



**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

August 29, 2023

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. E-2, Sub 1322 – Application by Duke Energy Progress, LLC for Approval of Demand-Side Management and Energy Efficiency Cost Recovery Rider Pursuant

Dear Ms. Dunston:

Attached for filing on behalf of the Public Staff in the above-referenced docket is the testimony of Tommy Williamson, Jr., Utilities Engineer with the Public Staff – North Carolina Utilities Commission.

By copy of this letter, I am forwarding a copy to all parties of record by electronic delivery.

Sincerely,

Electronically submitted
/s/ Anne M. Keyworth
Staff Attorney
anne.keyworth@psncuc.nc.gov

Attachment

Executive Director
(919) 733-2435

Accounting
(919) 733-4279

Consumer Services
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Economic Research
(919) 733-2267

Energy
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Legal
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Transportation
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Water/Telephone
(919) 733-5610

CERTIFICATE OF SERVICE

I certify that I have served a copy of the following testimony on all parties of record in accordance with Commission Rule R1-39, by United States mail, postage prepaid, first class; by hand delivery; or by means of facsimile or electronic delivery upon agreement of the receiving party.

This the 29th day of August, 2023.

Electronically submitted
/s/ Anne M. Keyworth

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1322

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

August 29, 2023

1 **Q. Please state your name, business address, and present**
2 **position.**

3 A. My name is Tommy Williamson, Jr. My business address is 430
4 North Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am
5 a Utilities Engineer with the North Carolina Utilities Commission -
6 Public Staff, Energy Division, Electric Section – Rates and Energy
7 Services.

8 **Q. Briefly state your qualifications and duties.**

9 A. My qualifications and duties are attached as Appendix A.

10 **Q. What is the purpose of your testimony?**

11 A. The purpose of my testimony is to present the Public Staff's analysis
12 and recommendations with respect to Duke Energy Progress, LLC's
13 (DEP or the Company) application for approval of its demand-side
14 management (DSM) and energy efficiency (EE) cost recovery rider
15 for Vintage Year 2024 (2024 Rider), as well as the testimony and
16 exhibits of DEP witnesses Casey Q. Fields and Carolyn T. Miller filed
17 on June 13, 2023, and the supplemental testimony and revised
18 exhibits of witnesses Fields and Miller filed on August 24, 2023.

19 My testimony discusses: (1) the portfolio of DSM/EE programs
20 included in the proposed 2024 Rider, including modifications to those
21 programs; (2) the ongoing cost-effectiveness and performance of
22 each DSM/EE program; and (3) the evaluation, measurement, and

1 verification (EM&V) studies filed as Exhibits A through I to the
2 testimony of Company witness Fields.¹

3 **Q. What documents have you reviewed in your investigation of**
4 **DEP's proposed 2024 Rider?**

5 A. I reviewed the application, supporting testimony and exhibits, and
6 DEP's responses to Public Staff data requests. In addition, I
7 reviewed the following documents, which are pertinent to the 2024
8 Rider:

- 9 1. The Cost Recovery and Incentive Mechanism for Demand-Side
10 Management and Energy Efficiency Programs approved on
11 November 27, 2017, in the Commission's Order Approving
12 DSM/EE Rider, Revising DSM/EE Mechanism, and Requiring
13 Filing of Proposed Customer Notice, in Docket No. E-2, Sub
14 1145 (2017 Mechanism);
- 15 2. The Cost Recovery and Incentive Mechanism for Demand-Side
16 Management and Energy Efficiency Programs approved on
17 October 20, 2020, in the Commission's Order Approving
18 Revisions to Demand-Side Management and Energy Efficiency

¹ The Company filed Fields Exhibit J as an EM&V report, but Fields Exhibit J is an informational report to study low- and moderate-income penetration within the Company's DSM/EE portfolio. Fields Exhibit J does not propose any adjustment to the amount of energy savings that will be incorporated in the Company's filing.

1 Cost Recovery Mechanisms, in Docket Nos. E-2, Sub 931, and
2 E-7, Sub 1032 (2020 Mechanism); and

3 3. The modification to subsection 20 of the 2020 Mechanism to
4 include language on the Reserve Margin Adjustment Factor,
5 approved by the Commission in Docket No. E-2, Sub 1294, on
6 December 22, 2022.

7 **Q. Please summarize your recommendations.**

8 A. The Public Staff makes the following recommendations:

9 1. That the EM&V reports filed by DEP as Fields Exhibits A
10 through D and Exhibits F through I be accepted; and

11 2. That the EM&V report filed as Fields Exhibit E be accepted
12 subject to the Public Staff's recommendation on the non-
13 participant spillover (NPSO) percentage, as set forth in the
14 testimony of Public Staff witness Warren Hirons.

15 **Q. Are you providing any exhibits with your testimony?**

16 A. Yes, I am. Williamson Exhibit 1 shows the Utility Cost (UC) test
17 scores for programs for which cost recovery is sought in this
18 proceeding using the projected UC test scores filed by the Company
19 for each program in each of the 2020 through 2024 rider filings.
20 Williamson Exhibit 2 shows the UC test scores provided by the
21 Company for programs for which cost recovery is sought in this
22 proceeding following adjustment for actual participation and EM&V

1 over the period of 2018 through 2022 based upon information
2 provided by the Company through discovery.

3 Individually, these exhibits show the Company's projections and
4 actuals over five-year periods, and together, the exhibits can be used
5 to compare the results of the Company's projections for the
6 overlapping years of 2020 through 2022.

7 **Q. For which programs is DEP seeking cost recovery through the**
8 **DSM/EE rider in this proceeding?**

9 A. In its proposed 2024 Rider, DEP is seeking recovery of the costs and
10 incentives associated with the following programs:

11 Residential

- 12 • Energy Education Program for Schools
- 13 • Energy Efficient Appliances and Devices
- 14 • Energy Efficient Lighting
- 15 • EnergyWise Home
- 16 • Low Income Weatherization Pilot
- 17 • Multi-Family Energy Efficiency
- 18 • My Home Energy Report
- 19 • Neighborhood Energy Saver
- 20 • Residential Energy Assessments
- 21 • Residential New Construction

- 1 • Residential Smart Saver
- 2 Non-Residential
- 3 • Commercial, Industrial & Government Demand Response
- 4 • EnergyWise for Business
- 5 • Non-Residential Smart Saver - Custom
- 6 • Non-Residential Smart Saver - Performance Incentive
- 7 • Non-Residential Smart Saver - Prescriptive
- 8 • Small Business Energy Saver

9 **Q. What was the purpose of the Company's supplemental**
10 **testimony and revised exhibits?**

11 A. The purpose of the supplemental testimony was to update numerous
12 exhibits of Company witnesses Fields and Miller.

13 **Q. Did you discover any errors in the supplemental filing?**

14 A. Yes, I did. During my review, I observed that the Company provided
15 updated entries for the Weatherization Pilot and EE Lighting that
16 were not addressed in the Company's supplemental testimony. After
17 discussions, the Company agrees that entries for these two
18 residential programs were included in error. This error did not impact
19 the projections for the Residential portfolio UC test ratio for Vintage
20 2024.

1 **Q. Did you include information from the Company's supplemental**
2 **testimony in your exhibits?**

3 A. Yes. From witness Fields' revised Exhibit 7, I incorporated the
4 updated prospective UC test cost effectiveness ratio for the Non-
5 Residential Smart Saver – Prescriptive program into Williamson
6 Exhibit 1. This was the only program cost-effectiveness result that
7 was changed from the initial filing of Fields Exhibit 7.

8 As a result of updating the Non-Residential Smart Saver –
9 Prescriptive program, the cost-effectiveness projections for the
10 overall non-residential portfolio and the combined (residential and
11 non-residential) portfolios were updated. Those changes are also
12 reflected in Williamson Exhibit 1.

13 Cost Effectiveness

14 **Q. How is the cost-effectiveness of DEP's DSM/EE programs**
15 **evaluated?**

16 A. The cost-effectiveness of a program is determined using a ratio of
17 the benefits versus the costs of the program. The cost-effectiveness
18 of each DSM/EE program is reviewed when it is proposed for
19 approval and then annually in the rider proceedings. Pursuant to the
20 2020 Mechanism, cost-effectiveness is evaluated at both the
21 program and portfolio levels. Cost-effectiveness is reviewed using
22 the UC, Total Resource Cost (TRC), Participant, and Ratepayer

1 Impact Measure (RIM) tests. Under each of these four tests, a result
2 above 1.0 indicates that the benefits of the program outweigh the
3 costs² so that the program is cost effective. It is possible for a
4 program's score to exceed 1.0 on one or more tests, while still falling
5 below 1.0 on other tests. While the 2017 Mechanism used the TRC
6 and UC tests to evaluate initial and ongoing cost-effectiveness, the
7 2020 Mechanism uses the UC test only.

8 The TRC test represents the combined utility and participant benefits
9 that will result from implementation of the program, with a result
10 greater than 1.0 indicating that the benefits outweigh the costs of a
11 program to both the utility and the program's participants. A UC test
12 result greater than 1.0 means that the program is cost beneficial³ to
13 the utility (the overall system benefits are greater than the utility's
14 costs incurred to offer the program, including incentives paid to
15 participants). The Participant test is used to evaluate the benefits
16 against the costs specific to those ratepayers who participate in a
17 program. The RIM test evaluates how the rates of customers who do
18 not participate in a program will be impacted by the program (but

² Each test uses different costs and benefits in calculating the cost-effectiveness score.

³ "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, or avoiding energy generation from existing or new facilities or purchased power.

1 without consideration of what future rates would have been
2 otherwise).

3 **Q. How is cost-effectiveness evaluated in DSM/EE rider**
4 **proceedings?**

5 A. In each DSM/EE rider proceeding, DEP files the projected cost-
6 effectiveness of each program and for the portfolio as a whole for the
7 upcoming rate period under each of the four cost-effectiveness tests
8 (Fields Exhibit 7). The evaluations in DSM/EE rider proceedings look
9 at the actual performance of a typical measure to provide an
10 indication of what to expect over the next year. DEP updates each
11 year's rider filing with the most current EM&V data and other program
12 performance data. Fields Exhibit 8 illustrates the impact of updated
13 EM&V data, measure offerings, and participation numbers on the
14 cost effectiveness projections for each program.

15 **Q. How does the Public Staff review cost-effectiveness in each**
16 **rider?**

17 A. The Public Staff compares the cost-effectiveness test projections
18 from previous DSM/EE proceedings to the current filing and
19 develops a trend of cost-effectiveness projections that serves as the
20 basis for the Public Staff's recommendation on whether a program
21 should: (1) continue as currently implemented; (2) be monitored for
22 further decreases in cost-effectiveness along with any Company

1 efforts to improve cost-effectiveness; or (3) be terminated. While
2 each DSM/EE rider proceeding provides a snapshot of the cost-
3 effectiveness and performance of the programs and portfolio, the
4 Public Staff does not rely on one specific calculation to evaluate
5 program performance. The trends provide a clearer understanding
6 of how changes in participation, avoided cost inputs, marketing and
7 education about DSM/EE matters, and customer behaviors and
8 preferences impact overall program performance.

9 Program design and delivery may need to be modified to address
10 changes in cost-effectiveness. For example, incentive levels may
11 need to be increased or decreased to maintain overall cost-
12 effectiveness. Changes in the avoided cost inputs that value the
13 energy savings benefits may increase or decrease the cost-
14 effectiveness of programs or the portfolio. In either case, the trends
15 in cost-effectiveness over time are more telling of overall
16 performance.

17 **Q. How are the benefits determined in a cost-effectiveness**
18 **evaluation?**

19 A. The benefits associated with a program's cost-effectiveness are
20 determined by multiplying the applicable avoided cost rates by the
21 energy or demand savings generated by the program during a
22 specified vintage year. Additionally, the avoided costs that are used

1 in a proceeding for the upcoming rate period determine how the cost-
2 effectiveness, Portfolio Performance Incentive (PPI), and Program
3 Return Incentive (PRI) will be calculated.

4 **Q. What avoided costs should be used as the basis for determining**
5 **cost-effectiveness for Vintage Year 2024?**

6 A. For purposes of determining cost-effectiveness in Vintage Year 2024,
7 the applicable avoided cost sourcing that complies with paragraph
8 77 of the 2020 Mechanism are the rates approved in the Biennial
9 Determination of Avoided Cost Rates for Electric Utility Purchases
10 from Qualifying Facilities issued on November 22, 2022, in Docket
11 No. E-100, Sub 175.

12 **Q. Do you believe the Company's updated assessment of cost-**
13 **effectiveness for Vintage Year 2024 is reasonable?**

14 A. Yes, I do. I have reviewed its updated information and believe it to
15 be reasonable.

16 Program Performance

17 **Q. Please discuss the performance of DEP's DSM/EE portfolio.**

18 A. The Company's DSM/EE portfolio offers a wide variety of measures
19 to support the everyday activities of its customers in an energy-
20 efficient manner. The Public Staff's review of program performance
21 involved: (1) reviewing cost-effectiveness trends; (2) reviewing

22 Fields Exhibit 6, which provides specific information on each

1 program's marketing strategy and potential areas of concern; and (3)
2 performing an overall qualitative analysis.

3 The Public Staff also uses its involvement in the Company's EE
4 Collaborative meetings, which occur every other month, to stay
5 informed regarding how the portfolio of programs is performing.
6 During these meetings, the Collaborative discusses program
7 performance (participation, customer engagement, and potential
8 barriers to entry and continuation of the program), recently
9 completed EM&V and market potential study activities, and potential
10 new program offerings.

11 Williamson Exhibit 2 shows that both the residential and non-
12 residential portfolios have been cost-effective during the 2018
13 through 2022 timeframe. Based on the review discussed above, the
14 Public Staff believes that the historical performance of the
15 Company's programs is reasonable.

16 EM&V

17 **Q. Have you reviewed the EM&V reports filed by DEP?**

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

1 I also reviewed previous Commission orders to determine if DEP
2 complied with provisions regarding EM&V contained in those orders.
3 My review leads me to conclude that the Company is complying with
4 the Commission orders regarding EM&V of its DSM/EE portfolio.

5 **Q. Did the Company provide an update to any of the EM&V Reports**
6 **filed in this proceeding?**

7 A. Yes. In Docket No. E-2, Sub 1294, the Commission held open the
8 report for the Small Business Energy Saver Program due to an error
9 in the report. In the current proceeding, the Company filed an
10 updated and corrected report for that program as Fields Exhibit C.

11 **Q. How much time is required to conduct and incorporate EM&V**
12 **for a program vintage year?**

13 A. Depending on when the EM&V for a vintage year of a program is
14 completed, a vintage year may need to remain open for accounting
15 adjustments for three to five years to incorporate the updated energy
16 and capacity savings that are determined in the various EM&V
17 reports.

18 **Q. Does the Public Staff have any concerns regarding how long**
19 **vintages are held open so that they may be trued up?**

20 A. Not in this proceeding. As part of the upcoming mechanism review
21 that was initiated by the Company on April 27, 2023, in Docket No.
22 E-2, Sub 931, the Public Staff intends to discuss with interested

1 parties the appropriate length of time for making corrections to
2 previous vintage years and how corrections for a given vintage year
3 will be managed. The Public Staff does not propose any
4 recommendations on these matters in this proceeding.

5 **Q. With respect to the findings presented in the EM&V reports in**
6 **this proceeding, do you have any recommendations regarding**
7 **the EM&V reports you reviewed?**

8 A. Yes. In Docket No. E-7, Sub 1285, Public Staff witness David M.
9 Williamson testified that, based on his review and discussions with
10 Duke Energy Carolinas, LLC (DEC), the Public Staff needed more
11 time to complete a review of the Non-Residential Smart Saver
12 Custom Program's EM&V report prepared on behalf of both DEC and
13 DEP.

14 In this proceeding, the Public Staff, with the assistance of GDS, has
15 completed its review of the Non-Residential Smart Saver Custom
16 Program EM&V Report filed in this proceeding as Fields Exhibit E.
17 Public Staff witness Warren Hirons provides testimony and the Public
18 Staff's recommendation regarding Fields Exhibit E.

1 **Q. Should the remaining EM&V reports filed in this proceeding be**
2 **accepted as complete?**

3 A. Yes, the remaining EM&V reports filed in this proceeding – Fields
4 Exhibits A through D, and F through I – should be considered
5 complete as filed.

6 **Q. Have you confirmed that the Company's calculations**
7 **incorporate the verified savings of the various EM&V reports?**

8 A. Yes. I verified that the changes to program impacts and participation
9 were appropriately incorporated into the rider calculations for each
10 DSM/EE program, as well as the actual participation and impacts
11 calculated with EM&V data. I reviewed: (1) workpapers provided in
12 response to data requests; (2) a sampling of the EE programs; and
13 (3) Fields Exhibit 1, which incorporates data from various EM&V
14 studies. I also met with DEP's staff to review the calculations, EM&V,
15 DSMore modeling inputs, and other data related to the
16 program/measure participation and impacts. Based on my review of
17 this data, I believe DEP has appropriately incorporated the findings
18 from EM&V studies and annual participation into its rider calculations
19 consistent with Commission orders and the 2017 Mechanism and
20 2020 Mechanism.

21 **Q. Does this conclude your testimony?**

22 A. Yes.

QUALIFICATIONS AND EXPERIENCE

TOMMY WILLIAMSON, JR.

I am an Engineer with the Public Staff's Energy Division. I graduated from North Carolina State University with a Bachelor of Science in Electrical Engineering. I have approximately three years of electrical distribution design and construction experience with Florida Power & Light Company. During my time at Florida Power & Light Company, I designed distribution circuits for overhead and underground services from the substation through to end users. This work was inclusive of, but not limited to, customer load analysis, feeder line loading analysis, facilities construction, and installation. I then served as an Engineer with General Electric Company for 11 years. In this role, I represented the company with electrical design engineers, industrial and commercial end customers, and installation contractors to develop technical specifications for the procurement and use of electrical distribution equipment.

Since my employment with the Public Staff, I have reviewed customer quality of service complaints, transmission and distribution construction projects, vegetation management, small generator interconnection procedures, and DSM/EE program review and cost recovery. I have filed testimony in general rate cases and regarding the North Carolina Interconnection Procedures.

Utility Cost Test - Prospective					
Vintage Year:	2020	2021	2022	2023	2024
Docket No. E-2, Sub:	1206	1252	1273	1294	1322
Residential Programs					
Energy Education Program for Schools	1.35	1.37	1.46	1.18	1.12
Energy Efficient Appliances & Devices	14.59	8.44	2.78	2.78	4.85
Energy Efficient Lighting	2.01	1.99	1.92	2.00	-
EnergyWise Home	5.27	1.96	3.77	1.96	2.26
Multi-Family Energy Efficiency	2.65	2.64	2.59	2.80	4.28
My Home Energy Report	1.01	1.61	1.64	2.69	2.81
Neighborhood Energy Saver	0.49	0.87	0.85	1.08	0.91
Residential Energy Assessments	2.15	2.03	2.29	2.26	2.14
Residential New Construction	1.55	1.31	1.35	1.81	1.88
Residential Smart \$aver (Home Energy Improvement)	1.60	0.57	1.01	1.37	1.49
Residential Portfolio	2.56	1.76	1.77	1.91	2.07
Non-Residential Programs					
Non-Residential Smart Saver - Custom	2.61	3.16	2.89	2.98	3.66
Non-Residential Smart Saver - Prescriptive				2.22	2.86
Non-Residential Smart Saver - Performance Incentive	4.05	2.83	2.80	4.19	3.31
Small Business Energy Saver	2.51	2.01	2.48	1.95	2.77
EnergyWise ® for Business	0.27	0.27	0.28	1.19	0.84
Commercial Industrial Governmental Demand Response	1.84	1.77	2.11	3.99	3.89
Non-Residential Portfolio	2.59	2.41	2.48	2.41	2.95
Combined Portfolio	2.57	2.01	2.07	2.10	2.44

Utility Cost Test - Actuals					
Vintage Year:	2018	2019	2020	2021	2022
Docket No. E-2, Sub:	1145	1174	1206	1252	1273
Residential Programs					
Energy Education Program for Schools	1.86	1.39	1.06	0.91	0.91
Energy Efficient Appliances and Devices	12.37	4.73	2.85	4.22	4.19
Energy Efficient Lighting	3.44	2.63	3.35	2.33	3.60
EnergyWise Home	9.62	9.17	7.94	0.36	1.71
Low Income Weatherization Pilot	-	4.01	1.54	1.96	1.18
Multi-Family Energy Efficiency	3.53	2.77	1.56	1.78	2.10
My Home Energy Report	1.25	1.82	1.46	2.26	2.67
Neighborhood Energy Saver	0.91	0.74	0.36	0.31	0.65
Residential Energy Assessments	2.90	2.06	1.87	1.40	1.65
Residential New Construction	1.73	1.28	1.21	1.11	1.16
Residential Smart Saver (Home Energy Improvement)	0.88	0.84	0.84	0.61	1.03
Residential Portfolio	3.03	2.64	1.77	1.39	1.86
Non-Residential Programs					
Commercial, Industrial & Governemnt Demand Response	1.22	2.43	2.19	2.11	-
EnergyWise for Business	0.07	0.38	0.36	0.34	0.28
Non-Residential Smart Saver - Custom	3.69	3.48	2.70	2.08	1.55
Non-Residential Smart Saver - Perfomance Incentive	4.02	2.27	3.21	1.66	0.56
Non-Residential Smart Saver - Prescriptive	5.80	3.99	3.63	2.29	2.21
Small Business Energy Saver	2.52	2.39	2.11	1.55	1.72
Non Residential Portfolio	3.81	2.87	2.67	1.94	1.85
Combined Portfolio	3.29	2.71	2.04	1.59	1.85