr. Evans, I think.

Would you-all give me a brief description of the Company's DSM programs?

A. (Robert P. Evans) I could do that. We have -- again, we have residential and nonresidential programs. The residential program for Duke Energy Carolinas is a heat -- is an air conditioning heat pump controller, and we now also have controllers through the Bring Your Own Thermostat program, so we are actually using the customer's own equipment to help control the usage of that. On a residential -- on a nonresidential side, we have -- small customers have a similar program dealing with HVAC and lighting, et cetera. However, the large part of the program, which is the PowerShare program, which customers contract for a specific megawatt or kilowatt reduction, and they meet that in order to benefit from incentives. So it's a fixed amount.

Q. And of these three of programs, which ones provide winter DSM?

A. The PowerShare program is what you're going to see, and that is a winter-related program. The Bring Your Own Thermostat program, however, is going to be moving toward winter using the Bring Your Own Thermostat device. More to come on that, but you will be seeing that in the very near future, we hope.

Q. Okay. How long have these three programs been in existence?

A. I'm not sure. Mr. Duff, maybe you can provide that.

A. (Timothy J. Duff) Sure. The Power Manager, PowerShare programs have been in place since 2009 when the Company started its first DSM portfolio under, kind of, modified Save-A-Watt program. And then the Small Business Energy Saver I believe was added in 2016 or

2017.

Q. And I was looking about when the last change was made to PowerShare.

It looked to me there was a 50 megawatt cap that was removed toward the end of 2018; is that correct?

A. I believe that's the last major modification, yeah.

Q. And how about the Power Manager; can you recall when the last change was made?

A. Yes. The last change would have been when we added the Bring Your Own Thermostat measure to the Power Manager program, and I believe that was also done in 2018.

Q. When do you-all expect to start seeing benefits from the thermostat --

A. So the first -- this will be the first summer period in which we will be controlling the vents. We had -- the initial vendor had some problems, and we didn't feel confident in the customer experience associated with it, so we went back and got a vendor that we are more comfortable with. We have since acquired customers, and this summer will be the first control period through the BYOT, or Bring Your Own

Thermostat, program.
Q. What will it be doing in the winter?
A. Currently there are no plans for control in the winter, due to the fact that, historically, the Company has not recognized winter at coincident peak savings associated with demand response programs.
Q. So how does -- the growth and participation in these three programs, how has it progressed in the last couple of years since the 2018 IRP?
A. I would say it's been very moderate. Moderate growth in the programs. They are at a fairly -- fairly level state. There is, I believe with -- as I stated in my testimony, on the Power Manager side, we have approximately 1 percent net attrition in the program. So it's a -- it's a pretty constant resource. There is a little bit of growth projected, but not a tremendous amount.
Q. Have the changes in participation been consistent with those projected in the 2018 IRP?
A. Subject to check, I would have to -- I would have to say I think they are probably pretty consistent, yes.
Q. Are any changes planned in the near future to these -- any of these three programs?

A. Well, yes. I think, as you will -- as we have talked about in this proceeding, beginning in vintage 2021, or the projected period in this rider proceeding, the Company has proposed, in response to both the Public Staff and a number of other intervenors, a desire for more winter DR to start recognizing the seasonal allocation associated with the 90/10 split of avoided capacity. So the Company is currently moving forward with putting a filing together to add a winter capacity savings program through the Bring Your Own Thermostat, and potentially also load control switches, as well as other winter programs, since now there is an avoided capacity value associated with winter capacity savings.

Q. Mr. Duff, would you please define legacy DSM?

A. Sure. I will go to my rebuttal testimony, and I have a definition in there. I can read it if you would like.

Q. Sure. Page 9, I think.

A. Yup, yup. It is on page 9. So the legacy DSM, in this context, for this proceeding, means capacity resource that has been built from historic and planned DSM programs, or in other words, the amount of DSM capacity included in the Company's 2018 IRP forecast as a load-serving resource. Incremental or new DSM capacity refers to capacity resources that are built from new participation in DSM programs that were not factored into the Company's IRP as a load-serving resource.

Q. And that would be as of 2021; is that correct?

A. So it would be the 2018 IRP. Anything that was higher than the 2018 IRP forecast would be considered incremental.

Q. Right. And so for 2021, it estimated winter DSM capacity I think to be 454 megawatts?

A. Subject to check.

Q. Subject to check.

And then in the 15-year planning period in the 2018 IRP it estimates a rise to 462 megawatts, and then declining to 458 during the planning period?

A. Again, I don't have those tables in front of me, so subject to check. And I'm not sure if you are talking about winter or summer.

Q. That was the winter. There was --

A. Okay.

Q. -- 454 megawatts rising to 462 and then declining to 458.

A. Again, subject to check. I feel like I'm a little bit blind with the numbers.

Q. Sure, sure. Not --

COMMISSIONER BROWN-BLAND: Just a moment. You can't talk over each other, and also, let's back up, sir.

Ms. Edmondson, could you just repeat the very last question and the witness answer again to be sure the court reporter gets it.

MS. EDMONDSON: Sure.

Q. So I was just the -- let me make sure I can ask it.

So the 454 megawatts would be what was shown for 2021 as winter DSM on the 2018 IRP with an increase from somewhere -- during the 15-year planning period from between 458 and 462 megawatts.

A. Again, subject to check. It's really hard without any sort of table in front of me to agree to things, but yeah, sounds like you are quoting numbers that are in the ballpark.

COMMISSIONER BROWN-BLAND: Ms. Fentress, are you trying to get in? I'm sorry.

MS. FENTRESS: That's quite all right. I was just gonna ask if Ms. Edmondson could give us a page number of the IRP that she's citing from just so, when we go back and look, we will have it for the record and can take a look.

MS. EDMONDSON: This is page 61 and 62 of the 2018 IRP, tables 12(e) and 12(f).

MS. FENTRESS: Did you get that? Okay. Thank you.

Q. So I just wanted -- so the 454, if you accept my number, would be the legacy DSM, and the 4 to 8 megawatts would be the incremental DSM?

A. Yes, that's -- I believe that's correct.

Q. All right. So if a customer started participation in one of these three programs, would they be part of legacy or incremental DSM?

A. So if the customer started participation and they -- the total megawatts associated with the summer capacity exceeded the amount that was in the IRP, they would be considered incremental.

Q. But if -- I'm sorry, go ahead.

A. No. I think that's what you were asking.

Q. But if you're below that, and a person moves in and joins the air condition program, they would be considered a legacy customer, even though they were new to the program?

A. So I guess the question would be whether they are moving into a house that already had an existing switch deployed. But if, in fact, we had not reached that 454 number I believe that you quoted, then yes, they would be considered legacy, because that's the resource that was built into the system -- into the system plan.

Q. What is the life or term of a legacy DSM; is it by customer or by a switch?

A. Well, so for -- it really depends on which utility. For DEC, because of the recovery mechanism, we have used a one-year measure life, because theoretically a customer can elect to opt out. Although, as I've quoted, there is really an implicit contract, and as even the Public Staff has pointed out in the past, it's a very stable amount of participation in the program. So it's a one-year measure life. But, for example, DEP, the recognized measure life actually ties to the switch life, which is 25 years, and DEP recognizes that 25-year measure live. So a lot of the difference in the reasonable -- the rationale behind the one-year measure life is because of the recovery mechanism that DEC has employed.

Q. So if one customer -- does it matter -- they will be legacy if you are below that legacy amount whether a new customer moves into a home, it's a totally new customer, they are always legacy, as long as --

A. As you pointed out, the number is relatively flat. So really, in most cases, what you have is a customer moving out, and then we have an exceedingly high number of percentage of when the new customer moves into that home, they elect to also be on the program and utilize the existing switch.

Q. So for the PowerShare program, that is a curtailment program for industrial and nonresidential customers?

A. Correct. It's -- rather than a firm control, it's a contractual obligation.

Q. And I believe the mandatory curtailment option and generator curtailment option require that you sign up for an initial three-year term and then there are subsequent one-year renewals?

A. I believe that's correct.

Q. And the voluntary curtailment has a one-year term?

A. Again, subject to check.

Q. Right. And then the Power Manager, the residential air condition control, has a year-to-year renewal; is that correct?

A. It's an opt out. So the customer would have to tell us that they were opting out, correct. But yes, there is that ability.

Q. So you-all have advocated treating legacy DSM similar to treatment given to existing QF PPAs?

A. We set a treatment that was consistent. Obviously, there is fundamental differences between the QF and DSM capacity, but yes, the value associated with those has been planned upon in the load resource based off of the avoided costs at the time.

Q. But no DSM customer's locked into a contract of 5, 10, or 15 years, are they?

A. That is correct. Just like it's correct on the DEP side as well.

Q. Are there any consequences for a DSM customer who elects not to participate in a particular year outside of the customers who have that initial three-year contract?

A. If you're -- are you talking about residential or nonresidential?

Q. Either, if they don't participate.

A. Yeah. If a customer doesn't participate in the PowerShare program, they are subject to financial penalties.

Q. That's just the ones in the three-year contract?

A. For any contract year that they choose not to participate. That's the whole point of the program is, if they don't -- if they don't do the load control as requested, then there is obviously financial penalties associated.

Q. Sure. But if an industrial customer is in PowerShare one year and then decides that the cost of disrupting the manufacturing is not worth the incentive, there is no penalty, as long as they are not in that initial three-year contract, is there?

A. No. They have the ability to choose not to renew the contract, if that's your question.

Q. Right. And there is no penalty for that decision, correct?

A. No. If the contractual obligation is over, there is no penalty for the -- for not renewing the contract.

Q. And as we said, you have made changes to the programs here and there; you removed the 50 megawatt cap in the PowerShare nonresidential load curtailment

program?
A. Yes. I believe that change was due to some cost-effectiveness concerns.
Q. And did you see some customers return to the program after that?
A. Again, I can't -- I can't speak specifically. I haven't gone back and looked.
Q. So the terms and conditions for the -- these legacy programs can change, it doesn't change the nature of the program? They don't become incremental, they remain legacy, it's just depending on the megawatt?
A. So the terms and conditions obviously could change, but a customer could elect to take a different action if the terms and conditions change. But again, we -- when they are looking at the integrated resource plan, they are looking at it as a stable resource upon which they can plan. And as I said, even the Public Staff in the past has recognized this ability of that resource.
Q. And you -- but you could not -- you testified you can't change the terms of an existing PPA?
A. We -- so we can't -- under that -- would you say where that is, please?

Q. I believe --

A. I just want to make sure I have your question --

Q. There is no allocation. I will -- let's just -- let's strike that for the moment.

Now, Duke assumes that each customer will renew its DSM participation; is that correct?

A. So it's based off of a projection. As I said, we know that there is about 1 percent net attrition in the existing customer base on the residential side. Obviously, the nonresidential side is more chunky, but that resource has been fairly consistent.

Q. Would you accept, subject to check, that DEC's IRP assumes that no PPAs are renewed at the end of their term except for some solar?

A. Subject to check. But there is a difference between -- I do want to point out there is a difference between a QF and DSM that Commission agreed with the Company on in the Sub 1164 Docket, and the Public Staff believed that there shouldn't be avoided capacity value until a year of need, which is -- which is unlike a QF. I do want to make sure there is some clear distinction between the two.

Q. All right. And as you testified, or I believe Mr. Evans, PowerShare is the only program that provides winter DSM?

A. So the PowerShare program is really more of an all year. There are some summer only, but it's mostly an all year. So it's when you tell them to curtail. There is some -- there are some customers that elect not to have the obligation to curtail in the winter, but I wouldn't really characterize it as a winter or summer program. It's generally more of an all-year program. I believe 90 percent -- approximately 90 percent is full year.

Q. And the Company had no PowerShare curtailment events in 2019; isn't that correct?

A. Subject to check.

Q. And so the $13 million in program costs being recovered from ratepayers are for having the capacity available; is that correct?

A. So, yeah, as you said, DSM is about having the capacity when you need it and when you -- and so that it's there. Obviously, calling it has some potential customer fatigue, and so the Company is very judicial about when it called that capacity.

Q. Are you aware that, in recent IRP orders, the

Commission has been encouraging the Company to use its DSM at times when the costs of energy were high?

A. Subject to check.

Q. And are you aware the Commission is encouraging the Company to define and implement winter DSM programs since its 2016 IRP order issued in June of 2017?

A. You know, I didn't -- I didn't see nearly the reference to winter DSM in the 2016 avoided cost case. I didn't go back and look at the IRP, but the avoided cost case didn't get into the winter DSM the way, clearly, in the 2018 IRP and avoided cost case there was far more emphasis from the Public Staff and other parties, and the Company recognized that and the need to increase with winter DSM.

Q. And so the Company's efforts to develop winter DSM, has there been something with the Collaborative group, something to study that?

A. We have talked -- we have talked about winter DSM and actually are working to try and learn more about potential winter DSM programs. DEP Western Carolinas has had a legacy winter DSM program involving water heaters and heat pumps because, previously, they were recognizing winter peak capacity as kind of a driver from a planning standpoint. So we do have some experience, but yes, we are doing a number of activities to try and learn more, but the most important thing was to start recognizing avoided capacity value with winter peak savings in order to make those programs cost-effective.

Q. The capacity rate used by the Company includes a 5 percent adder for the performance adjustment factor; is that correct?

A. That is my understanding, yes.

Q. And this PAF, as we call it, is also applied to capacity rates for qualified facilities, or QFs, correct?

A. I believe so.

Q. And on top of this 5 percent, you have also added an additional 17 percent for the reserve margin for only EE programs?

A. Well, yes. Ms. Edmondson, as I testified to, and as the Public Staff has agreed in the avoided cost case, the Company treats energy efficiency as a load reduction rather than a system resource, and so when you're reducing load, if you are reducing it -- if you're reducing it by X percent, you are no longer needing to have that 17 percent reserve margin, from a planning standpoint. So you are really reducing it by 117 percent. And then, obviously, the Company, and in my testimony, recognized what witness Hinton said about the 5 percent, which was for an effect forced outage rate. So if you did accept the fact that the PAF of 6.05, which replaced an old PAF of 0.2, you would basically say that the reserve margin factored in the EF4 -- the EFOR, or effective forced outage rate, that the effective rate should be around 11.42 percent, but the Company was not clear on whether that EFOR was representative of a reserve margin or not.

Q. Upon applying this reserve margin adder, aren't you making ratepayers pay 17 percent more for the same load reduction associated with EE programs than for DSM programs?

A. They are fundamentally different. The Company -- which is why they are treated differently. Because when you put in a DSM measure, it's viewed, as I said a few minutes ago, as a load-serving -- load-serving resource. Energy efficiency is factored into the load that you plan what load-serving resources you need for. So it's -- it's what side of the equation the engineer efficiency occurs on. But no, I would disagree that there is any sort of overcharging.

It's really by doing -- avoiding capacity with an energy-efficiency program, you are eliminating the need for an additional 0.17 of a load resource because it's not being factored into the required reserve margin that will be met with load-serving resources.

Q. But by valuing EE 17 percent higher, doesn't that give the Company more incentive to value EE higher than DSM or to pursue it?

A. No. It gives it the appropriate -- it gives it the appropriate measure. You know, the Company -- the Company kind of missed this change when the PAF was changed in 2017 from 0.2 to 0.5 or to .05. And so the reality is, for the past two years, the Company has been undervaluing the energy-efficiency resources because that PAF is no longer factored into the avoided capacity value.

Q. So as you just said, this is the first time you have included the seasonal -- I mean the reserve margin adder in your calculation for the rider?

A. That is correct. We got kind of caught up in the whole -- in the Public Staff believing that legacy resources -- or I'm sorry, that EE and DSM resources shouldn't get any capacity value until there was a year of need.

Q. And it's also the first time for this seasonal allocation adjustment?

A. That's correct.

Q. And did the Company inform the Commission, in its direct testimony, that it had made these changes?

A. It was clear in all of the exhibits, but no, it did not call it out in its testimony explicitly.

Q. Where was it clear, which exhibits?

A. In the -- in the value -- it was factored into the values. I would have to go back and look at the work papers. It wasn't in my testimony, so I would have to go back and look. But the values clearly were, and as was shared with the Public Staff when they asked questions about how it was derived, we clearly provided that detail.

Q. Did any witness for Duke discuss it in direct testimony?

A. No.

Q. And isn't it true the Company didn't inform the Public Staff of these changes in methodology until it responded to Public Staff's Data Response 8-3 on April 27th?

A. I can't speak to when the Public Staff was first notified.

Q. But is it your understanding that they were notified by or received information in a data response?

A. I do think that the Public Staff was aware of the shift in seasonal allocation, because that was discussed last year in a Collaborative, but I'm not sure about the reserve margin. So if you're saying that the data request was the first time, subject to check, I will agree with you.

Q. I would need to verify that myself, so let's -- let's just leave it there.

A. Okay.

Q. I'm not positive. You might be right about the Collaborative.

Duke has not sought Commission approval of these methodology changes, has it?

A. That's what it's doing in this proceeding. But again, it believes that they are consistent with the Commission's orders in their avoided costs proceedings regarding the PA- -- the changes in the PAF, as well as the seasonal allocation and the desire for more winter demand response and the EE.

Q. But if the Public Staff hadn't raised these issues in its testimony, how would the Commission know that Duke was seeking approval of these changes?

A. I think it would be fairly transparent by the fact that you are looking at having winter programs, which previously would have had zero capacity value for them. So I think that one is pretty transparent.

Q. Isn't it true that neither the revised Sub 1032 mechanism nor the Sub 1130 agreement mentioned seasonal allocation or reserve margin adder?

A. No. As -- you are correct, neither do. And as you pointed out, that those seasonal allocations have been around for a long time and have never been applied. However, with all of the emphasis that was put on the need for winter EE and DSM, it essentially became apparent to the Company that it needed to apply that seasonal allocation for all new EE and DSM so it could be properly incurred, which Mr. Hinton referenced in his testimony as something that needed to occur.

Q. And you understand we agree with applying it to incremental, we just think it should be applied to everything?

A. Yes. And that's where we fundamentally disagree. You don't need to penalize legacy resources to encourage new resources to perform.

Q. And do you understand we are not trying to penalize them, we are just trying to value them correctly?

A. We disagree about the value of them from a load-resource planning standpoint.

Q. All right. That's all I have. Thank you.

A. Thanks.

COMMISSIONER BROWN-BLAND: All right. Is there any redirect?

MS. FENTRESS: There is. Can you hear me?

COMMISSIONER BROWN-BLAND: Yes, I do.

MS. FENTRESS: Good.

REDIRECT EXAMINATION BY MS. FENTRESS:

Q. Mr. Evans, I will start with you. I believe the Public Staff asked you about the MyHER program.

Do you recall that line of questioning?

A. (Robert P. Evans) Yes, I do.

Q. Okay. Great. And one of the questions that was asked had to do with the smart meter --

COMMISSIONER BROWN-BLAND: Excuse me, Ms. Fentress. The witnesses need to be mindful of the echo in direct. It may be a matter of the way you are directed away from each other or toward each other.

MS. FENTRESS: Yes. Thank you. We will

do that.

Q. So to repeat the question, Mr. Evans, do you recall a question about the smart meter usage app?

A. Yes, I do.

Q. And I believe that the gist of that question was that the smart meter usage app gave customers information about their energy usage; is that correct?

A. That's correct.

Q. Do you have any idea how widely that app has been deployed to our customers -- to DEC's customers?

A. As I understand it, any customer with an AMI meter would be able to take advantage of that. I'm not sure -- I know I am able to take advantage of it, but -- I may be correct, but merely an assumption -- but I don't think there is any restriction, other than having the app and having an AMI meter which it can be connected to.

Q. But you don't have any information about how many customers, outside of the Company's own employees, have the ability to use that app at this time, do you?

A. No, I do not.

Q. With the ability -- with the ability of customers to access that app, would that have any impact on what kind of information they are getting

about their energy usage at this time?
A. I apologize. Would you repeat the question?
Q. Sure. If you don't have the smart energy -- I'm sorry, the smart metering usage app as a customer of DEC, what is your ability to get the information that the smart meter usage app provides to you at this time?
A. You are limited to your information from a billing interval as opposed to a more finite data.
Q. And when you talk about the MyHER program and the fact that it does provide energy usage data, what distinguishes MyHER from simple provision of energy usage data to a customer?
A. The real differential is, of course, well, the tips, but actually, you are looking at your comparison with those in your peer group as to how you rate in terms of your usage. Are you a high user? Are you a low user? Are you in the middle of the road? Or whatever.
Q. And I believe you characterize that information as motivational?
A. That's correct. I think I have also indicated it's guilt driven, to a certain extent, at least in my case.

Q. Thank you. I will turn to Mr. Duff now.

Mr. Duff, Ms. Edmondson asked you several questions about the seasonal allocation factor being applied, and one of the things -- I think I will start with where you ended, and you talked about not wanting to penalize legacy resources.

Can you explain a little bit more what you mean by penalizing legacy resources by applying the seasonal allocation retroactively?

A. (Timothy J. Duff) Sure. So those -- those assets, or those load-serving resources were built together on certain avoided cost assumptions, and those avoided cost assumptions are the value that was used to justify those resources. While Ms. Edmondson asked me questions about whether or not a customer can get out, you have to look at how the program is modeled. It is modeled from a one-year-measure-life standpoint. As I said, from a cost recovery standpoint, it needs to be that way, but there are other things that are also modeled that wouldn't necessarily reflect the true ongoing value of that resource.

So, for example, we don't have to model acquisition costs to get new people to participate in that program every year, whereas if under

Ms. Edmondson's assumption that they would be incremental if they chose to participate again the following year, we're not having to market to them because, like I said, we get -- 99 percent of those customers are coming back. So we are filling about 1 percent of those customers. So it's not necessarily a true incremental versus legacy. And so to change the value associated from a resource that's being modeled as a legacy resource without new incremental costs associated with it, you would be undervaluing that resource and not truly reflecting the full avoided cost value that's associated and factored into the load resource plan.

Q. So when you say that you're valuing these resources, is it fair to say that they were -- when these DSM and EE programs were -- the DSM -- legacy DSM programs, rather, were put into place, that the Company took into effect the then existing circumstances and regulatory and economic conditions at the time?

A. Yes, that would be correct.

Q. And so from a timing standpoint, would you agree that that's -- that's what the Commission does with an avoided cost case?

A. Yes, I would totally agree with you, and that's why we have -- that's why we have periodic updates to the avoided cost, to take into that account.

And while my point earlier about the legacy recovery is very clear on DEP, DEP, in the year that it puts that switch in, it's getting 25 years of the avoided cost value associated with it. DEC, because of its recovery mechanism and not amortizing, has done it on a one-year slice. And so while we're taking 1/25 every time, we are updating the avoided costs to be consistent with the year in which those avoided costs are being realized, but it's still 100 percent of the value that was used to justify that program for dissipation and that program offer.

Q. So to follow up on that, I believe that the Commission has said that their seasonal allocations review is dynamic; would you agree with that?

A. Yes, I would agree.

Q. In other words, subject to change in the future?

A. Yeah. And we have seen a change, right? It was 60 -- 60 percent summer in 2016 -- okay, I'm sorry. It was -- in 2016, it was 60 percent summer, 40 percent winter. And then it was very contentious in -- I'm sorry, 2014 it was 60 percent summer, 40 percent winter. In 2016, it was exceedingly contentious about moving to the 80/20 winter/summer. And then, as I said, we moved 90/10 now, and it was a little less contentious in this period. I won't say it was not contended at all, but people are starting to recognize that the winter is driving things, and there needs to be recognition of that in order to drive EE and DSM.

And so, from an incremental standpoint, yes, you should recognize that 90 percent of value from a participant, the avoided capacity is coming from winter. And that will help get these new winter capacity savings achieved. An incremental summer participant would only get 10 percent of the avoided capacity, but that's because we are looking at it, like you said, at a point in time at what the resource needs are. But to say that all of a sudden the value of this resource that was entered into, that for our own sister utility is seeing 25 years of an avoided cost value, needs to basically change to 10 percent of the value would be inaccurate with how other long-term resources are viewed; and that's where we were saying it was somewhat like a QF, in that, if you go back and tell a customer, "Oh, well, you entered into a 15-year contract, and so it's going -- your value is going away seven years into that contract," that was what we were trying to bring, the consistency with the QF.

Q. And the Commission has encouraged DEC to implement and look at more winter DSM; is that correct?

A. Yes. If -- stakeholders, including the Public Staff, the Office of Attorney General, and the Commission have all come forward and said we need to do more winter -- winter EE and DSM.

Q. And what impact would it have with respect to the Company's ability or desire to follow up on the Commission's encouragement if they know that the summer and winter allocations can change retroactively in the next avoided cost proceeding to impact winter programs? What would the impact of that be on the Company's ability to plan?

A. It makes it exceedingly hard to plan, because you have now taken a resource that you planned on having a certain value associated with it, and you are changing it. You know, I discussed in my rebuttal testimony, there are things, such as changes to the avoided T&D, which could cause the program to become non-cost-effective. There are things like operating patterns. Changing how -- if you start losing customers, having to go ahead and then factor in the higher cost to reacquire them. As we talked about in the 1160 -- Sub 1164 Sub Docket, DSM resource is built one kW at a time, essentially. The nonresidential you are giving large contracts, but on the residential side, it's a long-term growth experience, which is why, as Public Staff Attorney Edmondson asked me, the numbers aren't changing very much. You are talking single-digit changes in the amount of summer DSM that's being planned, because you are not building this huge resource overnight. But if you lose that resource trying to build it back, it is not a quick process. And so to change the underlying value is --

Q. And I want to drill down just on that T&D point you made. Witness Hinton testified, I believe, that even if we -- even if we were to apply retroactively the Commission's seasonal allocation to legacy resources, that that would -- they would still be cost-effective. You are not really talking about making them non-cost-effective, are you?

A. Well, as I said in my testimony, you are significantly lowering the cost-effectiveness, and we're due to adjust the third component of the avoided cost. Really, with demand response, you are only looking at avoided capacity and avoided T&D. And if, in fact, you were to lose -- or that avoided T&D rate changes or goes down, then those programs could become un-cost-effective and no longer warrant being offered. Additionally, you also have to look at the fact that you have got a program suite that is offered that is about how -- is responsive to the system. As I talked about in my testimony, it can be used to kind of offset other resources. So it has significant load-planning value because of its flexibility around that. And the avoided T&D component, while it can change, is something that is directly tied to the capacity.

So if you start seeing summer avoided capacity -- the summer avoided capacity go down to 10 percent -- and what if it goes down to zero the next time like it is for DEP, these programs can no longer be cost-effective and no longer warrant being offered, and that is a significant concern.

But, fundamentally, this still goes back to what was talked about in Sub 1164, because Public Staff witness made the same case when he was arguing that we should get zero avoided capacity value because it wouldn't -- in a year that there wasn't a need, because it wouldn't take them below cost-effective. And the Commission agreed with us that that isn't an appropriate argument.

Q. Was it in Docket Number E-7, Sub 1164 where the Public Staff asserted that DSM programs in the DSM/EE IRP block are stable and expected to occur in the foreseeable future?

A. That is correct.

Q. And I have -- I just have one other question to ask you. I believe you were testifying and you said that the Public Staff had agreed with the Company that EE is a load reduction in the avoided cost case.

Did you mean the IRP Docket Number E-100, Sub 157?

A. Yes, you are correct. I'm sorry. I confused 157 and 158.

Q. Thank you.

MS. FENTRESS: I have nothing further on redirect. Thank you.

COMMISSIONER BROWN-BLAND: All right. Very good. We are going to take a break now. I want to -- each of you to mute and take your cameras off and be back here at 3:15, and we will start with Commission's questions.

(At this time, a recess was taken from 2:58 p.m. to 3:17 p.m.)

COMMISSIONER BROWN-BLAND: Okay. Let's see. Are there questions from the Commissioners? No questions? I see one hand.

Chair Mitchell?

CHAIR MITCHELL: Thank you, Commissioner Brown-Bland. I assume you can hear me. If you can't, please let me know. I do have a few questions for Mr. Duff. I don't think I have any questions for Mr. Evans. So, Mr. Duff, I will direct them at you. Mr. Evans, if you are more -- if you are in a better position to answer them, just jump in and answer them.

EXAMINATION BY CHAIR MITCHELL:

Q. Okay. I want to make sure I understand your testimony. You went through the issues that I had in my mind already with Ms. Edmondson. But again, I'm gonna ask you a few questions just so I understand what the Company's position is here.

On the issue of the reserve margin adjustment, you -- okay. First question for you, on the issue of reserve margin adjustment, you -- in your testimony -- your rebuttal testimony, I'm specifically looking at page 25, but I will just sort of summarize my question or summarize my point here.

You discussed Mr. Hinton's testimony about sort of the PAF -- the PAF historically being viewed as a reserve margin adjustment. Over time it came to be characterized or even understood to be something different, but historically, it was viewed as a reserve margin adjustment.

What's the Company's position, at this point in time, on -- you know, on the adjustment you are proposing in this proceeding? I mean, is it -- does it amount to -- I mean, does it have the same effect as the PAF in the avoided cost docket, or just help me understand sort of how the Company views those two concepts or those two components at this point in time.

A. (Timothy J. Duff) Sure, Chair Mitchell. I will try and -- I will try and clarify that if I can.

Q. Okay.

A. So the Company looks at the application of the reserve margin as a way to better reflect the true avoided capacity associated with energy efficiency being a load reduction, because that PAF which used to be factored into avoided capacity as a rate and then applied to those energy-efficiency capacity savings has been reduced from 0.2 to 0.05. So, essentially, as I had talked about in my rebuttal testimony, the recognition that with a load reduction, if you -- you don't have to have a load-serving resource. So in order to truly reflect the value of energy efficiency, you're really multiplying it by that reserve margin factor, because you don't have to build for a reserve margin if you are reducing your load by that amount. Does that help?

Q. It does. I mean, I understand conceptually. I mean my question, I guess -- and I didn't articulate my question very well, and I apologize for that.

In the way the Company conceives of the PAF, does the Company still conceive of the PAF as a -- or the PAF as a reserve margin adjustment?

A. My understanding of the PAF is that it is no longer reflective of a reserve margin adjustment. It now is simply the reflection of an effective forced outage rate associated with capacity.

Q. Okay. But historically, when the PAF or the PAF was first conceived, it was a reserve margin adjustment?

A. That is my understanding, yes.

Q. Okay. With respect to seasonal allocation, you -- I believe I heard you testify that, if you accept the Public Staff's position here, you would be undervaluing the portfolio of resources, or even specific programs that are impacted by this change, or by this recommendation. And you would be penal- -- you used the word "penalized." Help me understand who would be penalized here by what the Public Staff is proposing. And let me finish this question, sorry, and then I will let you answer.

I'm just trying to follow here how the Public Staff's recommendation would ultimately impact participation in these programs if at all, because as I understand what the Public Staff has proposed, it wouldn't -- it wouldn't -- it would not result in these programs being no longer cost-effective, but the Company's position is that it would penalize these programs. So help me understand -- help me understand that.

A. So you are correct. Under the Public Staff's analysis, which is based off of information it got from the Company, because of the avoid- -- the 10 percent avoided capacity value, and the avoided T&D, which is based off of the peak capacity savings, the programs still would pass cost-effectiveness, which means they could be offered. However, that doesn't mean that it is accurately reflecting the true avoided cost associated with those programs that were built over time under that assumption.

Additionally, as I talk about, it is significant -- a significant reduction in the avoided cost. And now, if in fact avoided T&D, which hasn't fluctuated fairly significantly -- if the amount of T&D expenditures that are associated with load growth are no longer justifying a rate and avoiding T&D associated with those capacity savings, the programs could actually no longer be cost-effective and be removed in the future. And so it's very shortsighted to just look at 2021 when we are going to be kicking off a new avoided T&D study and say, "Oh, because they passed cost-effectiveness, it doesn't penalize these resources."

As I brought up, with the Sub 1164 case, we had a similar set case where the program still passed cost-effectiveness and the Public Staff was arguing that we should not factor in any avoided capacity value until there was a year of need. And we disagreed with that for the exact reason that we just talked about, and the Commission agreed with us.

Q. Okay. I guess I still -- I'm still not entirely clear, and it could just be that I'm obtuse here, but how does what the Public Staff is recommending -- would it -- would it change the value proposition to a customer?

A. It would -- at this time, it would not change the value proposition to the customer. It changes the value proposition to all customers who are be- -- who are paying for that program.

Q. Okay. Understood. Thank you for that clarification. That's what I was getting to. Okay. The -- let's see.

You talked some about the -- I want to get the term right -- the one-year -- one-year measure life that DEC uses for cost recovery purposes. DEP does things differently for cost recovery on -- for that company. I'm interested in the assumption made for purposes of the IPR.

Does the IPR assume that the DSM portfolio or specific programs will be in effect for the full planning horizon and at full -- at maximum participation?

A. Yes. It assumes -- it assumes the full -- over that full 15-year integrated resource plan time -- and I detail that in my rebuttal testimony -- it plans on that demand response resource being there. And even, again, in the 1164 case, the Public Staff witness agreed that, while there is some fluidity, those demand response resources are very stable.

Q. Okay. So even though there is the 1 percent attrition, it's stable enough to be able to reasonably account for it over the 15-year planning horizon?

A. That's correct.

Q. Okay. Okay. One last question for you, and then I will cede the microphone. So you make the point that, for the past two years the Company has been undervaluing the avoided capacity, I guess, value of these programs because it did not -- because the PAF or the PAF has been reduced and y'all didn't propose the reserve margin adjustment like you have done now.

Why -- can you help me understand why this two-year lapse and what was going on during that period of time, and so why are you proposing it now?

A. So, again, what we try and do, in looking at the cost-effectiveness of programs, is look at them from an accuracy, from a system value, and a load-resource-planning standpoint. And when we applied the 2016 avoided cost rates for the first time, there was a lot of contention around a whole bunch of things, including the whole year-of-need issue. And so we also didn't apply the AD-20 seasonal factor, and nobody said anything about it. It really wasn't the focus on winter DSM. We were still looking at summer. So we -- frankly, the Company just missed it. However, because of the fact that a load reduction really requires 1.17 percent less load resource be added, in looking at it, we realized that we were undervaluing the resource. And this isn't the first time it's actually been done. Duke Energy Progress, prior to the Duke merger, used to have a reserve margin factor adjustment for energy efficiency. So this isn't something new. It's just that, frankly, the PAF for Duke covered -- for Duke Energy Carolinas covered it, and we missed it in the transition in terms of appropriately reflecting the true system value of the capacity savings associated with energy efficiency.

Q. Okay. I have nothing further. Thank you.

COMMISSIONER BROWN-BLAND: All right. Any further questions from the Commissioners? I see a no from Commissioner Clodfelter. Nothing from Commissioners McKissick or Gray. Nothing from Duffley. Commissioner Hughes.

EXAMINATION BY COMMISSIONER HUGHES:

Q. Just a very quick question related to the comparison or the different goals of AMI meter customer billing app versus the MyHER report. I wasn't here when there was a lot of discussion about moving into the smart meters.

I'm just curious, during that discussion, were they and are they seen by the Company as an energy-efficiency measure, even though it's not in the rider? Do you-all when you talk about it, and did you when you presented it during, I assume, a rate case, was there modeled energy-efficiency savings in your, kind of, cost calculation of being a wise, prudent investment?

A. (Robert P. Evans) Commissioner, I was not involved with the AMI decision-making process or the hearings. We have not visualized AMI as being an energy-efficiency source or resource. So, I'm sorry, I cannot answer your question for you as delivered.

Q. It's not that -- it could have been, just it would have been a different group that was working on that issue? Because there was, I think, a business case on for those investments.

A. That is true. I understand there was a business case. I'm not -- I have not read it or familiarized myself with it. I apologize, Commissioner.

COMMISSIONER BROWN-BLAND: Mr. Evans -- witness Evans -- co-panel witness Duff was trying to get in. Mr. Duff?

THE WITNESS: (Timothy J. Duff) Yeah. I was just gonna say that I don't think the Company views AMI, itself, as an energy-efficiency resource or program. That being said, we do believe that the additional data that can come from AMI gives us data to identify and leverage to create energy-efficiency measures and programs. But the AMI, itself, does not -- does not create efficiency. You have to have customer engagement and empowerment around the data that comes through AMI in order to get efficiency, and then that would be what would be measured and verified through a utility program.

COMMISSIONER HUGHES: Thank you. That's all.

COMMISSIONER BROWN-BLAND: All right. Commissioner McKissick, did you have a question?

COMMISSIONER McKISSICK: Yes. Just a quick one. And this would be directed to Mr. Duff.

EXAMINATION BY COMMISSIONER MCKISSICK:

Q. And the question is simply this. When Chair Mitchell had asked you the very last question she raised, you mentioned a pre-merger that this type of credit or value was given toward reserve. Can you elaborate further on that, in terms of how that functioned, how that operated, and the extent to which that mechanism was actually used?

A. (Timothy J. Duff) Well, sure. I will give -- I will do my best. I will do my best, Commissioner McKissick, because I was not with the legacy Duke Energy Progress. I was with Duke Energy Carolinas. But when we were making this decision, we went back to look and see, and the employees that were part of Duke Energy Progress made me aware, and it was actually discussed with the Public Staff that, previously, when Duke Energy Progress used a cost-effectiveness tool called Strategist, they actually modeled a reserve margin factor associated with capacity savings from energy efficiency. It was -- so it was done previously on the Duke Energy Progress side, so it's not the first time this has been done. That was my point. But, unfortunately, I can't give you too many details, because I wasn't with Progress Energy prior to the merger.

Q. All right. And the follow-up would simply be this: At that point in time, it was known as Strategist; is that what you are saying? So if we went back, we could probably obtain information related to the decisions that were made by the Commission previously where that chronology would have been utilized and this same measure would have been used, that tool for evaluation?

A. Yeah. Yes. So the Strategist model is the cost-effectiveness model that Duke Energy Progress used to value energy efficiency and demand response, particularly energy-efficiency capacity savings. And it had an explicit value associated with it. And in the conversations we had with Public Staff regarding this, we did bring that up, and there was a recollection. So, again, I wasn't a part of it, but I was told it was out there and utilized.

Q. Thank you. I don't have any further questions.

COMMISSIONER BROWN-BLAND: All right. I have a few questions. I think they are primarily for witness Duff, but witness Evans, please feel free to jump in.

EXAMINATION BY COMMISSIONER BROWN-BLAND:

Q. First -- and these are some questions that our staff has contributed to and is also curious about, but my first question is, do Duke's calculations include the performance adjustment factor as in the past years, or do they just replace that with the 1.17 reserve number?

A. (Timothy J. Duff) So as I pointed out in my rebuttal testimony, we did not include the PAF as being associated with a reserve margin. Again, that reserve margin also has changed. It moved to the 17 percent also in that same Sub 148 case. However, in think- -- in talking about it -- and I reference this in my rebuttal -- if, in fact, you do make -- somebody would say and agree with witness Hinton that the PAF is reflective of a reserve margin, then -- I did the calculation in my testimony -- we would adjust our reserve margin adjustment to be 11.429 percent, which would then appropriately affect -- reflect the 5 percent PAF plus the necessary reserve margin adjustment to get you up to the full 17 percent.

Q. So would you use -- would you use the 1.17 at all and you use that across all avoided capacity for energy-efficiency programs, or would it just -- or would you just, like, adjust it seasonally?

A. Well, no. So it really has nothing to do with the seasonality. We would -- again, we proposed 1.17 because that's the reserve margin, but we understand witness Hinton's position, and if the Commission agrees with him that the PAF is reflective of a piece of the reserve margin, even though it's explicitly known as an effective forced outage rate, then what we would say is the reserve margin adjustment should be reduced from what we put in our filing from 17 percent to 11.429 percent.

Q. All right. Thank you for that.

So -- and then I feel like I may have heard this, but let me ask you to be clear.

Why has Duke waited until this proceeding to make the adjustment calculation since that PAF no longer reflects the reserve margin?

A. Again, as I said, frankly was something we missed. In the application of the 2016 avoided costs there were much larger issues around the Public Staff's recommendation that we not recognize capacity value in any year that you didn't have need. So we were focused on that, just like we didn't apply the seasonal -- we didn't apply the seasonal allocation factor. Again, what we try and do in these proceedings is when we do the updates, update them to be reflective of the true value along with the avoided cost orders.

So given the focus on the need for winter DSM and EE, this was the appropriate time to make that adjustment to the seasonal allocation factors or incremental DSM. Again, I won't go into the legacy, but for incremental, it makes perfect sense to move to that 90/10 split of the avoided capacity value. And like I said, we just missed it. It was really one avoided cost update that we missed it in, but again, given the fact that avoided costs are falling, in general, to not truly accurately reflect the value of the avoided capacity associated with energy efficiency, in our minds, is not appropriate.

Q. Okay. Switching gears a little bit, from the testimony in this case, I understand there has been a decline in the annual efficiency savings, and are you able to shed any light on the reasons for that?

A. So I believe you're talking about the projected energy savings moving forward. And the really -- the reality of the lower projections has to do with the shift in the lighting standards. Witness Williamson of the Public Staff discussed it; we have discussed it. The A-line bulb has moved to an LED standard. And so with the expectation of those customers in need through low -- through our low-income programs and our direct multifamily installed programs where we know we are taking out a deficiency and giving efficiency, we are moving away from those. And the reality is, those programs provided a lot of savings over the past, and we're looking for new ideas. We are working with the Collaborative to find new opportunities for energy savings. But the reality is, the primary driver really is the removal of that A-line bulb after 2020.

Q. And so you were leading right into my kind of follow-up with that was, so you refer to the Collaborative, but are there other efforts or any efforts that you can discuss that we might use to improve those savings going forward or maintain the savings to stop the decline?

A. So, you know, we have looked to the Collaborative for expertise. We have also, you know, gone out and got a third party to do a market potential assessment to give us a better idea of what's out there from an economically viable standpoint from our customers, as well as just looking out for new ideas. The reality, though, is that cost-effectiveness is also getting press, because we are seeing these reductions in avoided costs, you know, because you're not seeing the same value associated with energy efficiency, adding new things becomes tougher. So we are looking very comprehensively. We look at what other utilities do. And that's where our Collaborative members, including, you know, Mr. Bradley-Wright provided testimony, has been helpful bringing in ideas that are done elsewhere. But again, they have to work in North Carolina with our avoided costs and with our customers' usage pattern. So it is a balance, but it's definitely something -- and Mr. Evans did a great job of saying it. When we put a projection out there, we are putting it out there based off of what we think can be accomplished, but we will always try and do more. It's not a cap. It's the amount that we think is reasonable to request recovery of from customers.

Q. All right. So I wanted to ask you a little bit about the continued decline of the nonresidential participation in the energy efficiency.

Does the Company have any new insights that we haven't already heard about as to why there is a decline?

A. So are you referring to the increase in the opt-out customers?

Q. Yes. From the energy efficiency.

A. So I think you -- I think you are seeing an issue associated with the timing and the rates, I think, when the customer -- these customers are doing economic analysis to determine whether or not their participation is warranted in terms of the amount they'll pay from the rider versus the incentive they will get. I do think that we continue to look for new program opportunities as well as modifications to try and get customers in. I know there is a number of paths that have gotten strong endorsement from the Collaborative, including moving more to kind of a midstream channel where we are not -- where we are working with distributors to get efficiency out there. But again, a lot of it has to do with the economics that the customers see and realize. But that doesn't mean that they are not doing the efficiency. It just means they are not doing the efficiency through our programs.

Q. You are dancing around my question -- the questions that I want to ask. Dancing, in that you're hitting it, and that is, I mean, you got the two points I wanted to ask you about.

Do you know or have any reason to know if it is about the fact that they are doing their own and perhaps getting some better efficiencies, or is it more largely about the cost of the rider and the program?

A. I think it's a combination. You know, it's very hard to get data from customers, but I can say anecdotally, I know from our large account group that their customers are looking for ways to maintain competitiveness all the time. And so, you know, a lot of them have sophisticated energy managers that look at things. I can't speak specifically to they are or aren't doing it, but I can tell you that we do our best to make them aware of the programs and the economics.

I think it's a combination. I think there are some customers that are just saying the economics of doing it are far better on my own. And then there is other customers that are participating, and that's where we really think that we have to continue to seize the opportunity to take advantage of new technologies as well as new delivery channels to get those nonresidential customers to apply.

The one positive thing, Commissioner, that I will point to is that it's an unfortunate short-term issue, but from a customer perspective, when you see participation go down, that means a lower rate, which then changes the economics for future customers to opt in. So there -- we could also see a little bit of a bounce-back in the future when customers see a lower rate and they are doing that economic analysis of whether it makes sense to participate in the program or to do it on their own.

Q. All right. Thank you for that. And then my last question is, witness Bradley-Wright had a connection between the savings -- energy-efficiency savings and the carbon reduction -- reduction to carbon or CO2 levels.

Are we able to see any data -- is the Company able to see any data or has any information that lets you see that connection?

A. You know, so I think what I would say is that we have conversions where you can take energy savings, and based off of the Duke Energy Carolinas' system, apply a value of a kWh and kW reduced and try and get a carbon equivalency, but that's really not my area of expertise, so I can't -- but we have gone to that effort, and we are working with customers who are very interested in that, so they understand the carbon associated with their energy use and then can understand the energy value associated with it. But with respect to a carbon price, you know, other than the fact -- other than what's actually reflected in the avoided energy and avoided capacity today, there is no -- there is nothing added for carbon in our cost-effectiveness.

COMMISSIONER BROWN-BLAND: All right. That's all I have. Any questions from the Commissioners? Any other that came to mind? I'm not seeing my Commissioners with their hands raised. So are there questions on Commissioners' questions?

Ms. Fentress? I see you, Mr. Neal. Ms. Fentress, did you have any? You are mute.

MS. FENTRESS: I do not have any questions.

COMMISSIONER BROWN-BLAND: All right. Mr. Neal? You're mute, Mr. Neal.

MR. NEAL: Thank you.

CROSS EXAMINATION BY MR. NEAL:

Q. Yes. Mr. Duff, this is David Neal. Presiding Commissioner Brown-Bland asked you about the lower projected savings, and I believe your response was that's primarily driven by a shift in lighting

standards, and my question for you is, that's not news to the Company; isn't that right?
A. (Timothy J. Duff) We have anticipated the shift in lighting, but since -- 2021 is the first vintage year you are seeing it; that's correct.
Q. So, for example, when Jim Wise was at the Southern Alliance for Clean Energy and provided testimony in the -- in this -- the E-7, Sub 1130 docket in 2017 on behalf of Southern Alliance for Clean Energy testified that a concern -- with concern about overreliance on behavior on lighting programs; do you recall that testimony from 2017?
A. Subject to check, I will take your word for it. Yeah. I don't -- I don't think that the concerns or recognition that residential lighting, particularly nonspecialty lighting, is something that the Company has reaped a lot of savings from. I think that we have continued to look for more opportunities in the residential space to get more energy-efficiency savings, but as Collaborative members know, the -- a lot of the residential programs, such as insulation and upgrades, face serious cost-effectiveness challenges. And so, you know, we look for new technologies all the time and are welcome to ideas, but we also recognize

that there is -- a lot of those measures require more upfront capital and so are less palatable for residential customers. So we are going to continue to look for things.

We believe that, you know, with smart thermostats, there is both an energy efficiency, and as we talked about earlier in this proceeding, a potential demand response play associated with them, but the reality is, we haven't seen a silver bullet to replace lighting, and I'm not sure if you have been to Collaborative meetings, but I don't think anybody's presented one. So we would welcome any ideas to try and help fill the void for lighting as we move forward.

Q. And, Mr. Duff, I would -- you may not recall, but lawyers are prohibited from participating in the Collaborative, so that's why I have not shown up.

MR. NEAL: Thank you, Commissioner Brown-Bland.

COMMISSIONER BROWN-BLAND: All right. Any other questions on Commissions' questions?

Ms. Edmondson? You're on mute.

MS. EDMONDSON: I just have a couple.

RECROSS EXAMINATION BY MS. EDMONDSON:

Q. Mr. Duff, isn't it true that avoided -- T&D

avoided costs could just as likely go up as down?

A. (Timothy J. Duff) It could. I would say the general trends of avoided costs have been downward, though, in the past few years. So that's why we are concerned, but you are correct, there is always the potential it could go up.

Q. And when you were talking about a program becoming non-cost-effective, haven't we provided for in the mechanism a three-year glide path where a program wouldn't automatically end, it would go through some stages of where we try to get it to be cost-effective?

A. Yes. We do have a glide path that was proposed as part of the new mechanism; that's correct.

Q. And, indeed, there have been some programs, maybe this for DEP or -- for DEP or DEC, I'm not sure which. But they have sometimes been cost-effective more than three years, the Commission -- you know, they don't necessarily end them, it's at the Commission's discretion, it's not an automatic three-year sudden death?

A. No, that's correct. It's not an automatic sudden death. It's just a question of it's appropriately reflecting the true value of that program.

Q. You talked about how DEC assumes that these legacy DSM programs will be there over the whole 15 years of the planning horizon.

After the 15 years, will they no longer be legacy programs?

A. So we would assume -- we would assume that -- that's probably right about correct. Obviously, there could be some upgrades, but the -- if you look at the 25-year life that's assumed DEP, we are about 10 years in on the DEC side. So about 15 years I think would likely be the remaining life of those legacy resources, yeah. Obviously, it's staggered, because, like I said earlier, we built that resource over time. So they didn't all come online in 2009. It's been built over time. So I think -- I think, looking at that, it would likely be a little bit beyond the 15-year horizon, but yes, there would be some roll-off of those original 25-year switches, I believe.

Q. So you are using a 25-year life?

A. No. I'm saying that's what -- if we look at the true measure of the recognized life of a switch, it would have been those early DSM programs, it's 25 years what the Commission and the Public Staff and Company recognized on DEP. Because of the recovery mechanism on DEC, we look at it as a one-year measure of life, as I talked about earlier.

Q. And when you discussed the reserve margin adjustment, and you were talking how DEP had made that reserve margin adjustment, didn't DEP also treat EE as a capacity resource and not as a reduction to load?

A. I -- again, I can speak -- I can't speak to how DEP did it prior to the merger. The only reason I know about the PAF is because of the discussion we had with you to talk about how DS -- how strategists used a reserve margin factor. So you'd have to ask somebody else that question, unfortunately.

Q. Okay. One last question.

Would you agree that AMI is not an EE measure, but it would enable or be a gateway for opportunities for --

A. So I do an AMI meter just like a meter today. The data that comes from a conventional meter that gave you a monthly read is what was used to inform and create the behavioral and actionable program that is MyHER. AMI just gives you more data on a monthly basis. So to the extent it is -- it's a system resource that gives us things that can be leveraged and turned into and utilized by an energy-efficiency program, but the meter, itself, just like a conventional meter, is not an energy-efficiency measure.

Q. It's a piece of hardware?

A. That's correct.

Q. Thank you.

COMMISSIONER BROWN-BLAND: All right. Any other questions? I saw Mr. Smith said no. Ms. Hicks, no. I think that's everyone. So thank you, witnesses Duff and Evans. I believe your counsel wanted to reserve the right to keep you, so I won't excuse you yet. If we were in the hearing room, I would say you may step down.

All right. Ms. Fentress?

MS. FENTRESS: I was just gonna move their testimony into the record.

COMMISSIONER BROWN-BLAND: All right. Their testimony was received, as well as the exhibits that were prefiled with that testimony, and they will continue to remain identified as they were marked when prefiled.

(Evans Exhibits 1 through 13, Evans Exhibits A through E, and Supplemental Evans Exhibits 1 through 3 were admitted into evidence.)

COMMISSIONER BROWN-BLAND: Now, Ms. Fentress, was there -- I don't recall, was there any confidential information in the testimony?

MS. FENTRESS: No. There was not.

COMMISSIONER BROWN-BLAND: All right. Moving right along. Does that conclude the Company's case? I believe all the evidence has been admitted.

MS. FENTRESS: Yes. Subject to recall, if necessary, but at this time, yes, thank you.

COMMISSIONER BROWN-BLAND: All right. Then are you -- the intervenors now. I believe that would be Mr. Neal.

MR. NEAL: Yes. Thank you, Presiding Commissioner Brown-Bland. I would like to call Forest Bradley-Wright to the stand. I just want to acknowledge, I think he's having some internet connectivity issues, and he's prepared to call in if there is an audio problem. But at this time, the North Carolina Justice Center, North Carolina Housing Commission, and Southern Alliance for Clean Energy would like to call Forest Bradley-Wright to the stand.

COMMISSIONER BROWN-BLAND: I believe when you said "at this time," he went away. He may be dialing back. Well, I still see him over here on the list. There he is. Mr. Wright, can you hear us? Yes? So, Mr. Wright, before we start.

FOREST BRADLEY-WRIGHT,

having first been duly affirmed, was examined

and testified as follows:

COMMISSIONER BROWN-BLAND: All right. Mr. Neal?

DIRECT EXAMINATION BY MR. NEAL:

Q. Could you please give your full name, title, and business address for the record?

A. It's Forest Bradley-Wright, energy --

COMMISSIONER BROWN-BLAND: Mr. Neal, I don't think we are going to be -- the court reporter is not going to be able to hear you, and you --

MR. NEAL: Okay. Let's just --

COMMISSIONER BROWN-BLAND: Can we pause just a minute for you to dial back in?

MR. NEAL: We would appreciate that. Thank you.

Mr. Bradley-Wright, are you in a position to try to call in?

THE WITNESS: What I'm going to do, I'm gonna change locations very quickly and [indiscernible] if it doesn't work, we'll be on audio.

MR. NEAL: Thank you for your patience.

COMMISSIONER BROWN-BLAND: What I got is he's changing locations really quickly, and if it doesn't work, he's gonna call in.

MR. NEAL: That is correct. Thank you for your patience. I could see it hanging up, giving a spinning circle before he was testifying, so we were trying to find a back-up plan.

COMMISSIONER BROWN-BLAND: All right. I'm sure that doesn't upset our court reporter too much. She gets a little break.

(Pause while waiting for Mr. Bradley-Wright to call back in.)

COMMISSIONER BROWN-BLAND: I'm gonna wait on him, but if it doesn't upset the order of things too much, does anyone object if we move on with the Public Staff?

MR. NEAL: No objection.

MS. FENTRESS: No objection.

COMMISSIONER BROWN-BLAND: Ms. Edmondson, Ms. Luhr?

MS. LUHR: No objection.

COMMISSIONER BROWN-BLAND: Let's excuse Mr. Bradley-Wright from the stand, and Ms. Edmondson? You've gone on mute, Ms. Edmondson.

MS. EDMONDSON: The Public Staff would call David Williamson and Bob Hinton.

COMMISSIONER BROWN-BLAND: I will affirm you both at the same time.

DAVID M. WILLIAMSON AND JOHN R. HINTON,
having first been duly affirmed, were examined
and testified as follows:

COMMISSIONER BROWN-BLAND: All right, Ms. Edmondson?

MS. EDMONDSON: Yes. And I will be presenting Mr. Hinton, and Ms. Luhr will be presenting Mr. Williamson.

COMMISSIONER BROWN-BLAND: All right. That's fine.

DIRECT EXAMINATION BY MS. EDMONDSON:

Q. Mr. Hinton, please state you name and business position for the record?

A. (John R. Hinton) John Robert Hinton. I'm the director of the economic research division for Public Staff.

Q. Mr. Hinton, on May 22, 2020, did you perform or cause to be filed testimony consisting of 20 pages, an appendix, and two exhibits?

A. Yes.

Q. Do you have any changes or corrections to your testimony, appendix, or exhibits?

A. Yes. I have two small corrections. The first one is on page 9 of my testimony. It's on line 7. And where I say, "No," period, that should read, "No," comma, "not in the short run," period. So that is a clause, "not in the short run," in my testimony. The second correction is on page 23, and it is on line 13. The number reads 5,093,947. That number should be changed to read 3,624,753. I will repeat the numbers. 3-6-2-4-7-5-3. Those are my two corrections.

Q. And with that second correction, that aligns with Mr. Williamson's and Mr. Maness' supplemental testimony filed yesterday?

A. Yes.

Q. Besides these two corrections, if you were asked the same questions today, would your answers be the same?

A. Yes.

MS. EDMONDSON: We request that Mr. Hinton's testimony, as corrected, be admitted into evidence as if given orally from the witness stand and his exhibits be marked.

COMMISSIONER BROWN-BLAND: That motion will be allowed, and I caution, as I understand, there is confidential information with Mr. Hinton's exhibits.

MS. EDMONDSON: His Exhibit Number 1.

COMMISSIONER BROWN-BLAND: All right. And so that will remain confidential in the record.

MS. EDMONDSON: Right.

(Confidential Public Staff Hinton Exhibit 1 and Public Staff Hinton Exhibit 2 were identified as they were marked when prefiled.)

(Whereupon, the prefiled direct testimony of John R. Hinton was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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

May 22, 2020

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. E-7, SUB 1230

Testimony of John R. Hinton
On Behalf of the Public Staff
North Carolina Utilities Commission

May 22, 2020

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

A. My name is John R. Hinton. My business address is 430 North Salisbury Street, Raleigh, North Carolina. I am the Director of the Economic Research Division of the Public Staff - North Carolina Utilities Commission. My qualifications are included in Appendix A to this testimony.

Q. WHAT ARE YOUR DUTIES AT THE PUBLIC STAFF?

A. My duties with the Public Staff include conducting financial studies on the investor-required rate of return for water, natural gas, and electric utilities and reviewing issues involving nuclear decommissioning plans, weather normalization of energy sales, electric utility meter sampling plans, the electric utilities' long-range peak demand and energy forecasts, and the integration aspect of the electric utilities' integrated resource plans (IRPs). I also review electric utilities' avoided cost biennial filings, as well as avoided cost issues for fuel cases and annual rider proceedings involving renewable energy and demand-side management and energy efficiency (DSM/EE).

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

A. The purpose of my testimony is to discuss the appropriate avoided capacity and energy costs that should be used to evaluate the cost-effectiveness of the DSM/EE programs of Duke Energy Carolinas, LLC (DEC), that are incorporated in the calculation of DEC's portfolio performance incentive (PPI), pursuant to 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, the South Carolina Coastal Conservation League, Natural Resources Defense Council, and the Sierra Club, which was filed with the Commission on August 19, 2013, and approved in the Commission's *Order Approving DSM/EE Programs and Stipulation of Settlement* issued on October 29, 2013, in Docket No. E-7, Sub 1032 (Sub 1032 Mechanism). In Docket No. E-7, Sub 1130 (Sub 1130), the Commission approved certain revisions to the Sub 1032 Mechanism relating to the methodology for determining avoided costs for purposes of the PPI calculation and determination of program cost-effectiveness in its *Order Approving DSM/EE Rider, Revising DSM/EE Mechanism, and Requiring Filing of Proposed Customer Notice* issued on August 23, 2017, (Revised Mechanism).

Q. IN SUB 1130, WHAT REVISIONS TO THE MECHANISM WERE PROPOSED BY THE PUBLIC STAFF AND THE COMPANY, AND APPROVED BY THE COMMISSION REGARDING AVOIDED CAPACITY COSTS?

A. The Public Staff and DEC proposed and the Commission approved revisions to Paragraphs 19 and 69 of the Sub 1032 Mechanism that provided for the avoided energy and capacity benefits used for cost effectiveness calculations for program approval and the initial estimate of the PPI and any PPI true-up. The revisions also provided for the review of ongoing cost-effectiveness. That review uses avoided capacity costs derived from the most recent Commission-approved Biennial Determination of Avoided Cost Rates as of December 31 of the year immediately preceding the annual DSM/EE Rider filing date (hereafter, the "PURPA method").

Q. WHAT IS "THE MOST RECENT COMMISSION-APPROVED BIENNIAL DETERMINATION OF AVOIDED COSTS FOR ELECTRIC UTILITY PURCHASES FROM QUALIFYING FACILITIES" FOR PURPOSES OF THIS DSM/EE RIDER PROCEEDING?

A. The applicable avoided cost proceeding is Docket No. E-100, Sub 158, in which the Commission issued its Notice of Decision on October 7, 2019, ruling on issues that are relevant to the calculation of avoided capacity rates and avoided energy rates. DEC filed its compliance rates on November 1, 2019, and the Commission issued its Final Order on April 15, 2020, establishing these rates.

Q. PLEASE DESCRIBE YOUR CONCERN REGARDING THE COMPANY'S APPLICATION OF AVOIDED COST RATES.

A. The Company has updated its underlying avoided cost inputs for both capacity and energy to be derived from the avoided cost proceeding, in Docket No. E-100, Sub 158. The Public Staff, in this proceeding, has two concerns with the Company's application of avoided capacity derived from the newly updated rates.

The first issue applies to the avoided capacity component used for the Company's Residential and Non-Residential energy efficiency programs. The Company applied a 17% reserve margin value adder to all of the megawatt (MW) reductions (demand reduction benefits) associated with the Company's EE programs beginning with vintage year 2021.

The second issue applies to the seasonal allocation of avoided capacity cost benefits for the Company's entire portfolio of programs, both Residential and Non-Residential. For DSM programs for vintages 2021 and beyond, the Company has applied avoided capacity benefits using a seasonal capacity allocation factor of 90% for the winter season and 10% seasonal allocation factor for the summer season. However, for existing or legacy DSM programs, the Company proposes to apply 100% of the value of capacity to the summer season. DEC associates its legacy programs for the Vintage 2021 period as the level of MW reduction capability that was calculated in the 2018 IRP and projected out to 2021. Using this as the baseline, DEC's total retail DSM projected load reductions[1] up to the level of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** MW, as identified in year 2021 of the 2018 IRP, will receive a seasonal allocation of 100% summer and 0% winter avoided capacity benefits and the remaining **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** incremental MW of reductions to get to the identified 1,060 in 2022 will receive the 10%

[1] Docket No. E-100, Sub 157, confidential support for the 2018 Summer LCR Table, p. 62.

summer seasonal avoided capacity allocation. Likewise, the incremental **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** MW reductions in 2023 will receive 10% summer seasonal avoided capacity allocation. The Company did not apply the same reserve margin value adder to the avoided capacity cost benefits associated with its DSM programs.

Q. WHY HAS THE COMPANY INCLUDED A 17% RESERVE MARGIN ADDER FOR THE DEMAND REDUCTION BENEFITS ASSOCIATED WITH ENERGY EFFICIENCY PROGRAMS?

A. In this proceeding, the Company has proposed to increase the value of the demand reduction benefits from EE programs by 17%. The Company notes that the demand reduction benefits are accounted for in its Integrated Resource Plan (IRP) as a <u>reduction to its peak load</u> *(emphasis added)* as shown in the Company's Load, Capacity, and Reserve (LCR) Tables in its 2018 IRP. A key to the Company's position is that the demand reduction benefits from EE programs are not viewed as supply-side resources; rather the EE demand reductions are considered as a demand-side resource. Given that to provide adequate and reliable utility service, the Company increases the amount of supply-side resources required to meet the projected peak load by a 17% reserve margin, the Company argues that a similar reserve margin adjustment is warranted with demand-side resources. Previously, DEC has not employed a reserve margin adjustment for MW reductions associated with EE programs.

Q. WILL YOU EXPLAIN THE BASIS FOR THE COMPANY'S ARGUMENT?

A. Yes. The table below is an excerpt from DEC's 2019 IRP Winter Projections from the Load, Capacity, and Reserves (LCR) Table for years 2020-2022.[2] Lines 21-27 examine the impact of reducing peak demand by 100 MW of EE programs. In 2020, DEC projects generating reserves of 3,591 MW, for a reserve margin (RM) of 19.3% (lines 19 and 20) ("Actual Reserve Margin"). If DEC had 100 MW more EE during this year, the load forecast would be reduced by 100 MW (line 21), which increases the reserve margin to 3,691 MW, or 20.0% (lines 22 and 23) ("New Reserve Margin").

DEC's position supporting the reserve margin adder is essentially stating that due to that 100 MW load reduction from EE, it is able to reduce its existing generating capacity by 119 MW to maintain the Actual Reserve Margin that it held before the 100 MW of EE was added (lines 25-26). DEC claims that customers benefit from this, and believes its EE programs should have their capacity benefits increased to reflect this benefit. Thus, the 100 MW of

[2] The 2019 IRP is used here for illustrative purposes.

demand-side EE programs equates to 119 MW of supply-side resource. The table below illustrates DEC's proposal with respect to balancing demand-side MW savings with supply-side resources:

Winter Projections of Load, Capacity, and Reserves for Duke Energy Carolinas 2019 Annual Plan

		2020	2021	2022
Load Forecast				
4	**Adjusted Duke System Peak**	**18,589**	**18,531**	**18,611**
18	**Cumulative Capacity w/ DSM**	**22,180**	**22,173**	**22,263**
Reserves w/ DSM				
19	Generating Reserves	3,591	3,642	3,651
20	**% Reserve Margin**	**19.3%**	**19.7%**	**19.6%**
21	**Adjusted Duke System Peak w/ 100 MW EE added**	**18,489**	**18,431**	**18,511**
22	RM w/ 100 MW EE added (MW)	3,691	3,742	3,751
23	RM w/ 100 MW EE added (%)	**20.0%**	**20.3%**	**20.3%**
24	Change in RM Held (MW)	(100)	(100)	(100)
25	Required Reserves to Maintain Actual RM (after adding EE)	3,571	3,623	3,631
26	Required Reduc ion in Existing Capacity to Reach Actual RM	(119)	(120)	(120)
27	Effective PRMR - ONLY IF "Actual RM" is maintained	**19.3%**	**19.7%**	**19.6%**

Q. DO YOU BELIEVE THAT DEC'S CUSTOMERS WILL REALIZE THIS CLAIMED VALUE?

A. No. The above example suggests that DEC's customers will ultimately see a benefit of the 100 MW of load reductions due to an EE program. The above example from the 2019 IRP has DEC with reserves above its 17% target level. It is likely in the future that supply side resources will be below the 17% margin and the customer would see the value of 100 MW of added demand reduction from EE programs. Almost irrespective of the balance of demand and supply at any particular point in time, a key question is what is the appropriate value customers should pay for a MW load reduction, and how is the value calculated? DEC maintains customers should pay (100 MW * approved avoided capacity rate per kW-yr. * 1.17); while, historically the value of MW reductions has been calculated (100 MW * approved avoided capacity rate per kW-yr.). A weakness in DEC's argument is the inequity of asking customers to pay 17% more for the same MW reduction from an EE program, as compared to a MW reduction from a DSM program. From a resource planning perspective, DEC has a theoretical basis as shown in the above table; however, from a ratemaking perspective the logic is deficient.

Q. ARE THERE OTHER REASONS WHY YOU BELIEVE IT IS INAPPROPRIATE TO INCLUDE THE 17% RESERVE MARGIN ADDER WITH EE PROGRAMS?

A. The Company's proposal effectively increases what customers will pay for the avoided capacity cost benefits of the EE programs by increasing the avoided capacity cost rate above the approved rate. This rate is comprised of an approved annual combustion turbine (CT) carrying cost and other factors including a Performance Adjustment Factor (PAF). The approved[3] PAF of 5% is a multiplier that increases the annual CT carrying cost, which according to DEC should be increased by an additional 17%. From this perspective, the impact of this adjustment increases the value of

[3] Approved in Docket No. E-100, Sub 158.

the avoided demand reduction benefits by approximately 23% (1.228 = 1.05*1.17) over the cost of an avoided combustion turbine (CT) underlying the avoided capacity rates.

Q. PLEASE PROVIDE A BRIEF HISTORY OF THE PAF.

A. Prior to the 1991 Biennial Avoided Cost Proceeding, Docket No. E-100, Sub 59, a reserve margin of 20% was an accepted margin for long-range planning, and was the basis for the Reserve Margin Adjustment of 20% applied to avoided capacity payments made to Qualifying Facilities (QFs). In the 1991 Biennial Avoided Cost Proceeding the 20% Reserve Margin Adjustment was renamed the PAF, which was represented numerically as 1.20. The rationale for the 1.20 PAF was to allow a QF to experience a reasonable number of outages and still receive its full capacity payment. Without a PAF, the QF would have to operate 100% of its on-peak hours throughout the year in order to receive its full capacity payment. The 1.20 PAF was based on a 0.83 availability factor or 1.20 = 1 / 0.83. The 1.20 PAF withstood over 20 years of direct challenges by the utilities who argued for a lower PAF of 1.129 based on a 0.886 availability factor. On October 11, 2017, in Docket No. E-100, Sub 148, the Commission approved a lower PAF of 1.05 that was based on an equivalent forced outage rate for all of its generation resources.

Q. CAN YOU ILLUSTRATE THE AVOIDED CAPACITY COST-BENEFITS WITH AND WITHOUT THE PROPOSED RESERVE MARGIN ADJUSTMENT?

A. The Company's proposal effectively raises the dollar per kW value of the demand reduction benefits by 17% over the approved avoided capacity rates.[4] Instead of using the Sub 158 avoided capacity cost of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** per kW-year for 2019 and annually escalating that cost out to 2044, the Company increases that value by 17% to **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** per kW-year for 2019 to value each kW of demand reduction benefits realized from its EE programs. The proposed cost per kW-yr. for the demand reductions associated with an EE program and with a DSM program is shown in Hinton Exhibit 1.

Q. WHAT IS YOUR RECOMMENDATION CONCERNING DEC'S PROPOSED RESERVE MARGIN ADDER?

A. The Public Staff recommends that the Company not use the reserve margin adder for the demand reduction benefits associated with its EE programs. Furthermore, I believe that this is not the appropriate proceeding to evaluate such a significant change to the avoided energy cost rates. In Docket No. E-7, Sub 1130, the Public

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[4] As approved in Docket No E-100, Sub 158.

Staff and the Company agreed that the PURPA-based method of calculating avoided costs was preferred over the use of the Company's IRP. In that proceeding, I testified that,

> "...the use of the PURPA-based avoided costs links the savings and financial incentives afforded the Company for its DSM/EE programs with the rates it pays QFs for avoided energy and avoided capacity. Therefore, I believe that the use of PURPA-based avoided energy and capacity costs will lead to better estimates of the costs avoided by the Company's DSM/EE programs thereby providing a more accurate view of the value of DSM and EE."

On August 27, 2017, the Commission approved the Agreement and noted that,

> "First, the revision to Paragraph 69 removes any ambiguity regarding the proper avoided costs to be used for calculating the PPI. The Commission finds that the revision to Paragraph 69 better links the savings and financial incentives for DEC's DSM/EE programs with the rates it pays QFs for avoided energy and avoided capacity, and provides for regular updating to prevent stale or outdated rates."

I believe the proposed reserve margin adjustment adds further divergence between the application of the avoided energy rates in this proceeding and the approved avoided cost energy rates in Docket No. E-100, Sub 158. Furthermore, I believe that that it is inappropriate to propose such a significant change in the valuation of the avoided energy cost-benefits in this proceeding, as opposed to examining this change within the review of the Mechanism. The current cost recovery mechanism was approved in Docket No. E-7, Sub 1032, where the Portfolio Performance Incentive (PPI) is based on the present value of the estimated net dollar savings associated with the Company's DSM/EE programs. As such, I believe that any change to the dollar savings of avoided energy costs benefits from DSM/EE programs should be evaluated in concert with consideration of the appropriate incentive rate in a Mechanism review. Per Public Staff witness Maness, the NC retail impact of the Public Staff's removal of the reserve margin adder on the PPI is $618,791.

Q. PLEASE DESCRIBE YOUR CONCERN REGARDING THE COMPANY'S USE OF SEASONAL ALLOCATION FACTORS FOR LEGACY DSM PROGRAMS.

A. My concern stems from the need to ensure that the avoided capacity benefits or values placed on MW reductions associated with the legacy DSM programs[5] remain reasonable. Through data requests and discussions with the Company, DEC maintains that

[5] DEC makes a distinction between "legacy" and "incremental" DSM programs in its evaluation of the portfolio and program cost effectiveness. As understood by the Public Staff and based on the Company's responses to data requests, "Legacy" DSM is the level of DSM activation capability that was originally projected for the year 2021 in the 2018 IRP. "Incremental" means all activation capability that is above the projected levels of the 2018 IRP for year 2021. DEC makes a distinction between "legacy" and "incremental" DSM programs in its evaluation of the portfolio and program cost effectiveness. "Legacy" measures and participation represent those measures and participants who were enrolled and active in the program in 2018. "Incremental" means any measure installed and participation occurring after 2018.

the avoided capacity benefits from “legacy” DSM programs should continue to be valued using a 100% summer seasonal allocation weighting. The Company justifies this approach on the basis that these “legacy” measures and participation are included in its IRP. The Company values the “incremental” measures and participation using the seasonal allocation weightings of 90% winter and 10% summer.

While the Company’s 2018 IRP predicts that its summer peaks are 300 to 400 MW greater than the winter peaks throughout most of the planning period, reaching over 500 MW in 2030, the Company maintains that it is winter planning. DEC has maintained it is a winter planning utility, as noted in its IRPs, filed reserve adequacy studies, and in its previous two Biennial Avoided Cost Proceedings.

A similar issue was addressed in Docket No. E-7, Sub 1164, where DEC made the argument that capacity from legacy DSM programs should not receive the same treatment as capacity from QFs given that the MW reductions from these legacy programs are already included in the IRP. The Commission in its Order noted:

> “…the Commission concludes that the capacity value provided by additional solar PV does not necessarily help the utilities offset or avoided their next capacity need. However, DEC contends that DSM/EE is different from solar QF’s, and that none of the policy reasons behind the Commissions shift in avoided costs methodology articulated in Sub 148 Order apply to

> DSM/EE. DEC states, for example, that there is no evidence in this proceeding that there is an over-supply of DSM/EE that customers are paying artificially high prices for DSM/EE, or that DSM/EE is burdening the system.[6]"

Q. HOW DOES THE FACT THAT DEC IS WINTER PLANNING AFFECT THE SEASONAL ALLOCATION OF THE VALUE OF AVOIDED CAPACITY WITH ITS DSM/EE PROGRAMS?

A. The Company's recently approved avoided capacity rates were developed using seasonal weighting of 90% for the winter season and 10% for the summer season. These allocations are similar to those approved in Docket No. E-100, Sub 148, where DEC proposed and the Commission approved seasonal allocation factors of 80% for the winter season and 20% for the summer season. For Docket No. E-100, Sub 158, DEC employed Astrapé Consulting to perform a Capacity Value of Solar Study that supported QFs receiving only 10% of the annual avoided capacity costs during the summer season; while receiving 90% of the avoided capacity cost weighting during the winter season. The Study found a higher loss of load risk during the winter season, which the Commission approved. In addition to addressing this risk, DEC and DEP stated that these seasonal allocations provide improved price signals[7] for QFs to help the Companies meet their

[6] NCUC Final Order in Docket e-2, Sub 1164, page 43.
[7] Docket No. E-100, Sub 158, T., Vol. 2, page 73, lines 5-13.

generation needs and appropriately pay QFs for the value they provide.

Q. DO YOU AGREE WITH THE COMPANY'S TREATMENT OF INCREMENTAL AND LEGACY DSM SEASONAL CAPACITY IN THIS PROCEEDING?

A. No. The Public Staff believes the argument of separating legacy and incremental measures and participation in DSM/EE programs has been seriously weakened by the conclusion of another avoided cost proceeding where DEC's avoided cost rates are based on winter planning. This emphasis on winter planning is supported by the 2016 Resource Adequacy Study, which indicated that DEC's long-range planning should target the winter season, and utilize a 17% winter reserve margin. As such, the value of summer DSM is diminished and no longer has the same value for resource planning purposes in terms of a capacity resource at the expected time of peak and the dollar per kW associated with the demand reductions.

In Docket No. E-100, Sub 157, the Commission directed DEC and DEP to conduct another reserve margin study for their 2020 IRPs, which are currently being developed. Based on recent discussions among the Company, Astrapé Consulting, and the Public Staff, in preparation for the 2020 IRP filing, it is my understanding that DEC's summer peak load forecast could increase by approximately

400 MW, and yet DEC would still be considered a winter planning utility. The Study has yet to be completed, but this observation underscores the Company's claims that DEC is winter planning.

Q. WILL YOUR PROPOSAL PROVIDE ADDED MOTIVATION FOR THE COMPANY TO FIND WAYS TO REDUCE THE WINTER PEAKS?

A. Even though none of the legacy DSM programs would cease to be cost effective under the Public Staff's proposal, the application of the allocation of seasonal capacity value to these legacy DSM programs would appropriately direct the Company to emphasize programs that focus on reducing load during the winter season. I am aware the Company has already begun such an investigation aimed at reducing winter peak loads. In DEC's last general rate case decision in Docket No. E-7, Sub 1146, the Final Order expressed some of the Commission's concerns about the growth of the Company's winter peaks as follows:

> The Commission is, however, concerned that discontinuing programs that can be used to effectively clip winter peaks is moving in the wrong direction. This is especially true given the fact that the Company has moved to "winter planning."[8]

[8] NCUC Order in Docket no. E-7, Sub 1146, p. 101.

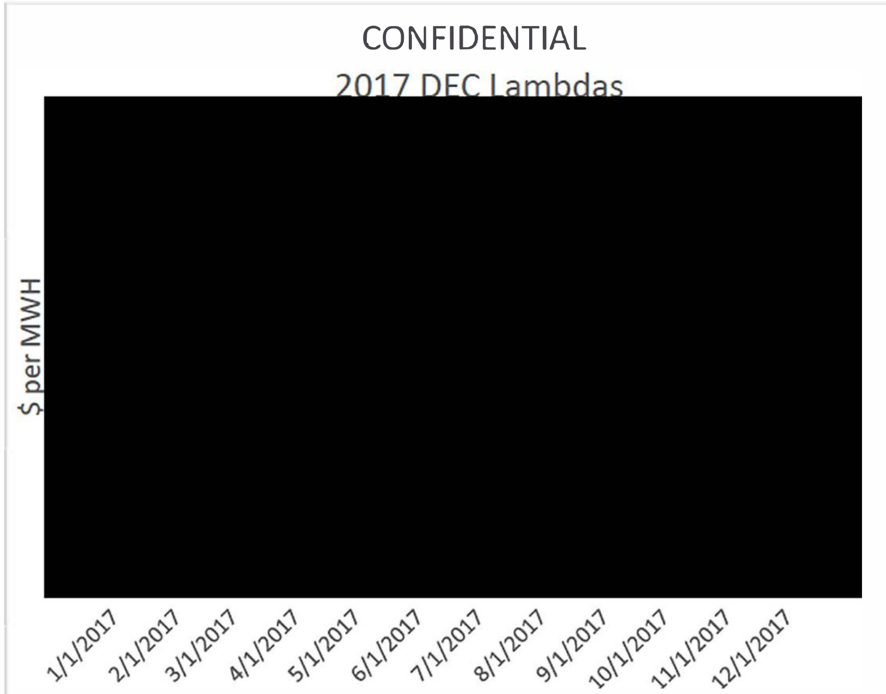
Similar concerns were expressed by the Commission in Docket No. E-100, Sub 147[9] and Docket No. E-100, Sub 158.[10] As such, it is my belief that the use of a 90% winter and 10% summer allocation for both legacy programs and new programs sends an appropriate signal to the Company to devote less resources toward mitigating summer peak load growth while at the same time increasing the incentives with the pursuit of reducing the growth of winter peak demands.

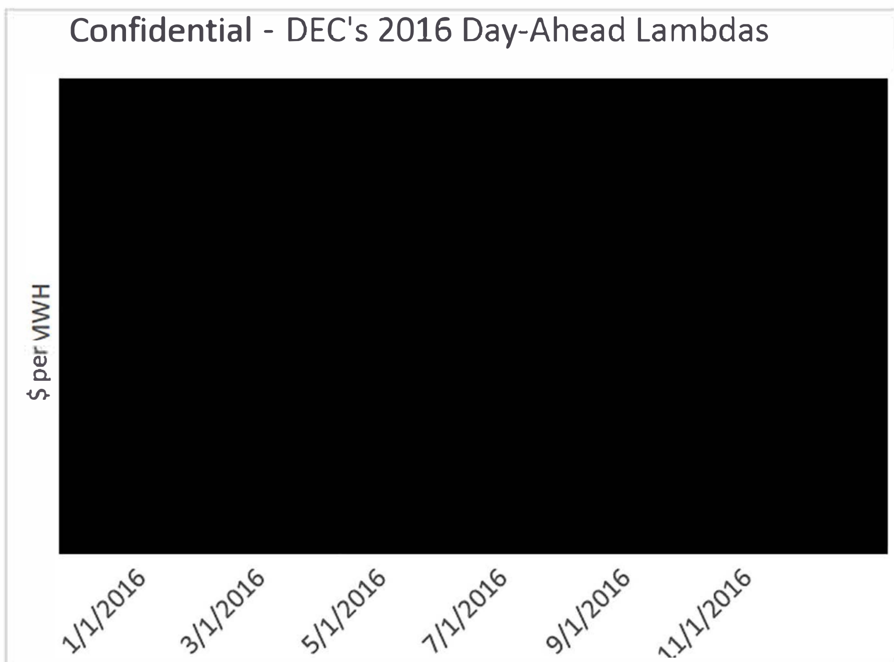
Q. ARE OTHER REASONS WHY YOU DO NOT SUPPORT THE COMPANY'S USE OF A 100% SUMMER SEASON CAPACITY ALLOCATION FOR LEGACY DSM PROGRAMS?

A. Yes. It is an underlying premise of DSM programs is that it typically costs the utility more to serve the customer during capacity constrained hours, than the Company recovers in rates. Often, the marginal costs of fuel, variable O&M, and the occasional start costs of additional generation to serve the customers are four to five times, or more, higher than the approved cost of fuel. As such, it is in the Company's best interest to consider the activation of its DSM programs during those times. Shown below are the last three years of DEC's day-ahead lambdas, which illustrate the relative lower

[9] NCUC Commission Order in Docket No. E-100, Sub 147, p. 7.
[10] NCUC Commission Order in Docket No. E-100, Sub 158, pp. 28-29.

and less volatile day-ahead lambdas or expected marginal costs during the summer seasons relative to the winter seasons.





While the avoided energy costs for the hour of the peak do not represent the capacity value of a DSM program, it should follow that high energy prices tend to follow constrained conditions. As the graphs illustrate, the expected avoided energy costs experienced due to activations of DEC's EnergyWise program have tended to decrease from the early year of the deployment of these summer related DSM programs. However, the Company's decision to activate is primarily; but not always, a function of available generation, be it an emergency condition or simply low reserves required to meet the expected load. In Hinton Exhibit 2 are exhibits from previous DSM/EE rider filings on the activations of DEC's Power Share and Power Manager programs. Exhibit 2 shows that the frequency of summer emergency events has lessened (2017 – 2019). The intent of discussing DEC's historical DSM activations is merely to show the evolving role that these programs play in providing sufficient capacity, which is not to say that these programs are not valuable; rather, that the capacity value has changed on par with the shifting of the seasonal weighting capacity needs from summer to winter.

Q. WHAT IS YOUR RECOMMENDATION CONCERNING DEC'S PROPOSED SEASONAL ALLOCATION OF CAPACITY VALUE FOR ITS LEGACY DSM PROGRAMS?

A. The Public Staff recommends that the Commission deny DEC's proposal to give its legacy DSM/EE programs a 100% summer weighting under its current IRP winter planning scenario, and require DEC to recalculate cost effectiveness using a 90% winter and 10% summer allocation of avoided capacity benefits. This would value the demand reduction benefits from DSM on the same basis as any other demand reductions the Company may realize from QFs. To do otherwise would have ratepayers reward the Company with a PPI that is based on over-valued kW savings via the use of DEC's proposed 100% summer seasonal capacity allocation despite its need for winter DSM. Whereas, a 90% seasonal capacity allocation for winter and 10% for seasonal capacity allocation for summer strikes a reasonable balance of the value of DSM/EE programs for ratepayers and the Company. Per Public Staff witness Maness, the NC retail impact of the Public Staff's recommended adjustment to the seasonal allocations on the PPI is $5,093,947.

Furthermore, the use of these proposed seasonal allocation factors will not cause any legacy DSM programs to fail cost effectiveness. The fact that these programs remain cost effective is, in part, due to the significant role of avoided T&D cost which provide almost the same beneficial value that 100% of the avoided capacity cost. As such, the use of the approved seasonal weighting of avoided capacity costs simply reduces the cost-effectiveness of these programs and the overall cost-effectiveness of the portfolio of programs as shown in Public Staff witness Williamson Exhibit 3.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

APPENDIX A
PAGE 1 OF 2

QUALIFICATIONS AND EXPERIENCE

JOHN ROBERT HINTON

I received a Bachelor of Science degree in Economics from the University of North Carolina at Wilmington in 1980 and a Master of Economics degree from North Carolina State University in 1983. I joined the Public Staff in May of 1985. . I filed testimony on the long-range electrical forecast in Docket No. E-100, Sub 50. . In 1986, 1989, and 1992, I developed the long-range forecasts of peak demand for electricity in North Carolina. . I filed testimony on electricity weather normalization in Docket Nos. E-7, Sub 620, E-2, Sub 833, and E-7, Sub 989. . I filed testimony on customer growth and the level of funding for nuclear decommissioning costs in Docket No. E-2, Sub 1023. . I filed testimony on the level of funding for nuclear decommissioning costs in Docket Nos. E-7, Sub 1026, and E-7, Sub 1146. . I have filed testimony on the Integrated Resource Plans (IRPs) filed in Docket No. E-100, Subs 114 and 125, and I have reviewed numerous peak demand and energy sales forecasts and the resource expansion plans filed in electric utilities' annual IRPs and IRP updates.

I have been the lead analyst for the Public Staff in numerous avoided cost proceedings, filing testimony in Docket No. E-100, Subs 106, 136, 140, and 148. . I have filed a Statement of Position in the arbitration case involving EPCOR and Progress Energy Carolinas in Docket No. E-2, Sub 966.

APPENDIX A
PAGE 2 OF 2

I have filed testimony on the issuance of certificates of public convenience and necessity (CPCN) in Docket Nos. E-2, Sub 669; SP-132, Sub 0; E-7, Sub 790; E-7, Sub 791; and E-7, Sub 1134.

I have filed testimony on the issue of fair rate of return in Docket Nos. E-22, Sub 333; E-22, Sub 412; P-26, Sub 93; P-12, Sub 89; G-21, Sub 293; P-31, Sub 125; G-5, Sub 327; G-5, Sub 386; G-9, Sub 351; P-100, Sub 133b; P-100, Sub 133d (1997 and 2002); G-21, Sub 442; W-778, Sub 31; and W-218, Sub 319 and E-22, Sub 532; and several smaller water utility rate cases. . I have filed testimony on credit metrics and the risk of a credit downgrade in Docket No. E-7, Sub 1146. .

I have filed testimony on the hedging of natural gas prices in Docket No. E-2, Subs 1001 and 1018. . I have filed testimony on the expansion of natural gas in Docket No. G-5, Subs 337 and 372. . I performed the financial analysis in the two audit reports on Mid-South Water Systems, Inc., Docket No. W-100, Sub 21. I testified in the application to transfer of the CPCN from North Topsail Water and Sewer, Inc. to Utilities, Inc., in Docket No. W-1000, Sub 5. . I have filed testimony on weather normalization of water sales in Docket No. W-274, Sub 160.

With regard to the 1996 Safe Drinking Water Act, I was a member of the Small Systems Working Group that reported to the National Drinking Water Advisory Council of the U.S. Environmental Protection Agency. . I have published an article in the National Regulatory Research Institute's Quarterly Bulletin entitled Evaluating Water Utility Financial Capacity.

Q. All right. Mr. Hinton, would you please give your summary?

A. Yes. My testimony discusses DEC --

COMMISSIONER BROWN-BLAND: Excuse me. Mr. Hinton, I'm not quite sure, but if you might get just a little closer to your mic for us.

THE WITNESS: Understood.

COMMISSIONER BROWN-BLAND: Thank you.

THE WITNESS: My testimony discusses DEC's proposed methods in determining the appropriate avoided capacity cost benefits and avoided energy cost benefits used to evaluate the cost-effectiveness of DSM and EE programs and to determine the Company's portfolio performance incentive, or PPI. In this proceeding, the Company proposed changes to the methods used to calculate the avoided capacity cost benefits associated with the energy-efficiency program. In this filing, I do not support the 17 percent reserve margin adder that increases the avoided capacity benefits associated with the load reductions from EE programs. As noted in my testimony, the Company is requesting the ratepayers to pay 17 percent more for the same load reduction associated with EE programs over DSM programs. Secondly, including the reserve margin adder would be somewhat duplicative since the 1.05 performance adjustment factor is incorporated in the avoided capacity costs. Lastly, I do not believe that this increase in the valuation of EE programs should be approved in isolation from the overall review of the DSM/EE cost recovery mechanism. The DSM/EE cost recovery mechanism involves the review of several factors, such as the overall PPI, the share rates, and lost revenue.

My testimony also does not support the proposal that limits the application of seasonal adjustment factors to future DSM programs, while current or legacy DSM programs are valued at 100 percent weighted for the load reductions associated with the summer season. Rather, I believe that both legacy and incremental DSM programs should be valued with the approved seasonal adjustment factors, 90 percent to load reductions during the winter season and 10 percent in the summer season. My principal reasons relate to the ongoing reserve margin studies, 2016 and 2018 IRPs, and the Company's testimony for the last two biennial avoided cost proceedings, all of which assert that DEC is winter planning. This will not devalue but approximately -- appropriately value the capacity benefits of the load reductions associated with the Company's summer season DSM programs, principally its summer season residential Power Manager program.

This concludes my summary.

MS. EDMONDSON: The witness is available for cross examination.

COMMISSIONER BROWN-BLAND: Ms. Edmondson, were you doing them as a panel?

MS. EDMONDSON: Yes. So he will be available for cross examination after Mr. Williamson is sworn in and does his summary.

COMMISSIONER BROWN-BLAND: All right. He's already sworn in.

DIRECT EXAMINATION BY MS. LUHR:

Q. Mr. Williamson, would you please state your name, business address, and present position for the record?

COMMISSIONER BROWN-BLAND: Mr. Williamson, you are on mute.

THE WITNESS: (David M. Williamson)

Sorry. My name is David Williamson, and my business address is 430 North Salisbury Street, Raleigh, North Carolina, and my position is -- I'm an engineer with the Public Staff's electric division.

Q. Mr. Williamson, on May 22, 2020, did you prepare and cause to be filed testimony consisting of 39 pages, an appendix, and three exhibits?

A. I did.

Q. And on June 8, 2020, did you prepare and cause to be filed supplemental testimony consisting of four pages and one exhibit?

A. That's correct.

Q. Do you have any changes or corrections to your testimony, appendix, or exhibits?

A. I do not.

Q. If you were asked the same questions today, would your answers be the same?

A. They would.

MS. LUHR: Okay. We request that Mr. Williamson's testimony be admitted into evidence as if given orally from the witness stand and his exhibits be marked.

COMMISSIONER BROWN-BLAND: There being

no objection, that motion is allowed.

(Public Staff Williamson Exhibits 1 through 3 and Supplemental Williamson Exhibit 3 were identified as they were marked when prefiled.)

(Whereupon, the prefiled direct testimony and Appendix A and supplemental testimony of David M. Williamson was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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

May 22, 2020

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

Testimony of David M. Williamson

On Behalf of the Public Staff

North Carolina Utilities Commission

May 22, 2020

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 25, 2020 application and May 11, 2020 supplemental testimony and exhibits of Duke Energy Carolinas, LLC (DEC), for approval of its demand-side management (DSM) and energy efficiency (EE) cost recovery rider for 2021 (Rider 12).

This testimony discusses: (1) the portfolio of DSM/EE programs included in the proposed Rider 12, 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/EE program; (3) the concerns of the Public Staff with various DSM/EE programs going forward, with regard to regulatory and grid related activities; and (4) the evaluation, measurement, and verification (EM&V) studies filed as Exhibits A through E to the testimony of Company witness Robert P. Evans.

Q. WHAT DOCUMENTS HAVE YOU REVIEWED IN YOUR INVESTIGATION OF DEC'S PROPOSED RIDER 12?

A. I reviewed the application and supporting testimony and exhibits, the Company's supplemental testimony and exhibits, and DEC's responses to Public Staff data requests. In addition, the following documents remain pertinent to Rider 12:

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; and,
4. 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 (Sub 1032 Order), as revised in the 2017 DSM/EE rider proceeding, Docket No. E-7, Sub 1130 (Revised Mechanism).

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. The Public Staff makes the following recommendations to the Commission:

1. That, beginning in 2021, only specialty light emitting diode (LED) lighting be considered for recognition as an EE measure eligible for cost recovery;
2. That the Company, in the next rider proceeding, assess the costs and benefits of continuing to offer the MyHER program, which is a comparison of energy consumption and EE tips, versus providing the same comparison and tips through another channel;
3. That the Company perform an analysis of the Grid Improvement Plan (GIP) to explain how it will affect the ability

of DSM/EE programs to produce peak demand and energy savings;

4. That the Company, in the next rider proceeding, explain how it will distinguish peak demand and energy savings between GIP and DSM and EE programs; and

5. That the Company provide in its next rider filing a list of GIP projects that have been implemented and how those projects have affected the performance of the Company's DSM/EE portfolio, if at all. The Company should be prepared to discuss any impacts the GIP projects have had on day-to-day system operations, as well as customer expectations for utility service in general, DSM/EE program performance, and the availability of customer data.

Q. ARE YOU PROVIDING ANY EXHIBITS WITH YOUR TESTIMONY?

A. Yes. I have three exhibits, described below:

- Exhibit 1: Three year cost benefit analysis (CBA) projections
- Exhibit 2: Three year CBA actuals
- Exhibit 3: Net effects on Cost-Effectiveness tests applying Public Staff's position regarding avoided capacity issues

DSM/EE Programs in Rider 12

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

A. In its proposed Rider 12, 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);
- Residential Neighborhood Energy Saver (formerly Income-Qualified 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®;
- Small Business Energy Saver;
- EnergyWise for Business; and,
- Nonresidential Smart $aver® Performance Incentive.

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 initial 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 Residential Energy Saver and Residential Neighborhood Energy Saver programs.

Changes to the DSM/EE Rider since last Rider Proceeding

Q. PLEASE DISCUSS THE CHANGES THAT HAVE OCCURRED SINCE THE LAST RIDER PROCEEDING, IN DOCKET NO. E-7, SUB 1192 (RIDER 11).

A. In the Rider 11 proceeding, the Company utilized the avoided cost rates approved in the Biennial Determination of Avoided Cost Rates for Electric Utility Purchases from Qualifying Facilities - 2016, Docket No. E-100, Sub 148, to determine the avoided benefits that would be generated for each of the Company's DSM/EE programs within its portfolio.

On October 7, 2019, and supplemented on October 17, 2019, the Commission issued a Notice of Decision in Docket No. E-100, Sub 158, regarding the Biennial Determination of Avoided Cost Rates for Electric Utility Purchases from Qualifying Facilities – 2018 (Sub 158 proceeding).

Pursuant to the Mechanism, the Company has updated its underlying input source for both avoided capacity and avoided energy in this proceeding to reflect the methodology used in the Sub 158 proceeding.

The Public Staff agrees with the Company's decision to update its underlying inputs to reflect those approved in the Sub 158 proceeding, pursuant to the Mechanism. However, as discussed later in my testimony and in more detail in Public Staff witness Hinton's testimony, the Public Staff has two concerns with the Company's application of the inputs from the Sub 158 proceeding.

Additionally, since the Rider 11 proceeding, the various parties to this proceeding, including the Public Staff, have jointly filed proposed modifications to the Revised Mechanism.[1] These proposed modifications are still pending before the Commission.

Cost Effectiveness

Q. HOW IS THE COST EFFECTIVENESS OF DEC'S DSM/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

[1] The proposed modifications to the Revised Mechanism were filed in Docket No. E-7, Sub 1032.

Mechanism, cost-effectiveness is evaluated at both the program and 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 below 1.0 on other tests. The Public Staff, as well as the Revised Mechanism, places 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[2] 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

[2] "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 do not 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 projected cost-effectiveness of each program and for the portfolio as a whole for the upcoming rate period (Evans Exhibit 7). Subsequently, when new DSM/EE programs are approved under Commission Rule R8-68, potential cost-effectiveness is evaluated 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 over 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 predictions in previous DSM/EE proceedings to the current filing, and develops a trend of potential 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 watched for signs of continued decreasing cost-effectiveness combined with Company efforts to improve cost-effectiveness, or (3) be terminated.

Q. HOW DO THE FORWARD-LOOKING 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 and UC scores as filed by the Company for all programs have a natural ebb and flow over the years of DSM/EE rider proceedings, mainly due to the changes in avoided cost rate determinations. In addition, decreasing cost-effectiveness is partially attributable to a reduction in the unit savings from the original estimates of savings as determined through EM&V of the program. 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, some programs have experienced greater than expected participation, which usually results in greater savings per unit cost, generally increasing cost-effectiveness.

These changes are shown for Vintage years 2019, 2020, and 2021 in Williamson Exhibit No. 1.

In addition to the forward looking cost-effectiveness test results, as most of the EM&V reports for the Company's portfolio of programs are completed, the Company has been able to provide the Public Staff with updated, actual cost-effectiveness test results for each program, and program year, over the Vintage years 2017, 2018, and 2019.

Q. HOW DO THE ACTUAL COST-EFFECTIVENESS TEST SCORES COMPARE TO THE FORWARD-LOOKING SCORES IDENTIFIED IN PREVIOUS RIDERS?

A. Understanding that the incorporation period of EM&V within the portfolio may be different from one program to another, having a rolling record of actual cost-effectiveness results provides the Public Staff with confirmation that the activities within the portfolio have been and continue to be worthwhile. On the other hand, actual test results highlight programs that ultimately do not perform at or above the original projection. The actual cost-effectiveness results for DEC's portfolio of programs are shown in Williamson Exhibit 2. These test results are a reflection of the annual updates in cost-effectiveness due to completed EM&V and finalized participation numbers.

Program Performance

Q. PLEASE DISCUSS THE PERFORMANCE OF THE PORTFOLIO.

A. The Company's DSM/EE portfolio offers a wide variety of measures to support everyday activities of its customers. Our review of program performance involves: (1) reviewing cost-effectiveness trends; and (2) reviewing Evans Exhibit 6, which provides specific information on each program's marketing strategy, potential areas of concern, and an overall qualitative analysis.

The Public Staff also uses its involvement in the Company's bi-monthly EE collaborative meetings to determine how a program is performing. During these meetings, the Collaborative discusses program performance (participation, customer engagement, and potential barriers regarding continuation and entry to the program), recently completed EM&V and market potential study activities, and potential new program offerings.

Relying on all of the resources mentioned above, the Public Staff believes that the historical performance of the Company's programs, as previously described, is reasonable. However, I have a number of concerns with the portfolio that I wish to bring to the Commission's attention for consideration in future rider proceedings.

Public Staff's Concerns

Q. PLEASE DISCUSS THE PUBLIC STAFF'S CONCERNS REGARDING THE PORTFOLIO.

A. I have the following areas of concern regarding DEC's DSM/EE portfolio:

a. The federal guidelines relevant to the production of lighting-related measures, and the North Carolina market in which these measures are offered;
b. The potential impacts of the Company's proposed GIP on the performance of current and future DSM/EE programs;
c. The Company's incorrect application of the Sub 158 avoided cost rates in the DSM/EE Rider calculations; and
d. Changes to the Company's Referral Channel for its Residential Smart Saver EE program to incorporate referrals to services unrelated to DSM/EE.

Lighting

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

A. Over the years and in various dockets before the Commission,[3] and extensively in the Public Staff's testimony regarding Evans Exhibit C in the Docket No. E-7, Sub 1192 proceeding, we have highlighted several trends surrounding the adoption of EE lighting measures, specifically, that the EE lighting market for North Carolina is being transformed and that non-specialty 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 for its second phase of the 2007 Energy Independence and Security Act (EISA). The rules, otherwise known as EISA 2020, adopted revised definitions for the general service lamp (GSL) and the general service incandescent lamp (GSIL), which were to become effective January 1, 2020.[4]

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[3] See Comments of the Public Staff filed February 6, 2019, in Docket No. E-100, Sub 159; Testimony of Jack L. Floyd filed May 23, 2017, in Docket No. E-7, Sub 1130; Testimony of David M. Williamson filed May 22, 2018, in Docket No. E-7, Sub 1164, May 20, 2019, in Docket No. E-7, Sub 1192, September 5, 2017, in Docket No. E-2, Sub 1145, September 4, 2018, in Docket No. E-2, Sub 1174, and August 9, 2019, in Docket No. E-2, Sub 1206.

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

However, on February 11, 2019, DOE issued a notice of proposed rulemaking and request for comment to withdraw the current definitions of GSL and GSIL.[5]

On September 5, 2019, the DOE published a notice of proposed determination in which it initially determined that energy conservation standards for GSILs do not need to be amended.

On December 27, 2019, the DOE published a final determination in which it responded to comments received in September of 2019 and determined that amending the energy conservation standards for GSILs would not be economically justified.[6]

The Public Staff continues to believe that the EE lighting market in North Carolina has transformed at a faster rate than was initially recognized. This transformation has been a result of changes to federal lighting standards since 2007 resulting from the EISA, and customer preference for LEDs. Both of these factors have substantially transformed the lighting market to the point that non-

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[5] 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

[6] Energy Conservation Program: Conservation Standards for General Service Lamps, 84 Fed. Reg. 71626-71671 https://www.federalregister.gov/documents/2019/12/27/2019-27515/energy-conservation-program-energy-conservation-standards-for-general-service-incandescent-lamps

specialty LED lighting should be considered the baseline standard for general service bulb technologies.[7]

One of the goals of utility-sponsored EE programs is to build customer awareness of, and confidence in, EE technologies, and to encourage consumers to adopt EE measures on their own. As technologies become more energy efficient, costs decrease, and consumer acceptance increases, adoption of EE measures should become routine, at which point "market transformation" results, as has been seen in the lighting markets.

Q. PLEASE DESCRIBE THE ACTIONS THAT THE COMPANY IS TAKING WITH REGARD TO TRANSFORMATION OF LIGHTING IN NORTH CAROLINA.

A. The Company, in last year's rider proceeding, acknowledged the changes and impacts proposed by the EISA 2020 rules and began making strides to minimize those impacts. The Company has been updating all of its programs that incorporate lighting-related products to offer specialty LED bulb technologies as the only lighting offering. Based on the Public Staff's review in this case, we can confirm that

[7] The Public Staff is aware of Duke Energy's work to finalize an EE and DSM market potential study in time for submission with their 2020 Integrated Resource Plans.

the Company's portfolio is focusing on specialty LED bulb technologies.

The Public Staff agrees with this approach.

Q. DO YOU HAVE ANY RECOMMENDATIONS FOR THE COMMISSION WITH REGARD TO LIGHTING TRANSFORMATION IN NORTH CAROLINA?

A. Yes. Based on the Public Staff's review of lighting-related EM&V reports over the last three years, and the Company's acknowledgement of upcoming lighting standard changes as they alter their program offerings, I recommend that the Commission require that, beginning in 2021, only specialty LED lighting be considered for recognition as energy efficiency.

<u>DEC's GIP Impacts</u>

Q. PLEASE DESCRIBE THE PUBLIC STAFF'S CONCERNS WITH THE IMPACT OF THE COMPANY'S GIP ON DSM/EE PROGRAMS.

A. Since the last rider proceeding, the Company has filed a general rate case in Docket No. E-7, Sub 1214 (Sub 1214 proceeding), in which, among other things, it has proposed a GIP, along with deferral of associated investments, which is still pending before the

Commission at this time. The GIP, as proposed, would drive enhancements to capacity, data analytics/collection, and power flow capabilities on almost all of the circuits within its service territory. The Public Staff believes that the GIP proposal will have an impact on the savings achieved through the DSM/EE portfolio due to improvements in the areas of utility operation listed above.

Q. WHY IS IT IMPORTANT TO DISCUSS THE GIP IN THE CONTEXT OF THE DSM/EE RIDER?

A. As discussed in the Sub 1214 proceeding, the Company is planning to make improvements to its ability to provide customer-specific information and reliability through data analytics, all designed to help bring the grid up to a new level of operation. The Company has also acknowledged that its customer's needs and expectations are evolving.

As more data analytics and technology enhancements are made to the Company's day-to-day operations, the base level impacts and offerings of DSM/EE programs will be impacted.

Q. WHICH PROGRAMS WILL BE MOST IMPACTED BY THE COMPANY'S GIP PROPOSAL?

A. I believe that that the MyHER and DSM programs will be impacted the most by the GIP proposal. These programs rely heavily on data analytics and base level system capacity on the Transmission and Distribution (T&D) grid. As the Company deploys GIP, with particular regard to the availability of customer data and demand reduction, these programs will need to be re-evaluated (both internally by the Company and through EM&V) to ensure that they remain cost effective offerings, and to determine whether or not they have become standard operating procedures (i.e., part of the Company's day-to-day operations).

Q. PLEASE EXPLAIN WHY YOU BELIEVE THE MYHER PROGRAM WILL BE IMPACTED BY THE COMPANY'S GIP PROPOSAL.

A. The success of the MyHER program relies on the Company's collection of individual customers' data, and then analyzing this data in relation to similar nearby customers.

The Company, for a number of years, has been deploying Advanced Metering Infrastructure (AMI) meters throughout its service territory. That deployment was for the most part completed[8] in 2019, with a large majority of customers now being served by AMI meters. This deployment is expected to be used to provide new opportunities for

[8] Customers currently have the ability to opt out of having an AMI meter installed at their residence. As long as this AMI opt-out tariff is offered to customers, the Company will likely never see a completion of its AMI rollout across the entirety of its service territory.

better rate design and to provide customers with interval usage data. These meters will be a crucial component of the Company's GIP data collection infrastructure.

In Exhibit 6, page 11, DEC witness Evans discusses the impact AMI meters have on the MyHER program:

> In 2019, the [MyHER] program launched into the Duke Energy Mobile App. Participants in the MyHER program are now able to see their usage comparison and disaggregation in the mobile app. With the deployment of AMI meters throughout DEC, the program began sending AMI data to Tendril. Customers with AMI meters can see their interval energy usage on the MyHER interactive experience. In 2019, the program also launched new AMI usage charts on the eHERs which show customers the difference in average weekly usage by hour from one month to the next.

Additionally, the Company's investment in its AMI meters provides its customers with more direct access to their customer data than previously available. This comes in the form of a Smart Meter Usage App as well as a means of allowing third parties to analyze a particular customer's usage data.[9]

In response to a Public Staff data request, the Company acknowledged that:

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[9] See Smart Meter Usage App approved September 4, 2019, in Docket No. E-7, Sub 1209.

> The Company has very recently made available to customers functionality similar to the functionality provided by Green Button Download, enabling customers to download their usage data in a standard format. A customer may then share this data at their discretion.

The Public Staff believes that with these services and access to data, the MyHER program will simply be a duplicate provision of the same data to the customer in one form or another. The only incremental difference would be the energy efficiency tips that would be offered through the MyHER report. If offering EE tips is the only additional item offered by a MyHER report that is not already provided by other potentially less costly channels (e.g., the Company's website, bill inserts, or information printed on the monthly bill that a customer receives), then the Public Staff is skeptical that the cost and utility incentives associated with the MyHER program are justified. The Public Staff believes it would be appropriate for the Commission to require Duke to assess the costs and benefits of continuing to offer the MyHER program, which is a comparison of energy consumption and EE tips, versus providing the same comparison and tips through another channel such as those identified above.

Q. PLEASE EXPLAIN WHY YOU BELIEVE THE DSM PROGRAMS WILL BE IMPACTED BY THE COMPANY'S GIP PROPOSAL.

A. The Company's DSM programs rely on the level of system demand that is on the grid at the time that the particular DSM program is called upon by system operations.[10] If the base level of demand on the T&D grid changes, then the level of demand response from DSM programs could potentially be impacted as well.

The Public Staff believes that the Company's plan to build grid infrastructure to enable Integrated Volt/Var Controls (IVVC), which is part of the Company's GIP proposal, will emphasize this concern. As explained in further detail in the Company's general rate case[11] application, DEC witness Mark Oliver's Exhibit 4, pages 3 through 5, explains that IVVC will allow the distribution system to optimize voltage and reactive power needs.

Additionally, in response to a Public Staff data request, the Company acknowledged that:

> . . . voltage reduction impacts will likely vary amongst measures, it is anticipated that the Company's DSM/EE portfolio savings, in aggregate, would be reduced to a level less than or equal to the approximate reduction in load associated with IVVC. Thus, with all

[10] Data from the Company suggests that DSM programs may or may not be called upon during a peak demand event when system conditions require load reductions.

[11] Docket No. E-7, Sub 1214.

> other things being equal, a greater number of DSM/EE measures would need to be installed to obtain savings equivalent to those that would be realized without the IVVC program. Hence, the implementation of IVVC will likely slightly diminish projected cost effectiveness of the Company's portfolio of EE and DSM Programs.

As the Company begins to implement the GIP, this implementation will likely result in reduced demand savings from the Company's DSM programs.

Q. PLEASE SUMMARIZE YOUR CONCERNS WITH THE MYHER AND DSM PROGRAMS GOING FORWARD.

A. As the Company continues to implement its GIP, the continuation of savings and offerings for DSM/EE programs will need to be reviewed to ensure that peak demand and energy savings are not being either double-counted or offered in other rate base related channels.

Q. DO YOU HAVE A RECOMMENDATION REGARDING THE COMPANY'S GIP AND ITS INFLUENCE ON THE DSM/EE RIDER?

A. Yes. With regards to the Company's pending GIP proposal, the Public Staff recommends that the Commission require the Company to:

1. Perform an analysis of GIP to explain how GIP will affect the performance of DSM/EE programs to produce peak demand and energy savings. In other words, if a GIP project will reduce T&D losses or impact the operational capability of a DSM or

EE program to produce savings, the Company should seek to quantify those impacts;

2. In the next rider proceeding, explain how the Company will distinguish peak demand and energy savings between GIP and DSM and EE programs; and,
3. Provide in its next rider filing a list of GIP projects that have been implemented and how those projects have affected the performance of the Company's DSM/EE portfolio, if at all. The Company should be prepared to discuss any impacts the GIP projects have had on day-to-day system operations, as well as customer expectations for utility service in general, DSM/EE program performance, and the availability of customer data.

<u>Avoided Cost</u>

Q. PLEASE DESCRIBE YOUR CONCERNS REGARDING THE COMPANY'S USE OF AVOIDED COST RATES.

A. The Company, as noted above, has updated its underlying avoided cost inputs for both capacity and energy to be derived from the Sub 158 avoided cost proceeding, in Docket No. E-100, Sub 158 (Sub 158), pursuant to the Revised Mechanism. While the Public Staff agrees with this update, we have two concerns with the Company's application of avoided capacity derived from the Sub 158 rates. Public Staff witness John R. Hinton goes into further discussion on these two concerns in his testimony, but I summarize his concerns as the following:

1. That the Company's incorporation of a 17% reserve margin adder to all avoided capacity benefits associated with its EE programs, beginning in Vintage year 2021, is inappropriate; and,
2. That the Company's allocation of 100% of avoided capacity benefits to summer capacity for DEC's legacy[12] DSM programs is inappropriate.

Q. WHAT IS THE IMPACT OF IMPLEMENTING PUBLIC STAFF WITNESS HINTON'S POSITION ON THE FIRST CONCERN?

A. The impact associated with this issue on the cost effectiveness of the portfolio is seen in Williamson Exhibit 3, under the column labeled "Removing 17% Reserve Margin Adder." The impacts expressed in this column are only associated with this adjustment because only the Energy Efficiency programs are impacted by this adjustment.

[12] "Legacy," as understood by the Public Staff and based on the Company's responses to data requests, is the level of DSM activation capability that was originally projected for the year 2021 in the 2018 IRP.

The impacts with regard to the NPV of system avoided cost benefits that are included in Evans Exhibit 1 and used in the calculation of the revenue requirement for the prospective rate for Vintage year 2021 amount to a decrease in the amount of approximately $7.5 million for both residential and non-residential programs combined.

Q. WHAT IS THE IMPACT OF IMPLEMENTING PUBLIC STAFF WITNESS HINTON'S POSITION ON THE SECOND CONCERN?

A. The impact on the cost effectiveness of the portfolio is seen in Williamson Exhibit 3, under the column labeled "Applying 90%W/10%S Seasonal Allocation." The impacts expressed in this column are only associated with this adjustment because only the DSM programs are impacted by this adjustment.

The impacts with regard to the NPV of system avoided cost benefits that are included in Evans Exhibit 1 and used the calculation of the revenue requirement for the prospective rate for Vintage year 2021 amounts to a decrease in amount of approximately $59.7 million for both residential and non-residential programs combined.

Q. WHAT ARE THE NET IMPACTS TO THE PROJECTED COST-EFFECTIVENESS SCORES FOR THE PORTFOLIO OF THE PUBLIC STAFF'S POSITION ON BOTH CONCERNS?

A. The impact on the cost effectiveness of the portfolio of both of these adjustments is seen in Williamson Exhibit 3, under the column labeled "Total Net Impacts."

In addition to the net impacts to cost-effectiveness, I have calculated the percent change to both the TRC and UC tests from the originally filed scores to the "Total Net Impacts" scores. As seen in Williamson Exhibit 3, the greatest impacts to cost-effectiveness occur with the DSM programs. This is because the Company does not currently have activations of its DSM programs during the winter time, where the majority of potential avoided benefits reside.

The total net impacts with regard to the NPV of system avoided cost benefits that are included in Evans Exhibit 1 and used in the calculation of the revenue requirement for the prospective rate for Vintage year 2021 amount to a decrease in the amount of approximately $67.2 million for both residential and non-residential programs combined.

These impacts have been provided to Public Staff witness Maness for his incorporation in the appropriate revenue requirement for this proceeding.

Residential Smart Saver EE Program – Referral Channel

Q. WHAT IS THE PURPOSE OF THE RESIDENTIAL SMART SAVER PROGRAM?

A. The Company's Residential Smart Saver (SmartSaver) program, which was originally known as the HVAC EE program, is designed to offer rebate options to customers for a variety of EE measures related to home heating and cooling[13] to encourage greater energy efficiency.

On February 9, 2016, in Docket No. E-7, Sub 1032, the Commission approved the Company's request to implement a referral channel to offset some of the costs associated with the program. The Company expected that this modification would bolster the cost-effectiveness of the HVAC EE program.

On September 11, 2017, in the same docket, the Commission approved the conversion of the HVAC EE program into what is now

[13] For example, HVAC equipment (heat pumps and central air conditioning), attic insulation, duct sealing, etc.

known as the SmartSaver program. This program modification expanded the program to include additional household-related measures, as well as an online store option. These changes were intended to make the DEC SmartSaver program match the SmartSaver program of Duke Energy Progress, LLC.

Q. DID THE RESIDENTIAL HVAC EE REFERRAL CHANNEL CONTINUE AFTER THE PROGRAM CHANGES APPROVED ON SEPTEMBER 11, 2017?

A. Yes. The Company's referral channel continues to be a part of the SmartSaver program. However, the Company has expanded the original scope of the referral channel to include a variety of items and services beyond its original focus on HVAC equipment-related contractor referrals. The referral channel now also provides customers with contractor referrals related to rooftop solar systems, plumbing, and tree removal services.

For marketing purposes, the Company uses the name "FindItDuke" to provide the contractor referral information.[14] This portal is accessible to the general public, and is accessible without having to log into the Company's customer account system. The Company

[14] https://www.duke-energy.com/find-it-duke

includes a disclaimer on its portal to explain this accessibility. It reads that "[w]hile non-Duke Energy customers are eligible to use the referral service and receive special contractor discounts and financing, only Duke Energy customers are eligible to receive Duke Energy rebates."

The referral services currently available from the "FindItDuke" portal include:

- Heating and Air Conditioning;
- Insulation;
- Plumbing;
- Electrical;
- Pool;
- Solar; and
- Tree Removal.

Q. WHERE ARE THE REVENUES RECEIVED FROM CONTRACTORS PARTICIPATING IN THE REFERRAL CHANNEL BOOKED?

A. All funds that DEC receives from contractors participating in the referral channel are used to offset the program costs for the SmartSaver program. This includes funds associated with rooftop solar and tree service contractors, which at this time represent only a very small portion of the overall revenues received.

Q. WITH RESPECT TO THE EXPANSION OF THE REFERRAL CHANNEL AND THE "FINDITDUKE" WEB PORTAL, DOES THE PUBLIC STAFF HAVE ANY CONCERNS WITH THE COMPANY MAKING THIS TYPE OF PROGRAM MODIFICATION?

A. The Public Staff does not believe that the Company has violated any Commission rules or the Flexibility Guidelines that address how program modifications are to be handled. While the Flexibility Guidelines have generally worked well to provide the appropriate notice to the Commission and parties of upcoming or past changes to the programs, the expansion of the referral channel into areas not specifically related to DSM and EE programs, or that may be otherwise recovered through base revenues, does seem to be the type of program change that should be brought to the Commission's attention for approval in advance of the change. This would be particularly applicable to any change that would give the appearance of impacting the performance or cost recovery of a particular DSM or EE program. The Public Staff will continue to discuss this matter with the Company, and such discussions could include the potential for revisions to the Flexibility Guidelines to specifically address this type of program modification.

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 E.

I also reviewed previous Commission orders to determine if DEC complied with provisions regarding EM&V contained in those orders. My review leads me to conclude that the Company is complying with the various Commission orders regarding EM&V of their DSM/EE portfolio.

Q. DO YOU HAVE ANY CONCERNS REGARDING 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/EE programs. Based upon my review and upon the analysis performed by GDS, I have recommendations regarding the EM&V report for the Residential Income-Qualified EE (Neighborhood Energy Saver or NES) Program (Evans Exhibit A).

Evans Exhibit A evaluated the performance of the NES program over the period from June 1, 2017, through June 30, 2018, and included approximately 8,900 customers in the DEC portion of the study. As discussed by the evaluator of the NES program, a billing analysis was not used in this case to determine program savings. Rather, the evaluator used an engineering analysis that relied on information from other sources (namely technical reference manuals from other states). The evaluator states that a billing analysis was not appropriate in this evaluation because of differences in usage patterns between the treatment group and control group, and the differences in weather patterns between pre- and post-treatment periods.[15]

The use of an engineering analysis is an appropriate analytical approach for the NES program. However, a billing analysis is preferable because it provides a more accurate representation of the actual program performance.[16] The Public Staff has recommended in past DSM/EE rider proceedings,[17] and the Company and Commission have agreed, that billing analyses of EE programs were

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[15] See Section 4.3 of Evans Exhibit A.

[16] A billing analysis provides net program savings. An engineering analysis does not include a net-to-gross analysis and therefore must rely on numerous measure assumptions, and less on empirical customer consumption data.

[17] Docket Nos. E-7, Subs 1105 and 1130, and E-2, Subs 1145 and 1174.

preferable. The engineering analysis in this case produces per participant savings that are double the savings from the previous evaluation.[18]

A second issue relates to the evaluation of the net-to-gross ratio (NTGR). The engineering analysis assumes a NTGR of 1.0, which is standard practice for income-qualified programs. While the Public Staff recognizes this to be a standard practice, we also note that lighting accounts for 38% of the program's gross savings and that there have been significant changes in the lighting market in recent years. The evaluation indicates that many bulbs could not be installed because efficient bulbs were already present, which suggests a NTGR of less than 1.0 for lighting measures. The issue is further complicated by the fact that the engineering analysis assumes the baseline wattage is equal to the federal standard (equivalent to a halogen bulb) when at the time of the evaluation, halogen bulbs likely only represented a small fraction of shelf space at stores selling bulbs to prospective lighting purchasers. During 2017-2018, LEDs and CFLs were already occupying much of the available shelf-space at big box retailers like Home Depot and

[18] The previous evaluation reported 347 kWh per participant (Table 1-2 of Evans Exhibit A in Docket No. E-7, Sub 1130). The current evaluation reports 676 kWh per participant (Table 1-3 of Evans Exhibit A).

Lowes. This suggests that the NTGR assumption as well as the presumed baseline wattage in the engineering analysis may over-estimate the LED bulb savings component of the program. The concern we have over the NTGR for the lighting component of the program adds emphasis to my recommendation that the next evaluation rely on a billing analysis for assessing the savings attributable to the program.

Consistent with the EM&V agreement contained in the Mechanism, the results in Evans Exhibit A would apply to participation from June 30, 2018, through the end of the sampling period associated with the next evaluation. Based on past scheduling of evaluations, this could be two to three years, which likely puts the next evaluation in 2021. Evans Exhibit A is acceptable for purposes of verifying the NES program savings. However, the Public Staff also believes it would be appropriate to perform the next evaluation of the NES program as soon as possible, and incorporate a billing analysis in that evaluation. The Company has represented to the Public Staff that it will initiate the next evaluation very soon.

Q. DO YOU HAVE ANY OTHER EM&V CONCERNS?

A. Yes. There are some cases in which a similar or identical measure is offered across multiple programs. For example, the low-flow showerhead is offered through the Neighborhood Energy Saver program as well as the Energy Efficiency Education in Schools program. DEC used different contractors in the evaluations of these two programs. The evaluators made different assumptions with respect to the assumed baseline flow of an existing showerhead in the calculation of the low-flow showerhead measure savings. The assumptions and sources cited by both evaluators are reasonable. However, unless there is a compelling reason to have different assumptions for the same measure (other than the use of different contractors to evaluate different programs), the Public Staff recommends that DEC work to ensure that these measures be evaluated consistently. When such recommendations are not consistent across the programs, the Company should explain the differences justifying each case.[19]

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 E, should be considered complete.

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[19] This is similar to the Public Staff's recommendations in Docket No. E-2, Sub 1145 regarding differently methodologies that were used to evaluate different programs offering the same measures.

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/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. Additionally, I am currently serving as a co-chairman on the National Association of State Utility and Consumer Advocates' (NASUCA) DER and EE Committee.

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 have filed testimony in various DEC, DEP, and DENC Demand Side Management/Energy Efficiency rider proceedings, as well as recent general rate case proceedings.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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	))))))	SUPPLEMENTAL TESTIMONY OF DAVID M. WILLIAMSON PUBLIC STAFF – NORTH CAROLINA UTILITIES COMMISSION

June 8, 2020

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. DID YOU PREVIOUSLY FILE DIRECT TESTIMONY IN THIS MATTER BEFORE THE NORTH CAROLINA UTILITIES COMMISSION?

A. Yes. I filed direct testimony on behalf of the Public Staff in this matter on May 22, 2020.

Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.

A. My qualifications and duties are included in Appendix A to my direct testimony.

Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL TESTIMONY?

A. The purpose of my supplemental testimony is to correct two numbers in my direct testimony and Exhibit 3.

Q. WHAT CORRECTIONS NEED TO BE MADE TO YOUR DIRECT TESTIMONY AND EXHIBIT 3?

A. On May 11, 2020, the Company filed supplemental testimony addressing impacts to net lost revenues from the Income-Qualified

Energy Efficiency program. The Company's supplemental filling updated the avoided capacity, energy, and T&D costs for this program. My direct testimony did not incorporate these updates.

Additionally, the rebuttal testimony of Duke Energy Carolinas, LLC (DEC or the Company) witness Timothy J. Duff, brought to my attention that I had inadvertently used erroneous data from a discovery response that was provided to the Public Staff. On May 18, 2020, the Company provided a supplemental data response updating its response associated with the impacts of applying a seasonal allocation of 90% winter and 10% summer to all demand (kW) reductions associated with the PowerShare program.

The net effect of these errors impacted values presented in both my testimony and Exhibit 3.

Q. WHAT INFORMATION IN YOUR TESTIMONY WOULD YOU LIKE TO CORRECT?

A. On page 28, line 16 of my direct testimony, the value of "approximately $59.7 million" should be replaced with "approximately $42.4 million." Also, on page 29, line 18 of my direct testimony, the value of "approximately $67.2 million" should be replaced with "approximately $49.9 million."

Q. PLEASE DISCUSS THE UPDATE TO YOUR EXHIBIT 3.

A. The two corrections in my direct testimony are a result of the Company's Supplemental testimony filed on May 11, 2020 and supplemental data provided by the Company for the PowerShare program. This updated information is reflected in my Supplemental Williamson Exhibit 3.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Q. Mr. Williamson, would you please give your summary of your testimony?

A. Yes. My testimony addresses a number of topics, including a review of the performance and cost-effectiveness of Duke Energy Carolinas' portfolio DSM and EE programs, potential concerns with the portfolio going forward, and the review of the Company's EM&V report filed in this proceeding.

I reviewed Duke Energy Carolinas' portfolio of 21 approved DSM and EE programs. Each of these approved programs is eligible for cost recovery pursuant to the Commission's rules and the cost recovery mechanism approved in Docket Number E-7, Sub 1032 and revised in Sub 1130. My testimony highlights the metrics used to evaluate cost-effectiveness in the annual rider proceedings. I review trends of cost-effectiveness to develop an expectation of each program's performance, costs, and measure life benefits in the upcoming rate period, as well as its ongoing cost-effectiveness. I rely on these trends, as illustrated in the exhibits, to develop my recommendations concerning whether a program should be continued, modified, or terminated. Several factors, such as changes in participation, standards, or avoided costs, also impact cost-effectiveness.

My testimony also provides a number of recommendations to the Commission with regard to lighting standards and grid improvement impacts.

First, I recommend that, beginning in 2021, only specialty lighting -- light-emitting diode, or LED, lighting be considered for recognition as an EE measure eligible for cost recovery. Over the years, the Public Staff has commented on the rate of market transformation in North Carolina with regard to lighting. The second phase of the 2007 Energy Independence and Security Act, or EISA, which would have made LED the standard lighting technology and baseline for the residential market, was scheduled to begin on January 1, 2020. However, on December 27, 2019, the rules governing the second phase were reevaluated, and it was determined that the rules did not need to be amended. Regardless, the Public Staff continues to believe that the EE lighting market in North Carolina has transformed at a faster rate than that of the federal guidelines. The Company, in its last rider proceeding, acknowledged the potential impacts that were going to result from the EISA 2020 rules and began working to minimize those impacts.

Based on the Public Staff's review in this case, we can confirm that the Company's portfolio is already focusing more on specialty LED bulb technologies. Public Staff agrees with this approach.

Second, I recommend -- I recommend that the Company, in the next rider proceeding, assess the cost and benefits of continuing to offer the MyHER program, which is a comparison of energy consumption and EE tips, versus providing the same comparison and tips through another channel.

Next, I recommend that the Company perform an analysis of its Grid Improvement Plan, or GIP, to explain how it will affect the ability of DSM and EE programs to produce peak demand and energy savings. I further recommend that the Company, in the next rider proceeding, explain how it will distinguish the peak demand and energy savings resulting from GIP from those resulting solely from DSM and EE programs.

These recommendations stem from the Company's pending rate case where it is proposing, among other items, a plan to drive enhancements to capacity, data analytics, collection, and power flow capabilities on almost all of its -- all of the circuits within its service territory. These enhancements are also being driven by the Company's acknowledgement that customers' needs and expectations are evolving. My recommendations related to the Company's GIP proposal are centered on the potential impacts towards the Company's MyHER and DSM programs. These programs are heavily reliant on data analytics and base-level system capacity on the transmission and distribution grids. As the Company develops GIP, with particular regard to the availability of customer data and demand reduction, these programs will need to be re-evaluated, both internally by the Company and through EM&V, to ensure that they remain cost-effective offerings and to determine whether or not they have become standard operating procedures. To that end, I also recommend in my testimony that the Company provide in its next rider filing a list of GIP projects that had been implemented and information on how these projects have affected the performance of the Company's DSM/EE portfolio, if at all.

In addition to my recommendations, my testimony also discusses concerns regarding the Company's use of avoided capacity benefits applied to its portfolio of programs. Specifically, I express the following concerns:

The Company's incorporation of a 17 percent reserve margin adder to all avoided capacity benefits associated with its EE programs beginning in vintage year 2021 is inappropriate, and the Company's allocation of 100 percent of avoided capacity benefits to summer capacity for DEC's legacy DSM programs is inappropriate.

These concerns are discussed in further detail by Public Staff witness Hinton. The impacts of his recommendations on program cost-effectiveness are provided as part of Williamson Exhibit 3.

The Company's contractor referral service for its Residential Smart $aver EE program is, for marketing purposes, titled "Find It Duke." This service was originally approved on February 9, 2016, when the program was known as the HVAC EE program and focused on HVAC equipment. Now that the program offering has been expanded to include additional household-related measures, the Company has also recently expanded its referral services. These services include heating and air conditioning, insulation, plumbing, electrical, pool, solar, and tree removal services.

While the Public Staff does not believe that the Company has violated any Commission rules or the Flexibility Guidelines that address how program modifications are to be handled, this expansion of the referral channel into areas not specifically related to DSM and EE programs and services that may be otherwise recovered through base revenues does seem to be the type of program change that should be brought to the Commission's attention for approval in advance of the change.

The Public Staff will continue to discuss this matter with the Company, and such discussions could include the potential for revisions to the Flexibility Guidelines to specifically address this type of program modification.

With regard to the EM&V reports filed by the Company in previous DSM and EE rider proceedings, I believe the Company has complied with the Public Staff's earlier recommendations concerning EM&V as ordered by the Commission. The Public Staff generally agrees with the findings of the EM&V reports filed in this proceeding. With respect to this proceeding, the EM&V reports filed as Evans Exhibits A through E should be considered complete for purposes of this proceeding.

On June 8, 2020, I filed supplemental

testimony to correct two values in my direct testimony and to provide an updated Williamson Exhibit 3, which is where those impacts are realized.

This concludes my summary.

Q. Thank you.

MS. LUHR: The witnesses are available for cross examination.

COMMISSIONER BROWN-BLAND: All right. Ms. Fentress?

MS. FENTRESS: No questions.

COMMISSIONER BROWN-BLAND: All right. Any of the other intervenors?

(No response.)

COMMISSIONER BROWN-BLAND: Commissioner Clodfelter, did you intend to have your electronic hand up? You're on mute.

COMMISSIONER CLODFELTER: I did not and don't know how it got raised. Sorry.

COMMISSIONER BROWN-BLAND: All right. Thank you. All right. No questions from any of the counsel there? Are there questions by the Commissioners?

Chair Mitchell?

CHAIR MITCHELL: I do have questions for

Mr. Hinton, if I may.

COMMISSIONER BROWN-BLAND: Go right ahead.

EXAMINATION BY CHAIR MITCHELL:

Q. All right. Mr. Hinton, really just two questions for you. One, in your testimony on pages 12 and 13 and perhaps elsewhere you reference avoided energy cost and avoided energy rates.

Do you mean "capacity" instead of "energy" there?

A. (John R. Hinton) Could you direct me to -- I hate to say it. When I talk about -- are you talking about -- his was just a rate, I mean, not -- yeah.

Q. I want to make sure I'm understanding your testimony correctly. So if you look at page -- so on page 12, line 21, you reference avoided energy cost rates.

A. Okay.

Q. Did you mean avoided capacity cost?

A. Correct.

Q. Avoided capacity cost?

A. Yeah.

Q. Okay. I want to make that change. And then it's the same thing on page 13. Look at lines 23 through 28.

A. Right. Yeah, I was confused, and I appreciate you seeing that. Reserve margin adder adds to the capacity costs associated with the EE programs.

Q. Okay. All right. That was my first question. That was an easy one.

The second one is sort of just a general question for you, but in your testimony -- again, I'm looking at page 13 -- you reference the Public Staff's position and the Commission's endorsement of that position, or the Commission's adoption of that position, that the savings and financial incentives that are made available to the DSM/EE programs should be linked to or based upon the PURPA-derived avoided capacity and energy costs and rates that are derived from those costs. So that's been -- that's been the position and the practice in the past.

At this point in time, is that still an appropriate position, or do we -- is it time to reconsider the way that savings and financial incentives are calculated for these DSM/EE programs?

A. I do not think there is time for a change, because if you are gonna make a change, you make it outside the cost metric. Avoided costs are vetted, and clarified, and examined thoroughly in the PURPA biennial proceedings. Those numbers are pre- -- they are without adjustment. They are more or less pure. Now, if the Commission wanted to step back and say we want to support more energy-efficiency programs or more DSM programs, then I would suggest something else, not just going through the rate, because what I testified to in the earlier proceedings of 1130 and all those proceedings was we switched from the IRP method of calculating avoided energy capacity rates to the PURPA method, and that transition was done largely because it added clarity to it.

The IRP was one that wasn't as thoroughly examined to all the different parties, and it was a planning tool. But when we talk about avoided energy cost rates or biennials or avoided energy cost rates from DSM/EE, that's a rate that's examined pretty thoroughly, I mean, because that's what we do here at the Public Staff. And that's what we present to the Commission, the Company argues, and the Commission rules on rates.

Now, how do we get there is different. Sometimes we get there through a PAF, sometimes we get there through seasonal adjustment action, but it's the rate that matters. And so my bias is always looking at rate. And that's the only reason I have a concern with the reserve margin matter, it changes the rate that customers pay for those benefits.

Q. Okay. Okay. Thank you.

CHAIR MITCHELL: I have nothing further.

COMMISSIONER BROWN-BLAND: All right. Any other questions from Commissioners for the Public Staff panel?

(No response.)

COMMISSIONER BROWN-BLAND: Not seeing any, I have a couple of -- I think these may be for witness Williamson, but witness Hinton, jump in if you need to.

EXAMINATION BY COMMISSIONER BROWN-BLAND:

Q. Does your understanding of the calculation of the reserve margin adder match the answer that we received from witness Duff?

A. (David M. Williamson) Are you referring to the equation that he placed in his rebuttal testimony or what he's discussed today?

Q. Yeah. I mean, in his filed testimony.

A. The way that I have interpreted his equation in his rebuttal testimony, essentially, the way that the avoided capacity rate was calculated before based off that 100 megawatts, times the avoided capacity rate, times that PAF factor, which Mr. Hinton would probably need to chime in on whether or not those last two factors are all the same or not. That -- that's my understanding of how the avoided capacity rate was calculated in the past. It's only recently, as in this rider proceeding, that I have noticed that it now appears to be that 100 megawatts, times the avoided capacity rate, times that PAF factor, now being multiplied by this reserve margin adder.

A. (John R. Hinton) May I add to that? I mean, there is really no difference between Mr. Duff's testimony on that topic and my testimony. It's a rounding issue, if nothing else. It's a compounding effect, 1.05 times 1.17. So we are in large agreement, as Mr. Duff says. There is no problem -- no disagreement between my testimony and Mr. Duff's testimony. Conceptually, we are on the same page. We just, of course, disagree with the application of it in this case.

Q. So that calculation that he -- your co-panelist just discussed, the 1.17 times the 1.05, that -- you agree with that?

A. Correct. That's -- I think he went back to one of my examples. I had that table. And I think the numbers 1.1 -- well 117 is the megawatt equivolent, or 119 is the megawatt equivolent. So there is virtually no difference here. Again, that's a rounding issue. 1.15 times 1.17 gives you a higher factor. Let me say it that way. So we don't disagree that the impact of values -- so raise the avoided capacity cost rate benefit. So now I'm using -- it starts with a cost, it goes to a rate, and then it goes to a benefit, and that's how I see it. And so it increases the megawatt valuation, that customer is gonna pay for that through the rates by 17 percent.

The 5 percent is -- now, I want to make clear one thing I said in my opening and in my summary. I used word "somewhat," and it's not that we want to find this clearly a reserve margin, just, as much as we alluded to, it evolved, but the impact of that is always the same, because you can take the avoided capacity cost rate, which basically, the carrying -- the financial carrying cost of the CT. And that year you are gonna pay X dollars to have that on your books, because that's all the fixed cost: insurance, capital cost, recovery, all aspects of it. And so that payment is gonna be higher by 17 percent, and it's also before or after -- before you do the 17 percent by the Company, you already increase by 5 percent through the PAF. It's an impulse spreadsheet calculation because the avoided energy is made with models and a lot of moving parts, but the avoided capacity can come on an Excel spreadsheet, and that's how -- if you go back and look at the filings, that's what you'll see.

If you go all the way back and look at my testimony of Sub 100 and Sub 136, you'll see a sample calculation of how the PAF is done with that, and the only change from that to today is that now there is a seasonal adjustment factor. And that seasonal adjustment factor of 90/10 goes directly to the rates. And that's what makes the dollar difference in my testimony. Roughly $4 million adjustment is all due to the 90/10 factor in the rates. I use the word "value" because I think customers should pay the capacity value that's avoided, and now that capacity value has been shifted from the summer to the wintertime, and I don't believe customers should pay a legacy rate unless they are getting their value of that avoided capacity, and it's not there like it was in the summertime, and that's the principal reason. I identify awareness, activations, identifying issues, that there is winter planning, the value of an added capacity is really focused on the summer -- excuse me, focused on the wintertime. It's no longer the summer days. There's been a change.

Q. All right. Now, in your testimony, you speak to -- from a resource planning perspective, DEC had a good theoretical basis for their position, but their logic was deficient from a ratemaking perspective.

So what's the logic there of not allowing the energy-efficiency avoided cost to reflect the full amount of capacity that's avoided due to the energy-efficiency programs?

A. Just largely comes down to -- it's two issues. One, as I explain in my Exhibit 1, the confidential one, the rates are different by 17 percent, and that delta grows over time. It's a rate disparity. So why should a customer pay more for reduction associated with an HVAC program or some other program than he does with a load control device? Okay.

The second of thing is that the Company originally filed their DSM programs, the Save-A-Watt in this format. They had the choice. Was it sensible to do it? And then Duke and Progress Energy did.

Progress Energy chose to put its EE and DSM services down in the supply side of the metrics, alongside generation. But Duke always insisted on putting it in the load forecast, which is the demand side, or demand-side angle.

Q. And you are referring to DEC --

A. Yes.

Q. -- as Duke?

A. Now, here's why I'm having to use my informed judgment. I believe they did that because they did not see an EE program as the same as a DSM program when it came to reduction and reducing, but one, DSM program is controlled by the Company. Utilities like control, so they are willing to shift it down to make a DSM program equivalent to a generator meter. Folks have no problem with that. But I believe that Duke, in its early days, felt that an EE program was not the same. It was valuable, but it wasn't the same value. And I believe that's -- I have no problem with that today. But they made that choice back in 2009, or '08, or whenever, when they started the Save-A-Watt Program, and they remained that way all through these years up until today.

May I say one last thing? I said in my

summary, and I'm just repeating myself. I will be brief. This adjustment is a major adjustment, and it should be done within the review mechanism. The review mechanism involves the Public Staff, Company, and numerous intervenors, and it's a large ordeal, and a lot of moving parts with that, as I list in my summary. So I don't think this should be done in isolation. That's my answer. So I'm done so far.

Q. Well, Mr. Hinton, if the Commission were to add a reserve margin adjustment, would it be enough to remove the performance adjustment factor from the -- Duke's calculation, or is it feasible to apply seasonal reserve margins to that actual season -- seasonally available energy efficiency?

A. I hate to say this but, Mr. Williamson -- I hate to say this, Ms. Bland, but could you repeat it one more time?

Q. All right. If the Commission were persuaded to add a reserve margin adder -- adjustment, would it be -- do you think it would be sufficient to just remove the PAF from Duke's calculation?

A. Oh, oh, no, I'm sorry.

Q. Or would it be feasible to apply seasonal reserve margins to Duke's actual energy seasonally available programs?

A. I think the Commission can do any of these adjustments that they see appropriate.

Q. What does the Public Staff think is appropriate or would be appropriate?

A. The Public Staff would say that -- acknowledges what Mr. Duff says, as a back-up plan, they will net out the reserve -- excuse me -- the reserve margin adjustment with a 5 percent, and then make it 11 percent, but the Public Staff believes that even that proposal should be done within the confines of the reserve margin mechanism, and I can't -- would not support that.

Q. Okay.

A. And the seasonal adjustment is really something separate.

Q. All right. I think Mr. Duff tried to tell me that too. He agreed with you, the stuff is separate.

So if we were interested in a formula that's more closely tied to the integrated resource plan and we were looking -- you know, we wanted to consider the utility's planning reserve margin in that, would an alternative to your proposal be -- would it be appropriate to take the capacity contribution of the energy-efficiency program and multiply that by a factor that reflects the utility as -- not only has to plan for assets equal to the demand that they serve, but also the reserve margin? Can you comment on that idea as an alternative?

A. So let me see if I can make sure I'm answering your question. Okay. When we calculate the avoided capacity cost, instead of using the 1.15 -- 1.05, you are saying tied to reserve margin planning, which would be effectively saying 1.17. So it would decrease the avoided capacity cost rate benefits from 1.5 [sic] factor to 1.17. And, again, Public Staff would not be supportive of that either.

Q. Is that, in part, because of what you just said about trying to do that with the mechanism that's being reviewed?

A. Yes. There is a lot of analysis done. The mechanism is a complicated exercise. It's not just a simple look at their earnings, and is it enough earnings to motivate the Company to push its DSM program. There are several moving parts. Mr. Maness' hands-down effort. He could testify to that.

A. (David M. Williamson) So, the mechanism -- I don't have it right in front of me, but my understanding is that the mechanism with regard to how we are applying these avoided benefits basically uses the avoided cost proceeding as the guide for calculating these avoided capacity benefits and avoided energy benefits. So changing how that calculation is determined would need to be something that would either need to be addressed in the mechanism or potentially addressed in the avoided cost proceeding, as far as how a reserve margin adder should be interpreted.

A. (John R. Hinton) Let me just add, the sharing rate is a big driver. And I believe the sharing rate -- and David can correct me if I'm wrong -- I believe it's 11.5 percent, and that has changed over time. That's been higher and lower. It's been divvied up between DSM and EE, but again, that's not my area of expertise, so David and Michael Maness welcome that principle. But that's one of the key drivers that need to be examined in concert with all the changes we are talking about today.

Q. All right. Thank you for that.

Witness Williamson, I wanted to ask you to comment on witness Evans' rebuttal regarding the Grid Improvement Plan and your recommendations there.

He indicated that any influence or any

interaction between the Grid Improvement Plan and the DSM programs would be in the usual -- already be in the usual reporting protocols, and it would already be captured. Do you have a response to that?

A. (David M. Williamson) As far as impacts from Grid Improvement Plan would be reflected in EM&V?

Q. Yes. Or any -- you know, the current reports that are being made.

A. So the EM&V --

Q. Am I right about that, or do you take issue with it?

A. The EM&V reports should reflect -- whenever there -- whenever they are assessing them, they should reflect the date and the time of the event that was caused, and they should be able to understand the amount of reduction that was experienced during that event and when they perform an EM&V report, because they don't activate DSM all the time, so they should be looking at all the events that occurred during that EM&V evaluation period. Generally, they try to keep it around a calendar year. So to answer your question, it should, as long as the -- the DSM -- as long as the activation of the DSM program is being reflected of whatever the value -- whatever the current load is, incorporating all of the other factors that are being in play; i.e., whatever type of -- whatever type of base load capacity is at. Does that answer your question?

Q. Well, do you stand -- in light of what he has stated in rebuttal testimony, do you stand by your recommendations that we need additional status reporting on the interaction between the Grid Improvement Plan and its impacts on DSM in these dockets, in these DSM/EE dockets?

A. I would. Regardless of whether or not it could be captured in EM&V, I would like to see how this -- because the Company is starting to transition. I mean, they made it pretty clear in their rate-case-type proceedings that they are making these enhancements towards -- like I was saying in my summary -- the capacity additions and T&D-type grid equipment, and part of the -- what we have to do, as far as reviewing this rider proceeding, is understanding all of the things that are impacting these DSM and EE programs, and what -- and how to ensure that they are being appropriately evaluated on a yearly basis, to make sure that their impacts are being reflected specifically because of their events or their contributions. One of the things that I look at are trends. And something that is changing with the utility's business model is they are making their business more efficient operationally. And so I'm just trying to ensure that they are getting everything that's tied to specifically these DSM and EE programs. I'm just trying to ensure that they are getting -- they are only getting those impacts associated with those DSM and EE programs.

Q. All right.

COMMISSIONER BROWN-BLAND:

Commissioner Hughes, I believe you had your hand up.

COMMISSIONER HUGHES: Yes. Thank you.

EXAMINATION BY COMMISSIONER HUGHES:

Q. I guess this is a question for Mr. Hinton, but I read in the testimony, and we heard it today, some comparisons between these programs and a QF, and there was some qualifications about that comparison. I didn't hear anyone say that they are exactly the same, but I did hear that that was justification, at least in some of the written testimony, for different approaches or different mechanisms. I just would like to make sure I understand the difference between the revenue flows and the cost recovery of a typical QF and a typical legacy EE program. So I'm hoping that you can just comment or confirm this, Mr. Hinton. I understand that what maybe you're proposing or what Public Staff is proposing is, moving forward in time, that revenue stream which is linked to the calculated value could change under this rule, and it hasn't changed in the past, but it could change; and I want to first confirm that your recommendation would result in, kind of looking forward, a change that didn't occur before. So, from a business standpoint, you would see an uneven revenue. So, potentially, could go up, could go down. And with a QF, most of the revenue flow is coming from a -- you know, the avoided cost contract rate, you know, and that's something in the air a little bit too, but that wouldn't necessarily change. But I do want to understand that, for these EE programs, that future revenue stream is just a component of the revenue coming in, whereas for a QF program, that future revenue stream, from what I can tell, is almost the entire revenue coming in for the -- for a QF investment. I just want -- it just seems like, one, because there is a lot of discussion about what is the driver for these decisions, and I just want to understand if I have the cost recovery mechanism down.

A. (John R. Hinton) Yes. With regard to a QF, there is a term contract, so everything sticks, and it's aboveboard, and it's gonna last the length of the term, which is now 10 years. And for --

COMMISSIONER BROWN-BLAND: Mr. Hinton, could you just make sure -- you are a little difficult to hear. Could you get a little closer?

THE WITNESS: Yes. I stepped away, Commissioner Brown-Bland. I'm sorry.

Yeah. Characterization of a QF contract is exactly that. It's a term, and it's all aboveboard, and both parties know what the -- what those factors are, and has entered into the contract. DSM/EE is different, as you know. It's an arrangement from just the utility. Of course, with QF power, it's money coming out of the companies being paid by the ratepayer -- leaving the companies and going to ratepayer, and that's with vetting the rates. For this DSM/EE, it's -- naturally, it's coming out of the rider. The issue about changing, you spoke about that.

Whenever we went to the -- years ago, 1130, I believe, when we went to the PURPA method, it actually goes back to I think a proceeding prior to that, we -- the Company, the Public Staff, and all the parties -- agreed that the reasonable way to look at avoided cost was allowing them to change and use the current one for each rider proceeding. Whatever was approved in the previous time. Okay. This is a change to seasonal adjustment factor, because we do not, as Mr. Duff explained, was not used in 2017. In 2016, the order wasn't out enough time. And so both the Public Staff and the Company did not push that issue, but now we are.

Now, is that the only change that's out there? No. If you look at some of my testimony, you see graphs of how avoided energy and avoided capacity rates change over time. Nothing is static. Because in the avoided capacity what changes is the sole cost per kW. So over the years I have been doing avoided cost, speaking of capacity in this realm, there have been a lot of efficiencies through CT construction. So now the more megawatt production per -- the cost per megawatt gets lower and lower because they keep gaining more and more efficiencies. And that's the principal driver why avoided capacity costs kept coming down, and they have been going down for about -- I'm guessing here, but I think 8 or 10 years. They tried new ways, now energy prices have come down. There is nothing firm, nothing guaranteed, but it's a DSM/EE program. The Company knows this, and they plan accordingly. They -- we have been discussing with the Company for years how they are gonna adjust the lower avoided cost -- avoided energy cost and the lower avoided capacity cost.

So it's my contention that the application of the seasonal adjustment factors for both future and legacy DSM programs is on par with the risks they knew when they went into this issue. They knew when they agreed to use an avoided cost that things were going to be in flux. And so I cannot accept that everything was static and perfect and didn't change up until the seasonal allocation factor. No. It's been changed all along. Does that answer your question?

Q. It does. I'm glad you got the word "risk" in the answer. Thank you.

A. Yeah. The Company knew there was a risk involved, but where is most of the risk gonna be at?

They're gonna get their program costs. I believe that David can speak to this better than I can, but they are getting their program cost, and some of the cost is the cost in factor, and even in its HVAC programs, you're not -- the Commission and the Public Staff has never recommended stop it right now. They stopped after numerous years. That's been the recommendation. Been several years of transition. And what does that do? That ameliorates the risk. I believe that's a fact.

Q. Thank you.

COMMISSIONER BROWN-BLAND: All right. Any other questions from the Commission? Scanning real quickly. All right.

Redirect, Ms. Luhr, Ms. Edmondson?

MS. EDMONDSON: I had a couple of questions.

COMMISSIONER BROWN-BLAND: All right.

REDIRECT EXAMINATION BY MS. EDMONDSON:

Q. Mr. Hinton, you were talking about the revenue stream with Commissioner Hughes just now, and as you said, the avoided costs do change for the legacy programs, right?

A. Correct.

Q. Doesn't the Company always get its program costs?

A. That's my understanding. I was deferring to Mr. Williamson if I was mistaken, but it's my belief that they get their program costs.

Q. Or reasonable and prudently incurred program costs?

A. Exactly.

Q. So what you are proposing would affect the Company's incentive; is that correct?

A. The PPI, yes, it would.

Q. And why is it appropriate that the incentive be affected?

A. Because, to me, the incentive -- the changing associated with the seasonal allocation has an impact on the PPI, because that's what's going to draw the Company to load more and more resources toward the wintertime. As I look at my testimony, I'm glad the Company has embarked on hiring a consultant to investigate winter DSM programs, but as was brought out by I think your cross examination, this issue is nothing -- it is not new. It's been a driving factor for several years. And so I think the shifting of seasonal allocation, just as it continues to push that incentive a little further.

Q. Would you agree with Mr. Duff, if you removed the PAF but left the reserve margin adder in, the adjustment would be 11.429 percent?

COURT REPORTER: I'm sorry. This is the court reporter. I missed that question. Could you repeat the question and answer?

MS. EDMONDSON: Sure.

COURT REPORTER: Thank you.

Q. Would you agree with Mr. Duff that, if you removed the PAF but left the reserve margin adder, the adjustment would be 11.429 percent?

A. That sounds correct. And, obviously, 17 minus 5 is 12, and then there is some adjustment process in Mr. Duff's calculations, and that sounds reasonable.

Q. Okay. And when there are new qualifications or parameters for how avoided cost should be applied to QFs, issued with each avoided cost order, such as seasonal allocation or no capacity credit when there is -- when capacity is not needed, or a reduction of the PAF, do you think it would be a good idea for the parties to the mechanism to get together to determine whether and how the qualifications or parameters on avoided costs should be applied to the avoided cost used for DSM/EE?

A. Yes. Everything needs to be done in concert. That's the question you're asking me, then yes. If you change -- as avoided costs evolve and change -- and there have been several changes over the years. As that rate changes, the Company has often argued, well, maybe we need to adjust the savings rate to make sure that we have the proper level and incentives. And the Public Staff had these conversations with the Company, and that's a factor that we consider. And intervenors are at the table, and they had their views as well.

Q. Thank you. And isn't it -- the revisions that we propose to the mechanism, they do not include these issues at this time; is that correct?

A. Correct.

Q. To the extent the Commission would want us to, it would not be a bad idea if they did address it; would you agree?

A. I hate to say it. Could you restate that one more time?

Q. Do you think -- if the Commission desires, do you think it would be a good idea if the revisions to the mechanism did address these issues?

A. Yes, I do, because you're -- I mean, I'm a finance person, and Mr. Maness with the Public Staff, he heads that effort on the shared mechanism and the sharing rate, but both those factors, as well as lost revenues, there is a lot of customers contribute a fair amount of money to compensate the Company for lost revenues. All those factors go into that revised -- the mechanism review.

Q. Okay. Thank you.

MS. EDMONDSON: I don't have any other questions. Ms. Luhr may.

MS. LUHR. I don't have any questions.

MS. FENTRESS: I do.

COMMISSIONER BROWN-BLAND: I was saying I incorrectly called it redirect a minute ago. That was questions on Commission's questions. And now I'm seeing Ms. Fentress.

MS. FENTRESS: Yes, I do. Thank you.

CROSS EXAMINATION BY MS. FENTRESS:

Q. Mr. Hinton, you testified -- I just want to make sure I understand your testimony. You testified that these changes that the Public Staff objects to ought to be made in the context of the mechanism; is that correct?

A. (John R. Hinton) That's one of the factors that I use in my argument against the reserve adjustment and the use of seasonal allocation only for future programs.

Q. So you're not objecting to the use of the seasonal allocation for new and incremental programs; is that correct?

A. No, I'm not. I want it done for both programs, both vintage or legacy -- I'm sorry, legacy and incremental.

Q. So your objection to its application to new and incremental programs doesn't have anything to do with whether this has been dealt with in the mechanism or not, you just don't have a problem with what we've done -- with what the Company's done with respect to new and incremental DSM programs?

A. Correct. And the reason is it goes back to my testimony. The value customers should pay for load reduction that provides capacity for DSM program should approximate its value to the Company. And currently, summer -- if you reduce the load in the summertime, it does have the same impact on their capacity planning. In other words, when they want to build a CT, they don't plan around building it to meet the summer load, they plan it for the winter load. So if you have got an AC -- a future program that you're developing for AC, and maybe you're changing the -- whatever, that program doesn't have the same value to customers that it did five years ago. Because back then the Company was summer peaking and summer planning. Now you're somewhat winter peaking and summer peaking, but you're clearly winter planning. And that's largely because of the solar generation that is owning a system now, the reserve margin studies continually show that the loss of load risk is associated with the wintertime. That is when capacity is needed. So my point about your incremental programs going forward, I support that because that shows that -- the true value of that load reduction.

Q. You support it even though it wasn't addressed in mechanisms?

A. The mechanism was done several years before this came about, I think, Ms. Fentress.

Q. But I'm talking about making a change to the calculation of avoided cost for purposes of determining cost-effectiveness and incentives, your argument had been, I believe, as you were speaking to the Commissioners, that you thought that changes like that ought to be made in the mechanism with intervenors, and

I'm just trying to clarify, you are okay with the change we made or that the Company made with respect to new and incremental, even though that was not provided for in the mechanism; is that correct?

A. Yes, that is correct. I will accept that.

Q. And I did want to ask one other clarifying question. I may have just misheard you. I think when you were speaking to Commissioner Hughes, and you were talking about QF revenues, and I heard you to say, and I might have misheard you, that the revenues -- the QF revenues are leaving the Company's earnings and going to the ratepayer -- the ratepayers pay QFs, correct?

A. Yes. That wasn't articulate there to the Commissioner.

Q. I just wanted to make sure I heard you correctly.

A. And that's a key issue. But, of course, PURPA is an odd proceeding, in that the onus is coming up with the right rate. So the ratepayers are indifferent, but yes, the ratepayers, you see it in the reports the county gets. They are paying that in the fuel costs, the payments for this energy -- avoided energy rates.

Q. And if a QF signed a PPA back in, I don't know, 2012, a 15-year PPA, and they had long-term fixed rates, I believe you testified that nothing is static. Those long-term fixed rates are going to be fixed for 15 years, regardless of any avoided cost proceedings that occur after that?

A. Correct. The avoided costs are set at the time the legally enforceable obligation is set. So that's when those rates are set. And they are locked in for the term of the contract. And -- so that's not in the course -- that's not how we do DSM/EE. We change it with the current avoided cost rates that started the year preceding them. Yes, I agree with you.

Q. I think that's all I have. Thank you.

COMMISSIONER BROWN-BLAND: All right. Anyone else from the intervenor side?

(No response.)

COMMISSIONER BROWN-BLAND: Okay. We have everybody. For the record, some of you may have noticed Commissioner McKissick appeared to be off, but he was not off. He had switched devices, and now he's back in, and I could see that he's there. Okay.

So Public Staff counsel, I will

entertain your motions.

MS. EDMONDSON: Yes. First, I wanted to -- well, we would move the testimony and exhibits -- or the exhibits into evidence of Mr. Hinton and Mr. Williamson.

COMMISSIONER BROWN-BLAND: That motion will be allowed, and the exhibits are now received into evidence from both Mr. Williamson and Mr. Hinton, and those items that were marked confidential when prefiled will remain so identified.

(Confidential Public Staff Hinton Exhibit 1, Public Staff Hinton Exhibit 2, Public Staff Williamson Exhibits 1 through 3, and Supplemental Williamson Exhibit 3, were admitted into evidence.)

MS. EDMONDSON: And, Presiding Chair, we will also note, on May 22, 2020, the Public Staff filed the testimony of Michael C. Maness, consisting of 18 pages and Appendix A of 3 pages, and Appendix B of 2 pages and Exhibit 1. And then on June 8th, Mr. Maness caused to be filed supplemental testimony consisting of six pages and 1 exhibit. All parties agreed to waive examination of him and the Commission has excused him from appearing. I move that the direct and supplemental testimony of Mr. Maness, appendixes, and exhibits be entered into the record as if given orally from the stand.

COMMISSIONER BROWN-BLAND: All right. That motion without objection would be allowed, and Mr. Maness' prefiled testimony, both supplemental and direct, will be received into evidence as if given orally from the stand, and the -- his appendixes are received as a part of that as well, and his exhibits are received in evidence and identified as they were marked when prefiled.

(Public Staff Maness Exhibit 1, Maness Revised Exhibit 1 were admitted into evidence.)

(Whereupon, the prefiled direct testimony and Appendices A and B and supplemental testimony of Michael C. Maness was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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. Gen. Stat. § 62-133.9 and Commission Rule R8-69	))))))	TESTIMONY OF MICHAEL C. MANESS PUBLIC STAFF – NORTH CAROLINA UTILITIES COMMISSION

May 22, 2020

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 12) proposed by Duke Energy Carolinas, LLC (DEC or the Company), in its Application filed in this docket on February 25, 2020, pursuant to N.C. Gen. Stat. § 62-133.9 and Commission Rule R8-69, as revised by the Supplemental Testimony and Supplemental Exhibits of DEC witness Carolyn T. Miller and the Supplemental Exhibits of DEC witness Robert P. Evans, filed on May 11, 2020.

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 12.

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 12 are all related to DSM and EE measures actually or expected to be installed or implemented during calendar years 2016-2021 (Vintage Years 2016 through 2021). Therefore, DEC has calculated each proposed Rider 12 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

[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.

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 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 witnesses Miller's and Evans's Supplemental Testimony and Exhibits, DEC has requested approval of 15 billing factors [including

[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.

the North Carolina Regulatory Fee (NCRF)] comprising Rider 12, which is to be charged for service rendered during the rate period January 1, 2021, through December 31, 2021. These proposed billing factors are set forth on Supplemental Miller Exhibit 1, Pages 1 and 2.

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

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.
Vintage Year 2021:	The year ended December 31, 2021.

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 2021, proposed Rider 12 includes billing factors (or components of billing factors) intended to recover estimated program costs and a PPI, as well as estimated

[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.

calendar year 2021 NLR, applicable to DSM and EE measures projected to be installed or implemented during Vintage Year 2021, all subject to future true-up;

2. For Vintage Year 2020, the proposed Rider includes billing factors (or components of billing factors) intended to prospectively recover estimated calendar year 2021 NLR associated with Vintage Year 2020 installations, subject to future true-up;

3. For Vintage Year 2019, the proposed Rider includes billing factors (or components of billing factors) intended to: (a) prospectively recover estimated calendar year 2021 NLR associated with Vintage Year 2019 installations, subject to future true-up; and (b) true up 2019 program cost and, to the extent evaluation, measurement, and verification (EM&V) of these results has been completed, Vintage Year 2019 participation and per-participant avoided cost savings and calendar year 2019 NLR;

4. For Vintage Year 2018, the proposed Rider includes billing factors (or components of billing factors) intended to: (a) prospectively recover estimated calendar year 2021 NLR associated with Vintage Year 2018 installations, subject to future true-up; and (b), to the extent EM&V of these results

has been completed, true up Vintage Year 2018 participation and per-participant avoided cost savings and calendar years 2018 and/or 2019 NLR;

5. For Vintage Year 2017, the proposed Rider includes billing factors intended to, to the extent EM&V of these results has been completed, true up calendar years 2017, 2018, and/or 2019 NLR; and

6. For Vintage Year 2016, the proposed Rider includes billing factors intended to true up calendar year 2019 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 $114.8 million, an approximate $8.0 million increase over the revenue that would be produced by the rates currently in effect. The increase in the monthly bill of a Residential customer using 1,000 kilowatt-hours of energy resulting from this revenue requirement increase would be $0.36. For the Non-Residential class, the proposed overall combined revenue requirement is approximately $101.2 million, an approximate $12.6 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, 2019. 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 12 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 recently 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 2019 Program Costs</u> – The Public Staff's review of the selected sample items from the population of 2019 DSM/EE program costs resulted in one exception. This exception is related to certain adjustments that the Company made to its DSM/EE program costs in last year's DSM/EE rider proceeding, Docket No. E-7, Sub 1192.

In that proceeding, both the Company and the Public Staff made adjustments to the program costs included in the calculation of Rider 11 to incorporate certain credits to Vintage Year 2018 North Carolina retail program costs that were not actually recorded in the Company's general ledger until 2019. Thus, when the time came to calculate Vintage Year 2019 North Carolina retail program costs for purposes of Rider 12 to be set in this proceeding, the Company rightly undertook to reverse the credits recorded in the general ledger in 2019 that had already been reflected in the Rider 11 calculation. However, during the course of its investigation in this case, the Public Staff determined that the Company had inadvertently calculated a greater reversal than it should have, thus overstating North Carolina retail Vintage Year 2019 program costs by approximately $725,000. After discussion, the Company informed the Public Staff that it agreed with the adjustment, and subsequently incorporated it into witnesses Evans and Miller's Supplemental Testimony and Exhibits. It should be noted that these reductions in Vintage Year 2019 program costs will also result in an approximate $83,000 increase in the Vintage Year 2019 PPI.

As noted previously, the Public Staff's review of samples of Vintage Year 2019 program costs is not yet completed. Once the review is completed, the Public Staff will file supplemental information in this proceeding setting forth the results of the review, including any concerns, issues, or necessary adjustments found; 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 in future proceedings.

Q. WHAT IS THE IMPACT OF THE TESTIMONY OF PUBLIC STAFF WITNESSES WILLIAMSON AND HINTON ON YOUR CONCLUSIONS REGARDING THE DSM/EE RIDERS IN THIS PROCEEDING?

A. Public Staff witnesses Williamson and Hinton have each filed testimony and exhibits in this proceeding that recommend certain changes to the calculations of avoided cost savings for estimated Vintage 2021 DSM/EE participation. The first change involves the elimination of a reserve margin that the Company has added to the avoided capacity benefits for Vintage 2021 EE measures. The second involves the allocation of avoided capacity benefits between summer and winter for the Company's Vintage 2021 DSM measures. These changes affect the PPI recommended by the Public Staff in this proceeding. Mr. Williamson has calculated the system-level impacts of these avoided cost savings recommendations and provided them to me. I have taken his calculations and calculated their impact on the Vintage 2021 DSM/EE riders. The results of my calculations are set forth in Maness Exhibit I.

Mr. Williamson has also filed testimony in this proceeding discussing several other 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. WHAT ARE THE IMPACTS OF THE PUBLIC STAFF'S RECOMMENDATIONS ON THE COMPANY'S PROPOSED VINTAGE 2021 DSM AND EE RIDERS?

A. The table below sets forth the Public Staff's recommended Vintage 2021 prospective factors, as calculated in Maness Exhibit I, and the Company's proposed factors, as set forth in Company witness Miller's Exhibit 1:

Billing Factor	Proposed by Company (In cents per kWh)	Recommended by Public Staff (In cents per kWh)
Res. DSM/EE factor	0.4184	0.4068
Non-Res. EE factor	0.3522	0.3495
Non-Res. DSM factor	0.1200	0.1037

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE RIDER 12 BILLING FACTORS.

A. In summary, I have identified one program cost adjustment that should be made to the Rider 12 DSM/EE revenue requirement and flowed through to the DSM/EE billing factors; the Company has reflected this adjustment in its Supplemental Testimony and Exhibits. Additionally, I have calculated the effects on the Vintage 2021 DSM and EE Riders of the adjustments to avoided cost savings recommended by Public Staff witnesses Williamson and Hinton. Other than these adjustments, the Public Staff has found no errors or other issues necessitating an adjustment to the Rider 12 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 explained in Public Staff witness Williamson's testimony, as part of the Company's Residential SmartSaver Program, it operates a referral channel (entitled "FinditDuke" for marketing purposes). This referral channel enables DEC customers and others to locate contractors who may be able to provide certain services. The contractors pay a fee to DEC for performing referrals, and this fee is used to offset some of the program costs of the SmartSaver program. The referable services include those that are associated with measures under the SmartSaver Program, but have been expanded since the referral channel began to include other services, including

Plumbing, Solar, and Tree Removal unrelated to DSM/EE. It appears possible that some of the services that could be referred through FinditDuke are services that are not regulated by the Commission. Thus, DEC may be operating a referral service that includes referrals for non-regulated services to be performed by third parties. The Public Staff is not making a recommendation for any adjustment related to the possible non-regulated service-related component of the referral program, but has begun and will continue to examine and review it, and reserves the right to address it in a future proceeding.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

APPENDIX A
PAGE 1 OF 3

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.[1]

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

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[1] 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."

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-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

QUALIFICATIONS AND EXPERIENCE

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.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1230

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. Gen. Stat. § 62-133.9 and Commission Rule R8-69	))))))	SUPPLEMENTAL TESTIMONY OF MICHAEL C. MANESS PUBLIC STAFF – NORTH CAROLINA UTILITIES COMMISSION

June 8, 2020

Q. MR. MANESS, WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL TESTIMONY?

A. The purpose of my supplemental testimony is (a) to present corrected calculations of certain billing factors included in the Demand-Side Management/Energy Efficiency (DSM/EE) rider (Rider 12) to be approved in this proceeding, and (b) to present the final results of the Public Staff's review of Vintage Year 2019 DSM/EE program costs.

Q. PLEASE EXPLAIN YOUR CORRECTED CALCULATIONS.

A. As noted in my initial Direct Testimony filed in this proceeding on May 22, 2020, Public Staff witnesses Williamson and Hinton each filed testimony and exhibits in this proceeding that recommended certain changes to the calculations of avoided cost savings for estimated Vintage 2021 DSM/EE participation. One of their recommendations involved the allocation of avoided capacity benefits between summer and winter for the Company's Vintage 2021 DSM measures. I used Mr. Williamson's calculations of system avoided capacity benefits reflecting these recommendations to calculate the Portfolio Performance Incentive (PPI) and the DSM/EE billing factors initially recommended by the Public Staff in this proceeding.

In his Rebuttal Testimony filed in this proceeding on June 1, 2020, Company witness Timothy J. Duff stated that the reduction in the PPI of $5,093,947 recommended in my testimony and exhibits failed to take into account the Company's correction of a "scrivener error" in a formula related to the Power Share Program, a correction that the Company had provided in a data response on May 18, 2020. A reexamination of this response and further discussion with the Company persuaded the Public Staff that the Company's assertion was correct. Mr. Williamson has provided me with revised calculations of system avoided capacity benefits reflecting this correction, which I have now incorporated into my recommended billing factors.

Additionally, Mr. Williamson has provided me with a revised calculation of avoided capacity, energy, and transmission and distribution benefits associated with the Income-Qualified Energy Efficiency Program. I have incorporated these revisions into my calculations, even though the Income-Qualified Energy Efficiency Program does not receive a PPI.

Q. HOW ARE YOU PRESENTING THE CORRECTIONS?

A. The revised and corrected amounts and billing factors are set forth in Maness Revised Exhibit I, which is attached to this Supplemental Testimony. The inputs to each schedule in the Revised Exhibit that have changed from those in witness Miller's and Evans's Supplemental Exhibits have been noted by the initials "rv."

Q. WHAT ARE THE IMPACTS OF THE PUBLIC STAFF'S RECOMMENDATIONS ON THE COMPANY'S PROPOSED VINTAGE 2021 DSM AND EE RIDERS?

A. The table below sets forth the Public Staff's corrected and revised recommended Vintage 2021 prospective factors, as calculated in Maness Revised Exhibit I, and the Company's proposed factors, as set forth in Company witness Miller's Supplemental Exhibit 1:

	(In cents per kWh)	
Billing Factor	Proposed by Company	Recommended by Public Staff
Res. DSM/EE factor	0.4184	0.4099
Non-Res. EE factor	0.3522	0.3495
Non-Res. DSM factor	0.1200	0.1084

Q. WHAT IS THE CORRECTED AND REVISED IMPACT ON THE PPI OF THE PUBLIC STAFF'S RECOMMENDATIONS?

A. The corrected and revised impact on the PPI of the Public Staff's recommendation to adjust seasonal weightings of avoided capacity benefits associated with DSM programs is $(3,624,753), as compared to the amount of $(5,093,947) initially set forth in Mr. Hinton's direct testimony. However, the PPI impact of the Public Staff's recommendation to remove inappropriately added reserve margins to the avoided cost savings of EE programs remains at $(618,791).

Q. HAS THE PUBLIC STAFF COMPLETED ITS REVIEW OF VINTAGE 2019 DSM/EE PROGRAM COSTS?

A. Yes. As noted in my initial Direct Testimony, the Public Staff's review of samples of Vintage Year 2019 program costs was not yet completed at the time of filing. However, the Public Staff has now completed its detailed review of test year program costs and, other than the item already described in my initial Direct Testimony and adjusted by the Company in its supplemental testimony, has found no material differences between the program costs as filed by the Company and the costs as reflected in the supporting documentation examined.

Q. WHAT IS YOUR REVISED RECOMMENDATION IN THIS PROCEEDING?

A. Based on the results of the Public Staff's investigation, I recommend that the Public Staff's recommended adjustments, which have been incorporated into the DSM/EE billing factors set forth in Maness Revised Exhibit I, be approved by the Commission. 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. DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?

A. Yes, it does.

MS. EDMONDSON: That concludes our case.

COMMISSIONER BROWN-BLAND: Thank you. So witnesses Hinton and Williamson, you may be excused.

And we can now come back to intervenor -- the joint intervenors.

Mr. Neal?

MR. NEAL: Thank you, Presiding Chair Brown-Bland.

COMMISSIONER BROWN-BLAND: Just a moment, Mr. Neal. Let me check in just a moment with my court reporter. Madam Court Reporter, are you good to go or do you need a break? This is our last witness.

COURT REPORTER: I can make it through the last witness. No problem.

COMMISSIONER BROWN-BLAND: Famous last words.

COURT REPORTER: Thank you for asking.

COMMISSIONER BROWN-BLAND: All right. Okay. Mr. Neal?

MR. NEAL: Thank you. At this time, the North Carolina Justice Center, North Carolina Housing Coalition, and Southern Alliance for Clean

Energy would like to recall Mr. Forest Bradley-Wright to the stand, who I believe has already been sworn.

COMMISSIONER BROWN-BLAND: That is correct. So you may pick up. I think you were just beginning to identify him.

MR. NEAL: Thank you.

FOREST BRADLEY-WRIGHT,

having previously been duly affirmed, was examined and testified as follows:

CONTINUED DIRECT EXAMINATION BY MR. NEAL:

Q. Could you please give your full name, title, and business address?

A. Absolutely. My name is Forest Bradley-Wright. I'm the energy-efficiency director for the Southern Alliance for Clean Energy. Address is 3804 Middlebrook Pike, Knoxville, Tennessee 37921.

Q. Now, Mr. Bradley-Wright, on May 22nd, did you submit for prefiling in this docket direct testimony consisting of 44 pages along with eight exhibits?

A. Yes, I did.

Q. And do you have any changes or corrections to your prefiled testimony?

A. I do. I have three small changes. The first is on page 15, line 13. It will be just after bullet point 1. The word "should" needs to be added in, such that it would read, "The Commission should direct DEC to explain future forecast declines and show what steps are being taken to prevent them."

The second correction is on page 29, line 8, and here again, there are two words missing, so that the complete sentence should read, "DEC's finding these contributions to be of sufficient merit that I hope," those would be the additions, "it will develop them further and potentially submit them to the Commission for approval."

The third correction is on page 39, and it's footnote 33. There is a word that needs to be replaced. Where it presently says "program," it should say "problem," such that the sentence would read, "A primary reason for this proposed change was a perceived problem with use of the TRC."

Those are the only changes that I have.

Q. Thank you. Other than the corrections that you just gave, if the questions to you in your testimony were asked at the hearing today, would your answers be the same?

A. Yes, they would.

Q. And were the exhibits to your testimony prepared by you or under your direction?

A. Yes, they were.

MR. NEAL: Presiding Chair Brown-Bland, at this time, I would move to have Mr. Bradley-Wright's prefiled direct testimony, as corrected, entered into the record as though given orally from the stand, and to have the exhibits attached to his prefiled testimony identified as premarked FBW 1 to FBW 8.

I think you're on mute.

COMMISSIONER BROWN-BLAND: Broke my own rule. End of the day. About to make it through. That motion will be allowed, there being no objection, and the exhibits that were prefiled with the testimony will be identified as they were marked when prefiled.

(FBW Exhibits 1 through 8 were identified as they were marked when prefiled.)

(Whereupon, the prefiled direct testimony of Forest Bradley-Wright was copied into the record as if given orally from the stand.)

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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	)))))	**DOCKET NO. E-7, SUB 1230**

DIRECT TESTIMONY AND EXHIBITS OF

FOREST BRADLEY-WRIGHT

ON BEHALF OF

THE NORTH CAROLINA JUSTICE CENTER, NORTH CAROLINA HOUSING COALITION, AND SOUTHERN ALLIANCE FOR CLEAN ENERGY

May 22, 2020

TABLE OF CONTENTS

EXHIBITS

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, the North Carolina Justice Center ("NC Justice Center"), and the North Carolina Housing Coalition ("NC Housing Coalition").

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 Company, 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 THE NORTH CAROLINA UTILITIES COMMISSION?

A. Yes, I filed expert witness testimony in response to Duke Energy Carolina's ("DEC") DSM/EE Recovery Rider 11 in Docket No. E-7, Sub 1192 and Duke Energy Progress' ("DEP") DSM/EE Recovery Rider 11 in Docket No. E-7, Sub 1206.

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 and in the five-year energy efficiency goal setting proceeding before the Florida Public Service Commission in 2019 for Florida Power & Light, Gulf Power, Duke Energy Florida, Jacksonville Electric Authority and Orlando Utilities Commission.

II. Testimony Overview

Q. PLEASE SUMMARIZE YOUR TESTIMONY AND OVERALL IMPRESSIONS OF DEC'S 2019 DSM/EE PERFORMANCE AND 2021 FORECAST.

A. My testimony provides a review of DEC's DSM/EE portfolio performance in 2019, gives reactions to the Company's efficiency saving forecast for 2021, updates the Commission regarding ongoing activities at the Duke Energy Collaborative, and identifies connections between this proceeding and related public policy matters. Overall, I give DEC high marks for their DSM/EE performance, which continues to make the company a leader in the Southeast. Even with good performance results in 2019, I see a number of opportunities for improvement and raise concerns regarding DEC's projected savings decline for 2021. My testimony highlights the following observations:

- In 2019, DEC achieved 0.98% annual efficiency savings, a small decline from 2018 when adjusted for growth in retail sales. It delivered strong financial returns to customers with a net present value of $437,661,769 through a diverse set of highly cost-effective programs.
- DEC should be commended for these achievements and for making significant gains in delivering savings to low income customers. There are, nevertheless, issues concerning both residential and non-residential performance trends that warrant attention.
- DEC's 2021 forecast shows a disappointing decline down to 0.89% annual savings, marking a further slide from past performance when savings exceeded 1.0%. The Company provided little explanation for

these projected declines in savings. Nor did DEC indicate whether any steps are being taken to prevent savings declines in the future.

- Subsequent to DEC's filing, the COVID-19 pandemic has fundamentally transformed the landscape for energy efficiency, while the associated economic turmoil is greatly expanding the need for programs that reduce customer energy bills. There is an urgent need to address these issues and the looming challenge of customers being unable to pay their monthly bills.
- The Collaborative continues to work hard to support increases in savings across DEC's DSM/EE portfolio. DEC has been highly engaged, responsive to stakeholder information requests, and is showing increasing initiative to work with Collaborative members to develop new efficiency programs. Last year's work built a foundation for current Collaborative priorities and I anticipate that we will experience increased savings attributable to those efforts.
- I identify a number of related policies with important implications for DSM/EE including integrated resource planning, program modifications, performance incentive mechanisms, cost benefit tests, rate cases, and rider proceeding for DEC's sister company Duke Energy Progress.

Q. WHAT RECOMMENDATIONS DO YOU HAVE FOR DEC?

A. In my testimony, I provide the following recommendations to DEC:

- Provide details to the Collaborative from the 5-year program planning projections that the Company is using as inputs for their DSM/EE modeling in the 2020 IRP.
- Continue to work with the Collaborative to refine its data reporting so that Collaborative members can better understand program and portfolio performance and identify opportunities and solutions that lead to expanded efficiency savings.
- Work with Collaborative members to establish and utilize project deadlines and create work products for select activities.
- Provide carbon emissions reduction figures associated with achieved savings (annual and cumulative) in its annual rider filings and correlate those reductions to Clean Energy Plan emissions reduction targets and the Company's own corporate carbon emissions reduction goals.

Q. WHAT RECOMMENDATIONS DO YOU HAVE FOR THE COMMISSION?

A. In my testimony, I provide the following recommendations to the Commission:

- Request a report from the Collaborative by January 31, 2021 that would "examine the reasons for the forecasted declines in 2020, and explore options for preventing or correcting a decline in future DSM/EE savings," as requested by the Commission in its 2019 DEC DSM/EE Rider Order, with the recommendation that such a report include consideration of projected declines in 2021 as well. Putting a date on this request and showing that the Commission would welcome such a report will provide additional focus and momentum for such efforts at the Collaborative and provide valuable information to help DEC sustain levels of energy savings as least as high as it has achieved in recent years.

- Direct DEC to explain future forecast declines, when applicable, and show what steps are being taken to prevent them in future rider filings. If forecasts savings levels are lower than those reported in recent years, DEC will provide a clear explanation for the reductions – indicating specific factors driving the declines and an indication of which programs are impacted by those factors and how much.
- Direct Duke to provide a detailed plan to achieve 1% annual savings in its next annual DSM/EE Rider filing, reflecting the Company's best effort to balance cost with strategies to deliver meaningful savings for customers.
- Express affirmative support for DEC to pursue higher savings for low-income customers, with correspondingly higher budgets for programs directed at low-income households.
- Direct DEC to provide a plan in its next DSM/EE Recovery Rider filing showing how it plans to ramp up low-income efficiency savings over the next 3-5 years. Such a plan should include strategies for addressing energy burdens with deep efficiency savings as well as neighborhood style approaches that reach large numbers of customers.
- State its support for deploying targeted energy efficiency programs to help customers mitigate the impact of COVID-19 and direct DEC to

submit a specific plan by July 31, 2020 that includes proposed modified program budgets, savings goals, and customer targeting strategies – with a specific emphasis placed on customers who are elderly, disabled, have high energy burdens, and who lost their employment as a result of the pandemic.

III. <u>DEC's 2019 Energy Savings Performance</u>

Q. HOW DID DEC'S PERFORMANCE IN 2019 COMPARE TO PREVIOUS YEARS?

A. Duke Energy Carolinas continues to be a regional leader for energy efficiency in the Southeast, though the company reported a decline in savings for 2019, falling below 1% annual savings in comparison with the prior year's retail sales. This follows two years, 2018 and 2019, when the Company exceeded the 1% savings mark. In 2019, DEC delivered 794.9 gigawatt-hours ("GWh") of efficiency savings at the meter, equal to 0.98% of the previous year's retail sales.[1] This reflects a 2% decline in incremental savings from 2018,[2] when DEC reported 811.2 GWh and annual savings of 1.05% of the previous year's retail sales.[3] While reported efficiency savings declined, retail sales increased by 5%, causing annual savings as a percentage of retail sales to decline by a total of 7% from 2017 to 2018.

Q. HOW DID DEC'S PERFORMANCE COMPARE TO ITS PROJECTIONS FOR 2019?

[1] Duke Energy Carolinas Response to NCJC *et al* First Data Request, Item No 1-14 in Duke Energy Carolinas DSM/EE Rider Docket (E-7, Sub 1230) (Attached as Exhibit FBW-2)
[2] Duke Energy Carolinas Response to SACE / CCL to SACE Data Request Item No 2-2 in Duke Energy Carolinas DSM/EE Rider 11 (2019-89-E) (Attached as Exhibit FBW-2)
[3] DEC reports energy savings as "Net at Plant" or at the generator level.

A. In 2019, DEC's portfolio of programs exceeded its savings projections by roughly 8%.[4] All of the Company's residential programs exceeded savings projections made by DEC in DSM/EE Rider 10. The performance of the Income-Qualified Energy Efficiency and Weatherization Program is particularly worthy of recognition and praise, having significantly exceeded projections and program performance in previous years as discussed further below.

Q. WAS THE COMPANY'S EE PORTFOLIO COST-EFFECTIVE IN 2019?

A. Yes. The value of DSM/EE programs continues to significantly exceed the costs and deliver strong financial value to customers. In 2019, DEC's DSM/EE portfolio had a Utility Cost Test ("UCT") result of 2.91 and a Total Resource Cost ("TRC") test result of 2.69. However, with lower kWh saved and lower avoided costs, the total net present value ("NPV") of avoided cost in 2019, while still significant, declined to $437,661,769.[5]

Q. HOW DID DEC'S RESIDENTIAL PROGRAM PEROFRMANCE COMPARE TO ITS PROJECTIONS FOR 2019?

A. Residential programs made up the majority savings in DEC's portfolio at 68% of total savings in 2019. Within DEC's residential portfolio, the largest savings came from My Home Energy Reports and large amounts of lighting measures in the Energy Efficient Appliances and Devices program. In 2018, Mr. Neme of Energy Futures Group provided testimony on behalf of the NC Justice Center, SACE, and the Natural Resources Defense Council in DEC's 2018 Application

[4] Evans Exhibit 1, Page 5 filed in NCUC Docket No. E-7, Sub 1164.
[5] Duke Energy Carolinas Response to NCJC *et al* First Data Request, Item No 1-4 in Duke Energy Carolinas DSM/EE Rider Docket (E-7, Sub 1230) (Attached as Exhibit FBW-4)

for its DSM/EE Rider (Docket No. E-7, Sub 1164),[6] noting that the heavy reliance on these types of measures was cause for concern, especially in light of changing federal lighting standards. This concern is magnified by recent information presented to the Collaborative by DEC's Market Potential Study consultant, which suggested that behavioral efficiency programs like MyHERs are seen as comprising the overwhelming majority of 5-year cumulative achievable efficiency potential. Mr. Neme recommended a focus on deeper and longer lived measures to maintain a more balanced and robust program going forward, a view that I share and have testified to in the past.[7] I am not suggesting that the Company forego savings currently being captured by DEC's current portfolio. Rather, more focus must be placed on adding or modifying programs targeting the largest energy end uses – such as heating and cooling and water heating.

Q. HOW DID DEC'S NON-RESIDENTIAL PROGRAM PERFORMANCE COMPARE TO ITS PROJECTIONS FOR 2019?

A. Non-residential programs achieved significantly less savings than projected. Each program delivered savings below projected levels, except for the Non-Residential Smart Saver Energy Efficiency Lighting program.

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

[6] Testimony of Chris Neme on Behalf of NC Justice Center, Natural Resources Defense Council, and Southern Alliance for Clean Energy, N.C.U.C. Docket No. E-7, Sub 1164, pp. 27-36 (May 22, 2018).
[7] Testimony of Forest Bradley-Wright on Behalf of the North Carolina Justice Center and Southern Alliance for Clean Energy, N.C.U.C. Docket No. E-7, Sub 1192 (May 20, 2019).

A. In 2019, approximately 60% of the non-residential load opted out of DEC's energy-efficiency rider.[8] This was a further erosion from 2018, when opt-outs comprised 56% of total non-residential load, with most of the additional loss occurring in North Carolina (up from 51% in 2018). As noted in previous testimony, this continued slide reflects a large lost opportunity for capturing additional energy savings from Duke's efficiency programs.[9] Because commercial and industrial efficiency savings can be among the most economically viable, greater savings among these customers would likely translate into even higher utility-system cost reductions.

Q. IS IT NOT TRUE THAT OPT-OUT CUSTOMERS ARE REQUIRED TO CERTIFY THAT THEY IMPLEMENT ENERGY EFFICIENCY MEASURES?

A. While I 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 and nothing in DEC's filing indicates the extent to which such savings are occurring. As a result, actual savings among customers who opt out of DEC's efficiency programs may be much lower than presumed.

[8] Duke Energy Carolinas Response to NCJC *et al* First Data Request, Item No 1-16 in Duke Energy Carolinas DSM/EE Rider Docket (E-7, Sub 1230) (Attached as Exhibit FBW-5)

[9] 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.

Q. IS IT REASONABLE TO INCLUDE SALES TO OPTED OUT CUSTOMERS IN YOUR CALCULATION OF DEC'S SAVINGS ACHIEVEMENT AS A PERCENT OF SALES?

A. Yes. It is important for the Commission and stakeholders to understand the actual impact on total load that energy efficiency program savings have. The Commission and lawmakers should understand how the opt-out provisions decrease overall savings. Adjusting to exclude the usage of non-residential opt-outs from total annual sales, DEC's total portfolio savings as a percentage of adjusted sales in 2019 was 1.56%, compared to 0.98% overall when the sales from opted-out customers are included in the equation.[10]

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

A. In 2019 total savings from the DEC Income-Qualified Energy Efficiency and Weatherization Assistance program and Neighborhood Energy Saver program increased by 30% over the previous year, continuing a trend of steady annual growth.[11] Combined, these programs reached 10,814 households in 2019, slightly more than the previous year. Savings per living unit jumped significantly from 488 kWh in 2018 to 835 kWh in 2019. While the increase in total savings is driven primarily by strong performance in the Neighborhood Energy Saver program, DEC's progress with the Income-Qualified Energy Efficiency and Weatherization program are also significant. The Income-Qualified Weatherization program achieved more than double the projected

[10] Duke Energy Carolinas Response to NCJC *et al* First Data Request, Item No 1-14 in Duke Energy Carolinas DSM/EE Rider Docket (E-7, Sub 1230) (Ex. FBW-2)
[11] Duke Energy Carolinas Response to NCJC *et al* First Data Request, Item No 1-2 in Duke Energy Carolinas DSM/EE Rider Docket (E-7, Sub 1230) (Attached as Exhibit FBW-6)

savings and marked a 73% increase from the year before.[12] At least some of that growth came from a newly piloted approach:

> "Direct Weatherization Pilot: In 2018-2019, a Direct Weatherization pilot was executed in a high-density area within DEC shown to have a significant low-income customer base. Through the use of internal customer data, high-energy use accounts with low-income indicators were targeted through direct mail and invited to apply for weatherization and refrigerator replacement programs. Through initial letters with follow-up postcards and a toll-free customer number, customers expressed their interests and follow-up appointments were set. Determination as to whether the program is to continue is pending."[13]

Since this was a pilot, it has the potential to provide significant insights that could be adapted to future deployment of low-income energy efficiency program. I recommend that DEC provide a report to the Collaborative describing the specific budget and operational approaches utilized, a detailed explanation of impact results, specific lessons learned, and recommended next steps.

DEC has made increasing savings for low-income customers a priority, as evidenced by the program's marked improvement in 2019. I strongly encourage Duke to continue pursuing this objective, and support this effort alongside a robust group of interested advocates who have made increasing efficiency savings for low-income customers a central priority for the Collaborative over the past two years. I offer a variety of suggestions below and look forward to continued progress in this area.

[12] Evans Exhibit 6, page 5
[13] Evans Exhibit 6, page 6

IV. Issues and Recommendations Regarding Duke's 2021 Savings Forecast

Q. WHAT LEVEL OF SAVINGS DOES DEC PROJECT FOR 2021?

A. Duke forecasts 715.7 GWh of incremental savings for 2021, which is equivalent to 0.89% of annual retail sales.[14] This projection represents a significant and unfortunate decline of approximately 10%, from DEC's 794.9 GWh in 2019[15] and a drop of 16% from the recent 854 GWh high point achieved in 2017, when savings were 1.07%[16] of annual sales. As noted above, Duke narrowly missed achieving 1% savings in 2019, but unless changes are made to the company's current plan it will fall further below this threshold in 2021.

Q. TO WHAT FACTORS DOES DUKE ATTRIBUTE ITS PROJECTED FUTURE SAVINGS DECLINE?

A. While Duke does not directly address the difference between its 2021 forecast and the 1% annual savings threshold, Mr. Evans's testimony does attribute future declines generally to changes in the company's avoided cost used to calculate cost effectiveness, updated participation estimates, and EM&V results.[17] Mr. Evans's testimony also notes the discontinuation of two non-residential programs, but they accounted for a small portion of efficiency portfolio savings (only 0.5% of the total). In discussions at the Collaborative, Duke indicated that changes in expectations regarding future savings from lighting measures also factor heavily in projected reductions in DEC's future

[14] Duke Energy Carolinas Response to NCJC *et al* First Data Request, Item No 1-14 in Duke Energy Carolinas DSM/EE Rider Docket (E-7, Sub 1230) (Ex. FBW-2)
[15] *Id.*
[16] 2018 Testimony of Chris Neme in NCUC Docket No. E-7, Sub 1164, page 7.
[17] Testimony of DEC Witness Robert Evans, pp. 11 and 18.

savings forecasts. From a recent presentation to Collaborative, the pending Market Potential Study counts on very little additional savings from residential lighting measures. This anticipated drop in savings is particularly significant given Mr. Evans's acknowledgement that lighting measures have contributed greatly to Duke's overall portfolio savings in the past and are identified as having produced a substantial portion of the avoided cost savings Duke achieved in excess of their previous 2019 forecast in Rider 10.[18]

Q. DOES DEC ADEQUATELY EXPLAIN THE PROJECTED DECLINE AND THE STEPS IT IS TAKING TO INCREASE SAVINGS FOR 2021 AND BEYOND?

A. Too little attention is given to explaining the forecasted decline in the Company's filing, and there is no indication of the steps DEC is or could be taking to keep savings levels up. When DEC projects declines in savings, as it does for 2021, the Company should provide a clear explanation of the reasons for that decline. This has not been done. Given the interest stakeholders and the Commission have shown for *increasing* savings going forward, DEC should provide a substantive explanation for what steps the company is taking to reverse declines and achieve savings at that at least match those it has previously accomplished.

Q. PLEASE PROVIDE YOUR REACTION TO DEC'S PROJECTIONS.

A. I am disappointed that DEC is projecting savings that are less than it achieved in 2019 and substantially below the savings the company achieved in 2017 and 2018. In Rider 10, Duke had projected a decline to 0.95 for 2019 but achieved

[18] *Id*. at 15

0.98%. With such a result, DEC could have reached 1% savings, or the even higher savings levels it achieved in 2017 and 2018. Going forward, clear direction from the Commission could encourage Duke to find additional savings even if they are harder to achieve.

Q. WHAT SUGGESTIONS DO YOU HAVE FOR DEC AND THE COMMISSION TO ADDRESS SUCH DECLINES IN THE FUTURE?

A. Last year, the Commission noted the forecasted decline in 2020 projections and expressed interest in better understanding the reasons for the forecasted decline, calling for DEC and the Collaborative to "explore options for preventing or correcting a decline in future DSM/EE savings." While the Collaborative has and will continue to bring considerable value to this subject, I have three suggestions that will help with this objective:

1. The Commission Direct DEC to explain future forecast declines and show what steps are being taken to prevent them. If forecasts savings levels are lower than those reported by DEC in recent years, it will provide a clear explanation for the reductions – indicating specific factors driving the declines and an indication of which programs are impacted by those factors and how much.
2. DEC provide details to the Collaborative from the 5-year program planning projections DEC is using as inputs for their DSM/EE modeling in the 2020 IRP.
3. The Commission request a report from the Collaborative by January 31, 2021 that would "examine the reasons for the forecasted declines in 2020, and explore options for preventing or correcting a decline in future

DSM/EE savings," as requested by the Commission in its 2019 DEC DSM/EE Rider Order. Putting a date on this request and showing that the Commission would welcome such a report will provide additional focus and momentum for such efforts at the Collaborative and provide valuable information to help DEC sustain levels of energy savings as least as high as it has achieved in recent years.

Q. SHOULD THE COMMISSION CONTINUE TO ASSESS DEC'S PERFORMANCE IN COMPARISON TO A 1% ANNUAL SAVINGS TARGET?

A. Yes. The 1% annual savings target is relevant for public policy purposes for several reasons. Notably, research suggests that energy efficiency savings trend higher in jurisdictions that have enacted savings targets.[19] A 1% annual savings target was also a key outcome of settlement negotiations in the merger between Duke and Progress Energy.[20]

Q. IS THERE EVIDENCE THAT MEMBERS OF THE COLLABORATIVE AND OTHER PARTIES SUPPORT A 1% SAVINGS TARGET?

A. Yes. A large number of clean energy and public interest advocates have contributed considerable amounts of time to working with the Collaborative while making clear that the 1% threshold is important to their efforts to help DEC achieve increased energy savings at the portfolio level. The Commission has indicated its interest in DEC correcting declines from previous years

[19] See Gold, *et.al.*, *Next-Generation Energy Efficiency Resource Standards*, American Council for an Energy-Efficient Economy (August 2019), available at: https://www.aceee.org/sites/default/files/publications/researchreports/u1905.pdf

[20] 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 ("Merger Settlement").

savings, which were in excess of 1%. In the pending proposed revisions to the DSM/EE cost recovery mechanisms (Docket No. E-7, Sub 1032), DEC, Public Staff and intervenor parties came to an agreement that included a number of changes to the Company's portfolio performance incentive, including revising and expanding a bonus incentive payment for attaining 1% annual savings.[21] This matter is now awaiting final Commission action. All of these factors speak to the continued relevance of the 1% annual savings threshold.

I recommend the Commission direct Duke to provide a detailed plan to achieve the 1% annual savings target in its next annual DSM/EE Rider filing, reflecting the Company's best effort to balance cost with strategies to deliver meaningful savings impacts for customers.

Q. WHAT STEPS SHOULD BE TAKEN TO INCREASE SAVINGS BEYOND DEC'S CURRENT PROJECTIONS?

A. Duke should continue to explore and develop new program concepts and strategies for achieving increased energy savings, and should also increase participation in existing programs to increase energy savings. During our work with the Collaborative, Duke has shown a willingness to engage with these ideas, including consideration of new technologies, delivery channels, and financing mechanisms, as well as efforts to reach underserved customer segments and address underutilization of particular measures. Each of these has an important role to play in reaching higher levels of overall savings, such that DEC could once again exceed 1% annually.

[21] Joint Proposed Revisions of the Public Staff, DEP, DEC, NRDC, SACE, Sierra Club, SC Coastal Conservation League, NC Sustainable Energy Association, and NC Attorney General's Office to the DSM/EE Cost-Recovery Mechanisms of DEC and DEP, Docket Nos. E-7, Sub 1032 & E-2, Sub 931(Jan. 15, 2020) ("2020 Joint Proposed Revisions to DSM/EE Cost-Recovery Mechanism")

Q. HOW HAS THIS BEEN ADDRESSED IN THE COLLABORATIVE?

A. In 2019, the Collaborative examined Portfolio Level Opportunities and Challenges, which prominently featured the 1% annual savings goal. That work ultimately evolved into many of the 2020 priorities and program development opportunities that the Collaborative is working on now. A logical and constructive next step would be to focus some of the Collaborative's work on developing a report identifying steps DEC could take to bridge the gap between its forecasted lower projected annual savings for 2021 and previous savings levels that exceeded 1%. Such a plan ought to include recommendations for program modifications and additions along with forecasts for anticipated savings impact and expected cost effectiveness levels. To facilitate completion of such a plan, it is important that a completion date be set for January 31, 2021, around which the Collaborative can develop a project schedule to ensure timely discussion, undertake analysis, develop recommendations, and present its final results.

Q. WHAT SPECIFIC REQUESTS DO YOU HAVE OF THE COMMISSION REGARDING FUTURE SAVINGS LEVELS, PROGRAM DEVELOPMENT, AND LOW-INCOME ENERGY EFFICIENCY?

A. It would be beneficial for the Commission to provide guidance that it supports larger budgets to pursue expanded savings for low-income customers in 2021 and beyond. Last year, the Commission concluded:

"…that the Collaborative should continue to place emphasis on developing EE programs to assist low-income customers in saving energy, and in developing EE programs that target savings in new construction, and especially in multi-family housing and manufactured housing."

Both the Neighborhood Energy Saver and Income-Qualified Weatherization programs have already shown verifiable success, DEC has demonstrated its ability to deliver increased savings from its pilot programs and new program concepts are being developed that could potentially be included in next year's DSM/EE Recovery Rider filing. I would recommend the following:

1. The Commission express affirmative support for DEC pursuing higher savings for low-income customers, with correspondingly higher budgets.
2. The Commission direct DEC to provide a plan in its next DSM/EE Recovery Rider filing showing how it plans to ramp up low-income efficiency savings over the next three to five years. Such a plan should include strategies for addressing energy burdens with deep efficiency savings as well as neighborhood style approaches that reach large numbers of customers.

Q. WHAT OBSERVATIONS DO YOU HAVE REGARDING IMPACTS OF THE COVID-19 PANDEMIC ON ENERGY EFFICIENCY PROGRAM DELIVERY?

A. The COVID-19 pandemic has profound near term implications for energy efficiency delivery, which may extend for several years or more. These include both major programmatic disruption and a significant expansion of customer need. To protect energy efficiency worker and customer health and prevent potentially significant declines in overall efficiency portfolio savings, adaptations to energy efficiency policies and program operations will be needed. Since March, in-person contact between customers and efficiency providers has been curtailed across the country, leading to many programs being temporarily halted or altered to function in a remote manner. Even after lockdown conditions ease, ongoing adaptations may be needed in how programs are designed and implemented.

Q. WHAT RECOMMENDATIONS DO YOU HAVE TO HELP ADAPT ENERGY EFFICIENCY PROGRAM DELIVERY TO CONTINUE DURINGTHE COVID-19 PANDEMIC?

I recommend the Commission direct DEC to assess expanding programs (residential and commercial) for replacement of major equipment like heat pumps, heat pump water heaters, and central air conditioning systems. Accelerated market adoption for these measures could be driven by instant-rebates and midstream delivery channels that favor high-efficiency systems, rather than mid-efficiency equipment, without increasing contact between participants and workers beyond what would occur for mid-efficiency equipment installs. Another strategy is to use virtual audits to a) increase customer engagement around energy efficiency, b) promote low- and no-cost steps they can take to immediately lower energy use, c) provide customized mailable EE kits, and d) create a queue for more comprehensive measure installation once restrictions are lifted. While steps such as these are meant to help DEC navigate the unique challenges of the pandemic, I also encourage good data recording in order to capture lessons learned that could assist in making further refinements in the near term as well as the potential for future innovations.

Q. WHAT OBSERVATIONS DO YOU HAVE REGARDING THE NEED FOR LOW INCOME ENERGY EFFICIENCY IN RESPONSE TO THE ECONOMIC IMPACTS OF THE PANDEMIC?

A. Despite the challenges, there should be a large expansion of energy efficiency programs aimed at assisting vulnerable and financially struggling families who are being harmed by the economic turmoil of the pandemic. The economic crash caused by the pandemic has driven huge increases in unemployment, while stay at home orders have driven up residential energy use and monthly electric bills. Recognizing the painful and financially untenable situation this has created for large numbers of customers, DEC has temporarily halted disconnections for non-payment. But for the more than 600,000 families DEC serves who were already struggling before the pandemic,[22] and many more who have recently lost their jobs, the combination of financial stresses caused by the pandemic create a looming crisis that warrants urgent action to reduce bills before the temporary bill payment reprieve ends.

Q. WHAT RECOMMENDATIONS DO YOU HAVE REGARDING DELIVERY OF LOW INCOME ENERGY EFFICIENCY PROGRAMS IN RESPONSE TO THE PANDEMIC?

A. I recommend that DEC and the Commission consider a significant expansion of funding for efficiency programs that substantially reduce energy use and customer bills for low-income customers. One possible approach would be to adapt and expand upon the methods developed by DEC last year in its Income-Qualified Weatherization pilot to proactively reach out to low and moderate

[22] Based on customers who were at or below 200% Federal Poverty Guidelines. United States Census Bureau, Poverty Status in the Past 12 Months, American Community Survey (2018), Table S1701, North Carolina,
https://data.census.gov/cedsci/table?q=200%25%20federal%20poverty&g=0400000US37&hidePreview=true&tid=ACSST1Y2018.S1701&t=Poverty&vintage=2018&moe=false

income customers with high energy intensity across its service territory, as well as customers with accumulated past due bills. This deep energy saving program has the potential to make a major difference in the financial wellbeing of these families, while potentially making the difference between successfully repaying past due bills or forcing the utility to write them off as uncollectable. Even though the total savings per project is lower than Income-Qualified Weatherization, the expanded set of measures now available through Neighborhood Energy Savers can also produce significant energy bill reductions, and the neighborhood outreach system could serve as another pipeline for identifying customers with high need that could be referred for even deeper savings with Income-Qualified Weatherization.

Q. WHAT SHOULD THE COMMISSION DO TO ENSURE ENERGY EFFICIENCY SOLUTIONS ARE PUT IN PLACE IN RESPONSE TO COVID-19 DRIVEN NEED?

A. Having a plan to provide energy efficiency solutions to customers suffering from the economic consequences of the COVID-19 pandemic is a matter of great urgency. While I hope the Collaborative will provide useful insights and recommendations to DEC on this matter in the coming months, the Commission should also consider the issue as soon as possible.

I recommend that the Commission express support for deploying targeted energy efficiency programs to help customers mitigate the impact of COVID-19. The Commission should direct DEC to submit a summary of the program changes that it has assessed and an implementation ready plan by July 31, 2020 outlining its proposed programmatic responses, including modified program budgets, savings goals, and customer targeting strategies, with a specific emphasis placed on customers who are elderly, disabled, have high energy burdens, or who have lost employment as a result of the pandemic.

V. **<u>Energy Efficiency Collaborative Update</u>**

Q. DID THE COMMISSION REFERENCE THE COLLABORATIVE IN ITS ORDER IN DOCKET NO. E-7, SUB 1192?

A. Yes. In its October 18, 2019 Order Approving DSM/EE Rider and Requiring Filing of Customer Notice in Docket No. E-7, Sub 1192 ("Sub 1192"), the Commission found that DEC should continue to leverage the Collaborative to work with stakeholders to garner meaningful input regarding potential portfolio enhancement and program design and ordered that the Collaborative should continue to meet every other month.

Q. HAS THE COLLABORATIVE COMPLIED WITH THIS DIRECTION?

A. Yes. The Collaborative has met regularly, consistent with the Commission's Order. Full-day, in-person meetings were held in July, September, and November of 2019, and also in January, March, and May of 2020. The Collaborative meeting in March was scheduled to be held in Raleigh, but due to the pandemic was held virtually instead, as was the meeting in May.

Q. WHAT WAS THE FORMAT OF THE IN-PERSON COLLABORATIVE MEETINGS?

A. Agenda item recommendations were solicited by Duke or developed at the close of the prior Collaborative meeting. The meeting agendas were then put together by Duke and circulated to the full Collaborative for review and comment. Meeting materials were also circulated in advance of the meetings.

Duke facilitated the meetings, and specific topic area discussions were led by various members of the Collaborative or by Duke Staff. Duke circulated meeting minutes and action items within a week or so after the meetings and subsequently scheduled topically specific working group calls.

Q. WHAT WERE THE PRINCIPAL FOCUS AREAS FOR THE COLLABORATIVE'S WORK OVER THE PAST YEAR?

A. In addition, to regular updates on program performance and EM&V reports by DEC staff, the Collaborative worked primarily on the following priorities:

- Increasing savings impact for low-income customers
  - Understanding barriers and exploring potential solutions to increase deployment of the Company's Income-Qualified weatherization program (including attention to differences in North and South Carolina)
  - Partnerships with low-income weatherization providers
  - Expanded measures list for Neighborhood Energy Savers, including more comprehensive measures for higher energy users
- Examination of portfolio level opportunities and challenges for increasing overall efficiency savings
- Market potential study
- Understanding DEC's marketing strategy and execution
- Cost-effectiveness testing protocols and assumptions
- New delivery channels:
  - Affordable multifamily housing that participates in the Low-Income Housing tax credit program

- Expanded midstream channel
- New program ideas:
  - Energy efficiency as a service
  - Savings attribution for codes and standards activities;
  - ENERGY STAR Retail Products Platform

Q. DID THE COLLABORATIVE HOLD ANY ADDITIONAL MEETINGS?

A. The Collaborative held phone meetings on specific topics in between the regularly scheduled full-day meetings. These meetings were on a variety of the topics listed above, and typically were organized either to advance themes that the Collaborative had prioritized or to prepare for more detailed discussion at the in-person meetings. Two open working sessions were also held in-person on the days preceding the July and November Collaborative meetings in Raleigh. Both sessions focused on identifying and digging into the topic of portfolio level opportunities and challenges.

Q. WHAT PROGRESS HAS THE COLLABORATIVE MADE IN ADDRESSING ITS PRIORITY TO INCREASE LOW-INCOME SAVINGS IMPACT?

A. Increasing savings impact for low-income customers was one of several areas where the Collaborative has gained a much deeper understanding of the issues, which it is now using to help identify potential solutions in 2020. DEC's ability to increase its low-income program savings through partnership with weatherization providers is a complex issue that the Collaborative has discussed in depth. This complexity is compounded by differences in matching fund availability between North and South Carolina, which have been a key focus of attention in Collaborative discussions. Some near-term benefits are already resulting from these conversations, such as the connection that was made between DEC program staff and North Carolina Housing Finance Agency to coordinate on affordable multifamily construction projects that are applying for low-income housing tax credits. This coordination is expected to improve the efficiency, and thus the long-term affordability of the developments. DEC reported higher overall savings levels for low-income customers in 2019, as noted above, and attributes some of the progress it has made to efforts at the Collaborative.

Q. WHAT FURTHER STEPS DO YOU EXPECT THE COLLABORATIVE TO TAKE TO INCREASE SAVINGS FROM DEC'S LOW-INCOME PROGRAMS?

A. With all of the work that has been put into understanding the complex environment for partnering with the weatherization providers, I hope that the Collaborative will develop clear recommendations for the Company for steps that can be taken to increase its low-income savings, and that DEC will come to the Commission for approval to implement those steps, so that more savings will be reported for low-income customers a year from now. I look forward to working with DEC and stakeholders to establish a timeline and proposed steps the Company can take to strengthen its low-income programs and overall savings for low-income customers.

Q. WHY DID THE COLLABORATIVE PRIORITIZE PORTFOLIO LEVEL OPPORTUNITIES AND CHALLENGES?

A. The Collaborative decided to prioritize examination of portfolio level opportunities and challenges in 2019 as a precursor to developing recommendations to help increase Duke's overall efficiency savings levels. The group recognized that increasing portfolio savings would require responding to the challenges created by diminishing cost-effectiveness caused by decreasing avoided costs and more efficient baselines. The Collaborative's work on the subject culminated in a year-end summary report that is included as Exhibit FWB-7.

The report began with the following statements:

> "The choice to focus on Portfolio Level Opportunities and Challenges was driven by a desire to establish a common understanding among Collaborative participants around the cross-cutting factors that could impact the potential for expanding energy efficiency savings through individual programs. It also provided a way to identify the broader dynamics that would impact total energy efficiency savings in the years to come."
>
> "Through regular convenings of utility staff, energy efficiency advocates and other key stakeholders, the Collaborative strives to facilitate Duke's ability to increase total savings from its energy efficiency and demand response program portfolios and to expand the number and types of customers participating in the company's EE/DSM programs."

Topics covered in the report ranged from Collaborative member perspectives on the 1% savings goal, market dynamics that either support or limit utility efficiency savings, related state policy and regulatory matters, and potential new programs and delivery channels that could lead to increased efficiency savings.

Q. WHAT OTHER ISSUES DID THE COLLABORATIVE IDENTIFY UNDER THE BROAD CATEGORY OF PORTFOLIO LEVEL OPPORTUNITIES AND CHALLENGES?

A. DEC encouraged Collaborative members to help identify and develop new program ideas from experience in other jurisdictions that could help increase portfolio savings. Collaborative members are engaged in multiple jurisdictions across the Southeast and throughout North America, with awareness of a variety of programs that other program administrators are implementing.

Q. WHAT HAS DEVELOPED AS A RESULT OF THE COLLABORATIVE'S DISCUSSIONS ON NEW PROGRAM IDEAS?

A. In the interest of increasing portfolio savings, DEC asked Collaborative members to provide possible program expansion ideas, based on the experience that several Collaborative members have working in other jurisdictions. Collaborative members raised a number of program concepts that were captured in the Portfolio Level Opportunities & Challenges Summary Report. These include the following:

- DEC Residential New Construction
- DEP Income-Qualified Weatherization
- Energy Star Retail Products Platform
- Mobile/manufactured home programs
- Code Compliance Credit justification
- Leveraging savings from Advanced Metering Infrastructure
- Expanded midstream products, such as residential HVAC
- Leveraging alternative funding opportunities such as the Rural Energy for America Program
- Seeking new program opportunities to increase low income savings impact (including continued support for LIHTC developers)
- Explore expanded low-income program coordination with SC WAP

Since then, more detailed information has been provided on the ENERGY STAR Retail Products Platform (a national initiative for promoting high efficiency retail products) and programs that support the development of and facilitate compliance with enhanced codes and standards. These new program idea discussions are still in the early stages of discussion and Collaborative members are currently preparing background information for recommendations related to heat pump water heater measures, savings opportunities for mobile home residents, and programs for agricultural customers. Collaborative members also attending the Residential New Construction program hearing before the Commission, presented information regarding strategies to increase midstream delivery channels for efficiency measures, and have participated in a series of working group calls aimed at addressing challenges for delivering savings through the Income-Qualified Weatherization program to customers in South Carolina. DEC is finding these contributions to be of sufficient merit that it will develop them further and potentially submit them to the Commission for approval.

Q. ARE THERE OTHER PROGRAM CONCEPTS THAT WERE DISCUSSED AT THE COLLABORATIVE?

A. The Collaborative has also had several discussions with DEC program staff regarding what DEC is referring to as "energy efficiency as a service," which is an industry term used primarily to refer to programs with incentives that are tied to actual, metered energy savings rather than to deemed or engineered savings values. The program concept also considers financing options to assist customers with the upfront cost of deeper efficiency improvements. I am particularly happy that DEC brought this concept to the Collaborative for discussion in the early stages of development by the Company's program planning team. This allowed Collaborative members to share their thoughts on the concepts being considered before the program design had progressed beyond the point at which input could be incorporated.

Q. HAS THE COLLABORATIVE IDENTIFIED SOLUTIONS TO DEC'S DIMINISHING COST-EFFECTIVENESS?

A. The Collaborative first discussed industry best practices for assessing program cost-effectiveness to ensure that Collaborative members were well-informed and thus able to have productive discussions on issues and potential solutions. Through these discussions, some Collaborative members came to understand that the application of the Total Resource Cost ("TRC") test as used by DEC does not fully reflect the monetary value of the benefits that energy efficiency provides to program participants. As a result, some of the Collaborative participants came to support a recommended change to DEC's mechanism, in which the Utility Cost Test, ("UCT") rather than the TRC test would determine cost-effectiveness.[23]

As discussed above, the Collaborative also continues to seek new program opportunities and delivery channels that reduce cost and increase benefits to maintain value and make up for lower avoided costs and rising baselines.

Q. WERE THERE OTHER TOPICS RELATED TO COST-EFFECTIVENESS DISCUSSED BY THE COLLABORATIVE?

A. The Collaborative also discussed the inclusion of a more fulsome accounting of the benefits of energy efficiency in cost-effectiveness testing. This could include the addition of both additional energy benefits (such as natural gas savings) and so-called non-energy benefits ("NEB"). The Collaborative is presently considering how such benefits could be quantified so that they could be included in TRC test results to provide a full accounting of cost-effectiveness results using this test.

[23] Merger Settlement (*supra* Note 20).

Q. HAS THE COMPANY PROVIDED ANY UPDATES REGARDING THE STANDARD REPORTING TEMPLATE THAT YOU DISCUSSED IN YOUR TESTIMONY IN DOCKET NO. E-7, SUB 1192?

A. In addition to including a chart illustrating multi-year program trends as ordered by the Commission, Company Witness Evans states in his Direct Testimony that “ the Company is developing a new structure for reporting both DEC’s and DEP’s program performance metrics to the Collaborative.”[24] The Company facilitated a phone conference with stakeholders on this topic, and then provided a preview of its development work in this area during the March Collaborative meeting.

Q. WHAT WAS INCLUDED IN THE COMPANY’S PRESENTATION TO THE COLLABORATIVE?

A. The Company presented a prototype visual “dashboard” that compared projections to reported values for expenditures, savings, and participation, by program as well as at the portfolio level. The dashboard allowed one to quickly understand, for the most recent four years of program implementation, how the program achievements in those categories compared with the Company’s projections at the outset of each program year. A sample from the Company’s presentation, for the Multifamily Program, is provided below in Figure 1. The full presentation is attached as Exhibit FBW-8.[25]

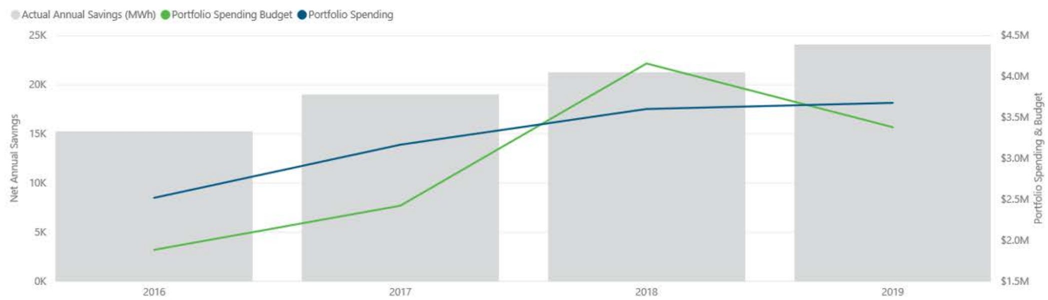
Figure 1: DEC “Dashboard” for Multifamily Program

[24] Evans Testimony, p. 30 lines 8-10.
[25] DEC noted some minor formatting issues in some of the materials included in the draft presentation, which its team will correct if it has not already done so.

DEC Multifamily

Multi-Family Energy Efficiency Program Budget, Savings & Number of Measures

	Expenditures			Energy Savings			Demand Savings			Participants		
Program Year	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%	Budget	Actual	%
2019	$3,382,816	$3,680,155	109%	19,846	24,086	121%	2.00	2.65	132%	342,660	493,307	144%
2018	$4,161,326	$3,604,921	87%	22,582	21,289	94%	2.20	2.30	105%	370,882	430,475	116%
2017	$2,422,689	$3,168,422	131%	12,688	19,056	150%	1.19	1.92	161%	186,948	356,003	190%
2016	$1,883,584	$2,518,988	134%	12,320	15,235	124%	1.02	1.57	154%	151,004	269,671	179%



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Q. IN WHAT WAY IS THIS USEFUL?

A. The dashboard shows program performance at a glance, and importantly also shows trends in budgets, actual costs, and savings. For example, Figure 1 shows that program savings have been increasing for the multifamily program year over year, from roughly 12,000 MWh in 2016 to nearly 20,000 MWh in 2019. Expenditures and participants have also increased. Prior to the development of this dashboard, drawing year over year comparisons would have required manually tracking down the data in four different reports and assembling it to provide a year by year comparison. The prototype dashboard is a vast improvement.

Q. DO YOU RECOMMEND FURTHER IMPROVEMENTS TO THE COMPANY'S DATA REPORTING?

A. Duke has asked members of the Collaborative for feedback on the prototype and other data needs, and it is expected that it will continue to be refined through these Collaborative discussions. For example, it has been suggested that electronic workbooks containing the information provided in the dashboard would be valuable for both the work of the Collaborative and support review of the annual recovery rider filings. As Company Witness Evans has indicated, “The Company does not wish to alter the format of its rider filings unless the Commission or Public Staff directs it to do so.”[26] If the Company were to provide workbooks associated with the improved dashboard, both to the Collaborative and in future filings, it could prove highly beneficial for review and analysis and could streamline the discovery process for all parties.

Q. WHAT SPECIFIC REQUESTS DO YOU HAVE OF DEC REGARDING PROGRAM EVALUATION AND REPORTING?

A. As noted above, DEC has shown a real willingness to provide useful topline, trend, and comparative data through its program performance reporting to the Collaborative. The Company also appears willing to provide additional data and take respond to input from Collaborative members on further refinements to its data reporting.

My recommendation is that DEC continue to work with the Collaborative to refine this data reporting and share associated workpapers as appropriate, such that Collaborative members can better understand program and portfolio performance and work with the data to identify opportunities and solutions that lead to expanded efficiency savings.

Q. ARE THERE ANY SPECIFIC RECOMMENDATIONS YOU WOULD LIKE TO MAKE TO IMPROVE THE VALUE PROVIDED BY THE COLLABORATIVE??

[26] Evans Testimony, p. 30 lines 4-5.

A. In general, scheduled deadlines and written work product improve work quality and lead to better outcomes. The work of the Collaborative would benefit from having project timelines and concrete work product on certain tasks. This could help to maintain momentum and enable attribution of certain outcomes to the work of the Collaborative. It would also provide a more tangible opportunity for the Commission to track the work of the Collaborative for matters it has referred to the group.

I recommend DEC work with Collaborative members to establish and utilize project deadlines and create work products for select activities.

VI. <u>DSM/EE Rider Intersection With Related Public Policy Considerations</u>

Q. DO THESE DSM/EE RECOVERY RIDER PROCEEDINGS INTERSECT WITH OTHER POLICIES BEFORE THE NORTH CAROLINA UTILITIES COMMMISSION?

A. Yes. The Collaborative's 2019 Portfolio Level Opportunities & Challenges Summary Report noted that state policy and regulatory matters "have a direct or indirect effect on the Company's ability to achieve energy savings through regulated customer programs."[27] Examining these types of policy interactions between DEC's DSM/EE Recovery Rider proceedings and related matters before the Commission serves multiple purposes. It provides valuable context on past and future savings levels and allows us to consider whether there are policy gaps that warrant attention to improve energy efficiency impact for customers. I identify several related Commission policies indicated below:

[27] Energy Efficiency Collaborative Portfolio Level Opportunities and Challenges 2019 Summary Report, page 4 (Attached as Ex. FBW-7)

- Integrated Resource Planning
- New Programs and Program Modifications
- Review of the performance mechanism, rate impact, and possible efficiency targets
- Rate Cases
- DEP DSM/EE Rider

Q. WHAT IS THE RELATIONSHIP BETWEEN THE DSM/EE RECOVERY RIDER AND THE INTEGRATED RESOURCE PLAN?

A. The DSM/EE Recovery Rider and integrated resource planning both provide perspectives into future energy savings. Lately there have been increasingly important connections between the Integrated Resource Plan, the DSM/EE Recovery Rider, and the work of the Collaborative that warrant additional development and attention.

Integrated resource planning provides the utility, the Commission, and the public with a roadmap for meeting future energy and capacity needs. Because integrated resource planning is a complex process with large numbers of input assumptions, calculation methodology decisions, and modeling results that are subject to interpretation, there is considerable value in maintaining a robust line of communication for information to flow, and to create opportunities for discussion and input while the IRP is being developed.

The Collaborative has aided this line of communication between Duke and stakeholders. Through it the company has shared information related to the DSM/EE market potential study (MPS) over the past year though several successive stages of analysis, received input, and opened a discussion around its use in the IRP. Recently, Duke engaged the Collaborative in discussion related to the IRP related effort to evaluation DSM/EE potential to address the Company's winter peaking needs.

As we focus on future savings performance in these DSM/EE Rider proceedings, the discussions at the Collaborative take on additional significance, particularly as it relates to closing the gap between Duke's current forecast and the goal of maintaining and exceeding 1% annual savings in future years. For instance, a careful exploration of the costs, benefits, and participation assumptions included in the market potential study track similar discussions at the Collaborative regarding possible improvements to program delivery channels and new program development. As noted in discussions at the Collaborative, the MPS is inherently conservative by design: limiting or ignoring the additional savings potential of new technologies, changes in the value of efficiency due to future capacity needs, cost declines over time, and new deployment strategies that can increase participation rates above past performance. The MPS also uses an asymmetrical version of the Total Resource Cost that includes all costs (customer and utility), without considering non-energy benefits.[28]

The DSM/EE Recovery Rider tracks DEC's energy savings performance and sets expectations for energy savings in the subsequent year. Reviewing past performance can, therefor, indicate the degree to which past IRP's and actual energy savings have aligned or diverged (though that is not the focus of this

[28] An agreement between parties is currently awaiting Commission decision on whether to switch to the Utility Cost Test instead of TRC. But the MPS does not include achievable potential based on UCT.

testimony). If, however, the DSM/EE assumptions used in the IRP underestimate[29] future potential, customer could wind up paying for more expensive power supply rather than investing in less expensive strategies to eliminate energy waste.

Following new guidance from the Commission, the IRP is now also concerned with potential coal retirements[30] and attainment of carbon emissions reduction targets outlined in Duke Corporate commitments and North Carolina's Clean Energy Plan.[31] Ultimately, deployment of future DSM/EE programs and achievement of related emissions reductions will flow through the DSM rider, yet there is presently no tracking of the emissions impacts of DEC's DSM/EE programs. In future years, it would be useful for Duke to report on the emissions impacts of its DSM/EE achievements in these Rider filings.

Moreover, Duke's IRP analysis methods treat DSM/EE as a decrement to load and do not directly optimize DSM/EE against alternative supply resources. In the DEC DSM/EE Rider there also is currently no process through with DSM/EE is optimized. As a result, the process by which future savings levels are determined is opaque at best. While there is a clear overlap between the Rider proceedings and integrated resource planning, further steps towards

[29] DEC indicated in multiple stakeholder meetings that IRP inputs will be based on internal forecasts for at least the next five years. While DEC DSM/EE Recovery Rider projections for 2018 and 2019 were far closer to actual performance, previous filings were off by a substantial degree, typically underestimating actual savings by about 40%.

[30] Order Accepting Integrated Resource Plans and REPS Compliance Plans, Scheduling Oral Argument, and Requiring Additional Analyses, N.C.U.C. Docket No. E-100, Sub 157 (Aug. 27, 2019) ("2018 IRP Order") at 90

[31] 2018 IRP Order at Appendix A, page 3

alignment and documentation between these proceedings would be constructive.

Q. WHAT IS THE CONNECTION BETWEEN THE RIDER PROCEEDINGS AND PROGRAM MODIFICATION AND NEW PROGRAM APPLICATIONS?

A. The Collaborative has had varying degrees of involvement with program modifications and new program development that have come before the Commission and there are others in the pipeline. Our testimony last year focused on some of these as well, including Neighborhood Energy Saver, Residential $mart Saver and replicating a highly successful Residential New Construction program currently offered by Duke Energy Progress. This intersection is important because program designs will be stronger when vetted, support can be built among stakeholders, and the Commission can see the potential value from new and modified program filings in the larger context – such as how new / increased savings translate into portfolio level achievements.

Q. WHAT IS THE CONNECTION BETWEEN THE RIDER PROCEEDINGS AND THE COMMISSION'S REVIEW OF POSSIBLE EFFICIENCY SAVINGS TARGETS AND DUKE'S PERFORMANCE INCENTIVE MECHANISM?

A. The outcomes of Commission action regarding savings targets and DEC's performance incentive mechanism will clearly factor into the savings projections that DEC will provide in future rider filings. The Revisions to the DSM/EE Cost Recovery Mechanism (Docket Nos. E-7 Sub 1032 and E-2, Sub 931) was initially framed around three questions that have major implications for the Rider docket.

(a) Whether the incentives in the current DEP and DEC Mechanisms are producing significant DSM and EE results.
(b) Whether the customer rate impacts of the DSM/EE riders are reasonable and appropriate.
(c) Whether overall DSM/EE program portfolio performance targets should be adopted.

Negotiations between DEC, Public Staff, and intervenors in that proceeding focused heavily on refinements to the Company's portfolio performance mechanism, with a specific aim to strengthen and align Duke's financial motivations around key performance outcome objectives. Included in the proposed changes were a revision and expansion of performance bonuses for DEC achieving the 1% annual savings threshold and increasing low income energy efficiency impact. [32]

The proceeding also raised important questions concerning cost-effectiveness test methodologies, which impacts measure and program selection and future savings forecasts. Those discussions centered on a recommendation to switch the primary cost effectiveness test used for measure and program screening purposes from the Total Resource Cost[33] test to the Utility Cost Test.

The Joint Parties also sought to have the Commission assess the possible inclusion of non-energy benefits in calculations using the Total Resource Cost test.

[32] 2020 Joint Proposed Revisions to DSM/EE Cost-Recovery Mechanism, *supra* Note 21.
[33] A primary reason for this proposed change was a perceived program with use of the TRC, wherein all utility and customer costs were included, but only utility system benefits were included – not customer benefits. This asymmetrical treatment of costs and benefits in effect undermined some efficiency measures and programs that would otherwise be cost effective and resulted in their exclusion. The UCT was recommended instead, because it considers utility costs and benefits only, but in a asymmetrical manner.

In addition to the agreements proposed by the Joint Parties, the Natural Resources Defense Council, Southern Alliance for Clean Energy, the Sierra Club and the South Carolina Coastal Conservation League, together with the North Carolina Sustainable Energy Association presented offered reply comments on certain related issues for the Commission's consideration. These included consideration of a "low-risk" discount rate, potential reporting requirements for customers who opt out of the Company's DSM/EE programs, investigation into the use of decoupling, and consideration of potential efficiency saving targets through creation of an Energy Efficiency Resource Standard.[34] While further work is needed before action can be proposed on these matters, they warrant continued attention and would have potentially significant direct impact on future DEC's DSM/EE recovery rider proceedings.

Q. HOW DO THE DSM/EE RECOVERY RIDER PROCEEDINGS INTERSECT WITH RATEMAKING?

A. DSM/EE investments are widely recognized as a least cost resource that reduces utility system costs, and offsets the need for more expensive power production that would otherwise be passed on to customers through higher electric rates. DSM/EE programs also enable customers to meaningfully reduce their monthly electric bills.

Ratemaking itself has the potential to either support or undermine customer benefits from investments in energy efficiency, particularly through setting fixed charges on customer bills. In essence, a high fixed charge reduces the financial benefit customers can achieve when reducing their volumetric usage.

[34] 2020 Joint Proposed Revisions to DSM/EE Cost-Recovery Mechanism, *supra* Note 21.

Across the Southeast, the issue of utility proposed fixed charge increases have been highly contentious, including in Duke Energy' recent rate cases before the South Carolina Public Service Commission, where the Company abandoned an effort to more than triple its residential fixed charge in the face of a widespread backlash.[35]

Another intersection between ratemaking and energy efficiency that has provided very significant impact in the past came from settlement agreements that resulted in Duke shareholder dollars going to the Helping Home Fund. These dollars have not only led to many more households receiving energy efficiency upgrades, they have made an enormous difference in covering health and safety expenses for projects that would otherwise be rejected – often for customers who are most in need of assistance. Helping Home Funds were critical to the success of the Income-Qualified Weatherization pilot program DEC operated in 2019 and previous reporting has shown that customer benefits extend far beyond lower energy bills to also include quantifiably better health outcomes and higher work productivity.[36] While all Helping Home Funds previously provided by DEC have now been expended, future contributions to this fund could expand opportunities to serve additional hard to reach customers and enable more innovative pilot programs like the one DEC offered last year.

Q. HOW DO THE DSM/EE RECOVERY RIDER PROCEEDINGS INTERSECT WITH THE GOVERNOR'S EMISSION REDUCTION COMMITMENTS?

[35] Order on Application of Duke Energy Carolinas, LLC for Adjustment in Electric Rate Schedules and Tariffs, S.C.P.S.C. Docket No. 2018-319-9 (May 21, 2019).
[36] "Evaluation of Duke Energy's Helping Home Fund," Advanced Energy (October 15, 2017).

A. The Collaborative also identified a connection between Duke's energy efficiency efforts and Governor Roy Cooper Executive Order 80, issued on October 29, 2018, wherein he established "North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy." This commitment aimed to reduce greenhouse gas emissions to 40% below 2005 levels and to reduce energy consumption in state-owned buildings by at least 40% from fiscal year 2002-2003 levels.[37] The corresponding NC Clean Energy Plan, prepared by the Department of Environmental Quality[38] in September 2019, outlines a path to reduce electric power sector greenhouse gas emissions by 70% below 2005 levels by 2030 and attain carbon neutrality by 2050, The CEP expounded on the importance of energy efficiency for achieving the state's goals and noting the myriad benefits associated with efficiency:

> Each incremental investment in EE accrues multiple benefits to consumers, including lower energy bills, increased grid reliability and the deferral or elimination of expensive new generation, transmission and distribution infrastructure investments – costs that would otherwise be borne by ratepayers.[39]

> Today many states are surpassing NC with more aggressive REPS, renewables adoption, EE policies, utility regulatory reforms, and investment activity The corporate drivers alongside the national rankings create an opportunity for NC to take new steps to sustain and grow the economic benefits that clean energy can afford, while continuing to attract businesses, talent and investment to the State.

[37] North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy, Exec. Order No. 80 (Oct. 29 2018) at 1.
[38] In 2019, the Nicholas Institute at Duke University undertook creation of a North Carolina Energy Efficiency Roadmap that substantially informed the Clean Energy Plan prepared by the state's Department of Environmental Quality.
[39] North Carolina Clean Energy Plan: Transitioning to a 21st Century Electricity System, N.C. Dept. of Envtl. Quality (Oct. 2019), at p. 126, *available at:* https://files.nc.gov/governor/documents/files/NC_Clean_Energy_Plan_OCT_2019_.pdf

The Clean Energy Plan included 11 energy efficiency recommendations from the stakeholder-generated North Carolina EE Roadmap[40] including many that should be done in partnership with DEC and the Collaborative. To aid in integrating the Clean Energy Plan with the Company's existing efficiency work, it would be useful for Duke to provide emissions reduction data associated with its DSM/EE portfolio performance as part of its annual rider filings.

Accordingly, I recommend that DEC provide carbon emissions reduction figures associated with achieved savings (annual and cumulative over time) in its annual rider filings and correlate them to CEP emissions reduction targets and the Company's own corporate carbon reduction goals.

Q. WHAT IS THE RELATIONSHIP BETWEEN THE DEC DSM/EE RIDER AND THE DEP DSM/EE RIDER?

A. Although DEC and DEP track DSM/EE savings separately, there is a great deal of overlap and alignment between the two companies on deployment of their energy efficiency portfolios. The Companies share many program designs, staff, implementers, and marketing approaches. The Collaborative supports both Companies, often addressing cross-cutting issue that affect both. And programs deployed through one company, if successful, are not infrequently considered for implementation by the other. All of these connections support success of each company's respective DSM/EE portfolio. In recent years, DEC has achieved higher savings performance, which we hope additionally

[40] In 2019, the Nicholas Institute at Duke University undertook creation of a North Carolina Energy Efficiency Roadmap that substantially informed the Clean Energy Plan prepared by the state's Department of Environmental Quality. https://nicholasinstitute.duke.edu/publications/north-carolina-energy-efficiency-roadmap

motivates DEP to strive for higher savings, including following DEC's past performance and exceeding the 1% annual savings threshold.

VII. **Conclusion**

Q. DO YOU HAVE ANY CONCLUDING STATEMENT?

A. I would like to thank the Commission for the opportunity to submit this testimony. I look forward to continuing to work with Duke, the Commission, Public Staff, and the Collaborative to increase efficiency savings for customers as an integral part of the transition to a clean energy future. This concludes my testimony.

Q. Thank you. Mr. Bradley-Wright, did you prepare a summary of your testimony for the Commission?

A. Yes, I did.

Q. Could you give that now?

A. I will be happy to. Thank you for the opportunity to testify before the Commission today. I'm Forest Bradley-Wright, energy-efficiency director for the Southern Alliance for Clean Energy, also representing the North Carolina Justice Center and North Carolina Housing Coalition.

I covered six topics in my prefiled testimony, including Duke Energy Carolinas' 2019 efficiency portfolio performance, its 2021 forecast showing declining savings, progress at the Collaborative, efficiency for low-income customers, and ways that the coronavirus pandemic is both accelerating the need for energy efficiency and also creating challenges for program delivery. I also addressed the interplay between savings from the Company's demand-side management and energy-efficiency programs and other public policy.

Duke Carolinas remains a Southeast regional leader in overall efficiency savings. In 2019, the Company delivered customers $437 million in net present value benefit. Meanwhile, savings from low-income efficiency were 30 percent higher than in 2018. However, the Company's overall savings declined slightly in 2019, falling below 1 percent annual savings, as a percentage of prior-year retail sales. Unfortunately, a further 10 percent decline is projected for 2021. In my testimony, I make several suggestions that could help reverse this trend and ensure efficiency programs reach those who need them most.

To address the projected savings deadlines, the Commission, Staff, and stakeholders must have a clear understanding of the underlying factors causing them. Therefore, I first recommend that the Commission direct Duke to provide specific documentation explaining any projected savings declines in future demand-side management energy-efficiency rider filings, while also showing what steps are being taken to prevent them.

Second, I recommend that the Commission affirmatively endorse the goal of achieving higher savings for low-income customers, supported by increased budgets, and call upon the Company to submit a plan to the Commission to both increase low-income efficiency savings levels overall, and deliver deep efficiency savings to customers who struggle with high energy burdens.

Third, and related, I recommend that the Commission acknowledge the urgent need to include energy efficiency in the state's response to the coronavirus pandemic. I also suggest that Duke be directed to present a plan to increase efficiency assistance to customers suffering from the current economic downturn and address program delivery challenges brought on by the pandemic.

Fourth, I describe continued progress at the Collaborative over the past year, including our work to support Duke and expanding energy-efficiency savings to low-end customers. I also describe how our portfolio-level opportunities and challenges summary report built a foundation for our ongoing effort to aid Duke in achieving higher overall savings through new programs and delivery channels. In its 2019 order, the Commission concluded that it would be helpful to have the Collaborative examine the reasons for Duke's forecasted savings decline, explore options for preventing or correcting a decline in future demand-side management efficiency savings. To this end, I recommend that the members of the Collaborative work together with Duke staff to prepare a report in advance of Duke Carolinas' next demand-side management efficiency recovery rider. It would help Duke to achieve future savings at or above the 1 percent savings level that the Company reported in 2017 and 2018 but narrowly missed in 2019.

Finally, I discuss a number of key policy and regulatory matters relating to the Company's energy savings achievements and efforts to cut carbon emissions in North Carolina. Specifically, my testimony addresses integrated resource planning, program applications, performance incentive mechanism review, rate cases, and the Duke Progress demand-side management efficiency rider.

I thank the Commission for its continued support for energy efficiency. I look forward to continuing to work with you, the Company, and the Collaborative as we build on considerable success to date and strive to achieve even more savings in future years.

This concludes my summary. Thank you.

Q. Thank you.

MR. NEAL: Mr. Bradley-Wright is

available for cross examination or questions from the Commissioners.

MS. FENTRESS: No questions from Duke.

COMMISSIONER BROWN-BLAND: All right. Any of the Public Staff? Any questions?

(No response.)

COMMISSIONER BROWN-BLAND: Any questions from any of the other intervenors? I am seeing none.

Questions from the Commission? I'm seeing none.

Mr. Bradley-Wright, I just have just one.

EXAMINATION BY COMMISSIONER BROWN-BLAND:

Q. Just in general, you point out that the Company exceeded its 2019 projections there on page 8 of your testimony, and then with regard to the nonresidential programs, you point out that the projections were, I believe, higher.

Anyway, with regard to those -- the projections not being more accurate or closer to the actual reality, did you have any understanding of the reasons for that?

A. Why the projections were not closer to the actual performance?

Q. Yes. And the direction, up or down.

A. Right. I do think there are multiple factors. One, that there is some degree of uncertainty with how much participation there would be in any given year. And I do appreciate that witness Evans and witness Duff both mentioned that the projections are not intended as a cap. You know, there can be additional savings beyond the projections. And, in fact, in past years, there often was a rather large delta between the projections that they made and then the actuals. Sometimes as much as 30 and 40 percent. But in looking at the projection decline, I think that it does beg the question of what steps are being taken to actually achieve those higher savings levels and to be very clear in identifying what the drivers are for any declines in the forecast from what has been achieved in recent years.

So my testimony largely focuses, when it comes to that forecast, on the importance of having specific clarity about what is causing the decline and the need for clarity that active steps are being taken to make up the difference. As I have noted in my summary and in my testimony, last year in the Duke

Carolinas demand-side management efficiency rider, the Commission noted that this is something that was a priority and asked to have it explained, both the reason for the decline and the steps taken to reverse it. So I hope that is an answer to your question, but I do think that each of those is an important factor.

Q. And did you mean to tell us, by way of your testimony, that you -- I think witness Evans characterized it as some lack of effort on the Company's part.

Do you mean to tell us or imply that there is a lack of effort on the Company's part?

A. And that was not something that I ever expressed in our testimony. And, in fact, I think I speak rather extensively about efforts that Duke has been taking. And I don't mean to suggest by pointing to the aim to continue to sustain or even increase savings going forward, which I think is a rather broadly held policy objective for the state. I don't mean to suggest that that means that it's easy either.

So no, I think that clearly there is good work being done, hard work being done, and I just -- I think what I'm calling for is that more of that make it into the public record. That there be, like I said, greater clarity on what factors are leading to projected declines, and perhaps most importantly, a clear picture of the steps being taken to ensure that higher levels of savings are, indeed, achieved.

Q. And my last question is just, is it a fair assessment of your position that Collaborative is making greater contributions to these overall efforts and is working in an improved manner as compared to your prior testimonies before the Commission?

A. I think the progress is absolutely undeniable and a very positive sign. I think that, ultimately, the relationship between not only the stakeholders and Duke has been an important driver of that, but also the relationship with the Commission. And I think that the extent to which the Commission is making clear its objectives, is making clear what it hopes might be accomplished at the Collaborative and how it might fit into decision-making, I think that greatly aids the work of the Collaborative, and ultimately I think it leads to better results and will lead to increase in savings and newly successful programs.

So I think that I made mention, as some of my specific recommendations, that, you know, topics that go to the Collaborative and, you know, those including ones that are referred by the Commission go there not just for discussion but actually come back with some -- you know, some clear recommendations, and hopefully increasingly effective answers to what steps are needed to capture those higher levels of savings that could be implemented here at the Commission.

Q. Thank you.

COMMISSIONER BROWN-BLAND: Other Commissioners?

(No response.)

COMMISSIONER BROWN-BLAND: Seeing none, questions on Commission's questions?

(No response.)

COMMISSIONER BROWN-BLAND: Seeing none. So therefore, Mr. Neal.

MR. NEAL: Thank you, at this time we would -- yes. Thank you, Presiding Chair Brown-Bland. At this time we would move Mr. Bradley-Wright's exhibits into evidence.

COMMISSIONER BROWN-BLAND: Without objection, the exhibits prefiled with Mr. Bradley-Wright's testimony will be received into evidence at this time.

(FBW Exhibits 1 through 8 were admitted

into evidence.)

MR. NEAL: Thank you. I think that concludes our case.

COMMISSIONER BROWN-BLAND: All right. Is there anything else before we set the dates for post-hearing filings? Is there anything else that we need to discuss or clear up for the record? The goal here is to have a clear record. This is a different kind of proceeding, so if we neglected anything, speak up now, please.

(No response.)

COMMISSIONER BROWN-BLAND: Seeing no one speak up. So that said, would 30 days from the availability and posting of the transcript be acceptable to all?

MS. FENTRESS: Yes.

COMMISSIONER BROWN-BLAND: All right.

MR. NEAL: Yes.

COMMISSIONER BROWN-BLAND: That would be so ordered. And because this was a new experience, because our court reporter is listening on everybody's varied devices, and everybody's different kind of wavering bandwidth or whatever we may have, I would ask you-all to pay close attention to those transcripts when they become available, just to be sure words were understood appropriately and get any corrections that need to back to the court reporter promptly.

There being nothing else to come before the Commission, Chair Mitchell, have I missed anything? Then I want to thank you-all for your participation, and attention, and cooperation, and I will say we are adjourned. I see some applause, so I will give that right back to everybody. Thank you. We are adjourned.

(Hearing concluded at 5:17 p.m.)

CERTIFICATE OF REPORTER

STATE OF NORTH CAROLINA)
COUNTY OF WAKE)

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

This the 19th day of June, 2020.

Joann Bunze

JOANN BUNZE, RPR

Notary Public #200707300112