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September 16, 2022

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

Re: Duke Energy Progress, LLC and Duke Energy Carolina, LLC Biennial
Integrated Resources Plans and Carbon Plan – Docket No. E-100, Sub
179A

Dear Ms. Dunston,

Pursuant to the North Carolina Utilities Commission's August 30, 2022 *Order Establishing Expert Witness Hearing Procedures*, attached for filing please find a copy of Appalachian Voices' cross-examination exhibits and a list of the cross-examination exhibits that were introduced and moved into the record on behalf of Appalachian Voices.

Sincerely,



Catherine Cralle Jones

Enclosure(s)

cc: Parties of Record

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Sep 16 2022

Appalachian Voices’ Cross-Examination Exhibits Marked and Moved into the Record During Grid Edge Panel

Appalachian Voices introduced and moved the following exhibits into the record during the cross-examination of Duke’s Grid Edge Panel, which panel’s testimony concluded on September 16, 2022.

Exhibit Name	Date Exhibit Introduced/Identified for the Record	Date Exhibit Moved and Admitted into the Record/Evidence
Appalachian Voices’ Grid Edge Panel Cross-Examination Exhibit 1 – <i>Southern Alliance for Clean Energy</i> , February 2022, p. 12 – Duke Energy Regional Leadership in National Context	September 16, 2022	September 16, 2022
Appalachian Voices’ Grid Edge Panel Cross-Examination Exhibit 2 – 2020 Utility Energy Efficiency Scoreboard, Table 8	September 16, 2022	September 16, 2022
Appalachian Voices Grid Edge Panel Cross-Examination Exhibit 3 – Duke’s Response to Appalachian Voices’ Data Request No. 1	September 16, 2022	September 16, 2022
Appalachian Voices’ Grid Pane Cross-Examination Exhibit 4 – LIAC Final Report, August 12, 2022 Excerpts	September 16, 2022	September 16, 2022

APPALACHIAN VOICES GRID EDGE PANEL
DIRECT CROSS EXAMINATION EXHIBIT _____

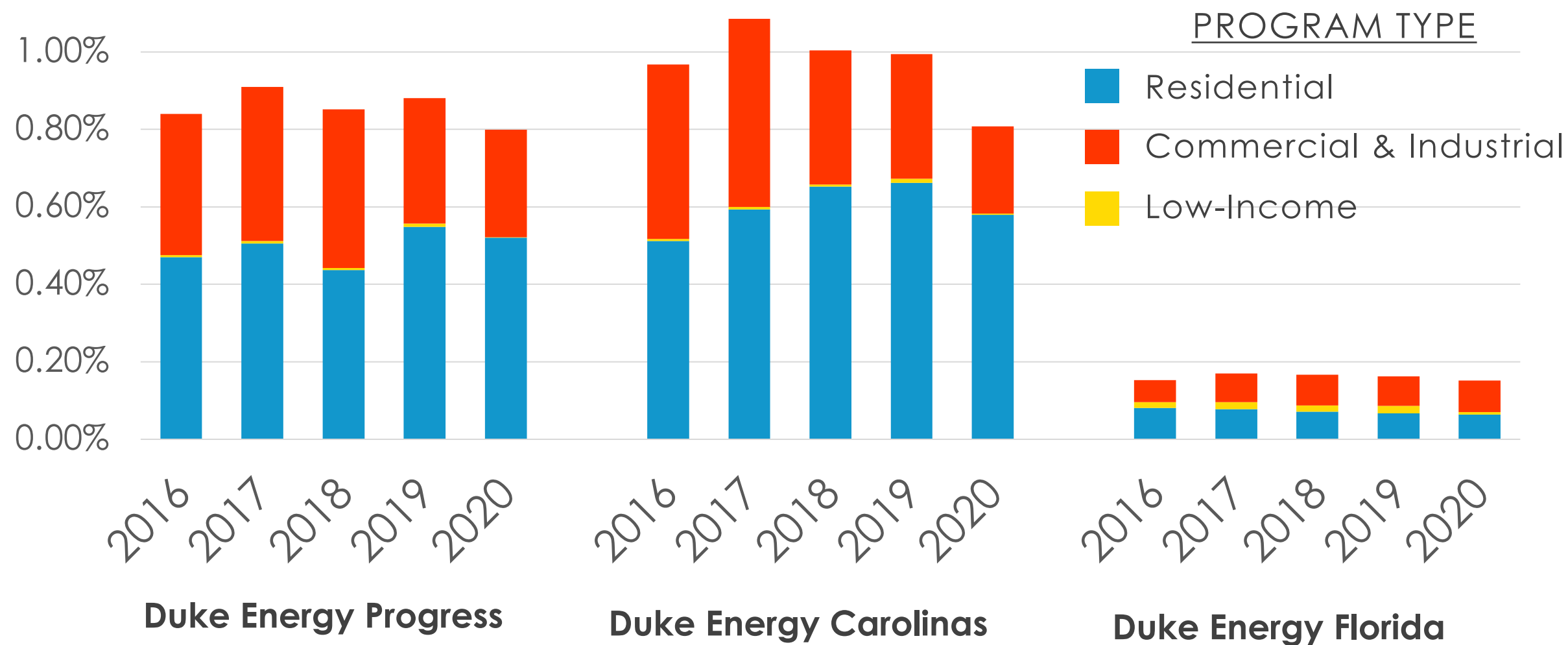
*Southern Alliance for Clean Energy,
February 2022, p. 12*

**Duke Energy Regional Leadership in National
Context**

DUKE ENERGY

REGIONAL LEADERSHIP IN NATIONAL CONTEXT

ENERGY SAVINGS AS % OF RETAIL ELECTRIC SALES



DUKE STILL LEADS, BUT COVID DROVE SAVINGS DOWN

The region's top performing utility, Duke Energy Carolinas, saw a 19% savings drop from 2019 to 2020, which put it nearly even with Duke Energy Progress. These two utilities, which are among the largest in the region, achieved annual savings percentages that were more than twice as high as the next utility. To put this in perspective, the already dismal Southeast average would fall from 0.20% down to 0.14% if these two utilities were removed from the calculation.

LOW-INCOME HOUSEHOLDS HIT HARD

Programs that serve low-income customers in each of Duke's service areas in the Southeast saw steep savings declines in 2020, ranging from 60-85% lower than the previous year. While Duke was able to resume many of its in-home programs, its low-income programs remained suspended through 2020. These programs rely on door-to-door solicitation across whole neighborhoods, which was incompatible with the safety protocols used in other programs. Widespread economic hardship put serious financial pressure on struggling households, leading to unprecedented levels of unpaid bills in 2020. This experience points to a need for Duke to make further strides to expand efficiency services for low-income customers, both before and during future economic crises.

WHAT IS EFFICIENCY LEADERSHIP?

Duke's two utilities in the Carolinas have led the Southeast in efficiency savings for years, but how do they stack up nationally? They have been consistently near the national average, which includes municipal and co-op utilities that do little or no energy efficiency. With the Southeast region's history of sub-par performance, we've become accustomed to thinking average performance is leadership. But with at least half of all major utilities achieving higher savings, true leadership means reaching much further.

APPALACHIAN VOICES GRID EDGE PANEL
DIRECT CROSS EXAMINATION EXHIBIT _____

***2020 UTILITY ENERGY EFFICIENCY
SCOREBOARD_ TABLE 8***

Table 8. Scores for net savings as a percentage of retail sales in 2018

Utility	Net incremental savings (MWh)	Savings as % of sales	Points
NG MA	782,838	3.73%	8.5*
Eversource MA	760,750	3.15%	8
SDG&E	463,260	2.35%	6
ComEd	2,064,720	2.08%	5.5
SRP	624,658	2.05%	5.5
BGE	616,559	1.96%	5
Xcel MN	565,220	1.73%	4.5
LADWP	395,609	1.63%	4.5
PG&E	1,352,387	1.61%	4.5
SCE	1,415,400	1.55%	4
Consumers	641,648	1.55%	4
Eversource CT	346,200	1.54%	4
DTE	777,405	1.50%	4
Xcel CO	453,854	1.45%	4
PGE ^a	303,416	1.45%	4
LIPA	293,161	1.41%	4
Duke OH	292,107	1.32%	3.5
MidAm IA	322,760	1.27%	3.5
OH Edison	286,819	1.12%	3
PSE	261,586	1.10%	3
Entergy AR	255,930	1.08%	3
NG NY ^a	397,304	1.07%	3
Ameren MO	364,080	1.03%	3
Duke SC	233,774	1.01%	3
AEP OH	467,385	1.00%	2.5
Duke NC	624,322	0.99%	2.5
Ameren IL	404,725	0.98%	2.5

Utility	Net incremental savings (MWh)	Savings as % of sales	Points
PacifiCorp UT	230,839	0.87%	2.5
PECO	349,889	0.84%	2.5
PPL	326,966	0.82%	2.5
We Energies ^a	202,487	0.77%	2
Duke Progress	305,066	0.76%	2
West Penn	162,428	0.75%	2
APS	212,752	0.71%	2
ConEd ^a	425,521	0.71%	2
OG&E	187,414	0.68%	2
Duke IN	199,640	0.65%	2
Nevada Power	134,609	0.56%	1.5
CPS	126,985	0.54%	1.5
GA Power	413,919	0.46%	1.5
PSE&G ^a	175,192	0.40%	1
JCP&L ^a	64,189	0.29%	1
SCE&G	58,635	0.25%	1
TECO	40,696	0.20%	0.5
AEP TC	53,294	0.19%	0.5
Duke FL	68,377	0.16%	0.5
CenterPoint	140,997	0.15%	0.5
Oncor	182,620	0.13%	0.5
Dominion	70,097	0.08%	0
FP&L	72,652	0.06%	0
AL Power ^b	10,127	0.02%	0
Entergy LA	5,963	0.01%	0
Average		1.03%	

Savings are net at the generator level. We adjusted EIA retail sales data (shown in table 1, above) for line loss factors to be consistent with the generator-level reporting of savings. See Appendix B for meter-level savings and loss factors. * We awarded a half-point bonus to NG MA for far exceeding the top threshold of 3% savings as a percentage of sales. ^a Includes savings separately allocated from a third-party program administrator. ^b Savings from EIA 2019b.

APPALACHIAN VOICES GRID EDGE
PANEL

DIRECT CROSS EXAMINATION
EXHIBIT _____

APPALACHIAN VOICES
Docket No. E-100, Sub 179
2022 Carbon Plan
APPALACHIAN VOICES Data Request No. 1
Item No. 1-17
Page 1 of 1

DUKE ENERGY CAROLINAS, LLC and DUKE ENERGY PROGRESS, LLC

REQUEST:

Provide all data, analysis, documentation, modeling, etc. showing the participation rates of low-income households in the Company's existing energy efficiency programs.

RESPONSE:

The issue of low-income households' participation in the Companies' existing energy efficiency programs was considered in the Low-Income Affordability Collaborative (LIAC), which is still ongoing and finalizing its recommendations. The Companies did not rely upon this information in their development of the Carbon Plan's determination of the 1% of eligible load goal. The Companies are committed to using the findings from the LIAC going forward to expand the Companies' programs, support customers, and help achieve the aggressive level of EE savings assumed in the Carbon Plan.

The data contained in the attached APPVOICES DR1-17.xls includes data for calendar year 2021, based on data provided by Axiom for accounts active on July 8, 2022, and is subject to change.



	Total Customers	Low Income	Low Income + DR or EE Incremental	Low Income + Any EE Programs
DEC(NC)	1,820,476	583,012	27,016	365,836
DEP(NC)	1,273,012	397,761	14,252	242,863
	3,093,488	980,773	41,268	608,699

*Numbers shown for Low Income customers are those that are identified via Acxiom as having a household income equal to or less than 200% FPL

**Numbers shown for Low Income +DR or EE Incremental are the number of unique households that participated in any EE or DR program in 2021

***Numbers shown for Low Income + Any EE Programs are the number of unique households that participated in any EE or DR Program in 2021 in

	Total Customers	Low Income	Low Income + DR or EE Incremental	Low Income + Any EE Programs
DEC(NC)	1,820,476	583,012	4.63%	62.75%
DEP(NC)	1,273,012	397,761	3.58%	61.06%
	3,093,488	980,773	4.21%	62.06%

***Percentages shown in the table above are the number of unique households that participated out of the number of low income households id

	Total Customers	Low Income	Low Income + DR or EE Incremental	Low Income + Any EE Programs
DEC(NC)	1,820,476	583,012	27,016	365,836
DEP(NC)	1,273,012	397,761	14,252	242,863
	3,093,488	980,773	41,268	608,699

*Numbers shown for Low Income customers are those that are identified via Acxiom as having a household income equal to or less than 200% FPL as of 7/8/2022

**Numbers shown for Low Income +DR or EE Incremental are the number of unique households that participated in any EE or DR program in 2021 not including behavioral based programs (ie. MyHER) that are still Active as of 7/8/2022. This has removed duplication for customers that participated in more than one program or purchased more than one measure.

***Numbers shown for Low Income + Any EE Programs are the number of unique households that participated in any EE or DR Program in 2021 including behavioral programs (ie. MyHER) that are still Active as of 7/8/2022

	Total Customers	Low Income	Low Income + DR or EE Incremental	Low Income + Any EE Programs
DEC(NC)	1,820,476	583,012	4.63%	62.75%
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	3,093,488	980,773	4.21%	62.06%

***Percentages shown in the table above are the number of unique households that participated out of the number of low income households identified as of 7/8/2022

Responder: Tara Bolen, General Manager, Portfolio Analysis & Regulatory Strategy

APPALACHIAN VOICES GRID EDGE PANEL
DIRECT CROSS EXAMINATION EXHIBIT _____

*LIAC FINAL REPORT, AUGUST 12, 2022
EXCERPTS*

LIAC Final Report

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STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-7, SUB 1213
DOCKET NO. E-7, SUB 1214
DOCKET NO. E-7, SUB 1187
DOCKET NO. E-2, SUB 1219
DOCKET NO. E-2, SUB 1193

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1213)
)
In the Matter of)
Petition by Duke Energy Carolinas,)
LLC, for Approval of Prepaid)
Advantage Program)
)
DOCKET NO. E-7, SUB 1214)
)
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 NO. E-7, SUB 1187)
)
In the Matter of)
Application of Duke Energy Carolinas,)
LLC for an Accounting Order to Defer)
Incremental Storm Damage Expenses)
Incurred as a Result of Hurricanes)
Florence and Michael and Winter Storm)
Diego)
)
DOCKET NO. E-2, SUB 1219)
)
In the Matter of:)
Application of Duke Energy Progress,)
LLC for Adjustment of Rates and Charges)
Applicable to Electric Service in North)
Carolina)

**FINAL REPORT AND
RECOMMENDATIONS OF THE
NORTH CAROLINA LOW-
INCOME AFFORDABILITY
COLLABORATIVE**

LIAC REPORT
DUKE ENERGY AND PUBLIC STAFF
RECOMMENDATIONS
PP. 84-85

households⁵⁹. The statistical modeling results show that households with an 8% electric energy are 19% more likely to meet the arrears struggling definition compared to households with a 6% electric energy burden. The direct impact of reducing a household's electric energy burden makes their bill more affordable by reducing the likelihood that they may receive a 24-hour disconnect notice and experience a DNP.

The autoenrollment of LIEAP and CIP recipients in CAP eliminates the hurdle of a customer being required to complete *another* application for assistance. In order to automatically enroll LIEAP and CIP recipients in CAP, Duke Energy and the NCDHHS would need to execute a Data Sharing Agreement.⁶⁰ Upon seeking approval for CAP in a future regulatory proceeding before the Commission, the Companies must request that the Commission also approve using LIEAP and CIP status as eligibility criteria for receiving a bill discount. An arrears management program could be added but will require additional evaluation to determine terms and feasibility of timely implementation.

VII. Duke Energy and Public Staff Recommendations

As a result of the numerous, discussions and work provided throughout the Affordability Collaborative, Duke Energy and the Public Staff support the following recommendations for the Commission's consideration:

- The Commission should consider FPG at or below 200% when determining eligibility for programs to address affordability. As discussed in Section IV, this

⁵⁹ See Appendix C at 20.

⁶⁰ This is similar to the agreement with NCDHHS to share LIEAP and CIP recipient information to enroll them in the expanded moratorium during the COVID-19 pandemic. The Companies along with Piedmont Natural Gas informed the Commission of their intention to work with DHHS to identify the North Carolina customers that currently receive, or received during the 2019-2020 winter season, assistance through LIEAP or CIP. See *Duke Carolinas, LLC, Duke Energy Progress, LLC and Piedmont Natural Gas Company, Inc.'s Notification of Change to Winter Moratorium*, Docket Nos. E-7, Sub 1236; E-2, Sub 1228; G-9, Sub 767; M-100, Sub 158; E-7, Sub 1241 and E-2, Sub 1258 (February 11, 2021).

recommendation aligns with the majority of the income-qualified programs identified in the Sub-Team B research and analytics information completed for the LIAC.

- The Commission should approve and adopt the metrics recommended for monitoring affordability program impacts as discussed in Section III.B of the Final Report.
- The Commission should initiate a rulemaking docket to review the existing regulatory consumer protections detailed in NCUC Rule R12-11 as discussed in Section III.C of the Final Report.

VIII. Public Staff Perspective on the LIAC

Throughout the duration of the LIAC there has been robust discussion, sharing of points of views, and education on differing perspectives among the members. Those engagements have benefited the entire LIAC. The Public Staff welcomes the opportunity to explore potential avenues for making electric rates more affordable for low-income customers.

The Public Staff has been consistent in its position that cost-of-service principles remain in effect and must be a primary concern to ensure rates remain fair, reasonable, and affordable for all customers. Cross-subsidization between customer classes and within classes should be minimized and only be allowed if there is legislation requiring or permitting the cross-subsidization or upon the articulation of explicit policy decisions by the Commission.

There are two primary opportunities to assist low-income customers in paying their electric energy bills: (1) reduction of customer usage through participation in energy

LIAC REPORT
APPENDIX C – V.4 ANALYTICS

APPENDIX C – LIAC

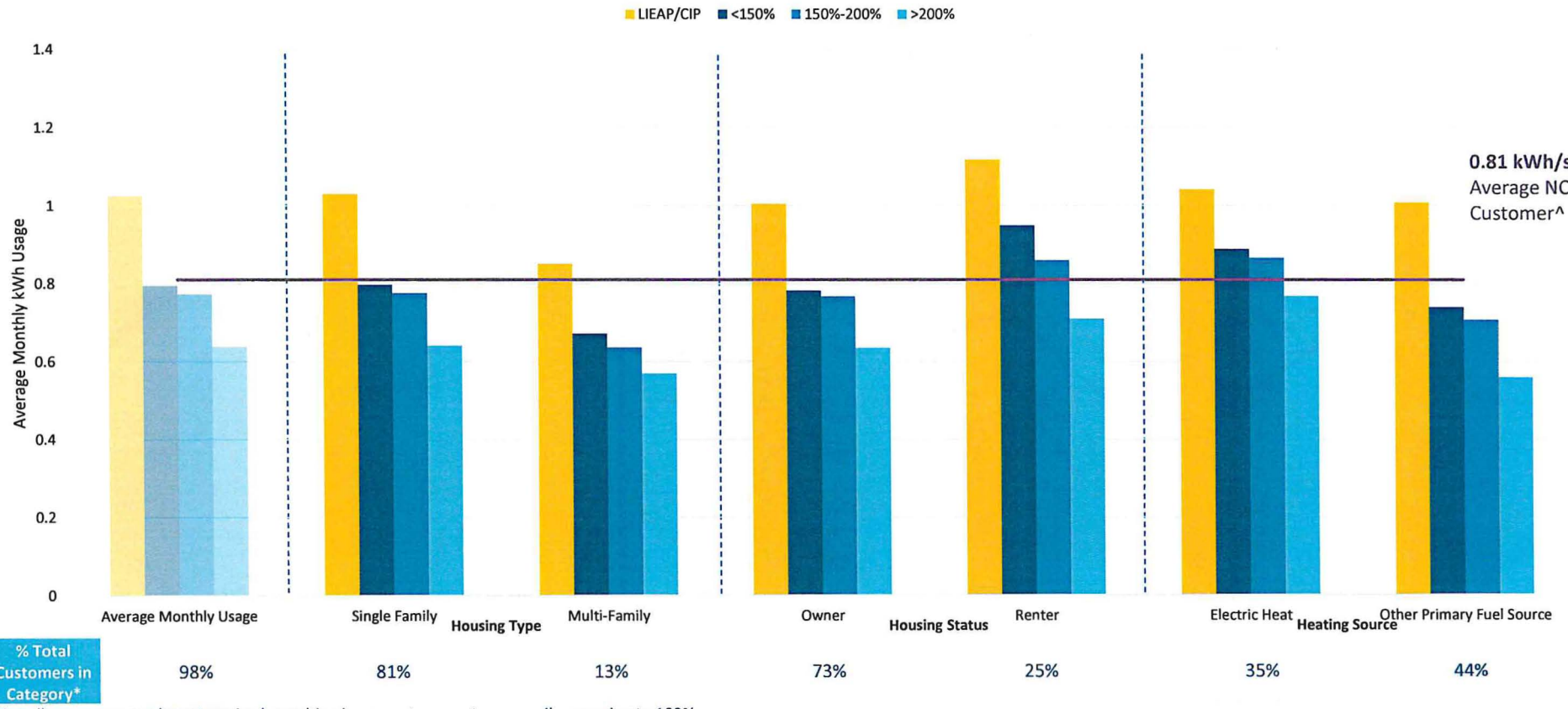
VERSION 4 ANALYTICS

**DOCKET NOS. E-7, SUB 1213; E-7, SUB 1214;
E-7, SUB 1187; E-2, SUB 1219 AND E-2, SUB 1193**



Average Monthly Usage per Square Foot by Income for Housing Type, Housing Status and Heating Source

Average Monthly kWh/Sqft by Housing Type, Housing Status, and Heating Source



% Total Customers in Category*

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%

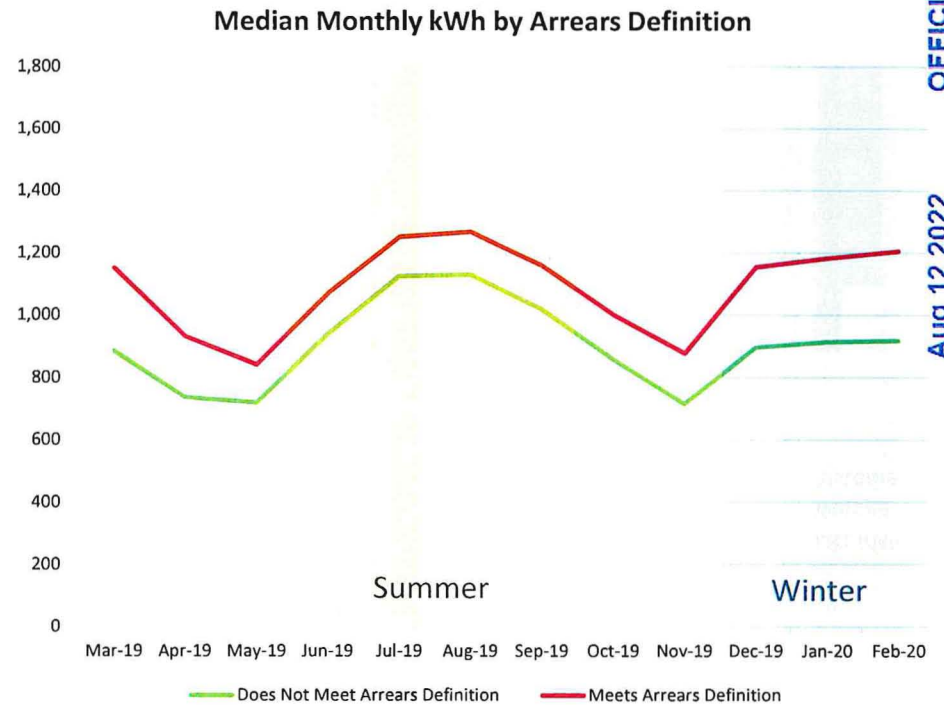
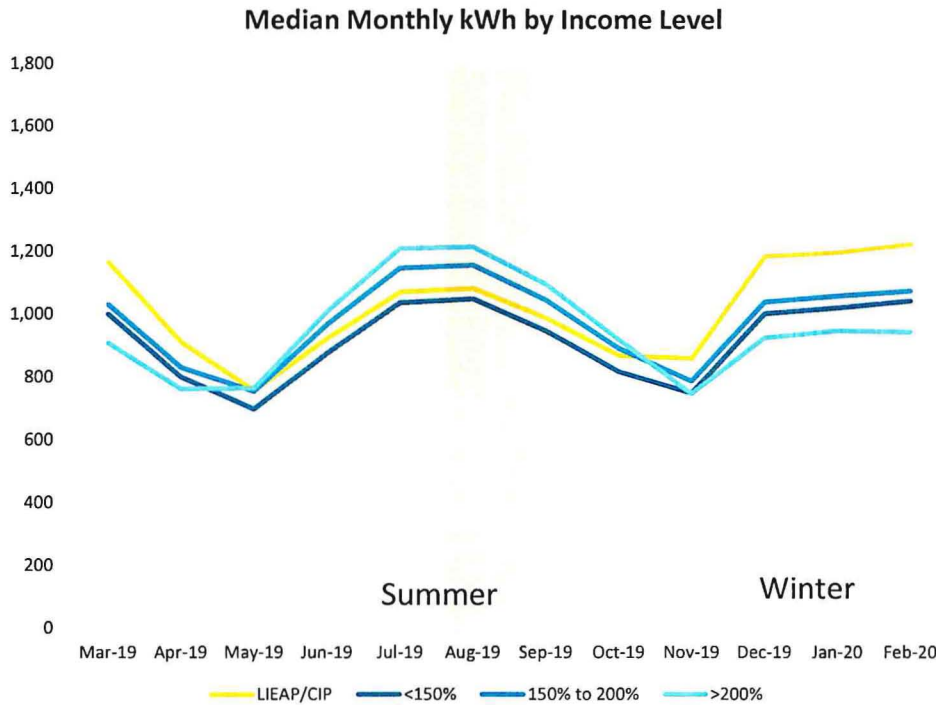
[^]The average line includes customers who could not be categorized, therefore there may be instances of all groups above average

The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis



Median Monthly kWh

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Sep 16 2022
Aug 12 2022



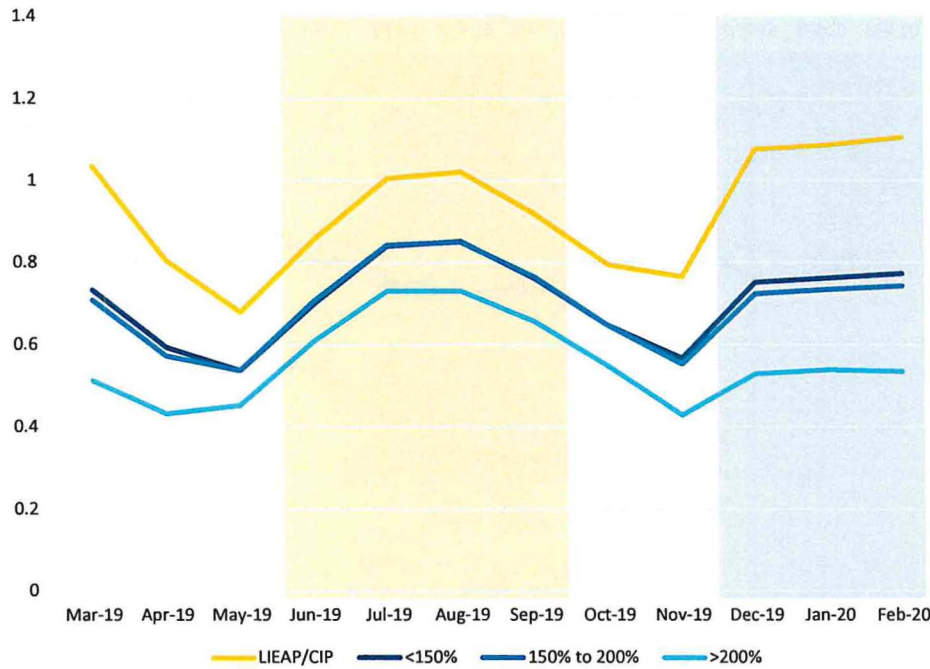
- Low-income & LIEAP/CIP customers use more energy in the winter, less in the summer
- Customers who meet the arrears definition use more kWh per month than other customers year-round

The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis

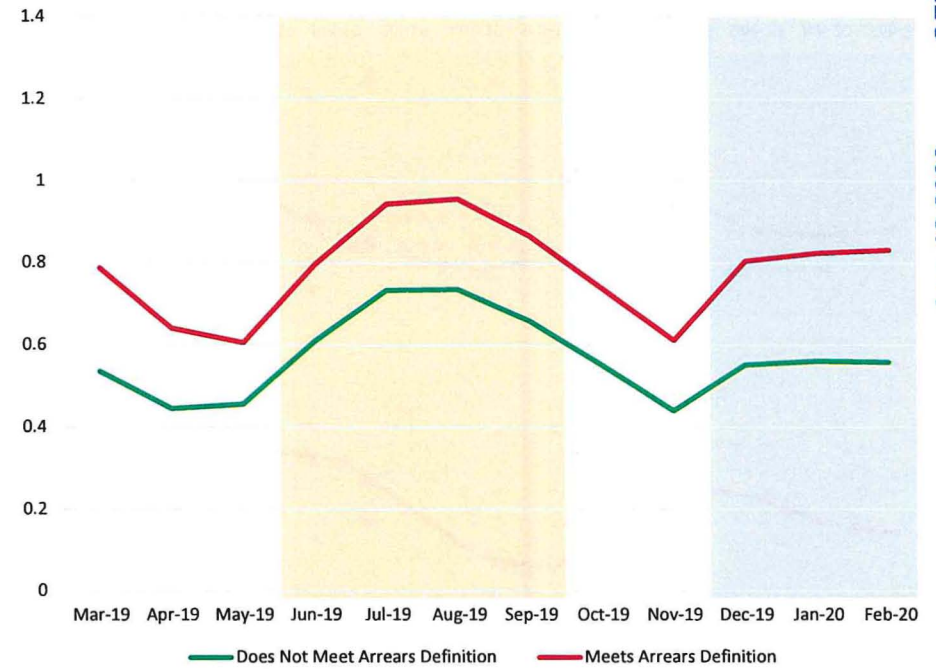


Median kWh per sq ft

Median kWh per sq ft by Income Level



Median kWh per sq ft by Arrears Definition



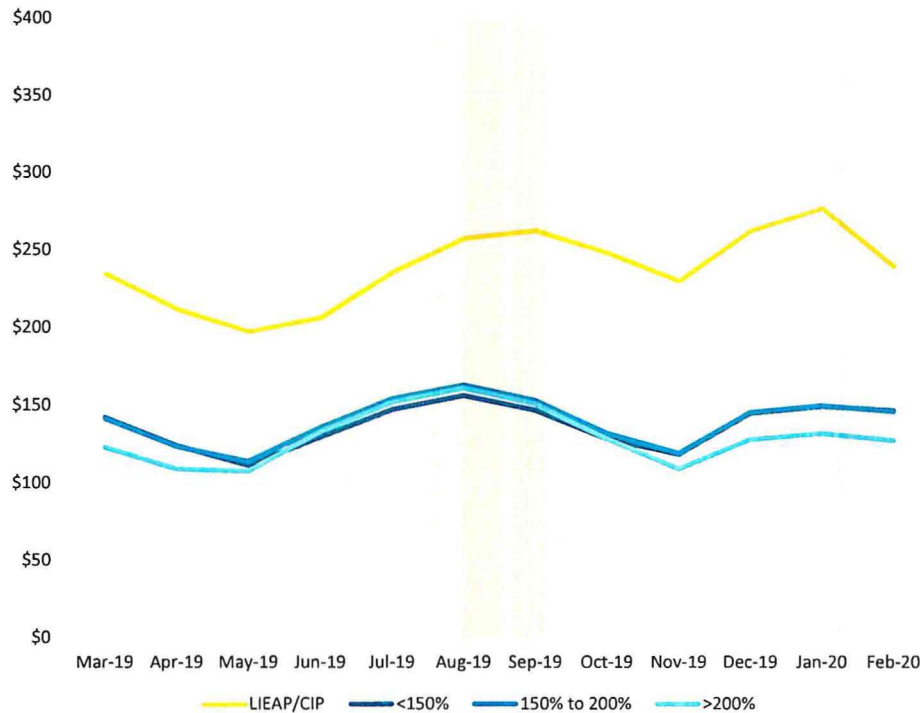
- LIEAP/CIP customers use two times more electricity in winter months per square foot than customers above 200% FPL
- Customers who meet the arrears definition use 50% more electricity in peak winter months per square foot

The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis

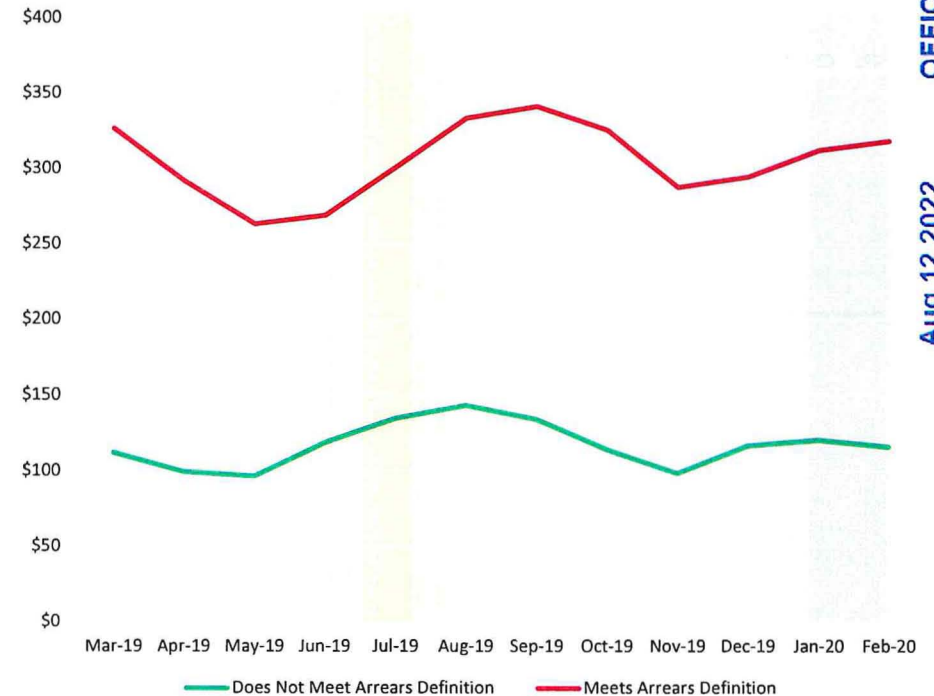


Median Total Monthly Bills

Median Total Bill Amount by Income Level



Median Total Bill Amount by Arrears Definition



- LIEAP/CIP customers face a significantly higher total bill burden, particularly in the winter
- Non-LIEAP/CIP customers below 200% FPL do not appear to face a significantly higher total bill burden, especially in the summer
- Customers who meet the arrears definition have a total bill burden nearly 3 times that of non-arrears customers in peak winter months

The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis

Peak Day Load Shape by Season & Income Segmentation

