

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1146

In the Matter of	)	
Application of Duke Energy Carolina,	)	TESTIMONY OF
for Adjustment of Rates and Charges	)	TOMMY C. WILLIAMSON, JR.
Applicable to Electric Utility Service in	)	PUBLIC STAFF – NORTH
North Carolina	)	CAROLINA UTILITIES
	)	COMMISSION

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**TESTIMONY OF TOMMY C. WILLIAMSON, JR.  
ON BEHALF OF THE PUBLIC STAFF  
NORTH CAROLINA UTILITIES COMMISSION**

**JANUARY 23, 2018**

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

3 A. My name is Tommy C. Williamson, Jr. My business address is 430  
4 North Salisbury Street, Dobbs Building, Raleigh, North Carolina. I  
5 am an Engineer with the Electric Division of the Public Staff – North  
6 Carolina Utilities Commission.

7 **Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.**

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

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

10 A. The purpose of my testimony is to discuss my review of the filing  
11 made by Duke Energy Carolinas, LLC (DEC or the Company) in this  
12 docket as it pertains to: (1) the Power/Forward Carolinas (PFC)  
13 initiative and the proposed Grid Reliability and Resiliency (GRR)  
14 Rider; (2) Vegetation Management (VM); and (3) the Company's  
15 overall quality of service.

1 **POWER/FORWARD CAROLINAS / GRID RELIABILITY & RESILENCY**

2 **RIDER**

3 **Q. WHAT IS THE POWER/FORWARD CAROLINAS INITIATIVE?**

4 A. Company witness Fountain describes certain investments intended  
5 to improve the performance and capacity of the grid that the  
6 Company is formally calling Power/Forward Carolinas. DEC and  
7 Duke Energy Progress, LLC (DEP) are in the initial stages of  
8 executing an estimated \$13 billion grid modernization plan across  
9 North Carolina over the next 10 years. Company witness Simpson  
10 details how the Company's PFC initiative will primarily focus on  
11 programs that improve the reliability and hardness of the system  
12 while making it "smarter," build a foundation for customer focused  
13 innovation and new technologies, comply with prescriptive federal  
14 transmission reliability and security standards, address maintenance  
15 requirements for aging assets, and further integrate and optimize  
16 intermittent distributed renewable generation.

17 **Q. PLEASE PROVIDE MORE DETAILS ON THE PROPOSED PFC**  
18 **INITIATIVE.**

19 A. In general, PFC is comprised of transmission and distribution  
20 systems upgrades. According to witness Simpson, the transmission  
21 system upgrades will be focused on: (1) replacing equipment before  
22 it fails; (2) installing equipment and processes that will notify the

1 Company of issues with equipment that could lead to failure or  
2 outage; (3) decreasing the environmental footprint; (4) increasing  
3 physical and cyber security defenses; and (5) adding new system  
4 intelligence capabilities.

5 Witness Simpson also testified that the distribution system upgrades  
6 will be focused on: (1) targeting problematic circuits for  
7 undergrounding; (2) installing or replacing equipment to harden and  
8 improve resiliency and provide back feed capabilities; (3) adding  
9 systems to self-optimize circuits in order to identify and resolve  
10 issues automatically; (4) improving the communications assets of  
11 key facilities; and (5) installing smart metering technologies. Several  
12 of these areas of investment represent expenditures for projects that  
13 have been identified in the Company's smart grid technology plans  
14 filed with the Commission in recent years.<sup>1</sup>

15 In addition, the Company places significant emphasis on the  
16 reduction in outage frequency and duration from PFC.<sup>2</sup>

17 **Q. WHAT IS THE GRR RIDER?**

18 A. DEC has proposed the establishment of a GRR Rider to recover the  
19 costs of PFC.

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<sup>1</sup> NCUC Rule R8-60.1 requires DEC, along with DEP and Dominion Energy North Carolina (DENC) to file annual information on their smart grid technology plans.

<sup>2</sup> DEC, along with DEP and DENC are required to file quarterly reports on service quality in Docket No. E-100, Sub 138A.

1 Q. WHAT IS THE PUBLIC STAFF'S POSITION REGARDING PFC  
2 AND THE GRR RIDER?

3 A. In general, the Public Staff recognizes that the Company has a  
4 continuing obligation to make reasonable and prudent investments  
5 in the grid in order to ensure reliable service to customers. However,  
6 there is substantial uncertainty regarding what exactly will be  
7 included in the PFC initiative. Additional information is needed to  
8 allow the Commission and Public Staff to better understand the PFC  
9 initiative and to quantify its benefits. The Company's current  
10 description of PFC is extremely broad, open-ended, and lacks  
11 sufficient detail to warrant approval of the cost recovery mechanism  
12 the Company seeks.

13 The extent of the planned investment and the potential impact on  
14 customer rates require additional information, which would assist the  
15 Commission and Public Staff in understanding PFC and evaluating  
16 its cost-effectiveness. Any PFC investments should be supported by  
17 cost-benefit analyses to ensure that the benefits of the investments  
18 outweigh the costs and accrue to the benefit of ratepayers.

19 Based on the information currently available, the Public Staff is not  
20 persuaded that all the components of DEC's PFC initiative will result  
21 in modernizing the grid, as opposed to meeting DEC's everyday,  
22 customary responsibility to provide adequate and reliable service to  
23 its customers. As witness Simpson states, much of the PFC initiative

1 is projected to improve DEC's outage frequency and duration, which  
2 should always be part of DEC's everyday planning and operations.  
3 For these reasons, and for the reasons described in Public Staff  
4 witness Maness' testimony, the Public Staff does not support the  
5 establishment of a Grid Reliability and Resiliency (GRR) Rider at this  
6 time to recover the costs of PFC.

7 **Q. DOES THE PUBLIC STAFF RECOMMEND DEC PROVIDE**  
8 **ADDITIONAL INFORMATION REGARDING PFC AND THE GRR**  
9 **RIDER?**

10 A. Whether or not the GRR Rider is approved, I recommend that the  
11 Commission require DEC to include in its smart grid technology plan  
12 filings, required by Commission Rule R8-60.1, more detailed  
13 information on: (1) the purpose of each project or categories of  
14 projects; (2) a schedule of implementation; (3) changes to the  
15 schedule that would impact the project's cost or in-service date; (4)  
16 project capital and O&M costs (both new and any stranded costs of  
17 removed assets); (5) how the Company proposes to recover these  
18 costs; and (6) a demonstration of how the project is designed to  
19 reduce the outage frequency and duration of individual circuits or  
20 other transmission and distribution assets affected by the project.  
21 Adding these requirements to the smart grid technology filings will  
22 allow the Commission and Public Staff to stay apprised of the  
23 Company's progress on PFC projects in areas that have already

1           been identified in previous smart grid technology plans as well as  
2           new projects that further the goals of PFC.

3   **Q.   HAS THE COMPANY INCURRED ANY EXPENDITURES UNDER**  
4   **THE PFC INITIATIVE?**

5   A.   Yes.  DEC spent approximately \$77 million from January 1, 2017  
6       through October 31, 2017.  The Company budgeted to spend  
7       approximately \$91 million for calendar year 2017.

8   **Q.   WHAT DOES THE PUBLIC STAFF RECOMMEND REGARDING**  
9   **RECOVERY OF THE PFC COSTS?**

10  A.   The Public Staff recommends that PFC costs be treated just as the  
11       Company's other transmission and distribution costs and recovered  
12       through the general ratemaking process.

13  **Q.   SHOULD THE COMMISSION FIND THAT ESTABLISHMENT OF A**  
14  **GRR RIDER IS IN THE PUBLIC INTEREST, DOES THE PUBLIC**  
15  **STAFF HAVE ANY RECOMMENDATIONS REGARDING THE**  
16  **RIDER?**

17  A.   Yes.  Should the Commission determine a rider for recovery of  
18       certain costs associated with PFC is in the public interest, the Public  
19       Staff suggests that it only include the capital costs for extraordinary,  
20       discrete, non-growth related, cost effective projects that are focused  
21       on grid modernization, as opposed to grid maintenance and support.

1 Public Staff witness Maness explains the Public Staff's  
2 recommendation in more detail.

3 By "grid modernization", I mean efforts to bring the current grid up to  
4 new standards of operation and reliability, not investments needed  
5 to maintain or restore the grid to historic levels of operation and  
6 reliability. Projects recovered through a GRR Rider should only  
7 reflect activities and investment over and above normal and routine  
8 application and use.

9 **Q. SHOULD OPERATING AND MAINTENANCE (O&M) COSTS**  
10 **FROM PFC PROJECTS BE INCLUDED IN A GRR RIDER?**

11 A. No. The Public Staff does not believe O&M costs from PFC projects  
12 should be included in the GRR Rider. As the grid is modernized and  
13 improved, some PFC-related O&M costs may increase, while other  
14 O&M costs will likely go down, some of which will not be captured by  
15 the GRR Rider. Therefore, PFC-related O&M costs should only be  
16 adjusted as part of a future general rate case when they can be  
17 looked at in totality with all O&M costs.

1 Q. ARE THERE SPECIFIC PROGRAMS DEC HAS PROPOSED  
2 UNDER THE PFC INITIATIVE THAT SHOULD NOT BE  
3 CONSIDERED “ELIGIBLE” FOR COST RECOVERY UNDER THE  
4 GRR RIDER?

5 A. Yes. Even if a GRR Rider is approved, the Public Staff believes that  
6 all or some of the following PFC programs should not be eligible for  
7 cost recovery under the GRR Rider:

- 8 • Targeted Undergrounding: This program will replace  
9 overhead distribution lines with underground lines to protect  
10 the lines and other associated equipment from the impacts of  
11 fallen trees or limbs. Undergrounding of distribution lines is  
12 not a new concept or practice, nor does it require new or  
13 innovative equipment that has recently entered the industry.  
14 There is nothing about undergrounding distribution lines that  
15 should be considered new, modern, extraordinary or outside  
16 the scope of normal operations required to provide adequate  
17 and reliable service to customers. This entire program should  
18 be excluded from eligible recovery in any GRR Rider.
- 19 • Distribution Hardening and Resiliency: This program includes  
20 some projects that are appropriate to exclude, but other  
21 projects that could be included. Cable and pole replacement  
22 projects should be excluded from GRR Rider recovery. These  
23 two projects are the result of normal application and use of

1 materials in a distribution system. As these materials  
2 approach the end of useful life, or are damaged in some way,  
3 replacement is part of normal operations. The Public Staff  
4 does not consider these projects to constitute grid  
5 modernization or to be extraordinary. The Company,  
6 however, also includes transformer retrofits in this program,  
7 which the Public Staff believes may be appropriate to include  
8 in a GRR Rider. In contrast to pole and cable replacement,  
9 this project could be considered grid modernization because  
10 it involves replacing an outmoded distribution design.

- 11 • AMI Deployment: This program has been ongoing since prior  
12 to the first mention of PFC. As noted in Public Staff witness  
13 Floyd's testimony, DEC has already installed approximately  
14 750,000 AMI meters, or roughly 37% of its total meters, in its  
15 North Carolina service territory. While AMI meters contain a  
16 modernization component, their deployment is neither  
17 extraordinary nor discrete. Therefore, AMI deployment  
18 should not be recoverable in a GRR Rider.

1 Q. ARE THERE SPECIFIC PROGRAMS DEC HAS PROPOSED  
2 UNDER THE PFC INITIATIVE THAT COULD BE CONSIDERED  
3 “ELIGIBLE” FOR COST RECOVERY UNDER THE GRR RIDER?

4 A. Yes. If a GRR Rider is approved, the Public Staff believes that all or  
5 some of the following PFC programs could be eligible for cost  
6 recovery under the GRR Rider:

- 7 • Distribution Hardening and Resiliency projects such as  
8 transformer retrofits may be considered eligible. However, as  
9 I discussed above, pole replacement and cable replacement  
10 should not be considered eligible;
- 11 • Transmission Improvement projects such as breaker  
12 replacements, substation transformer replacements, and  
13 transmission line equipment replacements and hardening;
- 14 • Self-Optimizing Grid projects to upgrade guidelines for switch  
15 automation, connectivity, and capacity;
- 16 • Communications Network Upgrade projects such as the Land  
17 Mobile Radio End-of-Life project, the Vehicle Area Network  
18 project, and tower and shelter upgrades; and
- 19 • Advanced Enterprise System projects such as Distribution  
20 Management System, Outage Management System,  
21 and SCADA.

1 **VEGETATION MANAGEMENT**

2 **Q. WHAT IS THE COMPANY'S CURRENT VEGETATION**  
3 **MAINTENANCE PLAN?**

4 A. The Company initiated its current vegetation work cycle, referred to  
5 as the "5-7-9" plan (Plan), in 2013. The Plan represented a change  
6 from a reliability based approach to a cyclical approach to vegetation  
7 management (VM). The Plan classifies DEC's distribution circuit-  
8 miles into three categories, maintained on three independent cycle  
9 periods: "Old-urban" – five years; "Mountain" – seven years; and  
10 "Other" – nine years. These cycles were determined from a  
11 vegetation growth study conducted by a DEC consultant.

12 **Q. WHAT HAS BEEN THE COMPANY'S PERFORMANCE IN**  
13 **EXECUTING ITS DISTRIBUTION VEGETATION MANAGEMENT**  
14 **PLAN?**

15 A. For the period January 2013 through November 2017, the Company  
16 reported the following VM performance for circuit miles maintained  
17 by category:

- 18 • Old-urban: DEC maintained 1,408 miles, or 65%, of the 2,175  
19 target miles for this period. The Company failed to achieve  
20 the target miles in any year during this period and is now  
21 effectively operating on a 7.7 year cycle.

1           • Mountain: DEC maintained 3,597 miles, or 64%, of the 5,600  
2 target miles for this period. The Company failed to achieve  
3 the target miles in any year during this period and is now  
4 effectively operating on a 10.9 year cycle.

5           • Other: DEC maintained 22,193 miles, or 96%, of the 23,175  
6 target miles for this period. The Company did exceed its  
7 annual target miles for “Other” in the three year period 2014-  
8 2016, but was significantly below target in both 2013 and  
9 2017.

10 Overall, during the first five years of the Plan, the Company  
11 completed VM on a combined total of 27,198 miles, which represents  
12 88% of the 30,950 target miles for this period. For this period, the  
13 Company is behind their combined target miles for all categories,  
14 thus creating a back-log of approximately 3,752 miles.

15 **Q. DID THE COMPANY PROPOSE AN INCREASE TO VEGETATION**  
16 **MANAGEMENT PROGRAM COSTS IN THIS APPLICATION?**

17 A. Yes. The Company proposes to increase its VM plan costs for an  
18 increase in the frequency of trimming and herbicide application, and  
19 the continuation of other vegetation management practices such as  
20 hazard tree cutting. The Company also requested an increase to  
21 reflect a 7% increase in contractor VM production labor costs.

1 **Q. DO YOU AGREE WITH PUBLIC STAFF WITNESS BOSWELL'S**  
2 **ADJUSTMENT TO THE COMPANY'S VEGETATION**  
3 **MANAGEMENT PROGRAM BUDGET?**

4 A. Yes. I agree with her adjustment as shown in Boswell Exhibit 1,  
5 Schedule 3-1(e).

6 The Public Staff's adjustment maintains the reactive, herbicide, and  
7 contract inspector program costs at test year actual spending levels  
8 but applies a 7% increase in contractor VM production labor costs.

9 **Q. PLEASE DISCUSS WHY THE PUBLIC STAFF ADJUSTMENT**  
10 **REMOVES PART OF THE REQUESTED INCREASE FOR VM**  
11 **PROGRAM COSTS.**

12 A. Prior to 2013, the company used a reliability approach<sup>3</sup> to VM. When  
13 the 5-7-9 Plan was initiated in 2013, the company had developed a  
14 back-log of approximately 11,000 miles. As of January 2018, the  
15 company indicated that the current balance of those back-log miles  
16 was approximately 10,000 miles. The \$8.5M per year increase in  
17 VM costs requested in DEC's application is to address this back-log.  
18 This \$8.5M increase does not address the 3,752 mile back-log  
19 created in the 5-7-9 Plan.

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<sup>3</sup> A reliability approach to vegetation management is one in which a utility relies on prescriptive cutting and trimming of vegetation based on clearly defined criteria. Sometimes referred to as a "just-in-time" approach, it requires a high level of consistent monitoring of vegetation growth within specific service areas and is often considered more risky than a fixed-cycle approach.

1           The need to address the back-log would not have been necessary if  
2           a proper, cyclical VM program had been in use by the Company prior  
3           to 2013. Because shareholders benefitted from increased earnings  
4           due to the lower expenses of reliability-based VM, and conversely,  
5           customers suffered from lesser service quality during this same  
6           timeframe, it is inappropriate now for customers to be asked to fund  
7           the back-log work through higher rates.

8   **Q.   PLEASE DESCRIBE THE PUBLIC STAFF ADJUSTMENT**  
9   **REGARDING INCREASES IN THE VM PRODUCTION LABOR**  
10 **COSTS.**

11   A.   At the time of its original filing in this case, the Company indicated  
12       there was a 7% increase in contractor VM production labor costs.  
13       The Public Staff adjusted the production costs to reflect this increase  
14       over the test period actual level of \$41.936M, resulting in an adjusted  
15       cost of \$44.872M. In its November 30, 2017 update, the Company  
16       indicated the production cost increase was actually higher than the  
17       filed 7% increase. As of the filing of my testimony, however, the  
18       Public Staff has yet to be provided with documentation to support the  
19       additional increase. Therefore, the Public Staff's adjustment reflects  
20       only the 7% increase and not the additional increase requested in  
21       the November 30, 2017 update.

1 **QUALITY OF SERVICE**

2 **Q. WHAT FACTORS DID YOU CONSIDER IN YOUR EVALUATION**  
3 **OF DEC'S OVERALL QUALITY OF SERVICE?**

4 A. I reviewed the System Average Interruption Duration Index (SAIDI)  
5 and the System Average Interruption Frequency Index (SAIFI) filed  
6 by DEP with the Commission in Docket No. E-100, Sub 138A;  
7 informal complaints and inquiries from DEC customers received by  
8 the Public Staff's Consumer Services Division; and filed Statements  
9 of Position in this docket, as well as my individual interactions with  
10 DEC and its customers.

11 **Q. WHAT HAS BEEN THE COMPANY'S SAIDI AND SAIFI**  
12 **PERFORMANCE SINCE 2008?**

13 A. SAIDI and SAIFI are measured on a system level. For the period  
14 2008 through 2016, Company reports show that the SAIDI and SAIFI  
15 indices are worsening.

16 **Q. WHAT DO THESE SAIDI AND SAIFI TRENDS MEAN FOR DEC'S**  
17 **SERVICE QUALITY?**

18 A. Based on the trends, the Company's outages are increasing in  
19 frequency, and when they do occur they tend to have a longer  
20 duration on average.

1    **Q.    WHAT TYPES OF COMPLAINTS AND INQUIRIES ARE DEC**  
2           **CUSTOMERS MAKING TO THE PUBLIC STAFF'S CONSUMER**  
3           **SERVICES DIVISION?**

4    A.    For the period January 2016 through December 2017 the Consumer  
5           Services Division received approximately 9,600 direct contacts with  
6           DEC customers. The two highest frequency complaint categories  
7           were (1) payment arrangements 3,480 and (2) revising existing  
8           agreements on payment arrangements 2,520, representing 62% of  
9           all contacts with DEC customers. Less than 1% of the total contacts  
10          were related to service quality issues.

11   **Q.    WHAT IS YOUR CONCLUSION REGARDING THE COMPANY'S**  
12          **QUALITY OF SERVICE?**

13   A.    I conclude that the quality of service provided by DEC to its North  
14          Carolina retail customers is adequate at this time.

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

16   A.    Yes

Tommy C. Williamson, Jr.

I am an Engineer with the Public Staff's Electric Division. I graduated from North Carolina State University with a BS in Electrical Engineering. I have 13 years of electrical distribution design and construction experience with Florida Power & Light Company and General Electric Company.

Since my employment with the Public Staff, I have reviewed customer quality of service complaints, transmission and distribution construction projects, vegetation management, and small generator interconnection procedures. I filed testimony in DEP General Rate Case E-2, Sub 1142.