CENTER for BIOLOGICAL DIVERSITY Because life is good.

February 18, 2020

VIA ELECTRONIC FILING

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

Re: In the Matter of: Application of Duke Energy Carolinas, LLC for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina, Docket No. E-7, Sub 1214

Dear Ms. Campbell:

Pursuant to the Commission's Scheduling Order, enclosed for filing in the above-referenced docket is the Direct Testimony of Rory McIlmoil, on behalf of the Center for Biological Diversity and Appalachian Voices. Pursuant to Commission Rules, we are also submitting thirty (30) paper copies of the testimony and accompanying exhibits for delivery February 19, 2020, which were sent before close of business today.

Please let me know if you have any questions or concerns.

Sincerely,

Electronically submitted
Perrin W. de Jong
Counsel for Intervenors

cc: Parties of Record

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. DOCKET NO. E-7, SUB 1214

In the Matter of:	)	
	)	**DIRECT TESTIMONY OF**
Application of Duke Energy Carolinas, LLC	)	**RORY McILMOIL FOR**
For Adjustment of Rates And Charges	)	**CENTER FOR BIOLOGICAL**
Applicable to Electric Service	)	**DIVERSITY AND**
in North Carolina	)	**APPALACHIAN VOICES**

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I. INTRODUCTION

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

A: My name is Rory McIlmoil. My business address is 589 W. King Street, Boone, NC 28607. I am the Senior Energy Analyst at Appalachian Voices.

Q: WHAT ARE YOUR RESPONSIBILITIES IN THIS ROLE?

A: In my role as Senior Energy Analyst, my responsibilities include researching energy policy models, analyzing the impact on ratepayers and the environment of policies my organization might support or oppose, assisting in the drafting of energy-related legislation, and advocating for utility clean energy programs and rate structures that equitably benefit families and local communities.

Q: PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A: I graduated from Furman University with a Bachelor of Science in Earth and Environmental Science and received a Master of Arts in Global Environmental Policy from American University's School of International Service. I began my professional career serving as the Energy Program Manager with Downstream Strategies, an environmental and energy consulting company based out of Morgantown, West Virginia, where I was responsible for energy and economic research and consulting, project development and local clean energy planning. I joined Appalachian Voices in 2013 as the Energy Savings Program Manager, analyzing and advocating for equitable energy efficiency finance programs and rate structures through North Carolina's rural electric cooperatives.

More specifically as it pertains to equitable programs, I worked to promote the development of utility energy efficiency finance programs that were accessible to all residents regardless of income, credit score, and whether they owned their home or apartment. In terms of rates, I have advocated for residential rate structures through North Carolina's rural electric cooperatives that more accurately reflect "fixed" and "variable" costs, resulting in lower monthly fixed charges, and have also promoted solar net-metering rates that properly value customer-generated solar energy and do not penalize co-op members for investing in on-site distributed solar. I was promoted to Senior Energy Analyst in 2018, and have since focused my efforts on state energy policy.

My resume is attached as Exhibit RM-1.

Q: HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION OR ANY OTHER REGULATORY COMMISSION RELATING TO YOUR CURRENT RESPONSIBILITIES?

A: No. This is the first time I am testifying before this Commission or any other regulatory body.

Q: ON WHOSE BEHALF ARE YOU TESTIFYING?

A: I am testifying on behalf of the Center for Biological Diversity and Appalachian Voices.

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

A: The purpose of my testimony is to address the impacts that this Application – specifically, Duke Energy Carolinas, LLC's ("Company" or "DEC") proposal to increase rates and raise the return on equity ("ROE") – will have on low-income households, specifically on the home energy cost burden those households experience. In light of these effects, my testimony will propose that the Commission strongly consider these impacts of DEC's proposal on household energy burden, and give substantial and due weight to those impacts in the Commission's consideration of "changing economic conditions" and "ability of customers to afford" the proposed rate increase and ROE.[1]

Q: PLEASE SUMMARIZE YOUR KEY POINTS AND FINDINGS.

A: My testimony that follows will:

1) Discuss how household energy cost burden ("energy burden") serves as the most accurate descriptor of a customer's ability to (a) pay their electric bill, and (b) afford a rate increase, and show that trends in energy burden over time provide a more accurate representation of "changing economic conditions" than do changes in unemployment rates, median incomes or

[1] State of North Carolina Utilities Commission, Proposed Order of the Public Staff. "In the Matter of Application by Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina" (April 27, 2018), p. 79-88. Docket Nos. E-7, sub 819, 1110, 1152, 1146 (emphasis added). https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=c8bc297a-a1f5-4371-8832-de9a9029e913

county economic indicators, and thereby should be factored into the Commission's decision-making in this proceeding;

2) Provide a detailed description and the results of my analysis showing how DEC's proposed rate increase will increase the energy burden experienced by households served by DEC that fall under 150 percent of the Federal Poverty Level ("FPL")[2], including the particular findings that:

   a) High energy-burdened households – defined as carrying an energy burden of 10.9 percent or higher[3] – constituted one out of every 12 households served by DEC in 2016 and again in 2019. If DEC's proposed rate increase is approved, the number of high energy-burdened households would be further exacerbated to one out of every nine households by 2021, and one out of every eight households by 2025.

   b) If the rates proposed in this present case are approved, nearly two-thirds of all low-income households served by DEC will be characterized as experiencing a "high household energy burden" by 2025 representing an increase of approximately 50 percent from current conditions.

[2] The US Department of Health and Human Services identifies 150 percent of the FPL as the maximum income allowed to be eligible for Low-Income Home Energy Assistance Program funding. For that reason, this is the threshold used to define low-income households for the purpose of this testimony. LIHEAP Service Eligibility Guidelines, available at https://www.acf.hhs.gov/ocs/resource/liheap-eligibility-criteria.

[3] Applied Public Policy Research Institute for Study and Evaluation (APPRISE). Jul 2005. LIHEAP Energy Burden Evaluation Study: Final Report. Prepared for the US Department of Health and Human Services. At p. 12. https://www.acf.hhs.gov/sites/default/files/ocs/comm_liheap_energyburdenstudy_apprise.pdf

c) Combined, if DEC's current request for a rate increase is approved, annual electric bills for low-income households will have increased by approximately $138 per year ($11.48 per month), on average, between 2016 and 2025 – a 10.6 percent increase in a decade. The large majority of the impact would result from DEC's proposed rate increase.

3) Discuss how, despite the increase in energy burdens for low-income households served by DEC, the Company has invested little to address that problem, and its proposals for investing in energy efficiency generally, and specifically supporting low-income residents in the present rate case do little to mitigate the impacts of the Company's proposed rate increase on household energy costs and energy burdens.

4) Present findings of my analysis of how lower ROEs and a maintaining of DEC's current equity-to-debt ratio of 52 percent and 48 percent, respectively, will benefit residential ratepayers – and thus low-income, energy-burdened households – through a smaller increase in residential rate revenues.

Q: PLEASE SUMMARIZE YOUR PRIMARY RECOMMENDATIONS IN THIS CASE.

A: To mitigate and minimize the impact of DEC's proposed rate increase on low-income, energy-burdened households, I recommend:

1) That the Commission expand the list of factors it considers in weighing "changing economic conditions" and the "ability of customers to afford" the proposed rate increase and ROE to include how these cost increases will

impact energy burdens for low-income households. Historically, energy burdens have been ignored by the Commission, despite the factor's presence in other jurisdictions.

2) That the Commission strongly examine all costs for which DEC is proposing to recover in the present rate case through a lens of whether DEC's justification of those costs is sufficient to warrant enhancing the real and significant burden of energy costs on low-income families.

3) That the Commission, in order to mitigate the impact of the Company's proposal on low-income households, reject DEC's proposal for a 10.3 percent ROE, and instead approve a ROE of no greater than 9.2 percent, which is the ROE recently approved by the Virginia State Corporation Commission ("SCC") for Dominion Energy Virginia ("Dominion")[4], and maintain DEC's current capital structure of 52 percent equity and 48 percent debt.

4) That the Commission require DEC to take household energy burden into account as part of the Company's assessment of trends in "changing economic conditions" in North Carolina and the application of that assessment to calculating and proposing its ROE.

5) That DEC recognize and accept "the definition and use of the phrase 'energy burden,'" and make a more concerted and immediate effort to invest in low-

[4] Commonwealth of Virginia State Corporation Commission. Final Order. Case No. PUR-2019-00050, "For the determination of the fair rate of return on common equity." Nov 21, 2019. http://www.scc.virginia.gov/docketsearch/DOCS/4jx901!.PDF

income energy efficiency and demand-side management programs at a scale of investment sufficient to meet the scale of the problem.

II. IMPACTS OF DEC'S REQUESTED RATE INCREASE ON RESIDENTIAL ELECTRIC BILLS, WITH A FOCUS ON LOW-INCOME HOUSEHOLDS

Q: PLEASE SUMMARIZE DEC'S PROPOSED RATE INCREASE AND THE COSTS THE COMPANY IS PROPOSING TO RECOVER.

A: In this rate case, as outlined in DEC's Application, the Company is proposing to increase rates in order to recover more than $3 billion in costs incurred during the Test Year. This includes more than $2.2 billion for transmission and distribution[5] upgrades and maintenance – including approximately as much as $224 million for already-incurred "grid improvement" expenses[6], more than $600 million for coal ash compliance costs,[7] at least $36 million for storm recovery expenses,[8] and tens of millions more for the accelerated depreciation of coal-fired power plants and other items.[9]

To recover these costs, DEC is requesting an increase in its retail revenues of approximately $445.3 million, representing a 9.2 percent increase

[5] NCUC E-7, Sub 1214, DEC Witness Oliver Testimony at 7
[6] DEC Response to CBD & AV DR 1-II-1, Attachment "Public Staff Data Request No. 78-4 GIP COSS follow up.xlsx
[7] NCUC E-7, Sub 1214, DEC App. at 7.
[8] NCUC E-7, Sub 1214, DEC App. at 4, 6.
[9] NCUC E-7, Sub 1214, DEC App. at 8.

in annual revenues.[10] DEC is proposing to offset that increase by approximately $154.6 million in the first year (and by lower amounts in subsequent years) to refund ratepayers tax benefits DEC received as a result of the Federal Tax Cuts and Job Act.[11] DEC is proposing to refund ratepayers through a new Excess Deferred Income Tax (EDIT-2) Rider. The net impact of the refund would be to lower the increase in annual revenues to $290.8 million, representing an overall net increase in revenues – again, for the first year only – of 6 percent.[12] As the refund value declines in year 2 and beyond – as illustrated by DEC Witness McManeus[13] – the annual revenue requirement, and thus the percent increase in revenues, would subsequently increase above the year 1 values, resulting in higher rate and cost impacts for DEC ratepayers over time. These impacts will be further exacerbated by the expiration of the EDIT-1 Rider after August 1, 2022.[14]

A significant factor in the proposed revenue increase is DEC's request for an increase in the Company's ROE from 9.9 percent currently to 10.3 percent, and a shift in the capital structure from 52 percent equity and 48 percent debt back to a 53/47 ratio.[15] As will be explained later in my testimony, this

[10] NCUC E-7, Sub 1214, DEC App. at 4.
[11] NCUC E-7, Sub 1214, DEC App. at 8.
[12] *Id.*
[13] Direct Testimony of Jane L. McManeus for Duke Energy Carolinas, LLC. Docket No. E-7, Sub. 1214. Exhibit 4, Page 2. Unless otherwise specified herein, all further references to testimonies pertain to those that were filed in this docket on behalf of DEC.
[14] Duke Energy Carolinas, LLC. Rider EDIT-1. Excess Deferred Income Tax Rider (NC). https://www.duke-energy.com/_/media/pdfs/for-your-home/rates/electric-nc/ncrideredit.pdf?la=en
[15] NCUC E-7, Sub 1214, DEC App. at 13.

proposal alone, assuming all costs for which DEC is seeking recovery are deemed "just and prudent," increases the amount of DEC's revenue request substantially above what it would otherwise be at lower ROEs and DEC's current capital structure, thereby placing a greater cost burden on ratepayers than would otherwise occur.

DEC further proposes, consistent with a "necessary" and "gradual" shift of each customer class's current revenue contribution to the overall rate of return average and the modification of rate schedules to "reflect more accurately the cost of service,"[16] a gross (pre-refund) increase of 10.3 percent in residential rate revenues, 7.1 percent for the general service class, 5.2 percent for the industrial class, 8.6 percent for the OPT class and 17.7 percent for the lighting class. With the application of the tax refund, the net increase for the residential class would be 6.7 percent, with other net increases being 4.8 percent for general service, 3.3 percent for industrial, 5.4 percent for OPT and 12.3 percent for lighting.[17]

Again, it is important to note that the net increase values only represent the first-year impacts of DEC's requested rate increase. Subsequent year impacts will be higher as the tax refund value declines and the EDIT-1 Rider expires in 2022. However, DEC does not detail what those impacts will be beyond year 1.

Q: HOW DOES DEC DESCRIBE THE IMPACTS TO RESIDENTIAL RATEPAYERS FROM THE PROPOSED RATE INCREASE?

[16] Duke Energy Carolinas, LLC. Application to Adjust Retail Rates, Request for an Accounting Order and to Consolidate Dockets. Docket No. E-7, Sub 1214. See p. 4.

[17] *Id*. See p. 18-19.

A: As already described, DEC is proposing an overall "rate increase" for the residential class of 10.3 percent, and accounting for the rate impacts of the proposed EDIT-2 Rider, the net increase would fall to 6.7 percent (in the first year).[18] These values represent an average that is inclusive of all residential rate schedules. DEC does not provide an estimate of the net increase in year 2 and beyond as the value of the tax refund and associated EDIT-2 Rider declines and the EDIT-1 Rider expires in August 2022.

To illustrate the impact of the proposed "rate increase" on the average residential ratepayer, characterized as a household that consumes an average of 1,000 kilowatt-hours ("kWh") per month, DEC estimates that the annual electric bill for that household would increase by approximately $8.06 per month (inclusive of all riders, including the year 1 EDIT-2 Rider) – or around $97 in the first year – representing a 7.45 percent increase in the annual electric bill.[19] However, DEC also estimates the impact for customers using both less and more than 1,000 kWh/month, and provides a breakout of the impact at various usage levels for customers on each of the residential rate schedules.[20]

Per DEC Witness Pirro, the example just provided is reflective of the impact on a customer on the residential RS rate schedule using 1,000 kWh/month.[21] However, per DEC's calculation, the impact for a household

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[18] NCUC E-7, Sub 1214, DEC App. at 18.

[19] Duke Energy Carolinas, LLC. Application to Adjust Retail Rates, Request for an Accounting Order and to Consolidate Dockets. Docket No. E-7, Sub 1214. See p. 4.

[20] Pirro Testimony at ex. 3, p.1-6.

[21] *Id.*

using 3,000 kWh/month, for instance, would be triple, resulting in an annual bill increase of $290, for an 8.2 percent increase.[22] Similarly, a household on the residential RE (all-electric) rate schedule using 1,000 kWh/month would see an annual bill increase of approximately $74 (5.78 percent), while one using 3,000 kWh per month would experience a first-year increase of more than $222 (6.38 percent).[23]

Thus, according to DEC, households on both rate schedules using less than 1,000 kWh/month would experience smaller increases in their electric bill. However, it is again important to note that these impacts are only first-year impacts, and will likely increase as the value of the tax refund and associated EDIT-2 Rider decline in year 2 and beyond and the EDIT-1 Rider expires in August 2022. Estimates of how those impacts will change over time are provided later in this testimony.

Q: WHAT IS YOUR RESPONSE TO DEC'S CHARACTERIZATION OF THOSE IMPACTS?

A: First, it is important to note that DEC is proposing to recover greater than 50 percent of the requested revenue increase from the residential class, claiming that doing so will better align costs with cost recovery.[24] As will be described later in my testimony, this proportional allocation only further exacerbates the increase in energy burden faced by low-income households served by DEC.

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22 *Id*. See ex. 3, p. 1.
23 *Id.*
24 Pirro Testimony at ex. 2, p.1-2.

While it may be general utility practice, DEC's characterization of the percent "rate increase" for the residential class is different from the *actual* increase in rates that ratepayers will see on their own rate schedules. As such, DEC's characterization misleads the Commission and the public and the media as to the actual rate impacts customers will experience.

As noted by the Commission in the 2018 DEC rate case, "Consumers pay rates, a charge in cents per kWh or per kW for the electricity they consume. . . Consumers do not pay a rate of return on equity."[25] In the same manner, ratepayers pay rates, a charge in cents per kWh, and they do not pay a "percent increase in rate revenues," which is what defines DEC's portrayal of a "rate increase." As detailed in the following section of my testimony, using DEC's red-line edited proposed rate schedules,[26] I have calculated the actual rate increase (percent increase in cents-per-kWh) for the residential RS and RE rate schedules (which combined accounted for more than 99 percent of residential accounts in 2018),[27] exclusive of any riders, to be 13.6 percent for the RS schedule, and 11.7 percent for the RE schedule – both of which are higher values than the 10.3 percent gross (pre-refund) "rate increase" described by DEC.

[25] State of North Carolina Utilities Commission, Raleigh. Proposed Order of the Public Staff "In the Matter of Application by Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina." Docket E-7, Sub 1146. April 27, 2018. Page 80. https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=c8bc297a-a1f5-4371-8832-de9a9029e913

[26] Duke Energy Carolinas, LLC NCUC Docket No. E-7, Sub 1214. NCUC E-1 Item 39(b), p. 2-6. https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=d1235600-3c77-4f3e-bec3-d347475469fe

[27] DEC Response to CBD & AV DR 2-1. "DECNC Average Monthly Bills for Selected Scheduled from 2014 through 2018." Attachment "DEC CBD & AV DR 2-1.pdf"

Accounting only for the first year EDIT-2 Rider, I calculate that the net increase in RS and RE schedule rates would be 9.6 and 7.6 percent, respectively. This is merely to show the gross and net impact on actual 'rates" people pay on their bills, but again, these are both higher than the "net rate increase" described by DEC of 6.7 percent.[28]

While DEC's calculation of the impact of the rate increase on monthly electric bills for households at various usage levels is consistent with the actual increase in rates that customers would see in their rate schedule, it is more accurate and transparent to represent a rate increase as the "percent increase in rates" for customers on different schedules rather than as a "percent increase in residential rate revenues." Further, as also detailed in the following section of my testimony, DEC should project and describe future rate and bill impacts for customers on the RS and RE rate schedules that account for the estimated annual decline in the value of the annual tax refund – as it will necessarily result in an annual decline in the per-kWh EDIT-2 Rider value – as well as the expiration of the EDIT-1 Rider in August 2022. Combined, these two factors will lead to greater increases in household electric bills in year 2 and beyond than what DEC estimates the first-year bill impacts to be.

Q: HOW WILL THE PROPOSED RATE INCREASE AFFECT RESIDENTIAL RATE SCHEDULES, NOW AND IN THE FUTURE?

[28] NCUC E-7, Sub 1214, DEC App. at 18.

PLEASE INCLUDE THE IMPACT OF THE PROPOSED EDIT-2 RIDER AND EXPIRATION OF THE EDIT-1 RIDER.

A: As noted, the RS and RE rate schedules comprise more than 99 percent of all DEC residential accounts in North Carolina. Additionally, more than half of DEC's proposed revenue increase would impact the residential class,[29] thereby resulting in a higher rate impact than would occur under a more equitable allocation of cost recovery. To DEC's benefit, the proportional allocation of the tax refund closely aligns with that of the revenue increase.[30]

The values for the gross and net (w/ EDIT-2 Rider) increase in the energy rates for the residential RS and RE rate schedules described in the last section are illustrative in (a) showing the actual impact on rates with and without the EDIT-2 Rider, and (b) comparing those with the "rate increase" described by DEC. However, assessing the full impact on rates requires including all riders applicable to residential rate schedules.

In addition to the EDIT-2 Rider (proposed), there are six energy (kWh)-based riders that impacted the actual rates households paid in 2018-2019. These include:

1) EDIT-1 (set to expire in August 2022)
2) Fuel Cost Adjustment Rider
3) Energy Efficiency Rider
4) Existing DSM Program Costs Adjustment Rider

[29] NCUC E-7, Sub 1214, DEC Pirro Testimony at ex. 2, p. 1-2.
[30] *Id.*

5) BPM Prospective Rider

6) BPM True-Up Rider[31]

Table 1, below, details the current and proposed base rates for the RS and RE schedules,[32] the adjustments made to those base rates from each rider,[33] the final adjusted rate, and the percent change in the base and final rates for current and proposed rates for each schedule. As the RE rate schedule is a tiered rate, there are two columns shown. RE-1 (my own notation) represents the rate in place (and proposed) for the months of July through October, and for all energy consumed per month that is less than 350 kWh for the months of November through June. RE-2 represents the rate in place (and proposed) for all energy consumed above 350 kWh in the months of November through June.

As shown in **Table 1**, with all riders included – including the proposed EDIT-2 Rider – the net RS rate would increase by 8.7 percent, while the net RE-1 rate would increase by 6.8 percent, and the net RE-2 rate by 6.2 percent. While not shown, without the EDIT-2 Rider, the net rate increases including all other riders would be 12.5 percent, 10.6 percent and 10.5 percent, respectively.

[31] DEC Response to Intervenors Request DR 2-5. Summary of Rider Adjustments (2015-2019). Attachment "DEC CBD & AV DR 2-5_RiderValues.pdf"

[32] Duke Energy Carolinas, LLC NCUC Docket No. E-7, Sub 1214. NCUC E-1 Item 39(b), p. 2-6. https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=d1235600-3c77-4f3e-bec3-d347475469fe

[33] DEC Response to Intervenors Request DR 2-5. Summary of Rider Adjustments (2015-2019). Attachment "DEC CBD & AV DR 2-5_RiderValues.pdf." See North Carolina Fortieth Revised Leaf No. 99, page 1.

Table 1: Net impact of DEC's proposed rate increase for the residential RS and RE rate schedules, with all existing and proposed riders[34]

	RS		RE-1		RE-2	
	Current	**Proposed**	**Current**	**Proposed**	**Current**	**Proposed**
Base rate (¢/kWh)	8.7179	9.9059	8.5808	9.5807	7.6361	8.5296
Percent change		13.6%		11.7%		11.7%
Riders (in ¢/kWh)	**Current**	**Proposed**	**Current**	**Proposed**	**Current**	**Proposed**
EDIT-2	0	-0.3521	0	-0.3521	0	-0.3521
EDIT-1	-0.1049	-0.1049	-0.1049	-0.1049	-0.1049	-0.1049
Fuel Cost Adjustment Rider	0.1675	0.1377	0.1675	0.1377	0.1675	0.1377
Energy Efficiency Rider	0.5320	0.5320	0.5320	0.5320	0.5320	0.5320
Existing DSM Program Costs Adjustment Rider	-0.0043	-0.0043	-0.0043	-0.0043	-0.0043	-0.0043
BPM Prospective Rider	-0.0122	-0.0122	-0.0122	-0.0122	-0.0122	-0.0122
BPM True-Up Rider	-0.0040	-0.0040	-0.0040	-0.0040	-0.0040	-0.0040
Total Rider value (¢/kWh)	**0.5741**	**0.1922**	**0.5741**	**0.1922**	**0.5741**	**0.1922**
Final rate (¢/kWh)	**9.2920**	**10.0981**	**9.1549**	**9.7729**	**8.2102**	**8.7218**
Percent change		**8.7%**		**6.8%**		**6.2%**

The values shown in the **Table 1** above are only the year 1 values for RS and RE rates with the impact of all riders accounted for, including the EDIT-2 Rider. However, as the value of the tax refund is projected by DEC to decline in year

[34] Note(s): This is a snapshot only of current (2019) rates and riders for the RS and RE rate schedules, and how those will change if DEC's rate increase is approved as proposed. DEC's proposal includes the addition of the EDIT-2 Rider, as well as DEC's proposed decrease in the Fuel Cost Adjustment Rider (Duke Energy Carolinas, LLC NCUC Docket No. E-7, Sub 1214. NCUC E-1 Item 39(b), p. 76), which is reflected in the table. Additionally, while this table includes the EDIT-1 Rider and impact on rates, that rider is set to expire in August 2022, while the EDIT-2 Rider will begin declining in value at the same time, thereby increasing the net rate beyond what is shown in the table.

2 and beyond, the value of the associated EDIT-2 Rider rate is anticipated to decline as well.

The following **Table 2** shows DEC's projections for EDIT-2 refund values for years 1 through 5[35] – which DEC notes are "for illustrative purposes only" – as well as my estimate, for illustrative purposes, of the value of the EDIT-2 Rider in cents/kWh for years 2 through 5. The Rider value (in cents/kWh) for year 1 is as proposed by DEC, while subsequent years represent adjustments in direct proportion with DEC's projected decline in the total refund value.

Table 2: Projected decline of the EDIT-2 Rider value from year 1 to 5

Year	EDIT-2 refund value ($M)	EDIT-2 rate (¢/kWh)
1	$154.57	0.3521
2	$144.12	0.3283
3	$133.40	0.3039
4	$122.67	0.2794
5	$111.94	0.2550

DEC notes that the projected tax refund amounts for year 2 (assumed in this testimony to be 2022) through 5 (2025) are merely for illustrative purposes, and that actual values will be calculated prior to each successive year.[36] However, given the importance of understanding how a projected decline in the refund value over time, *combined with the expiration of the EDIT-1 Rider in August 2022,* will impact rates for the RS and RE rate schedules – and thus the total electric bills residents will pay, it is useful to apply the approximated EDIT-2

[35] NCUC E-7, Sub 1214, DEC Witness McManeus Testimony at ex. 4, p. 2.
[36] NCUC E-7, Sub 1214, DEC Witness McManeus Testimony at p. 36-37.

rates in the table above to the proposed residential RS and RE rates (including all other applicable riders) to estimate the actual net impact of DEC's proposed rate increase for households over time.

As shown in **Table 3** below, my projected EDIT-2 value for year 5, combined with the expiration of the EDIT-1 Rider after August 1, 2022, results in higher rates in year 5 (2025) than households would pay in year 1 (2021) with DEC's proposed rate increase. By 2025, the net rate increase for the RS rate schedule will be 10.8 percent (up from 8.7 percent for year 1, compared to current). The net increase for RE-1 will be 9.0 percent (up from 6.8 percent), and for RE-2 will be 8.7 percent (up from 6.2 percent). These values assume no further rate cases through 2025, that all other rider values remain constant and that no other riders are added to residential rate schedules.

Table 3: Impact of the projected decline of the EDIT-2 Rider value on residential electric rates from year 1 (2021) to year 5 (2025)[37]

	Final rates (w/ all riders, incl. EDIT-2)			
Rate schedule	**Current (¢/kWh)**	**2021 (¢/kWh)**	**2025 (¢/kWh)**	**Percent increase, current-2025**
RS	9.2920	10.0981	10.3001	10.8%
RE-1	9.1549	9.7729	9.9749	9.0%
RE-2	8.2102	8.7218	8.9238	8.7%

[37] The 2025 values reflect the projected decline in the EDIT-2 Rider from year 1 (2021) to year 5 (2025), as well as the expiration of the EDIT-1 Rider in August 2022.

The increase in the net residential rates as the value of EDIT-2 declines and EDIT-1 expires will result in higher bill impacts in year 2 and beyond than those estimated and presented for year 1 by DEC.

Table 4 (below) details the increase in monthly and annual electric bills that would result from DEC's proposed rate increase in year 1 for ratepayers on the residential RS rate schedule, which account for nearly 60 percent of all DEC residential accounts.[38]

Table 4: Estimated first-year bill impacts of DEC's proposed rate increase for ratepayers on the residential RS rate schedule[39,40]

kWh/month	Current bill ($/month)	Proposed (2021)	Monthly bill increase	Annual bill increase	Percent change
0	$15.85	$15.85	$0.00	$0.00	0.00%
500	$65.56	$69.87	$4.31	$51.75	6.58%
1,000	$115.27	$123.90	$8.63	$103.50	7.48%
2,000	$214.70	$231.95	$17.25	$207.01	8.03%
4,000	$413.55	$448.05	$34.50	$414.01	8.34%
6,000	$612.40	$664.15	$51.75	$621.02	8.45%

[38] DEC Response to Intervenors Request DR 2-1. "DECNC Average Monthly Bills for Selected Scheduled from 2014 through 2018." Attachment "DEC CBD & AV DR 2-1.pdf"

[39] The values for the current and proposed bill shown in this table differ from those presented by DEC for two reasons. First, DEC's values appear to be calculated based on a net rate that includes the value of the Job Retention Recovery Rider, which is .041 cents/kWh. However, that Rider was removed effective December 1, 2019. Second, DEC's values also exclude the 7 percent Combined General Rate Sales and Use Tax customers pay on the energy charge and Basic Facilities Charge. To provide a more accurate representation of the bill impacts that would result from DEC's proposed rate increase for residents on the RS rate schedule, I have excluded the value of the Job Retention Recovery Rider and have included the tax value, which increases in proportion with energy use. Results for some of the incremental levels of electricity consumption were excluded for simplicity, but those results are proportional to the level of energy use.

[40] DEC Response to Intervenors Request DR 2-5. Summary of Rider Adjustments (2015-2019). Attachment "DEC CBD & AV DR 2-5_RiderValues.pdf." See North Carolina Fortieth Revised Leaf No. 99, page 1.

As shown above, a household on the RS rate schedule, using 1,000 kWh per month, would see an increase of $8.63 on their monthly electric bill in the first year as a result of DEC's proposed rate increase (see footnotes for an explanation as to why this value differs from DEC's calculated value). This represents a 7.48 percent increase, with the annual impact amounting to $103.50. For lower energy users, that impact would be less, while higher energy users would see a much greater increase – as much as an 8.45 percent increase for the highest energy users modeled, amounting to an annual increase of more than $620 in the first year (represented here as 2021). While that impact is significant, the anticipated decline of the EDIT-2 value through year 5 (2025), combined with the expiration of the EDIT-1 Rider in August 2022, will, all other factors being equal, result in a greater increase.

As shown in **Table 5**, the percent increase in electric bills for a household using 1,000 kWh per month is nearly 2 percent greater in 2025 than in 2021, rising from a 7.48 percent increase in 2021 (compared to current) to an overall 9.36 percent increase by 2025. Similarly, the monthly bill for the 1,000 kWh per month household will rise another $2 by 2025 (compared to 2021) as the EDIT-2 Rider value declines and the EDIT-1 Rider expires. ***That is 25 percent higher than the increase in the monthly bill that DEC estimates would result from its proposed rate increase in year 1.***

The highest energy users (6,000 kWh per month) would experience a monthly bill increase that is nearly $13 higher in 2025 than in 2021, and $64.72 per month higher than current – representing an overall 10.57 percent increase

from current bills. For these higher energy users the overall bill increase above current levels would be approximately $777 a year by 2025.

Table 5: Bill impacts of DEC's proposed rate increase for ratepayers on the residential RS rate schedule in 2025

kWh/month	Current bill	Projected (2025)	Monthly bill increase	Annual bill increase	Percent change
0	$15.85	$15.85	$0.00	$0.00	0.00%
500	$65.56	$70.96	$5.39	$64.72	8.23%
1,000	$115.27	$126.06	$10.79	$129.44	9.36%
2,000	$214.70	$236.27	$21.57	$258.88	10.05%
4,000	$413.55	$456.69	$43.15	$517.76	10.43%
6,000	$612.40	$677.12	$64.72	$776.65	10.57%

Given the complexity of the rate schedule, a full analysis of bill impacts for 2021 and 2025 for various levels of electricity use that would result from DEC's proposed rate increase for customers on the residential RE rate schedule – which account for approximately 40 percent of all DEC residential accounts[41] – was not performed for this testimony.

However, for customers using 1,000 kWh/month, the current monthly electric bill for households on the RE schedule is approximately $102.33. DEC's proposal would increase that by $5.72 to $108.04 in 2021 (a 5.6 percent increase). Due to the projected decline in the EDIT-2 Rider value and the expiration of the EDIT-1 Rider in 2022, the monthly bill in 2025 is projected to be $110.06, or 7.6 percent above current levels (an increase of $7.74 per month). The annual bill increase in 2025, above current levels, would be $92.87. While

[41] *Id.*

this is a smaller increase than what households on the RS rate schedule would experience, it is still significant, and the impact over time should again be recognized and considered in the review of DEC's proposed rate increase.

This analysis shows that DEC should project and describe future rate and bill impacts for customers on the RS and RE rate schedules that account for the estimated annual decline in the value of the annual tax refund – as it will necessarily result in an annual decline in the per-kWh EDIT-2 Rider value – as well as the expiration of the EDIT-1 Rider in 2022. Only by doing so can DEC provide a transparent, complete and honest accounting of the impact its proposed rate increase will have now and in the future.

Q: WHAT IS YOUR MAIN CONCERN WITH THE IMPACT DEC'S PROPOSED RATE INCREASE WILL HAVE ON RESIDENTS, "NOW AND IN THE FUTURE"?

A: Despite the addition of the EDIT-2 Rider, my analysis shows that DEC's proposed rate increase will result in an immediate and significant increase in household electric bills, with that impact only worsening through 2025 as the value of the EDIT-2 Rider declines and the EDIT-1 Rider expires.

As my analysis in the previous section shows, the changing value of those two EDIT riders alone over the five-year time frame will, by 2025 (year five of my analysis), increase the monthly bill impact by more than an additional $2 per month above the impact the requested rate increase will have in year 1 for the 1,000 kWh per month household (and more for higher use households). This would bring the total five-year increase in monthly electric bills for that

household to $10.79 per month. This is vitally important because every dollar increase in a household's monthly electric bill resulting from DEC's proposed rate increase should be viewed in a similar light as if DEC were proposing to increase the Basic Facilities Charge ("BFC") by, in the case of the 1,000 kWh per month households, nearly $11 per month.

While such an increase will be felt to some extent by all households, the impact of that increase will be felt far more strongly by the more than 330,000 low-income, energy cost-burdened households served by DEC that are already dealing with unaffordable energy costs. This is especially true in light of the fact that DEC is investing very little in low-income energy efficiency and is not proposing any substantial new investments in such programs in the present rate case.

Further, in its filing, DEC explains that the shift in more of the Company's cost onto the residential class and its proposed modification of rate schedules through the present rate case represents part of, as described by Witness Pirro, a "gradual" but "necessary" alignment intended "to reflect more accurately the cost of service" among customer classes.[42] This suggests that the Company is planning to continue that shift in future rate cases. Additionally, DEC Witness Pirro explicitly states that the BFC "will be addressed in future proceedings to properly reflect equitable cost-based rates that provide accurate

[42] Duke Energy Carolinas, LLC. Application to Adjust Retail Rates, Request for an Accounting Order and to Consolidate Dockets. Docket No. E-7, Sub 1214. See p. 4.

price signals to our customers."[43] In other words, DEC intends to request additional increases in the BFC in future rate cases.

The increase in residential electric bills through the present case, in the first year and over the following four years, must not only be considered by itself, but also within the context of DEC's intention to shift more costs onto the residential class while also increasing the monthly BFC. It is vitally important for the Commission to consider all of these factors, especially in light of its mandate to consider "changing economic conditions" and "customers' ability to afford rate increases."

DEC's stated intention to increase costs for residential customers, through both the present and future rate cases, should itself be considered a "changing economic condition." This is especially true given the impact of that intention on customers' ability to afford rate increases. Lacking an equal percent shift in household income – not only on average, but specifically, and especially for those with household incomes that fall below 150 percent of the Federal Poverty Level ("FPL") – higher electric bills *now* impair the ability of customers to afford future rate increases.

Overall, my primary concern with DEC's proposed rate increase lies in the impact it will have on low-income households. As I will detail later in my testimony, virtually 100 percent of all low-income households served by DEC already, and have since at least 2016, experience annual energy bills that exceed

[43] Pirro Testimony at 12.

what is generally accepted as the "affordability" threshold of 6 percent of gross household income.[44] More than 40 percent of those households spent more than 10.9 percent of their gross household income on energy costs in the same year[45] – a level identified by the US Department of Health and Human Services ("DHHS") as the threshold for "high residential energy burden."[46]

DEC's proposed rate increase will, if approved, increase the average energy burden experienced by low-income households, and shift a substantial number of low-income households into the "high energy burden" category. Per my analysis, by 2025 nearly 210,000 households served by DEC – representing nearly one out of every eight of DEC's residential accounts in 2018[47] – will fall in the category of "high energy burden" if DEC's request is approved.

[44] Fisher, Sheehan and Colton. Home Energy Affordability Gap: Definitions. http://www.homeenergyaffordabilitygap.com/01_whatIsHEAG2.html

[45] Calculated per the methodology described later in my testimony. In brief, however, the 40 percent value was calculated by downloading Census Tract-level data for household counts, home energy costs, median household income and percent energy burden for North Carolina households below 150 percent FPL from the USDOE's Low-Income Energy Affordability Data (LEAD) Tool, then using QGIS GIS software to extract the data for only the Census Tracts served by DEC. I was then able to analyze the average low-income household energy burden, count the number of households exceeding an average energy burden of 10.9 percent, and then calculate what portion of all low-income households served by DEC exceeded that threshold.

[46] Applied Public Policy Research Institute for Study and Evaluation (APPRISE). Jul 2005. LIHEAP Energy Burden Evaluation Study: Final Report. Prepared for the US Department of Health and Human Services. https://www.acf.hhs.gov/sites/default/files/ocs/comm_liheap_energyburdenstudy_apprise.pdf

[47] Number of residential accounts for 2018 provided by DEC in DEC Response to Intervenors Request DR 2-1. "DECNC Average Monthly Bills for Selected Scheduled from 2014 through 2018." Attachment "DEC CBD & AV DR 2-1.pdf"

III. IMPACTS OF DEC'S REQUESTED RATE INCREASE ON ENERGY BURDENS, WITH A FOCUS ON LOW-INCOME HOUSEHOLDS

Q: PLEASE DEFINE "ENERGY BURDEN" AND DESCRIBE WHAT IS CONSIDERED "UNAFFORDABLE" AND "HIGH ENERGY BURDEN."

A: As noted, "energy burden" is a widely recognized and well-known "phrase" and topic used and considered by government agencies, researchers, low-income advocates, housing advocates, energy efficiency and renewable energy advocates and other stakeholders. These include, but are not limited to: the US Department of Housing and Human Services[48]; the US Department of Energy[49]; the National Association of State Energy Officials[50]; the National Rural Electric Cooperative Association[51]; the National Governor's Association[52]; the National Consumer Law Center;[53] the American Council for an Energy Efficient

[48] Applied Public Policy Research Institute for Study and Evaluation (APPRISE). Jul 2005. LIHEAP Energy Burden Evaluation Study: Final Report. Prepared for the US Department of Health and Human Services. https://www.acf.hhs.gov/sites/default/files/ocs/comm_liheap_energyburdenstudy_apprise.pdf

[49] USDOE. Low-Income Energy Affordability Data (LEAD) Tool. https://openei.org/doe-opendata/dataset/celica-data

[50] NASEO Annual Meeting, 2017. Panel Discussion on Energy Burden: Transportation, Mobility, and Housing Challenges for Low-Income Households. http://annualmeeting2017.naseo.org/agenda

[51] NRECA. Jun 2017. Business and Technology Advisory. Spotlight on Community Assistance Programs: Meeting Core Community Needs Through Innovation Advancing Energy Access for All. https://www.cooperative.com/programs-services/bts/Documents/Advisories/Advisory-Advancing-Energy-Access-for-All-Introduction-June-2019.pdf

[52] NGA 2019 Governors' Advisors Energy Policy Institute. Panel and presentation. "Energy Efficiency's Role in Rural Prosperity." https://www.nga.org/wp-content/uploads/2019/06/2019-Energy-Policy-Institute-Agenda_SPEAKERS-Latest.pdf

[53] NCLC. Feb 2018. The Low-Income Home Energy Assistance Program (LIHEAP). A Safety Net That Saves Lives. https://www.nclc.org/issues/energy-utilities-a-communications/liheap-safety-net-saves-lives.html

Economy[54]; the National Cooperative Business Association[55]; the Environmental and Energy Study Institute[56]; the Environmental Defense Fund[57]; the Natural Resources Defense Council[58]; the Southern Alliance for Clean Energy[59]; the Center for Biological Diversity[60]; the NC Department of Environmental Quality[61]; the University of North Carolina[62]; Duke University[63];

[54] ACEEE. Jun 2018. The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency. https://www.aceee.org/sites/default/files/publications/researchreports/u1806.pdf

[55] NRECA, NCBA and EESI. Jul 2019. Congressional Briefing: Equitable Solutions to Rural Energy Burdens. https://www.eesi.org/briefings/view/071619ruralenergy

[56] *Id.*

[57] EDF. Mar 2016. Blog: Transforming an Energy Burden into an Energy Opportunity. http://blogs.edf.org/energyexchange/2016/03/22/transforming-an-energy-burden-into-an-energy-opportunity/

[58] NRDC. Apr 2016. Blog: Study Highlights Energy Burden for Households and How Energy Efficiency Can Help. https://www.nrdc.org/experts/khalil-shahyd/study-highlights-energy-burden-households-and-how-energy-efficiency-can-help

[59] SACE. Apr 2018. Blog: Is TVA ignoring how a proposed new fee could put vulnerable customers at risk? https://cleanenergy.org/blog/is-tva-ignoring-how-a-proposed-new-fee-could-put-vulnerable-customers-at-risk/

[60] CBD and Appalachian Voices. Oct 2019. Legal Challenge Opposes Duke Energy's North Carolina Rate Hike: Big Increase Would Hurt Residents, Hamper Clean Energy Transition. https://biologicaldiversity.org/w/news/press-releases/legal-challenge-opposes-duke-energys-north-carolina-rate-hike-2019-10-17/

[61] NCDEQ. Oct 2019. North Carolina Clean Energy Plan, Supporting Document. Part 3: Electricity Rates and Energy Burden. https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/3.-Electricity-Rates-and-Energy-Burden-FINAL.pdf

[62] UNC. Convergence of Climate-Health-Vulnerabilities. "Energy Poverty." https://convergence.unc.edu/vulnerabilities/energy-poverty/

[63] Duke University's North Carolina Leadership Forum. 2017-2018 FINAL REPORT: How can North Carolina best meet the future energy needs of its residents and businesses? https://sites.duke.edu/nclf/files/2018/10/NCLF-Annual-Report-Web.pdf

the NC Housing Finance Authority[64]; the NC Housing Coalition[65]; the NC Justice Center[66]; the NC Sustainable Energy Association[67]; and, Appalachian Voices[68], among others.

The phrase "energy burden" is defined in many ways. Generally, it is defined as the share, or percent, of gross annual household income spent on household energy bills, including all costs for heating, cooling and other energy needs such as powering appliances and lighting. It does not include household transportation costs.

Numerous factors influence the measure of household energy burden, including but not limited to: (1) household income/poverty level; (2) energy efficiency of the building envelope, heating and cooling system and appliances; (3) energy costs/rates; (4) housing type; (5) household size (number of people living in the home); (6) supplemental energy needs to accommodate poor health or disabilities; (7) home ownership status; and, (8) consumer knowledge and behavior.

[64] NCHFA. Jan 2019. Rural Counties in North Carolina Experience Significant Energy Burden. https://www.nchfa.com/news/rural-counties-north-carolina-experience-significant-energy-burden

[65] NCHC. Dec 2018. Housing Matters: Mapping Energy Burden. https://nchousing.org/housing-matters-mapping-energy-burden/

[66] NCJC. Nov 2019. Paying for energy costs harder for families living in poverty. https://www.ncjustice.org/publications/paying-for-energy-costs-harder-for-families-living-in-poverty/

[67] NCSEA. Energy Solutions Reserve Fund. https://energync.org/esrf/

[68] AV. Jul 2018. Blog: The burden of rural home energy costs. http://appvoices.org/2018/07/25/the-burden-of-home-energy-costs-in-rural-appalachia/

There are also various terms and related definitions describing household energy burden. For instance, a report produced for the US Department of Health and Human Services ("DHHS") provides the following definitions[69]:

1) **Energy burden (gross).** The percentage of gross annual household income that is used to pay annual residential energy bills.
2) **Home energy burden.** The share or percentage of annual household income that is used to pay annual home heating and cooling expenditures.
3) **Net energy burden.** The household's energy burden after the receipt of LIHEAP fuel assistance.
4) **Residential energy burden.** The percentage of annual household income that is used to pay for all residential energy used in the home.

The DHHS study used what it describes as the "Absolute Value Approach" based on accepted metrics for "moderate shelter burden" and "severe shelter burden," as well as data on median residential energy costs for low-income households to calculate a "moderate residential energy burden," defined as equaling or exceeding 6.5 percent of gross household income, as well as a "high residential energy burden" defined as equaling or exceeding 10.9 percent of income.

[69] APPRISE. See p. 2.

In April 2003, a team of researchers, together known as Fischer, Sheehan and Colton ("FSC") -- who developed an online database and resource that is updated annually with data on county-level household energy burdens for various poverty levels as well as on unaffordable energy costs -- created, using pretty much the same calculation as the DHHS study used to identify "moderate residential energy burden," a different measure – "affordable (energy) burden" – to assess household energy burden. Their calculation identified the threshold for "affordable home energy costs" as 6 percent of gross household income, and defined all home energy costs above that threshold as constituting a "home energy affordability gap."[70,71]

Q: DOES DEC ACCOUNT FOR AND/OR ADDRESS THE IMPACT OF ITS PROPOSED RATE INCREASE ON LOW-INCOME HOUSEHOLD ENERGY BURDENS?

A: No. While DEC does address impacts on low-income customers, nothing within DEC's application or associated materials specifically recognizes or accounts for household energy cost burdens or the impact of the Company's proposed rate increase on household energy burden.

[70] Fisher, Sheehan and Colton. Home Energy Affordability Gap: Definitions. http://www.homeenergyaffordabilitygap.com/01_whatIsHEAG2.html

[71] For the purpose of this testimony, I analyze 2016 home energy burdens for low-income households to determine the number of such households that meet or exceed both the FSC "affordable burden" threshold of 6 percent – which closely resembles the DHHS threshold for "moderate residential energy burden" – as well as the DHHS "high residential energy burden" threshold of 10.9 percent. I then use that data as a baseline for comparing how DEC's proposed rate increase affects household energy burden, as well as the number of homes falling in the "high residential energy burden" category in 2021 and 2025.

As explained and responded to later in my testimony, DEC does recognize the fact that many low-income customers may have a hard time paying their electric bill, addresses the impact of the proposed rate increase and its BFC on low-income customers, proposes mitigating practices and procedures for helping low-income customers pay their bill, discusses possible programs and policies to be considered through a stakeholder process, and describes current programs and investments that help low-income customers.

However, when asked via discovery requests to provide information on the average and median energy burden of DEC's customers, the Company responded by stating that it "objects to the definition and use of the phrase 'energy burden.'"[72]. In a separate discovery request, DEC was asked to answer "affirm" or "deny" to the statements: (1) DEC considered energy burdens on households as part of calculating their rate increase, (2) DEC considered energy burdens on households as part of setting the return on equity, and (3) The proposed rate change increases the energy burden on North Carolina residents. DEC responded to all three of these statements with "neither affirm or deny," and again added the statement that "the Company objects to the use of the term 'energy burden'" and does not calculate "energy burden" as defined in "that question."[73,74]

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72 DEC Response to Intervenors Request DR 2-15.

73 DEC Response to Intervenors Request DR 2-16.

74 The definition of energy burden offered was in discovery request DR-15, in which, for the purpose of the request, we defined energy burden as "a household's payment of electricity divided by a household's income." While that is not the specific definition used in this testimony – in which we use total energy costs – not just electricity – as the numerator, the

This explicit refusal to accept a broadly defined, broadly accepted and broadly researched concept (as detailed above) exhibits a potential lack of understanding as to how DEC's proposed rate increase impacts actual low-income households. To the extent to which this is true, it is unlikely that any low-income programs DEC currently offers or proposes in the future will have any measurable impact on reducing the real and pervasive problem of household energy burden facing DEC's low-income residential customers.

Q: BRIEFLY SUMMARIZE THE EXTENT OF THE PROBLEM OF ENERGY COST BURDENS FACING NORTH CAROLINA FAMILIES, ON AVERAGE, AND LOW-INCOME FAMILIES SPECIFICALLY.

A: Data from the US Department of Energy's ("USDOE") "Low-Income Energy Affordability" ("LEAD") Tool show that the average energy burden for all of North Carolina's 3.82 million households was approximately 3 percent in 2016 (the most recent year for which data are available).[75] However, there are more than 950,000 households across the state that fall under 150 percent of the Federal Poverty Level ("FPL"), which represents a quarter of all households in the state.[76]

principle remains the same, and DEC's response in DR-15 was, specifically, "The Company objects to the definition and use of the phrase "energy burden." This is a strong indicator that DEC's primary objection is not with the specific definition used, but the actual use of the phrase "energy burden."

[75] USDOE. Low-Income Energy Affordability Data (LEAD) Tool. Accessed Feb 2020. Query for "North Carolina," and view results for "Avg. Percent Income (%)" and "Housing Counts." https://openei.org/doe-opendata/dataset/celica-data

[76] *Id.* Query for "North Carolina," filter for "0-100% FPL," "100-150% FPL," and view results for "Housing Counts."

The average energy burden for these households was 11 percent, meaning that the average household under 150 percent FPL can be categorized as experiencing a "high residential energy burden." The average annual household income for those low-income households was $1,674, with electricity costs accounting for approximately 82 percent of total home energy costs.[77] By comparison, the US average home energy burden for the < 150 percent FPL category in 2016 was also 11 percent, although nationally the electricity-cost-only burden is 8 percent,[78] while in North Carolina it was 9 percent.[79]

According to the NC Department of Environmental Quality, the average energy burden for low-income households ranges from an average of 33 percent for households with incomes under 50 percent FPL, to 10 percent for households falling between 125 and 150 percent FPL.[80]

Q: EXPLAIN HOW LOW-INCOME HOUSEHOLD ENERGY BURDENS WILL LIKELY CHANGE AS A RESULT OF DEC'S PROPOSED RATE INCREASE.

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[77] USDOE. LEAD Tool. Accessed Feb 2020. *Id.* Query for "North Carolina," filter for "0-100% FPL," "100-150% FPL," and view results for "Avg. Percent Income" and "Avg. Annual Energy Cost." Also, generate a chart of "Avg. Annual Energy Cost." Average household income is calculated by dividing average annual energy cost by the average percent income. https://www.energy.gov/eere/slsc/maps/lead-tool

[78] *Id.* Same query and charts generated for "United States" as for North Carolina.

[79] USDOE. Low-Income Energy Affordability Data (LEAD) Tool. Accessed Feb 2020. Query for "North Carolina," and view results for "Avg. Percent Income (%)" and "Housing Counts." https://openei.org/doe-opendata/dataset/celica-data; *Id.* Query for "North Carolina," filter for "0-100% FPL," "100-150% FPL," and view results for "Housing Counts."

[80] NCDEQ. Oct 2019. North Carolina Clean Energy Plan, Supporting Document. Part 3: Electricity Rates and Energy Burden. See p. 14. https://files.nc.gov/ncdeq/climate-change/clean-energy-plan/3.-Electricity-Rates-and-Energy-Burden-FINAL.pdf

A: Virtually 100 percent of the low-income (less than 150 percent FPL) households served by DEC, representing approximately 20 percent of all DEC residential accounts **(see Table 7 below)**, already face "unaffordable" energy costs. Any additional increase in rates will only render such costs more unaffordable, straining financial resources and forcing households to face even more difficult decisions as to which household needs must be sacrificed in order to keep the lights on. As my analysis also shows **(see Table 8 below)**, DEC's proposed rate increase would move more than 70,000 more low-income households into the category of experiencing "high household energy burdens," with 10.9 percent or more of gross household income being spent on home energy costs.

For the purposes of this testimony, I use my analysis to detail trends in home energy costs, household energy burdens from 2016 to 2019 (the year following DEC's last rate case), from 2019 to 2021 (the first full year following the present rate case), from 2021 to 2025 (the last year of DEC's projected annual value for the proposed Excess Deferred Income Tax (EDIT-2) Rider), and overall changes between 2016 and 2025. The main focus of the analysis is to specifically illustrate the impacts over time of DEC's proposed rate increase for this rate case.

To that end, **Table 7** provides the results of my analysis for average household energy burden and the number of households exceeding the 6 percent unaffordability threshold as well as the 10.9 percent "high household energy burden" threshold for the years 2016, 2019, 2021 and 2021. Then, **Table 8** provides total and percent changes in the number of households falling in the

10.9 percent category for 2016-2019, 2019-2021, 2021-2025, and overall from 2016-2025.

Table 7: The change in average energy burden and number of households exceeding energy burden thresholds as a result of DEC's proposed rate increase, 2016-2025[81]

	2016	2019	2021	2025
Total households < 150% FPL	332,239	332,239	332,239	332,239
> 6 percent energy burden				
Number of households	332,239	332,239	332,239	332,239
% all low-income	100%	100%	100%	100%
% DEC residential accts	20%	19%	19%	19%
> 10.9 percent energy burden				
Number of households	138,048	140,973	198,117	209,162
% all low-income	42%	42%	60%	63%
% DEC residential accts	8.3%	8.1%	11.2%	12.0%
Average energy burden	**10.5%**	**10.5%**	**11.2%**	**11.4%**

The results presented in **Table 7** show the following:

1) Every single one of the estimated 332,000 low-income households (defined as households falling under 150 percent of FPL) served by DEC experienced an "unaffordable" energy cost burden of 6 percent or greater in 2016. That did not change as a result of the 2017-18 rate case, and is

[81] Note: The values for percent of DEC residential accounts are based on DEC's numbers provided through discovery which showed a total of 1,669,610 residential accounts in 2016 and 1,750,082 residential accounts in 2018. See DEC Response to CBD & AV DR 2-1. "DECNC Average Monthly Bills for Selected Scheduled from 2014 through 2018." Attachment "DEC CBD & AV DR 2-1.pdf." Given that numbers for 2019, 2021 and 2025 are not readily available, the 2018 value was used to calculate this percentage.

not likely to change in light of the present rate case given that rates and electric bills would increase as a result.

2) Low-income households account for approximately 20 percent of all residential households served by DEC (as well as approximately 17 percent of all electricity sales),[82] and as such represent a significant portion of DEC's residential business and bear a significant portion of the cost burden stemming from DEC's expenses.

3) Low-income households served by DEC that experienced a "high energy burden" of 10.9 percent or greater represented 8.3 percent of DEC's residential accounts in 2016, dropping to 8.1 percent in 2019 as the number of DEC residential accounts increased and rates fell as a result of the 2017-18 rate case.

4) DEC's current request for a rate increase would result in high energy burdened, low-income households accounting for 11.3 percent of residential accounts in 2021, with the value increasing to 12.0 percent by 2025 (lacking another rate case) as the value of the EDIT-2 refund declines as projected and the EDIT-1 Rider expires in August 2022. In other words, high energy burdened households constituted one out of every 12 households served by DEC in 2016 and again in 2019, but the

[82] This value was calculated by dividing total kWh use among low-income households served by DEC in 2016 – as estimated using data from USDOE's LEAD Tool – by DEC's total residential electricity sales in North Carolina in 2016, as reported on the federal Energy Information Administration's Form EIA-861, "Sales to Ultimate Customers." https://www.eia.gov/electricity/data/eia861/

present rate case, if approved as requested, would increase that to one out of every nine households by 2021, and one out of every eight households by 2025.[83]

5) Households with a "high energy burden" of 10.9 percent or greater accounted for 42 percent of all low-income households in both 2016 and 2019. Per my analysis, that will increase to 60 percent as a result of DEC's current proposal, and 63 percent by 2025 as a result of DEC's proposed rate increase, the decline of the EDIT-2 Rider value and the expiration of the EDIT-1 Rider in 2022.

6) The average household energy burden for all low-income households served by DEC remained essentially unchanged between 2016 and 2019, averaging approximately 10.5 percent of household income for both years, which is just under the 10.9 percent threshold for "high household energy burden." DEC's requested rate increase would result in an average energy burden of 11.2 percent in 2021 – thereby moving the average for all low-income DEC customers above the 10.9 percent threshold, and that would continue an upward trajectory, rising to 11.4

[83] These values were calculated by diving the number of "high energy burden" low-income households for each year of analysis – as estimated per my analysis – by the number of DEC residential accounts for each of those years as provided by DEC in DEC Response to Intervenors Request DR 2-1. "DECNC Average Monthly Bills for Selected Scheduled from 2014 through 2018." Attachment "DEC CBD & AV DR 2-1.pdf." Given that future counts for residential customers beyond 2018 are not available, it was assumed for the purposes of this analysis that the number of DEC residential accounts in 2019, 2021 and 2025 are the same as in 2018.

percent by 2025 as the EDIT-2 Rider value declines and EDIT-1 expires in 2022.

Table 8: Increase in households exceeding 10.9 percent energy burden through 2021 and 2025 as a result of DEC's proposed rate increase

	2016-2019	2019-2021	2021-2025	2016-2025 (Total)	Percent total 2019-2025
Number of households	2,926	57,143	11,045	71,114	96%
Percent increase	2.1%	40.5%	5.6%	51.5%	
Percent of all low-income households	0.9%	17.2%	3.3%	21.4%	

The results presented in **Table 8** show the following:

1) As shown in **Table 7**, the number of low-income households experiencing a high energy burden of 10.9 percent or greater was approximately 138,000 in 2016, increasing only slightly to 141,000 in 2019 (a 2 percent increase, or just over 2,900 households as shown in **Table 8**).
2) The values in **Table 8** show that the rates proposed in the present case, all other factors being equal, would shift another 57,100 households into that category by 2021, and another 11,000 more by 2025. As a result, by 2025, nearly two-thirds of all low-income households served by DEC will be characterized as experiencing a "high household energy burden."
3) Overall, between 2016 and 2025, nearly 71,000 low-income households served by DEC – representing 4.1 percent of all DEC

residential accounts, and 21.4 percent of all low-income households served by DEC – will have moved from the "unaffordable" energy burden category to the "high household energy burden" category within ten years.

4) ***The large majority (96 percent) of this shift would occur between 2019 and 2025 as a direct result of DEC's currently proposed rate increase, annual decline in the EDIT-2 Rider value, and expiration of the EDIT-1 Rider in 2022. This represents a 50 percent increase in the number of high energy burdened households over that six-year time frame from 2019 to 2025.***

5) While not shown in any of the tables, it is useful to note that, per my analysis, average household energy burdens among low-income households served by DEC in 2016 ranged from 6.4 percent to 16.1 percent, and averaged 10.5 percent. Values for 2019 were virtually equal to that of 2016. The present rate case, if approved as proposed, would increase those values to 7.0, 17.3 and 11.2 percent in 2021, respectively, and 7.1, 17.6 and 11.4 percent by 2025 as the value of the EDIT-2 Rider declines and the EDIT-1 Rider expires.

Related to energy burden is the increase in actual electricity bills for low-income households that would result from DEC's proposed rate case. **Table 9** provides results for how average annual electric bills were estimated to have changed from 2016 to 2019 as a result of the 2017-18 DEC rate case, as well as what the increase in those bills would be for 2021 and 2025 as a result of DEC's

current request for a rate increase. As noted earlier, these values reflect the total bill, including the new energy charge based on the proposed rates, inclusive of all riders, as well as the BFC, REPS charge, and the sales and use tax. The increase in average electric bills from 2021-2025 reflect the declining value of the EDIT-2 Rider as well as the expiration of the EDIT-1 Rider in August 2022.

As shown in the table, the 2017 rate case, with its associated *decrease* in residential rates (but *increase* in the BFC), resulted in an increase of $8.65 in average annual electricity bills for low-income households served by DEC between 2016 and 2019 ($0.72 per month). However, the current proposed rate increase will increase annual electric bills for those households by $104.58 ($8.72 per month, an 8 percent increase) by 2021 (compared to 2019), and an additional $24.50 per year between 2021 and 2025. This represents a total increase of nearly $130 per year ($10.76 per month, a 9.9 percent increase) between 2019 and 2025 as a result of DEC's proposed rate increase.

Combined, if DEC's current request for a rate increase is approved, annual electric bills for low-income households will have increased by approximately $138 per year ($11.48 per month), on average, between 2016 and 2025 -- a 10.6 percent increase in a decade.

Given that the average monthly energy consumption for low-income households calculated for this testimony is 11,327 kWh per year (943.9 kWh per month) – which is just under the 1,000 kWh per month DEC highlights to illustrate the "average monthly bill impact" from the Company's proposed rate case, it is notable that the estimated bill increase for low-income households

between 2019 and 2021 is 66 cents (or 8 percent) higher of an increase than DEC models for the average customer using 1,000 kWh per month, and – again, due to the projected decline in the EDIT-2 Rider and expiration of the EDIT-1 Rider in 2022 – the impact by 2025 is $2.70 per month (33 percent) higher than DEC's estimated average monthly bill impact for year 1.

Table 9: Increase in average annual electric bills for low-income households through 2021 and 2025 as a result of DEC's proposed rate increase

	2016-2019	2019-2021	2021-2025	2019-2025	2016-2025
Increase in annual electric bill	$8.65	$104.58	$24.48	$129.07	$137.72
Monthly average	$0.72	$8.72	$2.04	$10.76	$11.48
Percent increase	0.7%	8.0%	1.7%	9.9%	10.6%

Q: PLEASE DESCRIBE THE DATA SOURCES AND METHODOLOGY YOU USED TO ESTIMATE THE INCREASE IN ENERGY BURDEN.

A: To calculate the above results, I used "QGIS" GIS software to extract Census Tract-level data for households from the USDOE LEAD Tool for all tracts served by DEC, and extracted only the data for households falling under 150 percent FPL. This resulted in data collection for 853 Census Tracts, representing 332,239 total households that can be characterized as low-income households. Those households account for 8.7 percent of all households in the state, 34.9

percent of all households under 150 percent FPL,[84] and 20 percent of all DEC residential accounts in North Carolina.[85]

To establish an average 2016 baseline for median annual household income, annual household electricity costs, annual household gas costs, annual household costs for other fuels, total household energy costs, and average household energy burdens for all Census Tracts served by DEC, I calculated a weighted average of all factors (except for energy burden) for each Census Tract based on the total value for each factor divided by the total housing unit count for each Tract. I then divided the weighted average total energy cost by the weighted average annual household income to calculate an average low-income household energy burden for each Tract. I then did the same for all Tracts taken together to calculate an average household income, average household energy cost (total and broken out by energy source) and average energy burden for all low-income households served by DEC.

Finally, using the average electricity cost, combined with the net 2016 electricity rate (including all applicable riders at the time),[86] BFC and

[84] Calculated using data from USDOE's LEAD Tool. Query for "North Carolina," with and without filters for less than 150% FPL, and viewing results for "Housing Counts."

[85] Calculated using data from Intervenors Request DR 2-1. "DECNC Average Monthly Bills for Selected Scheduled from 2014 through 2018." Attachment "DEC CBD & AV DR 2-1.pdf."

[86] Base 2016 electricity rate for the residential RS schedule taken from DEC's Intervenors Response to DR 2-8. Attachment "DEC CBD & AV DR 2-8, RS." NC Forty-Second Revised Leaf No. 11, p. 1. Residential rate rider values applicable in 2016 taken from DEC's Intervenors Response to DR 2-5. Attachment "DEC CBD & AV DR 2-5_RiderValues." As rider values were revised twice following the initial effective date of January 1, 2016, for the purpose of this analysis I calculated a weighted-average rider value (based on the number of months each value was effective for) for each of the applicable riders

Renewable Energy Portfolio Standard tariff in place in 2016 for DEC customers,[87] and 7 percent sales and use tax for DEC customers on the residential RS rate schedule, I was able to calculate an average annual electricity usage (in kWh) for low-income households for each Census Tract and as an average across DEC's service area.

As shown in **Table 6** below, the average annual household income for low-income households served by DEC in 2016 was approximately $15,015, while the average total household energy cost was $1,574, resulting in an average household energy burden of 10.5 percent. Average total electricity costs (including fees and taxes) were approximately $1,302 ($1,058 for energy-only), and were associated with an average annual electricity consumption of 11,327 kWh.

Among the 834 Census Tracts, household incomes ranged from $7,055 to $23,051, total annual energy costs ranged from $695 to $1,894, household energy burdens ranged from 6.4 percent to 16.1 percent, and average annual electricity use ranged from 5,293 to 17,226 kWh (441 kWh and 1,436 kWh per month, respectively).

Table 6: Annual household incomes, energy costs, energy burdens and electricity consumption for low-income households served by DEC in 2016

	Avg. household income	Total energy cost	Electricity cost	Energy burden	Electricity use (kWh)

and applied that weighted average to the base rate to calculate an annual net rate for the residential RS rate schedule.

[87] DEC's Intervenors Response to DR 2-8. Attachment "DEC CBD & AV DR 2-8, RS."

Min.	$7,055	$751	$695	6.4%	5,293
Max.	$23,051	$2,246	$1,894	16.1%	17,226
Median	$15,221	$1,636	$1,300	10.5%	11,308
Mean	$15,015	$1,574	$1,302	10.5%	11,327

Consistent with statewide averages,[88] household electric bills accounted for 83 percent of total energy costs for low-income households served by DEC in 2016. *This indicates the degree to which changes in electricity prices (rates) affect total household energy costs, and therefore household energy burdens for low-income households.*

Additionally, and of significance for the present rate case, my analysis shows that virtually 100 percent of the 332,239 low-income households served by DEC in 2016 (again, representing approximately 20 percent of all DEC residential accounts and 17 percent of all residential electricity sales in that year) experienced an "unaffordable" energy cost burden of 6 percent or greater. Of those, approximately 138,000 households served by DEC that experienced a "high energy burden" of 10.9 percent or greater represented 42 percent of all low-income households served by DEC, and 8.3 percent of all DEC's residential accounts in 2016. ***These numbers show that low-income, energy burdened households represent a significant portion of DEC's residential business and bear a significant portion of the cost burden stemming from DEC's expenses.***

[88] USDOE Lead Tool. "North Carolina," chart for "Avg. Annual Energy Costs" and calculate the percent of total energy costs attributable to electricity costs.

Once I had a baseline established for each of the aforementioned factors, I was able to adjust the average household *base* electricity bill (not including fees or taxes) for low-income households within each Census Tract served by DEC, and for the whole of the low-income household population, by multiplying each of the Tract and service area values for the average annual household electricity consumption (in kWh) by the weighted average, net residential RS electricity rate[89] (in dollars-per-kilowatt-hour) in place in 2019. I then added the annual values for the BFC and Renewable Portfolio Standard ("REPS") tariff in place in 2019 to the base electricity charge, calculated the 7 percent sales and use tax for that total, then summed each of these charges together to calculate an average total electricity cost for each Tract and did the same for the service area as a whole.

To calculate the average total energy bill for each Tract and the service area for 2019, I then added the average annual costs for gas and other fuels that had been calculated by the USDOE's LEAD Tool for 2016 to the average total electricity cost. Dividing this new average total energy cost for 2019 by the

[89] Base 2019 electricity rate for the residential RS schedule taken from DEC's Intervenors Response to DR 2-8. Attachment "DEC CBD & AV DR 2-8, RS." NC Forty-Sixth Revised Leaf No. 11, p. 1. Residential rate rider values applicable in 2019 taken from DEC's Intervenors Response to DR 2-5. Attachment "DEC CBD & AV DR 2-5_RiderValues," NC 36th through 40th Revised Leaf No. 99. A weighted average value calculation was again necessary because, while the base rate did not change in 2019, there were multiple adjustments to the riders that applied to residential rate schedules. Therefore, the weighted average net electricity rate used for this analysis represents the base rate plus the weighted average value for each of the individual, applicable riders over the course of 2019.

average household income from 2016 generated the average household energy burdens for 2019.

I then used the same methodology to calculate base and total electricity costs, total energy costs, and average household energy burdens for 2021 and 2025. The net electricity rates used for the analysis for those two years are those presented in **Table 3**, and reflect the rates that households on the residential RS rate schedule will pay, net of all riders, in 2021 and 2025 as a result of DEC's proposed rate increase. The calculation again includes the BFC, REPS charge, and sales and use tax, which reflect the charges and tax rate in place in 2018.

Before proceeding, it is important to address the limitations faced in my analysis, given their impact on the results and conclusions presented in this testimony. First, due to the lack of available data on median household income for households falling under 150 percent FPL for any year after 2016, my analysis assumes no change in household income between 2016 and 2025. This impacts the results for average household energy burden and the number of homes exceeding the 10.9 percent "high household energy burden" threshold. While this would skew the results only slightly for 2019, it is likely that error would have a greater influence on the results for 2021 and 2025.

Second, again given the lack of available data beyond 2016, my analysis assumes no change in average household electricity use. Unlike with household income, where we can assume that some increase occurred after 2016, no such assumption can be made for average electricity use. If usage increased, then electricity and total energy costs would increase, thereby dampening any

skewing of the results resulting from increases in household income. Conversely, if electricity use for low-income households served by DEC has declined, it would enhance the error in the results. Similarly, the analysis assumes no change in costs for gas or other fuels used for household heating and cooling needs. Again, without more recently available data, no conclusion can be drawn as to how changes in the cost of those fuels since 2016 may have impacted the results.

Third, the analysis necessarily assumes that no other changes in rates, fees or riders will occur by 2025 than are currently anticipated (such as the decline in the EDIT-2 Rider value and the expiration of the EDIT-1 Rider). This does not pose a foreseeable risk for the 2021 analysis and results, but could affect the results for 2025 if another rate case or adjustment to any of the applicable riders does occur before then.

Fourth, it is notable that various other factors could influence the results over time. Changes in household size (the number of people occupying a household) could affect values for both household income and electricity use. The aging of the housing stock, heating and cooling systems and appliances over time could result in lower overall energy efficiency and thus higher electricity usage.

Finally, the analysis was only conducted using past and proposed rates for the residential RS rate schedule, which creates the inherent assumption that 100 percent of all low-income households are on DEC's RS rate schedule and not the RE or any other schedule. This is not likely to be the case, but the RS

schedule, given its straightforward and simple rate structure, was easy to model, whereas the RE schedule, with its seasonal and tiered energy rates, would have required a far more complicated model and would have produced results with a much greater margin of error. Additionally, it is not possible to parse out which data in the LEAD database are for customers on different rate schedules.

Regarding this last assumption, it is useful to note that approximately 60 percent of all residential customers served by DEC were on the RS rate schedule as recently as 2018.[90] Additionally, and perhaps more importantly, not a single Census Tract had an average cost for gas or other non-electric fuels of $0 for 2016, and only 14 percent of all Tracts analyzed had an average household gas cost less than $100 per month (which represents approximately half of the average gas cost for all households). In other words, while 40 percent of all DEC residential customers may be on the RE rate schedule, the requirements for households to be eligible for the RE "all electric" rate schedule,[91] combined with the USDOE data on fuel costs for low-income households served by DEC suggests that the large majority of households represented in my analysis are on DEC's residential RS rate schedule.

[90] DEC Response to CBD & AV DR 2-1. "DECNC Average Monthly Bills for Selected Scheduled from 2014 through 2018." Attachment "DEC CBD & AV DR 2-1.pdf"

[91] Intervenors Response to DR 2-8. Attachment "DEC CBD & AV DR 2-8, RE." NC Forty-Eighth Revised Leaf No. 13, p. 1. As described in DEC's residential RE rate schedule, for a household to be eligible for this rate schedule, "all energy required for all water heating, cooking, clothes drying, and environmental space conditioning must be supplied electrically."

Despite these assumptions, the analysis conducted in support of this testimony and the results presented herein offer the best (and only) available representation of how DEC's proposed rate increase will impact low-income households in 2021 and beyond. If more recent data become available during the course of this rate case, the analysis may be adjusted and new findings presented. Regardless, this analysis provides a more detailed, accurate and relevant representation of the ability (or lack thereof) of low-income households ("customers") to afford DEC's proposed rate increase.

Q: WHAT PROGRAMS DOES DEC CURRENTLY OFFER OR IS PROPOSING IN THE PRESENT RATE CASE THAT HELP REDUCE THE BURDEN OF ENERGY COSTS FOR LOW-INCOME HOUSEHOLDS?

A: First, as mentioned earlier in my testimony, DEC, via discovery, has objected to "the definition and use of the phrase energy burden."[92,93] As such, the Company's programs do not necessarily aim to reduce household energy cost burdens. However, DEC does recognize that low-income customers might struggle to pay their electric bills and pay for other basic needs "during times of financial hardship,"[94] and has developed some policies and programs that help address that problem. As described by Witness De May, these include:

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92 DEC Response to Intervenors Request DR 2-15.

93 DEC Response to Intervenors Request DR 2-16.

94 Direct testimony of Stephen G. De May for Duke Energy Carolinas, LLC. Docket No. E-7, Sub 1124. Page 8. https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=146284ce-2d8c-4b74-842e-f9409f52e32c

1) the Share the Warmth program – a ratepayer donation-based program that helps eligible low-income households pay unaffordable heating bills in the winter months, with DEC matching ratepayer contributions up to $500,000; and,

2) DEC's portfolio of demand-side management ("DSM") and energy efficiency ("EE") programs, which includes the Neighborhood Energy Saver Program.[95]

Additionally, with the aim of doing "even more for these customers, particularly those most in need," in the present rate case DEC is:

1) proposing a lower-than-recommended return on equity "as a rate mitigation measure";

2) not requesting an increase in the BFC, "even though an increase is warranted," so that the Company can work with stakeholders to identify other opportunities for helping low-income customers through rate design;

3) reducing the amount of executive compensation DEC is seeking to recover, as a cost-mitigation measure; and,

4) proposing to eliminate credit card fees for residential customers who pay their bills with a credit card.[96]

[95] *Id.*

[96] *Id.* at p. 8-9.

Finally, Witness De May shares other ideas DEC has identified as possible low-income programs and rate structures the Company could offer in the future, including:

1) a low-income bill credit on the BFC for qualifying low-income customers;
2) a bill "Round-Up" program allowing customers to round their monthly bills up to the nearest dollar to help fund bill payment assistance programs through organizations/foundations that offer those services;
3) expanding and re-tooling the Supplemental Security Income price discount (currently capped at $2.92 per month) for customers who receive SSI; and,
4) other new low-income programs identified through a Commission-ordered stakeholder process. [97]

Q: WHAT IS YOUR RESPONSE TO DEC'S EXISTING AND PROPOSED POLICIES AND PROGRAMS INTENDED TO BENEFIT LOW-INCOME HOUSEHOLDS?

A: In relation to their existing programs, I conclude that, while these programs are important and represent a good start, they do very little to help reduce the burden of energy costs for the large majority of low-income customers served by DEC, nor do they do much to address one of the most significant underlying factors

[97] *Id.* at p. 9-10.

leading to high energy costs: the lack of energy efficient homes, heating and cooling systems and appliances.

Specifically, the Share the Warmth program, while critical and helpful to households that are unable to afford their winter heating bills, caps DEC's contribution at $500,000, presumably annually.[98]

For the sake of putting that amount in context, $500,000 represents only 0.54 percent of the total funding directed to North Carolina from the federal Low-Income Home Energy Assistance Program ("LIHEAP allocated in Federal Fiscal Year ("FFY") 2019[99] – a program for which the majority of funds are used for the same bill assistance purpose as DEC's Share the Warmth program. Data for the NC LIHEAP grant for FFY 2018, combined with NC's DHHS's plan for FY 2020 showing that approximately 75 percent of all LIHEAP funding goes directly to assist households,[100] indicates that the average per-home allocation of LIHEAP heating and crisis assistance funds during that time period was approximately $350. At this level of funding, it can be estimated that DEC's maximum contribution to Share the Warmth helps only about 1,500 households a year. While that is significant for those individual households, 1,500

[98] Duke Energy. Customer Assistance Programs, Share the Warmth. https://www.duke-energy.com/community/customer-assistance-programs/share-the-warmth

[99] NC DHHS. North Carolina Weatherization Waver FFY 2019. https://files.nc.gov/ncdhhs/documents/files/dss/publicnotices/Weatherization-Waiver-FFY2019.pdf

[100] NC DHHS. Low-Income Home Energy Assistance Program, Detailed Model Plan, FFY 2020. https://files.nc.gov/ncdhhs/documents/files/dss/publicnotices/FFY-2020-LIHEAP-Block-Grant-Plan---Detailed-Model-Plan.pdf

households represent only 1 percent of the "high energy burden" households I estimate to have been served by DEC in 2019.

In relation to DEC's DSM/EE programs, only the Neighborhood Energy Saver Program and DEC's Low-Income Weatherization Program directly reduce energy bills, and thus energy burdens for low-income households. Again, while these are critical and necessary programs, they only scratch the surface in addressing the scale of the problem.

For instance, the Low-Income Weatherization Program – which invests in higher-impact home energy improvements such as insulation, air sealing and appliance upgrades – helped only 3,782 homes between 2015 and 2019, representing 2.7 percent of all high energy burdened households and 1.1 percent of all low-income households served by DEC.[101] The Neighborhood Energy Saver Program, while reaching more than 40,000 more households over the same time period, only offers minor improvements such as energy efficient light bulbs, water savings, low-flow shower heads and faucet aerators, water heater insulation, weather stripping and other similar items.[102] While these items do help lower energy costs, they do not address the more substantial energy issues that result in the greatest energy waste, and thus high energy burdens.

Relating to DEC's proposed rate mitigation measures, the proposal of a lower-than-recommended ROE does result in a lower rate increase, but the claim

[101] DEC Response to Interventors DR-2-10.

[102] Duke Energy. Neighborhood Energy Saver Program flyer. https://www.duke-energy.com/_/media/pdfs/for-your-home/nes-program-flyer.pdf?la=en

that this is a rate mitigation measure is questionable given that the requested 10.3 percent ROE is still 0.4 percent higher than DEC's currently-approved ROE of 9.9 percent, and it is yet to be determined whether even a 10.3 percent ROE is justified – especially in light of the fact that DEC Witness Hevert's recommendation for a 10.75 percent ROE for Virginia Electric and Power Company (Dominion Energy Virginia) in Virginia was strongly rejected in November 2019 by the Virginia State Corporation Commission, which approved a far smaller ROE of 9.2 percent.[103] This calls into question DEC's claim that the lower-than-recommended (by Witness Hevert) ROE of 10.3 percent is a rate mitigation measure. [104]

A similar argument could be made in relation to DEC not proposing an increase in its BFC given that the Company has indicated that it intends to propose an increase in the charge in a future rate case. In reality, the lack of a request in the BFC for the present rate case seems more like a response to the rejection of a similar increase in the BFC DEC requested in South Carolina in 2019.[105] In a Commission Directive preceding the order for that case, the Public Service Commission of South Carolina stated that DEC's request for an increase in its residential BFC from $8.29 to $28 demonstrated that DEC was ""tone

[103] Commonwealth of Virginia State Corporation Commission. Final Order. Case No. PUR-2019-00050, "For the determination of the fair rate of return on common equity." Nov 21, 2019. http://www.scc.virginia.gov/docketsearch/DOCS/4jx901!.PDF

[104] Hevert Testimony at p. 4.

[105] Public Service Commission of South Carolina. Commission Directive. Docket No. 2018-319-E. May 1, 2019. Page 1. https://dms.psc.sc.gov/Attachments/Matter/86a4fa07-3796-4ff7-8486-07de716a0809.

deaf" as to how a 238% increase in the Basic Facilities Charge would have negatively and adversely impacted the elderly, the disabled, the low income and low use customers."[106] DEC later agreed to lower the BFC request to $11.96 for residential customers.[107]

By comparison, DEC's 2017-18 rate case in North Carolina increased the BFC to $14.00.[108] If the decision not to propose another increase in the BFC was indeed in consideration of how a higher BFC could impact low-income households, they might have considered actually lowering the BFC to the level approved for DEC in South Carolina. It is not necessary to detail how this story played out in a similar manner in the same South Carolina rate case in relation to executive compensation except to say that the Commission also applied the "tone deaf" criticism in rejecting the large majority of DEC's request to recover executive compensation.

Finally, eliminating credit card fees for residential customers who pay their bill with a credit card is also helpful, but long overdue. It is common sense that most customers who pay electric bills with a credit card do so because they lack sufficient income at the time of the due date to cover the cost of the electric bill. Thus, they are likely to be low-income households.

As for DEC's ideas for future low-income programs and developing a stakeholder process, this is also a good indication that DEC may do more to

106 *Id.*
107 *Id.*
108 Intervenors Response to DR 2-8. Attachment "DEC CBD & AV DR 2-8, RS." NC Forty-Sixth Revised Leaf No. 11, p. 1.

address low-income household energy burdens in the future. However, instead of responding to long-standing proposals by social and environmental advocates put forth through the Duke Energy Collaborative process[109,110] – such as the proposal that DEC develop a tariffed on-bill energy efficiency finance program accessible to all customers regardless of income, credit score or home ownership – and proposing the development of some of those proposals through the present rate case, DEC is delaying any new programs that could begin to meet the scale of the energy burden problem until yet another stakeholder process is conducted.

Overall, DEC's existing programs that help low-income households pay their heating bill and offer funding for weatherization and other home energy efficiency improvements are important and critical to the individuals and families that receive that assistance. But, especially in light of the impact that the present rate case will have on deepening the problem of household energy burdens experienced by low-income households served by DEC, the Company should be doing and investing far more than they currently are in addressing that problem, and they are missing the opportunity to do so in the present rate case.

Q: HOW WOULD THE LOW-INCOME ENERGY BURDEN BE LOWERED IF THE COMMISSION CONSIDERED AND APPROVED A LOWER RETURN ON EQUITY THAN DEC IS REQUESTING?

[109] Southern Alliance for Clean Energy. May 2015. On-Bill Financing Program Recommendation Overview for Duke Energy Carolinas.

[110] Advanced Energy. December 2016. Report (for DEC): Residential EE Retrofit Programs Market Research.

A: Through my analysis, it appears that electricity bills, and by extension household energy burdens, could be lowered from the levels I have projected to result from DEC's proposed rate increase if the Commission approved a lower return on equity than DEC's proposed 10.3 percent ROE.

I have analyzed what the resulting revenue increase would be at different ROE levels using data provided by DEC Witness Pirro, and the results may serve as a proxy for how electricity bills, and by extension household energy burdens, could be lowered from the levels I have projected to result from DEC's proposed rate increase.

According to DEC Witness Pirro, DEC's proposed 10.3 ROE, based on a 53 percent equity, 47 percent debt capital structure, would require a gross increase in annual residential revenues of $238,588,158, for a 10.25 percent increase in total revenues (including all present rider revenue). This represents 52 percent of DEC's total proposed revenue increase. Accounting for the first-year EDIT-2 refund value ($80,148,603) for the residential class, the net revenue increase would be $158,439,556, for a net increase of 6.8 percent for the residential class. [111]

Using Witness Pirro's data, I adjusted the revenue requirement for ROE's of 9.9 percent (DEC's currently approved ROE) and 9.2 percent (the ROE approved for Dominion Energy Virginia in November 2019), and also 9.2

[111] Pirro Testimony, ex. 2 at p. 1-2.

percent at DEC's current 52/48 capital structure (rather than the 53/47 ratio they are proposing, which I maintained in the analysis for the first two ROE's).

As shown in **Table 10**, using the same calculation as presented in DEC's application,[112] applying a 9.9 percent ROE (and maintaining the requested 47/53 debt-to-equity ratio) would reduce the residential revenue increase by 7.2 percent, saving residents $17.1 million, and lower the gross (no EDIT-2) percent increase in rate revenues (DEC's representation of "rate increase") from 10.25 percent to 9.5 percent. Including the EDIT-2 (first-year) refund would lower the rate increase from 6.8 percent to 6.1 percent.

Accordingly, approving a 9.2 percent ROE would result in a 19.7 percent decrease in revenues, saving residents approximately $47.1 million, and resulting in a gross rate increase of 8.2 percent (2 percent lower than what DEC is proposing), and a net increase of 4.8 percent. Finally, a 9.2 percent ROE combined with maintaining DEC's current 52/48 capital structure would lower the revenue increase by 21.3 percent, saving residents $50.8 million, resulting in a gross rate increase of 8.1 percent and a net increase of 4.6 percent in the first year. It is important to note that as the annual value of the EDIT-2 refund declines in year 2 and beyond, the net rate increase will go up, eventually approaching the gross percent rate increase value.

Table 10: Revenue and rate increase (and savings) at different ROE's

[112] Duke Energy Carolinas, LLC. Application to Adjust Retail Rates, Request for an Accounting Order and to Consolidate Dockets. Docket No. E-7, Sub 1214. Exhibit C, p. 2. Sept. 30, 2019.

Return on Equity	Gross rev. increase ($M)	Savings ($M)	Percent change	Gross rate increase	EDIT-2 refund ($M)	Net rev. increase ($M)	Net rate increase
10.3% ROE	$238.6	$0.0	0%	10.3%	$80.1	$158.4	6.8%
9.9% ROE	$221.5	-$17.1	-7.2%	9.5%	$80.1	$141.3	6.1%
9.2% ROE	$191.5	-$47.1	-19.7%	8.2%	$80.1	$111.4	4.8%
9.2% ROE, 52% Equity	$187.7	-$50.8	-21.3%	8.1%	$80.1	$107.6	4.6%

As noted, converting the savings values and rate increase percentages for different ROE's as shown in **Table 10** is beyond my expertise. However, within the context of how DEC's proposed rate increase and ROE would significantly increase household energy burdens for its low-income customers, it is clear that rejecting DEC's proposed ROE and even lowering it from current levels would save residential customers a substantial amount of money – strictly from adjusting these two factors, as a consideration of costs DEC is proposing to recover is of equal importance.

For illustrative purposes, however, it is notable that spreading the $50.8 million in savings for the 9.2 percent ROE/52 percent equity scenario equally among all 1.75 million of DEC's residential customers would save the average customer $29 a year ($2.40 a month), thus reducing the first-year bill impact for the average customer using 1,000 kWh a month (as calculated by DEC) by 30 percent.

IV. REVISING HOW THE COMMISSION CONSIDERS "CHANGING ECONOMIC CONDITIONS" AND "CUSTOMER ABILITY TO AFFORD A RATE INCREASE" AS INCLUDING ENERGY BURDEN CONSIDERATIONS

Q: PLEASE BRIEFLY EXPLAIN THE MANNER IN WHICH THE COMMISSION IS REQUIRED TO CONSIDER THE IMPACTS OF A RATE INCREASE ON RATEPAYERS.

A: As explained in the Proposed Order of the Public Staff for the 2017-18 DEC rate case: "the Commission must . . . make findings of fact regarding the impact of *changing economic conditions* on customers when determining the proper rate of return on equity for a public utility."[113]

Moreover, relating to customers' ability to afford a rate increase,

> [C]hanging economic circumstances as they impact . . . customers may affect those customers' ability to afford rate increases. For this reason, customer impact weighs heavily in the overall rate setting process, including . . . the Commission's own decision of an appropriate authorized rate of return on equity.[114]

In other words, in considering a public utility's request for a rate increase and associated ROE, the Commission is required to weigh "changing economic conditions" as they affect "customers' ability to afford rate increases." Of course, these considerations must be balanced with the utility's ability to compete for and procure capital, but it is notable that customer impacts should "weigh heavily" in the rate setting process.[115]

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[113] State of North Carolina Utilities Commission, Proposed Order of the Public Staff. "In the Matter of Application by Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina" (April 27, 2018), p. 80. Docket Nos. E-7, sub 819, 1110, 1152, 1146 (emphasis added).

[114] *Id*. at 84.

[115] *Id.*

This testimony argues that the economic conditions which have been considered in past rate cases are insufficient for properly assessing how the ability of a large portion of the residential customer class in North Carolina – those households earning less than 150 percent of FPL – to afford a proposed rate increase is affected.

Q: WHAT FACTORS HAVE DEC AND THE COMMISSION CONSIDERED IN PAST RATE CASES AND THE PRESENT RATE CASE TO ASSESS "CHANGING ECONOMIC CONDITIONS" AND "CUSTOMER ABILITY TO AFFORD A RATE INCREASE"?

A: In DEC Witness Hevert's testimonies for the 2017-18 DEC rate case and for the present rate case, he assesses "changing economic conditions" based on national and state trends in Gross Domestic Product, unemployment, median household income, personal income and consumption and electricity rates.[116,117] In the 2017-18 rate case, Public Staff witness Parcell went even further by examining county-level indicators, including unemployment rates, absolute employment, real taxable retail sales, and trends in residential building permits and job postings.[118] These represent more direct measures of changing economic conditions on more of a community scale than do the statewide and national measures examined by Witness Hevert.

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116 *Id.* at p. 113-114.

117 Hevert Testimony at p. 54-62.

118 State of North Carolina Utilities Commission, Proposed Order of the Public Staff. "In the Matter of Application by Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina" (April 27, 2018), p. 114-115. Docket Nos. E-7, sub 819, 1110, 1152, 1146 (emphasis added).

Q: WHAT IS YOUR RESPONSE TO HOW THE COMMISSION AND DEC HAVE CONSIDERED THESE FACTORS IN THE PAST?

A: While the requirement for the Commission to consider the factors of "changing economic conditions" and "customer ability to afford a rate increase" is necessary and appropriate, what appears clear from the reading of the 2018 Order is that there has been no attempt to directly quantify, in any manner, "customer ability to afford a rate increase," which logically seems to be more of a microeconomic calculation than a macroeconomic one.[119] As such, identifying and considering "customer ability to afford a rate increase" lends itself more to a calculation of household energy costs and average household energy burdens – especially for low-income households, and especially if those households constitute a significant proportion of the general body or ratepayers – than it does macroeconomic measures. Unfortunately, it appears that only macroeconomic measures have been considered in past rate cases.

Further, regarding "changing economic conditions," I believe that rate increases, and resulting increases in electricity bills themselves reflect a "changing economic condition." Electricity bills are a cost (most) households must pay to experience a normal and dignified quality of life, and they are one of many such costs. Rising costs, whether via inflation or as the result of a regulator-approved rate increase, reflect a changing economic condition

[119] State of North Carolina Utilities Commission, Proposed Order of the Public Staff. "In the Matter of Application by Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina" (April 27, 2018), p. 80. Docket Nos. E-7, sub 819, 1110, 1152, 1146 (emphasis added).

households face, much as lost income due to unemployment or an increase in borrowing may occur during an economic downturn.

As such, rising electricity costs should added to the factors considered in this and future rate cases, especially because they have a direct impact on customer ability to afford another rate increase. Otherwise, eventually – and this is especially true in light of DEC's plan to spend billions of dollars over the next decade on coal ash cleanup and grid improvement – electricity costs will rise to a level of unaffordability for low-income households to where they severely cut back on their electricity use, which will negatively impact quality of life and could put the health and lives of individuals at risk.

Q: HAVE OTHER JURISDICTIONS CONSIDERED ENERGY BURDEN IN THEIR RATE CASES?

A: Yes, in both similar and different contexts. For instance, the California Public Utilities Commission issued an Order in 2018 to assess the impacts on affordability of individual CPUC proceedings and utility rate requests. In addressing energy burden in that order, the CPUC stated:

> "Part of the challenge in defining and measuring 'affordability' is determining the appropriate scale and targeted threshold. For example, **energy burden**, or the ratio of the median cost of a service to the medium income, is one of the simplest metrics used to evaluate affordability today; however, an evaluation of energy burden will have very different results if conducted on a statewide vs. local regional level,

while the results themselves may have different meanings to different people."[120]

And in 2015, the CPUC issued another Order aimed at reviewing residential rate structures more generally, again with a consideration of household energy burden and affordability, stating that:

> "We continue to employ the **energy burden** metric as an assessment of the general affordability of the rate design reforms. While we do not specifically hold that a 5% mark is the appropriate threshold for determining affordability, we continue to use it as a guideline for examining the impacts of rate reform on the affordability of energy."[121]

Additionally, in the context of reviewing and revising low-income utility programs, the New York Public Utilities Commission ("NYPUC") stated that:

> "**Energy burden** at or below 6% of household income shall be the target level for all 2.3 million low income households in NY." [NY PUC] "adopts a goal of reducing household energy burden to 6% of household income for all low income utility customers. Approximately 2.3 million New York State households face energy burdens in excess of that level."[122]

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120 CPUC. *Order Instituting Rulemaking* (R.18-07-006). July 12, 2018. Emphasis added.

121 CPUC. Order Instituting Rulemaking on the Commission's Own Motion to Conduct a Comprehensive Examination of Investor Owned Electric Utilities' Residential Rate Structures, the Transition to Time Varying and Dynamic Rates, and Other Statutory Obligations. 3015 California PUC LEXIS 43. July 3, 2015. Emphasis added.

122 NYPUC. Order Adopting Low Income Program Modifications and Directing Utility Filings, Case 14-M-0565. NYPUC LEXIS 267. May 20, 2016. Emphasis added.

And in Pennsylvania, in response to an order that directs the Pennsylvania PUC staff to initiate a study "to determine what constitutes an affordable **energy burden** for PA's low-income households and, based on this analysis, whether any changes" to Energy Conservation Programs are necessary, the PA PUC observed, in part that:

> "Pennsylvania's maximum **energy burdens** in the CAP Policy Statement (5-17%, depending on the energy status, fuel source, and FPIG) were generally higher than maximum energy burdens in neighboring states. Ohio's utility payment assistance program has a maximum energy burden of 10%. New Jersey's utility payment assistance program has a maximum energy burden of 6% for total electric and for combined gas and electric. The maximum energy burden for New York's payment assistance program is 6% for gas and electric service."

And, as it relates to and provides precedent for one of my key recommendations in this testimony, the PA PUC ordered that: "Utilities shall…provide cost forecasts [for customers] based on a 10% maximum energy burden for 2017 through 2021."[123]

Additional examples exist from Kentucky, New Jersey, Arkansas and Ohio of regulatory commissions addressing energy burden and household energy cost affordability in relation to low-income programs.

[123] 2019 PA PUC LEXIS 32. January 17, 2019.

Q: HOW WOULD YOU RECOMMEND THAT "CHANGING ECONOMIC CONDITIONS" AND "CUSTOMER ABILITY TO AFFORD A RATE INCREASE" BE CONSIDERED IN THE PRESENT AND FUTURE RATE CASES?

A: My recommendation is that DEC and the Commission estimate, consider, and give primary weight to the impact that a rate increase and associated ROE, as well as any increase in the BFC, will have on electricity costs and household energy burdens low-income households face. This is now quantifiable as I have presented in my testimony, and it is clear that DEC's proposed rate increase will have severe negative consequences for the 332,000 low-income households served by DEC, virtually every one of which already experiences unaffordable annual energy costs in excess of 6 percent of their gross household income, and more than 40 percent of which are already categorized as having a "high household energy burden" in excess of 10.9 percent of their annual income. This is a problem that needs to get better before it gets worse, and DEC's proposal will render it much worse.

V. RECOMMENDATIONS

Q: PLEASE SUMMARIZE YOUR RECOMMENDATIONS FOR THE COMMISSION.

A: My recommendations for the Commission are as follows:

1) Given that it is more accurate and transparent to represent a rate increase as the "percent increase in rates" for customers on different rate schedules rather than as a "percent increase in residential rate

revenues," I recommend that the Commission require all public utilities, including DEC in the present rate case, to prominently represent in their initial application and related filings the gross and net rate impacts for individual rate schedules that show what the actual percent change in "rates" – in cents per kWh – that customers on those individual rate schedules will experience. This should be required as a gross percent change in the base rate, as well as the net percent change inclusive of all riders.

2) Given that impacts on customer electricity bills could potentially be higher (or lower) than estimated for the first year following a given rate case, I recommend that the Commission require all public utilities, including DEC in the present rate case, to project and describe future rate and bill impacts – extending out to a minimum of five years – for customers on each individual rate schedule that accounts for any and all changes, whether known or estimated, in all applicable riders and fees over the time period of analysis. For example, in the present rate case, the Commission should require DEC to project and describe future rate and bill impacts for all rate schedules that account for the estimated annual decline in the value of the annual EDIT-2 tax refund – as it will necessarily result in an annual decline in the per-kWh EDIT-2 Rider value – as well as the expiration of the EDIT-1 Rider in August 2022.

3) The increase in residential electric bills through the present case, in the first year and over the following four years, must not only be

considered by itself, but also within the context of DEC's intention to shift more costs onto the residential class while also increasing the monthly BFC. In this regard, I recommend that the Commission consider all of these factors, especially in light of its mandate to consider "changing economic conditions" and "customers' ability to afford rate increases."

4) Given DEC's stated intention to shift more of its costs onto residential customers, through both the present and future rate cases, should itself be considered a "changing economic condition." This is especially true given the impact of that intention on "customers' ability to afford rate increases." Lacking an equal percent shift in household income -- not only on average, but specifically and especially for those with household incomes that fall below 150 percent FPL – higher electric bills *now* impair the ability of customers to afford *future* rate increases.

5) In its consideration of "changing economic conditions" and "customers' ability to afford a rate increase" in reviewing DEC's proposed rate increase and ROE, I recommend that the Commission estimate, consider, and give primary weight to the impact that a rate increase and associated ROE, as well as any future increase in the BFC, will have on electricity costs and household energy burdens low-income households face. While macroeconomic indicators such as GDP, unemployment, etc. serve as useful indicators of "changing economic conditions" on a state level, household energy burden

represents the most direct measure of "customers' ability to afford a rate increase," and the impact of a proposed rate increase and ROE on household energy burden is now quantifiable as I have presented in my testimony.

6) That the Commission require DEC to take household energy burden into account as part of the Company's assessment of trends in "changing economic conditions" in North Carolina and the application of that assessment to calculating and proposing its rate increase and ROE.

7) That the Commission strongly examine all costs for which DEC is proposing to recover in the present rate case through a lens of whether DEC's justification of those costs is sufficient to warrant enhancing the real and significant burden of energy costs on low-income households served by DEC.

8) That the Commission, in order to mitigate the impact of the Company's proposal on low-income households, reject DEC's proposal for a 10.3 percent ROE, and instead approve a ROE of no greater than 9.2 percent, which is the ROE recently approved by the Virginia State Corporation Commission ("SCC") for Dominion Energy Virginia ("Dominion")[124],

[124] Commonwealth of Virginia State Corporation Commission. Final Order. Case No. PUR-2019-00050, "For the determination of the fair rate of return on common equity." Nov 21, 2019. http://www.scc.virginia.gov/docketsearch/DOCS/4jx901!.PDF

and maintain DEC's current capital structure of 52 percent equity and 48 percent debt.

Q: PLEASE SUMMARIZE YOUR RECOMMENDATIONS FOR DEC.

A: In addition to accepting and adopting the practices detailed in my recommendations to the Commission, my final recommendation for DEC is as follows:

1) That DEC recognize and accept the definition and use of the phrase "energy burden," and make a more concerted and immediate effort to invest in low-income energy efficiency and demand-side management programs at a scale of investment sufficient to meet the scale of the energy problem among its low-income customers.

Q: DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A: Yes, it does.

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Testimony of Rory McIlmoil submitted by Intervenors Center for Biological Diversity and Appalachian Voices has been served this day upon each of the parties of record in this proceeding through their attorneys by email transmission.

This 18th day of February, 2020.

Electronically submitted
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Profile

Mr. McIlmoil has a background in environmental science and policy with a focus on the analysis and presentation of scientific and economic data relevant to environmental policy and energy development. He has twelve years of experience working on energy and economic policy issues in Appalachia and the Southeast. Over the past seven years, Mr. McIlmoil has been advocating for, and supporting the development of inclusive on-bill energy efficiency finance programs through rural electric cooperatives in North Carolina and Tennessee. His current areas of focus include utility regulation and rate reform, electricity markets and renewable energy policy.

Skills and Experience

Analyzing the impact on electricity bills and household energy burdens for low-income residents resulting from proposed changes in electricity rates.

Combining utility data on energy use and county property tax data to identify the seasonal and average household energy intensity (energy use per square foot of living space) of individual households to assist Appalachian Electric Cooperative in identifying priority targets for its "U-SAVE Advantage" inclusive on-bill energy efficiency finance program.

Leading on policy and technical work for an emerging bi-partisan effort to restructure North Carolina's electricity market and eliminate monopoly electric utilities.

Leading voice and researcher for the advancement of an Energy Efficiency Resource Standard through the Duke University Nicholas School for the Environment "Energy Efficiency Roadmap" project for North Carolina.

Assessing and advocating for appropriate electric utility rate structures that protect low-income residents and facilitate end-user energy efficiency and renewable energy investments.

Leading efforts to promote and help develop "inclusive" on-bill finance home energy efficiency finance programs through rural electric cooperatives in Appalachian North Carolina and Tennessee.

Leading collaborative efforts on issues related to rural electric cooperatives through the Advancing Equity and Opportunity in the Southeast Collaborative and the North Carolina On-Bill Working Group.

Developing a business model and financing plan for community-owned solar projects in Morgantown and Alderson, West Virginia.

Conducting research and analysis of the influences on demand for Central Appalachian coal and the impacts of changes in demand on local economies across the region.

Overseeing reporting and analysis of commercial energy audits.

Analyzing tax revenue data to assess the distribution of wealth generated by coal industry activity in West Virginia.

Analyzing the fiscal impact of coal-related activities for the states of West Virginia, Virginia, Tennessee, and Pennsylvania.

Characterizing distributed energy potential for Kentucky and associated economic and environmental benefits.

Projecting future economic investment that would result from a permanent mineral trust fund in West Virginia.

Education

M.A., Global Environmental Policy, American University, Washington, D.C., 2007.

B.S., Earth & Environmental Sciences, Furman University, Greenville, South Carolina, 2002.

Publications

McIlmoil. 2017. Inclusive Energy Efficiency Financing for Members of the French Broad Electric Membership Corp. Appalachian Voices.

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