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August 12, 2022

VIA ELECTRONIC FILING

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

RE: Joint North Carolina Low-Income Affordability Collaborative Quarterly Progress Report
Docket Nos. E-7, Subs 1213, 1214 and 1187 and E-2, Subs 1219 and 1193

Dear Ms. Dunston:

Pursuant to North Carolina Utilities Commission's ("Commission") March 31, 2021 *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice* in Docket Nos. E-7, Sub 1213, E-7, Sub 1214, and E-7, Sub 1187, and the Commission's April 16, 2021 *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice* in Docket Nos. E-2, Sub 1219 and E-2, Sub 1193 and the Commission's April 14, 2022 order granting an extension of time, enclosed for filing in the above-referenced dockets is the Joint North Carolina Low-Income and Affordability Collaborative Quarterly Progress Report of Duke Energy Carolinas, LLC, Duke Energy Progress, LLC and the Public Staff.

Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

Kathleen H. Richard

Enclosure

cc: Parties of Record

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC; Duke Energy Progress, LLC and the Public Staff's Joint North Carolina Low-Income and Affordability Collaborative Quarterly Progress Report, in Docket Nos. E-7, Sub 1213; E-7, Sub 1214; E-7, Sub 1187; E-2, Sub 1219 and E-2, Sub 1193, has been served by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid, to parties of record.

This the 12th day of August, 2022.

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UTILITIES COMMISSION
RALEIGH

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

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I. Background

A. Procedural History

In response to Duke Energy Progress, LLC's ("DEP") and Duke Energy Carolinas, LLC's ("DEC", collectively, "Duke Energy" or "the Companies") request for the North Carolina Utilities Commission (the "Commission" or "NCUC") to convene a Low-income Affordability Collaborative ("LIAC" or "Affordability Collaborative"), the Commission established the Affordability Collaborative in its March 31, 2021 Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice in Docket No. E-7, Subs 1213, 1214, and 1187 and its April 16, 2021 Order Accepting Stipulations, Granting Partial Rate Increase and Requiring Customer Notice in Docket No. E-2, Subs 1219 and 1193 ("Rate Case Orders"). In those Rate Case Orders, the Commission directed Duke Energy and the Public Staff – North Carolina Utilities Commission ("Public Staff") to convene a collaborative for interested stakeholders within 90 days of the Rate Case Orders to address the affordability of electric service for low-income customers.

The Commission further ordered that Duke Energy and the Public Staff briefly summarize the progress made by the Affordability Collaborative within 180 days of DEC Rate Case Order date and provide quarterly progress reports thereafter. Pursuant to the

Rate Case Orders, Duke Energy and the Public Staff filed the following progress reports with the Commission:

- 180-day Progress Report: Duke Energy and the Public Staff filed the 180-day Progress Report with the Commission September 27, 2021 ("180-day Progress Report").
- Q4 Progress Report: On January 18, 2022, Duke Energy and the Public Staff filed a progress report with the Commission summarizing LIAC activities through the fourth quarter of 2021 ("Q4 Progress Report").
- Commission Briefing: On February 4, 2022, the Commission issued an Order Requiring a Briefing on the Affordability Collaborative. In the Order, DEC and DEP, together with the co-leaders of the LIAC's four Sub-Teams, were directed to present a briefing to the Commission regarding the work of the LIAC. The co-leaders of the Sub-Teams presented to the Commission on February 21, 2022. The presentation is attached as Appendix A.
- Q1 Progress Report: On April 12, 2022, Duke Energy filed a Motion for Extension of Time to file the first quarter 2022 progress report summarizing LIAC activities between January through March 2022 ("Q1 Progress Report"). On April 14, 2022, the Commission granted Duke Energy's request for additional time, and Duke Energy and the Public Staff filed the Q1 Progress Report on April 25, 2022.

The Rate Case Orders also require that Duke Energy and the Public Staff file a joint final report with the Commission outlining the feedback and recommendations obtained in the LIAC within 12 months of the date of the first workshop ("Final Report")[1]. This Final

[1] On July 24, 2022, Duke Energy and the Public Staff filed a Joint Motion for Extension of Time to file the Final Report with the Commission. On July 27, 2022, the Commission issued an Order Granting the Joint Motion for Extension of Time (the "Order"). The Order extended the filing deadline from July 29, 2022, to August 12, 2022.

Report summarizes the efforts, progress, and proposals of the LIAC as well as Duke Energy and the Public Staff's perspective regarding the same. Pursuant to the Rate Case Orders, the remaining LIAC participants will provide their comments and perspectives after the Commission issues a procedural order allowing for the public and interested parties to comment on the Final Report.

B. Key LIAC Activities to Date

On July 29, 2021, the LIAC hosted its initial meeting led by Guidehouse[2], the third-party facilitator. This was the first of nine LIAC workshops. Four Sub-Teams, comprised of a diverse group of Commission approved stakeholders[3], led and supported the analysis and work required to be completed by the LIAC, as described in the Rate Case Orders. In total, the four Sub-Teams held over 50 meetings to discuss and investigate affordability challenges for DEC and DEP residential North Carolina customers. As noted in the Rate Case Orders approving the LIAC, the opportunity for information sharing and alignment with the other collaboratives/working groups was an important objective of this process. On January 26, 2022, the LIAC hosted a joint workshop with members of both the Energy Efficiency Demand Side Management ("EE/DSM") and Comprehensive Rate Review ("CRR") collaboratives. The work led by the four Sub-Teams is described below.

Sub-Team A Prepared assessment of current affordability challenges facing residential customers:

- Assessed demographics by race, age, income, housing type, heating source, family size, housing value, and location
- Segmented by household income for DEC, DEP, and combined

[2]For purposes of transparency and to engage an experienced and independent third party, Duke Energy issued a request for proposals ("RFP") to a list of potential facilitators. Prior to issuing the RFP, Duke Energy worked with the Public Staff, the North Carolina Attorney General's Office ("NCAGO"), and North Carolina Justice Center ("NCJC") in drafting the RFP and identifying the potential bidders. Duke Energy and the Public Staff secured Guidehouse, Inc. ("Guidehouse") to serve as a third-party facilitator for the Affordability Collaborative's initiatives.

[3] See Appendix B

- Analyzed billing data and arrears by average energy usage, average bill, past due amounts, disconnect non-pay, energy intensity, and seasonal impacts across all demographics
- Identified additional areas to analyze including disconnect non-pay (DNP) notifications, electric energy burden, and mobile homes
- Developed statistical models to enhance descriptive analytics
- Developed and shared initial findings related to customer challenges

Sub-Team B Jurisdictional Trends, Metrics, and Definitions for "Affordability"

- Identified and researched existing utility or state programs and metrics designed to address affordability
- Engaged subject matter experts to brief sub-team
- Investigated affordability criteria used by state or utility programs to identify program administration alignment opportunities
- Compiled findings into matrix for LIAC review

Sub-Team C Investigated existing customer offerings and practices, in addressing affordability

- Provided an overview of the following Duke Energy offerings that are income-qualified:
  - EE programs
  - Bill Pay Assistance program
  - Helping Home Fund Program
  - DEC Supplemental Security Income Bill Discount Program
- Compiled program-specific participation data requested by Commission filed in the Q1 Progress Report
- Provided overview of rate design concepts including cost of service, cost causation and cost allowances
- Provided rate design concept overview for sub-team members and support associated analyses related to minimum bill versus fixed charge and segmentation by residential class
- Overview of income-based rates and discount programs Virginia's Proposed Percent of Income Payment Plan
- Reviewed existing programs; developed program proposal process; and solicited potential proposals to be provided to the LIAC no later than April 8, 2022)

Sub-Team D Review of EE/DSM and CRR Collaborative Efforts to Assist Low Income Customers

- Held a joint meeting with members of the LIAC, EE/DSM, and CRR collaboratives on January 26, 2022
- Identified cross-collaborative participants and designated Duke Energy, the Public Staff and community/industry cross-collaborative liaisons

- Added standing agenda item to regular LIAC sessions for sharing EE/DSM and CRR collaborative updates
- Shared customer demographic assessment data with EE/DSM and CRR collaboratives

II. Current Affordability Challenges

A. Overview of Sub-Team A's Assessment of Current Affordability Challenges Facing Residential Customers

As directed by the Commission, Duke Energy gathered data to address the following directives outlined in the Rate Case Orders:

> a. Provide an analysis of demographics of residential customers, including number of members per household, types of households (single family or multi-family), the age and racial makeup of households, household income data, and other data that would describe the types of residential customers the Company now serves. To the extent demographics vary significantly across the Company's service area, provide additional analysis of these demographic clusters.
>
> b. Estimate the number of customers who live in households with incomes at or less than 150% of the federal poverty guidelines ("FPG"), and those whose incomes are at or less than 200% of the FPG.
>
> c. For the different demographic groups identified as part of a. and b., provide an analysis of patterns and trends concerning energy usage, disconnections for nonpayment, payment delinquency histories, and account write-offs due to uncollectibility.[4]

The final version of the analytics is included in this Final Report as Appendix C, and the results are detailed in the Assessment of Customer Challenges Relating to Electric Energy Affordability ("Assessment") as Appendix D. [5] The analytics represent customer data generated March 1, 2019 through February 29, 2020 ("pre-COVID period") and serve as the primary basis for the Assessment. In response to feedback and requests from LIAC

[4] See DEC Rate Case Order at 176-179; DEP Rate Case Order at 186.
[5] Version 3 of the Assessment was provided to the Commission in the Q4 Progress Report. Version 4 was provided in the Q1 Progress Report.

members, Duke Energy updated the analytics to include additional customer data attributes and analysis discussed further below.

As part of the LIAC process, Duke Energy presented data on the following customer segments stratified as follows: (1) Low-Income Energy Assistance Program ("LIEAP")/Crisis Intervention Program ("CIP")[6] participants, (2) less than 150% of the FPG, (3) between 150% and 200% of the FPG, (4) above 200% of the FPG, (5) meets arrears struggling definition, and (6) does not meet arrears struggling definition. In order to provide a unique supplemental look at electricity affordability and associated impacts for residential customers, the Duke Energy team developed an "arrears struggling" definition that is not directly based on income, but rather on the frequency and extent to which certain customers find themselves late in paying their monthly electric bill and/or being significantly behind on their bill. For the purpose of these analyses, Duke Energy defined "arrears struggling" customers as those who (1) were behind on paying their average/regular bill amount for six or more months during the pre-COVID period, **or** (2) were behind by twice the amount (or more) of their average bill for two or more months during that same pre-COVID period[7]. Duke Energy presented descriptive data analysis of each segment to LIAC members on the following customer demographic and housing characteristics: housing type (single versus multi-family, mobile and manufactured), housing status (owner vs renter), heating source, location, housing value, race, age of the

[6] To supplement and validate research into low-income customers, the North Carolina Department of Health and Human Services and Duke Energy executed an Amendment to an existing Data Sharing Agreement permitting Duke Energy to perform analysis on DEC and DEP customers identified as LIEAP and CIP recipients for purposes of the LIAC data analysis only. The LIEAP and CIP programs are intended to help low-income families who need assistance during a financial crisis to ensure they have access to both heating and cooling services.

[7] The arrears struggling definition is used throughout the LIAC report for the purposes of the LIAC analysis only. The definition was shared with LIAC members and used in LIAC materials without objection.

account holder, and number of people in the household. The demographic and housing data was purchased from a third party, Acxiom, which Duke Energy primarily purchased for marketing purposes. In response to requests from the LIAC Sub-Team A members, Duke Energy updated the analytics to also include information detailing the following: Advanced Metering Infrastructure ("AMI") load shapes, additional insights to Acxiom data in comparison to census data,[8] tables including relative information detailed in graphs, insight to energy intensity, electric energy burden, sub-category housing including mobile homes, statistical modeling and analysis of disconnect non-pay notifications.

Duke Energy performed a comparison of information segmented by both income and arrears for DEC and DEP residential accounts included in the analysis. The analysis did not find any significant differences between the two utilities, and therefore the analytics reflect information for DEC and DEP collectively.

In response to requests from LIAC members for non-public customer information, including energy usage information, Duke Energy filed a Request for a Time-Limited Waiver of Certain Code of Conduct Provisions, seeking Commission approval to share the non-public customer information, without specific customer identification and aggregated to a zip code level, with LIAC members. The Commission issued an order on March 10, 2022 with conditions to provide zip code level data to Sub-Team A members. One such condition required Duke Energy to file a Memorandum of Understanding ("MOU") with Guidehouse within 30 days of the date of the order detailing the procedures for Sub-Team A members to request, receive, and destroy aggregated zip code level data[9]. On April 22, 2022, Guidehouse sent a communication to Sub-Team A detailing the process to request

[8] See Appendix C at 4-7.

and receive zip-code level data in accordance with the filed MOU. On June 24, 2022, a member of Sub-Team A requested the information which was provided on July 7, 2022.

1. Overview of Sub-Team A's Analysis of the Number of Customers Living in Households with Income at or Less than 200% of the FPG

Duke Energy used LIEAP and CIP participation to supplement Acxiom data to identify low-income customers. To qualify for LIEAP funds, participants must have an income of less than 130% of the FPG,[10] and to qualify for CIP assistance, participants must have an income of less than 150% of the FPG. Also, Duke Energy does collect the age of account holder in the billing system, so that data was used over Acxiom's age data.

Per Duke Energy's analysis of eligible North Carolina residential accounts from the pre-COVID period, approximately 29% of these residential accounts served by DEC and DEP qualify as low-income, with a household income of 200% of the FPG or less (see Table 1 below). For the 29% of the accounts identified at or below 200% of the FPG, approximately 11% are between 150% and 200% of the FPG, 16% are less than 150% of the FPG, and the remaining 2% of the accounts are LIEAP/CIP recipients. The 29% of low-income customer accounts represent approximately 710,000 of the 2.4 million households included in the analysis (using data from the pre-COVID period). However, assuming the percentage has not declined since February 2020, 29% of Duke Energy's currently reported residential customer base of 3.07 million equates to 900,000 accounts qualifying as low-income. The 3.07 million residential accounts include all North Carolina residential active accounts as of September 30, 2021, regardless of how long the account

[10] The eligibility requirement as of March 31, 2022 was 130% of the FPG when the Version 4 analytics in Appendix C were shared with LIAC members. Duke Energy recognizes that Governor Cooper recently approved an increase in the new LIEAP income eligibility requirement from 130% to 150% of the FPG on July 11, 2022.

was active[11]. In comparison, the 2.37 million residential accounts in the analysis reflect residential accounts active for the entire pre-COVID period from March 2019 through February 2020.

Table 1: Number of Customers at FPG Levels			
Category	% All Customers	No. Customers (2.37M)	No. Customers (3.07M)
LIEAP/CIP	2%	53,595	67,785
< 150% FPG	16%	385,339	487,365
150 - 200% FPG	11%	271,432	343,299
Total low-income	**29%**	**710,366**	**898,448**

Per Duke Energy's analysis, approximately 16% of the residential customer base (of the ~2.47 million customers included in the arrears analysis) met Duke Energy's arrears struggling definition, amounting to 395,204 customers. If this percentage were applied to the 3.07 million reported residential customers as of September 2021, the number of customers meeting Duke Energy's arrears struggling definition would be approximately 490,000.

2. Overview of Sub-Team A's Analysis of Patterns and Trends Concerning Energy Usage, DNPs, Payment Delinquency Histories, and Account Write-Offs Due to Uncollectability

Within each of the customer segments, Duke Energy provided data on average monthly kilowatt-hour ("kWh") usage, kWh usage per square foot, customers meeting Duke Energy's definition of arrears struggling, electric energy burden, 10-day and 24-hour notifications of DNP and executed DNPs. In addition, Duke Energy provided analyses on attributes by usage per month, average seasonal load shapes, and average peak day load shapes.

[11] See Docket No. M-100, Sub 158.

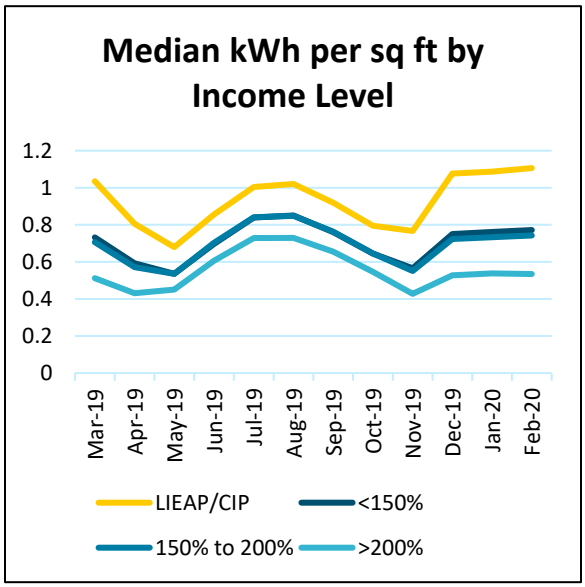
Energy intensity is defined as the number of kilowatt hours per square foot and is a driving factor in low-income affordability challenges, likely in part due to housing inefficiencies. Low-income households, specifically LIEAP/CIP recipients and arrears struggling households, on average have a much higher energy intensity than non-low-income customers (> 200% FPG), as do (1) rural households, (2) younger customers, (3) customers living in low-value housing, (4) multi-family and mobile/manufactured homes households, and (5) rental households.

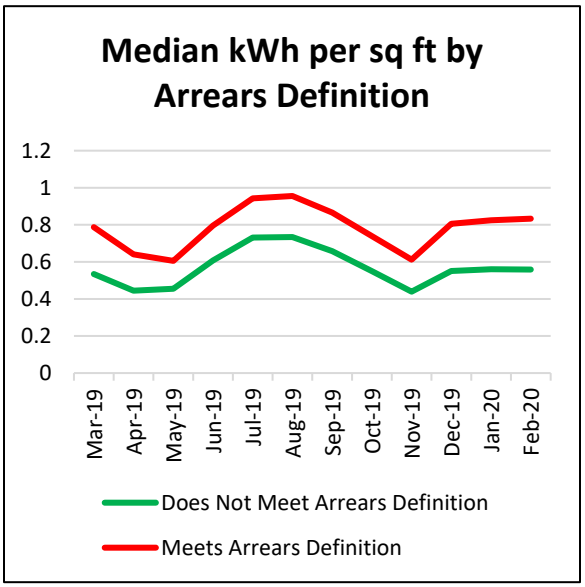
Additionally, Duke Energy's findings on seasonal usage for low-income and arrears struggling households indicate that a correlation may exist between higher usage and bills and inefficient housing, heating, and cooling systems. The analysis identified that low-income households use more energy in the winter and have higher winter bills than non-low-income households, but that the arrears struggling households use more energy year-round -- nearly 20% more in the summer and 30% more in the winter than non-arrears struggling households.

Other key findings from Duke Energy's analysis highlight the interplay between income level, energy intensity, and energy usage are as follows:

- Compared to non-low-income households, LIEAP/CIP recipient households experience an energy intensity that is 100% higher in the winter and approximately 40% higher in the summer.
- Non-LIEAP/CIP low-income customer energy intensity is about 33% higher than non-low-income households in winter and 14% higher in the summer.
- Arrears struggling households use 50% more energy per square foot in the winter and 33% more in the summer than households that did not meet the arrears struggling definition.
- Arrears struggling customers have a ~160% higher total bill in peak winter months (133% higher in peak summer months) than non-low-income households.
- LIEAP/CIP customers have a 100% higher total bill peak in winter months and ~70% higher in peak summer months than arrears struggling customers.

The graphs below show the median energy intensity for customers by income level (left) and arrears status (right).





Sub-Team A identified areas where additional statistical analysis could potentially be helpful to expand on the descriptive analytics to support the objectives of the LIAC. This was a more advanced analysis that helped the LIAC members better understand what was driving affordability challenges for low-income customers. Duke Energy committed to enhancing the analytics to support the Assessment. That analysis was presented on March 31, 2022 in LIAC Workshop 6 as part of Version 4 of the Analytics. Three logistic models were also created in response to stakeholder feedback to show: (1) the likelihood of low-income customers to meet the arrears definition, (2) the likelihood of low-income customers to receive a 24-hour disconnect notice, and (3) the likelihood of low-income customers to be disconnected given that they received a 24-hour DNP notice to be disconnected. The three logistic regression models assessed the relationship between each

outcome and certain predictors,[12] which included 11 attributes: home value, electric energy burden, summer impact, winter impact and heat source, age of account holder, age of home, race, household size, population density, housing status and type, and education. The Assessment completed by Sub-Team A contains a detailed write-up of each of these models[13].

In general, most of Duke Energy's predictors had statistically significant impacts on the likelihood of a low-income customer meeting Duke Energy's definition of arrears struggling and/or being at risk of receiving a notice and being disconnected from service for non-payment. Sub-Team A found that electric energy burden, winter impact, and summer impact are the key factors that both predict being in arrears and are most capable of being addressed and improved through new programs and policies.[14] Reducing a household's winter impact appears to show the greatest potential for reducing the likelihood a household will fall into arrears, given that at even one category above the baseline, households[15] were 53% more likely to be in arrears, and at five categories above baseline, households were 129% more likely. Electric energy burden and summer impact were similar in the magnitude of their impact for groups above the baseline categories.

In addition, reducing household electric energy burden should also address financial insecurity concerns overall by lowering the overall amount of income going towards customers' electric bills. Household attributes were also statistically significant at

[12] Predictors are used in the Appendix C Analytics Version 4 statistical modeling. For example, the Age of Account Holder attribute used a Baseline of 55 Years Old. Predictors of age 18, 25, 35, 45, 65, and 85 are analyzed to show likelihood compared to the Baseline.
[13] See Appendix D at 7-18.
[14] For purposes of the statical analysis included on page 24-29 of Appendix C, the winter impact and summer impact reference the load increase over average monthly load. The impact is calculated by subtracting the average monthly load by the highest seasonal load.
[15] See Appendix C at 27.

predicting being in arrears and suggest that focusing on renters across all types of homes (i.e., single family and multi-family) could reduce the likelihood of households falling into arrears based on Duke Energy's arrears struggling definition for the affordability analysis. Demographic and neighborhood characteristics were statistically significant in predicting the likelihood of those households that meet the arrears struggling definition in the affordability analysis. These results may provide guidance for program design or targeting outreach efforts to certain social groups, neighborhoods, and areas, but it is difficult to identify patterns regarding the age of the account holder, home value, and age of the home given that those variables utilized showed non-linearity in the models. Furthermore, race, education, and the size of a household were also significant predictors.

Regarding the likelihood of falling into the arrears struggling category, the predictors described above show that energy use-related factors significantly impact the likelihood that a customer received a 24-hour notice of disconnection for non-payment—winter impact once again showing the greatest magnitude among the energy use categories[16]. Finally, for those households receiving a 24-hour notice, energy use and age of the home were both statistically and practically significant. Those important data points suggest that focusing on reducing usage in both winter and summer and/or focusing on renters generally would reduce the likelihood of DNP once a household has received a notice. In addition, reducing household's electric energy burden would also reduce the likelihood of disconnections. Sub-Team A noted, however, that account holders with higher electric energy burdens were less likely to receive a 24-hour notice.

[16] See Appendix C at 28 for additional details.

B. Duke Energy Perspective

1. Overview of Analytics and Sources of Data

Duke Energy partnered closely with the Affordability Collaborative members to identify, assess, and analyze the demographics information described above for residential customers. The analyses performed by Duke Energy are specific to assessing current electric energy affordability challenges facing residential customers. As discussed with LIAC members, Duke Energy recognizes there is a high likelihood that these same customers may face additional affordability challenges that expand beyond the scope of electric energy.

Acxiom is a third-party provider for demographic information that is primarily used for marketing by Duke Energy. They collect available information at the household level by using public data, buying activity, online registrations, magazine subscriptions, survey data, warranty information, etc. If this information is not available, they use other known variables of customers and information at the zip+4 and zip level using their proprietary model. They then optimize those data points to resemble the U.S. Census norms to the highest accuracy rate possible. This was the best information that was available for Duke Energy since we do not collect many of these demographics (such as race, income, etc.) and housing characteristics directly from our customers.

As discussed in Section II.A above, the analysis required Duke Energy to use demographics and income data obtained from third-party sources such as Acxiom and the North Carolina Department of Health and Human Services ("NCDHHS"). The demographics and income data obtained from Acxiom and the NCDHHS is not integrated in the Companies' billing system. Per Duke Energy's agreement with NCDHHS, the

LIEAP/CIP recipient data provided was not used for any purpose outside of the LIAC analysis.

2. Data Attributes Assessed for the LIAC

Although Duke Energy was able to provide a comprehensive analysis and incorporate additional data attributes at the request of the LIAC in the Analytics and discussed in the Assessment, there were certain attributes that Duke Energy did not include. For instance, LIAC members requested the analysis include affordability attributes beyond electric energy such as food deserts and health care deserts. Because these areas of focus were both outside the scope of the LIAC and required data that was not readily available to Duke Energy, the request was not fulfilled because the performed analysis reflects affordability challenges specific to electric energy.

It is also important to note that Duke Energy was only able to analyze electric energy burden, and not the "full energy burden" which would include additional information for other utilities. Additionally, although the third-party data paints an accurate picture, the modeling used to perform the analysis is not exact. As such, the LIAC analytics reflects the best information Duke Energy had available at the time of analysis and, therefore, should be considered directionally accurate but not exact. As discussed further below, the analysis revealed important information and trends that will inform Duke Energy's consideration for programs and policies to assist customers facing affordability challenges.

Overall, Duke Energy agrees with the key findings that were stated in the Assessment. The Companies' key findings are as follows:

- Customers who are LIEAP/CIP recipients specifically have an opportunity for bill pay assistance and energy efficiency measures. Customers who meet the arrears

struggling definition, which has 13% of customers who are above 200% FPG, also show opportunities in both winter and summer seasons. Customers who meet the arrears struggling definition use more energy year around but use 20% more in the summer and 30% more in the winter.

- Household attributes were also statistically significant at predicting being in arrears and suggest that focusing on renters across all types of homes (i.e., single family and multi-family) could reduce the likelihood of households falling into arrears based on Duke Energy's arrears struggling definition for the affordability analysis.
- The data results support opportunities for energy efficiency investment, especially in the winter months, to positively impact low-income households to reduce electric energy burden and energy intensity.

As discussed further in Section III below, Duke Energy, through partnerships with state agencies, currently offers energy efficiency programs to low-income customers; however, participation rates are very low. Duke Energy strongly believes that participation in energy efficiency opportunities could help lower the electric energy burden resulting in reducing arrears and DNPs. The Companies are committed to working with other organizations including leadership with NC Department of Environmental Quality State Weatherization Department ("NCDEQ") to increase the number of low-income customers receiving weatherization services.

III. Investigation of Current Programs

As directed by the Commission, the LIAC investigated the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability and addressing the following questions:

a. What defines a "successful program" and what metrics should be monitored and presented that show the impact of programs on addressing or mitigating affordability challenges?
b. What percentage of residential customers are eligible for each existing program, and what percentage of eligible customers enroll in and/or take advantage of these programs?
c. What is the impact of existing programs on the energy burden for enrolled customers?

d. Should existing programs be maintained, replaced or terminated? If maintained, should any changes be made to improve results? If programs are replaced, what would replace them?
e. (addressed in Section V of the Final Report).
f. How do specific programs addressing affordability affect cost-causation and allowance of costs among classes?
g. How does cost-of-service allocation affect rate design and affordability of rates?
h. What, if any, practices and regulatory provisions related to disconnections for nonpayment should be modified or revised?
i. What existing utility and external funding sources are available to address affordability? Estimate the level of sources that would be required to service additional customers.
j. What are the opportunities (and challenges) of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns?

A. Assessment of Current Income-Qualified Programs

Sub-Team C members reviewed Duke Energy's current offering of income-qualified energy efficiency and bill pay assistance programs that address customer's affordability challenges. The specific programs reviewed and evaluated by Sub-Team C members and presented to the LIAC members included:

- Residential Income-Qualified Energy Efficiency and Weatherization Assistance for Individuals
- Residential Services Neighborhood Energy Saver Program
- Low-Income Weatherization Pay for Performance Pilot
- Helping Home Fund Program
- Share the Light Program
- Supplemental Security Income ("SSI")

The listed programs address affordability in various ways, e.g., customers participating in energy efficiency programs (and their associated supporting programs such as the Helping Home Fund) realize a reduction in their electric energy usage while customers participating in bill discount and bill pay assistance programs experience a reduction of their total bill amount. Below is a summary overview of each listed program and its role in addressing affordability.

1. Residential Income-Qualified Energy Efficiency and Weatherization Assistance for Individuals ("Weatherization Program and Equipment Replacement Program")

Duke Energy's Weatherization Program and Equipment Replacement Program ("WPERP") is available for income-qualified customers in the DEC service territory residing in existing, individually metered single-family homes, condominiums, and mobile homes. The program funds weatherization measures, heating system replacement with a 14 or greater Seasonal Energy Efficiency Rating ("SEER") heat pump[17] and refrigerator replacement with an ENERGY STAR appliance[18]. Program participants receive a full energy audit[19] and assistance for energy efficiency measures based on energy usage. Higher energy intensity customers are eligible to receive additional funding to install more energy saving measures as outlined below.

Eligible WPERP participants must live in an individually metered single-family home and have a household income less than or equal to 200% of the FPG. The WPERP divides weatherization services participants into two tiers based on electric energy usage. Participants that have energy usage up to 7 kWh per square foot of conditioned space are in Tier 1 and may receive up to $600 for energy efficiency services. Participants that have energy usage of more than 7 kWh per square foot of conditioned space are in Tier 2 and may receive up to $4,000 for energy efficiency services. In addition, eligible customers may receive equipment upgrades for a HVAC replacement of an electric heating system

[17] The SEER measures air conditioning and heat pump cooling efficiency, which is calculated by the cooling output for a typical cooling season divided by the total electric energy input during the same time frame.
[18] Products that earn the ENERGY STAR label meet strict energy-efficiency specifications set by the U.S. Environmental Protection Agency.
[19] Full energy audit refers to having an energy expert evaluate the structure, systems and equipment to determine condition and opportunities to improve the energy efficiency of the home. The audit results determine which energy saving measures and improvements should be implemented by the weatherization agency. Health and safety issues that need to be resolved are also provided.

and ENERGY STAR refrigerator. The replacement cost for an eligible electric heating system and ENERGY STAR refrigerator is up to $6,000 and $1,080, respectively[20]. The average investment per participant in 2020 is $4,741[21] for Tier I and Tier II weatherization and $898 for refrigerator replacement.

Duke Energy customers must be certified as having a household income that qualifies for the State of North Carolina Weatherization Assistance Program. Duke Energy's WPREP is administered through a non-profit, third-party organization that coordinates with the 20 NC Weatherization Assistance Providers ("NCWAP") to offer participants a full energy audit alongside subsequent weatherization measures and potential equipment and refrigerator replacement. Approximately, 33% of DEC's residential customers at 200% or less of the federal poverty level guidelines are eligible for the program. Since the program's inception, only 0.068% of eligible customers have participated in the programs. The low participation rate is attributed to various barriers, including the need for health and safety repairs to occur prior to installing energy efficiency measures, e.g., a participant with a hole in their roof may not receive insulation until the hole is repaired.

Duke Energy does not collect income-level household data from participants. The household income information used is based upon data from Acxiom and is applied to calculate the electric energy burden. This is similar to the process used to create the Assessment discussed in Section II of this report. This information, along with the impacts

[20] Tier I measures include air sealing, low-cost energy efficiency upgrades like LEDs, domestic water heater tank insulation, low-flow shower heads, and faucet aerators. Tier II measures include Tier I measures plus insulation improvements. Refrigerator replacement eligibility and incentive levels depend on the old refrigerator's size and a two-hour metering test.

[21] Average investment per participant is above the base Tier 1 and Tier 2 limit as the Program added up to $6,000 for HVAC replacement to Tier 2 starting in 2020.

from the most recent final Evaluation, Measurement and Verification ("EM&V ") data reports[22] for Duke Energy's low-income energy efficiency programs, is used to calculate the energy burden impact for these energy efficiency programs including WPERP. However, the EM&V reports provide information at an aggregate level (i.e., at an average participant level); therefore, Duke Energy is unable to ascertain the specific household level impacts of its existing programs on its customers.

The EM&V savings for the Weatherization Tier 2 total impacts are calculated by determining the program participants' energy usage before and after program participation, which is then measured against a direct comparison group. Engineering estimates are utilized to evaluate the relative savings contribution of each measure in the program. Simply put, the EM&V examines impacts based on consumption. Efficiency standards and baselines were not factored into the calculation. Alternatively, Weatherization Tier 1 and Refrigerator Replacement impacts are generally the results of engineering analysis which utilizes algorithms to determine energy and demand savings via engineering equations.

The general approach for estimating a customer's electric energy burden and calculating the impact of applicable programs is as follows:

- The average income, kwh consumed, and bill amount of program participants is calculated.
- Each customer is assumed to have had the same kwh savings based on EM&V numbers blended between DEC and DEP NC, when applicable, by FPG level.
- The bill is then recalculated as if the customer did not achieve the kWh savings.

[22] The source of the impacts for the electric energy burden analysis are the Low-Income Weatherization Program (2016-2018) Evaluation Report – Final (4/16/2021) EM&V reports filed in Docket No. E-7, Sub 1265 on March 1, 2022 for Tier I, Tier II and Refrigerator Replacement and 2017 Neighborhood Energy Saver Program Evaluation Report Final (11/30/2019) filed in Docket Nos. E-7, Sub 1230 on February 25, 2020 and E-2, Sub 1252 on June 9, 2020.

- Using those figures, the electric energy burden is calculated before and after program participation.

Below is a table showing the impact of the applicable programs on the customer's estimated electric energy burden.

Duke Energy Carolinas – North Carolina									
	Refrigerator Replacement			**Weatherization Tier I**			**Weatherization Tier II**		
	Before	**After**	**Change**	**Before**	**After**	**Change**	**Before**	**After**	**Change**
LIEAP/CIP	6.9%	6.8%	0.1%	6.9%	6.8%	0.1%	7.7%	6.8%	0.9%
<150%	6.8%	6.5%	0.3%	6.6%	6.5%	0.1%	7.5%	6.5%	1.0%
150% to 200%	4.0%	3.8%	0.2%	3.8%	3.8%	0.0%	4.3%	3.8%	0.5%

LIAC members discussed opportunities to remove barriers limiting participation in WPERP and evaluate opportunities for additional energy savings for program participants that are detailed below.

WPERP Assessment

While assessing the WPERP, Sub-Team C members posed questions to Duke Energy. Below are the questions, feedback, and recommendations received by the LIAC as a result of the assessment questions.

- What are the challenges of working with other agencies or organizations to collaborate and coordinate the delivery of this program?
  - Duke Energy has limited insight into how customers are prioritized by the NCWAP at the state and local agency level. The number of participants served could be limited by the staffing as well as contracting services available for installation.
- What opportunities are there to work with other agencies or organizations to collaborate and coordinate the delivery of this program?

    - NCWAP works directly with the program participants and provides actionable feedback to determine how to expand the program.
- What are the strengths of this program?
    - The services are provided to program participants at no out-of-pocket cost, lower customers' energy bills, provide kWh savings to the Company and allow for investment from multiple funding sources.
- What are the weaknesses of this program?
    - Limitations to being able to address all customer needs at the time of service due to required health and safety investment.
- If given the opportunity, what are three things, you would change or add to this program to make it better and why?
    - Improve state and local agency reporting to provide more visibility into participant status and where health and safety funds are invested and tracking weatherization deferrals. This reporting will provide a greater understanding of any additional funding or program changes needed to enable customers to participate in WPERP.
    - Update the prioritization process of customers eligible for WPERP based on various factors that may include energy intensity, income level, and eligibility for other income-qualified programs and other funds.
    - Establish long-term funding for health and safety repairs to ensure customers are able to continue to receive needed WPERP services.

<u>WPERP Assessment Recommendations</u>**:**

- Identify opportunities to increase program participation through existing network of providers
- Evaluate opportunities to expand network of providers that supports increasing number of program participants
- Work with network providers to identify opportunities for Duke Energy to market program to eligible customers
- Evaluate opportunities with providers for increased health and safety investment

2. <u>Residential Neighborhood Energy Saver Program</u>

Duke Energy's Residential Neighborhood Energy Saver Program ("NES Program") is available to individually-metered residential customers in neighborhoods selected by Duke Energy based on data received by the U.S. Census and Acxiom. The data includes customer attributes such as income level and household size. Areas targeted for

participation in this program typically have 50% or more of the households with income equal to or less than 200% FPG. The purpose of this program is to assist low-income participants in reducing energy costs through energy education and by installing or providing energy efficiency measures in the program participant's residence. Households with higher consumption are offered additional measures to address high energy use as discussed further below.

Participating homes receive a walk-through energy audit by Duke Energy's third-party administrator, education on energy efficiency techniques and measures, and a comprehensive package of energy efficiency measures installed by the third-party administrator. The energy efficiency measures recommended for installation may include but are not limited to LED lamps, electric water heater wrap, pipe wrap and low flow devices, electric water heater temperature check and adjustment, wall plate thermometer, window air conditioner winterization kits, and air sealing measures. The NES Program recently began offering additional measures such as attic insulation, duct sealing, air sealing with a blower door, floor insulation in mobile homes and a smart thermostat to eligible customers.[23] Customers that have energy usage of more than 7 kWh per square foot of conditioned space are eligible for the additional measures. Historically, approximately 65% of customers in the selected neighborhoods participate in the NES Program. Although the COVID –19 pandemic reduced participation rates in 2020, 2021 and into 2022, the NES Program has experienced an improvement in participation rates this year.

[23] These measures became available in the third quarter of 2021.

Approximately 33% of DEC and DEP's North Carolina customers are eligible for the NES Program.[24] Since the Program's inception, 7.8% and 10% of eligible DEC and DEP customers respectively have participated in the program. The average investment per participant in 2020 was $299 and $329 for DEC and DEP, respectively. [25]

The third-party EM&V evaluator generally uses consumption analyses to verify the program savings unless extenuating circumstances (inequivalent comparison groups) exist. The verified energy savings from the most recent program EM&V at the time of this analysis were 715 kWh per year per DEC and DEP participant. Below is a table showing the impact of the program on the participant's estimated electric energy burden.

	Neighborhood Energy Saver		
	Before	**After**	**Change**
LIEAP/CIP	8.7%	8.3%	0.4%
<150%	8.1%	7.7%	0.4%
150% to 200%	4.6%	4.3%	0.3%

LIAC members discussed opportunities to eliminate barriers that limit participation in NES Program and evaluate opportunities for additional energy savings for program participants as detailed below.

[24] This percentage reflects active residential customers that reside in single family dwellings whose accounts have been identified as <200% FPL from Acxiom. This data may differ slightly from other analytics performed using different eligibility requirements and different timeframes.

[25] The investment per participant totals are corrected amounts. These amounts differ from the totals shared in Workshop VII on May 7, 2022 due to an identified lag in invoice processing.

NES Program Assessment

While assessing the NES Program, Sub-Team C members posed assessment questions to Duke Energy. Below are the questions, feedback, and recommendations received.

- What are the opportunities of working with other agencies or organizations to collaborate and coordinate the delivery of this program?
  - Utilize NES Program to refer customers to state agencies for health and safety repairs. Engage local weatherization and agencies in kickoff and neighborhood events to better support customer additional needs.
- What are the strengths of this program?
  - The services are provided at no out-of-pocket cost to program participants. The program is able to serve a large number of customers and provide 1:1 recommendations and improvements for the customer's home.
- What are the weaknesses of this program?
  - Limitations on being able to address all customer needs at the time of service due to required health and safety investment.

NES Program Assessment Recommendations

The recommendations detailed below were identified by LIAC Sub-Team C members and shared with LIAC members:

- Explore expansion into additional energy savings measures such as HVAC repair and replacement opportunities.
- Explore opportunities to partner with additional contractor networks to provide services to qualifying customers who are not located within a "neighborhood".

3. Low-Income Weatherization Pay for Performance Pilot Program

Duke Energy's Low-Income Weatherization Pay for Performance Pilot Program ("LIWPPP")[26] offered in Buncombe County, North Carolina provided incentives based on the kilowatt-hours saved by installing qualified energy efficiency measures that include but

[26] Approved in Docket No. E-2, Sub 1187 on November 27, 2018.

are not limited to, attic or wall insulation, air sealing, refrigerator replacement, lighting, or electric water heating measures. The purpose of the 36-month pilot was to find deeper energy savings in qualified homes. Eligible participants were selected by participating weatherization assistance and other non-profit organizations using current U.S. Department of Energy Low-Income Home Energy Assistance Program grant requirements[27]. The LIWPPP was approved to operate through June 30, 2022, by the Commission. At the time of the assessment of the LIWPPP, the EM&V results were incomplete, and therefore the electric energy burden calculation was not performed.

4. Supplemental Security Income Bill Discount Program

DEC offers a bill discount to eligible Supplement Security Income recipients ("SSI Program"). SSI is a federal income supplement program designed to help elderly, blind, and disabled people who have little to no income. SSI provides recipients with cash to meet needs for food, clothing, and shelter. The Commission approved DEC's SSI Program on August 31, 1978, in Docket No. E-7, Sub 237 as an experimental discount rate under the theory that SSI recipients have usage characteristics that differ substantially from the average residential customer and as a result have a smaller impact on system costs. The SSI Program provides customers that use more than 350 kWh per month a discount of $3.17. For customers that use less than 350 kWh per month, the bill discount is equal to the total kWh x 0.9054 cents. Approximately 10,000 DEC customers were enrolled in the SSI bill discount as of April 2022.

To be eligible for the SSI Program, the primary account holder must:

- Be a residential customer in the DEC service area;

[27] The requirement for participants is they must be less than 200% of the federal poverty guidelines, with the number of disabled, elderly, and minors in the household taken into consideration, as well as a high energy burden)

- Receive SSI;
- Be either blind, disabled, or 65 years of age and older; and
- Be the head of household and/or the principal wage earner.

Program Assessment

The majority of LIAC members support a bill discount to eligible income-qualified customers. Although the SSI Program is only available to DEC customers, the LIAC did not recommend it be expanded to DEP customers at this time.

As discussed further below in Section VI, Program Proposal 24, Customer Affordability Program,[28] proposes a bill discount for eligible DEC and DEP customers. If the Customer Affordability Program is approved by the Commission, DEC would recommend discontinuing the SSI Program and enrolling current SSI Program customers in the approved program.

5. Share the Light Program [SM]

Duke Energy's Share the Light Program is a customer assistance program that supports our most vulnerable low-income customers who need assistance paying their energy bills. The program is funded by contributions from employees, customers, and shareholders. Funds are matched by the Duke Energy Foundation. The customer assistance program has been available for over 30 years and has provided over $42M in assistance and serves over 5,000 households per year. Customers make contributions through various channels including notation on the monthly bill, a one-time payment via check, money order, online, or bill roundup.

[28] The bill discount program was referred to as the Customer *Affordability* Program throughout the LIAC and in the Companies' Proposal 24; however, the Companies recently renamed the program and refer to it as the Customer *Assistance* Program in the Duke Energy Perspective of Section's VI and will refer to it as the Customer Assistance Program in any future proceedings.

The program is administered by the Foundation for the Carolinas and NCDHHS in the DEC and DEP service territories, respectively. Over 100 agencies distribute the funds across the state of North Carolina to provide customers with bill pay assistance for monthly bills, deposits, reconnection charges and connection charges.

Program Assessment

Duke Energy will continue to work with program administrators and partnering agencies to identify opportunities to align the program between DEC and DEP to assist more customers.

6. Helping Home Fund ("HHF")

Duke Energy was the initial funding sponsor of the HHF with a contribution of $20 million to support appliance replacement, health and safety measures, weatherization and heating and cooling replacement and repairs in eligible homes. The program was designed to leverage funds from the State Weatherization Assistance Program, which consists of U.S. Department of Energy Weatherization Assistance Program and Low-Income Energy Assistance Program. Without the HHF, more than 40% of the homes would not have received services. The HHF is administered in coordination with the North Carolina Community Action Association. Since 2015, the program has assisted over 5,000 households. Eligible customers receive a home energy assessment and weatherization assistance to help save on energy bills. Eligible DEP customers may receive all services offered by the HHF while eligible DEC customers may receive all services except weatherization services. If a DEC customer is eligible for weatherization services, the services are provided by the WPERP.

Depending on the needs of the customer identified during the home energy assessment, customers may receive:

- Health and safety repairs up to $3,000
- Appliance replacement up to $2,000, including refrigerators, washing machines, and room air conditioners
- Heating and cooling system repairs up to $800

The average investment per home is $5,151.

Program Assessment

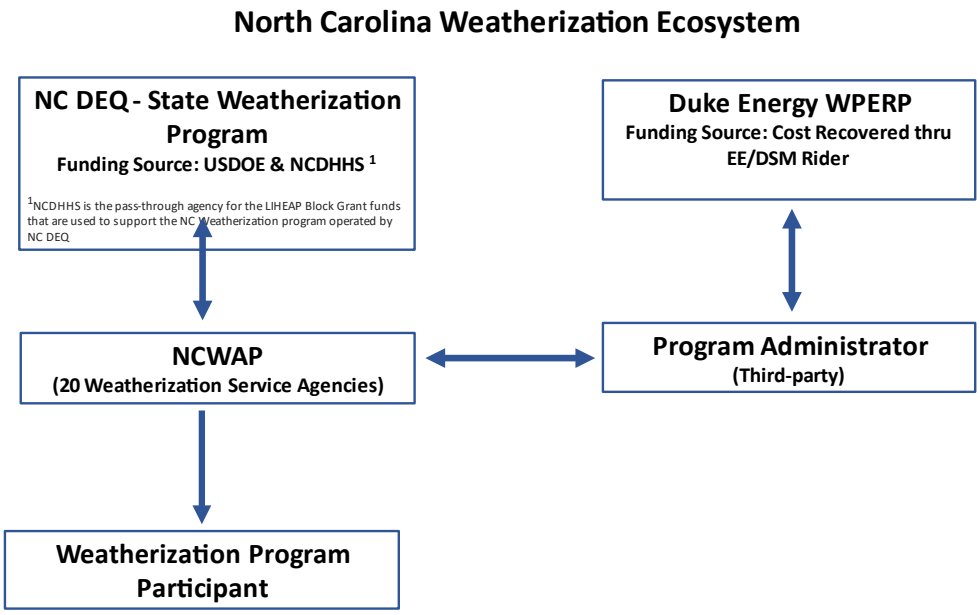
The HHF Program is funded by Duke Energy shareholders. The remaining funds are expected to be spent by the year-end 2024.

a. Duke Energy Perspective

The assessment of Duke Energy's income-qualified programs by LIAC members identified best practices and opportunities in support of assisting income-eligible customers by providing both energy efficiency programs and bill pay assistance programs. Duke Energy agrees with the LIAC's assessment of the NES, HHF and WPERP. The assessment provides valuable insight for Duke Energy to increase program participation in its existing customer assistance and energy efficiency programs. With regard to specific program assessments, Duke Energy recommends maintaining WPERP and NES. Duke Energy agrees with the LIAC and recommends improvements be made to these existing energy efficiency programs to increase program participation and energy savings that include:

- Identify opportunities to increase program participation through existing NCWAP network and evaluate opportunities to expand the NCWAP network
- Work with NCWAP to identify opportunities for Duke Energy to market the program to eligible customers
- Evaluate opportunities with NCWAP to eliminate participation barriers that include, but are not limited to, limited access to health and safety investment and authorization required by landlords for renter occupied residences.

i. WPERP Ecosystem and Hurdles



WPERP is designed to provide eligible weatherization services and install equipment replacements. Through funding from DEC, the U.S. Department of Energy Office and NCDHHS through the North Carolina Department of Environmental Quality State Weatherization Program ("NCDEQ Program"), DEC's WPERP maximizes investment from multiple funding sources for in-depth weatherization services. The collaboration between NCWAP, Duke Energy, and NCDEQ is critical for maximizing energy savings and minimizing incremental costs to eligible customers without duplicating services and confusing customers. The NCWAP is responsible for qualifying eligible customers, prioritizing applications based on defined guidelines, identifying eligible health and safety investment, managing the deferral (waiting list) and evaluating approved household for weatherization programs. DEC's investment in eligible homes reduces the need for investments from other sources that would otherwise be required for energy efficiency improvements; as a result, increased investments are then available for the NCDEQ Program to make in non-DEC homes. DEC has the opportunity to recover its

costs for its WPERP through the annual DSM/EE Riders, as provided for in Commission Rule R8-69. Therefore, an increase in customer demand can typically be met by increased funding by DEC to support more qualifying customers. DEC is committed to working with NCDEQ and NCWAP to better understand the hurdles to program participation which include but are not limited to: 1) reasons for deferral applications; 2) opportunities for marketing DEC's WPERP to DEC customers; and 3) limited health and safety investment.

ii. NES Program Expansion

The NES programs have been very well received by targeted neighborhoods, with an average participation rate of 65%, which generally serves a combination of low- and moderate-income households over a multi-month period. The personalized engagement helps build rapport and trust with the customers, resulting in them being more likely to engage with Duke Energy in receiving a variety of energy savings measures that are specific to their household needs. However, and similar to WPERP, the NES program also has opportunities to increase program participation by identifying health and safety investment. Additionally, the Companies will review opportunities to invest in additional resources necessary to expand the NES program offerings.[29]

iii. HHF Program Transition

Funded by Duke Energy shareholders, the HHF currently pays for health and safety repairs and eligible equipment replacements in the DEP and DEC service territories. The health and safety repairs were targeted for funding because they were identified as a key barrier to low-income customers receiving energy efficiency services in their household. In addition, HHF pays for DEP weatherization improvements. Based on recent estimates,

[29] Because the tight labor market in 2021 and 2022 has challenged expansion and operation of the program, Duke Energy would target adding more crews to serve additional customers in the future.

the HHF program is currently funded through Q4 of 2024. To mitigate the impact of the HHF program ending, Duke Energy will continue to work with NCDEQ to identify different funding sources for health and safety investments and ways to increase low-income customer participation in WPERP.

DEP's recent filing for approval of its proposed Income-Qualified Weatherization Program will support ongoing funding for weatherization services and replacement of eligible equipment.[30] The pending DEP program proposes to provide weatherization services and replacement of eligible equipment. If the DEP Income-Qualified Weatherization Program is approved, DEP will offer weatherization services and replacement of eligible equipment as an approved energy efficiency program similar to the established DEC program.

iv. SSI Program

The SSI program provides eligible customers a bill discount based on the amount of kWh billed each month. The total program participation is approximately 10,000 customers; with customers age 55 years and older accounting for 85% of the total program participation. The high percentage of participants age 55 years and older is not surprising with age being a component of the SSI program eligibility requirements. In comparison to LIEAP/CIP, approximately 44% of the total LIEAP/CIP recipients are age 55 years and older.

Duke Energy acknowledges that a bill pay assistance program in both the DEC and DEP service territories will assist customers experiencing affordability challenges. As described in Section VI below, Duke Energy is proposing a new bill pay assistant program

[30] See Docket No. E-2, Sub 1299.

that supports auto-enrollment for LIEAP and CIP recipients. Once the program is filed and receives Commission approval, DEC would then recommend discontinuing the SSI Program and enrolling current and future eligible SSI Program customers in the new program.

B. Metrics of a Successful Program

The Sub-Team C members discussed a number of data points and desired outcomes for consideration in support of addressing affordability challenges. This information was shared and discussed with LIAC members on June 9, 2022, in LIAC Workshop VIII. The information below details the metrics recommended for monitoring purposes. As noted in the footnotes, the ability to monitor some of the data points is dependent upon the availability of the information and Commission regulatory approval.

Success Criteria: Desired Outcome	**Metrics Recommended to Monitor Program Impact: By Program**[31]
Minimize Barriers for Customers to Participate	• Number of Customers Served • Percent of Customers Served • Percent of Eligible Customers Served • Percent Program Participation by Housing Type
Significantly and Sustainably Help Participating Customers	• Average Electric Burden per Program Participant • Average Arrearages Amount per Program Participant • Percentage of Program Participants Disconnected[32] • Participants at Various Income Levels (50% FPL, 100% FPL, 200% FPL, etc.) • Affordability Ratio[33]

[31] The ability to track these metrics geographically would be valuable. It is important to note that the ability to provide non-public zip code level data publicly will depend on the NCUC approval. There is a pending rulemaking in Docket No. E-100, Sub 161 that involves, in part, disclosure of non-public zip code level data.

[32] This metric could benefit from a more sophisticated calculation to account for economic impacts that are outside the control of Duke Energy.

[33] This metric quantifies the percentage of a representative household's income that would be used to pay for an essential utility service, after non-discretionary expenses such as housing and other essential utility service charges are deducted from the household's income. It is important to note a data source to support this metric may not be available.

Success Criteria: Desired Outcome	**Metrics Recommended to Monitor Program Impact: By Program[31]**
Significantly Help Participating Customers (Needs Based)	• Number of Measures installed • Evaluated and Verified kWh Reductions (Due to Measures Installed) • Needs served based on Opportunity per Customer[34] • Percent of Households Deferred Due to Health and Safety Issues[35]
Low Administrative Cost of Operation of the Program	• Cost of Program • Cost of Program per Program Participant • Cost of Program per Program Participant Weighted by Value to Participants • Maximize Leveraged Dollars[36]
Minimize bill impacts for Non-Participants	• Average kWh cost across all Customers • Percentage (and/or) Average Monthly Bill Increase for Non-Participants
Eligible for Cost Recovery[37]	

1. Duke Energy Perspective

Duke Energy acknowledges the benefit of metrics to track the effectiveness of programs designed to address affordability challenges. The applicability of the suggested metrics discussed by LIAC members may vary by program depending on the design and goals of the program. In addition, the ability to track the information for the metric will be dependent upon whether the information is readily available to the Companies. Several of the metrics will require the Companies to obtain data from third parties; therefore, the information may not be exact. For example, to calculate energy burden and track participation by FPG, customer income information must be collected from a third party. Tracking the percentage of households deferred in the weatherization program due to

[34] The intention of this metrics is to capture what percentage of eligible measures are served per customer/household.
[35] Deferral information as a metric will need to be carefully crafted to avoid unintended incentives around program implementation.
[36] This metrics should explicitly state the involvement of the agency performing the work on behalf of Duke Energy.
[37] No metrics are recommended for monitoring this success criteria, though it is important to consider the reliability of funding sources for each program.

health and safety issues will require information from a third party. Depending on the third-party source of the information, the Companies may have to enter into data sharing agreements to receive the necessary information to track specific information. Additionally, the LIAC did not establish a baseline for each metric; that effort requires additional work to evaluate the impact of the program to address affordability for low-income customers.

C. Disconnection for Nonpayment Practices and Regulatory Provisions

In response to the Commission's requirement to review practices and regulatory provisions related to disconnections for nonpayment, Sub-Team C members reviewed NCUC Rule R12-11 Disconnection of Residential Customer's Electric Service ("Disconnection Rule") and Duke Energy disconnection policies and disconnect data. This information was discussed with LIAC members on May 19, 2022 in Workshop VII.

As detailed in the Disconnection Rule, electric utilities are required to notify residential customers in advance of disconnection for non-payment. In addition, the Disconnection Rule details requirements for customers to participate in a moratorium for disconnection for non-pay between November 1 and March 31 annually.[38] The LIAC discussed how Duke Energy voluntarily enrolled North Carolina Housing Opportunities and Prevention of Eviction Program ("NC HOPE"), LIEAP, and CIP recipients in the

[38] With respect to bills rendered between November 1 and March 31 of every year and in conformity with the policy considerations expressed by Congress in the Public Utility Regulatory Policies Act ("PURPA") of 1978, the notice of proposed termination shall also contain a statement that no termination shall take place without the express approval of the Commission if the customer can establish all of the following: (a) That a member of the customer's household is either handicapped or elderly (65 years of age or older), or both. (b) That the customer is unable to pay for such service in full or in accordance with subsection (l)(3) of this rule. (c) That the household is certified by the local social service office which administers the Energy Crisis Assistance Program or other similar programs as being eligible (whether funds are then available or not) to receive assistance under such programs.

moratorium from November 1, 2020 to March 31, 2022.[39] This was supported by a Data Sharing Agreement ("Moratorium DSA") that permitted the North Carolina Department of Health and Human Services to share a list of LIEAP and CIP recipients and North Carolina Office of Recovery and Resiliency to share a list of NC HOPE recipients with Duke Energy. The scope of the Moratorium DSA was limited to enrolling recipients in the moratorium.

The Disconnection Rule requires electric utilities to notify residential customers in advance of DNP of electric service. The Disconnection Rule requires, in part:

- "Electric service to a residential customer shall not be terminated for nonpayment of a delinquent account until the utility has given such ***customer at least 10 days'*** *written notice* that his service is subject to termination."
- "**At least 24 hours** prior to a proposed service termination, the utility shall, in good faith, attempt to contact a customer to whom a written disconnect notice has been mailed…"
- **"Immediately prior to the actual termination of service**, the utility's representative shall attempt to personally contact the customer on the premises.

As shared with the LIAC, Duke Energy sends customers additional notifications via a number of communication channels that include email, text and/or phone depending on the customer's preferences. In discussing the effectiveness of the notifications, Duke Energy shared the notice effectiveness information for the pre-COVID and post-COVID timeframe for both DEC and DEP detailed below and filed in the Q1 Progress Report.

[39] See Docket No. M-100, Sub 158.

DEC – Average Monthly Residential Notices							
Pre & Post COVID		10-Day Notice	24-Hour Notice	Day of Disconnect Notice	DNP	Reconnected	No Action
PRE	July 2019-Dec. 2019	~335,000	~179,000	~32,000	~9,300	~8,700	~600
	Reductions from previous notice		46%	82%	72%		Less than 1% (of delinquent population)
POST	Nov. 2020 – Feb. 2021	~228,000	~105,000	~48,000	~6,700 ~7,500	~5,000	~9,200
	Reductions from previous notice		54%	54%	70%		4% (of delinquent population)

DEP – Average Monthly Residential Notices							
Pre & Post COVID		10-Day Notice	24-Hour Notice	Day of Disconnect Notice	DNP	Reconnected	No Action
PRE	July 2019-Dec. 2019	~180,000	~101,000	~21,000	~8,000	~6,800	~1,200
	Reductions from previous notice		44%	79%	62%		Less than 1% (of delinquent population)
POST	Nov. 2020 – Feb. 2021	~159,000	~105,000	~25,000	~7,300 ~200	~6,500	~1,000
	Reductions from previous notice		34%	76%	70%		Less than 1% (of delinquent population)

The information above shows that the number of notifications decreases in response to customers who take action upon receiving the prior notification. Upon receiving the initial notification or subsequent notification(s), customers are prompted to take action that includes making a payment and/or enrollment in an installment plan. While the LIAC members recognize there is a correlation between notifications and customer action, the

LIAC did not make a determination as to whether the Disconnection Rule required revisions.

Due to the application of the Disconnection Rule to all residential customers and the impact of proposed rule changes to all electric utilities regulated by the Commission, the LIAC did not recommend changes to the Rule. Instead, the LIAC recommends review of regulatory provisions related to disconnections for nonpayment that would be addressed by the Commission in a rulemaking procedure.

1. Duke Energy Perspective

While Duke Energy acknowledges the involuntary interruption of a customer's electric service is a last resort, the information detailed above shows the effectiveness of DNP notifications required by the Disconnection Rule. From the time the 10-day disconnection notice is issued, there is a 46% reduction on average in the number of customers who receive the 24-hour notice. An average decline of nearly 74% is experienced between the time the 24-hour notice issued and the day of disconnect notice is issued. The same trend exists from when the day of disconnect notice is issued and a DNP occurs. Nearly 69% of customers who receive a day of disconnect notice take action and avoid DNP. In addition to the required notifications detailed in the Disconnection Rule, the Companies recognize that some customers prefer communications via electronic channels including email and text to take action to avoid DNP.

Duke Energy agrees with the LIAC's recommendation that a review of the Disconnection Rule should be initiated by the Commission. This will allow all impacted utilities and interested stakeholders the opportunity to provide input on such review and proposed changes.

D. Existing Utility and External Funding Sources and the Utility's Opportunities to Collaborate and Partner with Third-Party Agencies and Organizations to Deliver Affordability Programs

The LIAC members discussed existing opportunities where Duke Energy works with other program administrators and organizations to deploy programs and services to address affordability challenges. Similar to other states, the state agencies addressing affordability by offering income-qualified programs are serving some of the same customers as Duke Energy. Duke Energy's low-income programs are funded through the North Carolina ratemaking framework, i.e., base rates or rate riders or shareholder contributions. The state agencies that fund income-qualified weatherization and bill pay assistance programs (LIEAP/CIP) are the NCDEQ and NCDHHS, respectively.

The LIAC members also discussed opportunities to assist more customers through increased attention and ongoing partnerships with the NCDHHS and NCDEQ. Duke Energy's WPERP and the NCDEQ Program are implemented by the NCWAP. This allows NCWAP to maximize the benefits and energy savings for program participants through multiple funding sources.

As a result of these discussions, the LIAC members identified the following opportunities and challenges when working with other agencies and organizations to deliver programs to address affordability.

Opportunities:

- NCDHHS plans to deploy a new software platform for use with Community Action Agencies to centrally collect data and information. This new platform may be used by DEQ for data collection and reporting on the NCWAP.
- Any weatherization program deferral for health and safety needs will be visible for all local agencies to monitor.
- Use of qualification for LIEAP/CIP to aid in energy burden calculation.

- Share LIEAP/CIP program participation information in support of participant receiving other services such as weatherization.

Challenges:

- Lack of transparency and information sharing
- No standardized process to collect/track deferral information
- Misalignment on the timing of which organization is spending funds
- Miscommunication/misunderstanding around priority process for weatherization program participant applications
- Low level of funding per participant compared to the need

E. Cost-of-Service Allocation Effect on Rate Design and Affordability of Rates

During the analytics portion of the LIAC, Duke Energy conducted intraclass cross-subsidization analyses within the residential customer schedules (schedule RES for DEP, and schedules RS and RE for DEC).[40] Given the nature of the utility system as a network with a variety of common system costs that are shared among all customers, some level of cross-subsidization is inherent in ratemaking. The analyses looked through two different lenses: embedded and marginal cost. Both lenses are foundational to rate design and answer different questions.

An embedded cost analysis indicates whether customers are paying their "fair share" of historical costs. Embedded costs are costs that have already been incurred and are recovered through rates; in other words, they are included in the utility's revenue requirement.

A marginal cost analysis determines the cost to serve the next unit of demand. For example, the analysis would indicate how much an additional kWh costs when a new customer joins the system.

[40] See Appendix E at 23.

For North Carolina residential customers in both DEC and DEP, it appears that LIEAP/CIP recipients and customers that meet the definition for struggling with arrears are cross-subsidizing other residential customers. The straight average (i.e., the average of the embedded and marginal analyses results) annual cross-subsidy for LIEAP/CIP customers is:

- DEP RES - $72
- DEC RS - $162
- DEC RE - $6

The straight average annual cross-subsidy for customers that meet Duke Energy's arrears struggling definition is:

- DEP RES - $90
- DEC RS - $114
- DEC RE - $60

Due to the complexity of allocating costs, competing goals in rate design, as well as average cost ratemaking, there will always be instances where some customers pay more or less than the cost to serve them. There are factors, such as differences in distribution costs, that could not be included in this study. Additionally, any change to the cost of service allocation methodologies would change the total costs allocated to a rate class, which would change the intraclass cross-subsidization results. Furthermore, the majority of costs are recovered from residential customers on a per kWh basis; any customer in a group that uses more kWh than average will inherently be paying more than the cost to serve that group because most of the costs to serve a customer are fixed.

Due to the number of variables, any result from the analyses conducted in the LIAC should be taken as informational and directionally accurate, not as a precise measure of intraclass cross-subsidization.

1. Duke Energy Perspective

Cost-of-service allocation determines the amount of the utility's revenue requirement that each customer rate class is responsible for and thus must be recovered through rates. Therefore, cost allocation is critical to determining the amount each customer group should pay for their use of the electric system. Changes in cost-of-service methodologies will change the revenue requirement for each rate class, with some methodologies resulting in a higher revenue requirement and others reducing the revenue requirement. Although cost-of-service helps guide rate design, it does not dictate the final rate designs entirely. There are important practical and public policy considerations that are critical to rate design but are not quantified in the cost-of-service or cost allocation processes.

F. How Existing Programs Address Affordability, Cost-Causation, and Allowance of Costs Among Classes

Energy efficiency programs that reduce energy usage lower the residential allocation of embedded costs. Conversely, any programs that increase energy use increase the allocation of embedded costs. The overall effect these programs would have on other customers' rates depends on the revenue collected from each customer (i.e., contribution towards the rate class's revenue) compared with the costs allocated to the rate class as a result of a customer (i.e., addition to the rate class's revenue requirement). If the increase in allocated costs exceeds the incremental revenue from a customer, then it will result in an increase in rates for customers within the rate class. If the allocated costs are less than the incremental revenue, then there would be downward pressure on rates within the rate class.

1. Duke Energy Perspective

Rate design options can provide customers with additional cost-based pricing tools, such as time-of-use ("TOU") rates, that give customers the opportunity to manage their overall energy cost by shaping their consumption in response to price signals. Customer affordability will improve, to the extent a customer responds to the cost-based price signal, and commensurately lowers their bill. In addition, because the price signal is cost based, it will also reduce system costs. Ideally, in an effective TOU rate design, the customer savings and system cost savings would be approximately the same. The potential for new rate design features to provide customers with additional tools to manage their bills will enhance customer affordability. These designs move system cost recovery to the customer groups that are actually driving system costs and avoid an unfair cost shift.

In addition to new rate designs, the bundling of additional products or services, such as energy efficiency measures (e.g., smart thermostats) or demand response programs (e.g., critical peak pricing), can enhance the ability for a customer to save money, Subscription concepts, such as TOU electric vehicle managed charging, can enhance customer savings without disrupting a customer's lifestyle.

Establishing TOU rates is a representative example showing the broad considerations relevant to sound rate design. To that end, any proposed rate should balance the conflicting principles of rate design as presented in Workshop IV:

- Reflect cost causation (no unjust or undue discrimination);
- Incent beneficial consumption patterns (send efficient price signals);
- Recover the cost to serve (i.e., recover the revenue requirement) and;
- Meet public policy goals (as determined by public utility commissions and state governments).

G. Review of EE/DSM and CRR Collaborative Efforts to Assist Low-Income Customers

Sub-Team D was tasked with reviewing the ongoing efforts of the EE/DSM, CRR and LIAC (individually as "Collaborative" collectively, "the Collaboratives") due to the overlapping nature of the work by the Collaboratives. The LIAC hosted a joint meeting on January 26, 2022, with over 130 individuals representing the three Collaboratives in attendance. The joint meeting was designed to allow members of each collaborative to learn about efforts underway to assist low-income customers, provide feedback about opportunities for cross collaboration, identify gaps and challenges, and propose solutions and changes. Each Collaborative made a presentation during the joint meeting that provided an overview of its efforts underway to assist low-income customers with addressing affordability challenges. In addition to these presentations, the meeting included breakout sessions designed for interactive discussion to collect feedback. The breakout sessions allowed participants to provide information through discussions and identification of opportunities for collaborative intersections, challenges and gaps, and potential changes and solutions further detailed in Appendix F. In support of ongoing information sharing for the duration of the LIAC, the EE/DSM and CRR identified points of contact responsible for providing LIAC members updates on the work underway that overlapped with LIAC areas of focus. These updates were provided during the subsequent workshop meetings hosted by the LIAC.

IV. Jurisdictional Trends, Metrics, and Definitions for "Affordability"

During the March 31, 2022 Workshop VI, Sub-Team B members presented on the following topics:

- Resources to identify and measure affordability challenges.
- Identifying an industry-accepted definition for affordability, adopted metrics that measure the effectiveness of affordability programs and the eligibility guidelines for income-qualified programs (both utility and government offered).
- Eligibility requirements for income-qualified bill pay assistance and/or energy efficiency programs designed to address affordability.

A. Program Eligibility Requirements

Sub-Team B's findings show that income qualifications for program eligibility range between programs offered within North Carolina. The income qualifications are determined by a percentage of FPG, mass gross income limit, state median income, and area median income. Most of the programs that are listed below identified federal poverty guidelines as the income qualifier with the percentage being no more than 200% of the FPG. This is consistent for the majority of income-qualified bill pay assistance and energy efficiency programs serving single family and multi-family homes regardless of whether the home is owner-occupied or occupied by a renter as shown in the table below.

Analysis of Low-Income Program Eligibility							
	LIEAP	CIP	HOPE	FNS	State WTHZ	WPERP	NES
HOUSING							
Owner (O) Renter(R)	O&R	O&R	R	O&R	O&R	O&R[41]	O&R
Single Family (SF) Multifamily (MF)	SF & MF	SF & MF	SF & MF	SF & MF	SF & MF	SF	SF & MF
INCOME LEVEL							
Criteria Used	FPG	FPG	Area Median	Max Gross Income Limit	FPG	FPG	Targets Neighborhoods where ≥ 50% households are below 200% FPG
Eligibility Level	≤130%	≤150%	≤80%	130% or 200%	200%	(Mirrors State WTHZ)	

[41] Renters are eligible pending landlord provides authorization and agrees to defined requirements

Analysis of Low-Income Program Eligibility							
OTHER							
Heating Source-Dependent?	Yes	No	Yes	No	No	No	No

B. Affordability Defined and Applied in Other Jurisdictions

The LIAC was unable to identify an energy-industry accepted definition for affordability. However, there are jurisdictions further discussed below that have taken regulatory action to study affordability challenges and ways to measure affordability.

Both the Pennsylvania Public Utility Commission ("PPUC") and California Public Utilities Commission ("CPUC") opened dockets to study affordability for low-income customers. The PPUC[42] initiated a study to examine the home energy burden for low-income customers in Pennsylvania in evaluating the affordability, cost-effectiveness, and prudence of Universal Service Programs[43]. The study examined the impacts of bill assistance on customer energy burden levels, outlined the maximum energy burdens and revised previous third-party studies dealing with related topics for both electric and gas customers. Pennsylvania's maximum energy burdens as articulated in the CAP Policy Statement are higher than maximum energy burdens used by neighboring states.[44]

In California, the CPUC issued an order to assess the impacts of affordability of individual CPCUC utility rate requests. The goals of the proceedings were to develop a framework and principles to identify and define affordability criteria for all utility services

[42] https://www.puc.pa.gov/pcdocs/1602386.pdf.

[43] See the May 5, 2017 "Energy Affordability for Low Income Customers Order" in Docket No. M-2017-2587711. This was the first comprehensive energy burden and affordability study of Pennsylvania households using information from utilities and other third parties.

[44] Ohio's utility payment assistance program has a maximum energy burden of 10%. The New York and New Jersey utility payment assistance programs both have a maximum energy burden level of 6%.

under CPUC jurisdiction and develop the methodologies, data sources, and processes necessary to comprehensively assess the impacts on affordability of individual CPUC proceedings and utility rate requests for the residential rate class. The CPUC adopted metrics and methodologies for assessing the affordability of public utility service under the CPUC's jurisdiction. The California Commission adopted three independent, but related, metrics which allow for the creation of a more complete picture of affordability than any one metric could provide on its own. The three metrics include the following:

- The Affordability Ratio ("AR") metric quantifies the percentage of a representative household's income that would be used to pay for an essential utility service, after non-discretionary expenses such as housing and other essential utility service charges are deducted from the household's income. The higher an AR, the less affordable the utility service. The AR may be calculated for a single essential utility service, a combination of services, or all essential utility services combined.

- The Hours at Minimum Wage metric quantifies the hours of earned employment at the city minimum wage necessary for a household to pay for essential utility service charges. The minimum wage-based metric also implicitly considers the impact of essential utility service charges on lower-income customers regardless of the socioeconomic conditions of the community as a whole.

- The Socioeconomic Vulnerability Index ("SEVI") metric represents the relative socioeconomic standing of census tracts, referred to as communities, in terms of poverty, unemployment, educational attainment, linguistic isolation, and percentage of income spent on housing. This metric therefore considers how a rate change may affect one community's ability to pay more than another's.

On April 29, 2021, the CPUC issued the 2019 Annual Affordability Report. [45]

The New York Public Service Commission adopted a policy that an energy burden at or below 6% of household income shall be the target level for all low-income households in New York. It recognized that success is only achievable through a holistic approach that coordinates and leverages all available resources.[46]

[45] 2019 Annual Affordability Report (ca.gov).

[46] http://www.psc.state.fl.us/Files/PDF/Home/NCRA/NCRA%20Presentations/Session%2006%20-%20Shot%20Across%20Bow/Supplemental%20Materials%20(R%C3%A1bago).pdf.

Although the Sub-Team B research did not identify a common definition for affordability, the research findings identified efforts underway by state commissions, as described above, for utility services under its regulation to track and understand affordability challenges and ways to measure affordability. The metric to measure affordability ranges by state from the three independent, but related, metrics, adopted by the CPUC to an average target energy burden for low-income customers adopted by New York.

Based on the research findings, the recommendation from the LIAC is that the NCUC should consider FPG at or below 200% when determining eligibility for programs to address affordability. This aligns with the majority of the income-qualified programs identified in the Sub-Team B research and analytics information completed for the LIAC. While Sub-Team B recognizes that program eligibility will vary by program, the recommendation is that program design should incorporate and be available to income-qualified customers regardless of home types (single family and multifamily), renters and owners, and be available regardless of the heating source.

1. Duke Energy Perspective

The findings by Sub-Team B members provided insightful information regarding how other jurisdictions are defining and measuring affordability for low-income customers. The programs reviewed by Sub-Team B reveal that many low-income customer programs are offered to customers who meet income eligibility requirements (at or below 200% FPG) regardless of their housing type (single family or multi-family), housing status (renter or owner) and heating source. Duke Energy supports programs that include these characteristics when designing programs to address affordability challenges.

While the work performed by the LIAC is insightful and provides a level of detail not previously available, Duke Energy acknowledges that a comprehensive study of all North Carolina utilities would provide a more informed view of opportunities to assist low-income customers with affordability challenges ("Comprehensive Study"). Additionally, while the studies performed by the PPUC and CPUC are similar, there are significant differences in focusing on specific opportunities and policies to address affordability challenges of customers in their state. Duke Energy supports a Commission-ordered Comprehensive Study to evaluate affordability challenges and solutions for North Carolina's low-income utility customers.

V. Overview of 3(e) Programs

The Commission directed the LIAC to provide an overview of certain low-income programs including: minimum bill concepts as a substitute for fixed monthly charges; income-based rate plans, such as Ohio's percentage of income payment plan ("PIPP"); segmentation of the existing residential rate class to take into account different levels of usage; expanding eligibility for DEC's current SSI-based program to include additional groups of ratepayers; and whether a specific component in rates to be used to fund supplemental support programs ("3(e) Programs"). As part of the overview, the LIAC was tasked with determining whether the 3(e) Programs, in addition to any other programs agreed upon by the collaborative, are appropriate for implementation in North Carolina and, if so, what statutory or regulatory changes are necessary to permit implementation.

Pursuant to the Rate Case Orders and the Commission's directive, the Affordability Collaborative evaluated the appropriateness of several program ideas, including the 3(e)

Programs, throughout various LIAC workshops and Sub-Team meetings.[47] The results of those evaluations are included in the LIAC's proposed programs and recommendations in Appendix G and discussed further in Section VI of this Final Report.

As part of the overview, the LIAC also evaluated and discussed the regulatory and statutory framework and any changes that may be necessary to implement 3(e) Programs. The LIAC agreed that the Commission has broad authority under existing North Carolina law, but whether any particular proposal or program may require regulatory or statutory changes to be implemented cannot be determined in the abstract without a more detailed proposal.

A. Duke Energy and Public Staff Perspective

Duke Energy and the Public Staff agree with the LIAC's determination that it is challenging to evaluate whether any program, including 3(e) Programs, would require any regulatory or statutory changes without more details regarding the proposed program. However, Duke Energy and the Public Staff conducted a high-level overview of the Commission's general authority under the current regulatory and statutory framework and its potential impact on the implementation of 3(e) Programs or low-income programs in general.

There are several statutes germane to the question of whether there are statutory or regulatory barriers to implementation of a program to assist low-income customers with affording the cost of electricity. North Carolina General Statute ("G.S.") § 62-2 is the declaration of policy regarding the rates, services, and operations of public utilities. G.S. § 62-2 (3) indicates that it is the policy "[t]o promote adequate, reliable and economical

[47] See the Q4 Progress Report and Appendix E.

utility service to all of the citizens and residents of the State", and G.S. § 62-2 (3a) states that it is the policy to fix "rates in a manner to result in the least cost mix of generation and demand side reduction measures which is achievable . . ." It is also the policy of the State pursuant to G.S. § 62-2 (4) ". . . [t[]o provide just and reasonable rates and charges for public utility services without unjust discrimination, undue preferences or advantages . . ."

G.S. § 62-131 dictates two important principles regarding rates and utility service. First, rates must be just and reasonable. Second, a utility is required to "furnish adequate, efficient and reasonable service". G.S.§ 62-133 establishes how the Commission sets rates. Rates must be fair to both utility and customer, based on costs of utility to serve *all* customers, and reasonable. The Commission has broad but not unlimited discretion to set rates. The Commission cannot exceed its jurisdiction. The Commission exercises its judgement in its determination of what is in the "public interest". The Commission's decisions must be based on evidence.

In addition, rates must be developed based on cost-causation principles (i.e., the cost causer pays for its costs). In DEC's recent rate case, Docket No. E-7, Sub 1214, Public Staff witness Jack Floyd addressed these issues. He stated "[r]ate design should follow the same cost causation approach underlying the [cost of service study], such that each customer class, or customer, is responsible for an appropriate share of the costs that are planned for and incurred in order to serve them."[48] He also stated that "[t]he Public Staff continues to fundamentally believe that rate design must first be based on cost-causation principles. After cost-based rates are determined, public policy may provide further guidance in designing final rates."[49]

[48] Direct Testimony of Jack Floyd filed February 18, 2020, Docket No. E-7, Sub 1214 at P. 9, ll. 10-13.
[49] Id at P. 58, ll. 13-16.

By using cost-causation principles to develop rates, bills are based on usage, thus incenting customers to conserve energy to lower their bills. When rates are not based on cost causation, the tie between usage and price is severed, thus sending inaccurate price signals and reducing or eliminating the incentive for customers to conserve energy. Witness Floyd went on to say that "[a]ny rate discount for low-income customers will shift revenue recovery to other customers in the form of slightly higher rates. This shift or subsidization must be thoroughly understood in terms of the dollars to be shifted and the effect on rates paid by other customers."[50] It is important to note that in the newly passed S.L. 2021-165 ("House Bill 951"), section (b) requires that the revenue requirement be allocated pursuant to cost-causation principles for any electric public utility rate case filed along with an application for performance-based regulation. Section (a)(1) defines the "cost causation principle" as "establishment of a causal link between a specific customer class, how that class uses the electric system, and costs incurred by the electric public utility for the provision of electric service."

The Commission is also barred from setting rates that are unreasonably discriminatory. G.S.§ 62-140(a) provides that "[n]o public utility shall, as to rates or services, make or grant any unreasonable preference or advantage to any person or subject any person to any unreasonable prejudice or disadvantage. No public utility shall establish or maintain any unreasonable difference as to rates or services either as between localities or as between classes of service . . ." The form of the aid given to low-income customers by the utility is not dispositive in determining whether it is in violation of G.S. § 62-140.

[50] *Id.* at P. 59, lines 16-21.

The question is what would be considered an "unreasonable preference or advantage." The Courts have interpreted this statute multiple times.

In *State ex rel. Util. Comm'n v. Mead Corp.*, 238 N.C. 451, 78 S.E. 2d 290 (1953), the Supreme Court wrote, "The obligation of a public service corporation to serve impartially and without unjust discrimination is fundamental…. There must be substantial differences in service or conditions to justify differences in rates. There must be no unreasonable discrimination between those receiving the same kind and degree of service." In *State ex rel. Util. Comm'n v. Bird Oil Co.*, 302 N.C. 14, 273 S.E. 2d 232 (1981), the Court found that differentiated rates were not unjust or unreasonable when there were substantial differences in the (1) quantity of use, (2) time of use, (3) manner of use, and (4) costs of rendering the two services. In *State ex rel. Util. Comm'n v. Municipal Corporations, 243 N.C. 193 (1955),* the Court held a substantial difference between the costs of rendering the services justifies some difference in rates. These same criteria were again confirmed by the Court in *State ex rel. Util. Comm'n v. Carolina Utility Customers Ass'n,* 351 N.C. 223, 524 S.E. 2d 10 (2000).

In a single class of residential customers, it is unlikely that there is a substantial difference between the cost of rendering service to low-income individuals as opposed to non-low-income individuals. Thus, from the statute and case law it is unclear whether a low-income rate or discount would be unreasonably discriminatory under G.S. § 62-140 when there are not substantial differences between the costs to serve low income and non-low income customers. Duke Energy and the Public Staff have found no cases concerning rate discrimination among customers in the residential class. Whether the Commission and

courts may view a low-income rate or discount as a reasonable form of discrimination is uncertain.

While there are no cases addressing whether the Commission can approve a low-income rate that is not based on cost-causation principles absent legislative authorization, the Supreme Court in *State ex rel. Util. Comm'n v. Cooper,* 366 N.C. 484, 739 S.E,2d 541 (2013)[51] concluded, in remanding a general rate case to the Commission, that the Commission must take customer interests and changing economic conditions into consideration when making a determination on return on equity. While the Court's analysis was based on other factors, the Court referenced the language of G.S. § 62-133(b)(4), a general rate case statute, holding the Commission must consider whether the approved return is reasonable and fair to the utility's customers. Although *Cooper I* does not suggest that a specific low-income rate is appropriate, it does suggest some concern by the Court of the impacts of increased utility rates on customers during times of changing economic circumstances. In *Cooper II*, the Court affirmed the Commission's decision but also noted that not only G.S. § 62-133 (b)(4) but Chapter 62, as a whole, requires the Commission to treat consumer interests fairly and not indirectly or as mere afterthoughts. This might suggest that, if challenged, a carefully crafted low-income rate might lead the Court to find that the rate is not unduly unreasonable or unjust so as to violate the anti-discrimination provisions of G.S. § 62-140.

The Commission has exercised its authority in the past to approve rates or programs for low-income customers. Indeed, the Commission has approved energy efficiency

[51] This case is usually referred to as *Cooper I*. Following remand and a further Order by the Commission, the Supreme Court issued a subsequent decision dated December 19, 2014, in *State ex rel. Util Comm'n v. Cooper*, 366 N.C 644, 766 S.E. 2d 827 (2014), which is usually referred to as *Cooper II*.

programs targeted at low-income customers that are not cost effective but provide societal benefits. There is also Commission precedent adopting a discounted rate for certain customers. The discounted rate was limited to elderly, blind or handicapped customers who met federal poverty guidelines and were receiving Supplemental Security Income ("SSI"). The Commission justified the rate by concluding that the usage of such customers was inelastic and unresponsive to price changes and because it would allow the Commission to collect meaningful data in its comprehensive study of lifeline-type rate schedules mandated by the 1977 General Assembly. The rate was adopted by the Commission for Duke Power Company on August 31, 1978, in Docket No. E-7, Sub 237. Although this discounted rate was adopted as an experimental rate for study purposes, it is still in place in DEC Rate Schedules RS and RE. Presently, DEC Rate Schedule RS states, "For customers receiving SSI under the program administered by the Social Security Administration and who are blind, disabled, or 65 years of age or over, the rate for the first 250 kWh used per month shall be 8.4772 cents per kWh." The present maximum discount to customers is $3.17 per month. Notably, this rate was authorized as an "experimental rate", and it remains an "experimental rate."

The experimental rate was addressed further in Duke Power Company's 1982 general rate case in Docket No. E-7, Sub 338.[52] In that case, the Commission found that the cost justification for the experimental SSI rates was inconclusive and that the matter should be considered further by the full Commission in Docket No. E-100, Sub 143. However, fundamental to the Commission's consideration of the SSI rate was the principle

[52] Public Staff Witness Jack Floyd extensively addressed affordability and other lifeline issues in testimony submitted on February 18, 2020 in Docket No. E-7, Subs 1213 and 1214. Mr. Floyd's testimony also reviews the background of the SSI rate originally adopted on August 31, 1978 in Docket No. E-7, Sub 237.

that the rate had to be based on cost-of-service differences between SSI customers and residential customers as a whole or based on a lower elasticity of demand than residential customers. The SSI rate was not intended as a lifeline rate or as a promotional rate. It should be noted the SSI rate was adopted during a time of changing economic circumstances, when the country was facing an oil embargo and massive construction costs association with building nuclear plants, creating upward pressure on electricity rates. While the Commission's approval of the experimental SSI rate provides some precedent, the Commission also expressed concerns about its ability to approve rates based on social objectives.

> The Commission shares the concern of the state for the elderly, the handicapped, and the poverty stricken, especially in times of high energy costs. However, the Commission is of the opinion that such social objectives as providing relief for certain disadvantaged segments of the general population are, and should be, beyond the rate making authority of the commission. The authority for social objectives is vested with the duly elected representatives of the general public, and the commission has not been delegated any such authority. The commission can best and most properly perform its legislative mandate by enduring that the rates it approves for service to disadvantaged customers do not exceed the actual costs to provide such services.[53]

The General Assembly authorized a low-income rate for telephone customers due to upward pressure on local telephone rates caused by industry deregulation. The statute authorized a state discount that was equivalent to a federal discount approved by the Federal Communication Commission. An exception in G.S. § 62-140 states, "It shall not be considered an unreasonable preference or advantage for the Commission to order, if it finds the public interest so requires, a reduction in local telephone rates for low-income residential consumers meeting a means test established by the Commission in order to

[53] Docket No. E-7, Sub 338 at 89.

match any reduction in the interstate subscriber line charge authorized by the Federal Communications Commission." Here, the General Assembly explicitly carved out an exception to allow for a low-income rate for telephone service. This could potentially bolster the argument that legislation is needed to create an exception for a low-income rate for electric service. On the other hand, it could be argued that just as a low-income rate for telephone customers is not unreasonably discriminatory, neither is a low-income rate for electric customers.[54]

Consideration of whether a particular rate or program is in the public interest begins by reviewing cost-based revenues, cost allocations, and rate designs, including fixed versus variable costs; demand- versus energy-related costs; flat rates, demand rates, and volumetric rates; and inclining versus declining block rates. Next, subsidies between classes are minimized as much as possible, and any that remain must accomplish a public interest objective. To the extent a low-income assistance program is proposed as part of a rate case filed with an application for performance-based regulation, any interclass subsidization of ratepayers must be "minimized to the greatest extent practicable by the conclusion of the MYRP period." G.S. 62-133.16(b). The rate or program should provide opportunities for as many eligible customers as possible to participate. There should be identification of clear public policy objectives, and specific definition of the benefits and

[54] While this language remains in the statute, the low-income rate for telephone service has been effectively repealed. The General Assembly passed an amendment to G.S. § 62-140 which states, "If the State repeals any State funding mechanism for a reduction in the local telephone rates for low-income residential consumers, the Commission shall take appropriate action to eliminate any requirement for the reduced rate funded by the repealed State funding mechanism." The low-income rate was funded through a tax credit given to telecommunications providers to recover the costs of the low-income rate. In S.L. 2013-316, the General Assembly repealed the tax credit, and in doing so effectively repealed the low-income rate for telecommunications services. Although the action of the General Assembly targeted the elimination of the tax credit, the credit was applicable to traditional landline telephone service. The number of customers taking advantage of the program had declined significantly due to the increased utilization of wireless phones.

costs to customers and utility system. Cost recovery (revenues, allocations, and rate designs) should align with the distribution of benefits as much as possible. Any deviation should be shown to be "in the public interest."

VI. LIAC Proposals

In response to feedback shared by LIAC members during LIAC Workshop 3 on November 12, 2021, Guidehouse created and distributed the electronic program submission form on November 28, 2021, in advance of the original Q1 timeframe. The electronic form detailed the required data points for proposals to address affordability challenges. Guidehouse received 22 proposals submitted from LIAC members by the April 8, 2022 due date. Guidehouse distributed each proposal to LIAC members on April 12, 2022. On April 20, 2022, Guidehouse distributed the LIAC Proposal Packet, a comprehensive list of all proposals and supporting information submitted, to LIAC members for Pitch Day. On Pitch Day, April 20, 2022, the LIAC members that submitted proposals presented information about their proposals to the other LIAC members and answered questions.

During Pitch Day, LIAC members discussed opportunities to combine similar proposals and potentially align proposals with other efforts underway by Duke Energy. Based on discussions among LIAC members and with agreement of the participant who submitted the proposal, Guidehouse worked to combine similar proposals or align proposals with other Duke Energy efforts. The table below details the original proposals submitted and proposals combined or aligned with other initiatives as a result of LIAC member feedback. The information in the table does not reflect all the information submitted for each proposal. See Appendix G for a detailed information of each proposal

submitted, assessment of each proposal by LIAC members, and feedback from 20 LIAC members in response to the proposal**.**

<table>
<tr><th colspan="5">PROPOSAL INFORMATION</th></tr>
<tr><td>Proposal Number: 1</td><td colspan="4">Proposal Name: Closing the Income-Qualified Energy Efficiency Program Spending and Savings Gap Between DEP and DEC</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Proportionately, Duke Energy Carolinas has historically spent and delivered more efficiency savings than Duke Energy Progress. This recommendation is for DEP to increase its spending and savings to close this gap.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>76%</td><td>10%</td><td>0%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Duke Energy: It is Duke Energy’s intention and aspiration to serve as many qualified customers as possible through low-income energy efficiency programs, but a singular territory comparison of program spending and energy savings rarely tells the whole story of how well customers in need are being helped.

Public Staff: “The Public Staff has reviewed each of these proposals in isolation without any projections of costs, benefits, cost-effectiveness, participation, etc. Only with this and other pertinent information could the Public Staff make a final determination as to whether it supports or does not support a proposal. The Public Staff would also have to consider the cost and rate impact of all programs or proposals to be implemented at the same time before making a final determination as to its position. This statement applies to each proposal.”</td></tr>
<tr><td>Proposal Number: 2</td><td colspan="4">Proposal Name: Duke Energy Progress Income-Qualified Weatherization Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Modeled off of the DEC program of the same name, the DEP Income-Qualified Weatherization program will incorporate the ability for Duke to fund the entire project cost for EE improvements with flexibility for per-home spending levels (up to $10,000) comparable to the 2019 Durham Pilot. Total program spending levels will at least match those on a per residential customer basis as the DEC program.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>72%</td><td>14%</td><td>0%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">AARP: “AARP looks forward to learning more about the specific ways in which this program would lower the cost barrier to energy efficiency retrofits in low-income households, and information about the cost and savings for low-income households that participate in this and other energy efficiency programs. AARP supports cost-effective measures to promote clean energy that yield affordable energy, AARP supports energy efficiency and</td></tr>
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<tr><td></td><td colspan="4">weatherization programs including for low-income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program."

Public Staff: "Only non-ratepayer funds should be utilized for health and safety work."
Duke Energy: "The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks."</td></tr>
<tr><td>Notes:</td><td colspan="4">On June 13, 2022, in Docket No. E-2, Sub 1299, DEP filed its Proposed Residential Income-Qualified Energy Efficiency and Weatherization Program. The proposed filing is similar to Proposal 2.</td></tr>
<tr><td>Proposal Number: 3</td><td colspan="4">Proposal Name: Income-Qualified High Energy Use</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: This program provides deep energy retrofits at no cost to low-income customers with high energy use. The program will develop processes to incorporate additional funding for health and safety repairs from non-ratepayer sources to serve previously ineligible customers. The program would be based on a proposed pilot program developed by advocates and Duke Energy out of a 2021 rate case settlement agreement and will likely be filed at the NCUC in early Summer 2022. The pilot will serve 1,000 customers in two selected test regions. The proposed pilot is a first step to developing a full program that addresses the systemic and persistent need of high energy use low-income customers.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>19%</td><td>0%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">AARP: "AARP supports energy efficiency programs including for low-income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program. We think a pilot program might also be a good idea."

Public Staff: "The system impact is greatest by targeting high electric energy consumption customers. Only non-ratepayer funds should be utilized for health and safety work. If ratepayer funds are used for the energy-related portions of the program, any savings claimed by Duke must go through the EM&V process."

Rowan Helping Ministries: "Must include a component for customer education for maintenance of equipment and practical ideas to reduce energy consumption."

Nicholas Institute: "In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via this pilot and the resulting research could prove valuable."

Duke Energy: "The Companies support an income qualified high electric use pilot program with plans to file it for NCUC approval in the near future."</td></tr>
<tr><td>Notes:</td><td colspan="4">On June 30, 2022, in Docket No. E-7, Sub 1272, DEC filed its Proposed Residential Income-Qualified High-Energy Use Pilot. This proposed pilot is</td></tr>
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<tr><td></td><td colspan="4">the product of the settlement approved Docket No. E-7, Sub 1214 issued on March 31, 2021.</td></tr>
<tr><td>Proposal Number: 4</td><td colspan="4">Proposal Name: Residential Electric Resistance Tank Water Heater (ER) and Hybrid Heat Pump Hybrid Water Heater (HHPWH) Rental Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: The Residential Electric Resistance Tank Water Heater (ER) and Hybrid Heat Pump Water Heater (HHPWH) Rental Program is operated by Duke Energy DEP and DEC (Hereinafter Duke) as a service to residential rate payers. The program will market water heater replacement services to all residential ratepayers.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>71%</td><td>10%</td><td>0%</td><td>19%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “A waiver of the Commission disconnect rules may be needed to avoid disconnect based on non-payment of non-electric charges. The Public Staff has historically opposed disconnection for non-electric charges. More detail about the rental contracts needs to be provided before it can be determined whether it is appropriate to implement this program through a rental program. It may be more appropriate to implement this measure in a traditional EE program where the customer purchased, owned, and maintained the equipment and then qualified for a credit/discount similar to the Smart Saver program.”

Duke Energy: “The Companies are committed to evaluating a customer owned program offered via an on-tariff financing offer.”</td></tr>
<tr><td>Proposal Number: 5</td><td colspan="4">Proposal Name: Manufactured Homes Energy Efficiency Retrofit and Replacement Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Manufactured homes on average use substantially more energy per square foot than other housing types, while residents frequently lack the financial resources to address problems of energy waste. This program aims to overcome barriers to affordability and dramatically increase the efficiency of Duke’s manufactured homes through improvements to existing manufactured homes, replacement of the most outdated units, and increasing the overall efficiency performance of new manufactured homes.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>14%</td><td>5%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">AARP: “AARP in general supports energy efficiency programs including for low-income customers. We would appreciate more information on this program.”
Public Staff: “It is not appropriate to use ratepayer funds for replacement of manufactured homes. The program should implement only cost-effective EE measures for low-income customers living in manufactured homes similar to other EE programs.”</td></tr>
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<tr><td></td><td colspan="4">Nicholas Institute: “The findings of the statistical analysis support a focus on mobile homes regardless of the tenure of the account holder (owner or renter).”

Rowan Helping Ministries: “This seems beyond the scope of the Duke Energies corporate responsibilities. Great idea for another organization to administer.”

Duke Energy: “Yes, the Companies are committed to evaluating this proposal although it may be cost prohibitive.”</td></tr>
<tr><td>Proposal Number: 6</td><td colspan="4">Proposal Name: Arrearage Management Pilot EE Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: This program would be intended to link energy burden, energy inefficiency, and arrearage management in a unified, encompassing program offering. Households with limited incomes typically face much higher energy burdens that the general population, and as such may be at much higher risk of not being able to pay utility bills on time – especially when they are higher than they could be due to inefficient structures, HVAC equipment, and appliances. The program assumes that most households that fall behind in paying their bills would pay them if they could. Therefore, to make paying those bills more manageable this program would identify households that have fallen behind in their bills and offer a three-part program that includes the following: 1) installation of energy efficiency measures to reduce forward-going bills, preferably through a comprehensive weatherization approach; 2) a payment plan for affordably repaying a portion of the arrearage, and; 3) if the household adheres to the payment plan, forgiveness of the remaining unpaid arrearage. The program revolves around the creation of a relationship between the utility and participating households that is less focused on collections than on working together to identify a plan to reduce the likelihood of future arrearages.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>9%</td><td>5%</td><td>19%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “It is generally not appropriate to use ratepayer funds for arrearage forgiveness; however non-ratepayer funds could be utilized for arrearage forgiveness. It may be appropriate to use ratepayer funding for arrearage forgiveness to the extent that it is revenue neutral. Duke should analyze the impact to uncollectibles and assess the actual administrative costs and late fees. This delta could flow back to offset arrearages/ uncollectibles. Such an offset would be appropriate for consideration in the next rate case. It is inappropriate for a utility to profit based on ratepayers’ inability to pay their bills. Prior to arrearage forgiveness, all other sources of funding should be sought and utilized. Arrearage metrics should be tracked to ensure that no perverse incentive to stop paying bills has been created. Access to arrearage forgiveness should limited (1-5 years).”

Rowan Helping Ministries: “We are seeing first hand payment arrangements - post moratorium - are not working for our clients. Our clients are making payment arrangements without the ability to pay. Arrangements</td></tr>
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<tr><td></td><td colspan="4">need to be made soon after an arrearage occurs and payment needs to fit the financial capacity of the customer."

Nicholas Institute: "The findings of the statistical analysis show that those with higher than the national average electric burdens were statistically significantly more likely to be in arrears and more likely to be disconnected over time."

Duke Energy: "The Companies are opening to evaluating an arrears management program in the CAP proposal that is not specific to energy efficiency program participation."</td></tr>
<tr><td>Proposal Number: 7</td><td colspan="4">Proposal Name: LI Carve-out from Market Energy Efficiency Programs</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: The extent to which income-eligible customers may participate in programs designed for the general public is a topic of discussion in many jurisdictions. It is likely true that income-eligible utility customers participate to some degree in these programs; however, this raises important questions about whether those programs serve these customers well, given that in many cases the participant is required to share in the costs of the measure, which may place additional financial burdens on the household. To ensure this would not be the case, residential general market programs can be designed with enhanced incentives for income-eligible customers.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>9%</td><td>0%</td><td>24%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: "A market study is necessary before this proposal should move forward. The participant incentive should not exceed 25% of the cost of measure."</td></tr>
<tr><td>Proposal Number: 8</td><td colspan="4">Proposal Name: Comprehensive Affordable Multifamily Energy Efficiency Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Various regulations commonly drive utility energy efficiency programs aimed towards multifamily housing to take a fragmented approach in providing services. Multifamily tenants who are income-eligible may receive no-cost efficiency measures that are applicable only to their units, such as efficient lighting, but may not be eligible for incentives or measures that are tied to the property owners' utility bills, which are commonly on commercial rates. The incentives available through standard commercial programs may not be sufficient to make efficiency measures affordable – and clearly operating costs play a key role in determining the costs of operating multifamily housing. The result is that comprehensive efficiency projects in affordable multifamily housing are unlikely to occur, thus failing to make a significant dent in the energy costs for these buildings. To overcome these obstacles, this program would provide a one-stop shop approach where a single program point of contact would work with property owners to facilitate comprehensive efficiency projects that address both in-unit (residential) and common area/common system (commercial) efficiency measures. Rather than treating the commercially</td></tr>
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	metered elements of affordable multifamily housing as a business, the program would offer enhanced incentives on the basis of the income-eligible residents, thus helping reduce the operating costs for the building as well as tenants' bills.
Notes:	**Proposal 8 combined with Proposal 18 are evaluated as Proposal 23.**
Proposal Number: 9	Proposal Name: Comprehensive Tiered Discount Bill Payment Assistance
Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)	**Summary of Program Description:** The Electric Payment Assistance Program will provide certain income-eligible residential customers with monthly payment assistance to help electric energy insecure rate payers pay their electric bill.
Notes:	**Proposal 9 combined with Proposal 22 are evaluated as Proposal 24.**
Proposal Number: 10	Proposal Name: Adopt a Comprehensive Definition of Affordability and Develop Metrics and Methodologies for Assessing and Monitoring the Relative Affordability of Electric Service
Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)	**Summary of Program Description:** Until the Low-Income Affordability Collaborative was initiated, and Duke Energy began analyzing customer data related to energy consumption and costs, income, demographics, arrearages, disconnections and other factors, very little information or data was available to understand the scale and depth of affordability challenges facing the Companies' low-income residential customers. Thanks to that analysis we now have a deeper understanding of who is impacted by those challenges as well as the socioeconomic, housing and other factors that are contributing to those challenges. However, it is critical to both have a more comprehensive definition of affordability as well as metrics that can be used to more accurately assess affordability on the household level and track changes in those metrics over time as new programs are developed and implemented. The proposed program would adopt the California Public Utilities Commission's (CPUC's) definition of affordability along with the three metrics the CPUC adopted for annually measuring and monitoring affordability. The adopted definition is as follows: "the degree to which a representative household is able to pay for an essential utility service charge, given its socioeconomic status. A "representative household," rather than households in general, recognizes that households will have a wide variety of experiences that cannot be perfectly captured by depicting a single household. "Essential utility service charge" refers to the costs borne by a representative household for the quantity of utility service required to enable a ratepayer's health, safety, and full participation in society. "Socioeconomic status" refers to the social and economic standing of a given household."
Assessment Results:	**Support** | **Support with Revisions** | **Do Not Support** | **Abstain** 67% | 9% | 5% | 19%
LIAC Member Comments:	**Public Staff:** "This proposal is not a mitigation program; it seeks to define affordability for purposes of further developing programs to mitigate conditions related to affordability."

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<tr><td></td><td colspan="4">Nicholas Institute: “The statistical analysis included predictors for many but not all of the factors proposed for the definition of affordability in Proposal 10, and generally, all were significant in predicting the likelihood of being in arrears, receiving a 24-hour notice, and disconnections (excepting home value for disconnections). This suggests complex relationships between sociodemographic, home attributes, neighborhood characteristics, and energy usage. Capturing this complexity in reported metrics over time is supported by the findings of the statistical analysis.”

Duke Energy: “The Companies support the North Carolina Utilities Commission opening an affordability docket similar to the process that the California Public Utilities Commission ordered to evaluate affordability for their regulated utilities.”</td></tr>
<tr><td>Proposal Number: 11</td><td colspan="4">Proposal Name: Prioritized Marketing and Distribution of Low-Income Funds</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: This recommendation could work in combination with or independently of recommendation LIAC PP011. Recognizing that affordability challenges and impacts are experienced more acutely by some households and communities than others, there is a need to ensure that low-income funds and other support are prioritized in a manner that has the greatest impact for those most affected and addresses, to the extent practicable, certain disparities that were exposed as a result of the Companies’ analysis. For example, the analytics show that African American households served by the Companies experience the highest rate of meeting the Companies’ arrears definition (33% of all households, compared to the average of approximately 16% for all households) as well as the highest rate of disconnections for non-pay (8% compared to 3.9%). Rental, multifamily, mobile home and low-value households experienced similar disparities. In summary, the marketing and distribution of low-income funds and programs should prioritize the customers that experience the highest rate of arrearages and disconnections for non-pay.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>76%</td><td>0%</td><td>10%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “All low-income customers should be eligible for low-income programs and initiatives. There does not appear to be an EE component tied to the assistance sought in this program.”

Nicholas Institute: “The findings of the statistical analysis provide support for prioritizing outreach to based on sociodemographic and electric burden.”

Rowan Helping Ministries: “Carving our communities for distribution of funding could negatively more rural communities/households.”</td></tr>
<tr><td>Proposal Number: 12</td><td colspan="4">Proposal Name: Required Reporting of Key Credit and Collections Data by NCUC Regulated Utilities</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as</td><td colspan="4">Summary of Program Description: The challenges posed by the COVID-19 crisis have heightened the importance of sustained, affordable access to essential home energy service for all households in NC and across the nation.</td></tr>
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<tr><td>submitted by NC Justice Center)</td><td colspan="4">Yet, there is currently only limited capacity and opportunity in NC to gain a clear, data-driven understanding of the number of households that lose access to home energy services and otherwise struggle with utility affordability and security. Without the data, home energy affordability challenges and their often-dire consequences remain invisible, and the effectiveness of utility credit and collections practices cannot be assessed. Further, development and implementation of effective programs and policies to address access and affordability challenges is thwarted by lack of data. There is a pressing need to step up utility collection and public reporting of data reflecting service disconnections and restorations, as well as other measures of home energy security.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>71%</td><td>5%</td><td>5%</td><td>19%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “These data points could provide meaningful value and may be appropriate as one of the metrics established in the next Duke rate cases.

Duke Energy: “The Companies support the reporting of aggregated data pending it meets the requirements to keep information confidential. If the NCUC approves the reporting of zip code level data, the requirements should align with a NCUC decision in the pending Rulemaking filed in Docket No. E-100, Sub 161.”</td></tr>
<tr><td>Proposal Number: 13</td><td colspan="4">Proposal Name: Minimum Bill Pilot Program</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: Historically, Duke Energy has had a two-part rate for residential customers: (1) a volumetric, or per kilowatt hour rate; and (2) a fixed, customer charge, currently set to $14.00 per month. As part of its Order establishing the Low-Income Affordability Collaborative, the Commission asked whether a minimum bill concept would be appropriate as a substitute for fixed monthly charges. To explore this minimum bill rate design, Duke Energy will offer customers who enroll in bill payment assistance programs and customers that enroll in any low-income energy efficiency or any tariffed on-bill financing program a minimum bill option. Under the minimum bill option, participating customers would owe a minimum of about $14.00 per month, regardless of usage, and the prior $14.00 customer charge would be removed from the bill and folded into the volumetric rate. This would result in an increase of about 1.27 cents/kWh, increasing the value of any energy efficiency investments and providing bill savings for all customers who use less than about 1,100 kWh/month. Any customers who consume more than 1,250 kWh/month and may face an increase in their monthly bill but are enrolled in a discount rate or bill payment assistance program would be protected from being harmed from the risk of bill increases from the incremental increase in the volumetric rate.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>62%</td><td>0%</td><td>14%</td><td>24%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “This program does not follow cost of service principles. Not a mitigation program.”</td></tr>
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<tr><td></td><td colspan="4">Dominion: “Proposal doesn’t explain how this program will be funded. Need more information on how the utility is expected to recover costs when usage that exceeds the minimum payment.”

Nicholas Institute: “The statistical analysis findings showed that households with higher winter and summer peak impact were more likely to be in arrears and receive 24-hour notifications. Those households at the highest categories of impact were also more likely to be disconnected.”

Duke Energy: “The Companies do not support the proposed minimum bill pilot. Overall, the Companies support minimum bill as a rate design tool similar to minimum bill rate design offered by Duke Energy regulated utilities in South Carolina and Florida.”</td></tr>
<tr><td>Proposal Number: 14</td><td colspan="4">Proposal Name: Voluntary Weatherization, Energy Efficiency, Urgent Repair Partnership Forum co-led by North Carolina Department of Environmental Quality and the North Carolina Utilities Commission</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: This proposal recommends the creation of a voluntary forum where leaders from NC Department of Environmental Quality (“DEQ”), the NCUC, the NC Housing Finance Agency, regulated utilities, and other stakeholders would periodically meet to coordinate the operation of respective EE, Urgent Repair, and Weatherization programs. The DEQ is responsible for administering the Weatherization Assistance Programs (“WAP”) in North Carolina. The North Carolina Housing Finance Agency runs an Urgent Repair Program. The NCUC oversees certain energy efficiency programs in NC, and some utilities maintain programs that address certain weatherization and urgent repair / health and safety dynamics for residential ratepayers. The goal of the Forum would be to create new ways that operators of these respective programs could meet the needs of low-income residential customers through better coordination of program design, administration, and implementation.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>81%</td><td>5%</td><td>5%</td><td>9%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Public Staff: “This proposal would duplicate initiatives of the State Energy Office and thus is unnecessary.”</td></tr>
<tr><td>Proposal Number: 15</td><td colspan="4">Proposal Name: Revisions to the Duke Energy Winter Moratorium</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)</td><td colspan="4">Summary of Program Description: During part of the COVID pandemic, and to the credit of the NCUC, the Public Staff, the NC Attorney General, and Duke Energy, what is commonly known as the Duke Energy Winter Moratorium (“WM”) was expanded to include LIEAP, CIP, and NC Hope recipients. The modified WM covered three of Duke’s Companies; Duke DEC, Duke DEP, and Piedmont Natural Gas and covered 114,000 residential accounts. This proposal would permanently alter the Winter Moratorium by adding the following provisions: 1) Automatically enroll CIP and LIEAP recipients in the moratorium. 2) A moratorium against disconnections would be provided to eligible customers provided arrearages remain below $550. 3) An automatic CIP assistance referral would be triggered when arrears reach</td></tr>
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<tr><td></td><td colspan="4">$550. 4) A 24-month repayment plan for any arrearage balances that remain upon the conclusion of the moratorium with a provision allowing for 2 missed payments per year during the repayment period.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>67%</td><td>8%</td><td>10%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Crisis Assistance Ministry: “Automatically enrolling customers should be done with caution. If a family cannot keep up with their payment, stopping the disconnection automatically doesn't make it any easier for them to afford electricity of course. Alternatives are -- work with the person to pay as much as they can each month to minimize debt build up, encourage them to apply for all the available funds so as not to lose them, help the person realize they can't afford to stay where they are and help them move in with a family member, friend or in some cases a shelter can be their best option (some approaches we consider at Crisis Assistance Ministry.) Each of these could be more empowering than encouraging a person to continue amassing debt, even if there are 24 months to pay it off or inadvertently encouraging them not to seek available winter aid. If we go this route we should send a notice that they will not be disconnected in certain temperatures but clearly stating that not only is the bill accumulating but that there are places to call for housing counseling to explore alternative options (including budget counseling if applicable) or financial assistance.”

Public Staff: “This would be best suited as a pilot program, specific – at least initially – to the winter season only. The Commission should consider expanding any potential pilot to all IOUs and LDCs.”

Rowan Helping Ministries: “Our observation is that the COVID moratorium did nothing to help our clients but saddled them with higher bills and payment arrangements they could not manage once the bills came due. It created a debt tsunami.” –

Duke Energy: “The Companies support enrolling LIEAP and CIP recipients in a Winter Moratorium that aligns with the timeframe detailed in NCUC Rule 12-11 from November 1 – March 31. LIEAP and CIP recipients would be automatically enrolled in a 6-month payment arrangement at the end of the moratorium. The Companies do not support a summer moratorium or automated referral for arrears greater than $550. The Company will request to seek cost recover of any debts that result to uncollectible charges; similar to the existing process to collect uncollectible charges. The enrollment of LIEAP and CIP in a Winter Moratorium is dependent up receiving the required information from the NCDHHS.”</td></tr>
<tr><td>Proposal Number: 16</td><td colspan="4">Proposal Name: NCUC Rulemaking to Re-examine the Effectiveness of the Regulatory Consumer Protection Structure</td></tr>
<tr><td>Submitter: Al Ripley, Multi-Stakeholder Program Proposals (as</td><td colspan="4">Summary of Program Description: In light of the sweeping economic and technological transformation of the electric power sector, and with the prospect of dramatically increased reliance on electricity service in the face of electrification and decarbonization efforts, low-income and historically</td></tr>
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<table>
<tr><td>submitted by NC Justice Center)</td><td colspan="4">disadvantaged households and communities are particularly reliant upon effective utility consumer protections. However, many of the existing state consumer protection frameworks are no longer effective in providing consumers with reasonable security from loss of vital service. Today's energy price levels and critical importance of service may not have been contemplated when original regulations were adopted decades ago. As evidenced LIAC assessments of residential customer involuntary service disconnections, existing North Carolina consumer protections have proven inadequate to provide an acceptable level of household energy security and uninterrupted access to vital service. Meantime, the necessity of electricity service is increasing for a wider range of purposes — school, work, building end uses, and transportation. When consumer protections are inadequate and energy security is compromised, the protections for low-income households actually work counter to the goals and objectives of federal and state payment assistance and energy efficiency programs. For example, when a state LIHEAP office scrambles to cobble together the resources necessary to keep a client from losing utility service, those efforts may be undermined by an unreasonable payment plan or onerous security deposit and late payment fee provisions. What is needed now is a reexamination of existing utility consumer protections to ensure that vulnerable customers who demonstrate good faith efforts to make affordable utility payments are protected from loss or degradation of service.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>81%</td><td>5%</td><td>0%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Duke Energy: "The Companies support the review of the existing regulatory consumer protections detailed in NCUC Rule R12-11. If the output of the review requires technical system changes, the Companies request the required timeframe to update impacted systems which could be 12 months. In addition, the Companies will seek cost recovery of costs associated with required technical system changes and costs incurred as a result of any policy/rule changes."</td></tr>
<tr><td>Proposal Number: 17</td><td colspan="4">Proposal Name: Help My House Model (based on South Carolina program)</td></tr>
<tr><td>Submitter: Christina Cress, Bailey & Dixon, LLP</td><td colspan="4">Summary of Program Description: "The results of the 'Help My House' pilot [in South Carolina] were extremely positive. Billing data on the 125 participating homes indicates a 34 percent reduction in energy use (1.35 million kWh) in the year after the energy efficiency improvements were completed, an average savings of $288 per home after loan payments."</td></tr>
<tr><td>Notes:</td><td colspan="4">Proposal 17 redirected to the Tariff Working Group[55] to align with Duke Energy's On-Tariff Bill offer under consideration.</td></tr>
<tr><td>Proposal Number: 18</td><td colspan="4">Proposal Name: Smart $aver Low-income Multi-Family Retrofit</td></tr>
</table>

[55] Insert Description of the Tariff Working Group effort in comparison to the settlement in the prior DEC rate case settlement or HB951 requirement

<table>
<tr><td>Submitter: Christina Cress, Bailey & Dixon, LLP</td><td colspan="4">Summary of Program Description: Smart $aver LIMP projects would involve efficiency upgrades for buildings with currently high energy consumption, specifically for lighting, appliances, weatherization, heating systems, controls, domestic hot water, and HVAC/mechanical systems. Eligible measures under the LIMRP would be directly installed at no charge to the low-income customer, and would include: (1) comprehensive energy assessment, including customer education; (2) weatherization, including wall, attic, floor, and pipe and duct insulation, as well as air sealing (caulking, weather stripping, door and window hardware, window parting beads and stops); (3) programmable thermostats; (4) blower door analysis; (5) heating system tune-up, repair, and replacement; (6) low-flow showerheads and faucet aerators; (7) minor building repairs, including glass replacement and adjustment of window meeting rails; (8) replacement of inefficient appliances, including refrigerators and clothes washers; (9) installation of compact fluorescent lamps (“CFLs”) and LEDs; (10) health and safety measures such as wire inspection, ventilation, and the DOE lead-free protocol; and (11) multi-family-building-specific measures, such as common area lighting fixtures, HVAC motors and controls and heating systems.</td></tr>
<tr><td>Notes:</td><td colspan="4">Proposal 18 combined with Proposal 8 and evaluated as Proposal 23.</td></tr>
<tr><td>Proposal Number: 19</td><td colspan="4">Proposal Name: The NC Healthy Homes Initiative (“NC HHI”)</td></tr>
<tr><td>Submitter: Detrick Clark, The North Carolina Community Action Association</td><td colspan="4">Summary of Program Description: One of the by-products of weatherization programs is the positive impact on health, as outlined in the CDC’s HI-5 (Health Impact Interventions in 5 years). But unfortunately, some repairs are ineligible for NC WAP and DEC WX funding, leaving important health-related concerns untouched. The NC Healthy Homes Initiative will provide families with home repairs that are crucial to improving their overall health. Considering most Americans spend nearly 60 percent (pre-COVID) of their time in their homes, the condition of their homes has a significant impact on their health and overall quality of life. As a result, the condition of one's home plays a vital role in our health. Poor quality and inadequate housing contribute to health problems such as chronic diseases and injuries and can have harmful effects on childhood development. Unfortunately, many of North Carolina's families cannot afford the repairs and home safety updates necessary to protect their physical and mental health. The NC HHI will help fill these gaps by providing funding to North Carolina’s most underserved communities to make those additional, health-centered, repairs for families to increase overall health outcomes.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>48%</td><td>29%</td><td>9%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Southern Environmental Law Center: “This is a critically needed program and builds on NCCAA's experience with the BC/BS grant for the Healthy Homes Initiative and the Duke Healthy Home Fund. But it is not clear from the proposal where the funds would come from for this NC HHI. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, healthcare related funds or other government programs could support</td></tr>
</table>

	an initiative like this to improve the health and safety of homes and make them ready for EE upgrades." **AARP:** "This program should be funded first with DOE weatherization funds and LIHEAP." **Public Staff:** "The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." **Dominion:** "Scope is focused on healthier home initiative vs removing energy burden via EE initiatives." **North Carolina Justice Center:** "This is a critically needed program and builds on NCCAA's valuable experience with the BC/BS grant for the Healthy Homes Initiative and the Duke Helping Home Fund. But it is not clear from the proposal where the funds would come from for this NC HHI. Ratepayer funds have historically been limited for energy efficiency related upgrades. Ideally, healthcare funds could be identified to support an initiative like this to improve the health and safety of homes, which would have the added benefit of making them ready for EE upgrades." **North Carolina Sustainable Energy Association** - "We support the intent of the program but think there needs to be more discussion about where the funding for this program comes from since that does not seem to have been defined in this proposal." **Southern Alliance for Clean Energy:** We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources." **Duke Energy:** "The Companies do not support this proposal as it doesn't have a specific time to the scope of identifying opportunities to address affordability for low-income customers."
Proposal Number: 20	Proposal Name: The Duke Energy Progress Weatherization Program (DEP WX)
Submitter: Detrick Clark, The North Carolina Community Action Association	**Summary of Program Description:** The Duke Energy Progress Weatherization Program (DEP WX) is a robust weatherization program designed to assist DEP income-qualified customers by directly installing energy-efficient measures and providing education on energy efficiency. Like the Helping Home Fund, Healthy Home Initiative, and the DEC WX program, the DEP WX Program would lean on the collaboration and expertise of the NCCAA, and its dedicated weatherization service providers network for implementation. If expanded, funds will be distributed to participating Service Providers involved in assisting income-qualified

<table>
<tr><td></td><td colspan="4">customers with energy efficiency. The DEP WX program would function as a rebate program.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>52%</td><td>29%</td><td>0%</td><td>19%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Southern Environmental Law Center: “For the same reasons that we support LIAC Program Proposal Number 2, which calls for a DEP Weatherization Program modeled after the DEC Weatherization Program, we also support the substance of this Proposal (No. 20). Even though NCCAA has unmatched experience administering this kind of program (as it does the DEC Weatherization Program, Helping Home Fund, and HHI), it is our understanding that Duke Energy would need to go through an RFP process to identify the program administrator and that it may be premature to assign that role to NCCAA at this time.”

Crisis Assistance Ministry: “This is not a suggested revision, it's a comment overall on this as well as the other weatherization related proposal/s all of which we do support. It's also somewhat similar to the concept in #23. We operate in a space at Crisis Assistance Ministry where over 15,000 renting households annually need help with utilities and/or rent (often times it's rent one month and utilities the next month when juggling on a limited income.) Less than 1% are homeowners. Weatherization solutions that are more equitability available for low-income families would include more options for rental housing. In the vast majority of apartment complexes there is income segregation (apartments class A, B, C corresponds to income.) Could we work with landlords running low-income apartment complexes as the target of weatherization outreach? Certainly, many are owned from out of state vendors or equity funds but still there are thousands of complexes owned by local "mom and pop" landlords who could help 200-300 families at one time if they are given an opportunity to receive help weatherizing their units.”

AARP: “This program should be funded first with DOE weatherization funds and LIHEAP.”

Public Staff: “The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service.”

Nicholas Institute: “In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via weatherization.”

North Carolina Justice Center: “For the same reasons that we support LIAC Program Proposal Number 2, which calls for a DEP Weatherization Program modeled after the DEC Weatherization Program, we also support the substance of this Proposal (No. 20). Even though NCCAA has unmatched experience administering this kind of program (as it does the DEC</td></tr>
</table>

<table>
<tr><td></td><td colspan="4">Weatherization Program, Helping Home Fund, and HHI), it is our understanding that Duke Energy would need to go through an RFP process to identify the program administrator and that it may be premature to assign that role to NCCAA at this time."

Duke Energy: "The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks."</td></tr>
<tr><td>Notes:</td><td colspan="4">On June 13, 2022, in Docket No. E-2, Sub 1299, DEP filed its Proposed Residential Income-Qualified Energy Efficiency and Weatherization Program. The proposed filing is similar to Proposal 20.</td></tr>
<tr><td>Proposal Number: 21</td><td colspan="4">Proposal Name: NC Low-Income Energy Major Home Repair Program</td></tr>
<tr><td>Submitter: Detrick Clark, The North Carolina Community Action Association</td><td colspan="4">Summary of Program Description: The NC Low-Income Energy Major Home Repair Program is a preweatherization deferral assistance program designed to help DEP and DEC program eligible families with costly home repairs and other health and safety issues that have previously prevented them from receiving assistance from weatherization assistance program service providers. Annually, hundreds of families are added to the NCWAP deferral list because their homes were deemed fiscally and physically inadequate. Since 2018, over 1,100 low-income families have been placed on the NC Weatherization Assistance Program deferral list because the condition of their homes rendered the delivery of weatherization services either unsafe or ineffective. Because the NCWAP program prioritizes families with children and those that are either elderly, disabled or high-energy users, deferrals present an additional hardship for these families who are already struggling to simply make ends meet.</td></tr>
<tr><td rowspan="2">Assessment Results:</td><td>Support</td><td>Support with Revisions</td><td>Do Not Support</td><td>Abstain</td></tr>
<tr><td>52%</td><td>29%</td><td>5%</td><td>14%</td></tr>
<tr><td>LIAC Member Comments:</td><td colspan="4">Southern Environmental Law Center: "As we said with respect to No. 19, this is a critically needed program and builds on NCCAA's valuable experiences. But it is not clear from the proposal where the funds would come from for this Major Home Repair program. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, federal or state funds could support an initiative like this to provide the repairs necessary to make them ready for EE upgrades."

AARP: "We support DOE or infrastructure funds from the Federal government be used for a pilot program."

Public Staff: "The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service."

Nicholas Institute: "In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use and this proposal would facilitate that</td></tr>
</table>

<table>
<tr><td></td><td>process by providing for repairs and reducing deferrals from weatherization assistance."

North Carolina Justice Center: "As we said with respect to No. 19, this is a critically needed program and builds on NCCAA's valuable experiences. But it is not clear from the proposal where the funds would come from for this Major Home Repair program. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, federal or state funds could support an initiative like this to provide the repairs necessary to make them ready for EE upgrades."

North Carolina Sustainable Energy Association: "Similar to our response to proposal 19, we support the program but are interested in more discussion about how to fund it since that does not seem to have been defined."

Southern Alliance for Clean Energy (SACE): "We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes, but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources."

Duke Energy: "The Companies do not support this proposal as it doesn't provide a specific time to the scope of identifying opportunities to address affordability for low-income customers."</td></tr>
<tr><td>Proposal Number: 22</td><td>Proposal Name: Customer Affordability Program ("CAP")</td></tr>
<tr><td>Submitter: Brad Harris, Duke Energy</td><td>Summary of Program Description: CAP is a monthly credit applied directly to the customer's bill. The customer would receive the credit for 12 months. Eligible customers would be automatically enrolled in the program via a list given to the Companies from eligible state agencies that are already qualifying people for government assistance programs. Customers would be eligible for CAP for a predetermined amount of time and will require recertification after this timeframe from a CAP participating organization.</td></tr>
<tr><td>Notes:</td><td>Proposal 22 combined with Proposal 9 are evaluated as Proposal 24.</td></tr>
<tr><td>Proposal Number: 23</td><td>Proposal Name: Smart $aver Low-income Multi-Family Retrofit Program ("Smart $aver LIMP")</td></tr>
<tr><td>Submitter: Christina Cress, Bailey & Dixon, LLP with NCJC and other Stakeholders</td><td>Summary of Program Description: Smart $aver LIMP projects would involve efficiency upgrades for buildings with currently high energy consumption, specifically for lighting, appliances, weatherization, heating systems, controls, domestic hot water, and HVAC/mechanical systems.</td></tr>
<tr><td>Assessment Results:</td><td><table>
<tr><th>Support</th><th>Support with Revisions</th><th>Do Not Support</th><th>Abstain</th></tr>
<tr><td>62%</td><td>19%</td><td>0%</td><td>19%</td></tr>
</table></td></tr>
<tr><td>LIAC Member Comments:</td><td>AARP: "We support DOE or infrastructure funds from the Federal government be used for a pilot program."</td></tr>
</table>

	Public Staff: "Ratepayer funds could only be used only for the EE components; non-ratepayer funds could be leverage for non-EE components of this proposal." **Rowan Helping Ministries:** "The utility should not be administering the program or leveraging funds. Seems like this should fall under a community action agency or non-profit." **Nicholas Institute:** "The findings of the statistical analysis support focusing on reducing energy consumption in multi-family housing, particularly multi-family rental housing." **Duke Energy:** "The low-income multifamily segment of the Duke Energy customer base is an area of opportunity to assist the income-qualified tenants. Duke has been working with a group of interested stakeholders on a investigating a low-income multifamily pilot program and thru that work has identified challenges including, but not limited to the following: • These income qualified customers maybe receiving overlapping efficiency measures through the Neighborhood Energy Saver Program • There is an existing direct install multifamily program in the Duke Energy program portfolio that can serve all customers, so there is potential confusion for this program. Are these programs related or operated separately while serving the same multifamily dwellings? • There isn't an intake process for determining low-income eligibility directly through Duke Energy right now. The information is sensitive and time constrained. Is the intent to use other low-income entities to determine eligibility? • The weatherization agencies also can serve this segment of the population, what is the best way to coordinate services between the programs? • This program seems to be targeted and reported through the tenant meter, since the property owner must agree to the upgrades, what is the proposed coordination with tenant and property owner? • Does the landlord or property owner have to agree not increase rent for some period of time? • How will energy savings be captured when the measure might include shared space like attic insulation? • Is fully up to Duke Energy to determine the best method, process and cost to implement the upgrades? Would Duke be expected to submit or assist with grant applications? At what point would the NCUC evaluate the program for best practices by project or at/after EM&V?"
Notes:	**Proposal 23 reflects the combination of Proposal 8 and Proposal 18.**
Proposal Number: 24	Proposal Name: Customer Affordability Program ("CAP")
Submitter: Joint proposal from multiple stakeholders merging Program Proposal # 9 with # 22	**Summary of Program Description:** CAP is a monthly credit applied directly to the qualified customer's bill. Eligible customers would be automatically enrolled in the program via a list given to the Companies from eligible state agencies that are already qualifying people for government assistance programs. Customers would be eligible for CAP for a predetermined amount of time and will require recertification after this timeframe. The CAP program will strive to develop a process so that customers can be automatically recertified.

Assessment Results:	**Support**	**Support with Revisions**	**Do Not Support**	**Abstain**
	62%	24%	5%	9%
LIAC Member Comments:	**AARP:** "AARP supports such comprehensive and coordinated measures to help low-income customers pay their bills and supports the idea conceptually. We especially like the auto enrollment feature. We are interested to ensure that the program can be readily understood by consumers and can be administered without undue complexity. We would like more information on the complexities created by having three different benefit tiers. A pilot program should be used to test the viability of this new idea." **Public Staff:** "This program is supported to the extent that it is based upon cost of service principles. Participation in applicable EE programs should be required instead of 'highly suggested.'" **North Carolina Dept of Health and Human Services:** "In regards to the Tiered approach, DHHS does not currently capture the data necessary to determine the FPL levels discussed in this proposal. For CIP, LIEAP, LIHWAP, SNAP, and Medicaid, a recipient's income eligibility is determined by whether they fall under a certain FPL but what percentage they fall into is not recorded. This could potentially change in the future; however, due to the amount of work that is ongoing with our NC FAST team on making changes to our system that take priority, it is unclear as to when our team would have availability to make these upgrades to capture this data." **Carolina Industrial Groups for Fair Utility Rates (CIGFUR):** "Violates cost-causation principles to recover costs from all classes of customers. Costs should be contained to residential class of customers. This proposed interclass cross-subsidization is not consistent with existing NC law, in particular H951." **Nicholas Institute:** "The results of the analysis support efforts that would reduce electric burden for households." **Rowan Helping Ministries:** "Requirement for participants in program to have an energy efficiency audit to identify ways to reduce energy consumption. Recertification would take into consideration the customers implementation of energy efficiency recommendations and/or use of the free weatherization services."			
Notes:	**Proposal 24 reflects the combination of Proposal 9 and Proposal 22.**			

A. Duke Energy Perspective

Affordability Ecosystem

Duke Energy recognizes that multiple solutions are necessary to address energy affordability challenges for low-income customers ("Affordability Ecosystem"). The

Affordability Ecosystem is a multipronged approach to address affordability challenges that are both short-term (arrears and DNP) and long-term (electric energy burden and energy intensity) by connecting eligible customers with current and future products and services. The LIAC discussions highlighted the opportunity for in-bound requests from low-income customers to receive information about Duke Energy and third-party offerings designed to address affordability challenges. Duke Energy is committed to addressing energy affordability challenges by providing products and services that complement the affordability ecosystem. The products and services include bill payment assistance, energy efficiency offerings with a focus on weatherization, and equipping our customers service team with information to proactively educate low-income customers about opportunities to address affordability challenges.

Fourteen of the twenty-two proposals recommended by LIAC were related to expanding energy efficiency programs and offerings to income qualified customers. These proposals suggest the LIAC's acknowledgment that energy efficiency and bill pay assistance are necessary to address affordability challenges experienced by low-income customers.

Proposals 1, 2, 3, 4, 5, 7, 11, 20, and 23

During the Joint Collaborative Meeting in LIAC Workshop V, LIAC members were informed about the work underway to file a DEP weatherization program that would apply learnings from WPERP and a DEC pilot designed to target income-qualified high electric energy usage residences. On June 13, 2022, in Docket No. E-2, Sub 1299, DEP filed its Proposed Residential Income-Qualified Energy Efficiency and Weatherization Program. The proposed filing is similar to Proposals 2 and 20. Additionally, on June 30,

2022, in Docket No. E-7, Sub 1272, DEC filed its Proposed Residential Income-Qualified High-Energy Use Pilot. This proposed pilot is the product of the settlement approved Docket No. E-7, Sub 1214 issued on March 31, 2021. This filing is similar to the Proposal Number 3 detailed above. The assessment of these three proposals received a majority of consensus with support and support with revisions. Comments recently filed in in Docket No. E-2, Sub 1299 on behalf of LIAC members, North Carolina Justice Center, North Carolina Housing Coalition, Southern Alliance for Clean Energy and Southern Environmental Law Center applaud DEP and expressing their strong support for the DEP Proposed Residential Income-Qualified Energy Efficiency Weatherization Program.[56]

Similar to the process to evaluate the recently filed energy efficiency programs described above, Duke Energy will discuss the energy efficiency related proposals[57] with members of the EE/DSM Collaborative by year-end and file an update on the proposal status in the next EE/DSM annual filings. Duke Energy recognizes the difference or "gap" in both energy savings and program spending for energy efficiency offered in DEC and DEP. There are a number of factors that lead to this outcome including, but not limited to, the difference in the number of eligible customers and programs offered. As Duke Energy continues to identify opportunities to offer additional energy efficiency programs and work toward increasing participation, there is a likelihood that the gap will be reduced.

Proposal 6

While Duke Energy recognizes that participation in energy efficiency programs supports reducing a customer's energy burden and energy intensity, the requirement to participate in a program may be outside of the customer's control. For example, if a

[56] ViewFile.aspx (ncuc.gov).
[57] LIAC Proposals 4, 5, 7, 11, and 23 detailed in Appendix G.

customer is renting their residence, the property owner must provide authorization. Duke Energy is open to evaluating an arrears management that is not specific to energy efficiency program participation as discussed further in Proposal 24.

Proposal 10

As previously discussed in Section IV of the Final Report, Duke Energy supports a Comprehensive Study to evaluate affordability challenges and solutions for North Carolina's low-income customers. If a Comprehensive Study is ordered by the Commission, Duke Energy believes the LIAC's research will be helpful in forming the scope which may include a state-wide definition of affordability and metrics. As described earlier in the Final Report, the scope of researching affordability by the CPUC and PPCU varied. Although the affordability challenges experienced by low-income customers may be similar across jurisdictions, the dynamics of each jurisdiction vary. For this reason, Duke Energy does not support adopting the CPUC's definition of affordability and metrics.

Proposal 12

If the Commission approves Proposal 12, the reporting requirements should align with the Commission's decision in the pending Rulemaking filed in Docket No. E-100, Sub 161.

Proposal 13

The Companies do not support the proposed minimum bill pilot. Overall, the Companies support minimum bill as a rate design tool similar to minimum bill rate design offered by Duke Energy regulated utilities in South Carolina and Florida.

Proposal 14

Duke Energy supports Proposal 14 and recognizes the scope of the forum may expand to include areas beyond electric energy affordability. Duke Energy's participation will allow for policy discussions and input to address electric energy affordability challenges and opportunities to collectively assist more income-qualified customers.

Proposal 15

On February 11, 2021, Duke Energy notified the Commission of plans to broaden the winter disconnection moratorium for some of the most vulnerable members of our communities by expanding eligibility to include LIEAP and CIP recipients. Duke Energy voluntarily extended the winter moratorium three additional times through March 31, 2022. This change removed the potential for a disconnection of service for non-payment for the timeframe of the winter moratorium, provided additional time to access LIEAP and other assistance funds, and allow a transition to manageable payments for remaining balances at the end of the winter heating season. Duke Energy worked with NCDHHS to identify the North Carolina customers that currently receive, or received during the 2019-2020 winter season, assistance through LIEAP or CIP. Both programs are components of the federal Low-Income Home Energy Assistance Program.

Under normal circumstances and pursuant to the Disconnection Rule, Duke Energy's residential customers in North Carolina may qualify for a disconnection moratorium from November 1 to March 31 if they are (1) certified by the local social service office which administers the Energy Crisis Assistance Program or other similar programs as being eligible to receive assistance under such programs (e.g., LIEAP-eligible), (2) suffering financial hardship that prevents them from being able to afford their bills or a 6-month payment arrangement, and (3) have a household member who is

handicapped and/or elderly (65 or older) or both. Duke Energy acknowledges the benefits of extending the moratorium to LIEAP and CIP recipients to prevent involuntary interruption for electric service and the opportunity to seek LIEAP and CIP bill pay assistance. Duke Energy supports expanding the winter moratorium to include LIEAP and CIP recipients that aligns with the timeframe detailed in the Disconnection Rule and automatically enrolling moratorium participants in a six-month payment arrangement at the end of the moratorium timeframe. The analytics data supports that LIEAP/CIP customer bills are higher in the winter months in comparison to non-low-income customers. The winter moratorium timeframe aligns with the current timeframe that LIEAP assistance is available for eligible customers (dependent upon heating source). Duke Energy does not support automatic referral for participation in the moratorium for accounts with an arrears greater than $500 nor expanding the moratorium to include the summer months. If there is a broader decision to permanently expand winter moratorium eligibility, Duke Energy may be required to implement technical changes. The expansion of a winter moratorium eligibility requirements could result in increased uncollectibles that will be requested via cost recovery. The enrollment of LIEAP/CIP in the moratorium is dependent upon an approved agreement with NCDHHS. Duke Energy recommends the Commission evaluate expanding eligibility of winter moratorium in a review of the disconnect rules as detailed in Proposal 16.

Proposal 16

Duke Energy supports the Commission initiating a rulemaking docket to review the existing regulatory consumer protections detailed in NCUC Rule R12-11.

Proposals 19 and 21

Duke Energy does not support these programs because they are outside the scope of addressing specific electric energy affordability opportunities for low income-customers.

Proposal 24

Due to the similarities of Proposals 9 and 22, the submitters agreed to combine the proposals for assessment purposes by LIAC members and rename it as Proposal 24. Proposal 24 details a submission for an arrears management and bill payment assistance program for eligible customers referred to as the Customer Assistance Program ("CAP").[58] The proposed program would assist low-income customers who are experiencing electric energy affordability challenges. The design of CAP applies feedback shared by stakeholders such as autoenrollment, ease of implementation, and low program administration costs which would be no more than 5% of the value of the program costs after the initial year.

Duke Energy will work with NCWAP to implement a referral program for CAP recipients to apply for weatherization services and eligible equipment upgrades such as those offered in WPERP. These efforts support the Affordability Ecosystem by addressing short-term and long-term affordability challenges.

As detailed in the LIAC analytics, compared to non-low-income households, LIEAP/CIP recipient households experience an energy intensity that is 100% higher in the winter and approximately 40% higher in the summer. The average electric energy burden for Duke Energy households is 3.5% compared to over 8% for LIEAP and CIP

[58] As discussed in Footnote 28 in Section III.A.1, the proposed discount bill discount program was referred to as the Customer *Affordability* Program throughout the LIAC and in the Companies' Proposal 24 but was recently renamed as the Customer *Assistance* Program.

households[59]. 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

efficiency programs, or (2) bill assistance, which is usually for a short term, or through low-income rates. Energy efficiency reduces energy consumption and thus should lower bills over the long-term.[61] Low-income qualified energy efficiency programs, which are typically not cost effective, should be designed such that costs in excess of benefits are minimized to the greatest extent possible, as determined by a thorough EM&V process. Any bill assistance or low-income rates should include participation in the full suite of low-income energy efficiency programs available as applicable to the individual customer's circumstances.

The Public Staff reviewed each proposal submitted by LIAC members as a standalone submission. While supportive of many of the proposals, none of the proposals were accompanied by estimates of the costs, benefits, cost-effectiveness, participation, rate impact, and other variables that would be necessary to appropriately evaluate each proposal. Such an exercise would typically occur when Duke files a program for Commission approval. Only with this and other pertinent information could the Public Staff make a final determination as to whether it supports a specific proposal. Further, if all or several of the proposals developed by the LIAC are filed for approval with the Commission, the combined rate impact of all the programs on customers should be considered.

IX. Conclusion

Duke Energy and the Public Staff appreciate the Commission's dedication to explore and address affordability challenges for low-income customers. The Final Report reflects the comprehensive and thorough work completed by the LIAC to support those

[61] Bills may increase if increases in customer usage, base rates, or riders offset the energy efficiency savings.

efforts. Although the Final Report marks a significant milestone in addressing affordability concerns, Duke Energy and the Public Staff recognize that, as detailed in the report, additional work remains through partnerships with external facing organizations to help mitigate the challenges faced by low-income customers.

APPENDIX A – LIAC

2/21/22 COMMISSION BRIEFING PRESENTATION

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

Guidehouse

North Carolina

Low Income Affordability Collaborative

North Carolina Utilities Commission Briefing

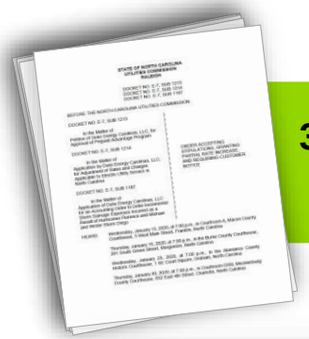
February 21, 2022

Convened by

DUKE ENERGY.

Public Staff
North Carolina Utilities Commission

Low Income Affordability Collaborative (LIAC) Approach



38 distinct tasks for the LIAC in the Commission order

Low Income Affordability Collaborative (LIAC)

SUB-TEAM A Customer Challenges	SUB-TEAM B Affordability Metrics	SUB-TEAM C Rates & Programs	SUB-TEAM D Collaborative Coordination
exploring customer energy affordability challenges	*benchmarking definitions of and metrics used for defining "affordability"*	*investigating current assistance programs, rate designs, cost impacts*	*engaging the EE and CRD Collaboratives; proposing consensus and prioritization rules*

LIAC Program Proposal process

DUKE ENERGY. Public Staff North Carolina Utilities Commission

Joint Final Report

- Outlines the feedback and recommendations obtained from LIAC
- Documents program proposals for near-term and longer-term fully costed out programs categorized by:
  - ► programs/rate designs layered on top of rate plans
  - ► programs not requiring rate design changes (needing separate proceeding)
  - ► programs requiring rate design changes (to be considered in next general rate case)

Stakeholder work is conducted through subteams. Key subteam outputs are posed to the LIAC for endorsement.

	Subteam A	Subteam B	Subteam C	Subteam D
Subteam Tasks	**Assess Customer Challenges:** Assess current energy affordability challenges facing residential customers	**Develop Affordability Metrics:** Develop suggested metrics or definitions for "affordability" and explore trends in affordability	**Investigate Existing Rates & Programs:** Investigate the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability	**Drive Collaborative Coordination:** Coordinate between the affordability collaborative and the comprehensive rate review and energy efficiency stakeholder groups
Co-Leads	**Rory McIlmoil** Appalachian Voices **Arnie Richardson** Duke Energy	**Conitsha Barnes** Duke Energy **La'Meshia Whittington** Advance Carolina	**Detrick Clark** NC Community Action Association **Ken Szymanski** Apartment Association of NC	**Thad Culley** Sunrun **Paula Hemmer** NC DEQ State Weatherization
Teams	20 LIAC members 12 LIAC organizations	19 LIAC members 9 LIAC organizations	23 LIAC members 12 LIAC organizations	15 LIAC members 10 LIAC organizations

LIAC consists for **33 organizations** and approximately **50 active participants**

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Sub-Team A Update

Prepare an assessment of current affordability challenges facing residential customers.

Task	Activities Completed
Analysis of demographics of residential customers	• Assessed demographics by race, age, income, housing type, heating source, family size, housing value, location
Household income-based estimations	• Segmented by household income for DEC, DEP, total
Analysis of trends and patterns	• Analyzed billing data and arrears by average energy usage, average bill, past due amounts, disconnect non-pay, energy intensity, and seasonal impacts across all demographics
On-going Analytics (in-progress)	• Identified additional areas to analyze including DNP notifications, electric burden, mobile homes • Developing statistical models to enhance the descriptive analytics
Assessment of Affordability Challenges	• Developed and socialized initial findings related to customer challenges • Awaiting final LIAC endorsement

Preview of Initial Findings

- 2% of customers are LIEAP/CIP customers, 15% of customers are estimated to be below 150% FPL, with another 11% between 150% and 200% FPL (28% total)
- Significant number of customers meet the "arrears definition"[1]
- Energy intensity (kWh/square foot) is a driving factor
- Seasonal energy intensity drives higher bills in the winter
- Racial disparities in arrears and disconnects for non-pay[2]

[1] *Arrears* is defined as two months spent at two times (2x) the average bill overdue *or* six months spent at one times (1x) the average bill overdue

[2] DEC/DEP applies NC Rule 12-11 consistently regardless of racial status

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Progress To Date

Develop suggested metrics or definition for "affordability" and explore trends in affordability

Task	Activities Completed
Definition and application of "affordability" in other jurisdictions	• Analyzed existing programs and metrics used across other jurisdictions Identified existing utility and state programs designed to address affordability
Trends in affordability	• Engaged subject matter experts to brief subteam • Defined questions to be answered and conducted jurisdictional research
Criteria for determining affordability program eligibility	• Investigating affordability criteria used by state or utility programs to identify program administration alignment opportunities • Compiling findings into matrix for LIAC review
Suggested affordability metrics	• Currently exploring metrics for existing utility or state programs designed to address affordability
Documentation of findings underway and e*xpect to brief LIAC on affordability trends in March*	

Progress To Date

Investigating existing customer offerings and practices, in addressing affordability

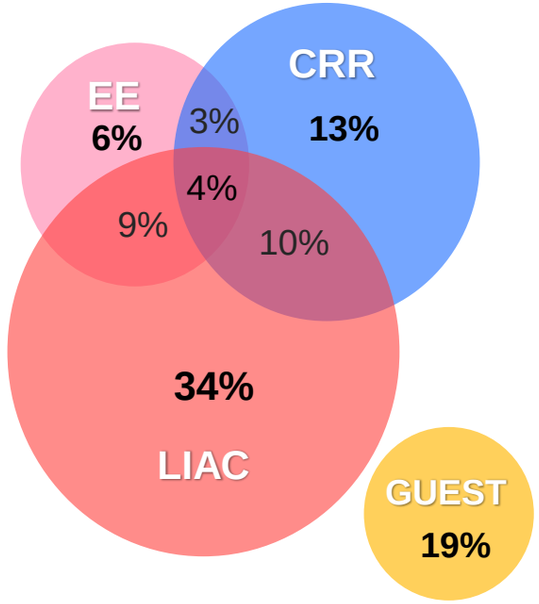
Task (Assessments)	Activities Completed
Income qualified program insights	• Overviewed existing income-qualified offerings − DEC/DEP EE programs (weatherization programs and pilots, Refrigerator Replacement, and Neighborhood Energy Saver program) − Assistance program (Share the Light) − Helping Home Fund Program • Compiled program-specific participation data requested by Commission
Affordability program effects on cost causation and allowance of cost among classes	• Overviewed rate design concepts including cost of service, cost causation and cost allowances
Appropriateness of implementation of specific rates (min bill, income-based rates, SSI-based rates, segmentation)	• Engaged rate design SMEs to provide rate design concept overview for subteam members and support associated analyses related to minimum bill vs fixed charge and segmentation by class • Overviewed income-based rates and discount programs, including: − DEC SSI discount program − Virginia's Proposed Percent of Income Payment Plan
Customer program proposals and recommendations	• Reviewed existing programs for subteam awareness; program proposal process developed, and proposals solicited (proposals requested no later than March)

Key Subteam D Tasks

Consider ongoing work of the EE and CRR Collaboratives

Task	Activities Completed
Discussion of key areas of concern via Joint Meeting	• Held joint meeting of three collaboratives on 2/26; 147 participating, • Hosted four concurrent breakout sessions to discuss areas of intersection, gaps and opportunities
Consideration of ongoing EE and CRR Collaborative work	• Identified cross-collaborative participants and designated Utility, Public Staff and community/industry cross-collaborative liaisons • Standing agenda item added to regular LIAC sessions for sharing EE/DSM and CRR updates
Access to interim material produced by three collaboratives	• Leveraged cross-collaborative members to share EE/DSM program insights and rate design concepts • Shared customer demographic assessment data with EE/DSM and CRR collaboratives

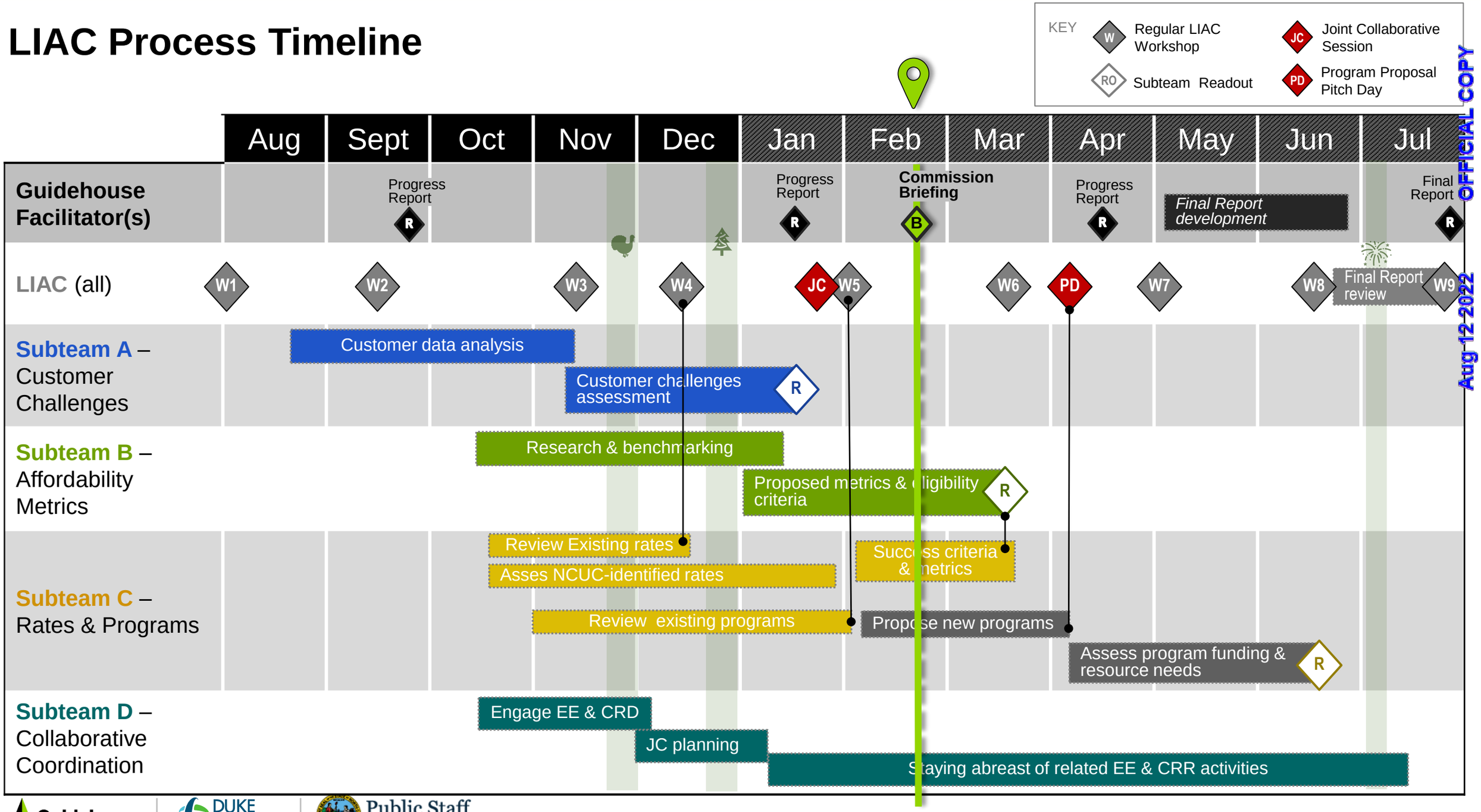
Joint Session Participation



LIAC/EE/CRR jointly identified:

- **36** distinct gaps and opportunity areas
- **19** distinct solution areas

LIAC Process Timeline



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APPENDIX B – LIAC

APPROVED STAKEHOLDER LIST
(ORGANIZATION LIST ONLY)

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

Appendix B - Low Income Affordability Collaborative Members

Organization
AARP
Advance Carolina
Apartment Association of NC
Appalachian Voices
Carolina Small Business Development Fund
ChargePoint
Charlotte Area Fund
Carolina Industrial Group For Fair Utility Rates
City of Raleigh
Crisis Assistance Ministry
Dominion Energy
Duke Energy
Guidehouse (Facilitator)
Legal Aid of NC
NAACP
National Institute Economic Development
NC Attorney General's Office
NC Community Action Association
NC Department of Environmental Quality
NC Dept of Health and Human Services
NC Housing Coalition
NC Justice Center
NC League of Municipalities
NC Office of Recovery & Resiliency
NC Sustainable Energy Association
NC Electric Membership Corporation
Nicholas Institute (Duke University)
Public Staff of the NC Utilities Commission
Rowan Helping Ministries
Sierra Club
Southeast Energy Efficiency Alliance
Southern Alliance for Clean Energy
Southern Environmental Law Center
Sunrun (South Carolina)
Vote Solar

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

NC Low Income Collaborative Analytics

Version 4 – March 2022

DUKE ENERGY

OVERALL GOAL

- Equip LIAC to **prepare an assessment** of current affordability challenges

  (using the data presented as key input into assessment)

LANGUAGE FROM THE COMMISSION ORDER

Prepare an **assessment of current affordability challenges** facing residential customers. The assessment should:

- Provide an **analysis of demographics of residential customers**, including number of members per household, types of households (single family or multi-family), the age and racial makeup of households, household income data, and other data that would describe the types of residential customers the Company now serves. To the extent demographics vary significantly across the Company's service area, provide additional analysis of these demographic clusters.
- **Estimate the number of customers** who live in households with incomes at or less than 150% of the federal poverty guidelines (FPG), and those whose incomes are at or less than 200% of the FPG.
- For the different demographic groups identified as part of a. and b., provide an **analysis of patterns and trends** concerning energy usage, disconnections for nonpayment, payment delinquency histories, and account write-offs due to uncollectability.

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

Scope of Analytics

Included in Analytics:

Per North Carolina Utilities Commission Order:

- Insights into customers under 150% and 200% federal poverty level (FPL)
- Demographics/housing including dwelling type, heating source, renter/owner, racial makeup, age of account holder and number of people in the household
- Trends in delinquency, write-offs, disconnect non-pay (DNP) and energy usage

Per LIAC Members Request:

- Advanced Metering Infrastructure (AMI) Load Shapes
- Additional Insights into Acxiom Data
- Tables including relative information for information detailed in graphs
- More insight into energy intensity
- Electric Energy Burden (New in V4)
- Sub-Category Housing (New in V4)
- Statistical Modeling (New in V4)
- Analysis of DNP Notifications (New in V4)

Other:

- Low Income Energy Assistance Program and Crisis Intervention Program (LIEAP/CIP) recipients as their own segment

Updates to Final Analysis:

- Previous analysis had incomplete DNP data due to data retention policies in historic billing systems, which have since been resolved. As a result of the revisions, the DNP numbers have increased
- Refinements to the Companies' analytics allowed for more accurate segmentation of customers, leading to minor changes in insights on affordability challenges

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

This Analysis Utilizes the Data Sources Available

- Acxiom (3rd party provider for demographic information) has been verified as useful and reasonably accurate over large data sets, like the ones included in this presentation
  - Correlates with Census data and billing system
  - Correlates when compared with the Company employee checks on personal information (on subset of variables)
  - Primary use case is for marketing
- A great number of external data sources could theoretically be used for this analysis
  - To acquire individual customer-level data requires careful adherence to customer privacy laws and practices
  - Transferring, cleaning, verifying, and analyzing any new data sources on every North Carolina customer would take months
  - The Companies will continue to investigate additional data sources as necessary
- To supplement and validate research into low-income customers the North Carolina Department of Health and Human Services and the Companies entered in a data share agreement permitting the Companies to perform analysis on DEC and DEP customers identified as LIEAP and CIP recipients
- LIEAP & CIP programs are intended to help low-income families who need assistance during an energy crisis to ensure they have access to both heating and cooling services
- The Companies were provided ~53k customers (active as of 2021)
  - LIEAP Qualifications: Less than 130% FPL and reserves at or below $2,250
  - CIP Qualifications: Less than 150% FPL and in an energy crisis

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

Acxiom Data Process

Collect information at a household level

Public data, buying activity, online registrations, magazine subscriptions, survey data, warranty information, etc.

Model missing data

Uses other known variables of customers and information at the zip+4 and zip level using their proprietary model

Race: surname, language preference, geography, country of origin, etc.

Income: age, occupation, home ownership, and median income for the local area

Optimize to resemble US Census norms at the highest accuracy rate possible

Balancing happens at a state level for most variables

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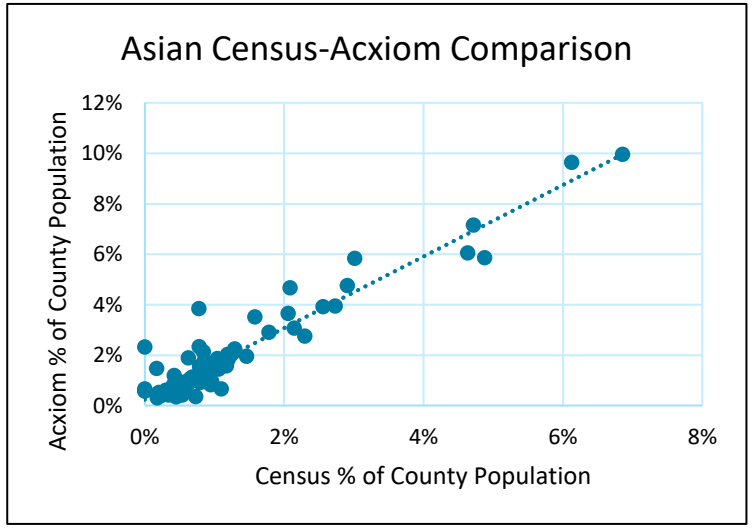
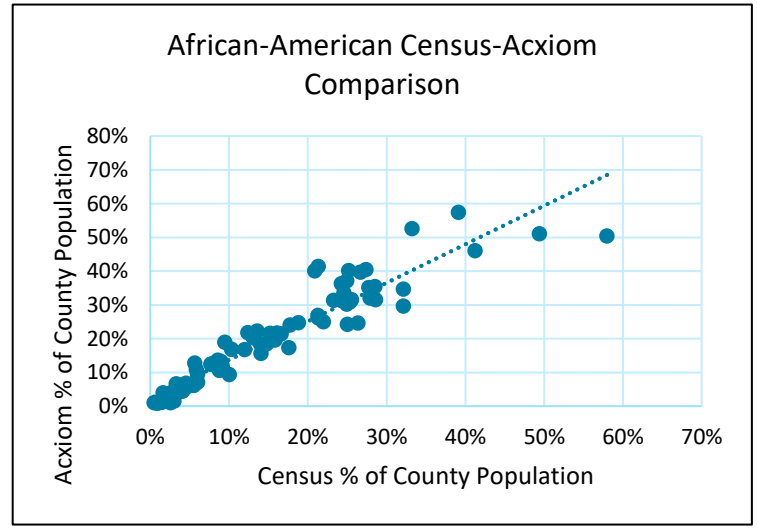
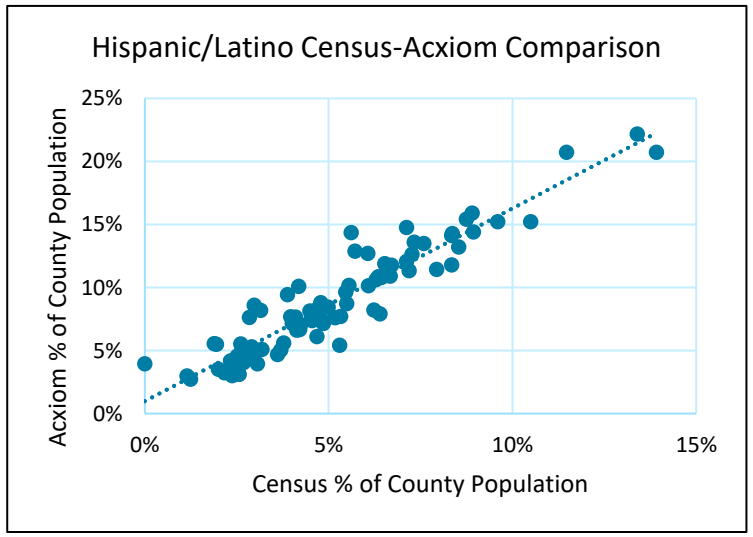
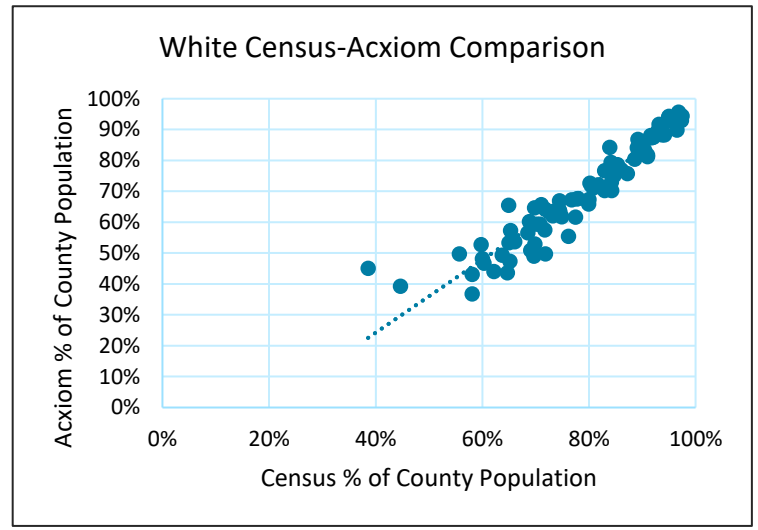
Census-Acxiom Race Count Comparisons

- Acxiom and Census results are similar when comparing counties by the racial makeups
- Acxiom slightly overestimates Hispanic/Latino, African-American, and Asian populations compared to the Census, while underestimating White population
- Acxiom data is at the DEC an DEP account level, which could explain the slight disparities
  - This count only includes one adult per household
  - This would not include households not served by the Companies









Hispanic/Latino were consolidated in the Census and Acxiom

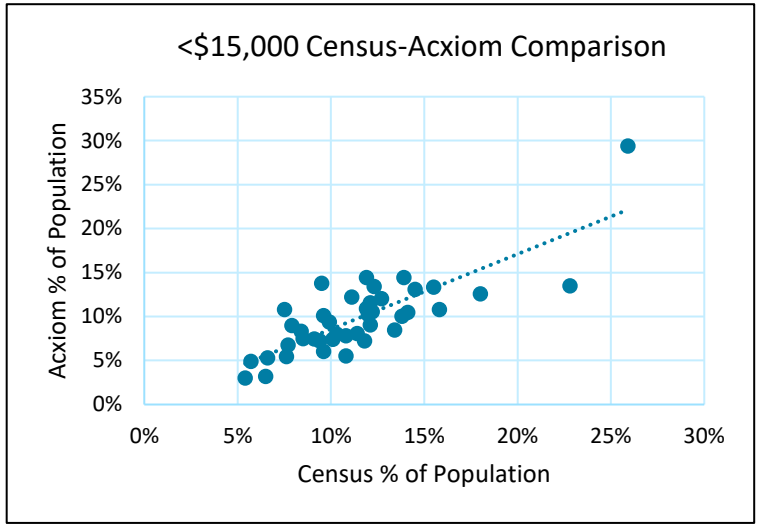
Census-Acxiom FPL Comparisons

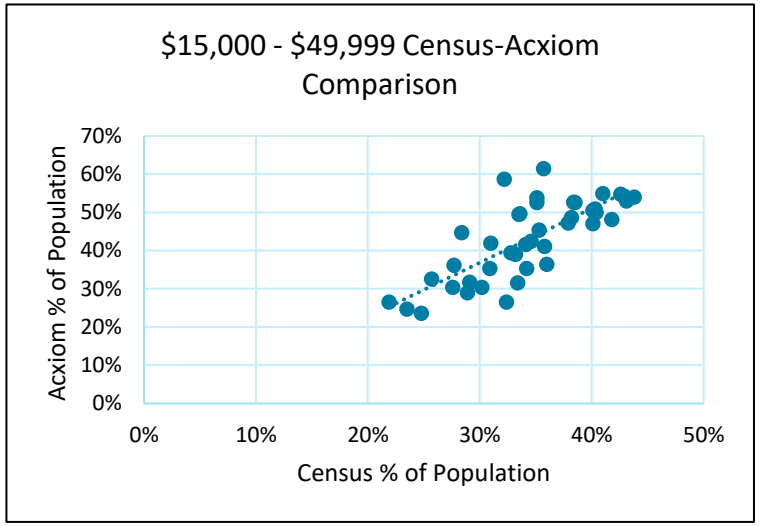
- Acxiom and Census results are similar when comparing counties by the income levels
- Acxiom slightly overestimates lower incomes compared to the Census, while underestimating higher incomes

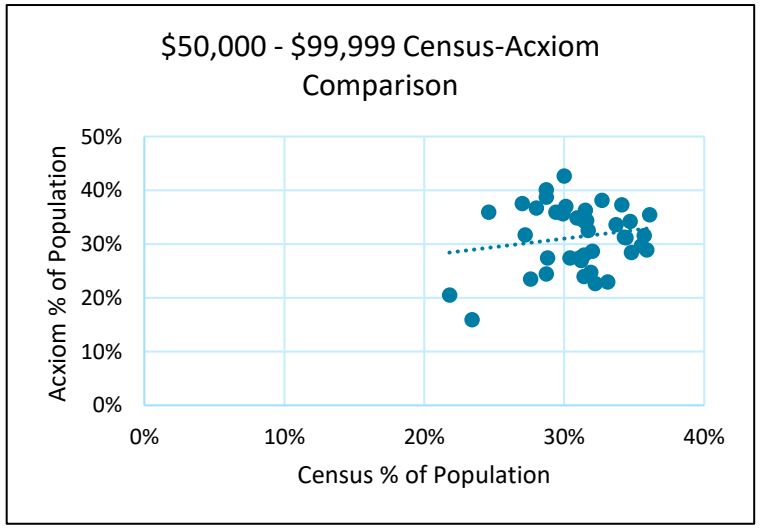
Acxiom Modeling Results

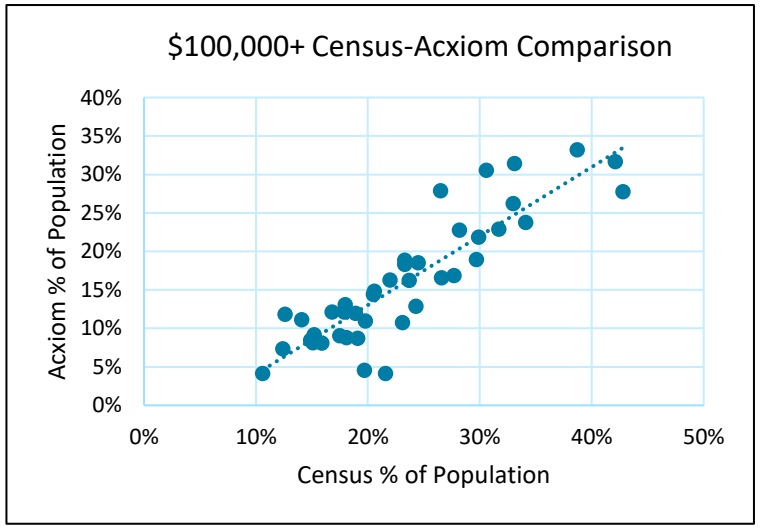
Data Source	<150%	150% to 200%	>200%
Household/ Household Inferred	88.0%	88.0%	94.5%
Zip code+4	10.4%	8.0%	3.8%
Zip code	1.6%	4.0%	1.7%

Includes Income & number of people in household









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

Overview of Data Analysis Conducted

Assessing Customer Demographics: By Income Level

- The Federal Poverty Level ("FPL") is a measure of income **per household size**
- *Relationship of Household Income to FPL* is a common way to classify by income
- Shortfalls of using this metric only:
  - Indicator lags up to a year
  - Does not capture recent changes to status (e.g., job loss, family catastrophe, etc.)
  - Does not account for those with high access to economic resources (i.e., wealthy with low or no reportable income)

150% of Federal Poverty Level

Household Size	Maximum Countable Annual Income
1	$19,320
2	$26,130
3	$32,940
4	$39,750
5	$46,560
6	$53,370
7	$60,180
8	$66,990

2021 FPL Guidelines
Poverty Guidelines, 48 Contiguous States (all states except AK and HI) (hhs.gov)

Assessing Customer Demographics: By Arrears

Arrears: Money that is past due

Intended to supplement, not replace, other measures of struggling customers

Intended for analytical purposes

1. **Direct measure** of how much customers are struggling to pay their bills
2. Should identify low economic resource customers that could be **struggling for many reasons**, not only low-income
3. **High quality data source**, updated monthly

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

Assessing Customer Demographics: Income Level + Account Status

- Requires 3rd party survey data (impacting data accuracy)
- Requires 3rd party verification for program eligibility use
- Not a good indicator of access to economic resources

Income
(FPL)

- ✓ Industry Standard Metric
- ✓ Despite drawbacks is believed to be a good metric

- Does not reflect level of high energy burden
- Does not alone capture low-income population

Payment Status
(Arrears)

- ✓ Analyzes customers struggling to keep the lights on
- ✓ Readily accessible, high-quality data

APPROACH:
Combining Income + Payment Status

- **Good data:** accessible, higher-quality
- **Good for targeting:** identifies those struggling with energy affordability; identifies those with high energy burdens

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

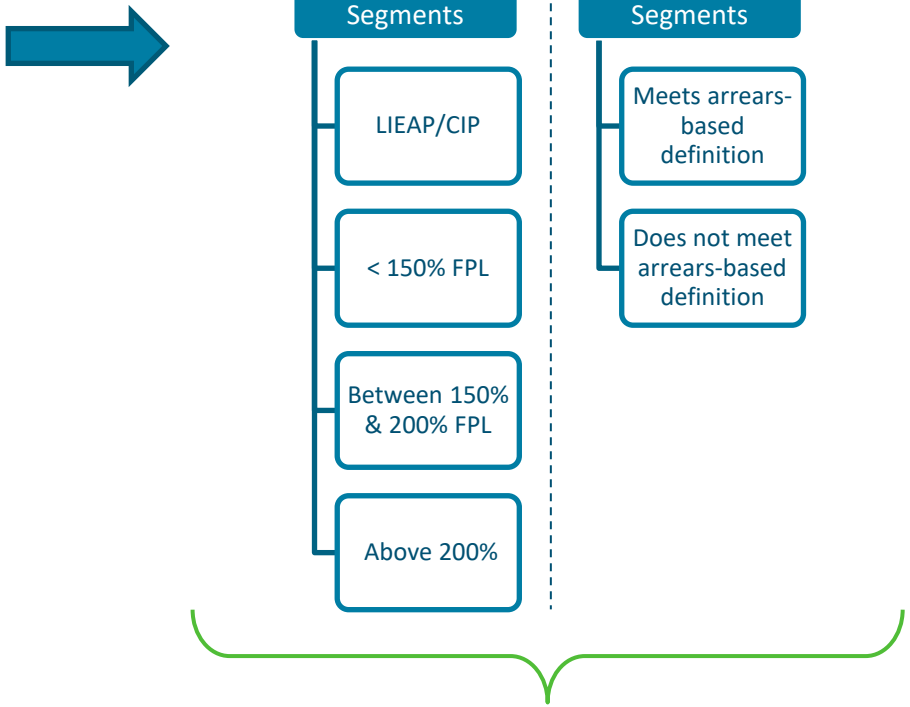
Analysis Approach

Third Party Data

- Demographics (income range, number of people in household, etc.)
- Housing data (housing type, square footage, owner/renter, etc.)
- The Companies choice of demographic data, updated quarterly
- Uses aggregated public data on individuals or zip code averages
- Directionally valid, not to be used for eligibility
- LIEAP/CIP data quality believe to be excellent*

**LIEAP/CIP data is for information received in 2021, after the study time period*

DATASET:
North Carolina (DEC & DEP)
Pre-COVID data (3/2019-2/2020):
2.37 million residential accounts
Customers who were active for the full time period



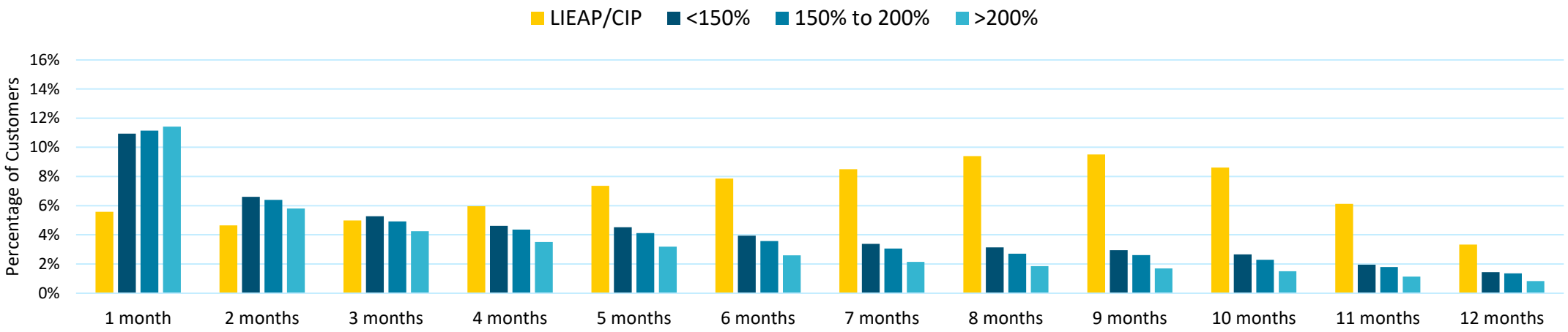
Company Billing Data

- Billing and charges data (charges, past due amounts, disconnects)
- Customer Data (location, heating type, age, etc.)
- High quality, updated monthly, unique to the Companies data source

By considering income and arrearage status the Companies can better identify customers who may truly be struggling to afford their energy bills

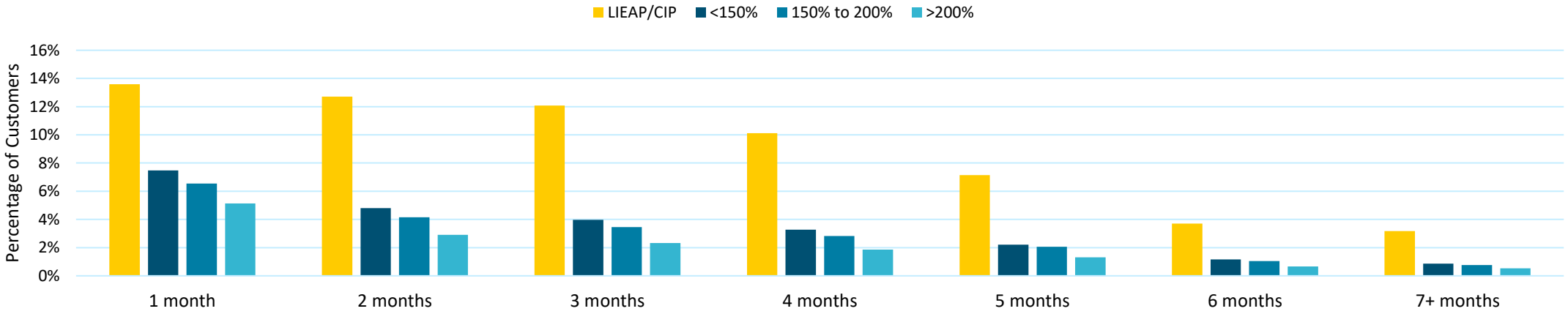
Trends in Arrears

Months Spent with Past Due Amount 1x Average Bill



*Numbers are mutually exclusive

Months Spent with Past Due Amount 2x Average Bill



*Numbers are mutually exclusive

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Drawing the Line for Defining which Customers are Struggling with Arrears

EXPECTATIONS (HYPOTHESIS):

- LIEAP/CIP recipients are more likely to struggle to stay current on their bill – must have low financial reserves or be in an energy crisis in addition to being low-income
- Not all struggling/vulnerable/low-income customers will struggle with arrears (as some simply prioritize electricity bill over other expenses and others receive assistance)
- Some customers above 200% FPL struggle to pay their bill
- Some customers will miss payments for non-financial reasons

Evaluated metrics to arrive at a definition of customers struggling with arrears:

- High % of customers below 200% FPL
- High % of LIEAP/CIP recipients
- Low % of Customers above 200% FPL
- Reasonable total % of the population

	% of Customer that meet Arrears Definition				
Arrears Segmentation for Analytics	**Customers LIEAP/CIP**	**Customers <150% FPL**	**Customers 150-200% FPL**	**Customers >200% FPL**	**Total Customer Population**
2 Months spent at 2x average bill overdue OR 6 Months spent at 1x average bill overdue	58%	22%	19%	13%	16%

Definition not used to define affordability or eligibility for different programs

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

Definitions of V4 Additions

- Home Sub-Categories
  - Multi-Family Dwelling – Condo, Apartments, Duplex, Triplex, Quadplex, etc.
  - Mobile Home
  - Single Family Dwelling
  - Unknown

- DNP Notifications
  - No Delinquency Notice (DLQ) – no delinquency notifications issued
  - 10-Day Notice – notified on bill or at least 10 days before scheduled disconnection
  - 24-Hour Notice – at least 24 hours prior to scheduled disconnection
  - DNP – customer was disconnected

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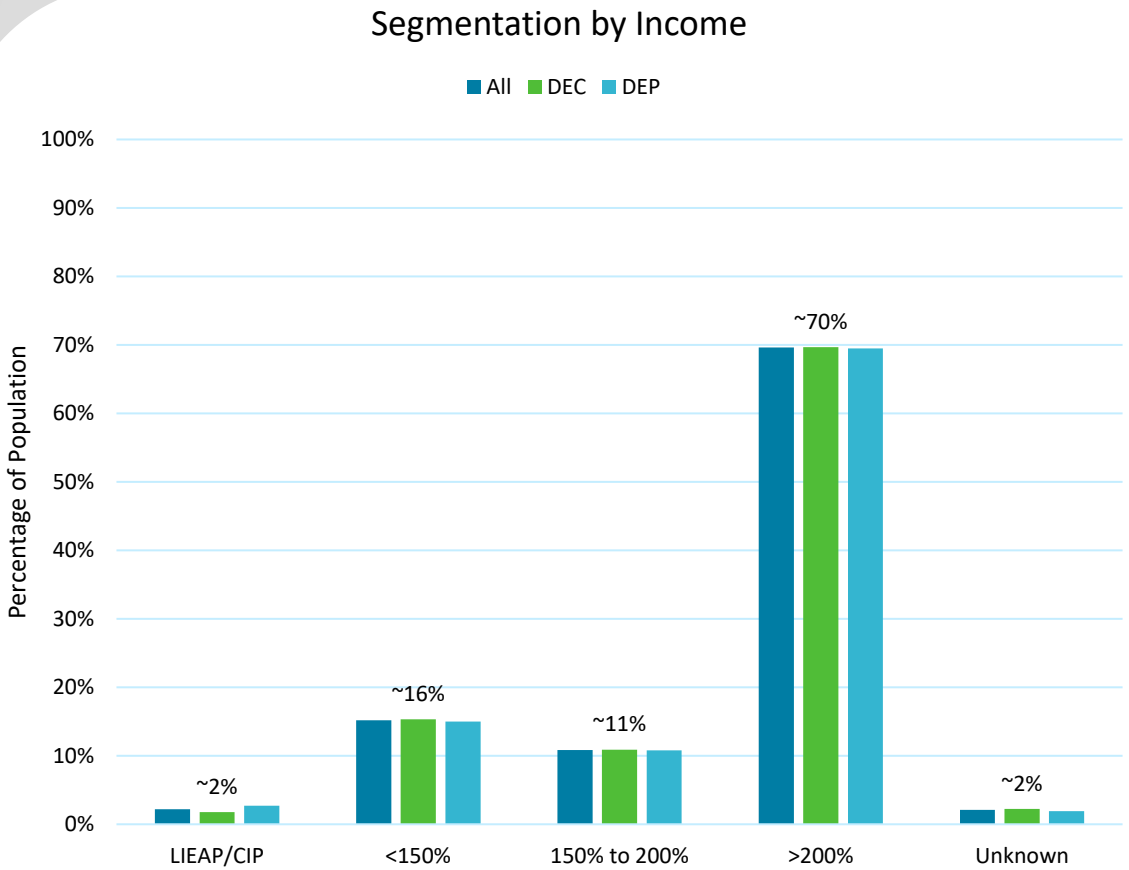
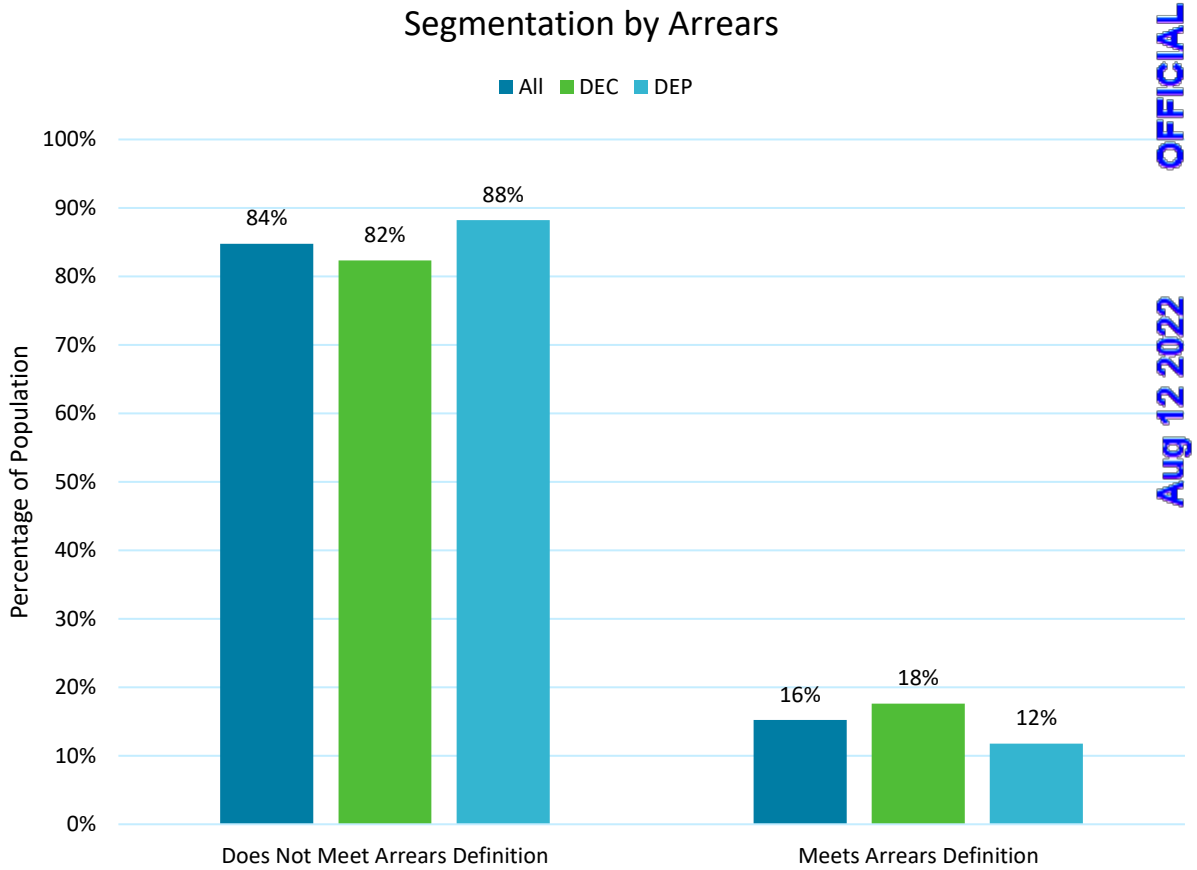
Analysis of NC Customers

Segmenting by Income and Arrears in North Carolina



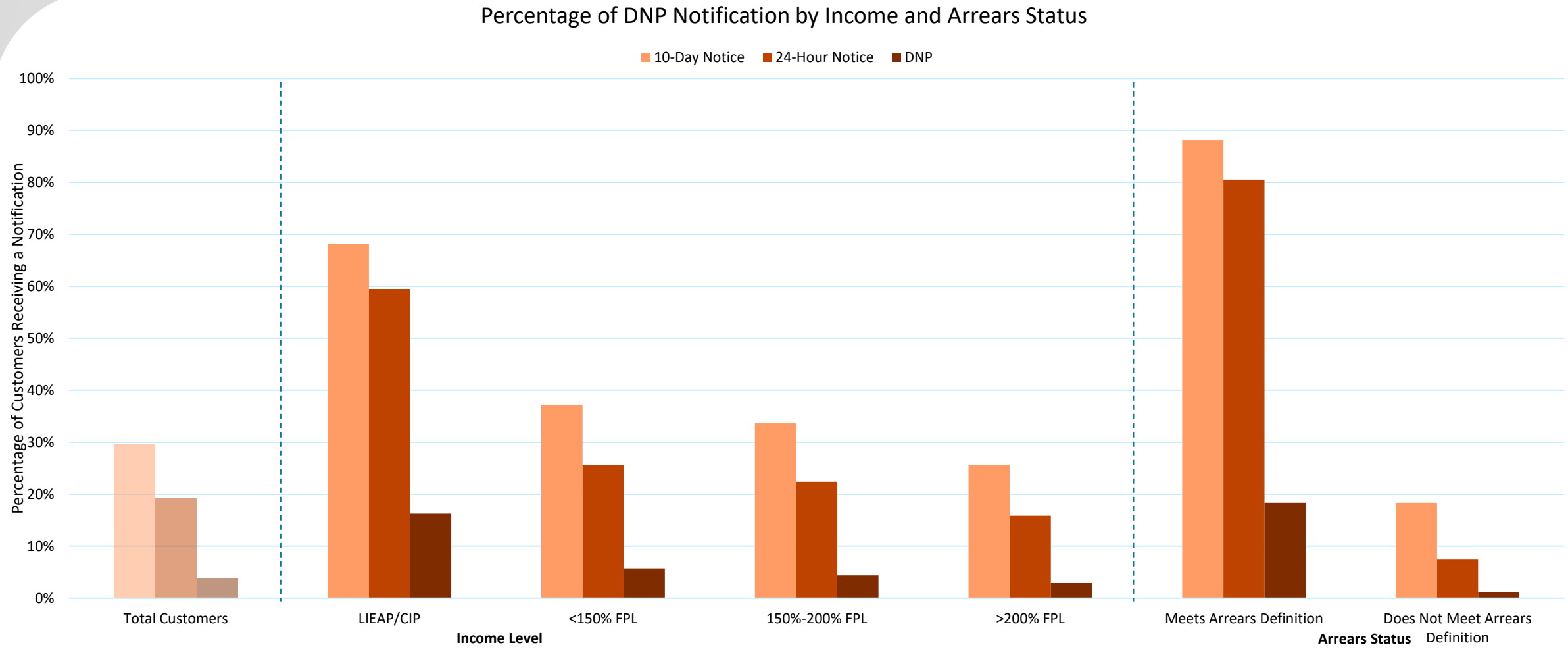


Recovered additional historic Acxiom data from this time period to decrease the amount of Unknown from version 1

- Some customers did not have income information in the third-party data
- No major differences between DEC and DEP customers

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

Percentage of DNP Notifications by Notification Type for Income and Arrears Status



	Total Customers	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
% Total Customers in Category*	98%	2%	16%	11%	69%	16%	84%

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

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DNP Notifications

Total Numbers	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
Non-DNP/DLQ	17,055	241,982	179,776	1,277,639	49,069	1,716,146
10-Day Notice	36,540	143,355	91,656	439,317	346,138	373,678
24-Hour Notice	31,889	98,741	60,834	272,154	316,454	150,676
DNP	8,714	22,109	11,940	51,817	72,144	23,876

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of <150% FPL customers that received a 10-Day Notice)	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
Non-DNP/DLQ	31.8%	62.8%	66.2%	74.4%	12.5%	84.4%
10-Day Notice	68.2%	37.2%	33.8%	25.6%	88.1%	18.4%
24-Hour Notice	59.5%	25.6%	22.4%	15.9%	80.6%	7.4%
DNP	16.3%	5.7%	4.4%	3.0%	18.4%	1.2%

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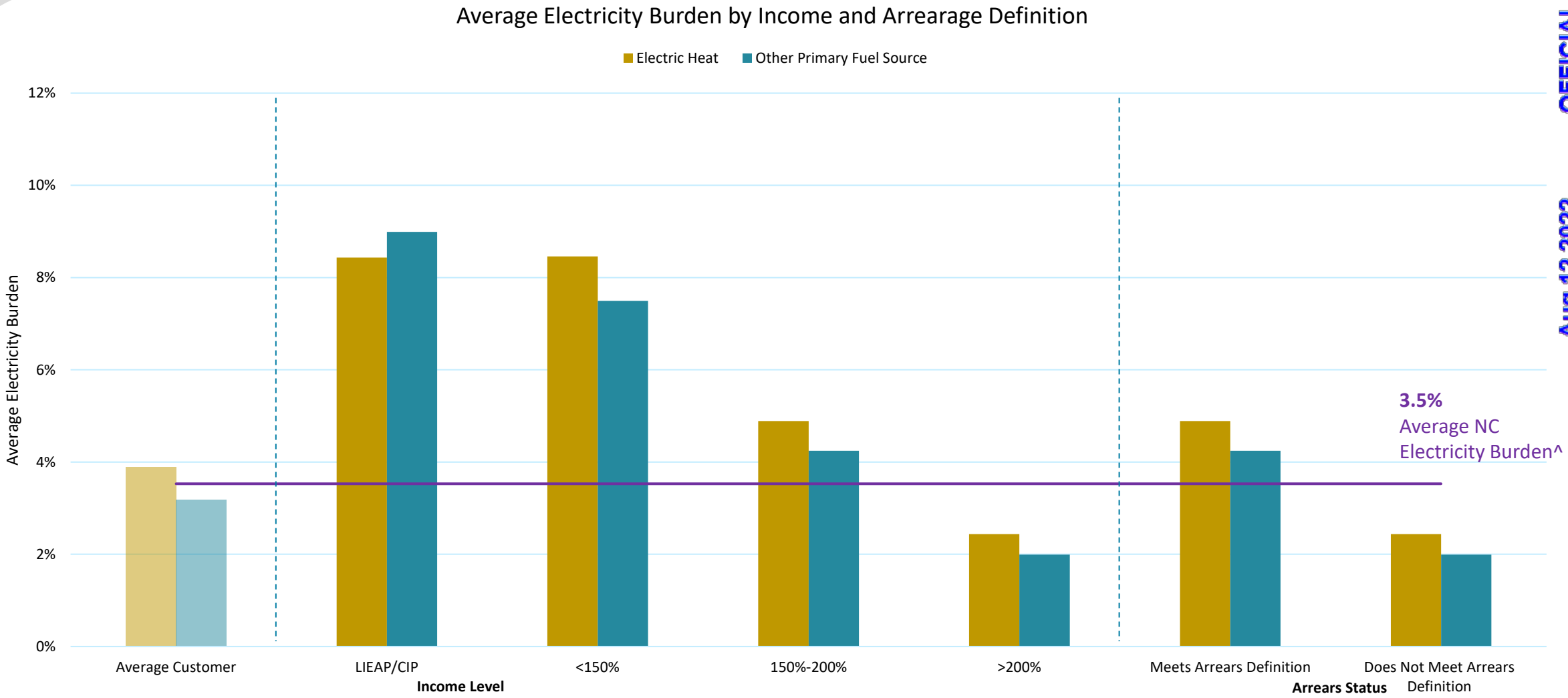
Average Electricity Burden Income and Arrearage Definition



% Total Customers in Category*	79%	2%	16%	11%	69%	16%	84%

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

^The total line includes customers who could not be categorized, therefore there may be instances of all groups above the total

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Electricity Burden

Total Numbers	LIEAP/CIP	<150%	150%-200%	>200%	Meets Arrears Definition	Does Not Meet Arrears Definition
Electric Heat	31,304	137,087	103,872	606,039	147,315	731,760
Other Primary Fuel Sources	19,036	160,977	115,362	786,280	152,792	931,129

Percentage of Customers in each Segment	LIEAP/CIP	<150%	150%-200%	>200%	Meets Arrears Definition	Does Not Meet Arrears Definition
Electric Heat	1.3%	5.5%	4.2%	24.4%	5.9%	29.4%
Other Primary Fuel Sources	0.8%	6.5%	4.6%	31.6%	6.1%	37.5%

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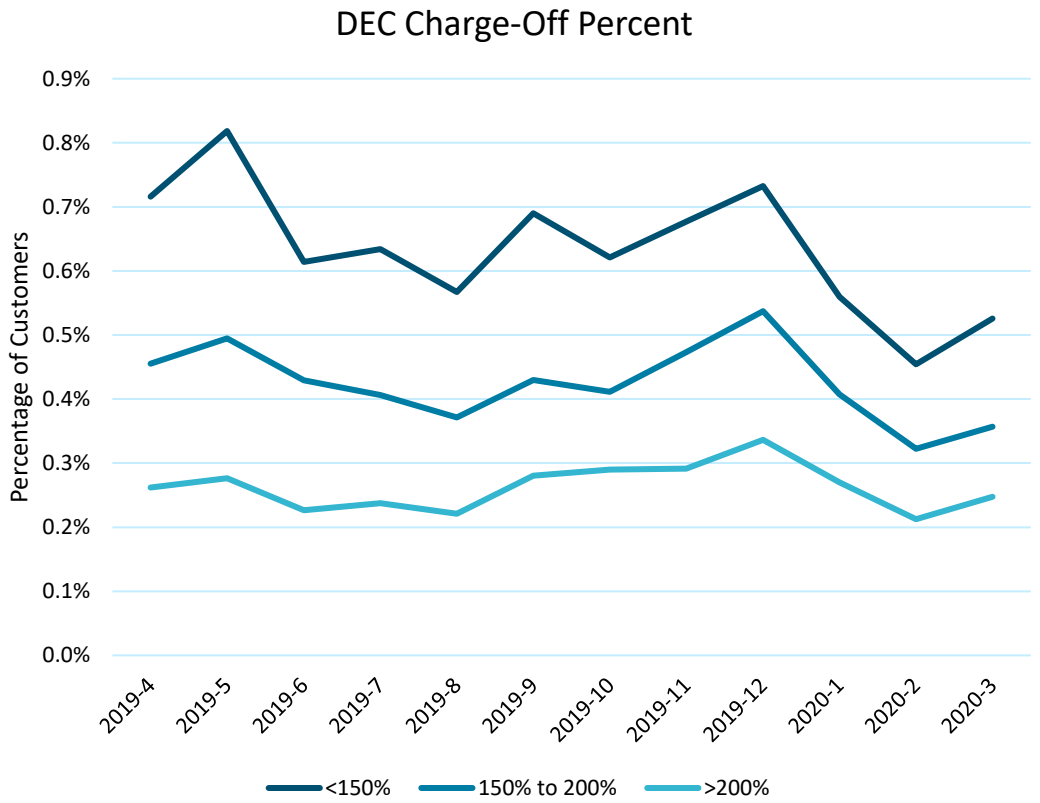
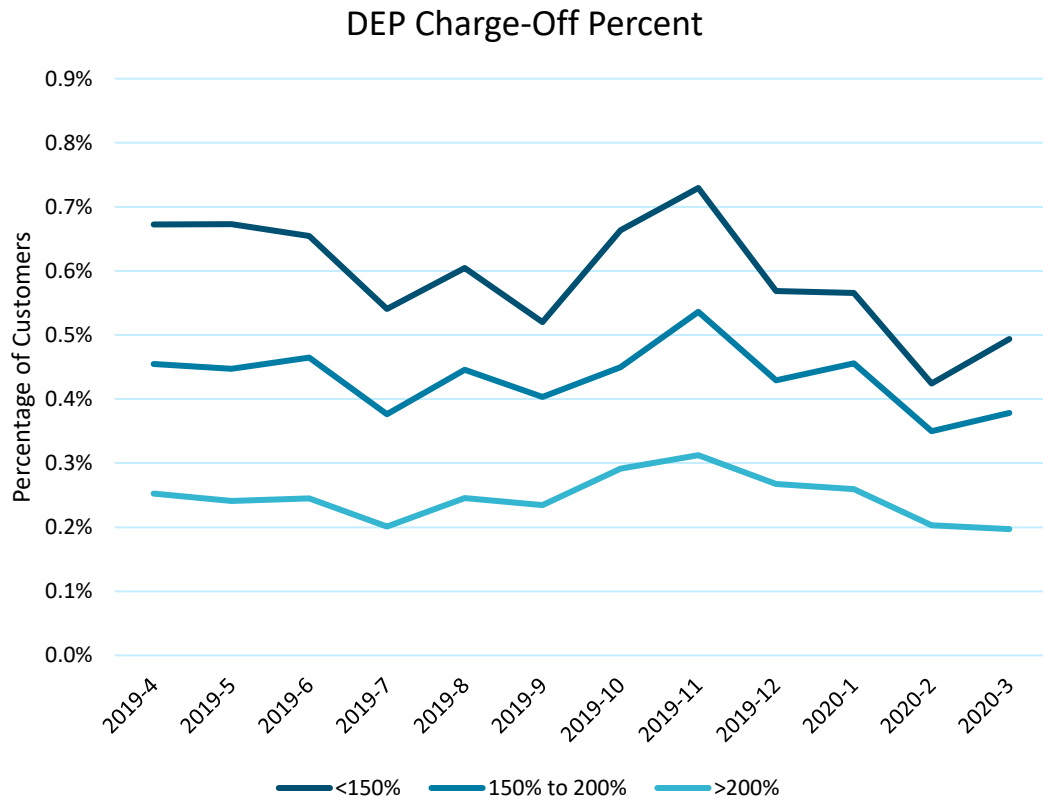
Charge-Offs



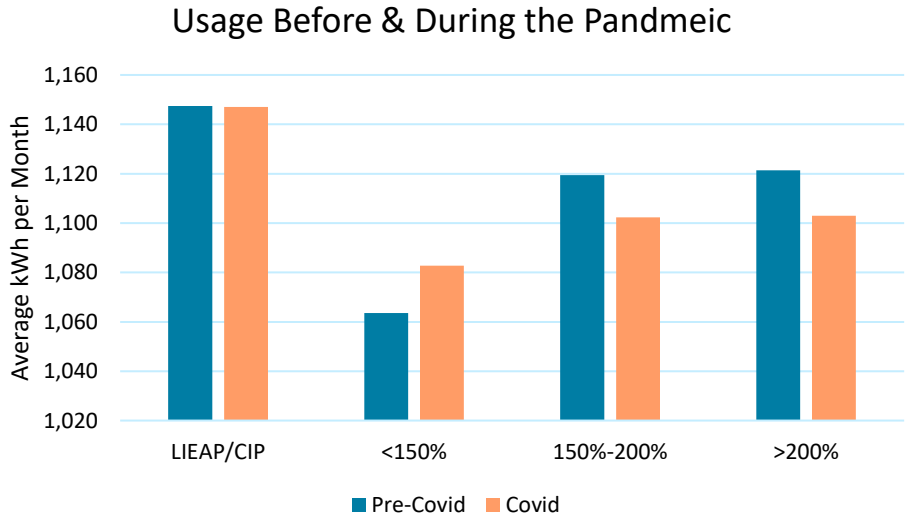


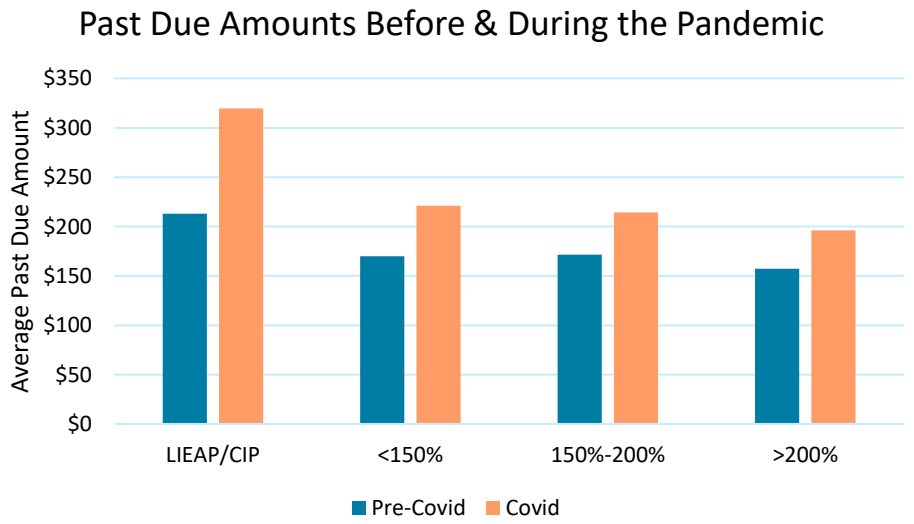
# of customers charged off in that month / (# of active customers in that month + customers charged off)

- Charge-off is for customers who closed their account but still owed money and ended up in collection
- This population is on customers who closed their account during this time period, while the rest of the analysis is based on a population that was active the entire time period
- Charge-off customers were all closed by March 1, 2020, and the LIEAP/CIP list is from 2021

Data Shows Limited Impact of the Pandemic on Key Metrics

- Usage did not meaningfully change for residential customers
  - Affected by weather in addition to changes in customers' consumption habits
  - Consistent with Load Research data and similar to other Southeast utilities
- Past due amounts (i.e., arrears) grew significantly for LIEAP/CIP customers and slightly for other customers.
  - The disconnection moratorium likely affected payment behaviors for some customers





The COVID period was from 3/2020-2/2021, and includes customers that were active the full 12 months

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Statistical Analysis

Data Available for Modeling

Numerical Attributes in the Model

- Customer Home Value ($)
- Energy Burden
- Summer Load Impact
  - Calculated by subtracting the highest summer monthly load by the average monthly load
  - Represents additional load from summer conditions
- Winter Load Impact
  - Calculated by subtracting the highest winter monthly load by the average monthly load
  - Represents additional load from winter conditions
- Interacted with heat source (electric or other primary fuel source)
- Age of Account Holder
- Age of Home

Categorical Attributes in the Model

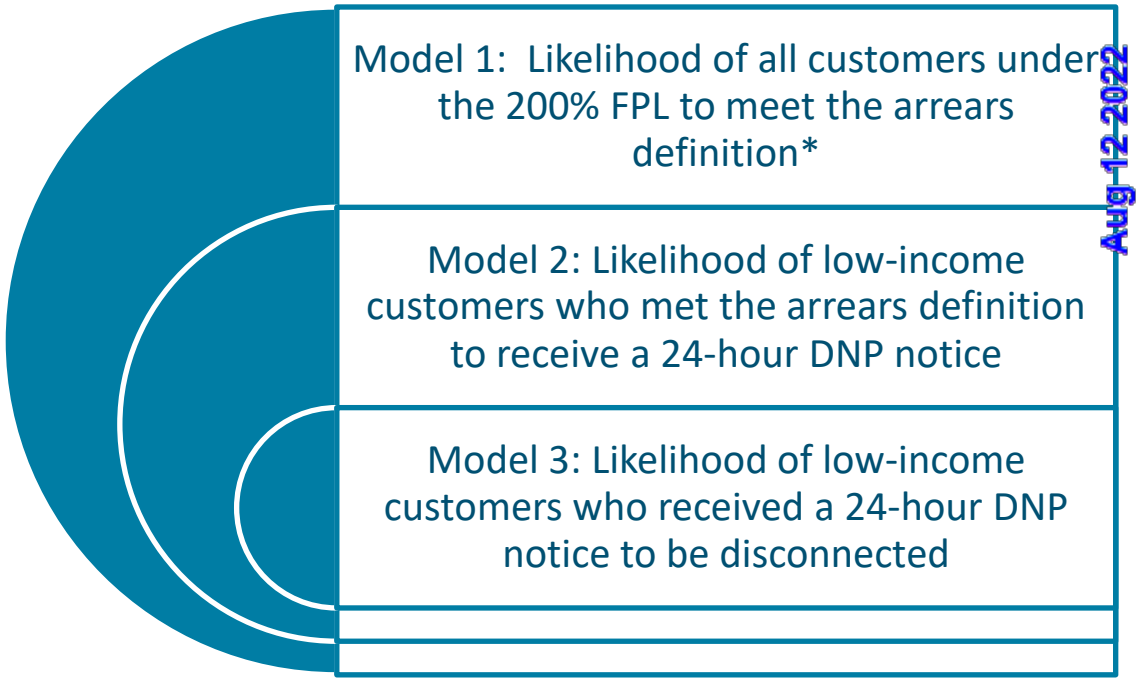
- Race: African-American, Asian, Hispanic, or White
- Household Size: Breakdown by number of people in the household, and if there are children
- Population Density: A measure of people per square mile
- Heat Source: Electric or other primary fuel source
- Housing Status & Type: Owner or renter, single family or multifamily, further broken down by condo, apartment, mobile home, etc.
- Education: High school, college, or graduate school

Variables are transformed to better capture non-linear relationships

- Categorical attributes were included in the model as 1/0 indicator variables
- Some numerical attributes were log-transformed
- Other numerical attributes were treated as piecewise-linear, such that the effect of the attribute on arrears is more dynamic as that attribute changes
- Some attributes were interacted with other attributes
- For example, other primary fuel source customers winter load was treated as a separate variable from electric customer winter load

Understanding Model Results

- In order to enhance the descriptive analytics and better understand what is driving customers to incur an arrears or experience disconnected for non-pay, the collaborative agreed on creating statistical models
- Three logistic regression models were created to understand low-income customers (< 200% FPL) who meet the arrears definition, receive a 24-hour notice, and ultimately become disconnected for non-pay
- Comparing model effect sizes shows which attributes were more impactful (i.e., age vs race), as well as the likelihood of each segment within the attribute (i.e., 25-year-olds vs 55-year-olds)
  - This allows an understanding of the impact of each individual variable, holding all other variables constant that are in the model
  - Some key data points, like wealth, were not available and may show up in other variables that are correlated
- The "Wald Test" shows which categories have a statistically significant impact on a customer's ability to pay their bills
  - For categorical attributes like race, a p-value less than 0.05 indicates that the category's effect is significantly different from the baseline category's effect
  - For numerical attributes like age, a p-value less than 0.05 indicates that the attribute's effect is significantly different from 0



*~10% of the population received a 24-hour notice without meeting the arrears definition, but were still included in the first model as "meeting arrears definition"

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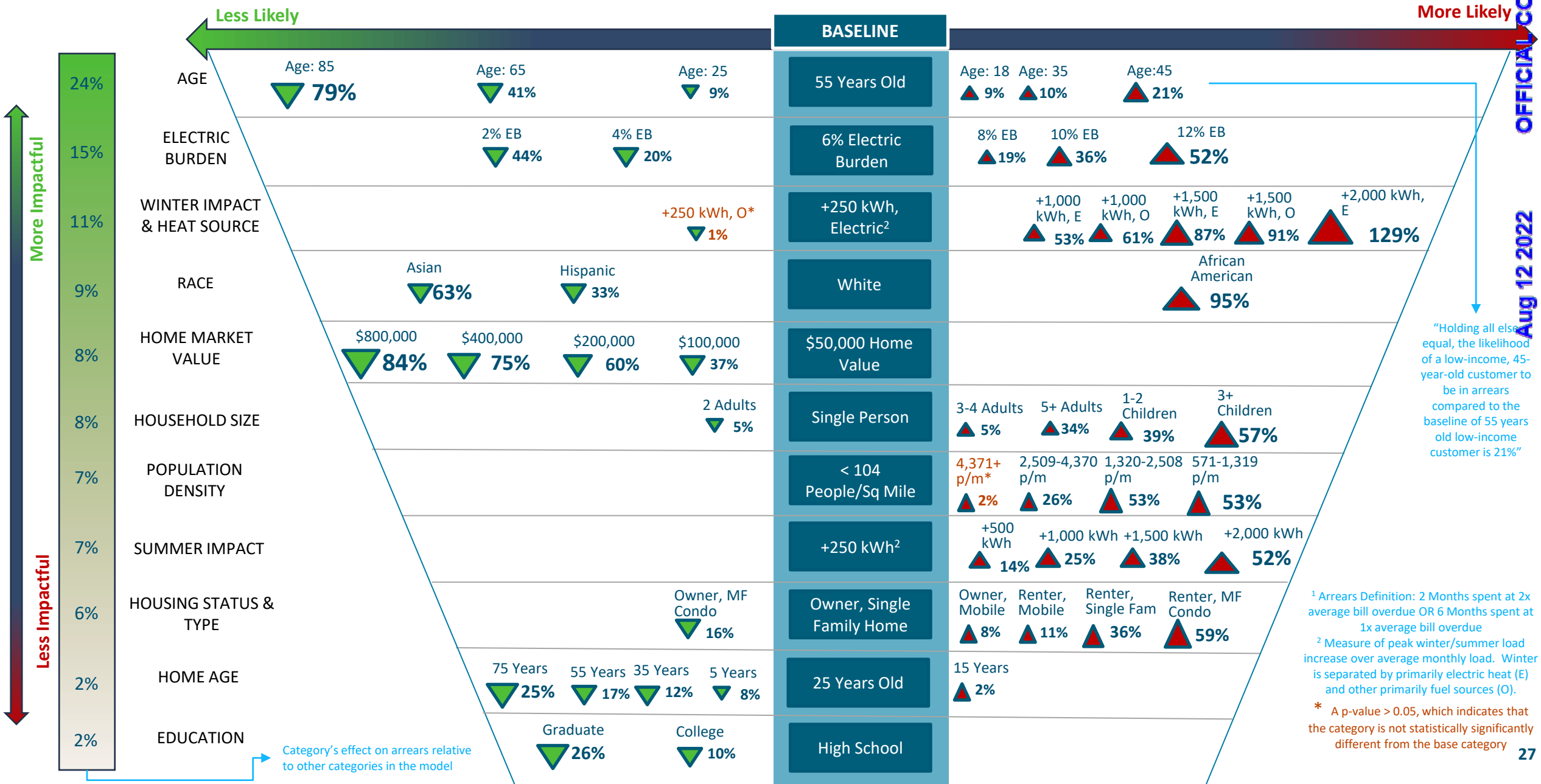
Statistical Modeling: Arrears Definition[1]



"Holding all else equal, the likelihood of a low-income, 45-year-old customer to be in arrears compared to the baseline of 55 years old low-income customer is 21%"

[1] Arrears Definition: 2 Months spent at 2x average bill overdue OR 6 Months spent at 1x average bill overdue

[2] Measure of peak winter/summer load increase over average monthly load. Winter is separated by primarily electric heat (E) and other primarily fuel sources (O).

* A p-value > 0.05, which indicates that the category is not statistically significantly different from the base category

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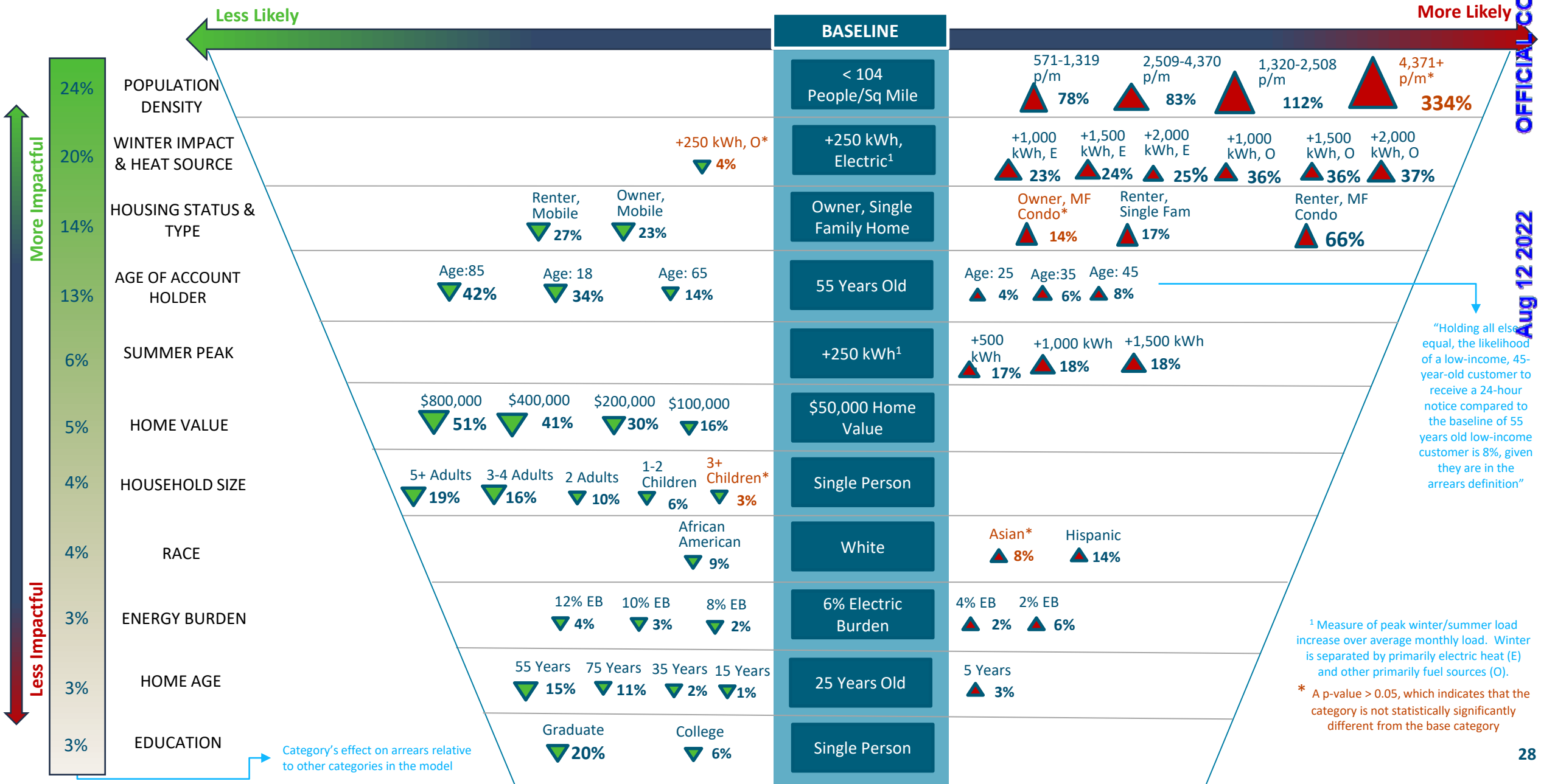
Statistical Modeling: 24-Hour DNP Notice



"Holding all else equal, the likelihood of a low-income, 45-year-old customer to receive a 24-hour notice compared to the baseline of 55 years old low-income customer is 8%, given they are in the arrears definition"

[1] Measure of peak winter/summer load increase over average monthly load. Winter is separated by primarily electric heat (E) and other primarily fuel sources (O).

* A p-value > 0.05, which indicates that the category is not statistically significantly different from the base category

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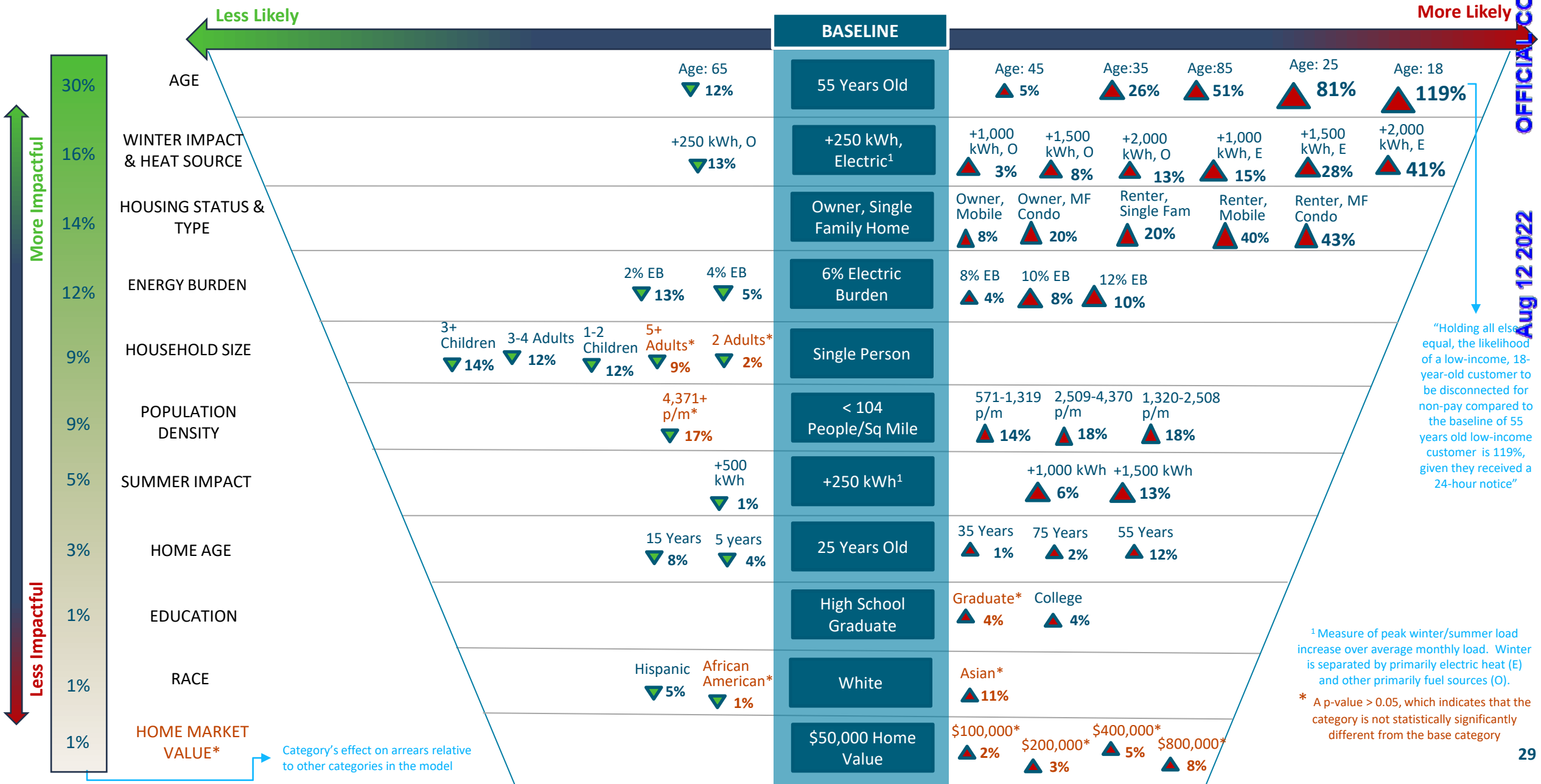
Statistical Modeling: DNP



"Holding all else equal, the likelihood of a low-income, 18-year-old customer to be disconnected for non-pay compared to the baseline of 55 years old low-income customer is 119%, given they received a 24-hour notice"

Category's effect on arrears relative to other categories in the model

[1] Measure of peak winter/summer load increase over average monthly load. Winter is separated by primarily electric heat (E) and other primarily fuel sources (O).

* A p-value > 0.05, which indicates that the category is not statistically significantly different from the base category

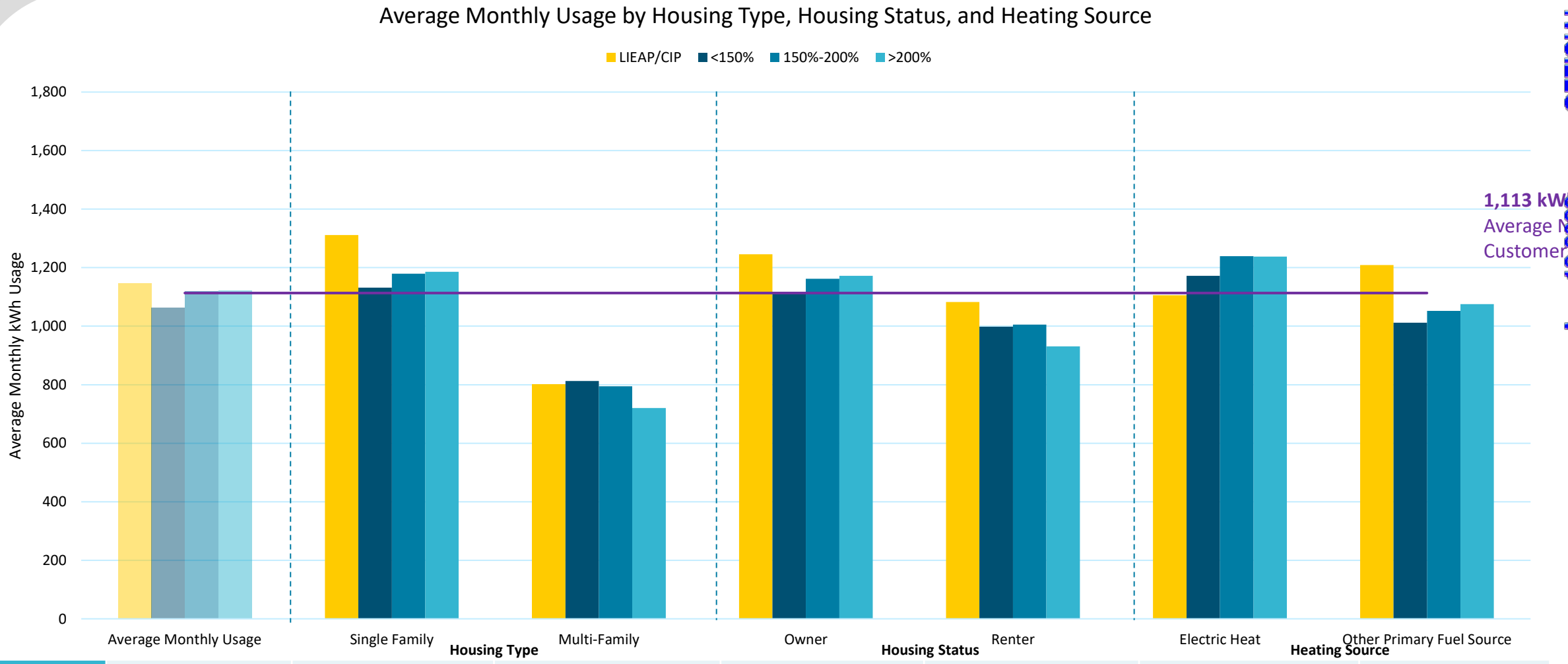
Analysis by Housing Type, Housing Status, and Heating Source

Housing Type: Single Family or Multi-Family

Housing Status: Owner or Renter

Heating Source: Electric or Other Primary Fuel Source

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

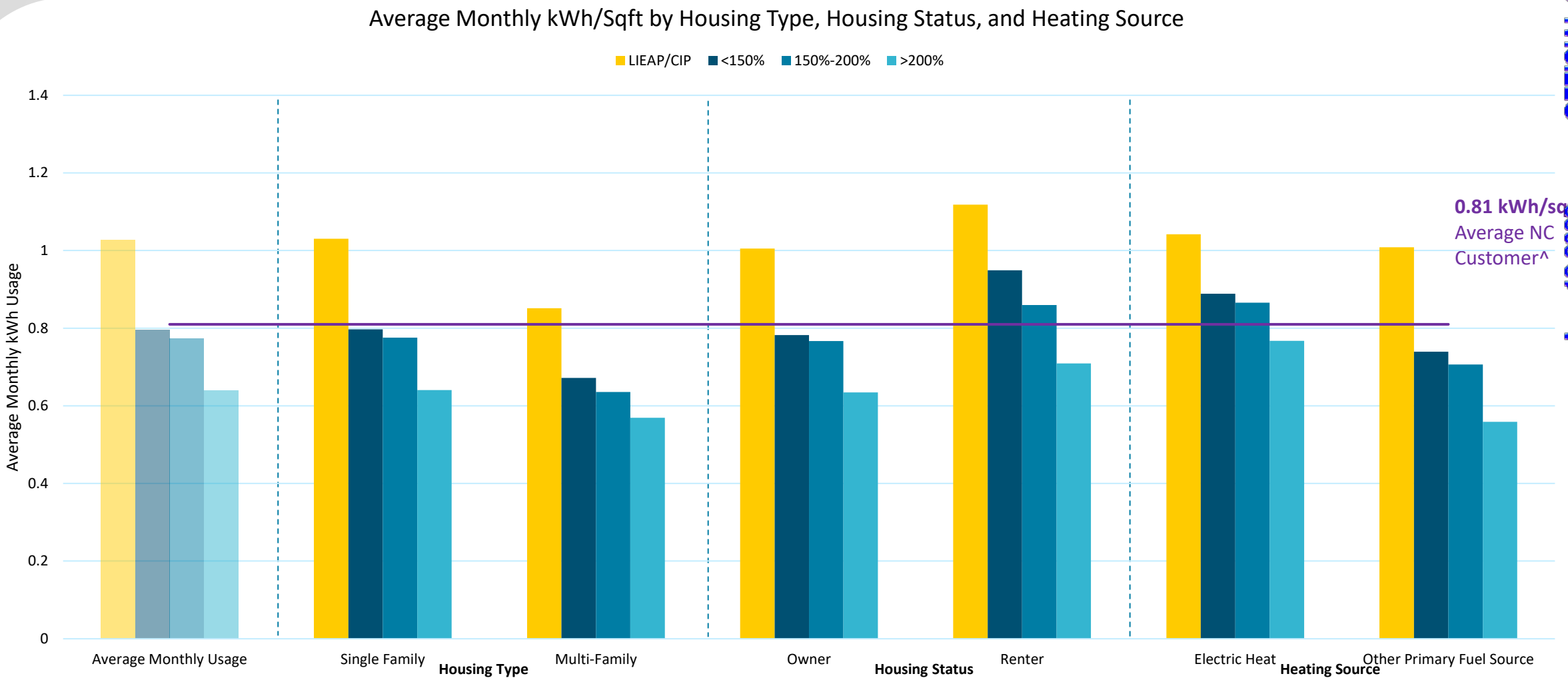


% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

*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

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



	Average Monthly Usage	Housing Type		Housing Status		Heating Source	
		Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

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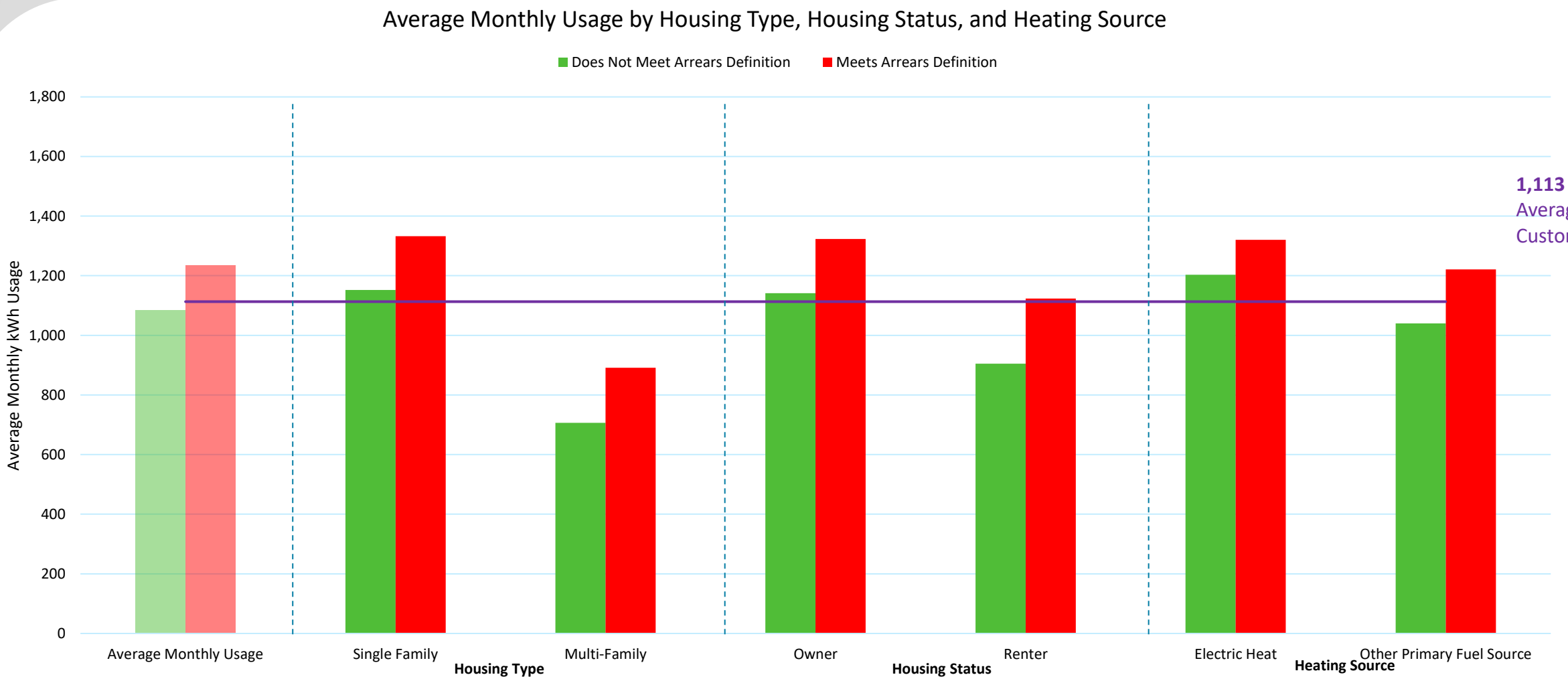
Average Monthly Usage by Arrearage Status for Housing Type, Housing Status, and Heating Source



% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

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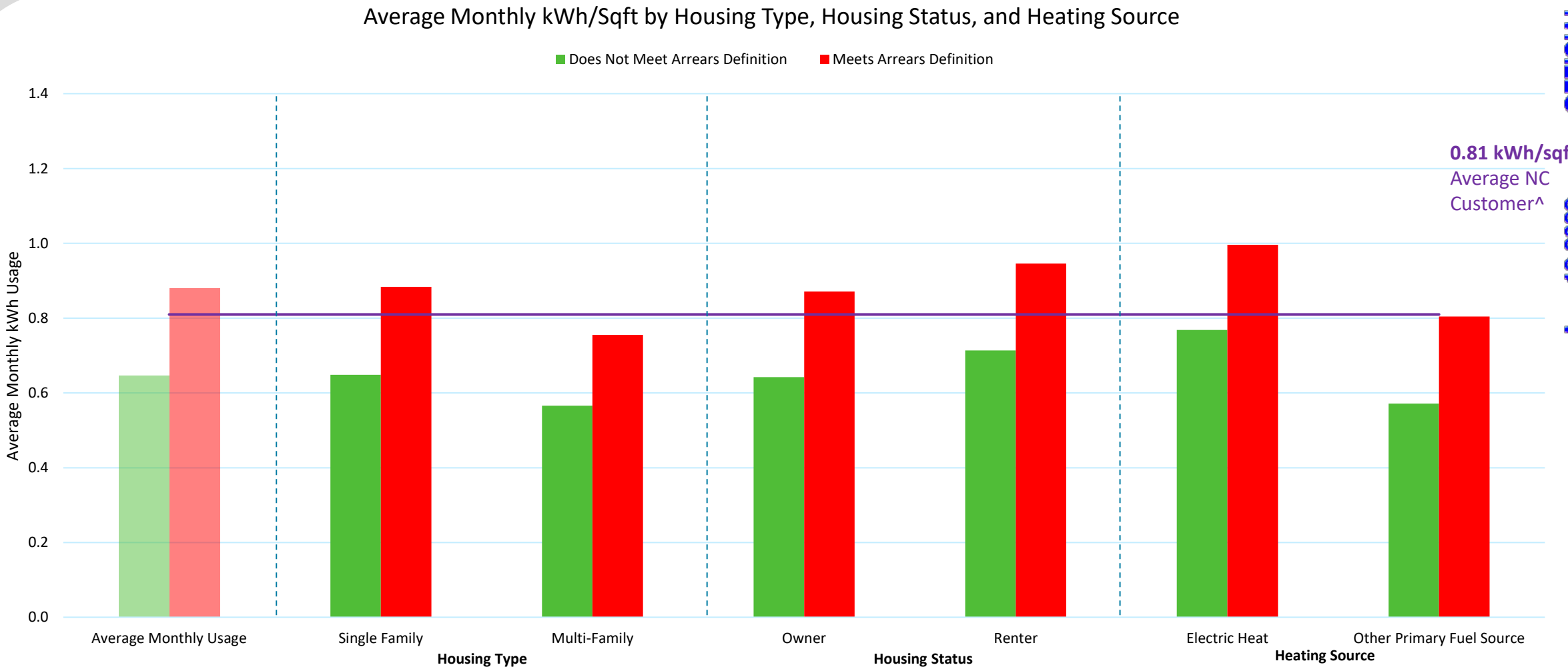
Average Monthly Usage per Square Foot by Arrearage Status for Housing Type, Housing Status, and Heating Source



% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

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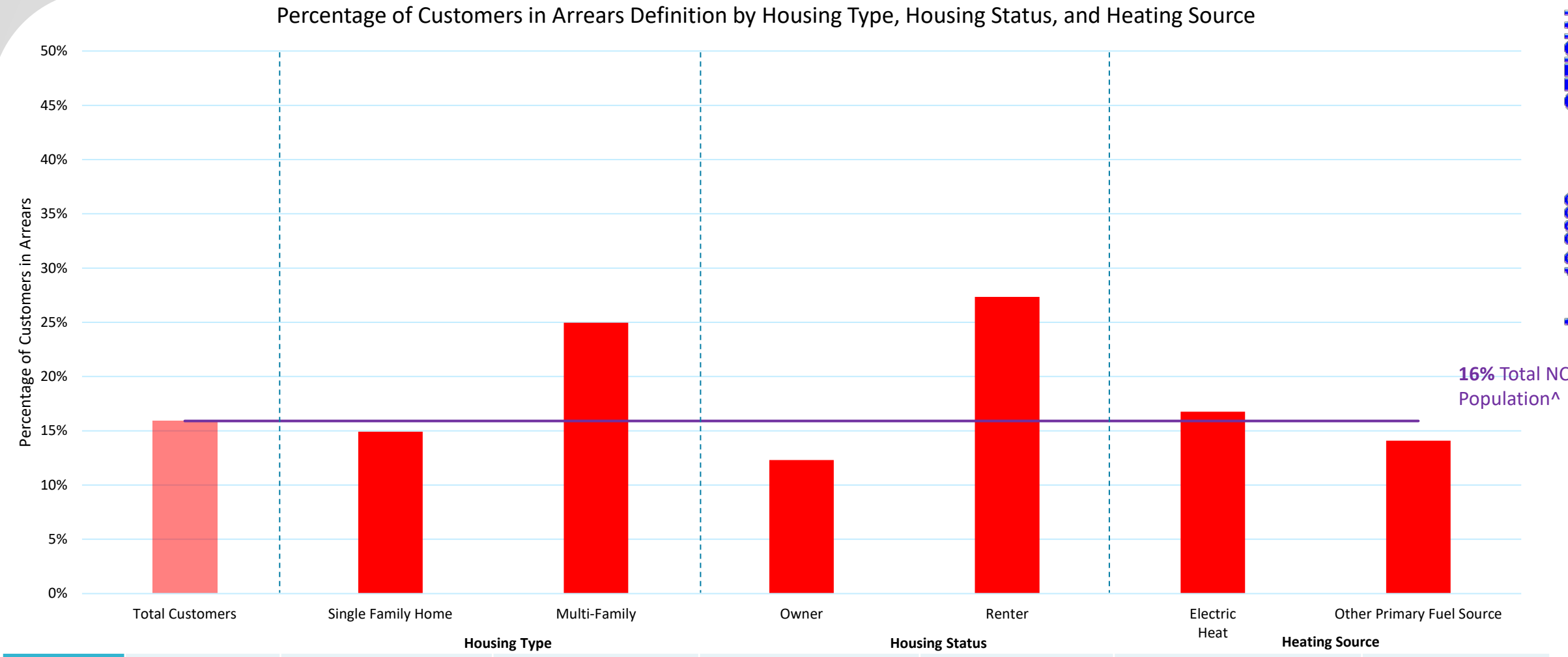
Percentage of Customers in Arrears Definition for Housing Type, Housing Status, and Heating Source



% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

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

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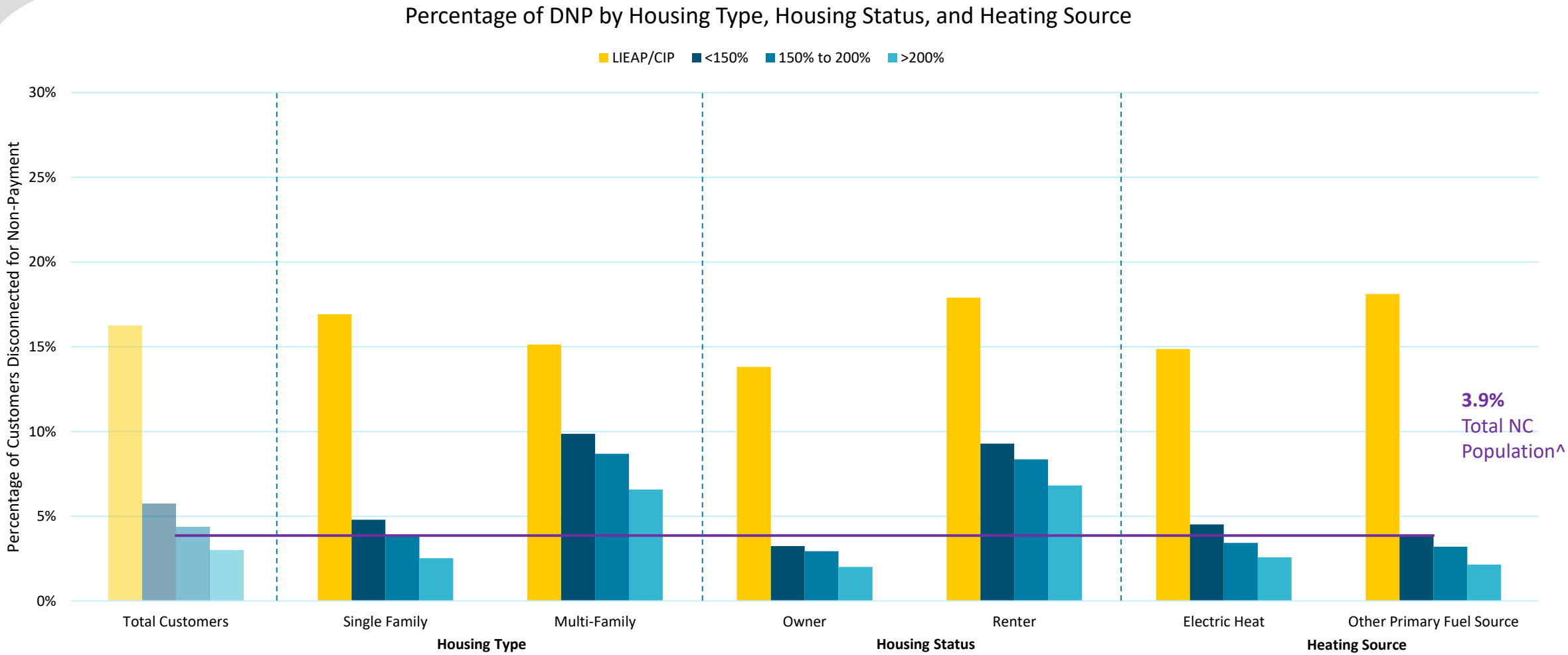
Percentage of DNP by Income for Housing Type, Housing Status, and Heating Source



% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
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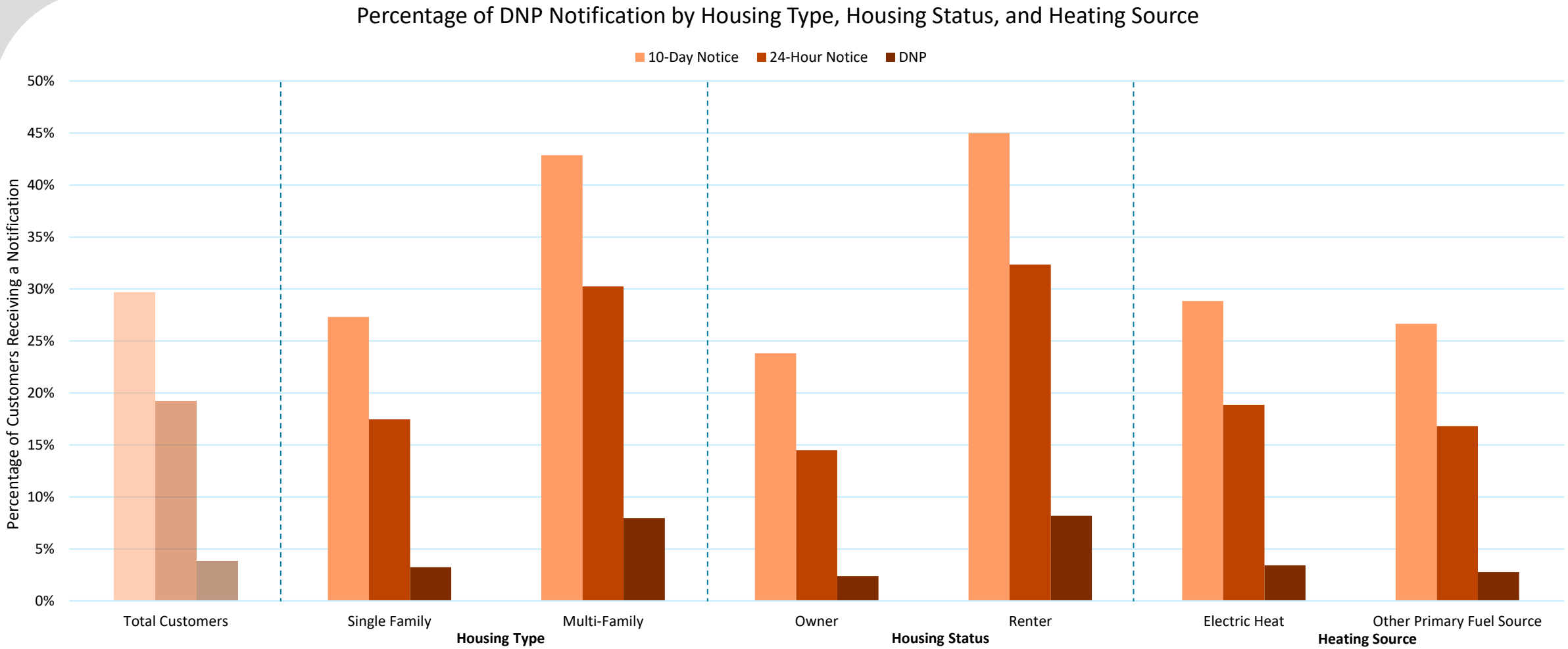
Percentage of DNP Notifications by Notification Type for Housing Type, Housing Status, and Heating Source



% Total Customers in Category*	98%	81%	13%	73%	25%	35%	44%

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

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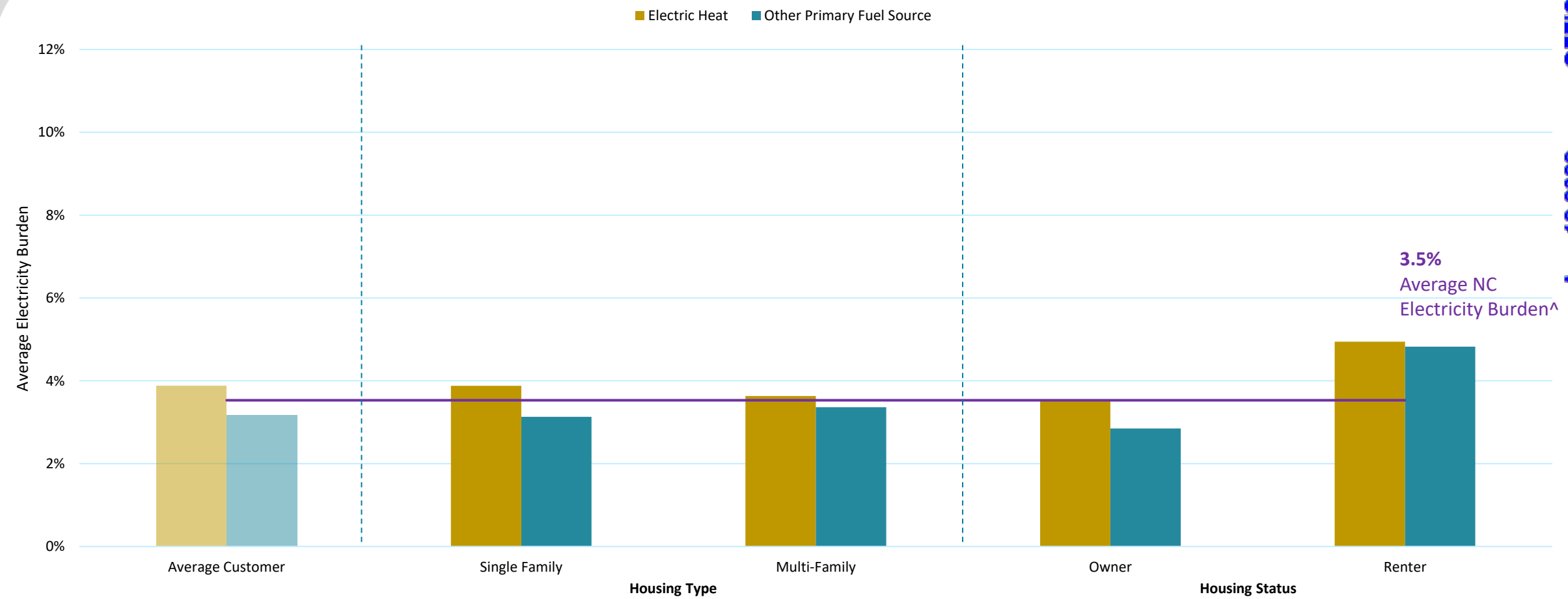
Average Electricity Burden by Heating Source for Housing Type and Housing Status



	Average Customer	Single Family	Multi-Family	Owner	Renter
% Total Customers in Category*	79%	81%	13%	73%	25%

*Not all customers can be categorized, resulting in percentages not necessarily summing to 100%
^The total line includes customers who could not be categorized, therefore there may be instances of all groups above the total

Income Level

Total Numbers	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	53,595	35,003	16,675	21,426	32,096	31,304	19,036
<150% FPL	385,339	288,707	73,114	226,014	159,325	137,088	160,977
150%-200% FPL	271,432	224,095	32,028	197,983	73,449	103,872	115,362
>200%	1,716,956	1,461,124	203,504	1,356,308	360,648	606,039	786,280
Total	2,427,322	2,008,929	325,321	1,801,731	625,518	878,303	1,081,655

Percentage of Customers in each Segment	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	2%	1.4%	0.7%	0.9%	1.3%	1.3%	0.8%
<150% FPL	16%	11.9%	3.0%	9.3%	6.6%	5.6%	6.6%
150%-200% FPL	11%	9.2%	1.3%	8.2%	3.0%	4.3%	4.8%
>200%	71%	60.2%	8.4%	55.9%	14.9%	25.0%	32.4%

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Arrearage Status

Total Numbers	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Meets Arrears Definition	395,204	299,654	81,170	221,791	171,042	147,315	152,792
Does not Meet Arrears Definition	2,089,823	1,709,275	244,151	1,579,940	454,476	731,760	931,129

Percentage of Customers in each Segment	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Meets Arrears Definition	15.9%	12.1%	3.3%	8.9%	6.9%	5.9%	6.1%
Does not Meet Arrears Definition	84.1%	68.8%	9.8%	63.6%	18.3%	29.4%	37.5%

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

Total Numbers	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	8,714	5,925	2,523	2,961	5,745	4,654	3,450
<150% FPL	22,109	13,844	7,211	7,319	14,790	6,191	6,160
150%-200% FPL	11,940	8,539	2,781	5,806	6,134	3,562	3,695
>200%	51,817	36,882	13,383	27,249	24,568	15,610	16,872
Total	96,020	65,190	25,898	43,335	51,237	30,017	30,177

Percentage of Customers in that Segment DNP (i.e., Percentage of Single Family customers that were DNP)	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
LIEAP/CIP	16.3%	16.9%	15.1%	13.8%	17.9%	14.9%	18.1%
<150% FPL	5.7%	4.8%	9.9%	3.2%	9.3%	4.5%	3.8%
150%-200% FPL	4.4%	3.8%	8.7%	2.9%	8.4%	3.4%	3.2%
>200%	3.0%	2.5%	6.6%	2.0%	6.8%	2.6%	2.1%

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DNP Notifications

Total Numbers	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Non-DNP/DLQ	1,765,215	1,460,374	185,828	1,372,290	344,113	625,729	795,541
10-Day Notice	719,816	548,554	139,493	429,439	281,405	253,345	288,379
24-Hour Notice	467,130	350,844	98,410	261,197	202,407	165,754	181,956
DNP	96,020	65,190	25,898	43,335	51,237	30,114	30,183

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of Single Family customers that received a 10-Day Notice)	Total Customers	Single Family	Multi-Family	Owner	Renter	Electric Heat	Other Primary Fuel Source
Non-DNP/DLQ	72.7%	72.7%	57.1%	76.2%	55.0%	71.2%	73.5%
10-Day Notice	29.7%	27.3%	42.9%	23.8%	45.0%	28.8%	26.7%
24-Hour Notice	19.2%	17.5%	30.3%	14.5%	32.4%	18.9%	16.8%
DNP	3.9%	3.2%	8.0%	2.4%	8.2%	3.4%	2.8%

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Electricity Burden

Total Numbers

	Total Customers	Single Family	Multi-Family	Owner	Renter	LIEAP/CIP	Non-LIEAP/CIP	Meets Arrears Definition	Does Not Meet Arrears Definition
Electric Heat	879,075	700,612	143,828	650,508	227,794	31,304	847,771	147,315	731,760
Other Primary Fuel Sources	1,083,921	996,522	45,025	903,247	178,406	19,036	1,064,885	152,792	931,129

Percentage of Customers in each Segment

	Total Customers	Single Family	Multi-Family	Owner	Renter	LIEAP/CIP	Non-LIEAP/CIP	Meets Arrears Definition	Does Not Meet Arrears Definition
Electric Heat	35.4%	28.2%	5.8%	26.2%	9.2%	1.3%	34.1%	5.9%	29.4%
Other Primary Fuel Sources	43.6%	40.1%	1.8%	36.3%	7.2%	0.8%	42.9%	6.1%	37.5%

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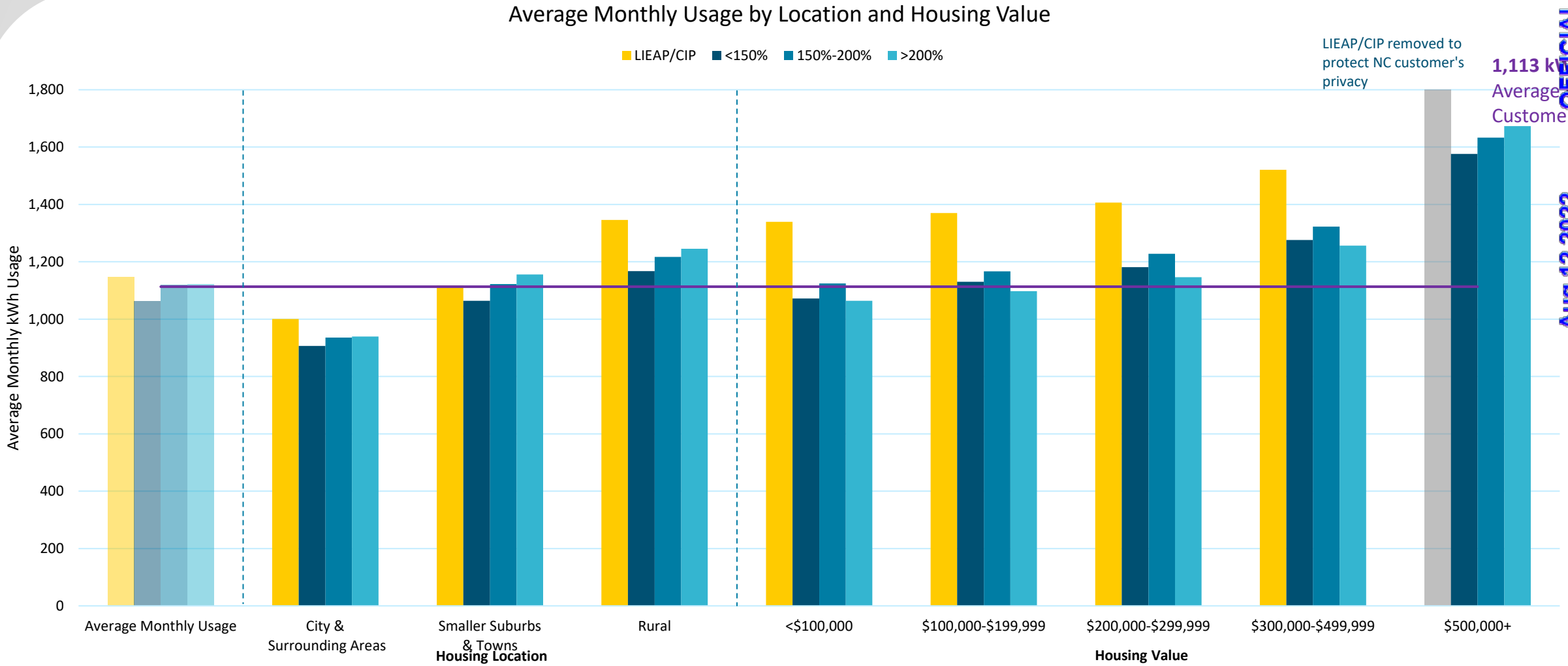
Analysis by Housing Location and Housing Value

Housing Location: City & Surrounding Area, Smaller Suburbs & Towns, Rural

Housing Value: <$100,000, $100,000-$199,999, $200,000-$299,999, $300,000-$499,999, $500,000+

Average Monthly Usage by Income for Location and Housing Value



% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

*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

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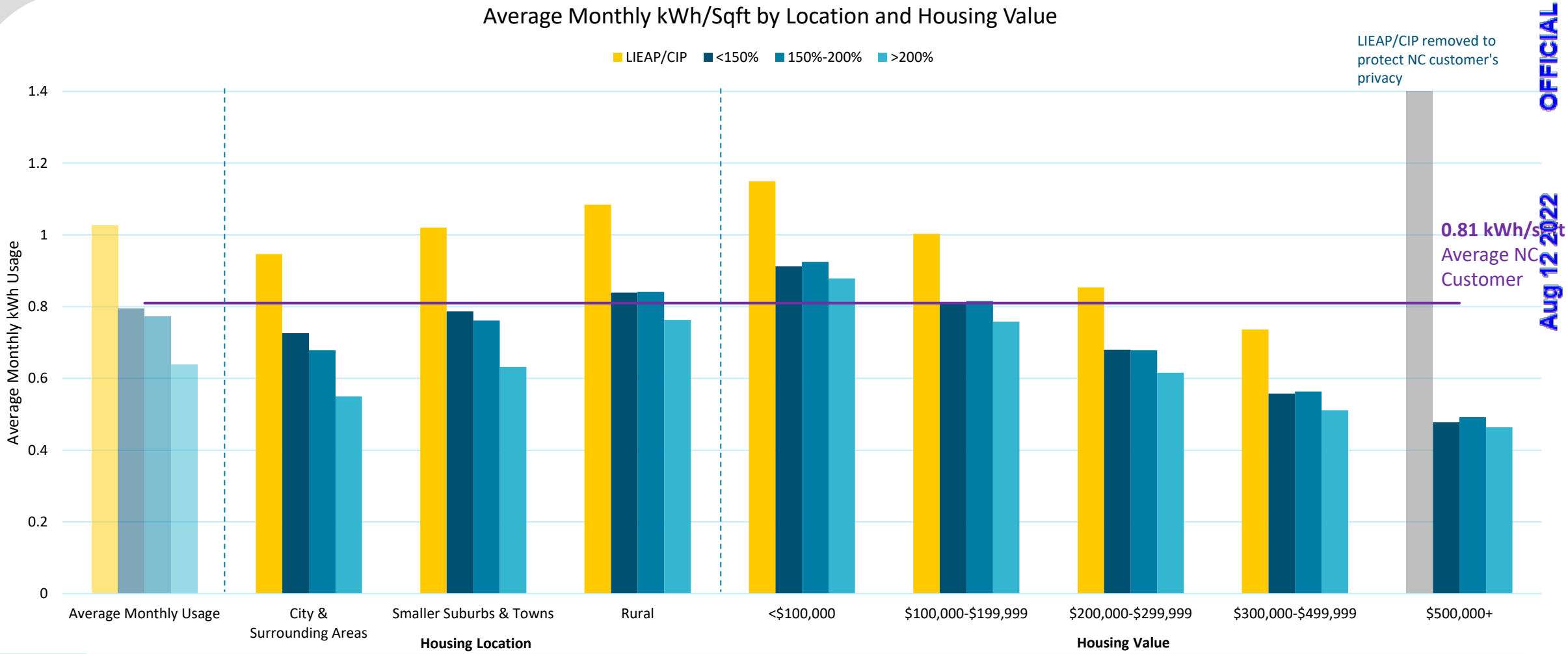
Average Monthly Usage per Square Foot by Income for Location and Housing Value



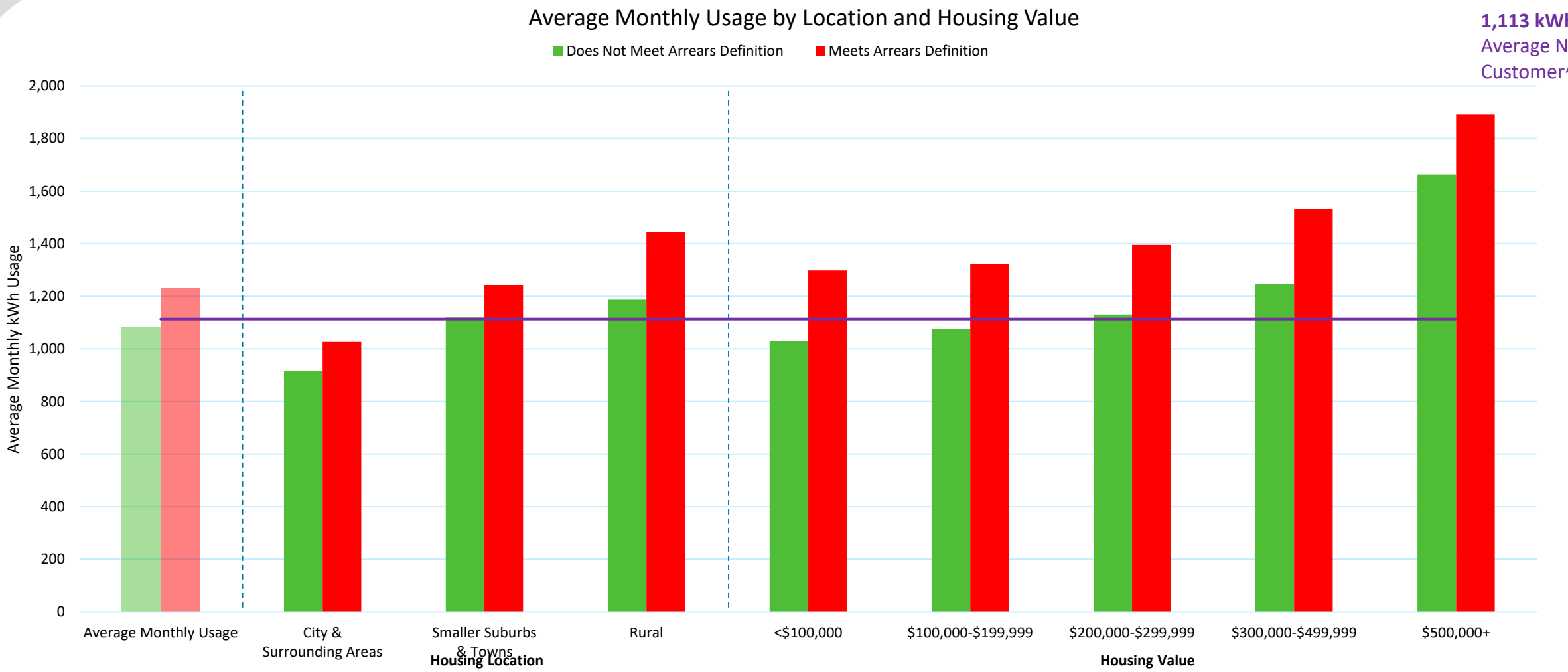
	Average Monthly Usage	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

*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

Average Monthly Usage by Arrearage Status for Location and Housing Value



% Total Customers in Category*	100%	24%	49%	25%	7%	22%	15%	12%	5%

*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

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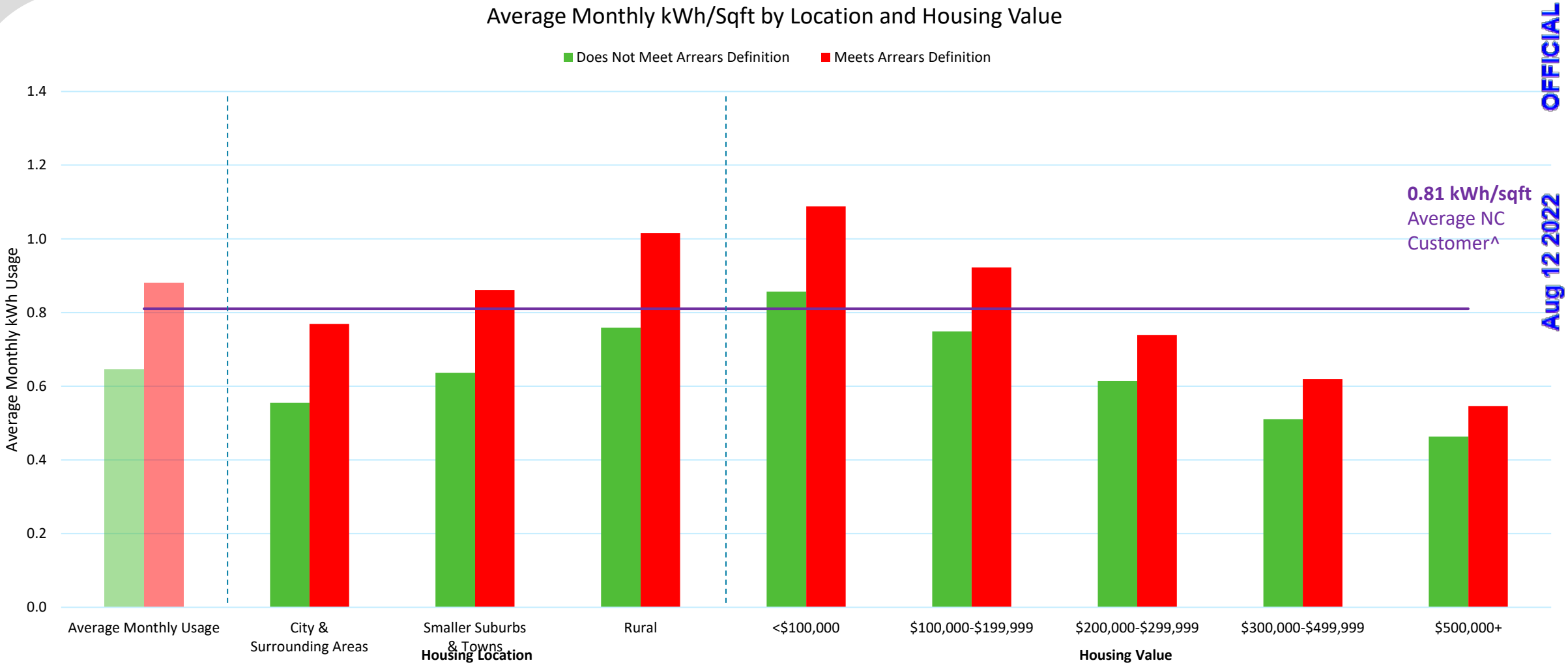
Average Monthly Usage per Square Foot by Arrearage Status for Location and Housing Value



% Total Customers in Category*	100%	24%	49%	25%	7%	22%	15%	12%	5%

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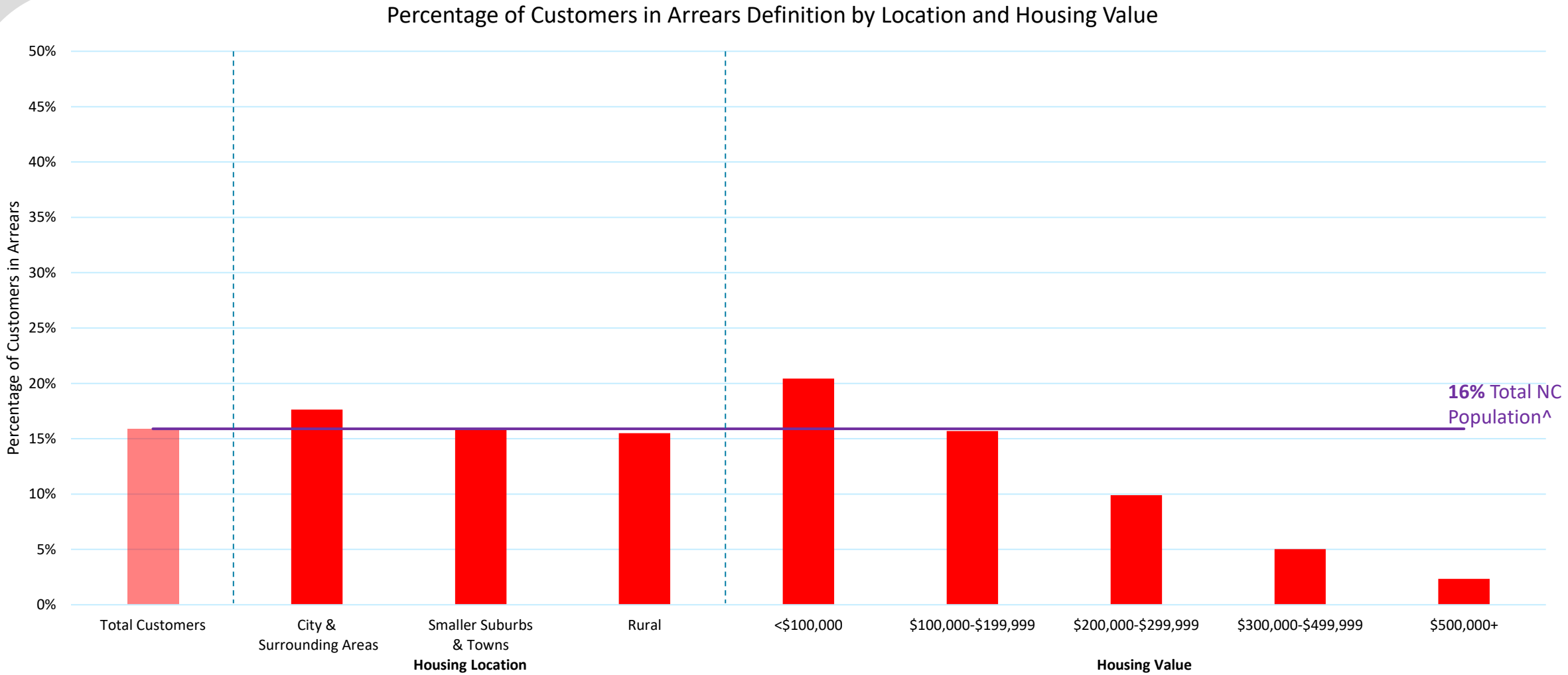
Percentage of Customers in Arrears Definition for Location and Housing Value



% Total Customers in Category*	100%	24%	49%	25%	7%	22%	15%	12%	5%

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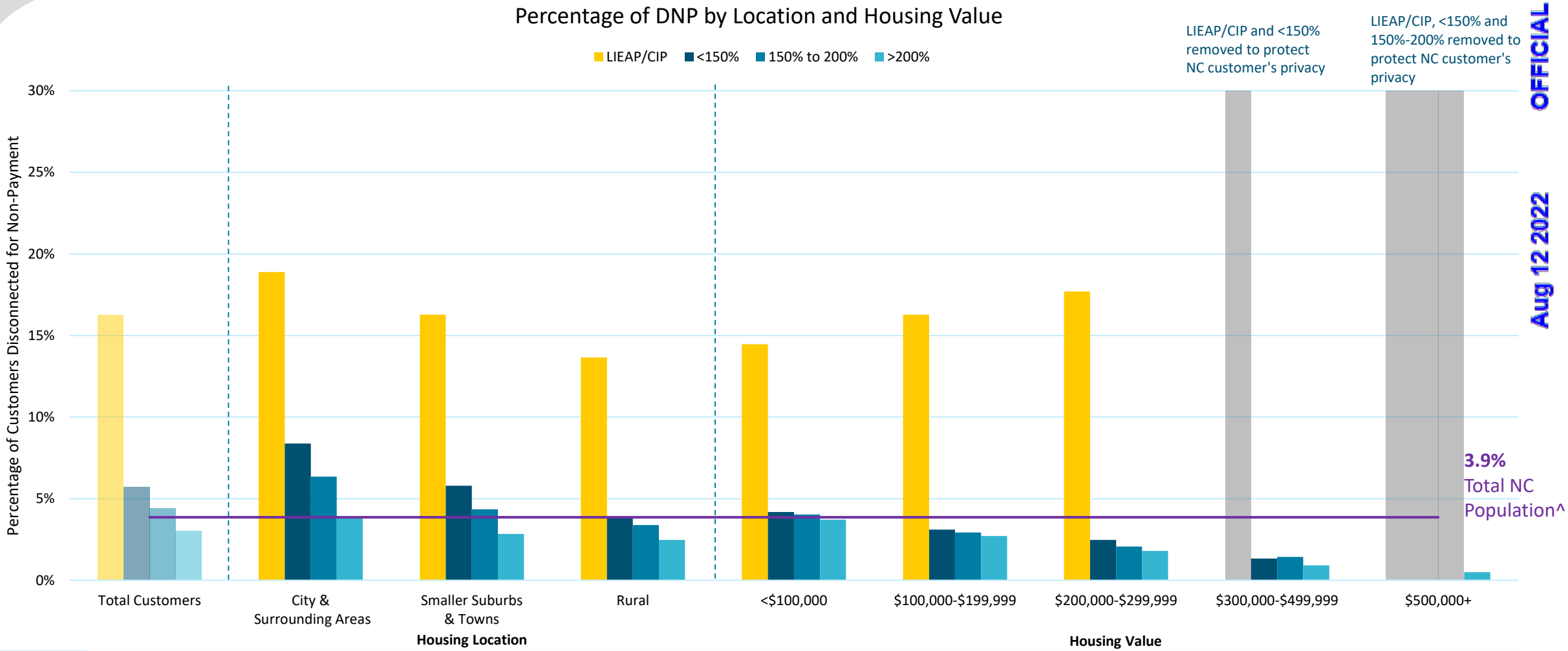
Percentage of DNP by Income for Location and Housing Value



% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

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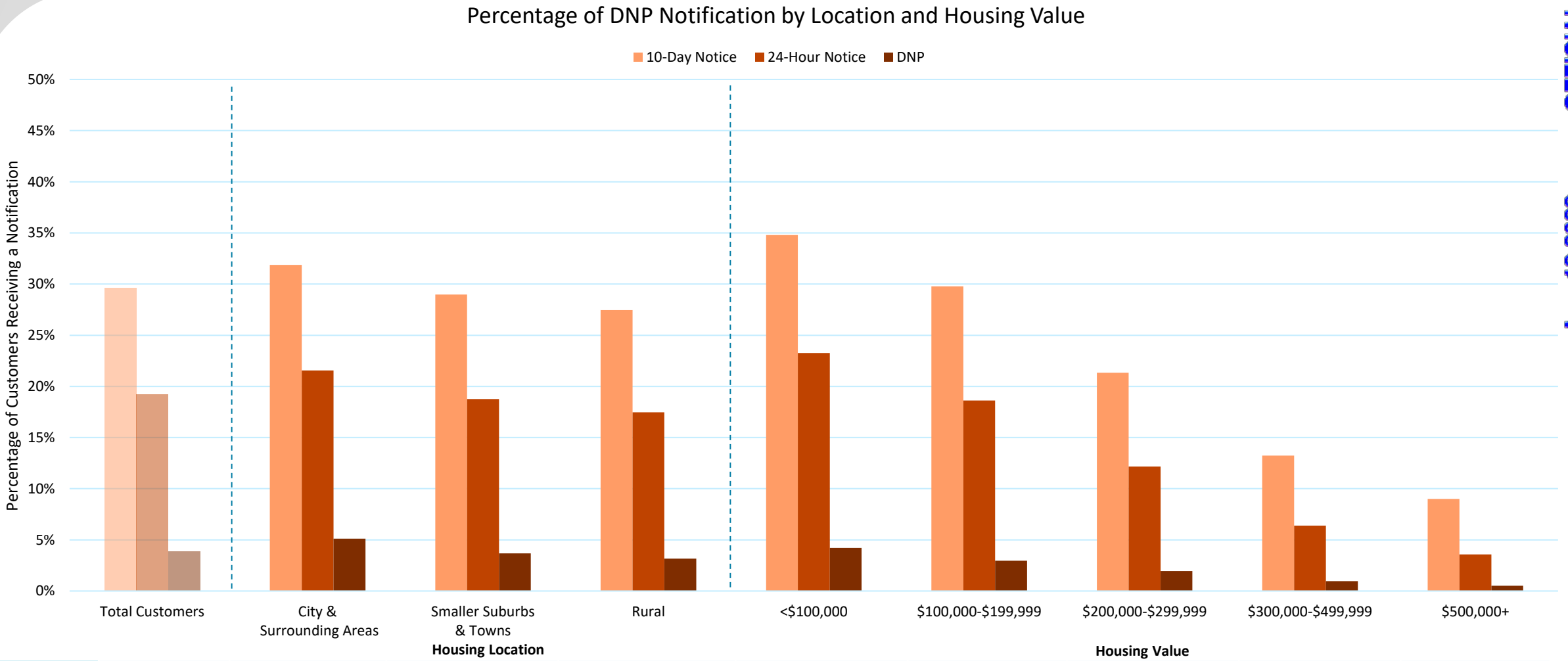
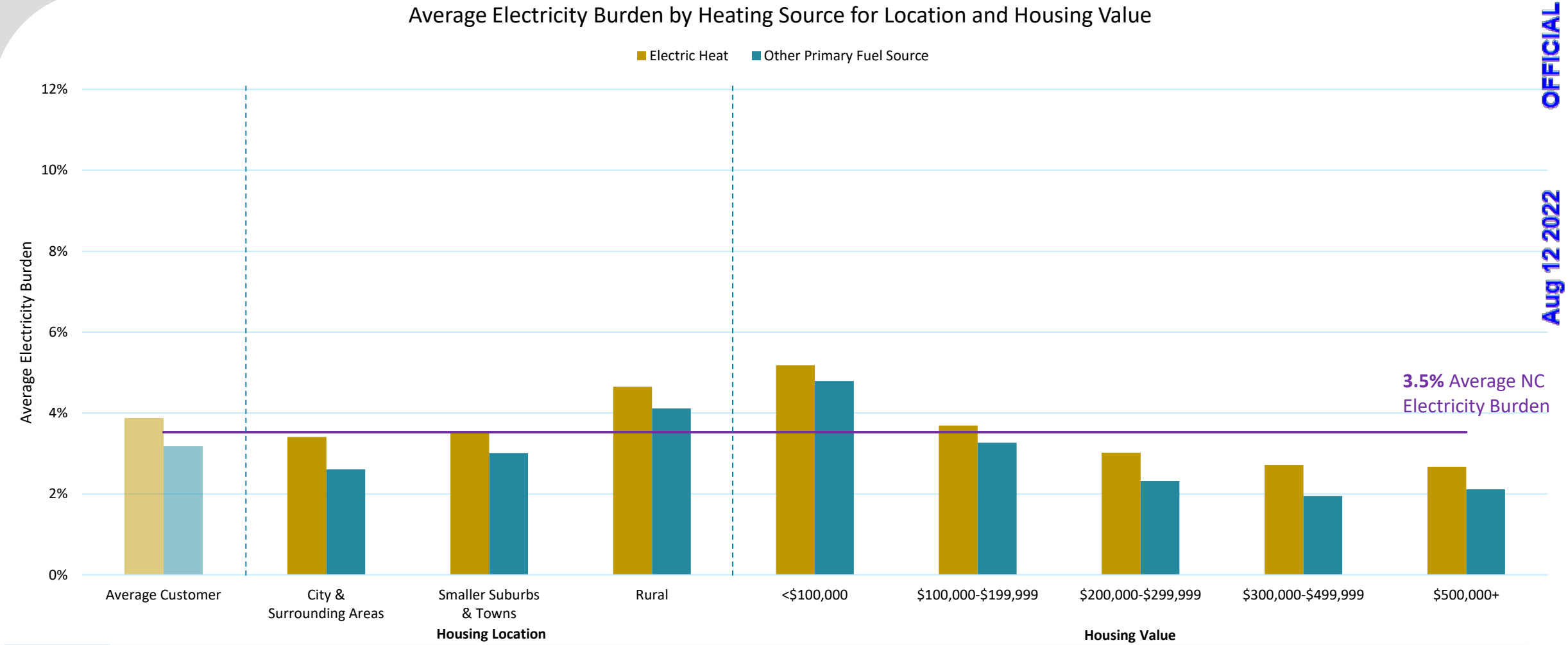
Percentage of DNP Notifications by Notification Type for Location and Housing Value



% Total Customers in Category*	98%	24%	49%	25%	7%	22%	15%	12%	5%

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

Average Electricity Burden by Heating Source for Location and Housing Value



% Total Customers in Category*	79%	24%	49%	25%	7%	22%	15%	12%	5%

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

^The total line includes customers who could not be categorized, therefore there may be instances of all groups above the total

Income Level

Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	14,018	25,207	14,297	4,535	6,046	1,627	347	-
<150% FPL	87,157	166,037	132,145	51,337	80,182	27,323	12,596	3,458
150%-200% FPL	51,749	125,087	94,596	30,121	75,370	32,284	16,360	4,019
>200%	433,504	895,257	388,195	81,870	383,703	322,724	280,723	120,811
Total	586,428	1,211,588	629,233	167,863	545,301	383,958	310,026	-

Percentage of Customers in each Segment

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	0.6%	1.0%	0.6%	0.2%	0.2%	0.1%	0.0%	-
<150% FPL	3.6%	6.8%	5.4%	2.1%	3.3%	1.1%	0.5%	0.1%
150%-200% FPL	2.1%	5.2%	3.9%	1.2%	3.1%	1.3%	0.7%	0.2%
>200%	17.9%	36.9%	16.0%	3.4%	15.8%	13.3%	11.6%	5.0%

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Arrearage Status

Total Numbers	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Meets Arrears Definition	103,427	191,924	97,482	34,301	85,574	37,974	15,555	2,995
Does not Meet Arrears Definition	483,001	1,019,664	531,751	133,562	459,727	345,984	294,471	125,343

Percentage of Customers in each Segment	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Meets Arrears Definition	4.2%	7.7%	3.9%	3.9%	3.4%	1.5%	0.6%	0.1%
Does not Meet Arrears Definition	19.4%	41.0%	21.4%	21.4%	18.5%	13.9%	11.8%	5.0%

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Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	2,648	4,105	1,953	656	984	288	-	-
<150% FPL	7,312	9,625	5,172	2,147	2,497	678	168	-
150%-200% FPL	3,290	5,448	3,202	1,216	2,206	668	234	-
>200%	16,721	25,496	9,600	3,049	10,439	5,827	2565	603
Total	29,971	44,674	19,927	7,068	16,126	7,461	-	659

Percentage of Customers in that Segment DNP (i.e., Percentage of <$100,000 customers that were DNP)

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
LIEAP/CIP	18.9%	16.3%	13.7%	14.5%	16.3%	17.7%	17.6%	10.0%
<150% FPL	8.4%	5.8%	3.9%	4.2%	3.1%	2.5%	1.3%	0.9%
150%-200% FPL	6.4%	4.4%	3.4%	4.0%	2.9%	2.1%	1.4%	0.5%
>200%	3.9%	2.8%	2.5%	3.7%	2.7%	1.8%	0.9%	0.5%

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DNP Notifications

Total Numbers

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Non-DNP/DLQ	399,552	860,367	456,484	109,457	382,864	302,042	269,018	116,783
10-Day Notice	186,876	351,220	172,748	58,405	162,437	81,916	41,008	11,555
24-Hour Notice	126,384	227,356	109,864	39,066	101,501	46,705	19,807	4,580
DNP	29,971	44,674	19,927	7,068	16,126	7,461	-	659

Percentage of Customers in that Segment DNP Received a DNP Notification (i.e., Percentage of <$100,000 customers that received a 10-Day Notice)

	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Non-DNP/DLQ	68.1%	71.0%	72.5%	65.2%	70.2%	78.7%	86.8%	91.0%
10-Day Notice	31.9%	29.0%	27.5%	34.8%	29.8%	21.3%	13.2%	9.0%
24-Hour Notice	21.6%	18.8%	17.5%	23.3%	18.6%	12.2%	6.4%	3.6%
DNP	5.1%	3.7%	3.2%	4.2%	3.0%	1.9%	-	0.5%

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Electricity Burden

Total Numbers	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Electric Heat	157,915	437,836	282,551	58,703	229,745	138,982	86,332	24,943
Other Primary Fuel Sources	270,100	550,939	260,614	88,038	246,138	192,530	182,551	85,801

Percentage of Customers in each Segment	City & Surrounding Areas	Smaller Suburbs & Towns	Rural	<$100,000	$100,000-$199,999	$200,000-$299,999	$300,000-$499,999	$500,000+
Electric Heat	6.4%	17.6%	11.4%	2.4%	9.2%	5.6%	3.5%	1.0%
Other Primary Fuel Sources	10.9%	22.2%	10.5%	3.5%	9.9%	7.7%	7.3%	3.5%

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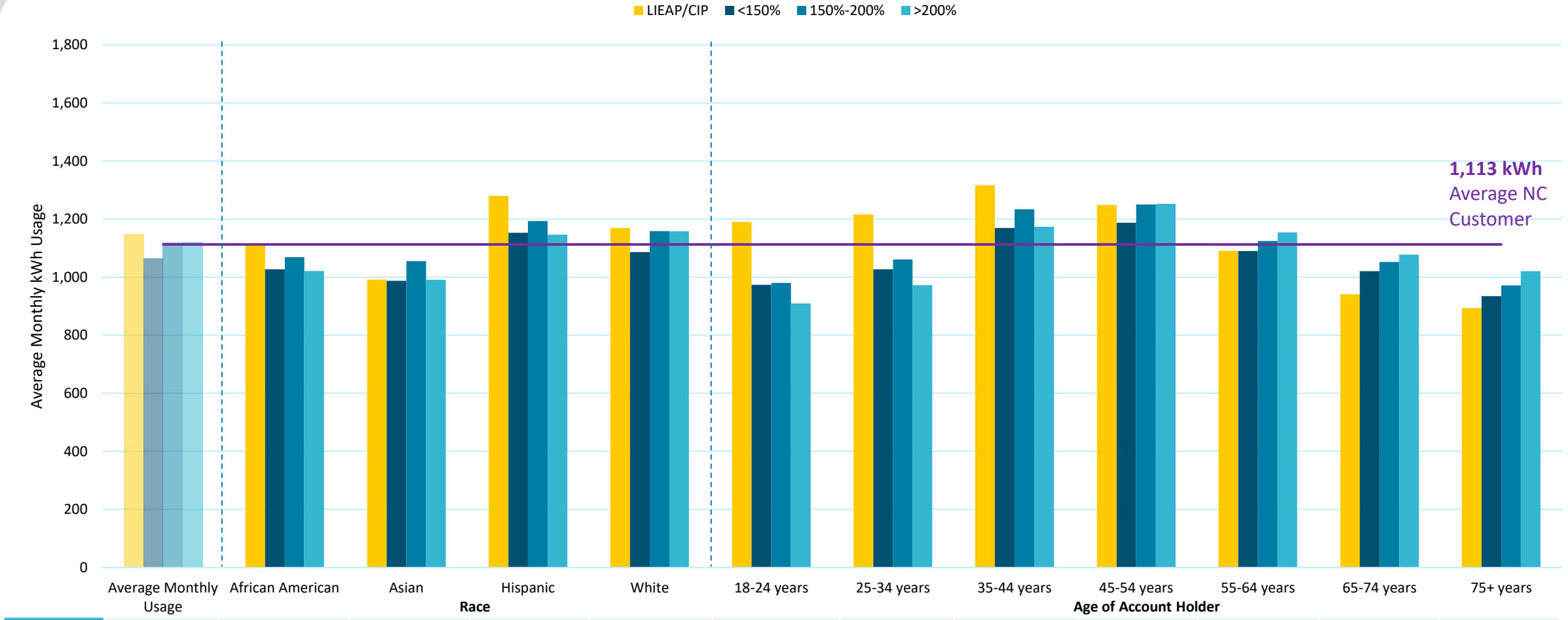
Analysis by Race and Age of the Account Holder

Race: African American, Asian, Hispanic, White

Age of Account Holder: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75+

Average Monthly Usage by Income for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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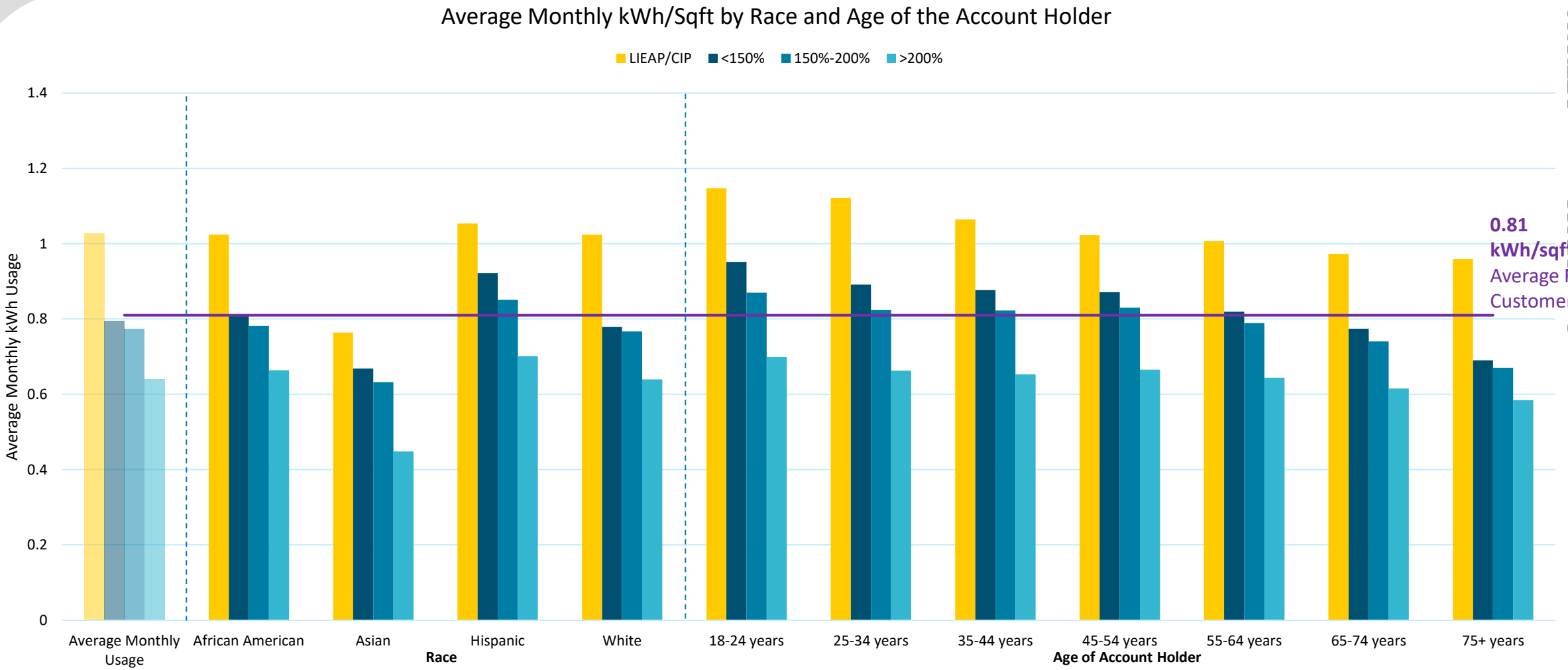
^The average line includes customers who could not be categorized, therefore there may be instances of all groups above average

Average Monthly Usage per Square Foot by Income for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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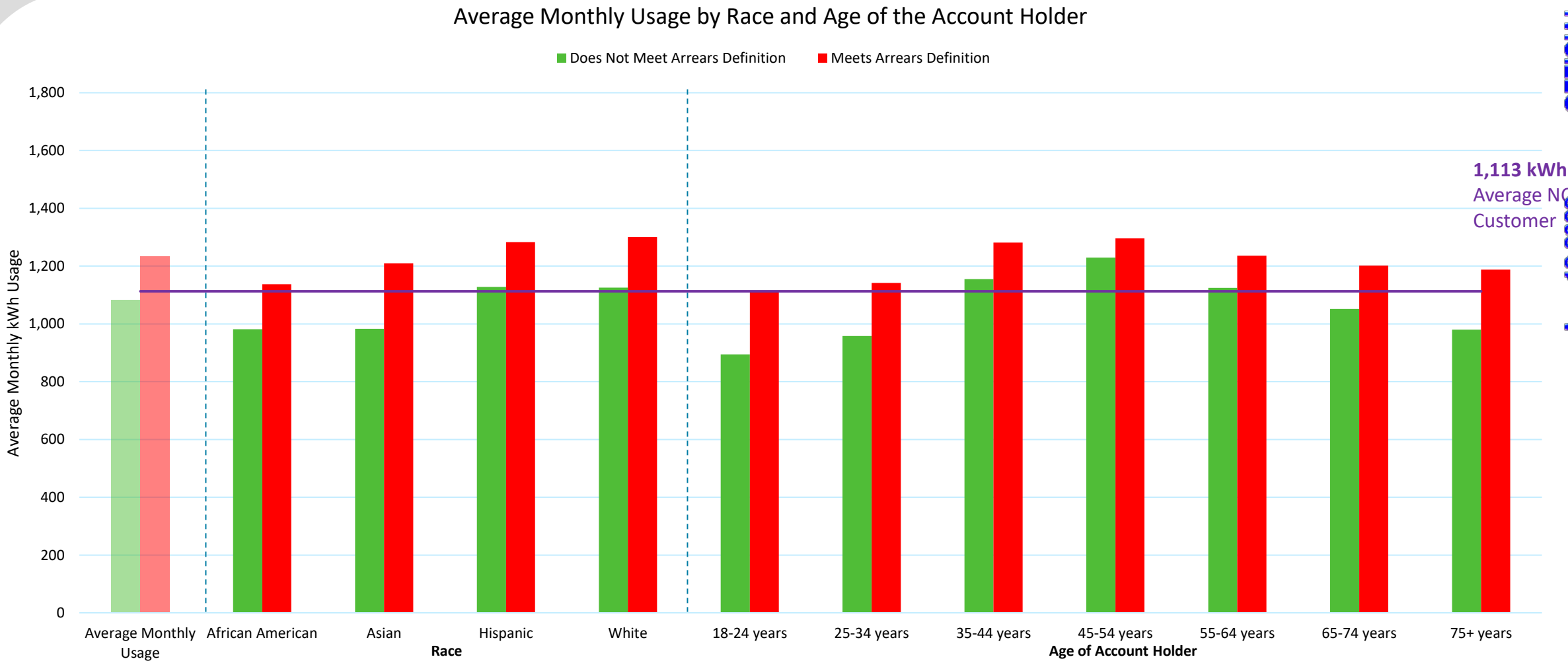
Average Monthly Usage by Arrearage Status for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	100%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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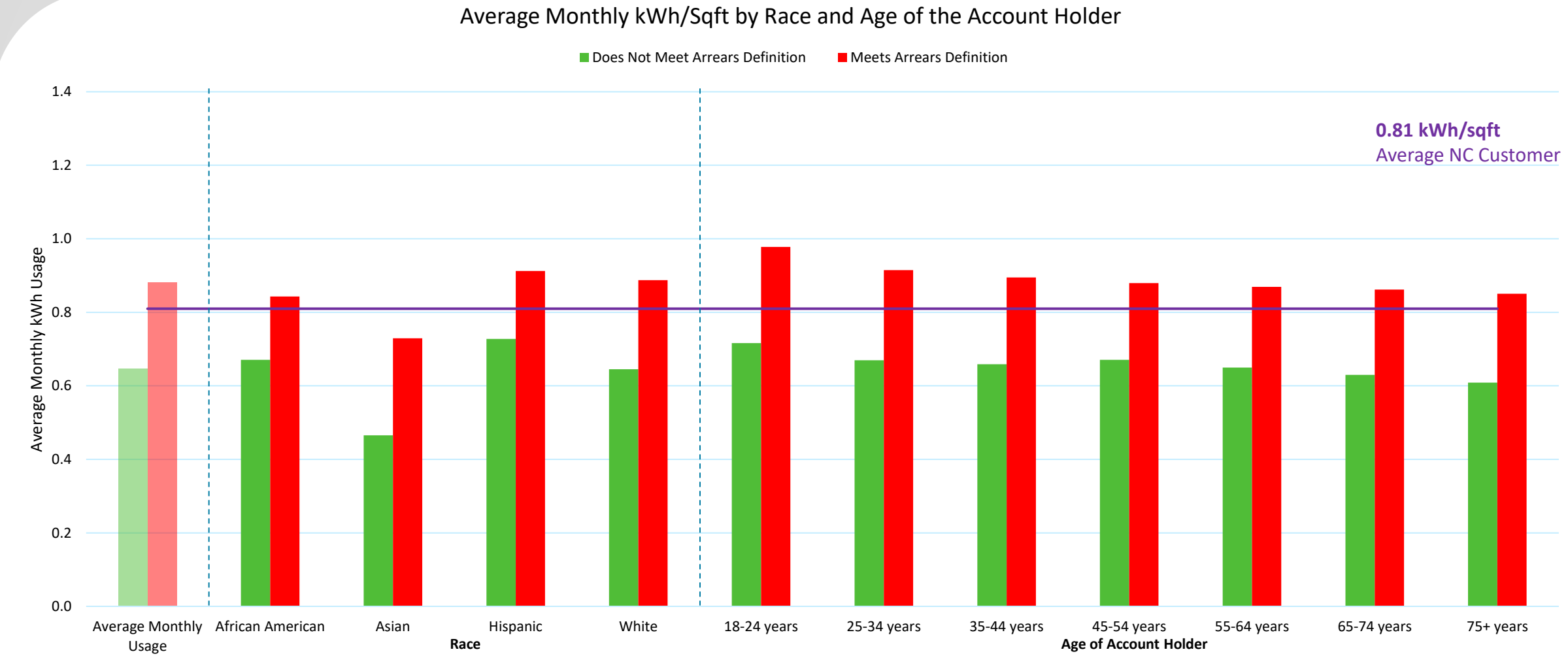
Average Monthly Usage per Square Foot by Arrearage Status for Race and Age of the Account Holder



	Average Monthly Usage	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	100%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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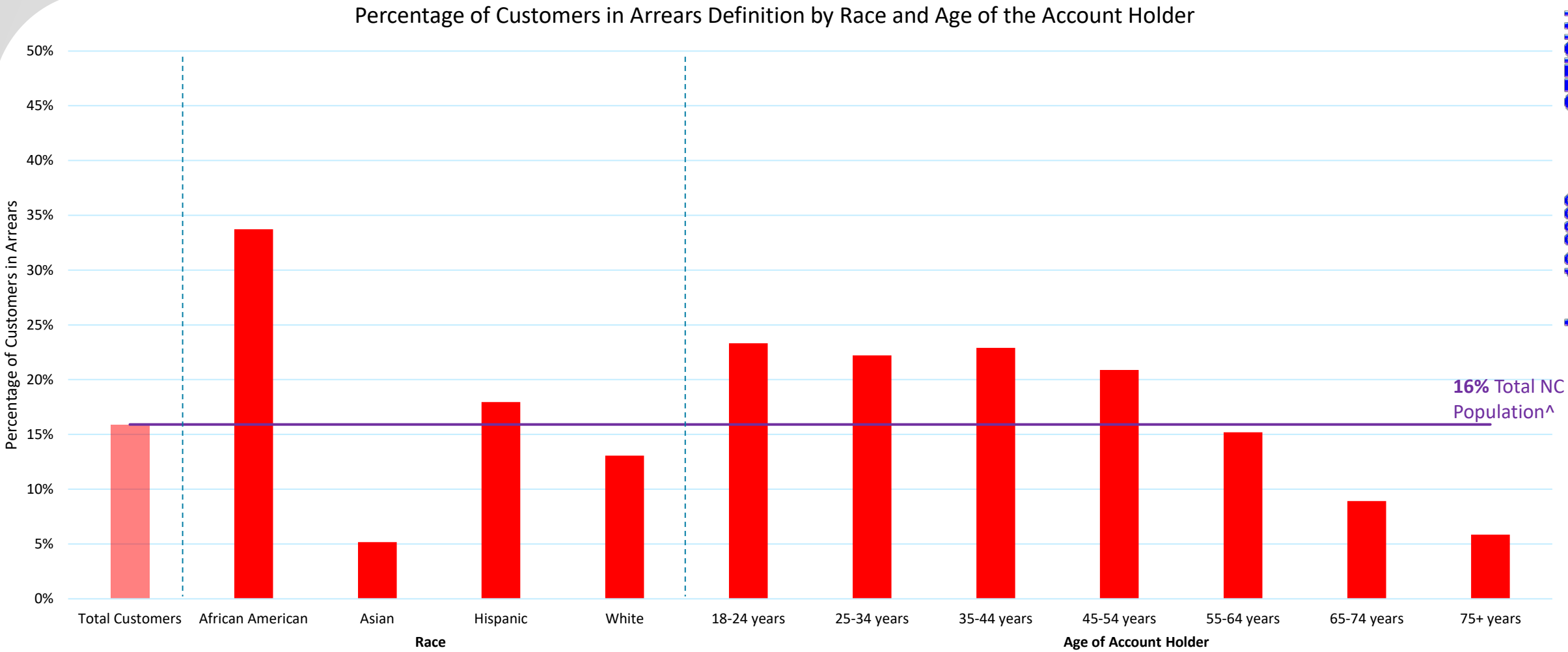
Percentage of Customers in Arrears Definition for Race and Age of the Account Holder



	Total Customers	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	100%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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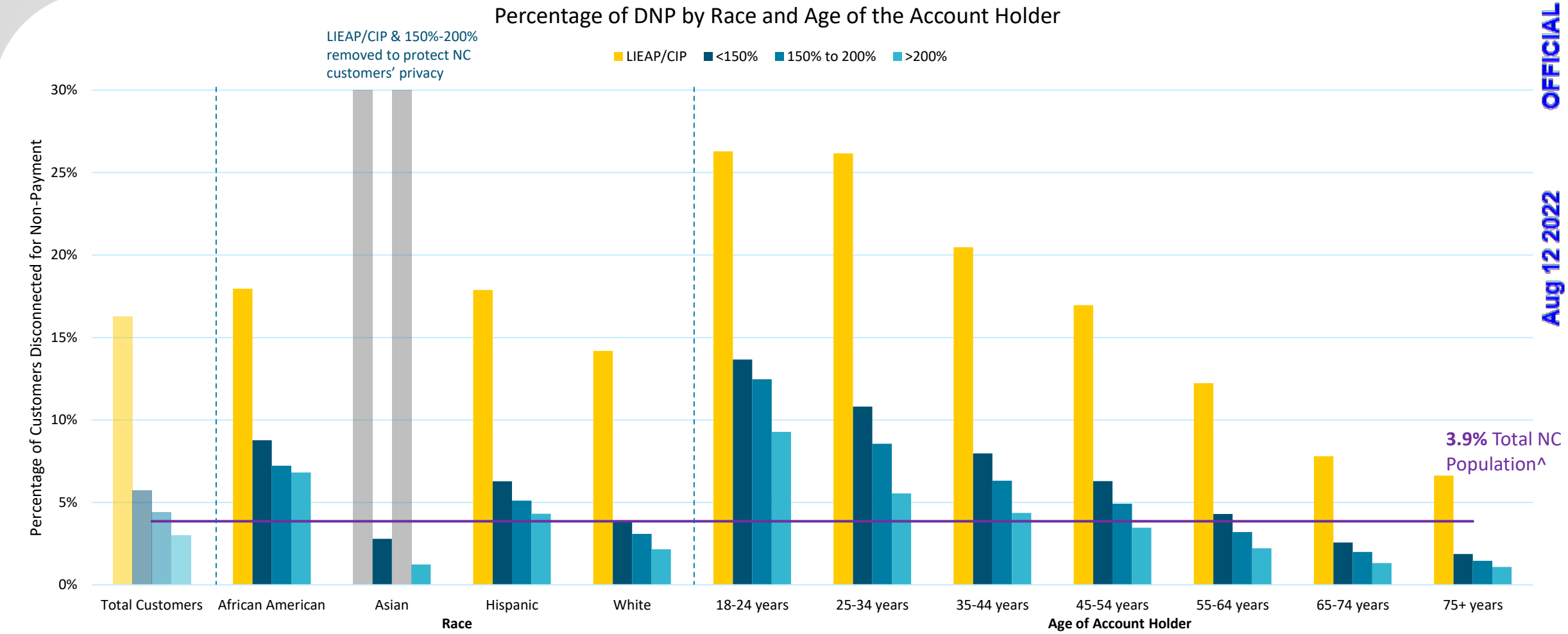
Percentage of DNP by Income for Race and Age of the Account Holder



	Total Customers	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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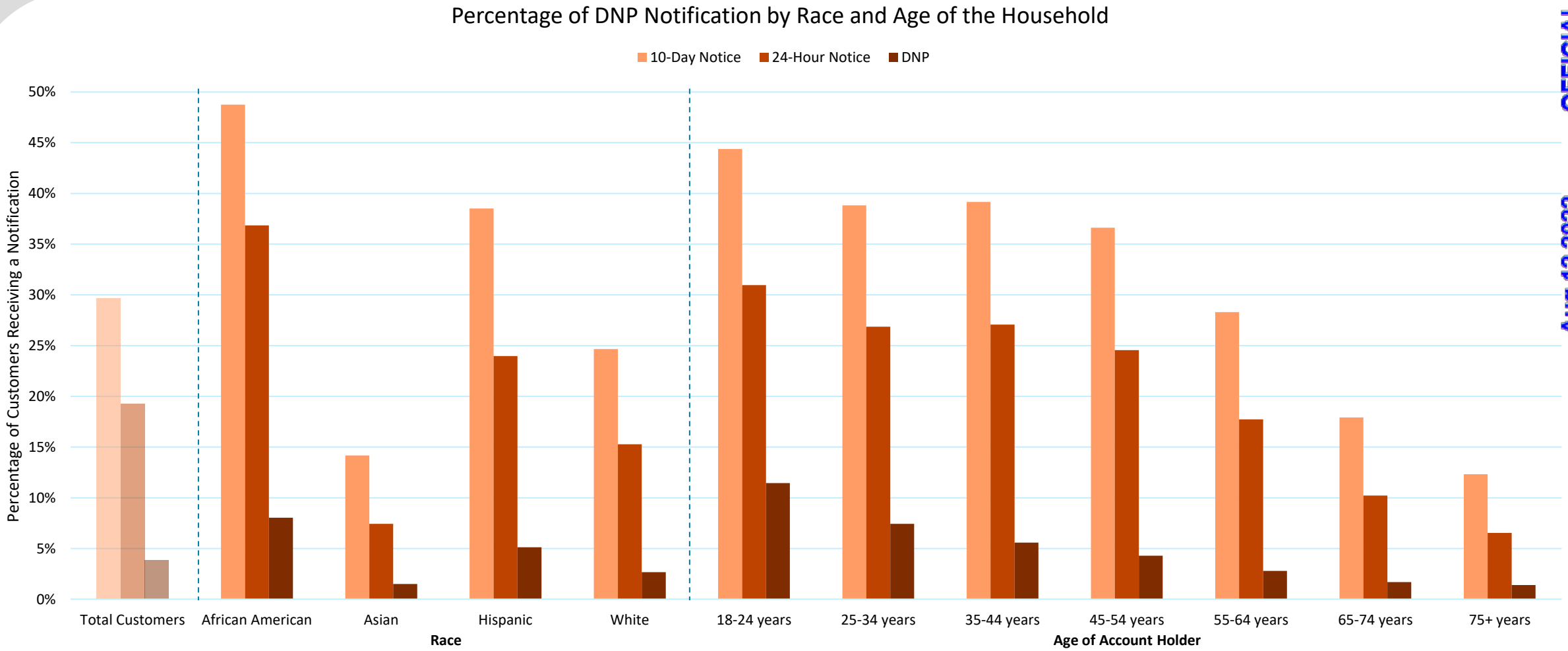
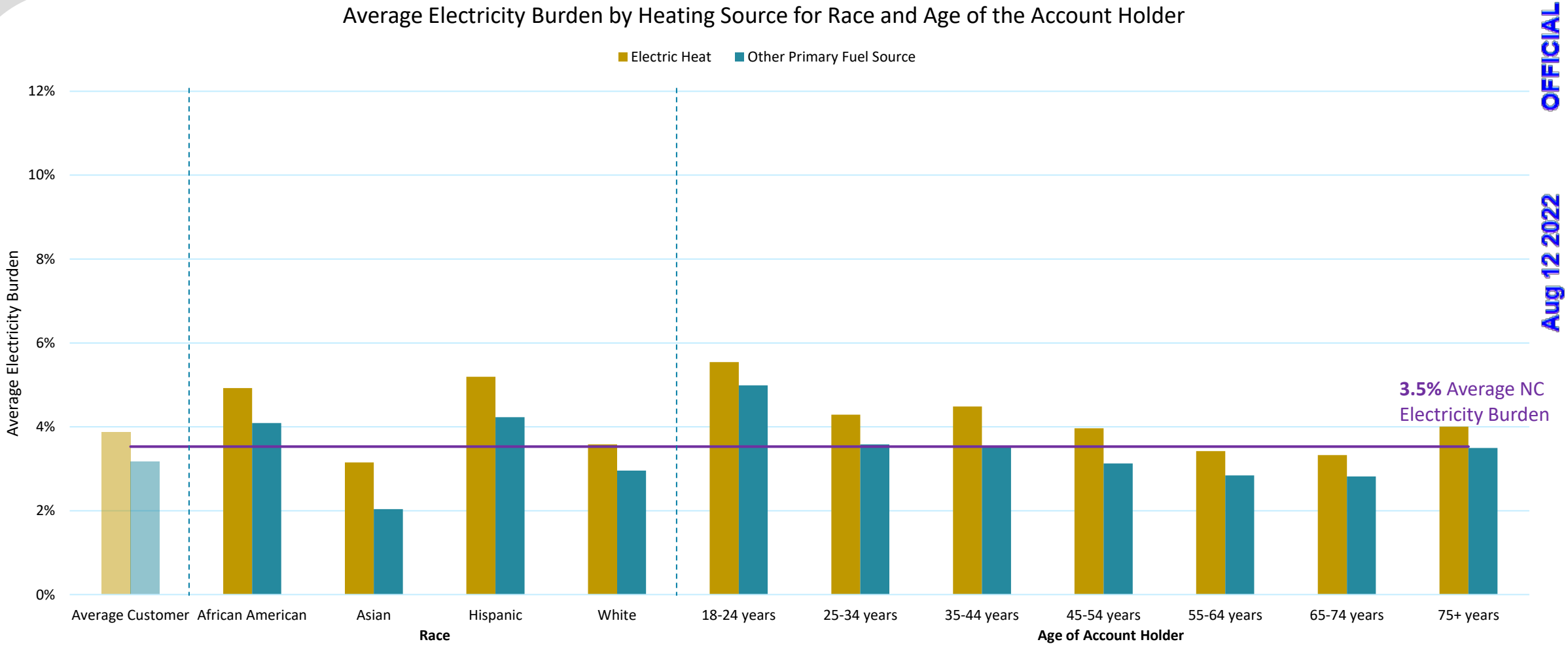
Percentage of DNP Notifications by Notification Type for Race and Age of the Account Holder



	Total Customers	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	98%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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

Average Electricity Burden by Heating Source for Race and Age of the Account Holder



	Average Customer	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
% Total Customers in Category	79%	11%	2%	5%	71%	2%	12%	16%	18%	20%	17%	13%

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Income Level

Total Number of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
LIEAP/CIP	18,509	306	2,348	26,355	1,617	8,778	10,489	9,454	10,740	8,051	4,391
<150% FPL	59,739	5,272	26,773	239,271	14,945	53,015	62,326	63,061	59,109	53,766	78,031
150%-200% FPL	31,573	3,872	14,034	184,245	6,513	30,506	45,017	51,861	50,425	42,012	44,647
>200%	167,309	45,006	76,216	1,316,849	29,571	198,463	275,619	333,796	364,996	309,137	203,998
Total	277,130	54,456	119,371	1,766,720	52,646	290,762	393,451	458,172	485,270	412,966	331,067

Percentage of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
LIEAP/CIP	0.8%	0.0%	0.1%	1.1%	0.1%	0.4%	0.4%	0.4%	0.4%	0.3%	0.2%
<150% FPL	2.5%	0.2%	1.1%	9.9%	0.6%	2.2%	2.6%	2.6%	2.4%	2.2%	3.2%
150%-200% FPL	1.3%	0.2%	0.6%	7.6%	0.3%	1.3%	1.9%	2.1%	2.1%	1.7%	1.8%
>200%	6.9%	1.9%	3.1%	54.3%	1.2%	8.2%	11.4%	13.8%	15.0%	12.7%	8.4%

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Arrearage Status

Total Numbers

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Meets Arrears Definition	93,473	2,819	21,424	230,942	12,274	64,618	90,117	95,648	73,717	36,793	19,404
Does not Meet Arrears Definition	183,657	51,637	97,947	1,535,778	40,372	226,144	303,334	362,525	411,553	376,175	311,664

Percentage of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Meets Arrears Definition	3.8%	0.1%	0.9%	9.3%	0.5%	2.6%	3.6%	3.8%	3.0%	1.5%	0.8%
Does not Meet Arrears Definition	7.4%	2.1%	3.9%	61.8%	1.6%	9.1%	12.2%	14.6%	16.6%	15.1%	12.5%

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Total Numbers

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
LIEAP/CIP	3,325	-	420	3,738	425	2,297	2,147	1,604	1,314	628	291
<150% FPL	5,236	147	1,682	9,302	2042	5,731	4,968	3,966	2,542	1,380	1,462
150%-200% FPL	2,283	-	717	5687	812	2,609	2,846	2,553	1,617	841	654
>200%	11,403	559	3,289	28,401	2,744	11,002	12,037	11,582	8,113	4,099	2,225
Total	22,247	817	6,108	47,128	6,023	21,639	21,998	19,705	13,586	6,948	4,632

Percentage of Customers in that Segment DNP (i.e., Percentage of 18-24 years old customers that were DNP)

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
LIEAP/CIP	18.0%	-	17.9%	14.2%	26.3%	26.2%	20.5%	17.0%	12.2%	7.8%	6.6%
<150% FPL	8.8%	2.8%	6.3%	3.9%	13.7%	10.8%	8.0%	6.3%	4.3%	2.6%	1.9%
150%-200% FPL	7.2%	-	5.1%	3.1%	12.5%	8.6%	6.3%	4.9%	3.2%	2.0%	1.5%
>200%	6.8%	1.2%	4.3%	2.2%	9.3%	5.5%	4.4%	3.5%	2.2%	1.3%	1.1%

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DNP Notifications

Total Numbers

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
Non-DNP/DLQ	142,059	46,741	73,388	1,331,163	29,284	177,862	239,375	290,373	347,921	338,994	29,0276
10-Day Notice	135,071	7,715	45,983	435,555	23,362	112,900	154,076	167,800	137,349	73,974	40,790
24-Hour Notice	102,118	4,050	28,620	269,947	16,304	78,110	106,486	112,487	86,004	42,231	21,653
DNP	22,247	817	6108	47,128	6,023	21,639	21,998	19,705	13,586	6,948	4,632

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of 18-24 years old customers received a 10-Day Notice)

	African American	Asian	Hispanic	White	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-64 years old	65-74 years old	75+ years old
Non-DNP/DLQ	51.3%	85.8%	61.5%	75.3%	55.6%	61.2%	60.8%	63.4%	71.7%	82.1%	87.7%
10-Day Notice	48.7%	14.2%	38.5%	24.7%	44.4%	38.8%	39.2%	36.6%	28.3%	17.9%	12.3%
24-Hour Notice	36.8%	7.4%	24.0%	15.3%	31.0%	26.9%	27.1%	24.6%	17.7%	10.2%	6.5%
DNP	8.0%	1.5%	5.1%	2.7%	11.4%	7.4%	5.6%	4.3%	2.8%	1.7%	1.4%

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

Electricity Burden

Total Numbers

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Electric Heat	98,444	12,677	46,895	655,327	12,964	96,126	141,467	170,500	185,412	159,655	111,768
Other Primary Fuel Sources	116,682	32,401	52,363	823,332	7,998	84,361	165,190	215,166	234,875	202,810	169,324

Percentage of Customers in each Segment

	African American	Asian	Hispanic	White	18-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75+ years
Electric Heat	4.0%	0.5%	1.9%	26.4%	0.5%	3.9%	5.7%	6.9%	7.5%	6.4%	4.5%
Other Primary Fuel Sources	4.7%	1.3%	2.1%	33.1%	0.3%	3.4%	6.6%	8.7%	9.5%	8.2%	6.8%

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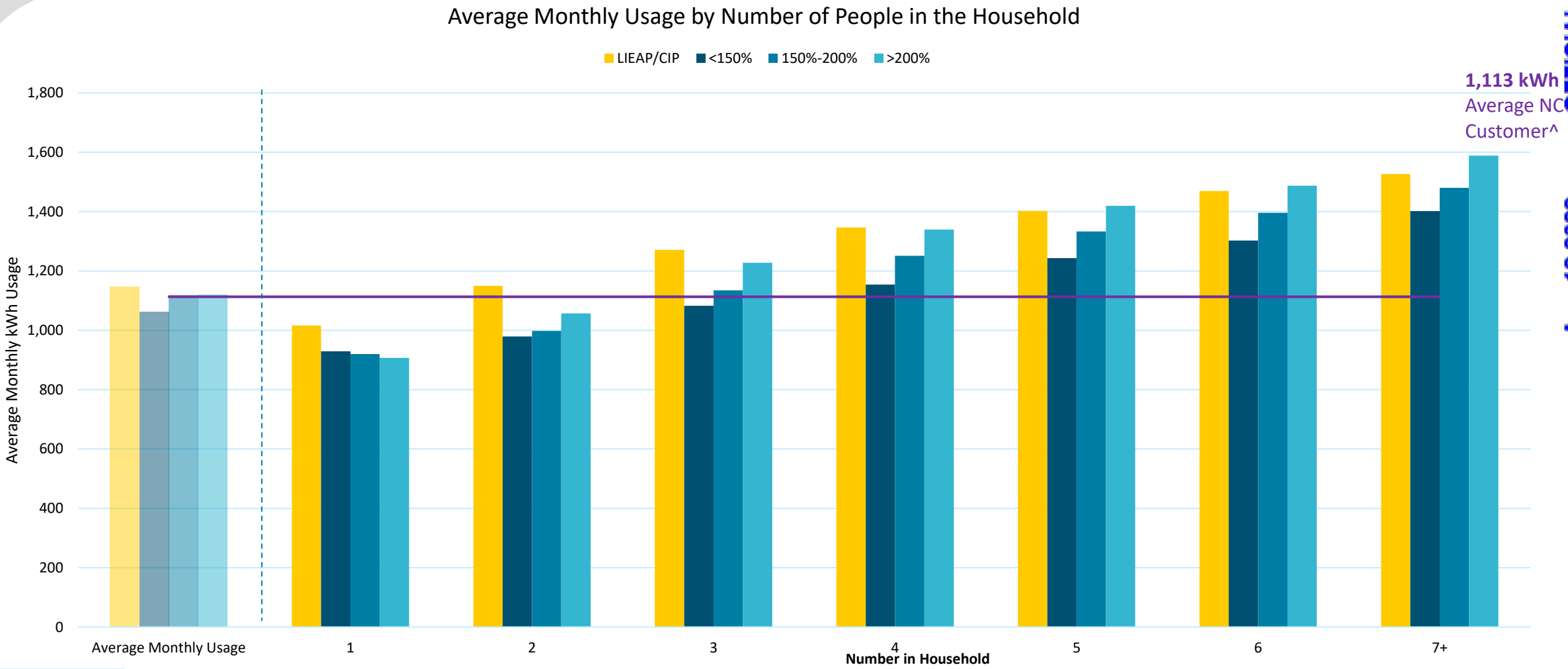
Analysis by Number of People in the Household

Number of People in the Household: 1, 2, 3, 4, 5, 6, 7+

Average Monthly Usage by Income for Number of People in the Household



	Average Monthly Usage	1	2	3	4	5	6	7+
% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

*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

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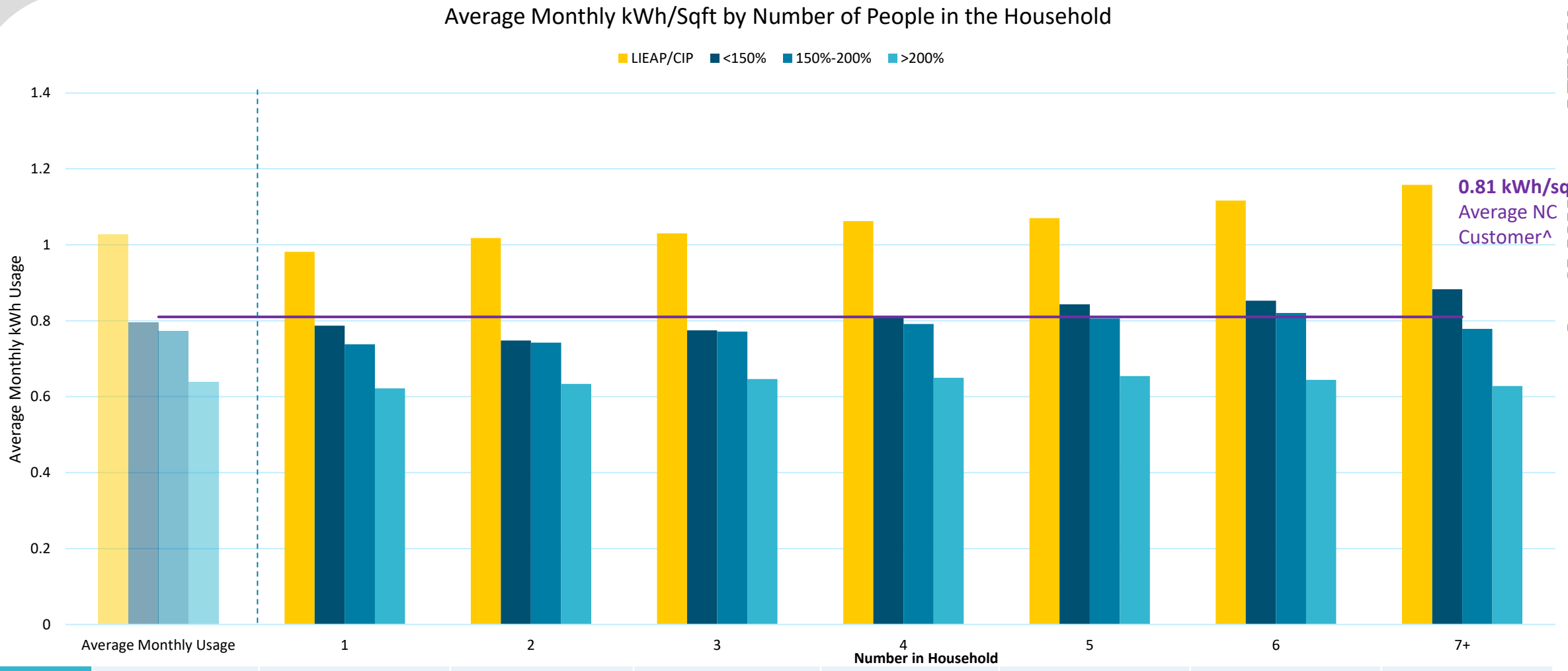
Average Monthly Usage per Square Foot by Income for Number of People in the Household



% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

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

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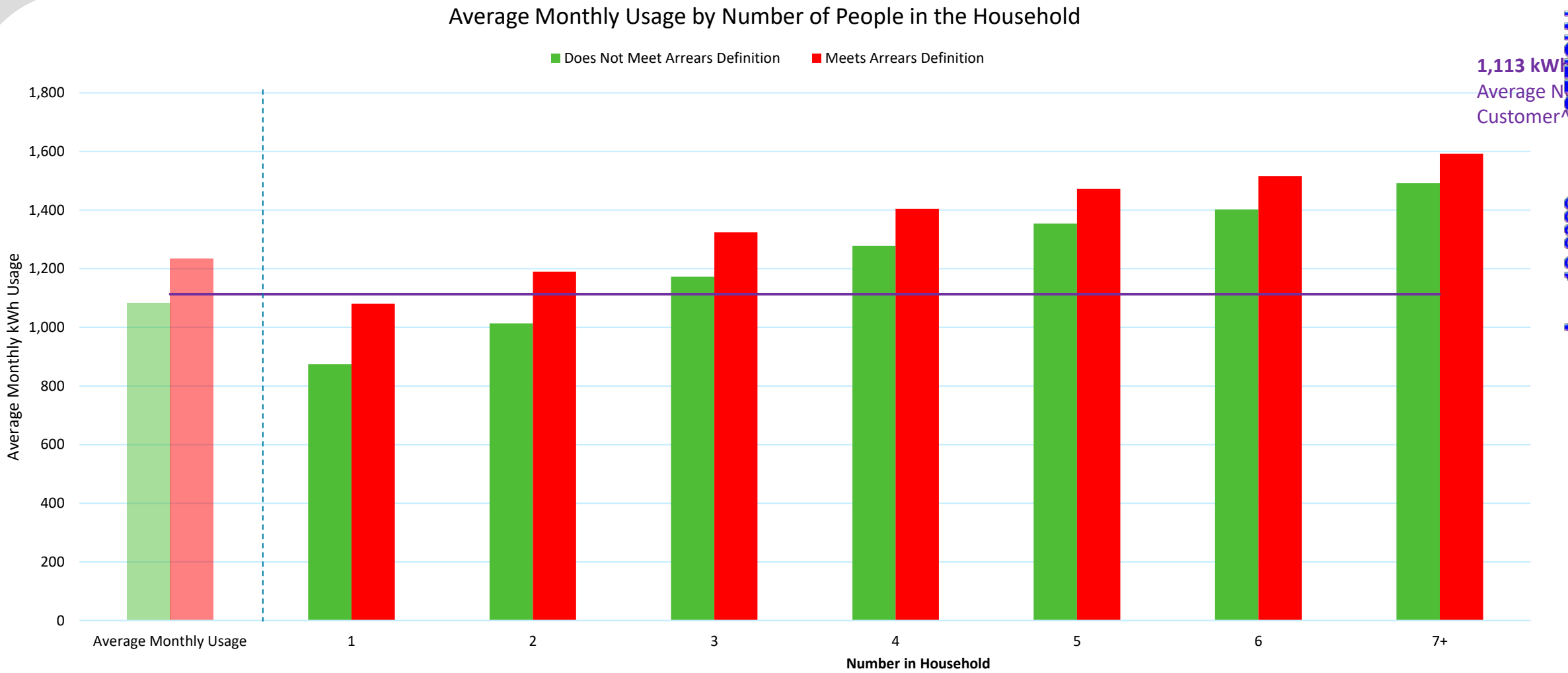
The data included in this presentation is specific to eligible accounts from March 2019 - February 2020 for purposes of Low-Income Affordability Collaborative analysis

Average Monthly Usage by Arrearage Status for Number of People in the Household



% Total Customers in Category*	100%	25%	29%	22%	12%	6%	3%	1%

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

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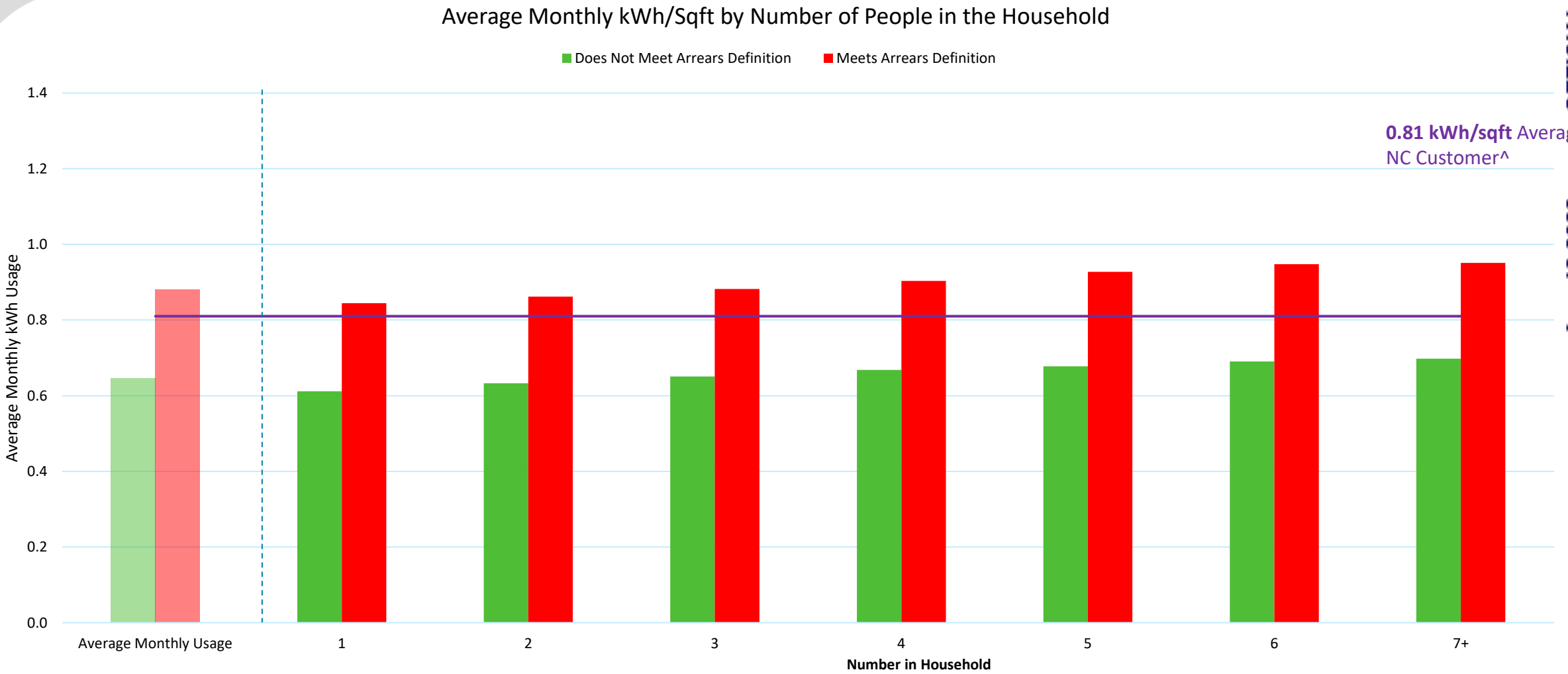
Average Monthly Usage per Square Foot by Arrearage Status for Number of People in the Household

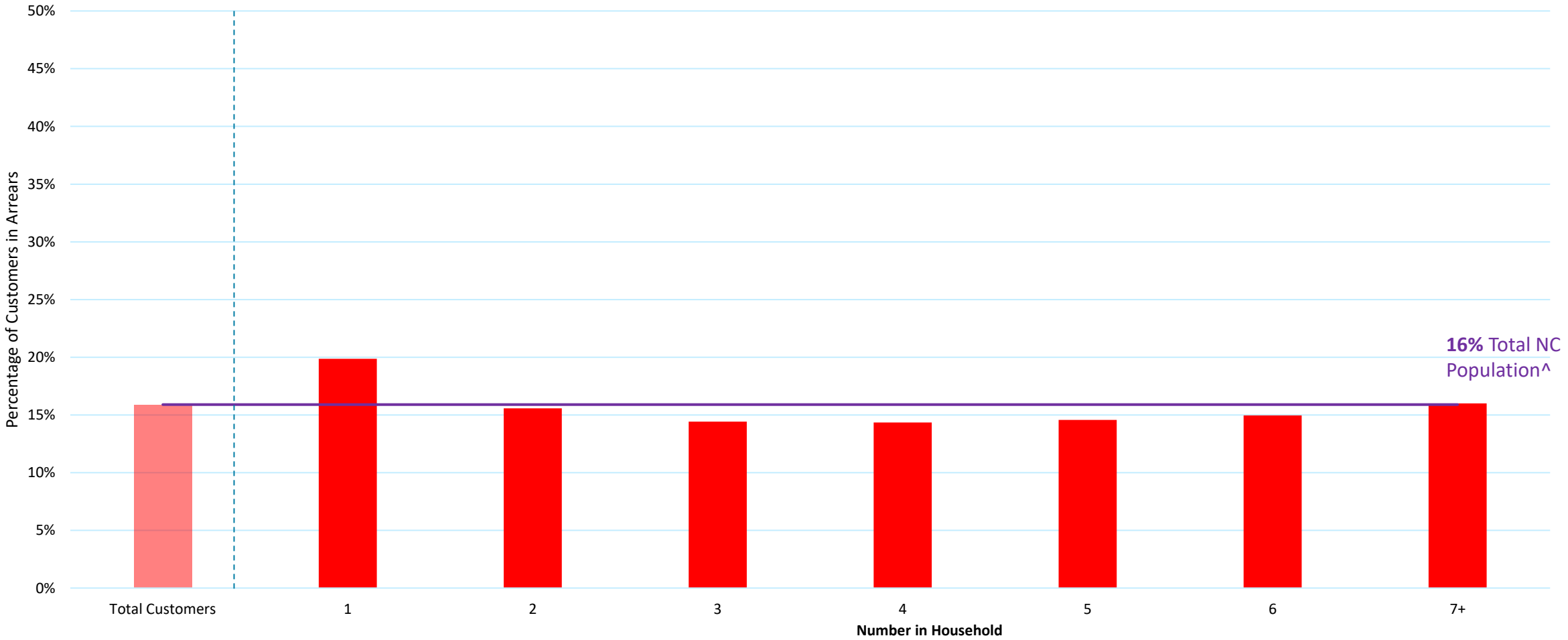


% Total Customers in Category*	100%	25%	29%	22%	12%	6%	3%	1%

*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

Percentage of Customers in Arrears Definition for Number of People in the Household

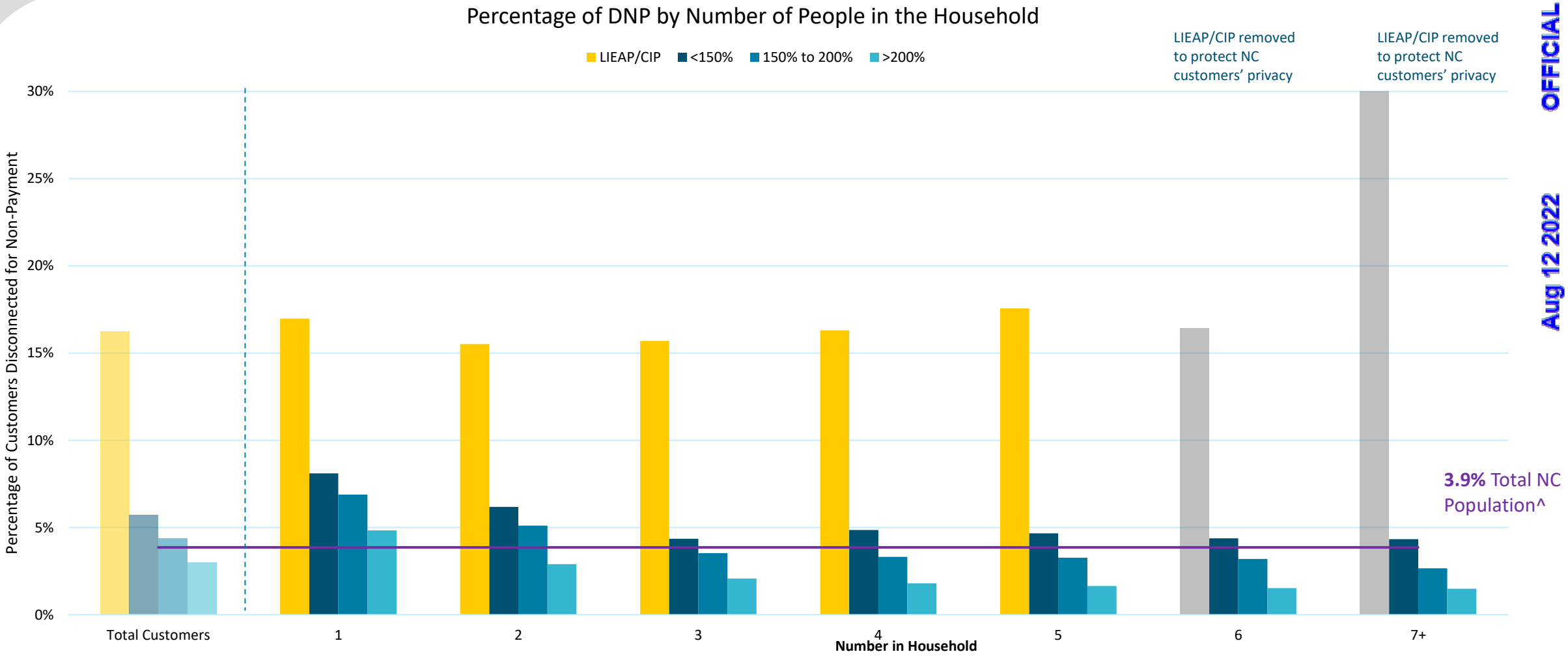


% Total Customers in Category*	100%	25%	29%	22%	12%	6%	3%	1%

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

^The total line includes customers who could not be categorized, therefore there may be instances of all groups above the total

Percentage of DNP by Income for Number of People in the Household



	Total Customers	1	2	3	4	5	6	7+
% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

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

^The total line includes customers who could not be categorized, therefore there may be instances of all groups above the total

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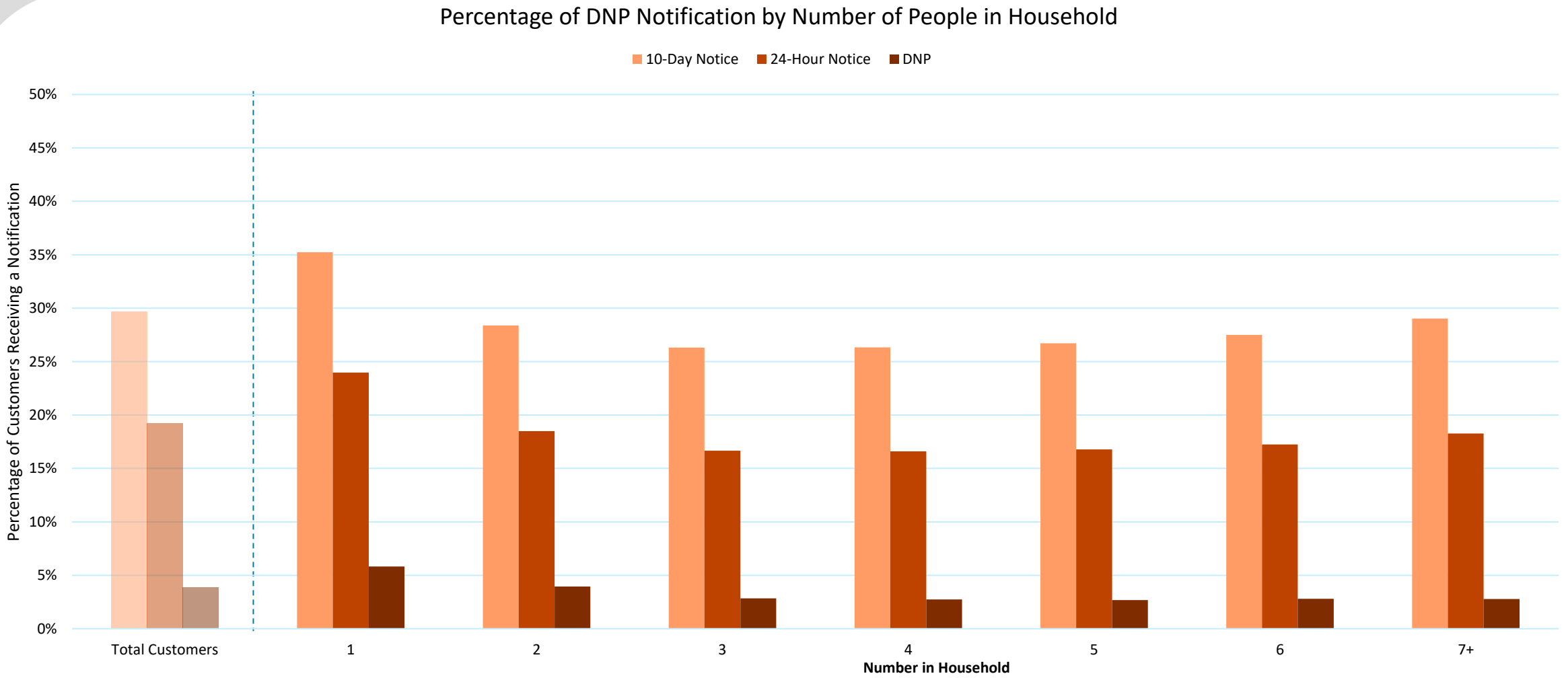
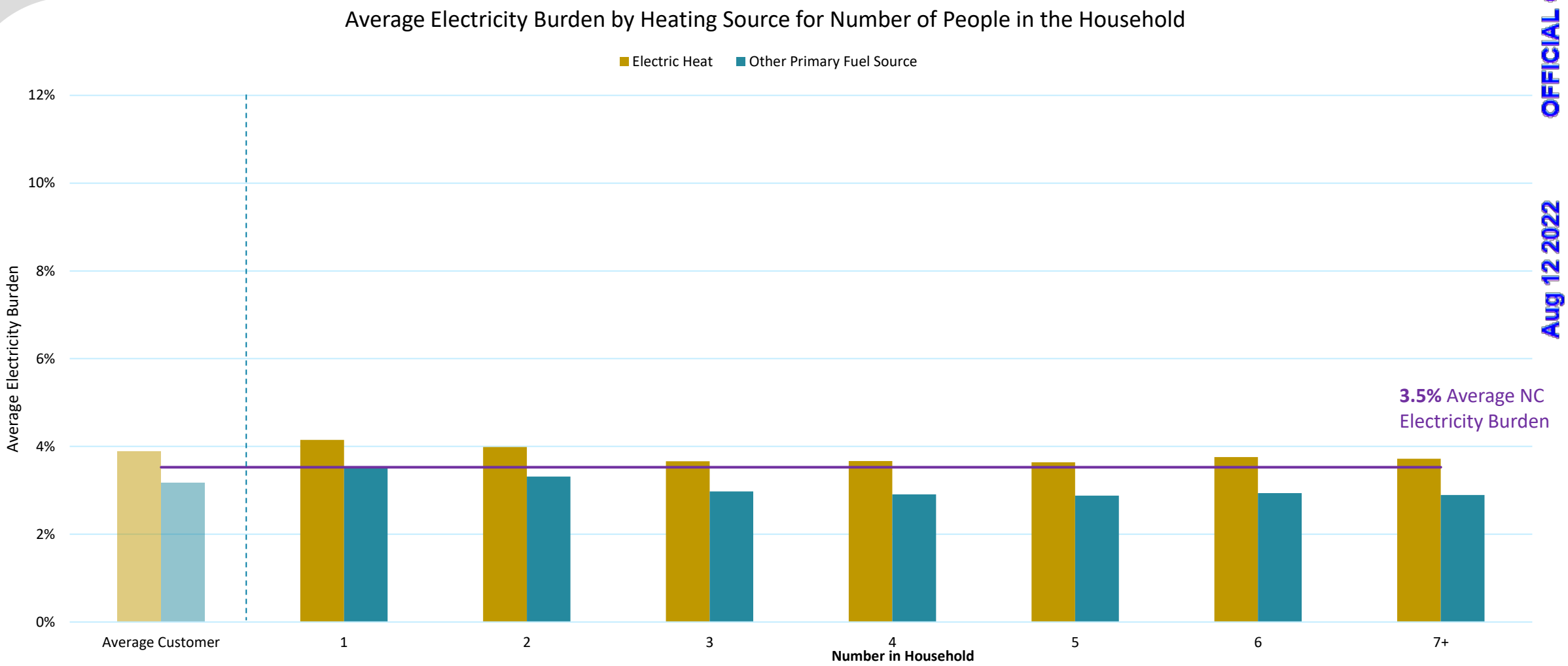
Percentage of DNP Notifications by Notification Type for Number of People in the Household



	Total Customers	1	2	3	4	5	6	7+
% Total Customers in Category*	98%	25%	29%	22%	12%	6%	3%	1%

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

Average Electricity Burden by Heating Source for Number of People in the Household



	Average Customer	1	2	3	4	5	6	7+
% Total Customers in Category*	79%	25%	29%	22%	12%	6%	3%	1%

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

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Income Level

Total Numbers							
	1	2	3	4	5	6	7+
LIEAP/CIP	21,430	16,234	8,759	3,955	1,805	865	474
<150% FPL	81,114	106,919	91,606	43,273	30,440	20,783	11,204
150%-200% FPL	37,590	85,572	55,531	55,592	20,083	9,074	7,990
>200%	475,987	506,518	390,254	193,028	95,313	38,548	17,308
Total	616,121	715,243	546,150	295,848	147,641	69,270	36,976

Percentage of Customers in each Segment							
	1	2	3	4	5	6	7+
LIEAP/CIP	0.9%	0.7%	0.4%	0.2%	0.1%	0.0%	0.0%
<150% FPL	3.3%	4.4%	3.8%	1.8%	1.3%	0.9%	0.5%
150%-200% FPL	1.5%	3.5%	2.3%	2.3%	0.8%	0.4%	0.3%
>200%	19.6%	20.9%	16.1%	8.0%	3.9%	1.6%	0.7%

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

Arrearage Status

Total Numbers	1	2	3	4	5	6	7+
Meets Arrears Definition	122,457	111,342	78,781	42,469	21,501	10,363	5,920
Does not Meet Arrears Definition	493,664	603,901	467,369	253,379	126,140	58,907	31,056

Percentage of Customers in each Segment	1	2	3	4	5	6	7+
Meets Arrears Definition	4.9%	4.5%	3.2%	1.7%	0.9%	0.4%	0.2%
Does not Meet Arrears Definition	19.9%	24.3%	18.8%	10.2%	5.1%	2.4%	1.2%

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

Total Number of Customers in each Segment							
	1	2	3	4	5	6	7+
LIEAP/CIP	3,637	2,520	1,375	645	317	142	-
<150% FPL	6,578	6,616	3,993	2,104	1,420	912	486
150%-200% FPL	25,88	4,379	1,967	1,844	658	291	213
>200%	23,029	14,736	8,131	3,494	1,577	592	258
Total	358,32	28,251	15,466	8,087	3,972	1,937	-

Percentage of Customers in that Segment DNP (i.e., Percentage of 2 people household customers that were DNP)							
	1	2	3	4	5	6	7+
LIEAP/CIP	17.0%	15.5%	15.7%	16.3%	17.6%	16.4%	-
<150% FPL	8.1%	6.2%	4.4%	4.9%	4.7%	4.4%	4.3%
150%-200% FPL	6.9%	5.1%	3.5%	3.3%	3.3%	3.2%	2.7%
>200%	4.8%	2.9%	2.1%	1.8%	1.7%	1.5%	1.5%

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DNP Notifications

Total Number of Customers in each Segment	1	2	3	4	5	6	7+
Non-DNP/DLQ	399,035	512,264	402,466	217,979	108,189	50,228	26,242
10-Day Notice	217,086	202,978	143,684	77,869	39,451	19,042	10,734
24-Hour Notice	147,737	132,337	90,940	49,098	24,785	11,950	6,757
DNP	35,832	28,251	15,466	8,087	3,972	1,937	-

Percentage of Customers in that Segment Received a DNP Notification (i.e., Percentage of 2 people household customers that received a 10-Day Notice)	1	2	3	4	5	6	7+
Non-DNP/DLQ	64.8%	71.6%	73.7%	73.7%	73.3%	72.5%	71.0%
10-Day Notice	35.2%	28.4%	26.3%	26.3%	26.7%	27.5%	29.0%
24-Hour Notice	24.0%	18.5%	16.7%	16.6%	16.8%	17.3%	18.3%
DNP	5.8%	3.9%	2.8%	2.7%	2.7%	2.8%	-

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Electricity Burden

Total Numbers	1	2	3	4	5	6	7+
Electric Heat	222,442	254,231	198,759	109,163	54,727	25,528	13,452
Other Primary Fuel Source	227,146	314,288	265,199	146,943	74,321	34,974	18,782

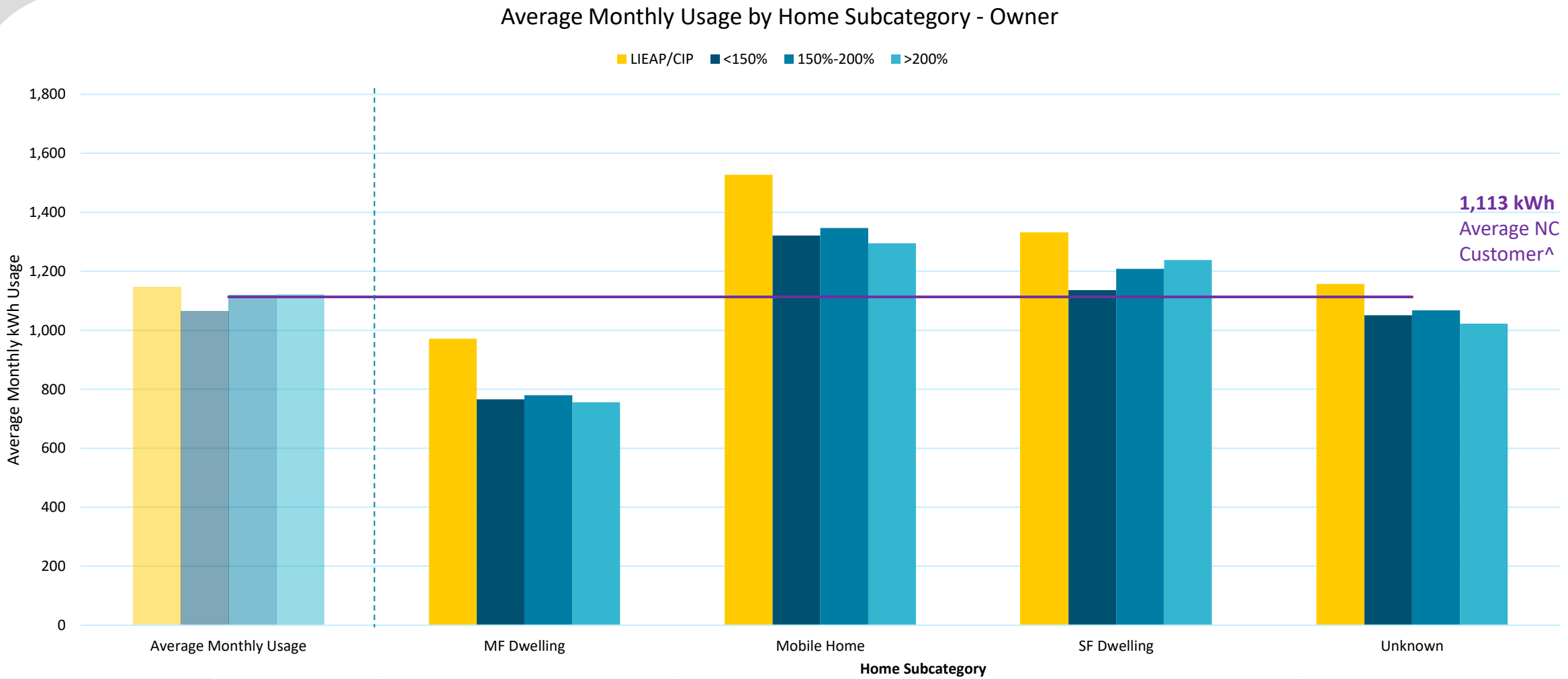
Percentage of Customers in each Segment	1	2	3	4	5	6	7+
Electric Heat	9.0%	10.2%	8.0%	4.4%	2.2%	1.0%	0.5%
Other Primary Fuel Source	9.1%	12.6%	10.7%	5.9%	3.0%	1.4%	0.8%

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

Analysis by Home Subcategory – Owner

Home Subcategory: Condo, Mobile Home, Multi-Family Miscellaneous, Single Family Dwelling, Unknown

Average Monthly Usage by Income for Home Subcategory – Owner

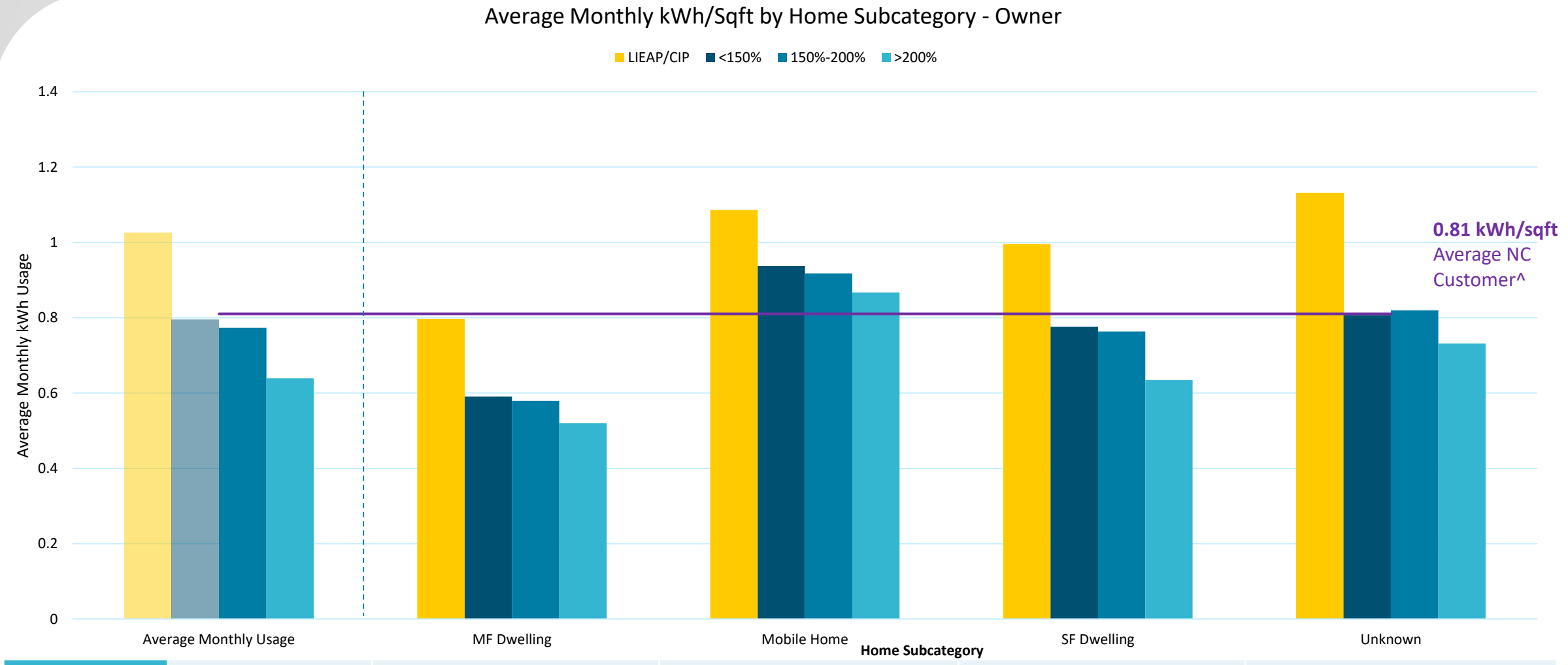


	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

*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

Average Monthly Usage per Square Foot by Income for Home Subcategory – Owner



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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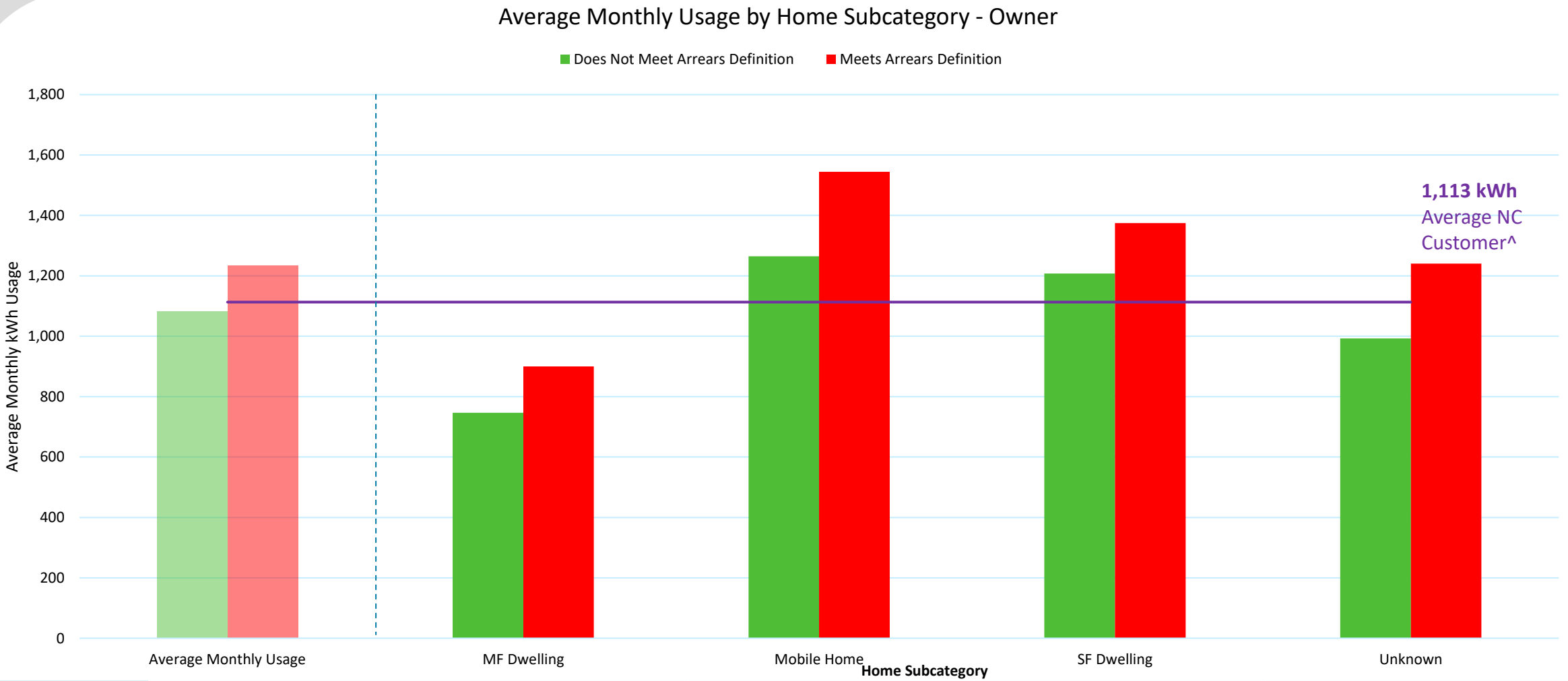
Average Monthly Usage by Arrearage Status for Home Subcategory – Owner



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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

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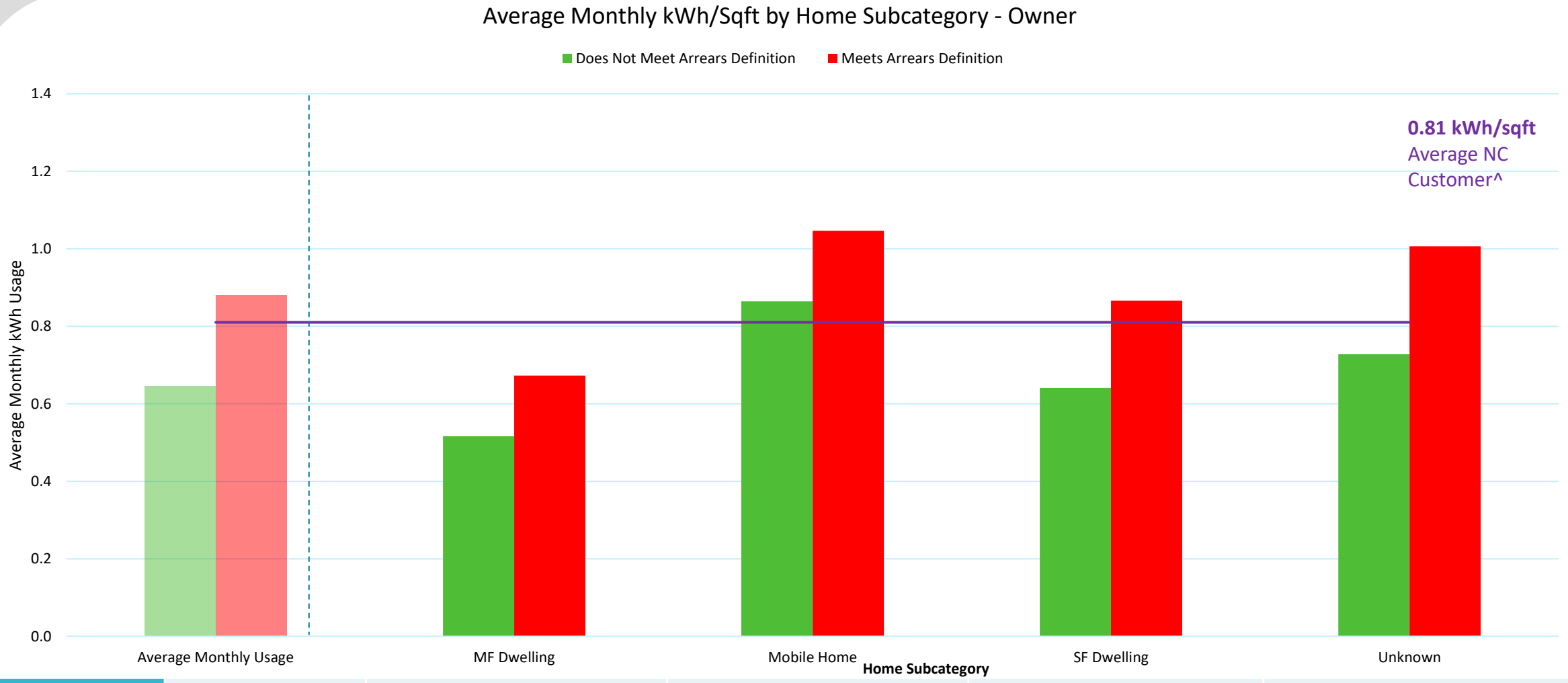
Average Monthly Usage per Square Foot by Arrearage Status for Home Subcategory – Owner



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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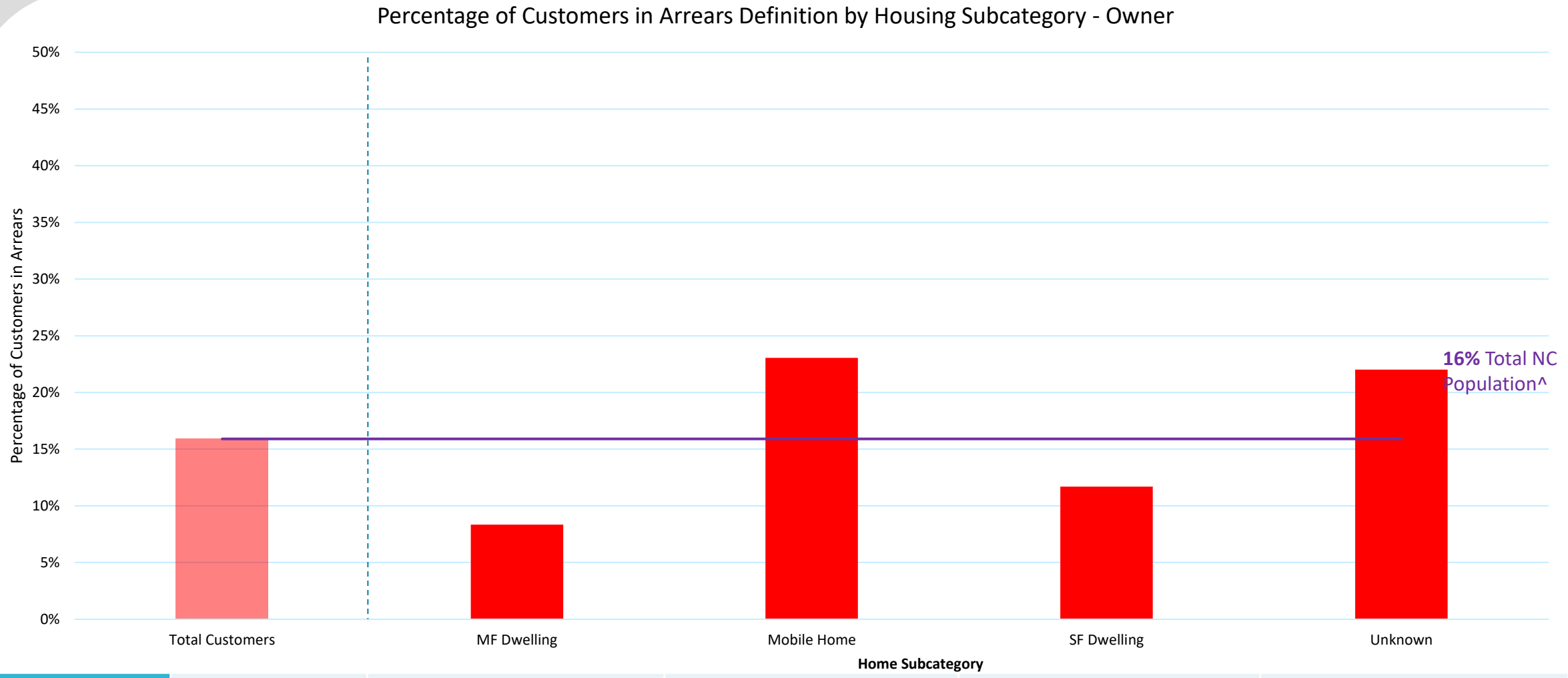
Percentage of Customers in Arrears Definition for Home Subcategory – Owner



	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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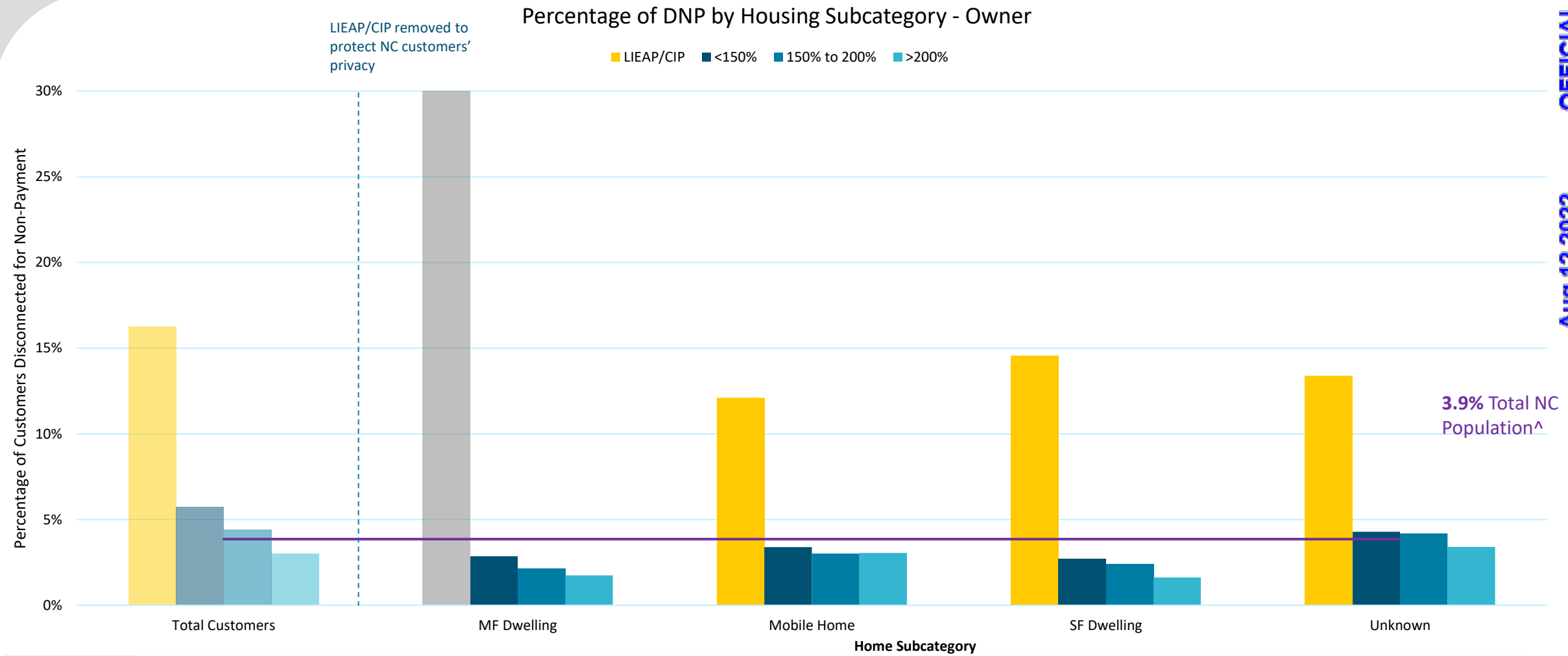
Percentage of DNP by Income for Home Subcategory – Owner



	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	73%	3%	2%	51%	16%

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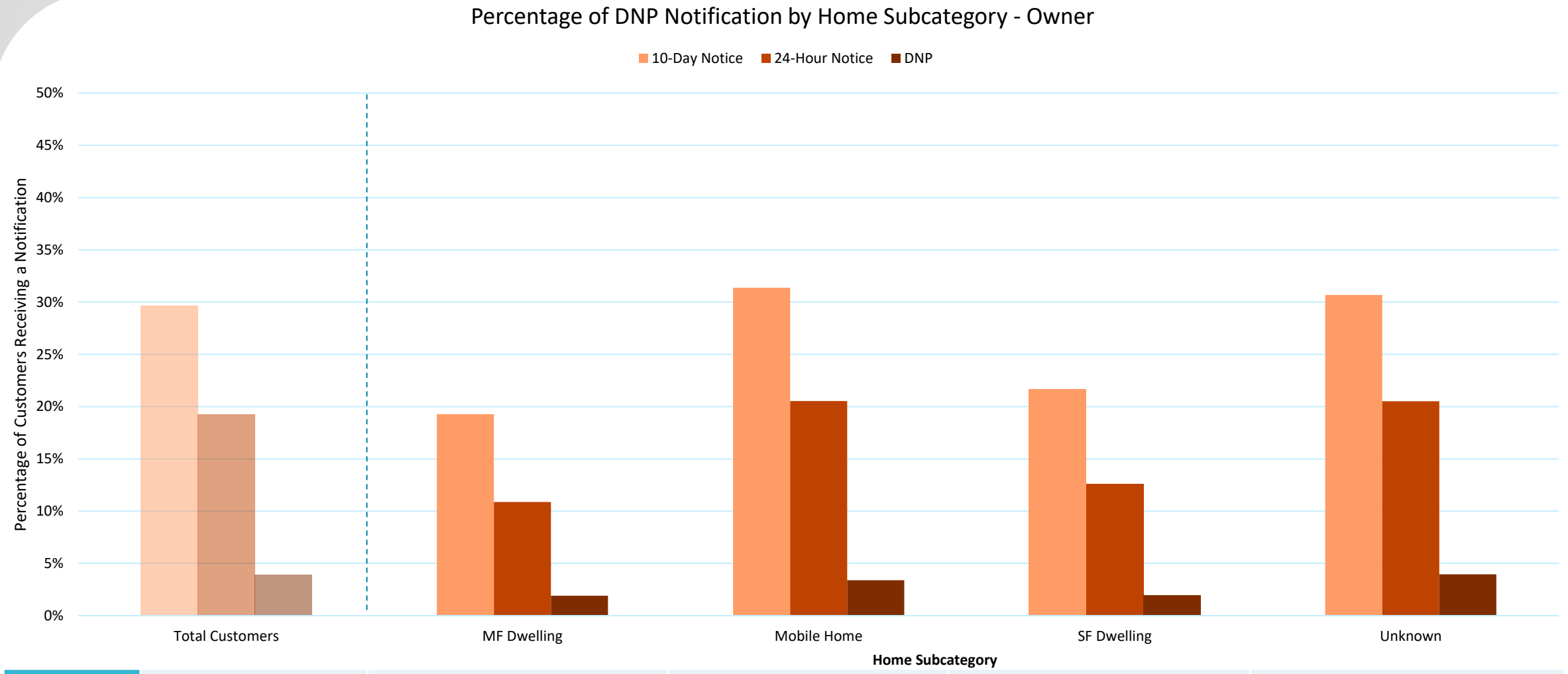
Percentage of DNP Notifications by Notification Type for Home Subcategory – Owner

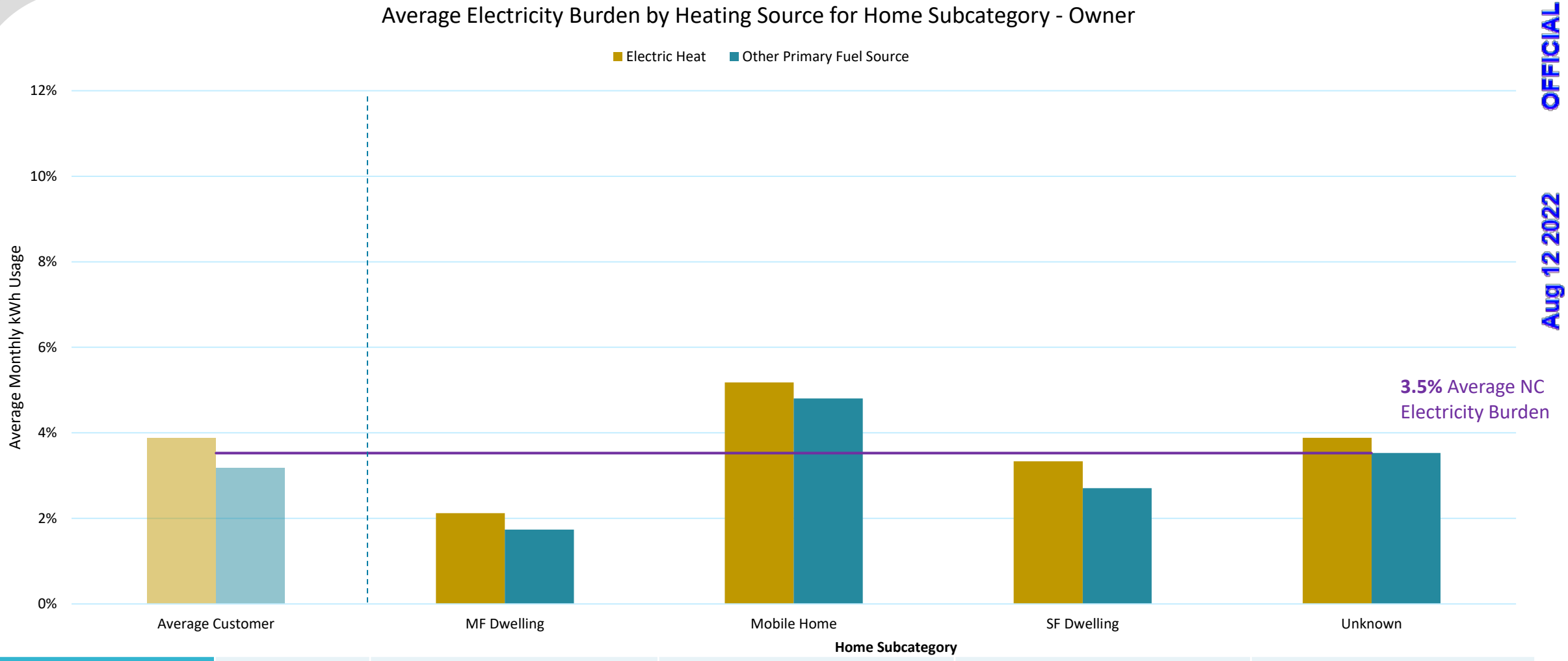


% Total Customers in Category*	73%	3%	2%	51%	16%

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

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

Average Electricity Burden by Heating Source for Home Subcategory – Owner



	Average Customer	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	79%	3%	2%	51%	16%

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

Income Level

Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	311	1,495	8,025	11,595
<150% FPL	5,528	12,310	136,063	72,113
150%-200% FPL	5,840	9,063	126,367	56,713
>200%	71,915	28,665	990,264	265,464
Total	83,594	51,533	1,260,719	405,885

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	0.0%	0.1%	0.3%	0.5%
<150% FPL	0.2%	0.5%	5.6%	3.0%
150%-200% FPL	0.2%	0.4%	5.2%	2.3%
>200%	3.0%	1.2%	40.8%	10.9%

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Arrearage Status

Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	76,625	9,653	131,912	73,257
Does not Meet Arrears Definition	6,969	41,880	1,128,807	332,628

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	3.1%	0.4%	5.3%	2.9%
Does not Meet Arrears Definition	0.3%	1.7%	45.4%	13.4%

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

Total Number of Customers in each Segment				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	181	1,167	1,554
<150% FPL	158	417	3,653	3,091
150%-200% FPL	126	273	3,027	2,380
>200%	1,252	876	16,086	9,035
Total	-	1,747	23,933	16,060

Percentage of Customers in that Segment DNP (i.e., Percentage of mobile homes that were DNP)				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	12.1%	14.5%	13.4%
<150% FPL	3%	3.4%	2.7%	4.3%
150%-200% FPL	2%	3.0%	2.4%	4.2%
>200%	2%	3.1%	1.6%	3.4%

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

DNP Notifications

Total Number of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	67,475	35,366	988,085	281,364
10-Day Notice	16,119	16,166	272,634	124,520
24-Hour Notice	9,098	10,578	158,271	83,250
DNP	-	1,747	23,933	16,060

Percentage of Customers in that Segment DNP Received a DNP Notification (i.e., Percentage of mobile homes that received 10-Day Notice)	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	80.7%	68.6%	78.4%	69.3%
10-Day Notice	19.3%	31.4%	21.6%	30.7%
24-Hour Notice	10.9%	20.5%	12.6%	20.5%
DNP	-	3.4%	1.9%	4.0%

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

Electricity Burden

Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	29,631	34,432	429,189	157,256
Other Primary Fuel Source	38,752	12,765	681,680	170,050

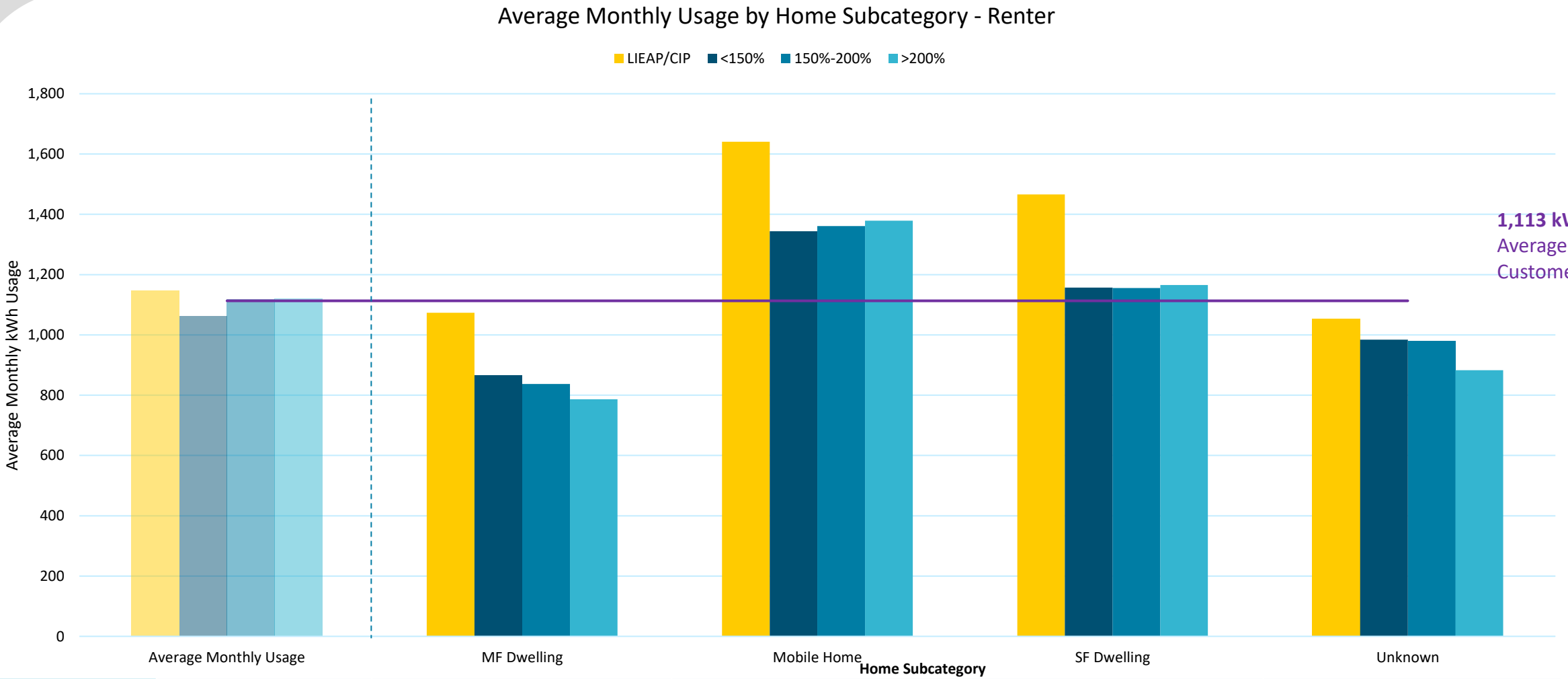
Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	1.2%	1.4%	17.3%	6.3%
Other Primary Fuel Source	1.6%	0.5%	27.4%	6.8%

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

Analysis by Home Subcategory – Renter

Home Subcategory: Condo, Mobile Home, Multi-Family Miscellaneous, Single Family Dwelling, Unknown

Average Monthly Usage by Income for Home Subcategory – Renter

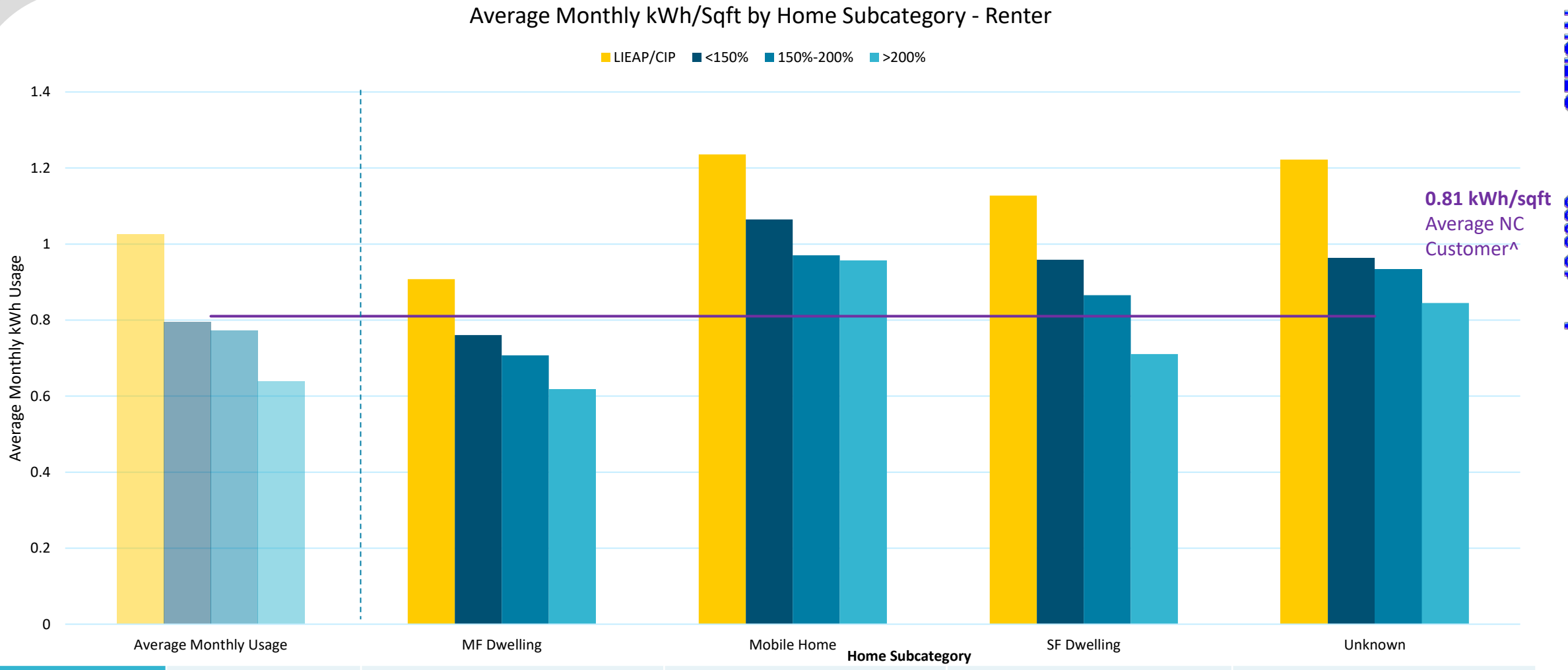


% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

*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

Average Monthly Usage per Square Foot by Income for Home Subcategory – Renter

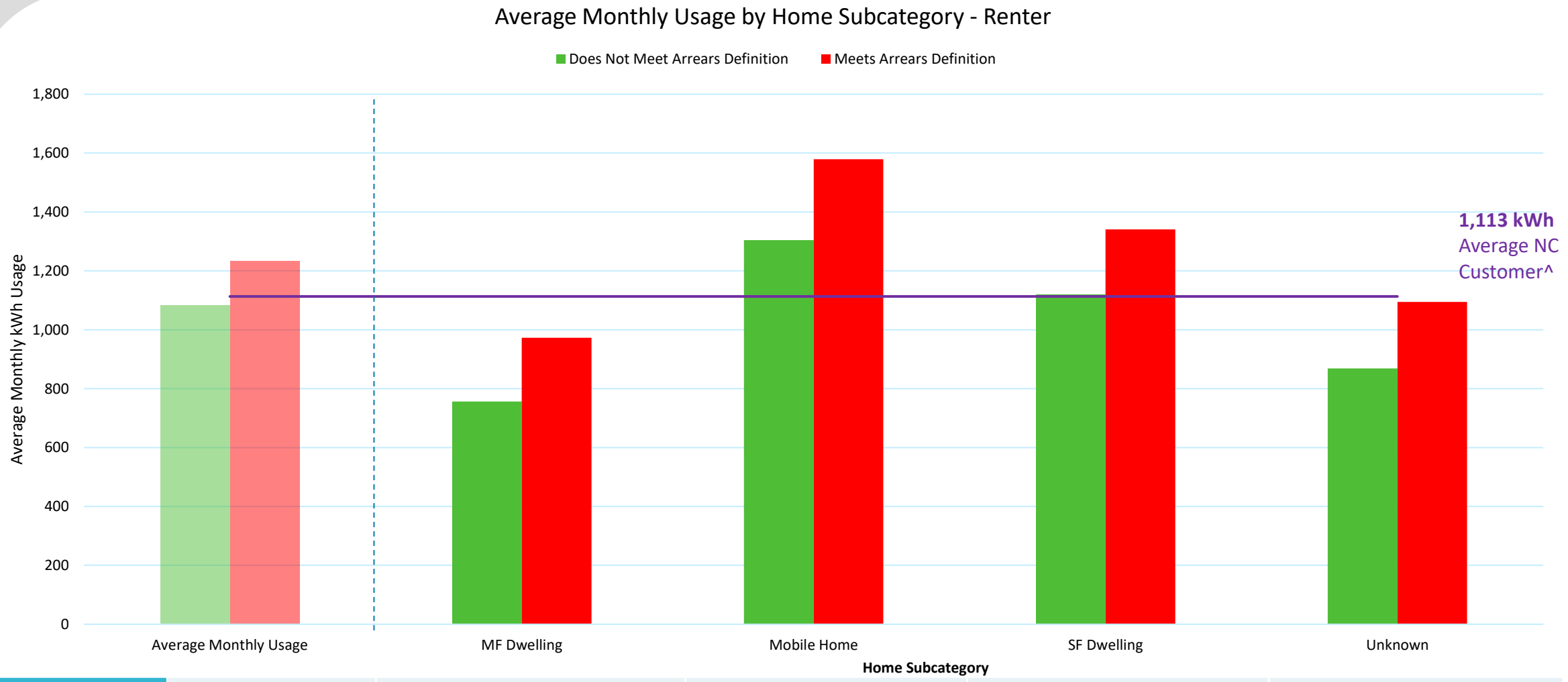


	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

*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

Average Monthly Usage by Arrearage Status for Home Subcategory – Renter



	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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

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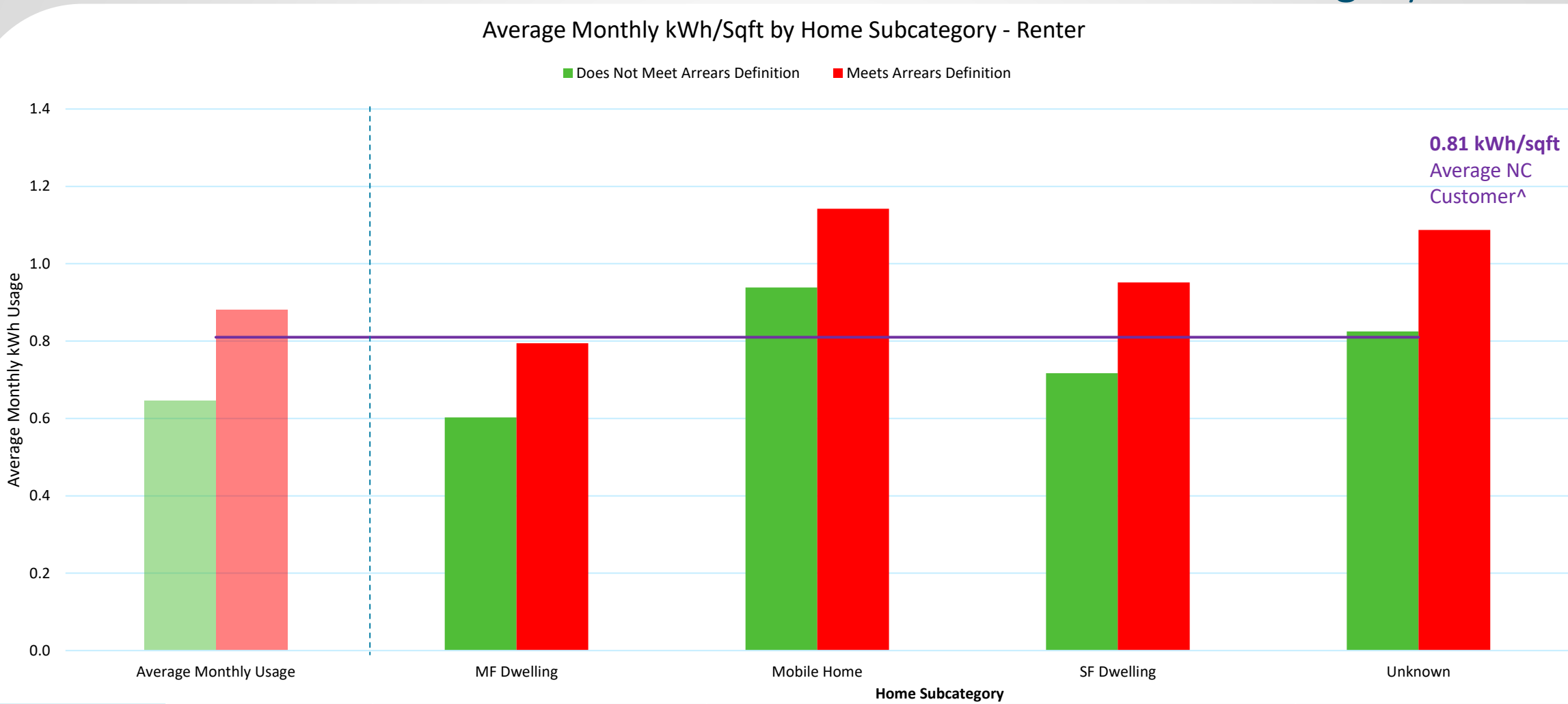
Average Monthly Usage per Square Foot by Arrearage Status for Home Subcategory – Renter



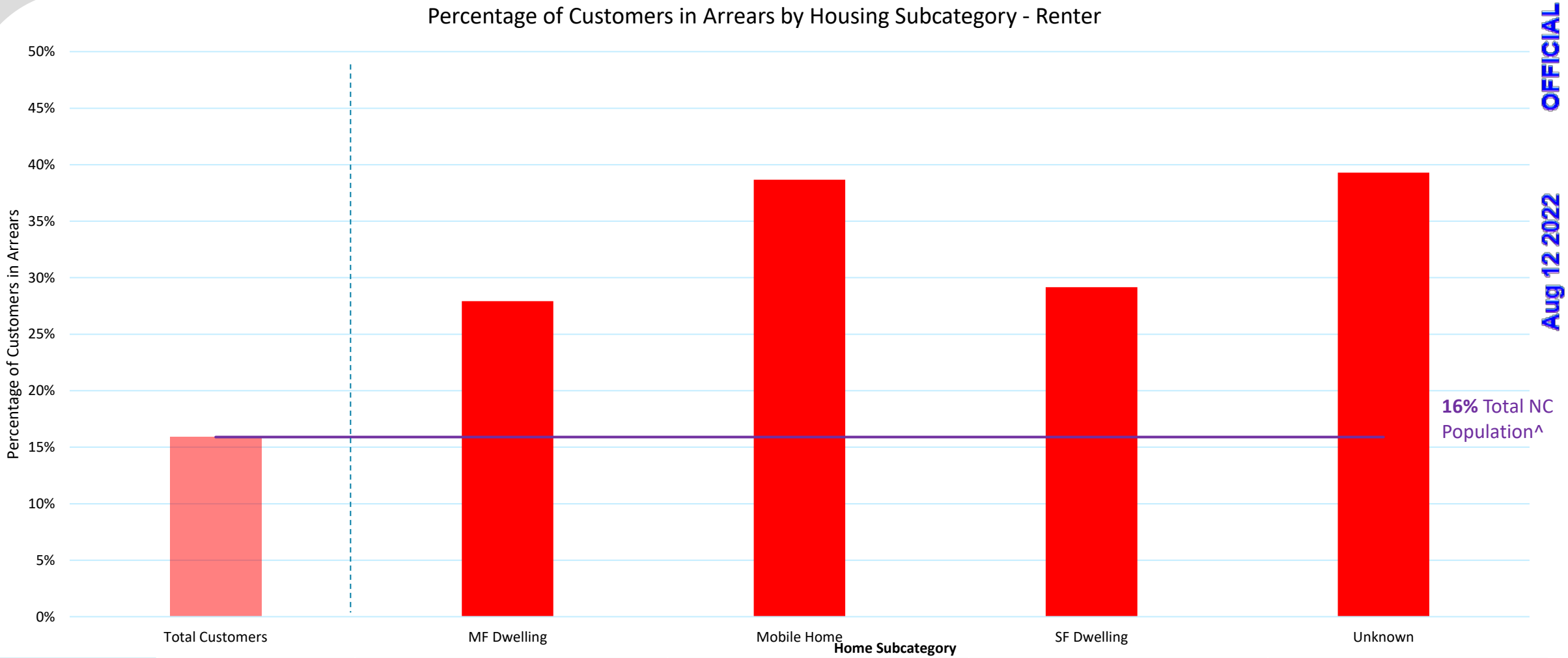
	Average Monthly Usage	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

*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

Percentage of Customers in Arrears Definition for Home Subcategory – Renter

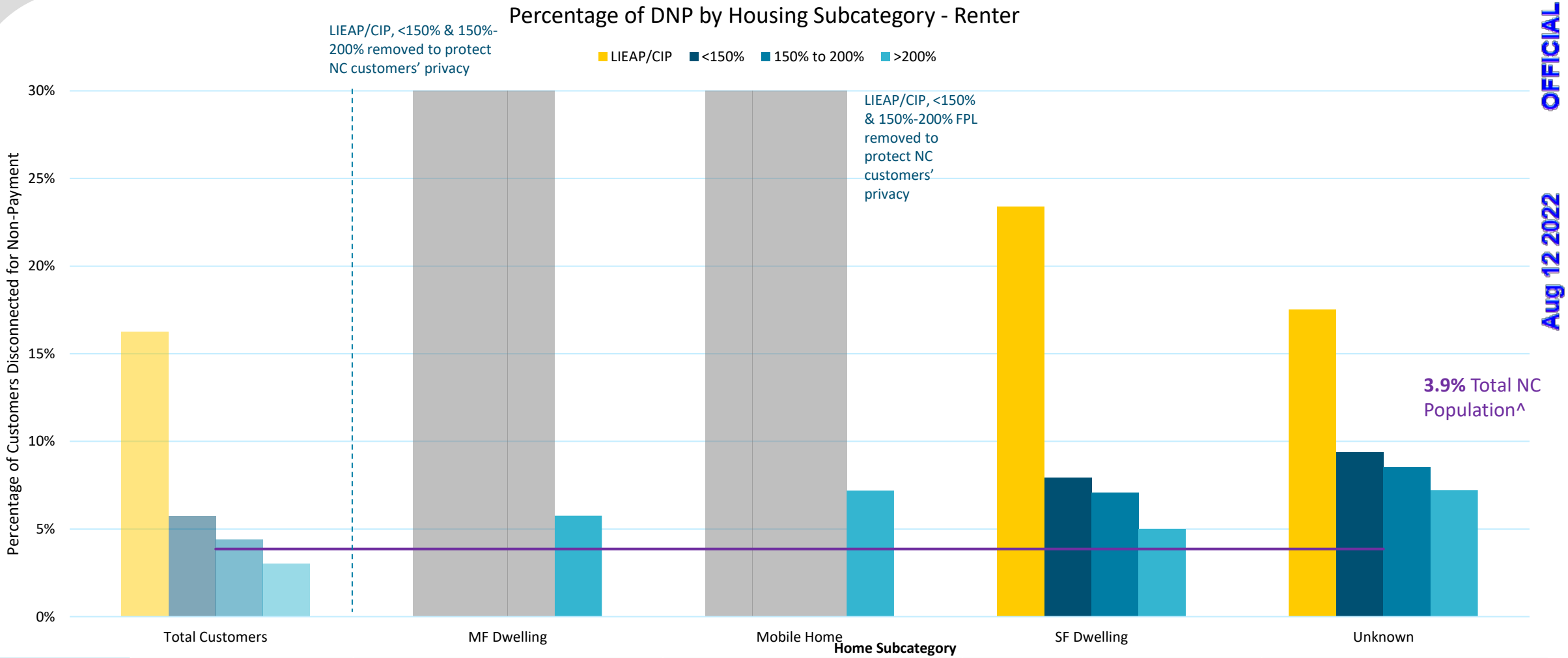


	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

*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

Percentage of DNP by Income for Home Subcategory – Renter

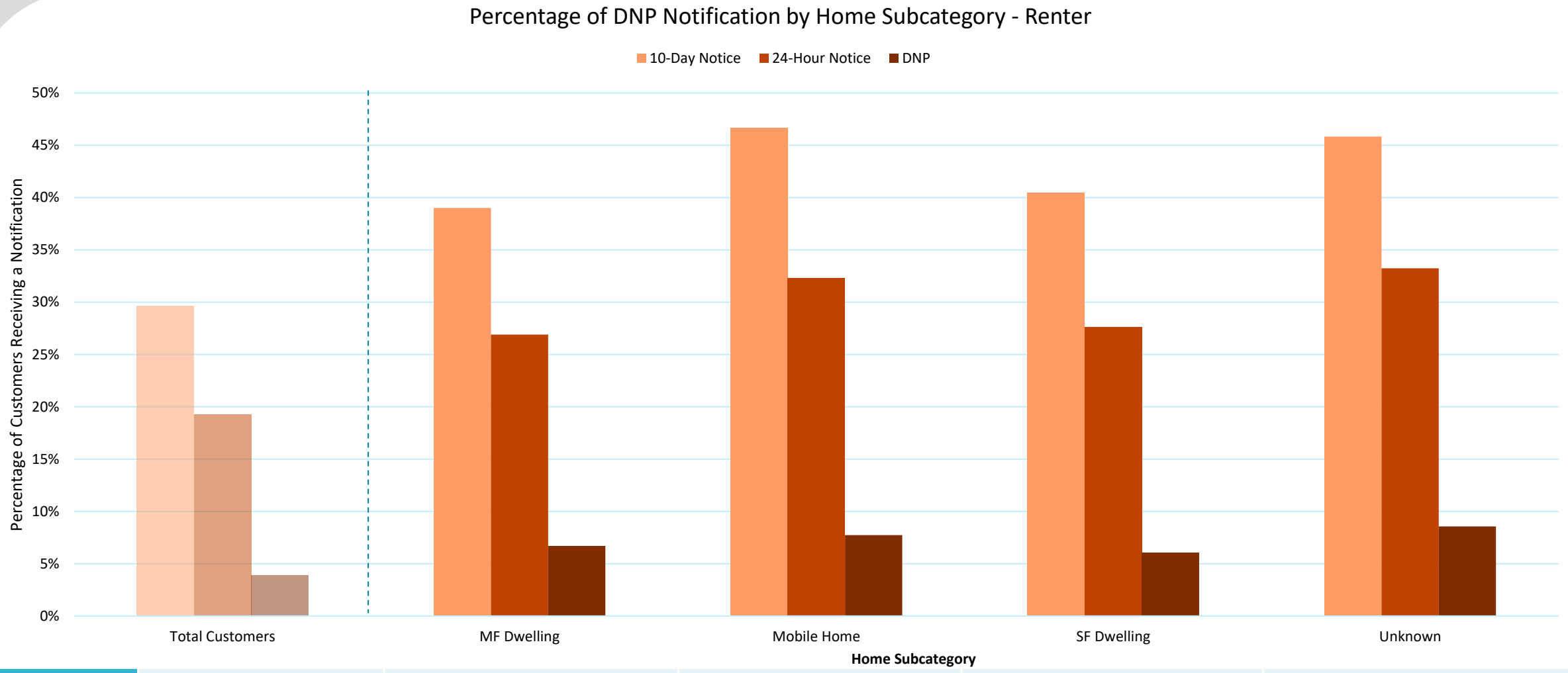


	Total Customers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

*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

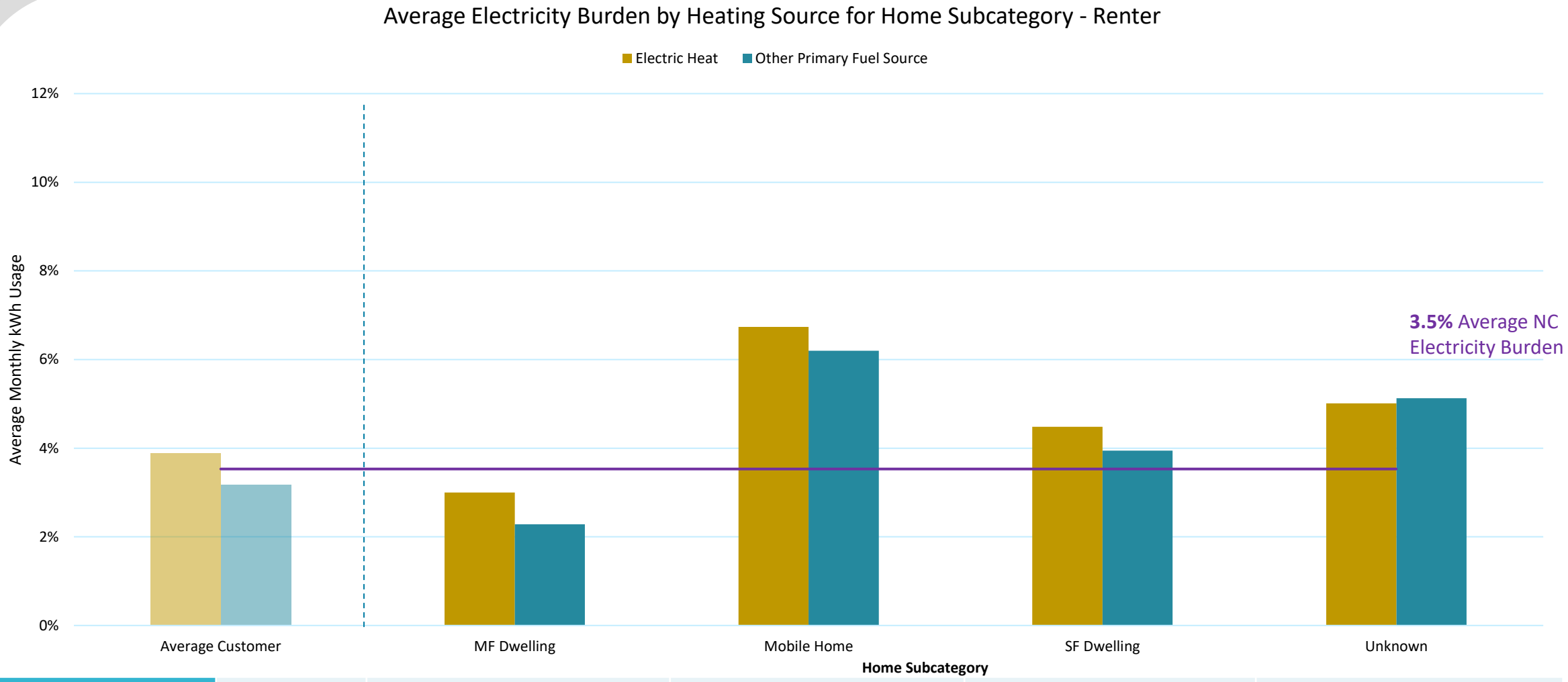
Percentage of DNP Notifications by Notification Type for Home Subcategory – Renter



% Total Customers in Category*	25%	0.5%	0.2%	3%	21%

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

Average Electricity Burden by Heating Source for Home Subcategory – Renter



	Average Customer	MF Dwelling	Mobile Home	SF Dwelling	Unknown
% Total Customers in Category*	79%	0.5%	0.2%	3%	21%

*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

Income Level

Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	231	244	1833	29,788
<150% FPL	1,165	1,089	11,208	145,863
150%-200% FPL	966	852	9103	62,528
>200%	9,785	2,806	60,355	287,702
Total	12,147	4,991	82,499	525,881

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	0.0%	0.0%	0.1%	1.2%
<150% FPL	0.0%	0.0%	0.5%	6.0%
150%-200% FPL	0.0%	0.0%	0.4%	2.6%
>200%	0.4%	0.1%	2.5%	11.9%

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Arrearage Status

Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	9,495	1,392	18,623	148,375
Does not Meet Arrears Definition	2,652	3,599	63,876	377,506

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Meets Arrears Definition	0.4%	0.1%	0.7%	6.0%
Does not Meet Arrears Definition	0.1%	0.1%	2.6%	15.2%

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Total Number of Customers in each Segment				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	-	429	5220
<150% FPL	-	-	888	13,716
150%-200% FPL	-	-	643	5,339
>200%	564	202	3,012	20,790
Total	814	386	4,972	45,065

Percentage of Customers in that Segment DNP (i.e., Percentage of mobile homes that were DNP)				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
LIEAP/CIP	-	-	23.4%	17.5%
<150% FPL	-	-	7.9%	9.4%
150%-200% FPL	-	-	7.1%	8.5%
>200%	6.0%	7.2%	5.0%	7.2%

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DNP Notifications

Total Number of Customers in each Segment				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	7,410	2,661	49,158	284,884
10-Day Notice	4,737	2,330	33,341	240,997
24-Hour Notice	3,268	1,610	22,757	174,772
DNP	814	386	4,972	45,065

Percentage of Customers in that Segment DNP Received a DNP Notification (i.e., Percentage of mobile homes that received a 10-Day Notice)				
	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Non-DNP/DLQ	61.0%	53.3%	59.6%	54.2%
10-Day Notice	39.0%	46.7%	40.4%	45.8%
24-Hour Notice	26.9%	32.3%	27.6%	33.2%
DNP	6.7%	7.7%	6.0%	8.6%

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Electricity Burden

Total Numbers	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	3,947	3,048	21,897	198,902
Other Primary Fuel Source	3,301	997	38,673	135,435

Percentage of Customers in each Segment	MF Dwelling	Mobile Home	SF Dwelling	Unknown
Electric Heat	0.2%	0.1%	0.9%	8.0%
Other Primary Fuel Source	0.1%	0.0%	1.6%	5.5%

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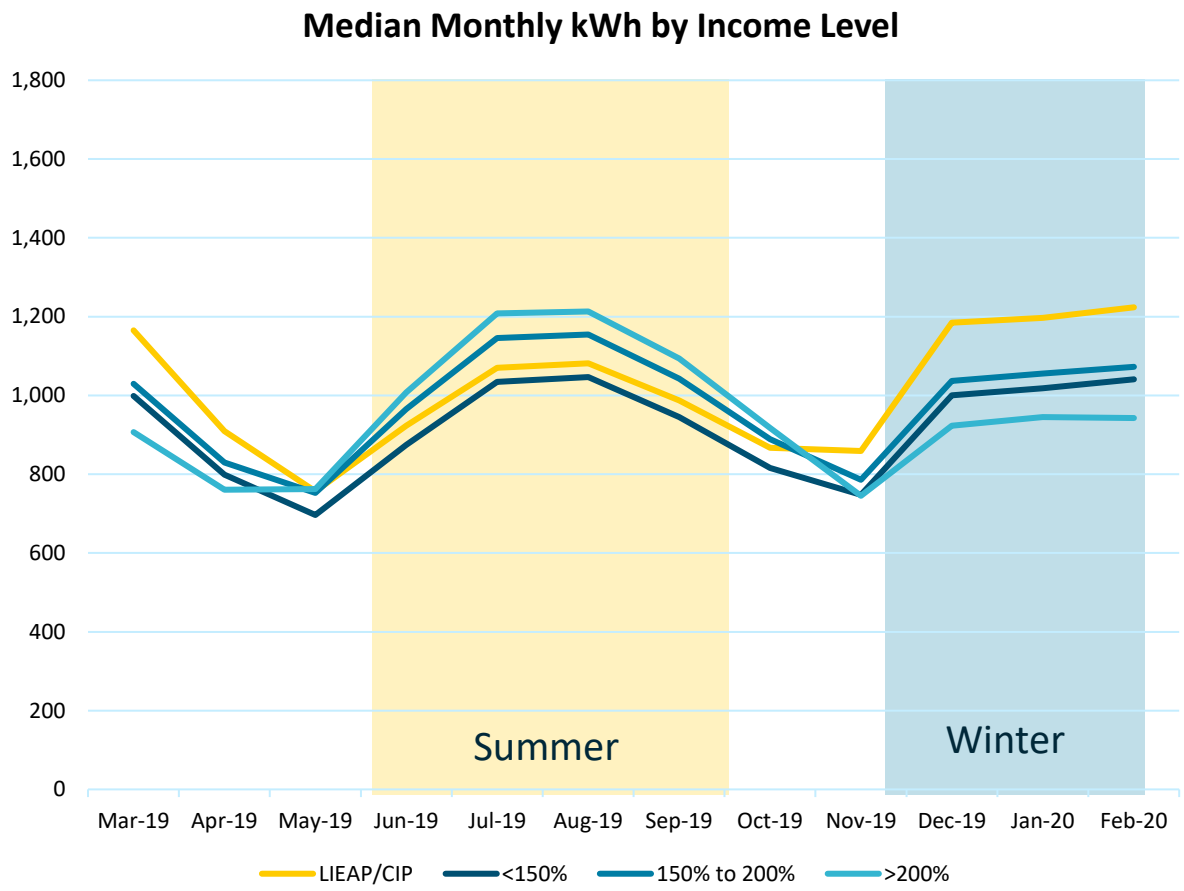
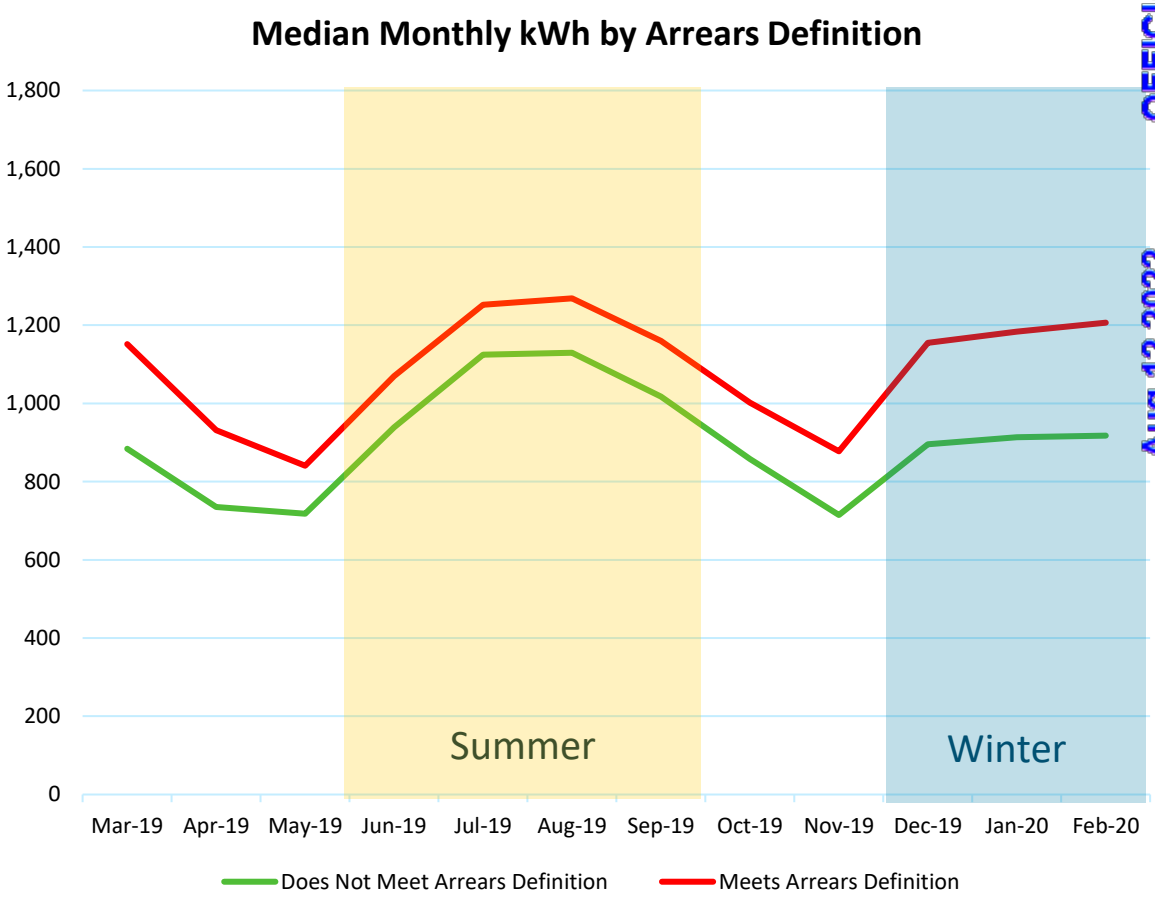
Analysis of Billing Data

Median Monthly kWh





- 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

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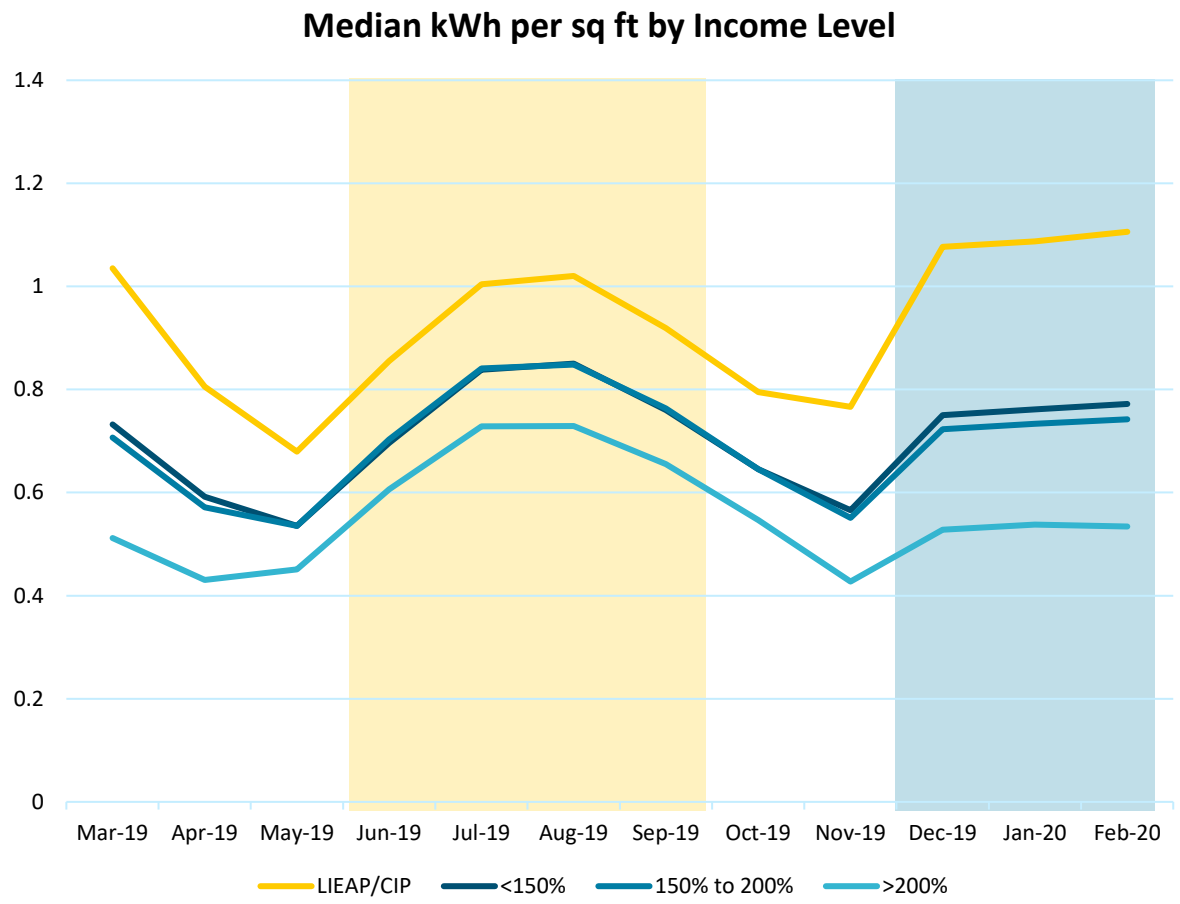
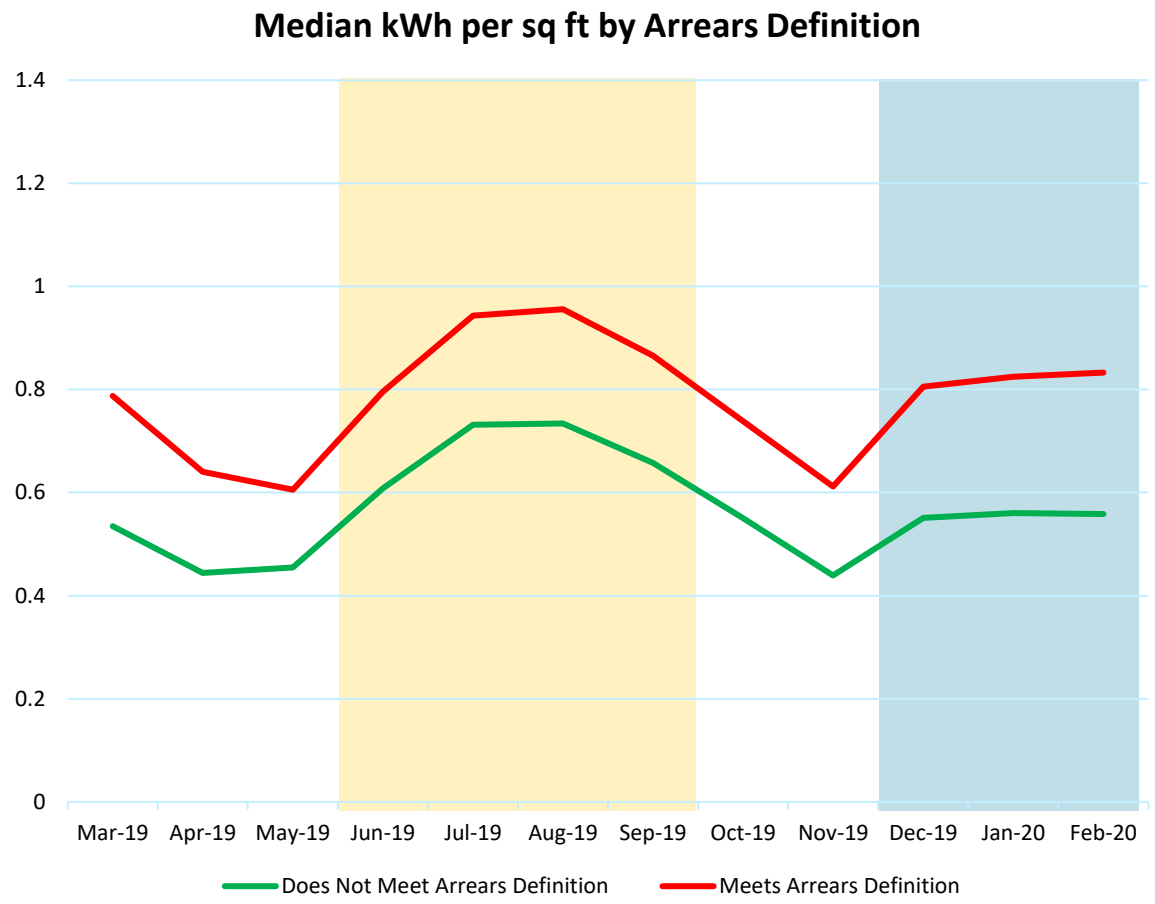
Median kWh per sq ft

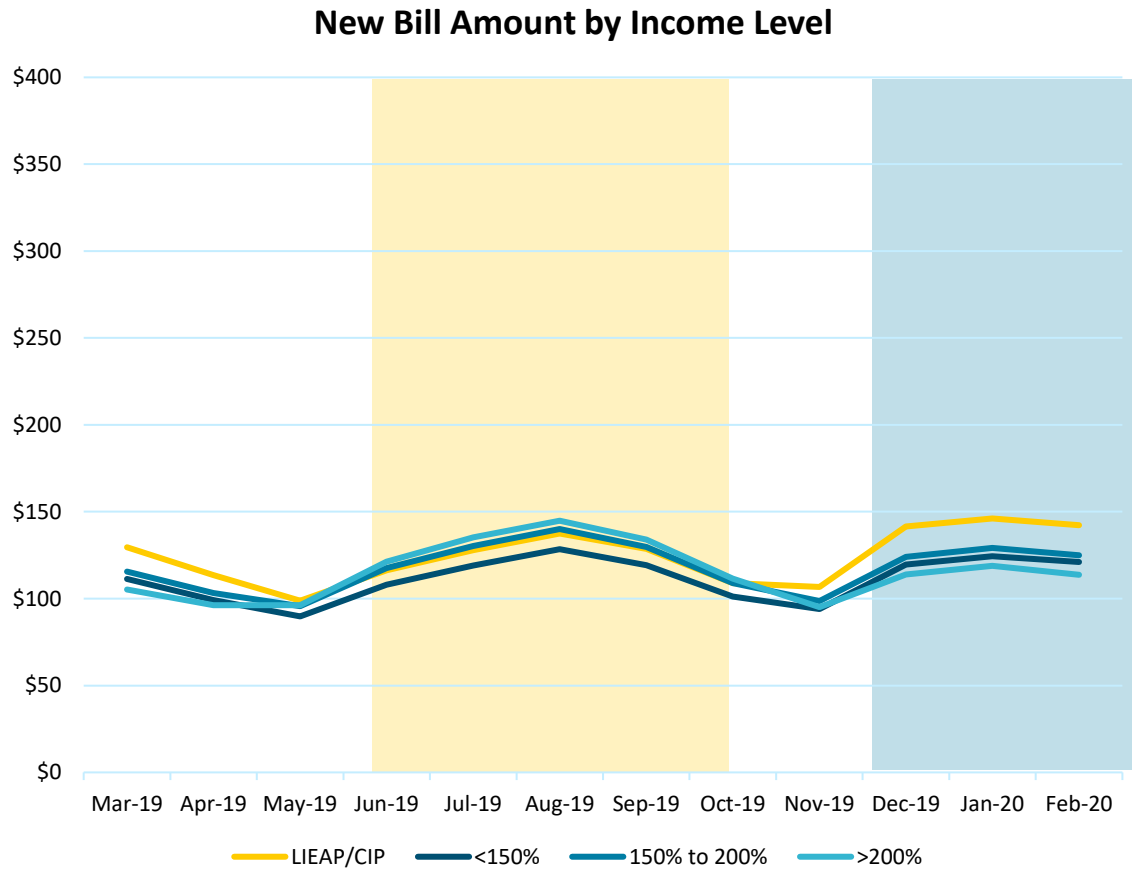


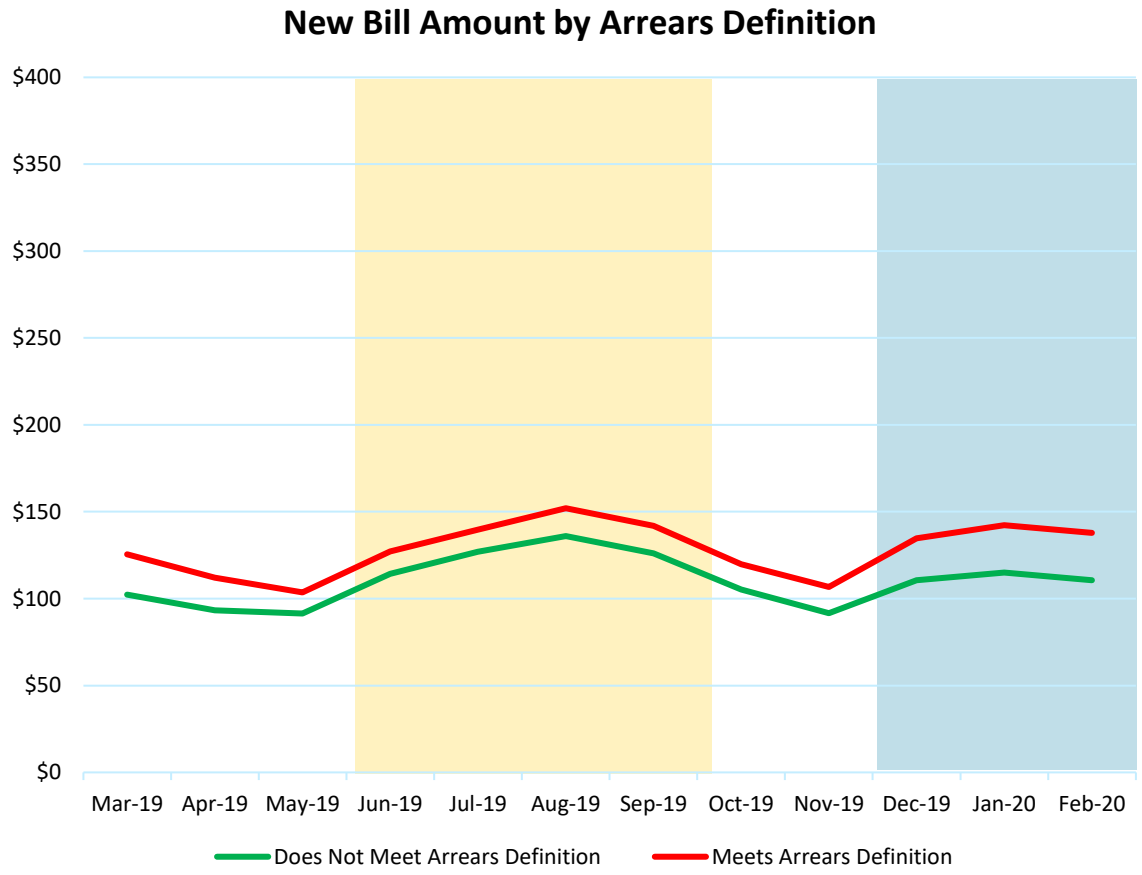


- LIEAP/CIP customers use two times more electricity in winter months per square foot than customers above 200% FPL
- Customers who meet the arrears definition use 50% more electricity in peak winter months per square foot

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 Monthly New Bills





- Directly correlated with kWh usage
- LIEAP/CIP customers have higher bills in the winter, lower in the summer
- Customers struggling with arrears have new charges that are 16% higher year-round and 23% higher in the winter

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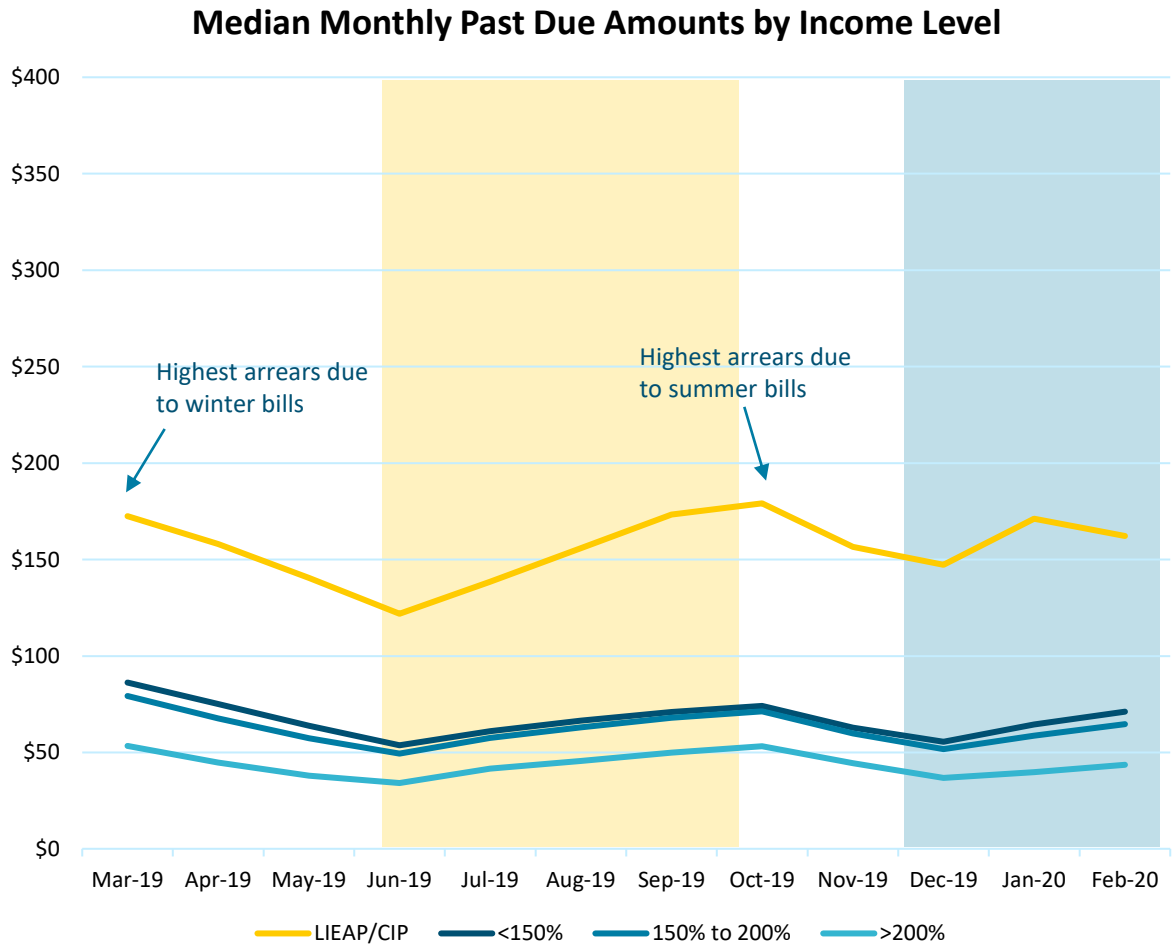
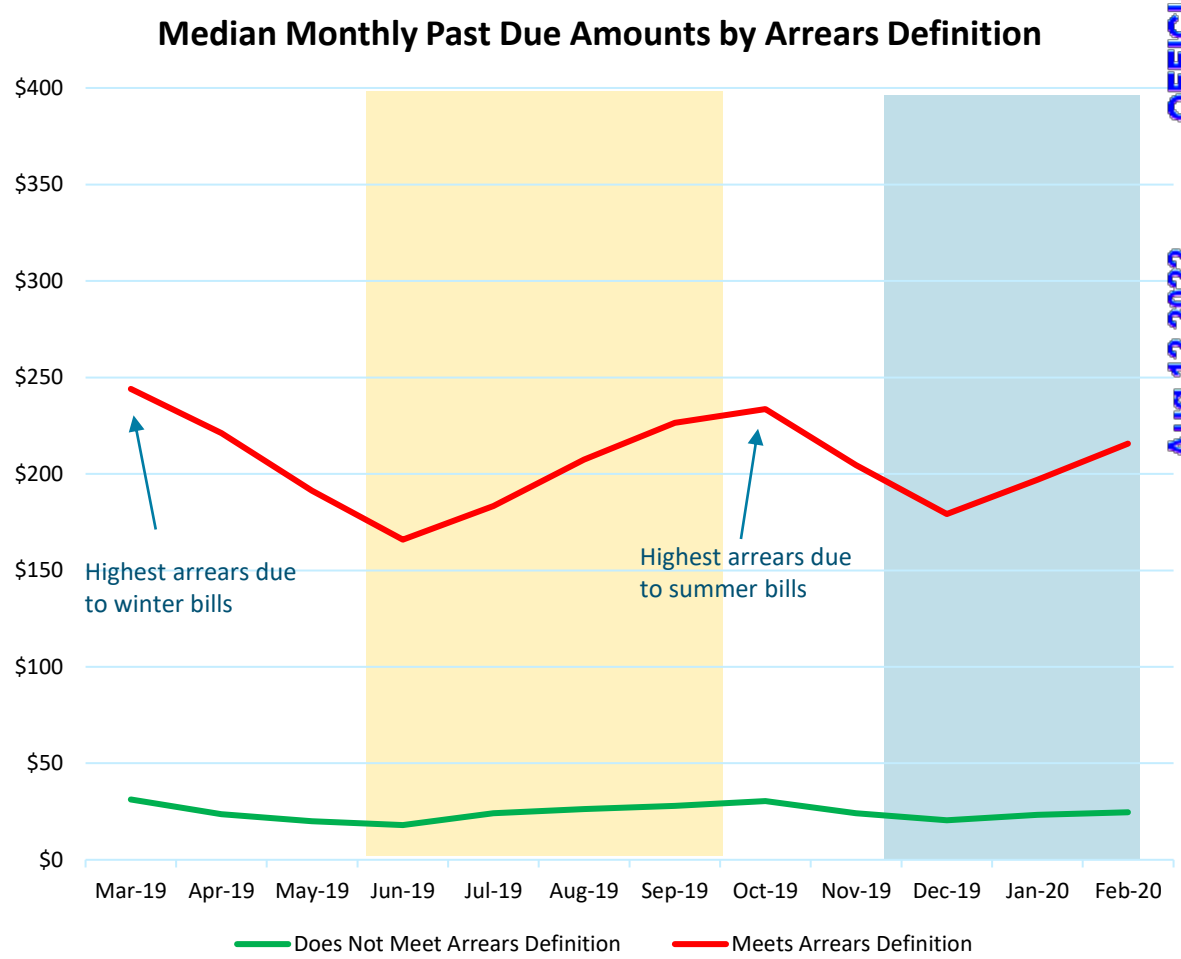
Median Monthly Past Due Amounts

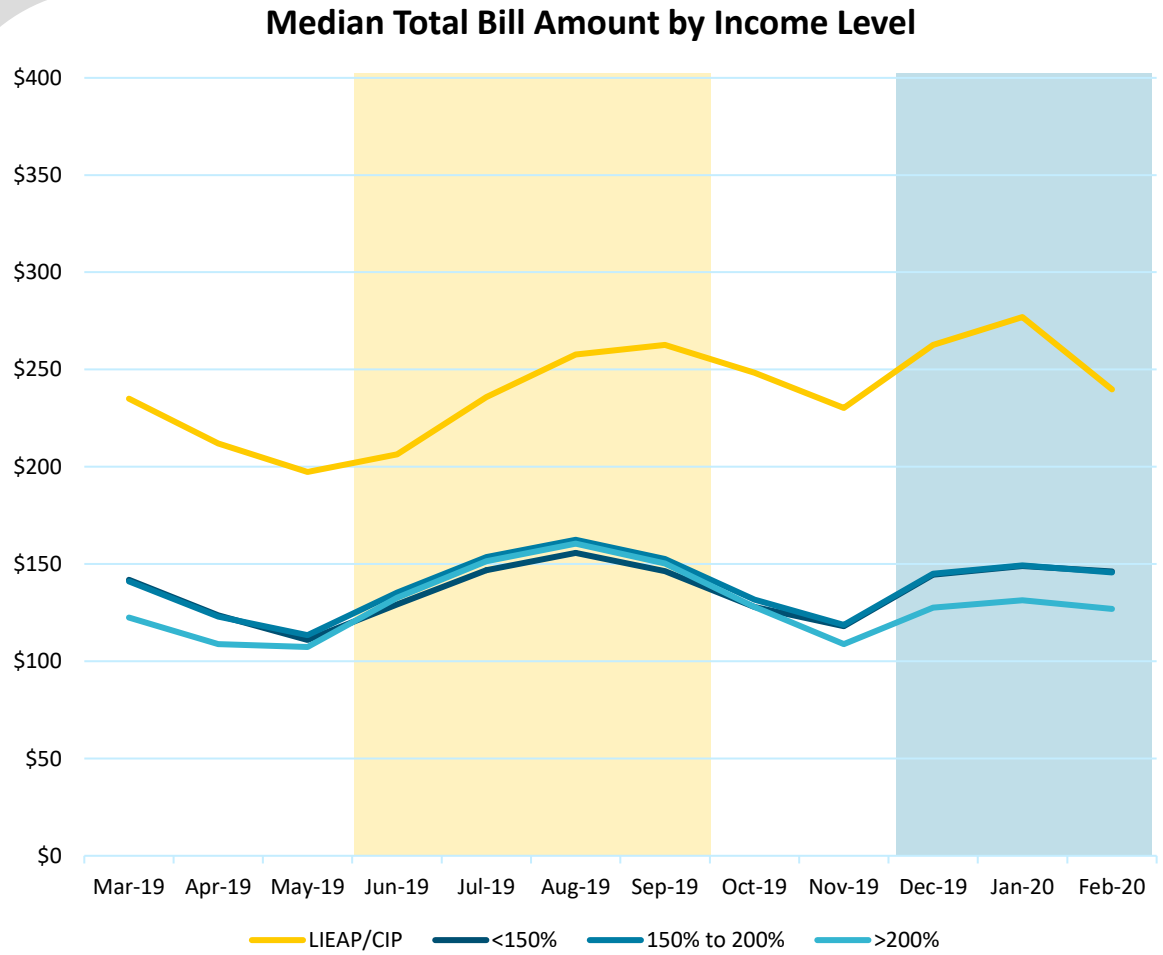


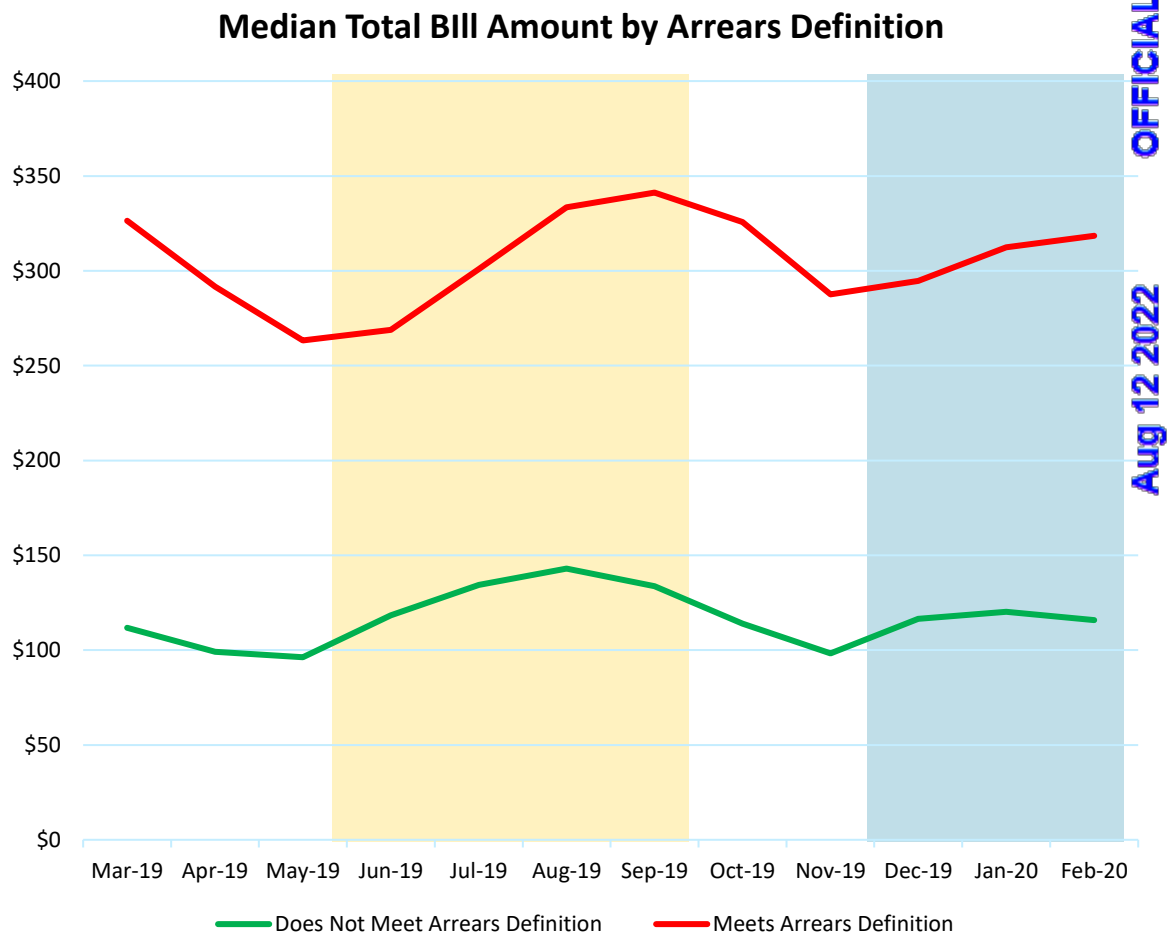


- LIEAP/CIP customers owe 3 times more in arrears at the end of summer and winter than customers above 200% FPL
- Median summer and winter peaks in arrears are over $230 and occur at the end of each season for customers who meet the arrears definition

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





- 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

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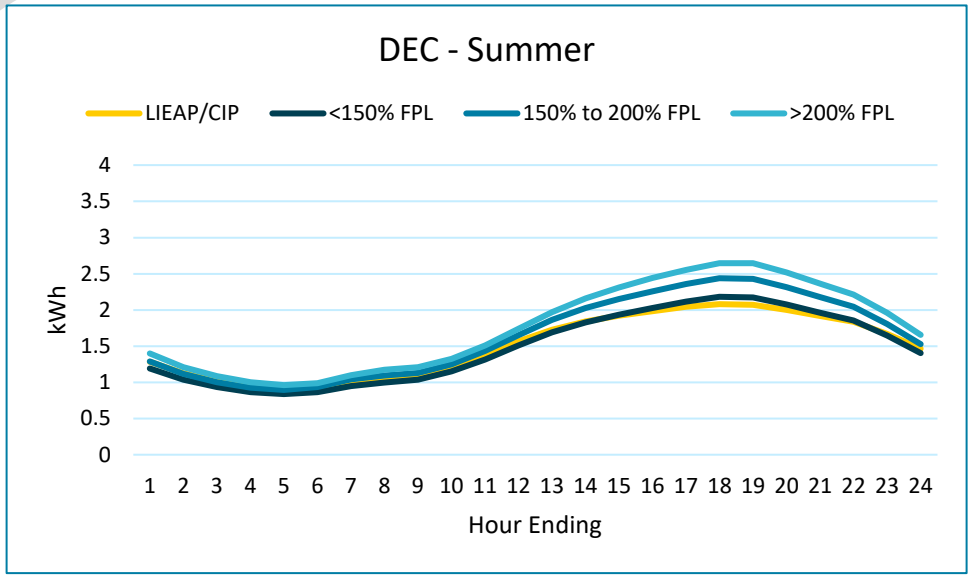
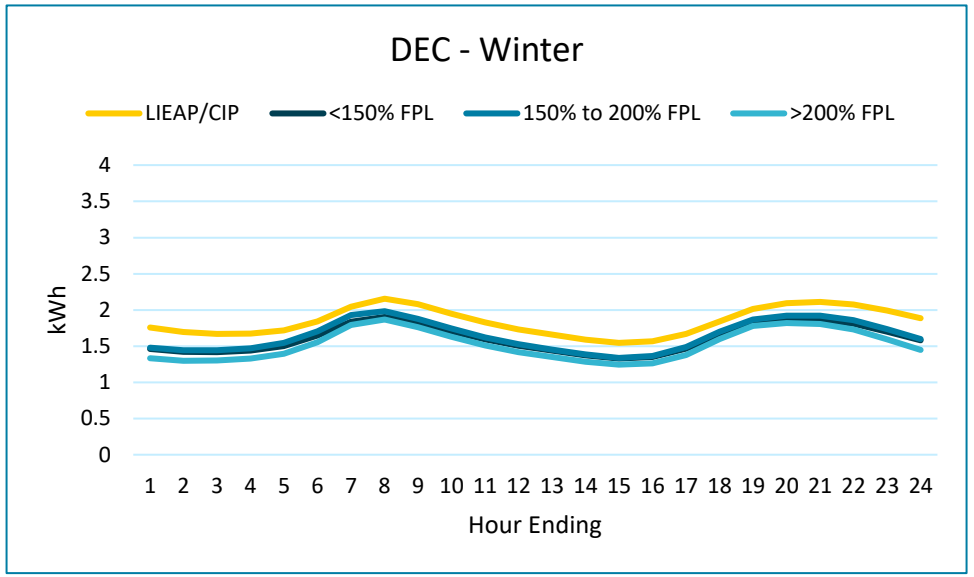
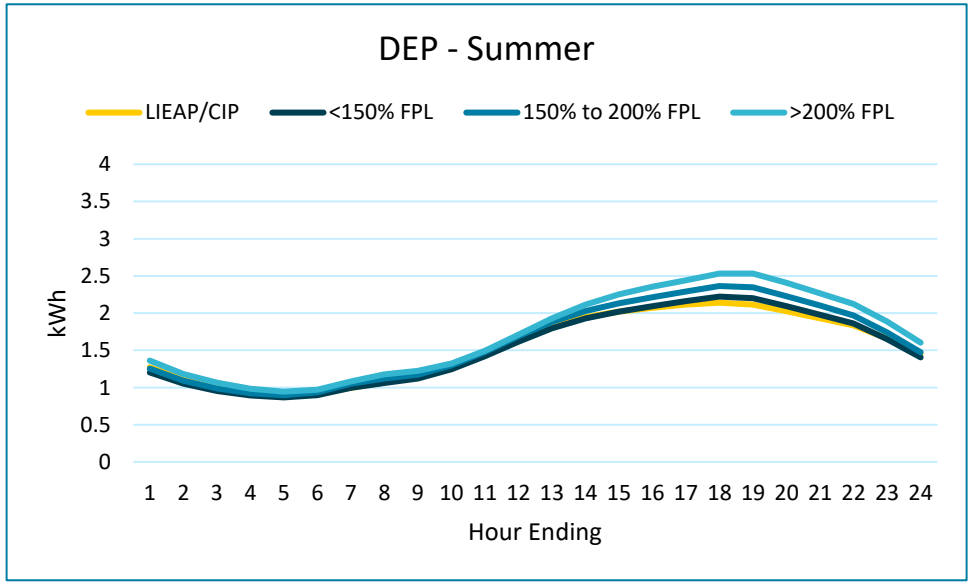
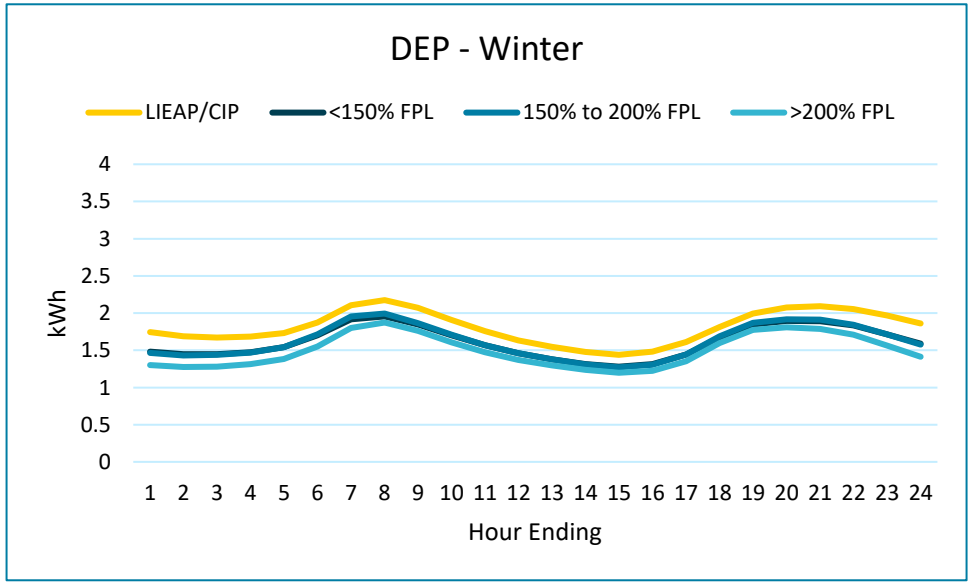
Analysis of Interval Data

Average Weekday Load Shape by Season & Income Segmentation









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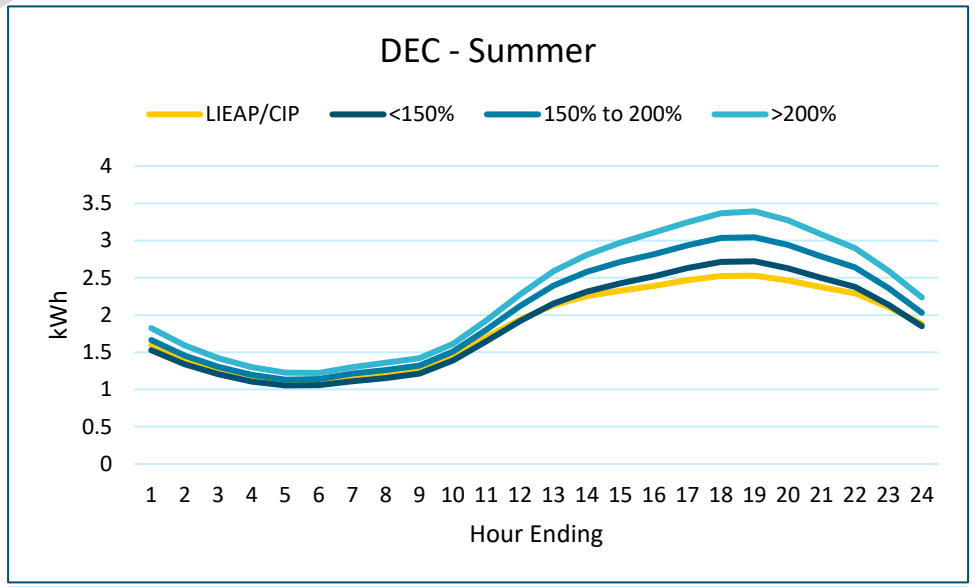
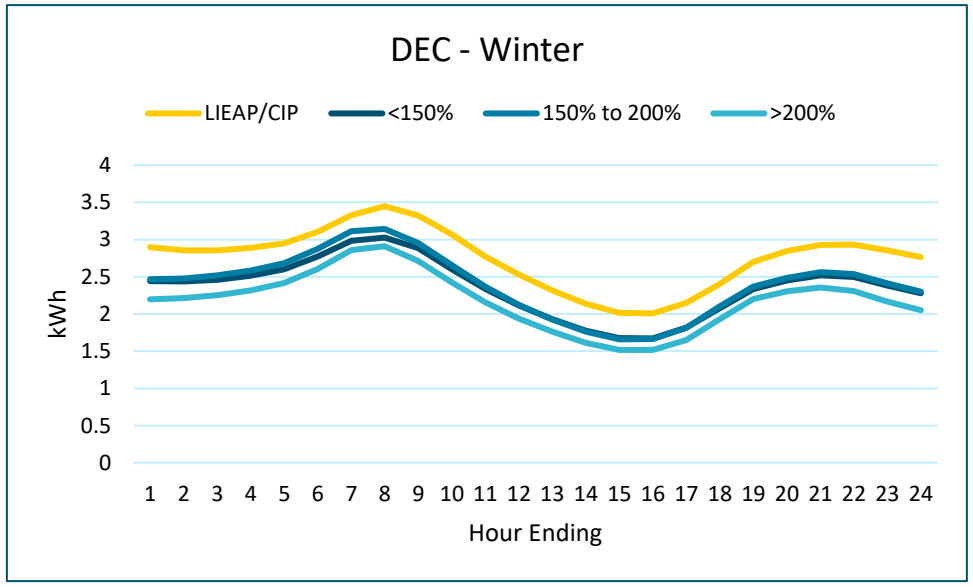
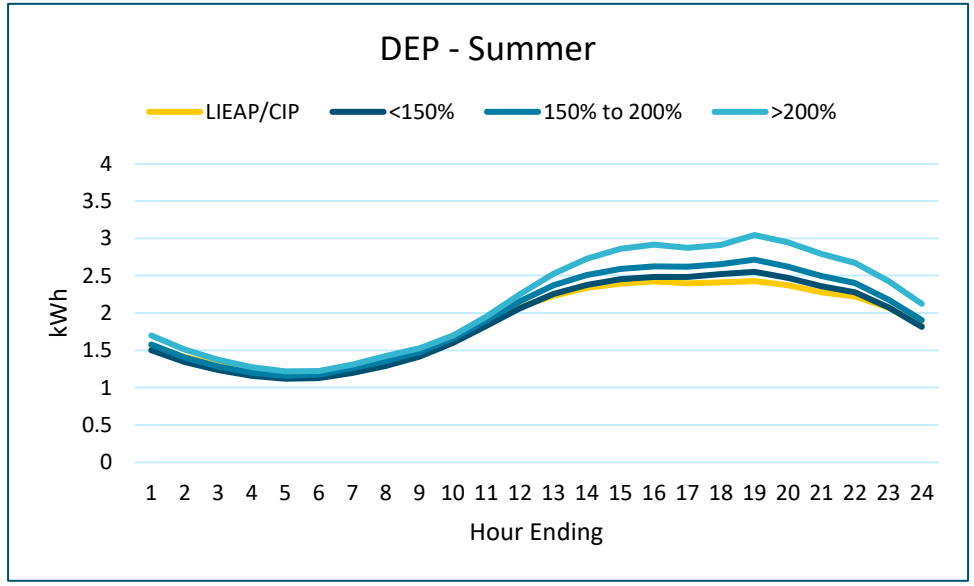
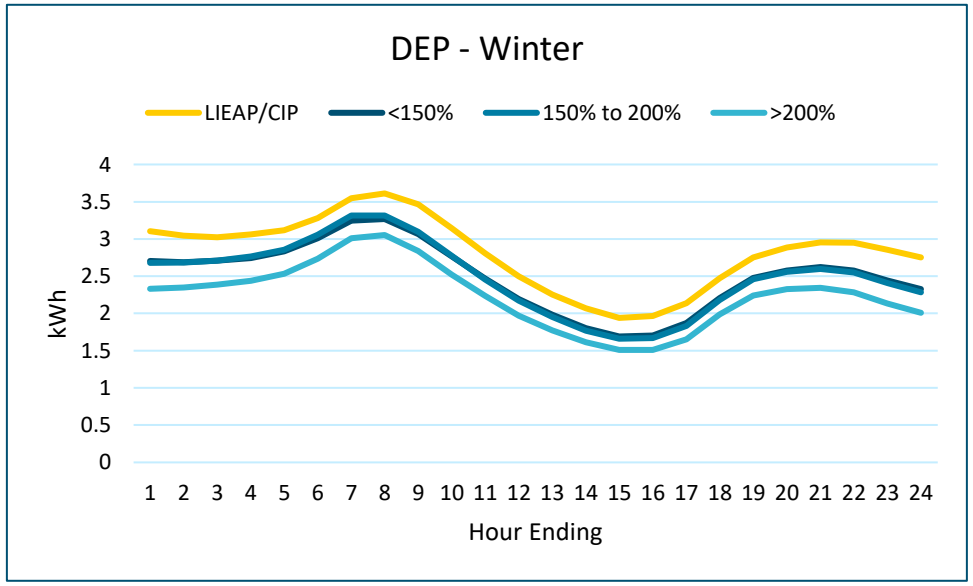
Peak Day Load Shape by Season & Income Segmentation









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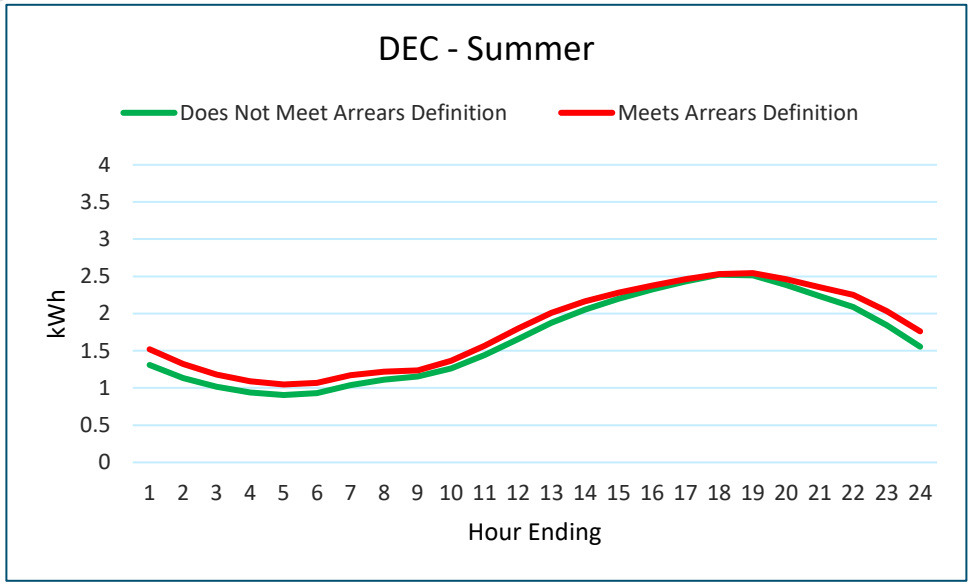
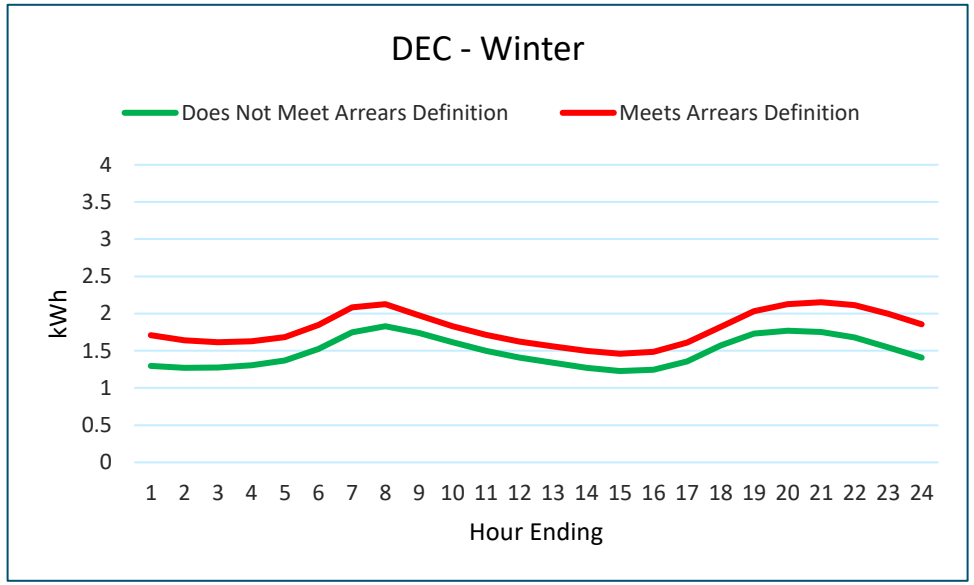
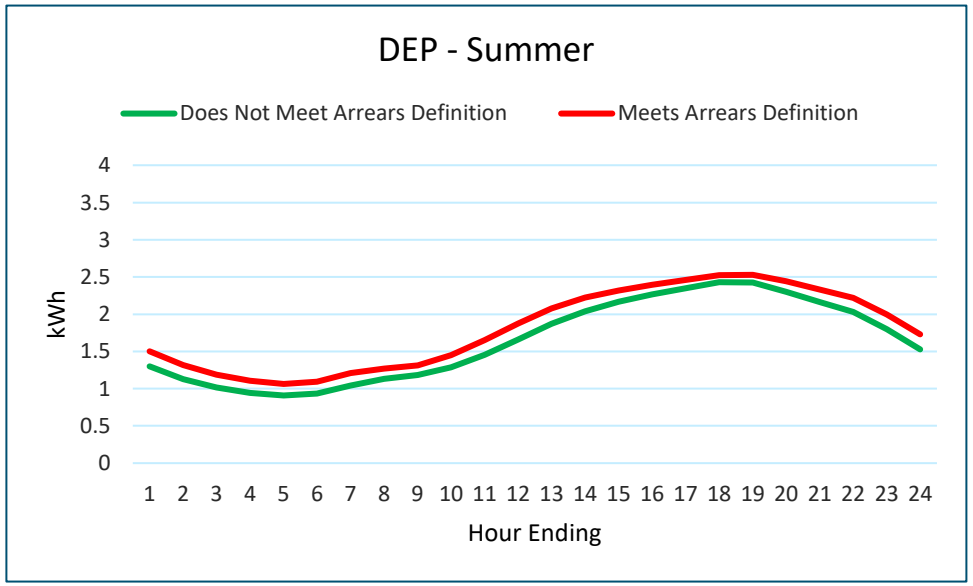
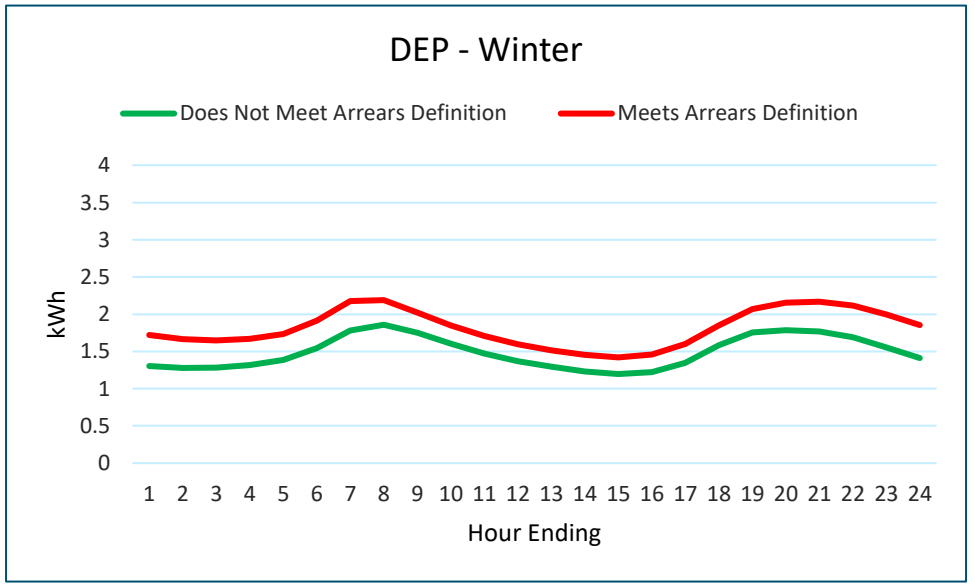
Average Weekday Load Shapes By Season & Arrearage Status









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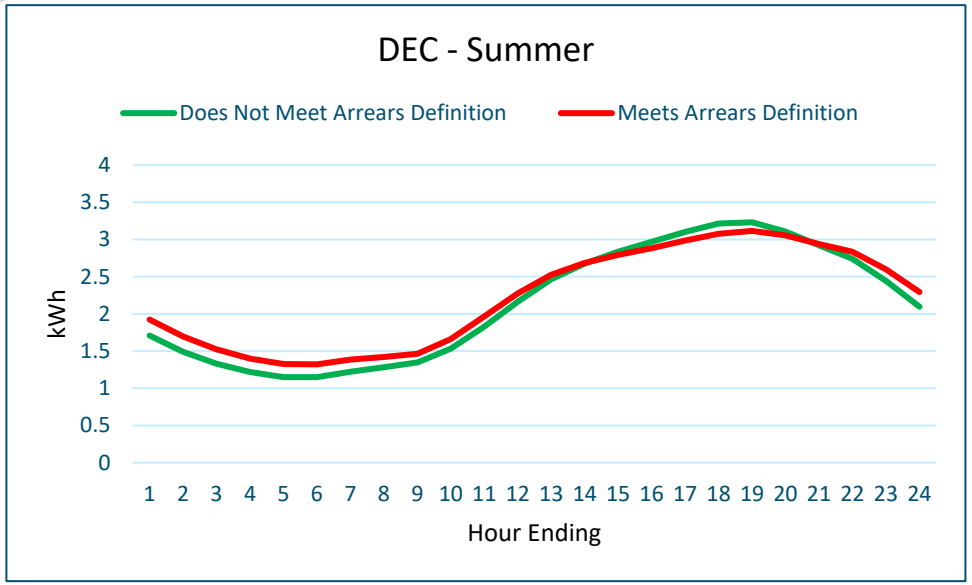
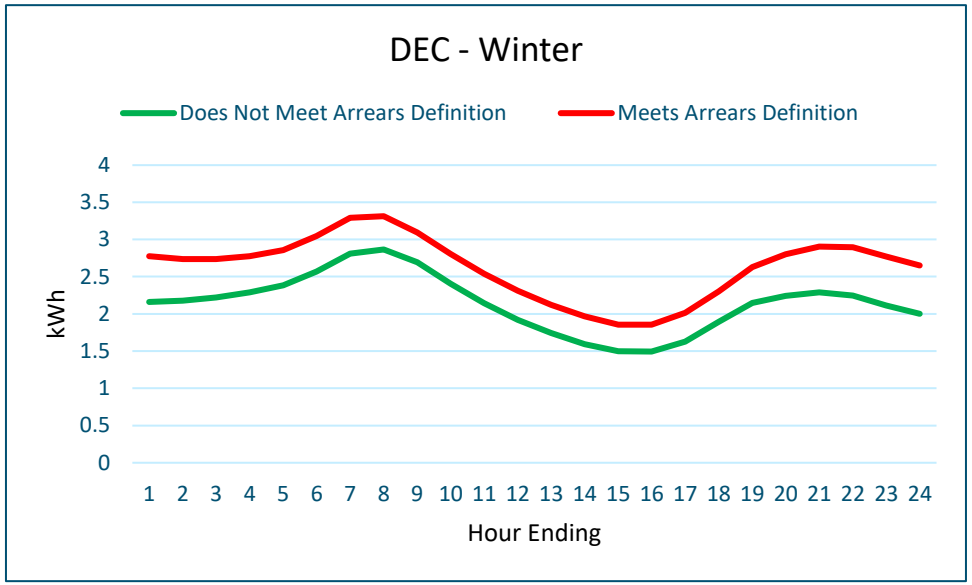
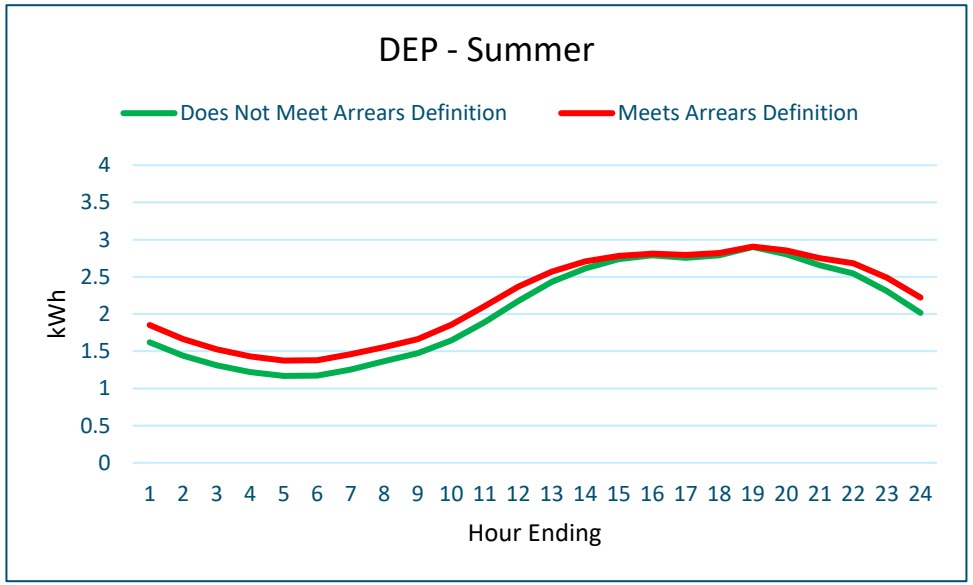
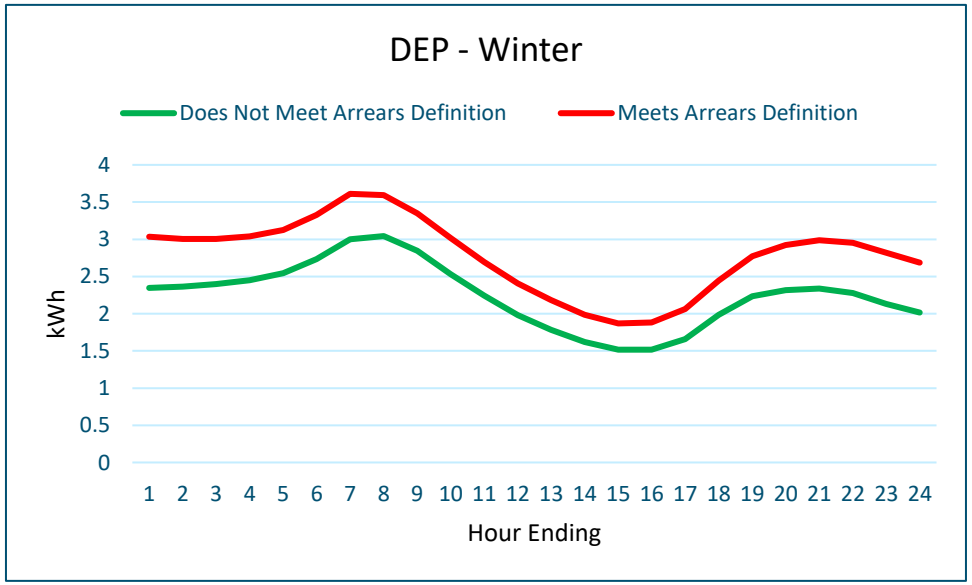
Peak Day Load Shapes by Season & Arrearage Status









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APPENDIX D – LIAC

ASSESSMENT

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

Assessment of Customer Challenges Relating to Energy Affordability

Produced by Sub-Team A of the Low-Income Affordability Collaborative

June 10, 2022

Table of Contents

Sub-team A Members and Representation

Rory McIlmoil (Co-lead)	Appalachian Voices
Arnie Richardson (Co-lead)	Duke Energy
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Kendrick Fentress	Duke Energy
Jack Floyd	NC Public Staff
Scheree Gilchrist	Legal Aid NC
Derric Grier	Duke Energy
Kyna Grubb	Rowan Helping Ministries
Lindsey Hallock	Vote Solar
Carol Hardison	Crisis Assistance Ministry
John Howat	National Consumer Law Center (on behalf of Southern Environmental Law Center)
Kay Jowers	Duke Univ. Nicholas Institute for Envt'll Policy Solutions
James McLawhorn	NC Public Staff
Nancy Loehr	Duke Energy
Heather Pohnan	Southern Alliance for Clean Energy
La'Meshia Whittington	Advance Carolina
Tommy Williamson	NC Public Staff

Team Objectives and Progress

As directed by the Orders issued by the North Carolina Utilities Commission ("NCUC" or "Commission") on March 31, 2021, in Docket No. E-7, Sub 1214, and on April 16, 2021, in Docket No. E-2, Sub 1219 ("Rate Case Orders"), the Low-Income Affordability Collaborative ("LIAC") was tasked, among other things, to prepare an assessment of current energy affordability challenges facing residential customers. The assessment should:

1. Provide an analysis of demographics of residential customers, including number of members per household, types of households (single- or multi-family), the age and racial makeup of households, household income data, and other data that would describe the types of residential customers the Company now serves. To the extent demographics vary significantly across the Company's service area, provide additional analysis of these demographic clusters.
2. Estimate the number of customers who live in households with incomes at or less than 150% of the Federal Poverty Level guidelines (sometimes referred to as "FPL" or "FPG"), and those whose incomes are at or less than 200% of the FPL.
3. For the different demographic groups identified as part of a. and b., provide an analysis of patterns and trends concerning energy usage, disconnections for nonpayment, payment delinquency histories, and account write offs due to uncollectibility.

Duke Energy Progress, LLC and Duke Energy Carolinas, LLC (the "Companies" or "Duke Energy") have provided a level of analysis on low-income customers that are without precedent in the Companies' history. The analysis represents customer data generated between March 1, 2019 through February 29, 2020 ("pre-Covid period") and serves as the primary basis for this Assessment of Customer Challenges Relating to Energy Affordability.

The Companies have presented data to LIAC members on the following customer segments: federal poverty level, arrearage status, Low Income Energy Assistance Program ("LIEAP")/Crisis Intervention Program ("CIP") participants, housing type (single vs. multi-family, mobile and manufactured), housing status (owner vs renter), heating source, location, housing value, race, age of the account holder, and number of people in the household. The demographic and housing data was purchased from a third party, Acxiom, as primarily a marketing data source. Within each of these segments, the Companies have provided data on average monthly kWh usage, kWh usage per square foot, customers meeting the Companies' definition of struggling with arrearages, electric energy burden, 10-day and 24-hour notifications of disconnection for non-payment, and disconnections for non-payment. In addition, Duke Energy provided analyses on customer segments by usage per month, average seasonal load shapes, and average peak day load shapes.

For the purposes of this assessment, we define the term "low-income" to mean residential customers with gross household incomes that are less than 200% of FPL.

Assessment of Customer Challenges

Between 700,000 and 900,000 residential customers are low-income

The ability to afford basic needs and services, including energy bills, is directly related to household income. Customers identified as low-income[1] households, based on federal poverty guidelines, are likely to experience energy affordability challenges.

Per Duke Energy's analysis, 29% of residential accounts served by DEC and DEP qualify as low-income (see Table 1). This includes the 16% of accounts that fall under 150% of federal poverty guidelines that were not identified as recipients of LIEAP/CIP assistance, the 2% of accounts that were identified as receiving that assistance, and another 11% of accounts that fall within the 150-200% FPL range. Combined this amounts to approximately 710,000 of the 2.4 million households included in the analysis (using data from the pre-COVID period). However, assuming the percentage has not declined since February 2020, 29% of the Companies' currently reported NC residential customer base of 3.07 million[2] equates to 900,000 accounts qualifying as low-income.[3]

TABLE 1: Percent and number of Duke Energy (NC) residential customers qualifying as low-income

Category	% All Customers	No. Customers (2.37M)	No. Customers (3.07M)
LIEAP/CIP	2%	53,595	67,785
< 150% FPL	16%	385,339	487,365
150 - 200% FPL	11%	271,432	343,299
Total low-income	**29%**	**710,366**	**898,448**

Between 390,000 and 490,000 residential customers met Duke Energy's "arrears definition" during the 2019/2020 analytical period

In order to provide a unique supplemental look at electricity affordability and associated impacts for residential customers, the Duke Energy team developed an "arrears definition" that is not directly based on income, but rather on the frequency and depth to which certain customers find themselves late in paying their monthly electric bill and/or being significantly behind on their bill. For the purpose of the analyses Duke Energy defined "arrears struggling" customers as those who found themselves in an arrearage situation in which they (1) were behind on paying their average/regular bill amount for six or more months during the pre-COVID period **or** (2) were behind by twice the amount (or more) of their average bill for two or more months during that same pre-COVID period.

[1] The focus of the LIAC relates to affordability challenges faced by low-income customers. However, Duke Energy's "arrears definition" analysis shows that a significant number of non-low-income (greater than 200% FPL) customers also experience challenges with paying their bill.

[2] The 3.07 million residential includes all NC residential active accounts as of September 30, 2021 regardless of duration the account was active. In comparison, the 2.37 million residential accounts in the analysis reflect residential accounts active for the entire time frame from March 2019 through February 2020.

[3] September 2021 Arrearage Report. NCUC Docket M-100, Sub 158. https://starw1.ncuc.net/NCUC/page/docket-docs/PSC/DocketDetails.aspx?DocketId=66e14449-b407-4ac3-93eb-a417521e1269

Per Duke's analysis, and as shown in Table 2, ~16% of the residential customer base (of the ~2.43 million customers included in the arrears analysis) met the arrears definition, amounting to 395,204 customers (*note: if this percentage was applied to the 3.07 million reported residential customers as of September 2021, the number of customers meeting the arrears definition would be approximately 490,000)*.

Of those, a combined 4.9% to 7.1% of Duke Energy residential customers in the <150% FPL and <200% FPL categories, respectively (including LIEAP/CIP) were also arrears struggling, amounting to 115,000 to 168,000 customers. Categories of customers where a higher-than-average proportion of customers met the arrears definition include low-income households, African American and Hispanic households, multi-family and rental households, mobile/manufactured homes, urban/city households, low-value housing (less than $100,000 property value), all-electric households, households where the age of the primary account holder was 54 years old or younger, and single-person households.

As explained below in this assessment, arrears struggling customers use more energy, have a higher energy intensity, and are disconnected at higher rates than non-arrears struggling customers. However, it is important to highlight that 57% of the customers in an arrears struggling situation do not meet the definition of low-income. While it can be expected that a large number of non-low-income customers also struggle with affording their bills, and that there is likely to be some proportionality between the percentages of arrears struggling and total customers (e.g., 29% of Duke Energy customers qualify as low-income while 71% do not), this is a finding that requires further discussion and consideration.

TABLE 2: Breakdown of "arrears struggling" customers by income category

	LIEAP/CIP	< 150% FPL	150-200%	200+% (+ unknown)	Total
Category as % of total customers	2%	16%	11%	70%	100%
No. of customers in category	53,595	385,339	271,432	1,716,956	2,427,322
% of category, "arrears struggling"	58%	22%	19%	13%	16%
No. of "arrears struggling"	31,340	83,741	52,350	225,410	392,841
"Arrears" as % of total customers	1.3%	3.4%	2.2%	9.3%	15.8%
Category as % of total "arrears struggling"	8.0%	21.3%	13.3%	57.4%	100.0%

Energy intensity (kWh/square foot) is a driving factor in low-income affordability challenges, likely in part due to poor housing quality/efficiency

Low-income households, specifically LIEAP/CIP recipients, and arrears struggling households have a much higher energy intensity (kilowatt-hours used per square foot of living space) than non-low-income customers (> 200% FPL), as do (1) rural households, (2) younger customers, (3) customers living in low-value housing, (4) multi-family & mobile/manufactured homes households, and (5) rental households.[4]

[4] Each of these categories of customers are more likely to reflect households occupied by lower-income customers.

For instance, LIEAP/CIP recipient households have an energy intensity that is ~25% greater than other low-income households, and 60% greater than non-low-income households. Arrears struggling households use 25-35% more energy per square foot for all customer segments (housing, race, age, location, etc) analyzed for the purpose of this assessment. The higher energy intensity levels for each of the aforementioned categories is likely in part related to poor housing quality and lower energy efficiency, which in turn drive higher energy usage and bills. The statistical analysis further supports this, as discussed later in the assessment.

Additionally, the Companies' findings on seasonal usage for low-income and arrears struggling households indicate that higher usage and bills may be related to inefficient housing and heating and cooling systems. The analysis identified that low-income households use more energy in the winter and have higher winter bills, but arrears struggling use more energy year-round -- nearly 20% more in the summer and 30% more in the winter than non-arrears struggling households.

Other findings from the Companies' analysis highlight the interplay between income level, energy intensity, and energy usage:

- LIEAP/CIP recipient households experience an energy intensity that is 100% greater (double) than non-low-income households' in the winter and approximately 40% higher than non-low income households' in the summer.
- Other (non-LIEAP/CIP) low-income customer energy intensity is about 33% higher than non-low-income households in winter and 14% higher in the summer.
- Arrears struggling households use 50% more energy per square foot in the winter and 33% more in the summer than households that did not meet the arrears definition
- Arrears struggling customers have a ~160% higher total bill in peak winter months (133% higher in summer) than non-low-income households; for LIEAP/CIP customers, the bill differential is 100% and ~70% higher, respectively

Low-income and "arrears struggling" households are much more likely to be disconnected for non-payment

A number of low-income households in general struggle with their electricity bills, with those that received bill payment assistance (LIEAP/CIP) struggling the most and experiencing DNP[6] at a much higher rate (greater than 16.3% of all LIEAP/CIP recipients), in addition to having received assistance. For instance, low-income customers are two times more likely, and "arrears struggling" customers and LIEAP/CIP recipients nine to ten times more likely, to experience a DNP than non-low-income customers. Categories of customers that experience higher-than-average DNP's include the same categories as those for arrears struggling customers. Additionally, the lowest income (< 150% FPL) and arrears struggling households are disconnected at higher rates across all housing, geographical, home value, and racial categories.

Statistical Analytics

Overview and Approach

To respond to the Commission's Rate Case Orders), a statistical model was developed by the Companies to assess a number of attributes impacting low-income customers. Three models were created: (1) Likelihood of low-income customers to meet the arrears definition; (2) Likelihood of low-income customers that receive a 24-hour disconnect notice; and (3) Likelihood of low-income customers to be disconnected given that they received a 24-hour DNP notice to be disconnected. Sub-team A identified areas where additional statistical analysis could potentially be helpful to expand on the descriptive analytics to support the objectives of the LIAC. Duke Energy committed to enhancing the analytics to support the affordability assessment. That analysis was presented in March 2022 in the NC Low Income Collaborative Analytics – Version 4 (Analytics) and is discussed below.

Three research questions were assessed using logistic regression techniques:

1. whether low-income customers are likely to be at-risk of: (i) meeting Duke Energy's arrears definition, (ii) at risk of receiving a 24-hour disconnect notice, or (iii) being disconnected after receiving a 24-hour disconnection notice (hereinafter referred to as the "arrears model");
2. whether low-income customers receive a 24-hour disconnect notice; and
3. whether low-income customers are disconnected given that they received a 24-hour DNP notice to be disconnected.

Logistic regression models are classification models that provide insight into questions dichotomous in nature (yes or no, 0 or 1, etc.) and are helpful for providing insight into the above questions. Each outcome (being in the at-risk group, receiving a 24-hour DNP notice, and being disconnected) is measured using a "0" for customers in the samples who do not meet each specific outcome and a "1" for those who did. The logistic regression models then assessed the relationship between each outcome and certain predictors, which included the same 11 attributes from the prior descriptive analysis: home value, electric burden, summer load, winter load and heat source, age of customer, age of home, race, household size, population density, housing status and type, and education.

The sample sizes for each model are as follows: 691,693 low-income customers were included in the arrears model; 215,574 were included in the 24-hour disconnection notice model; and 186,081 were included in the disconnection model. These numbers differ slightly from the totals in the descriptive analysis as some records had to be dropped during analysis given missing data for some of the variables. The modeling results are presented in Appendix A - Table 1 and discussed below.

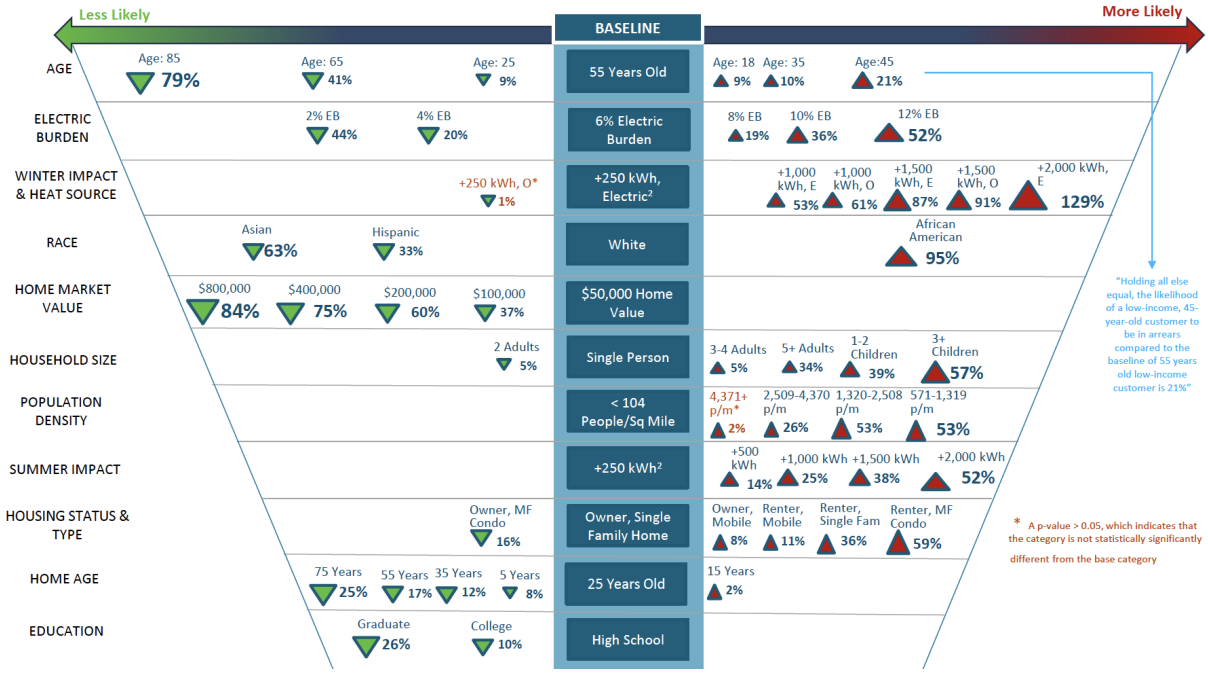
Analytical Results: Arrears Definition

Figure 1 below and Model 1 of Appendix A - Table 1 present the results of the arrears definition model and show the likelihood that low-income customers either meet the arrears definition, receive a 24-hour DNP notification, or are disconnected from service based on the predictors. The following summarizes the relationship modeled between this outcome and each predictor compared to a baseline within each predictor (e.g., all age categories were compared to a baseline

of 55 years old). Statistically insignificant results are included but are indicated in red and with an asterisk (*) in Figure 1. Statistically insignificant results are not bolded in Appendix A - Table 1.

In the discussion below, the results are grouped by similar categories with age, race, education and household size grouped under "Demographics," electric burden and energy intensity measures grouped under "Energy Use," and so on for other measures that capture an overall category of variables.

Figure 1. Arrears Model Results



Demographics

Age (Baseline: 55 years old): The results show that households where the primary account holder was 18, 35, and 45 years old[5] were more likely to meet the arrears model outcome than households where the primary account holder was 55 years old.

Those households where the primary account holder was 45 years old were 21% more likely than the baseline of 55 years old), followed by 35 years old (10% more likely) and 18 years old (9% more likely). Households where the primary account holder was 85-years old were 79% less likely to meet

[5] The relationship between age and our outcomes were found to be non-linear in the modeling. In other words, the underlying change in the relationship between age and the arrears model outcome does not stay constant over time and a straight line cannot be drawn through the points when the outcome and age are plotted. In order to allow this relationship to be more dynamic, the age variable enters into the model as a piecewise continuous measure, which gives results based on specific ages rather than a range of ages. Therefore, age is handled differently in the statistical analysis than it was in the descriptive analysis, where ranges/categories of age were used. The same approach is used for age of home and home value as well.

the arrears definition than a 55-year old account holder, and 65-years old 41% less likely. Age 25-year households were 9% less likely.

Further analysis would be necessary to explore the pattern across younger households more deeply. Future areas of research might include exploring whether younger customers are less likely to have savings or other liquid assets to draw upon in order to pay their bills; whether they might be more likely to live in older, low-value or rental homes that are energy inefficient; and, finally, whether they might be more likely to overlook deadlines and/or be distracted by competing demands of work and family. .

Race (Baseline: white): Compared to white households, Asian and Hispanic households were much less likely (63% and 33%, respectively) to meet the arrears model definition. However, Black households were 95% more likely to meet the arrears definition, and thus, more likely to be within the samples for the following two models for 24-hour disconnection notice outcome and disconnection outcomes.

Education (baseline: high school degree): The results show that as the education level of an account holder increases, they are less likely to meet the arrears model definition. Since it is expected that they earn a higher salary, they are also more likely to be able to afford their electric bill. Those with a college degree were 10% less likely, and those with a graduate degree 26% less likely to meet the arrears model definition than those with only a high school diploma.

Household Size (baseline: single person household): The results show that once a household goes beyond 2 adults, the larger a household is the more likely it is to meet the arrears model definition. Households with 3 to 4 adults are only slightly more likely (5%) to meet the arrears model definition than a single-person household, but that likelihood increases to 34% more likely once there are 5 or more adults in a household. Adding children increases the likelihood of meeting the arrears model definition, with 1-2 children making the household 39% more likely to meet the arrears model definition and 3 or more children increasing that to 57% more likely.

Energy Use

To assess the role that energy intensity and electric burdens may have in influencing whether a household falls into arrears, the models included predictor variables that captured the electric burden in a household, the winter impact for households with electric heating, the winter impact for households with other types of heating, and the summer impact. All variables were included simultaneously in the model. Therefore, when looking at the results for electric burden, these results indicated the likelihood of a household meeting the arrears model definition after controlling for the intensity of use represented in the winter and summer impact measures.

Electric Burden (Baseline: 6% of gross household income): The results show that a higher electric bill burden corresponds to a higher likelihood of meeting Duke Energy's arrears model definition. At an 8% electric burden a household is 19% more likely to meet the arrears definition, 36% more likely with a 10% electric burden, and 52% more likely with a 12% electric burden. Conversely, lower electric burdens were associated with households being less likely to meet the arrears model definition: 20% less likely with a 4% electric burden and 44% less likely at a 2% electric burden. This result strongly suggests that lowering a household's electric burden below the 6% threshold can have a significant impact on electric bill affordability for low-income households.

Winter Impact and Heat Source (Baseline: winter monthly energy use 250 kWh higher than average usage, and all-electric): The model shows that higher differences between average monthly usage in winter months and the overall annual average monthly usage result in a greater likelihood of meeting the arrears model definition. Compared to the baseline, all-electric homes using 1,000 kWh more electricity per month in winter are 53% more likely to meet the arrears model definition, while those using 1,500 kWh more are 87% more likely and at 2,000 kWh more are 129% more likely.

Households that use non-electric heating sources have a higher likelihood of meeting the arrears model definition, with those using 1,000 kWh more being 61% more likely and those using 1,500 kWh more being 91% more likely. In addition, because non-electric households are being compared at the same level of increased electricity usage (e.g. 1,000 kWh more on average in winter months) but are also paying for non-electric heating bills, which will add more strain on their ability to afford and pay their electric bill since heating the home would be the top priority[1].

It is notable that observed variations in winter energy use impact have a substantially higher influence over whether a household meets the arrears definition than do the variations analyzed for any other category. In part this makes sense because an average monthly usage that is 2,000 kWh higher in winter than on an annual basis results in a substantially higher electric bill each month during winter, which is difficult to afford for many low-income households. The results for this category strongly suggest that improving a household's energy efficiency through air sealing, insulation, and energy efficient heating systems could substantially reduce a household's likelihood of meeting the arrears definition.

Summer Impact (baseline: summer monthly energy use 250+ kWh higher than average usage): The results for summer impact reflect those for winter impact in that higher usage in summer months for cooling increases the likelihood of meeting the arrears definition. However, it is notable that the impact on the likelihood of meeting the arrears definition is substantially smaller in the Summer Impact category than in the Winter Impact category at the same variance level (e.g. 1,000 kWh).

House Attributes

The statistical analysis included measures for the value of a home, its age, and for housing tenure (renter or owner) by housing type (mobile home, single family home, multi-family home)[6]. Overall, the results show that when controlling for a home's value and age, owners are generally less likely than renters to meet the arrears model definition.

Home Market Value (baseline: $50,000): Higher value homes were substantially less likely to fall into arrears, with each additional $100,000 in value decreasing the likelihood by 15% on average. Homes valued between $100K to $199K were 37% less likely, between $200K to $299K 60% less likely, and so on. These results could be because these homes are more energy efficient compared to lower value homes, and thus result in higher value homes being less likely to meet the arrears definition. But the model also controlled for some elements of energy intensity, which may capture some of the variation in energy efficiency.

Home Age (baseline: 25 years old/since construction): In general, older homes in this analysis were less likely to meet the arrears definition. Although the results for home age may appear surprising at first given that many expect an older home to be less energy efficient, the model also includes a

[6] Age of home and home value enter the model as piecewise continuous measures to better capture non-linear relationships between the outcomes in the models and these predictors. See footnote 5 for further explanation.

measure of home value as well as housing type and other measures that may capture energy intensity. Some of the impact of age may be captured by those variables. Other potential explanations include factors such as outdated building codes, the affordability of newer homes versus older homes, etc may also be influencing the outcome. Only homes at 15 years old were more likely to meet the arrears definition than the baseline, but only by 2%.

Housing Status and Type (baseline: owner-occupied, single-family home): Across all combinations, renters were more likely to meet the arrears model definition than owners. Renters living in multi-family condos had the greatest likelihood at 59% more likely than the baseline, while renters and owners of mobile homes, while still more likely than the baseline, had the smallest increases in likelihood at 11% and 8%, respectively. Owners of multi-family condos were 16% less likely to meet the arrears model definition.

Neighborhood Attributes

Population Density (baseline: less than 104 households or housing units/square mile): Finally, the model included a measure for population density to assess the relationship between the outcome of interest and how urban or rural a community is. The US Census Bureau considers an area to be "urban" if there are 420 or more housing units per square mile. The categories used in our modeling does not easily reflect this shift from urban to rural but the 104-570 housing units per square mile category can serve as a proxy. Those categories above the 104-570 category would be becoming increasingly more urban. Compared to a sparsely populated area with less than 104 houses per square mile, all other population densities showed a higher likelihood of a household meeting the arrears definition. There seems to be a tipping point, however, after an area reaches more than 2,500 housing units per square mile where the magnitude of the increase in the likelihood dips by 50% for the two highest density categories. A densely populated area with between 2,509 and 4,370 people per square mile was 26% more likely to meet the arrears definition than the baseline, while a density of 571 to 1,319 people per square mile was 53% more likely. And although the trend continued for even more densely populated areas, the result for the highest density was not statistically significant.

Analytical Results: 24-Hour DNP Notice

Under Commission Rules, the Companies are required to take a number of steps to notify customers that their service is eligible for termination for nonpayment prior to disconnection. One of those final steps requires the Companies to send a notice to the customer at least 24 hours in advance to a proposed disconnection for nonpayment (24-hour notice) before disconnecting a customer for non-payment. This analysis reviews the customers that receive the mandatory notices from the Companies, whether they are ultimately disconnected or not.

Figure 2. 24-hour Notification of Disconnection for Non-Payment

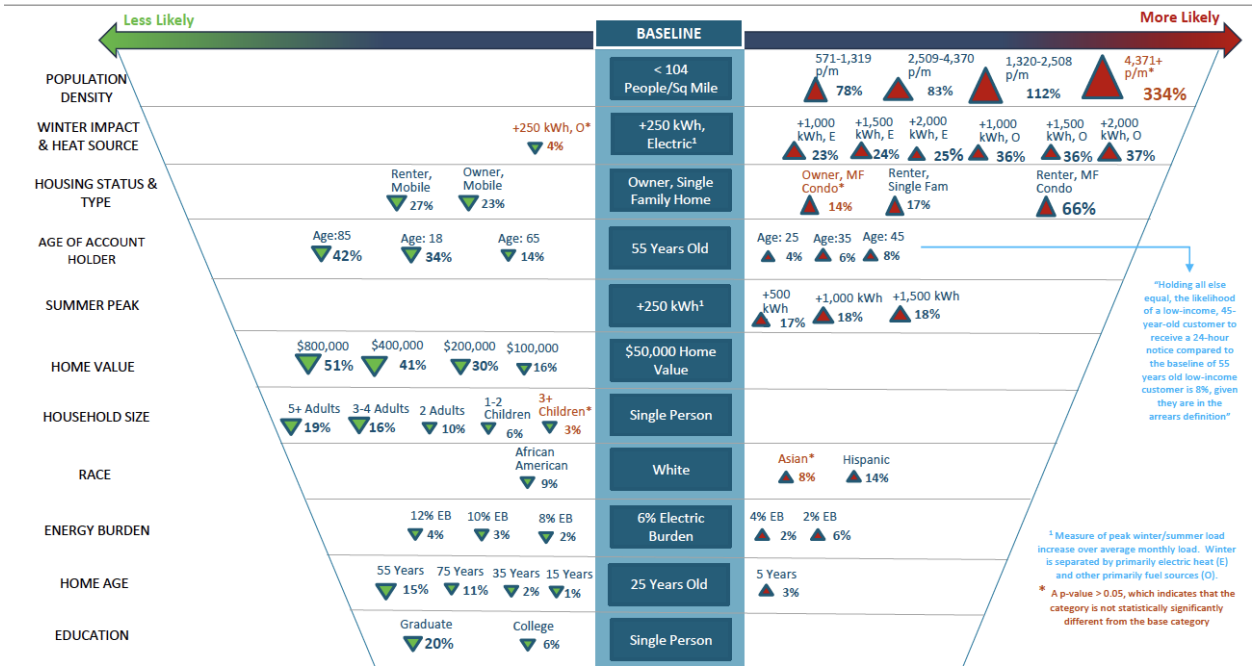


Figure 2 above presents the results showing the likelihood of those low-income customers who met the definition of arrears from the prior arrears model to receive a 24-Hour Notice for disconnection. The following summarizes the variation within the category based on a selected baseline.

Demographics

Age (baseline: 55 years old): Just as in the arrears model, account holders who were 85 years old led the way (42%) in being less likely to receive a notice and 65 year olds were also less likely (14%). Account holders who were 25, 35, and 45 years old were 4%, 6%, and 8%, respectively, more likely to receive notice. And, although they were more likely to meet the arrears model definition, 18 year olds were substantially less (34%) likely to receive a 24-hour notification. As mentioned in the arrears model section, there could be many reasons for this including limited savings or liquid assets, less efficient homes, and behavior around paying attention to their bills.

Race (baseline: white households): Although the arrears model showed that Hispanic households were 33% less likely to be in the group at risk of receiving a 24-hour notice, the results predicting the likelihood of receiving a notice given that a Hispanic household is at risk of receiving a notice show that Hispanic households were 14% more likely to receive a notice. The reverse pattern is present for Black households. Although Black households were 95% more likely to be in the at-risk group for receiving a notice, those who fell into the at risk category were 9% less likely to receive a notice. The results for Asian households were not significantly different from white households in receiving a notice.

Education (baseline: high school degree): The trend within the arrears model for age was present in the 24-hour notice model as well. Even once they are within the group at risk of receiving a 24-hour notice, account holders with a college or graduate degree were less likely (6% and 20% respectively) to receive a notice.

Household Size (baseline: single person household): Although the arrears model showed that larger households were more likely to be at risk of falling behind (or meeting the arrears model definition), within the at risk group a larger household is less likely to receive a notice. Households with more adults are between 10% and 19% less likely. And, interestingly, households with children present were only 6% less likely to receive a notification when compared to the baseline and the results for more than 3 children were not found to be statistically significantly different from the single person households. This indicates that families with children are more likely to receive a notice than situations where multiple adults are present.

Energy Use

Electric Burden (baseline: 6% Electric Burden): The results for the 24-hour notice outcome show that households with lower electric burdens were more likely to receive a notice. Once again, it is important to remember that this result is conditional upon these households having met the definition for being in arrears that was operationalized in the previous model. So, the sample includes only those households who met the arrears definition. Those households in arrears with higher electric burdens were less likely to receive a notice. Deeper analysis would be needed to explore these findings but perhaps seasonal policies are proving protective for those with higher electric burdens.

Winter Impact & Heating Source (baseline: winter monthly energy use +250 kWh higher than average, and all electric): Among those households that meet the definition for being in arrears that were operationalized in the arrears model, increased winter usage above baseline consistently corresponded to higher likelihood of 24-hour notice. The range of increase was between 23% and 37% above baseline whereas a households increased winter usage increased the likelihood of meeting the arrears model definition in the arrears the range was 53% to 129% above baseline.

<u>As previously mentioned, the results for this category strongly suggest that improving a household's energy efficiency through air sealing, insulation, and energy efficient heating systems could substantially reduce a household’s likelihood to receive a 24-hour DNP notice.</u>

Summer Impact (baseline: summer monthly energy use +250 kWh higher than average use): For households meeting the arrears model definition with higher summer usage of 500, 1,000, and 1,500 kWh, the households had virtually the same increased likelihood of receiving a notice of 17-18%.

House Attributes

Home Market Value (baseline: $50,000-$99,999): A consistent trend showed the larger the home value then the less likely that household is to receive a 24-hour notice. A $100,000 home was 16% less likely while a $800,000 home was 51% less likely.

Home Age (baseline: 25 years old/since construction): The range in this category was between 3% more likely for a 5 year old home and 15% less likely for a 55 year old home. Once again, these results are conditional upon the household meeting the definition of the positive outcome in the arrears model. In addition, the model controls for the home value and energy intensity measures, which may capture some of the energy inefficiencies that could be expected to be present in older homes.

Housing Status & Type (baseline: owner, single family home): Among those households meeting the arrears model definition, mobile home owners and renters were less likely (23% and 27%

respectively) to receive a notice. Renters of single-family homes were 17% more likely and renters of multi-family condos were 66% more likely to receive notice above baseline.

Neighborhood Attributes

Population Density **(***baseline: <104 households or housing units per square mile):* Density had a similar effect for households at risk of receiving a 24-hour notice. The general trend showed that higher population densities corresponded to increased likelihood of receiving a 24-Hour Notice. The baseline category and the 104-570 housing units per square mile most closely approximate rural areas. Households in the most sparsely populated area (the baseline) were 58% less likely to receive a notice than those in areas with 104-570 housing units. The highest density category was once again not significantly different from the baseline. But densities in between show an almost bell-shaped curve with 571-1319 housing units per being 78% more likely to receive a notice, between 1320-2508 housing units per square mile being 112% more likely, and between 2,509-4,370 housing units per square mile being 83% more likely.

Analytical Results: Disconnection for Non-Pay

Figure 3. Disconnection for Non-Pay Modeling Results

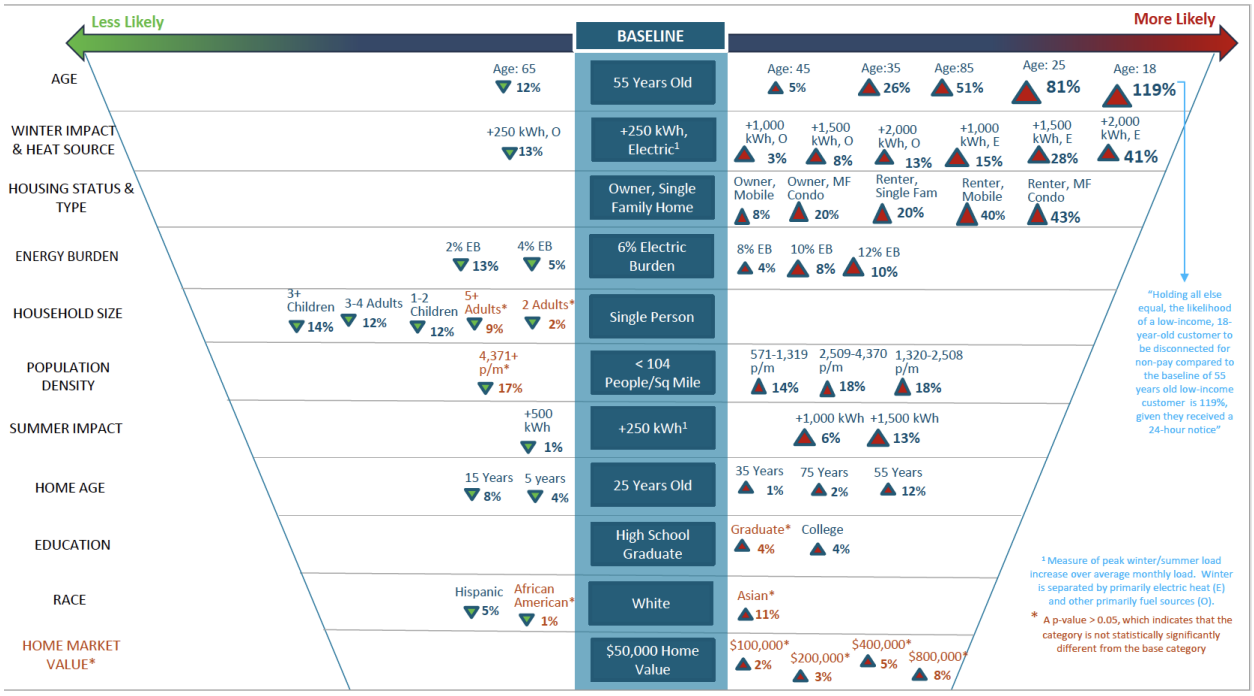


Figure 3 above presents the results showing the likelihood of low-income customers to be disconnected given that they received a 24-hour DNP notice to be disconnected. In other words, the sample for this model includes all of the low-income households that did receive a notice in the 24-hour DNP notification model discussed previously. The following summarizes the variation within the category, compared to a selected baseline.

Demographics

Age (baseline: 55 years old): The DNP analysis generally shows that, with one exception (65 years old) all householders whose ages are reported were more likely to meet the arrears definition than the baseline household. Further,, the younger the household compared to the baseline, the more likely it was to meet the arrears definition. Those households where the primary account holder was 45 years old were only 5% more likely than the 55-year old category, followed by 35 years old (26% more likely), 85 years old (51% more likely), 25 years old (81% more likely) and 18 years old (119% more likely). The results for 25 year old account holders were found not to be statistically significantly different from the baseline.

Further analysis would be necessary to explore the factors driving the trend of younger households being more likely to experience a DNP. Once again, however, it is important to remember that the model attempts to isolate the relationship between age and the outcome and includes controls to account for many other factors that could lead to financial instability, including education, household size, race, etc.

Race (baseline: white households): Conditional on having received a 24-hour notice, Hispanic households were 5% less likely than white households to be disconnected. Results for Black and Asian account holders were found not statistically significantly different from the baseline.

Education (baseline: high school): While the arrears analysis found that the more education a household/account holder receives, the less likely they were to meet the arrears definition, the DNP analysis shows that higher education households (college) are more 4% more likely to be disconnected than households with high school education levels. Again though, the sample of account holders in the DNP model is based on being a low-income household that receives a 24-hour notice and the model controls for other sociodemographics. This result indicates that once a household is in arrears and has received notice, education level is no longer protective. The magnitude of the increased likelihood is small at 4% though. The results on the graduate education level were statistically insignificant.

Household Size (baseline: single person household): The models for the DNP analysis show that, conditional on having received a 24-hour notice, larger households are less likely to experience a disconnection for non-payment. Households with 3-4 adults were 12% less likely to be disconnected than 1-adult households and households with 1-2 children were 12% less likely and 3+ children 14% less likely to experience a DNP.

Energy Use

Electric Burden (baseline: 6% of gross household income): A higher electric bill burden corresponds to a higher likelihood of experiencing a disconnection for non-payment. With an 8% electric burden, a household is 4% more likely to be disconnected, 8% more likely with a 10% electric burden, and 10% more likely with a 12% electric burden.

Conversely, lower electric burdens result in households being less likely to be disconnected from service: a household is 5% less likely with a 4% electric burden and 2% less likely at a 2% electric burden. This result strongly suggests that lowering a household's electric burden below the 6% threshold can have a measurable impact on avoiding disconnections

Winter Impact and Heat Source (baseline: winter monthly energy use 250 kWh higher than average usage, and all electric): The DNP model shows that a higher difference between average monthly electricity usage in winter months and annual electricity usage, the greater the likelihood of

experiencing a DNP. Compared to the baseline, all-electric homes that use 1,000 kWh more electricity per month in the winter are 53% more likely to meet the arrears definition, while those using 1,500 kWh more are 87% more likely and at 2,000 kWh more are 129% more likely.

Interestingly, conditional on having met the arrears model definition and the 24-hour notice model definitions, low-income households that use non-electric heating sources, while more likely to experience a DNP than the baseline, were substantially less likely than their all-electric counterparts. For instance, a household identified as using a non-electric primary heat source, but that used 1,000 more kWh per month in the winter than on an annual basis, was found to be only 3% more likely than the baseline to experience a DNP. However, an all-electric home at the same level of variance was 15% more likely to experience a DNP than the baseline. Those values for a home at the 2,000 kWh level were 13% and 41%, respectively. Further analysis would be necessary to explore this result more. Regardless, the results for this category strongly suggest that improving a household's energy efficiency through air sealing, insulation, and energy efficient heating systems could substantially reduce a household's likelihood of experiencing a DNP.

Summer Impact (baseline: summer monthly energy use 250+ kWh higher than average usage): The results for summer impact largely reflected those for winter impact in that higher usage in summer months for cooling increases the likelihood of being disconnected. The one exception is the 500 kWh category, the category closest to the baseline, which was 1% less likely to be disconnected. Given such a small magnitude in the impact of this category on the relationship to the outcome, the overall trend that higher summer impact increases the likelihood of a disconnection holds.

House Attributes

Home Market Value (baseline: $50,000-$99,999): The DNP analysis shows, conditional on having received a 24-hour notice, a low-income household is more likely to experience a disconnection. However, none of the results were found to be statistically significant. Therefore, there is little confidence that they are any different than the baseline households likelihood. This would suggest that once a household has received a 24-hour notice, home values have little explanatory value in predicting whether the household will experience a disconnection.

Home Age (baseline: 25 years old/since construction): Conditional on meeting the arrears model definition and receiving a 24-hour notice, low-income households living in older homes were more likely to experience disconnection than households living in homes built more recently. Households in homes constructed 5 years ago were 4% less likely to experience a disconnection and those in homes constructed 15 years ago they were 8% less likely. Households living in homes built 35 years ago were only 1% more likely to experience disconnection than the baseline home, while those in homes built 55 years ago were 12% more likely.

Housing Status and Type (baseline: owner, single-family home): The DNP model shows that being a renter results in a greater likelihood of experiencing a DNP than owners. The results for housing type were also the same, with the likelihood of a renter of a single-family home experiencing a DNP (20% greater than the baseline) being less than that of a mobile home (40%) or multi-family condo (43%). In other words, occupants of single family homes were less likely than occupants of mobile homes and multifamily condos to experience a DNP, regardless of whether the occupant owned or rented the home, and renters were more likely than owners to experience a DNP.

Neighborhood Attributes

Population Density (baseline: less than 104 people/square mile): Compared to a sparsely populated area, all other population densities showed a higher likelihood of experiencing a DNP. However, there is no clear pattern in the results. However, it is notable that for arrears, households in the lowest population density (other than the baseline) were the most likely to meet the arrears definition compared to the baseline, while for DNP's they are the least likely.

What are Some Conclusions to be Drawn from the Analytics?

In general, most of our predictors had statistically significant impacts[7] on the likelihood of a low-income customer to meet Duke Energy's definition of arrears and/or being at risk of receiving a notice and being disconnected from service for non-payment. The key factors that both significantly predicted being in arrears and are issues programs and policies could mostly readily address were electric burden, winter impact, and summer impact. Reducing a household's winter impact seems to show the greatest potential for reducing the likelihood a household will fall into arrears, given that at even one category above the baseline households were 53% more likely to be in arrears and at three categories above, 129% more likely. Electric burden and summer impact were similar in the magnitude of their effects for groups above the baseline categories. But reducing a household's electric burden would presumably also address financial insecurity overall as it reduces the overall amount of income going towards electric bills. House attributes were also statistically significant at predicting being in arrears and suggest that focusing on renters overall across all types of homes could reduce the likelihood of households falling into arrears. Demographic and neighborhood characteristics were statistically significant in predicting being in the arrears category as well. These results may provide guidance for targeting outreach efforts to certain social groups, neighborhoods, and areas but it is difficult to identify patterns regarding age, home value, and age of home given that the variables showed non-linearity in the models. Race, education, and the size of a household were significant predictors as well and indicate that focusing on low-income customers living in households with children, low-income Black account holders, and low-income account holders with post-secondary education may reduce the likelihood a household falls into arrears.

Conditional, however, on falling into the arrears category, the predictors that show the most statistical and policy significance for affecting the likelihood a customer received a 24-hour notice of disconnection for non-payment were those related to energy use, with winter impact once again showing the greatest magnitude among the energy use categories. And, finally, for those households receiving a 24-hour notice, energy use and housing tenure were both statistically and practically significant. It appears that focusing on reducing usage in both winter and summer and/or focusing on renters generally would reduce the likelihood of disconnections once a household has received a notice. Reducing a household's electric burden would also reduce the likelihood of disconnections. We do note, however, that account holders with higher electric burdens were less likely to receive a 24-hour notice. More research would be needed to explore why this is, but households with high electric burdens may be making partial payments that postpone disconnection but do not bring their accounts fully up to date.

[7] As shown in the Analytics pages 27-29, a p-value > 0.05, indicates that the category is not statistically significantly different from the base category. Those categories are highlighted with a red asterisk. All other categories were statistically significantly different from the base category.

These findings suggest that energy use factors are the critical factors to target in the design of interventions aiming to address electric affordability challenges for low-income customers. Reducing winter impact would be a promising target.

Appendix A. Logistic Regression Modeling Results

			Model 1		*Model 2*		*Model 3*
			% Change in the Likelihood of Being in the At-Risk Group Among Those Who Fall Below 200% of the Fed Poverty Level		*% Change in the Likelihood of Receiving a 24-hour DNP Notice Among Those in the At-Risk Group*		*% Change in the Likelihood of Being Disconnected Among Those Receiving a 24-hour DNP Notice*
Demographics							
	Age						
		18 years	**9%**		**-34%**		**119%**
		25 years	**-9%**		**4%**		81%
		35 years	**10%**		**6%**		**26%**
		45 years	**21%**		**8%**		**5%**
		55 years	----------*Omitted as Baseline*----------				
		65 years	**-41%**		**-14%**		**-12%**
		85 years	**-79%**		**-42%**		**51%**
	Race						
		Black	**95%**		**-9%**		-1%
		Asian	**-63%**		8%		11%
		Hispanic	**-33%**		**14%**		**-5%**
		White	----------*Omitted as Baseline*----------				
	Education						
		High School	----------*Omitted as Baseline*----------				
		College	**-10%**		**-6%**		**4%**
		Graduate	**-26%**		**-20%**		4%
	Household Size						
		Single Adult	----------*Omitted as Baseline*----------				

		2 Adults	**-5%**		**-10%**		-2%
		3-4 Adults	**5%**		**-16%**		**-12%**
		5+ Adults	**34%**		**-19%**		-9%
		1-2 Children	**39%**		**-6%**		**-12%**
		3+ Children	**57%**		-3%		**-14%**
Energy Use							
	Electric Burden						
		2%	**-44%**		**2%**		**-13%**
		4%	**-20%**		**4%**		**-5%**
		6%	----------*Omitted as Baseline*----------				
		8%	**19%**		**-2%**		**4%**
		10%	**36%**		**-3%**		**8%**
		12%	**52%**		**-4%**		**10%**
	Winter Impact by Heat Source						
		Electric					
		250-999 kWh	----------*Omitted as Baseline*----------				
		1000-1499 kWh	**53%**		**23%**		**15%**
		1500-1999 kWh	**87%**		**24%**		**28%**
		2000+ kWh	**129%**		**37%**		**41%**
		Other					
		250-999 kWh	-1%		-4%		**-13%**
		1000-1499 kWh	**61%**		**36%**		**3%**
		1500-1999 kWh	**91%**		**36%**		**8%**
		2000+ kWh			**37%**		**13%**
	Summer Impact						
		250-499 kWh	----------*Omitted as Baseline*----------				
		500-999 kWh	**14%**		**17%**		**-1%**
		1000-1499 kWh	**25%**		**18%**		**6%**

		1500-1999 kWh	**38%**		**18%**		**13%**
		2000+ kWh	**52%**				
House Attributes							
	Home Value						
		$50000-99,999	----------*Omitted as Baseline*----------				
		$100,000-199,999	**-37%**		**-16%**		2%
		$200,000-399,999	**-60%**		**-30%**		3%
		$400,000-799,999	**-75%**		**-41%**		5%
		$800,000+	**-84%**		**-51%**		8%
	Age of Home						
		5 years			**3%**		**-4%**
		15 years	**2%**		**-1%**		**-8%**
		25 years	----------*Omitted as Baseline*----------				
		35 years	**-12%**		**-2%**		**1%**
		55 years	**-17%**		**-15%**		**12%**
		75 years	**-25%**		**-11%**		**2%**
	Housing Tenure by House Type						
		Owners					
		Mobile Home	**8%**		**-23%**		**8%**
		Single Family	----------*Omitted as Baseline*----------				
		Multi-Family/Condo	**-16%**		14%		**20%**
		Renters					
		Mobile Home	**11%**		**-27%**		**40%**
		Single Family	**36%**		**17%**		**20%**
		Multi-Family/Condo	**59%**		**66%**		**43%**
Neighborhood							
	Population Density (Count of households per square mile)						

		Less than 104	----------*Omitted as Baseline*----------				
		104-570	**56%**		**58%**		**52%**
		571-1319	**53%**		**78%**		**14%**
		1320-2508	**53%**		**112%**		**18%**
		2,509-4370	**26%**		**83%**		**18%**
		4371+	2%		334%		-17%
Observations (No. of Customers in Sample)							
			691,693		215,574		186,081
Notes:							
The US Census Bureau considers an area to be "urban" if the population density is greater than 420 housing units per square mile. **Bold results** were statistically significant with a p-value of less than 0.05.							

APPENDIX E – LIAC

LIAC WORKSHOP VIII

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

Guidehouse

North Carolina

Low Income Affordability Collaborative

Workshop 8

June 9, 2022

Convened by

DUKE ENERGY.

Public Staff
North Carolina Utilities Commission

Welcome

MACIE SHOUN
Workshop Facilitator

NNEOMMA NWOSU
Workshop Support

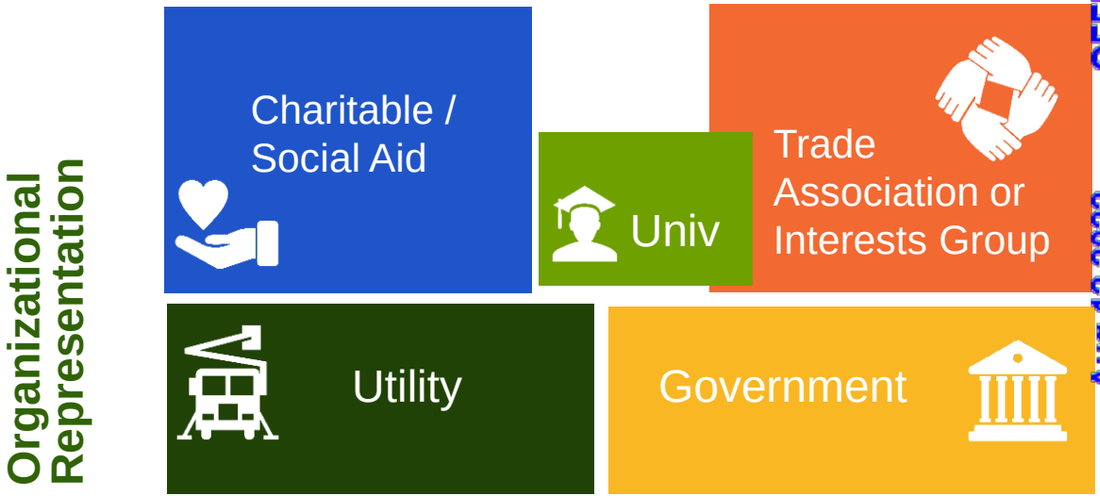
Guidehouse

OFFICIAL COPY

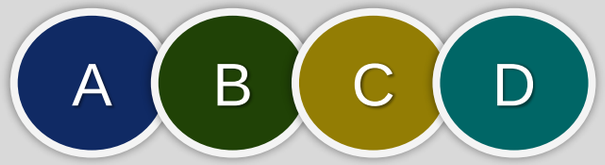
Aug 12 2022

40-50
active LIAC participants

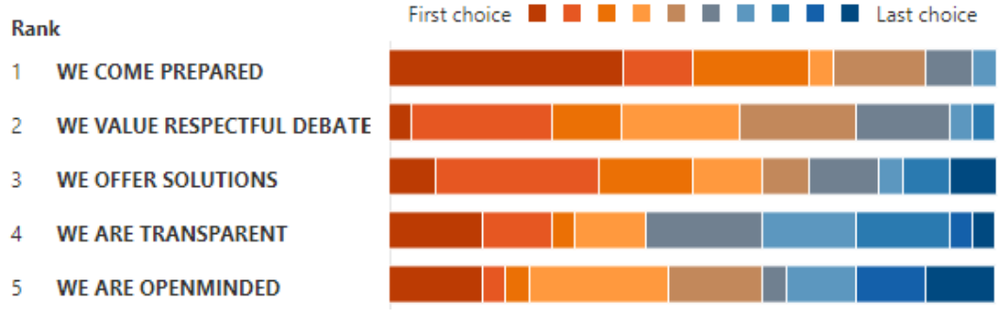
Organizational Representation



4 LIAC subteams



Top Guiding Principles



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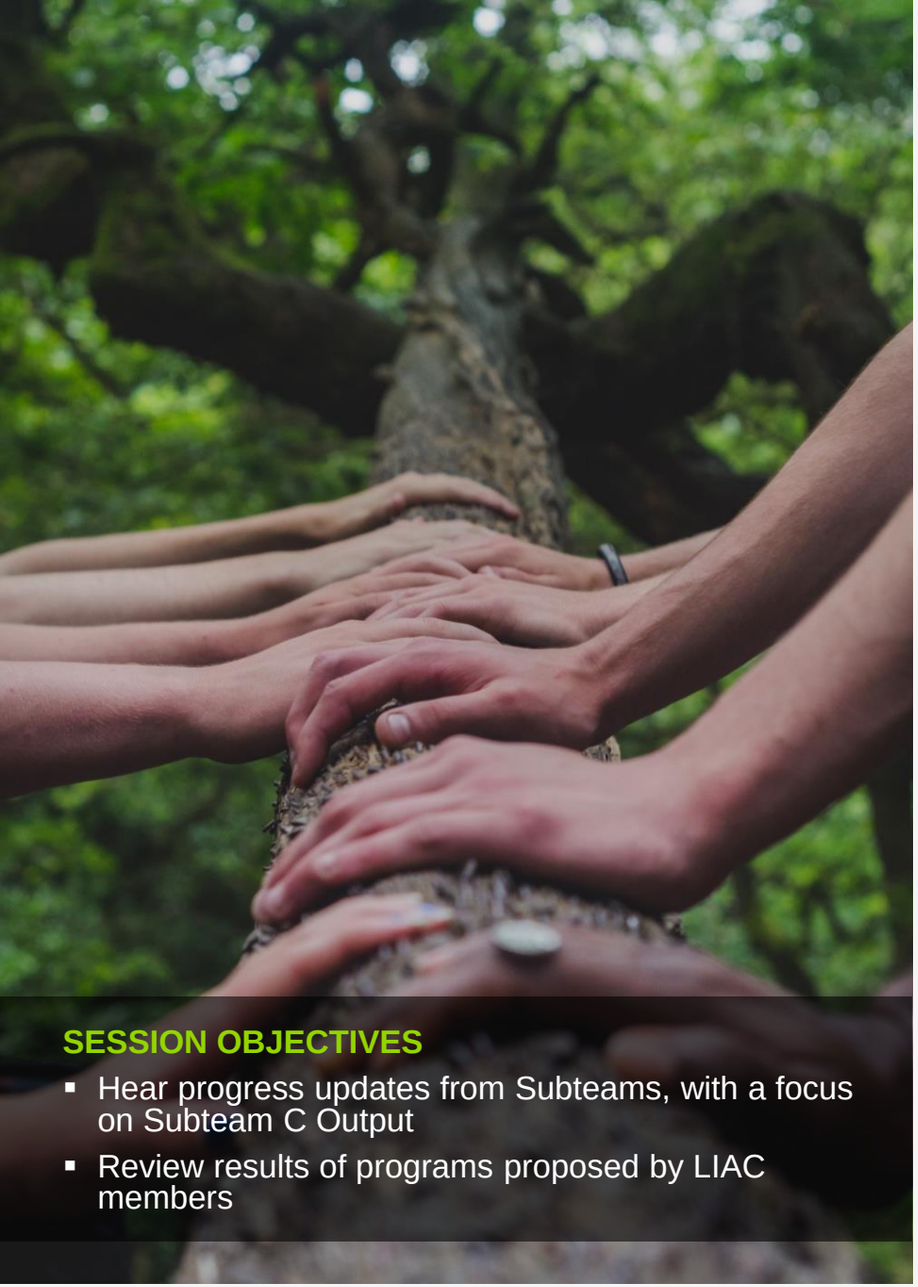

SESSION OBJECTIVES

- Hear progress updates from Subteams, with a focus on Subteam C Output
- Review results of programs proposed by LIAC members

NC Low Income Collaborative

Agenda | June 9, 2022

Workshop VIII: Recommendations & Proposal Assessment Results			
	CONVENE		
PART I	Welcome, Safety & Agenda	*Guidehouse*	*60-75 min*
	Review of Subteam Updates and Outputs	*Guidehouse*	
	Dep Data Update Cross-subsidy Analysis Task 3b/C	*LIAC Subteam C*	
	Success Criteria and Metrics To Monitor Program Impact Task 3a	*LIAC Subteam C*	
	Funding Sources and Opportunities/ Challenges	*LIAC Subteam C*	
	BREAK		
PART II	Program Proposal Assessment Results	*Guidehouse*	*30-60 min*
	Round Table	*All (GH Facilitated)*	
	Wrap-up & Look Ahead	*Guidehouse*	
	ADJOURN		

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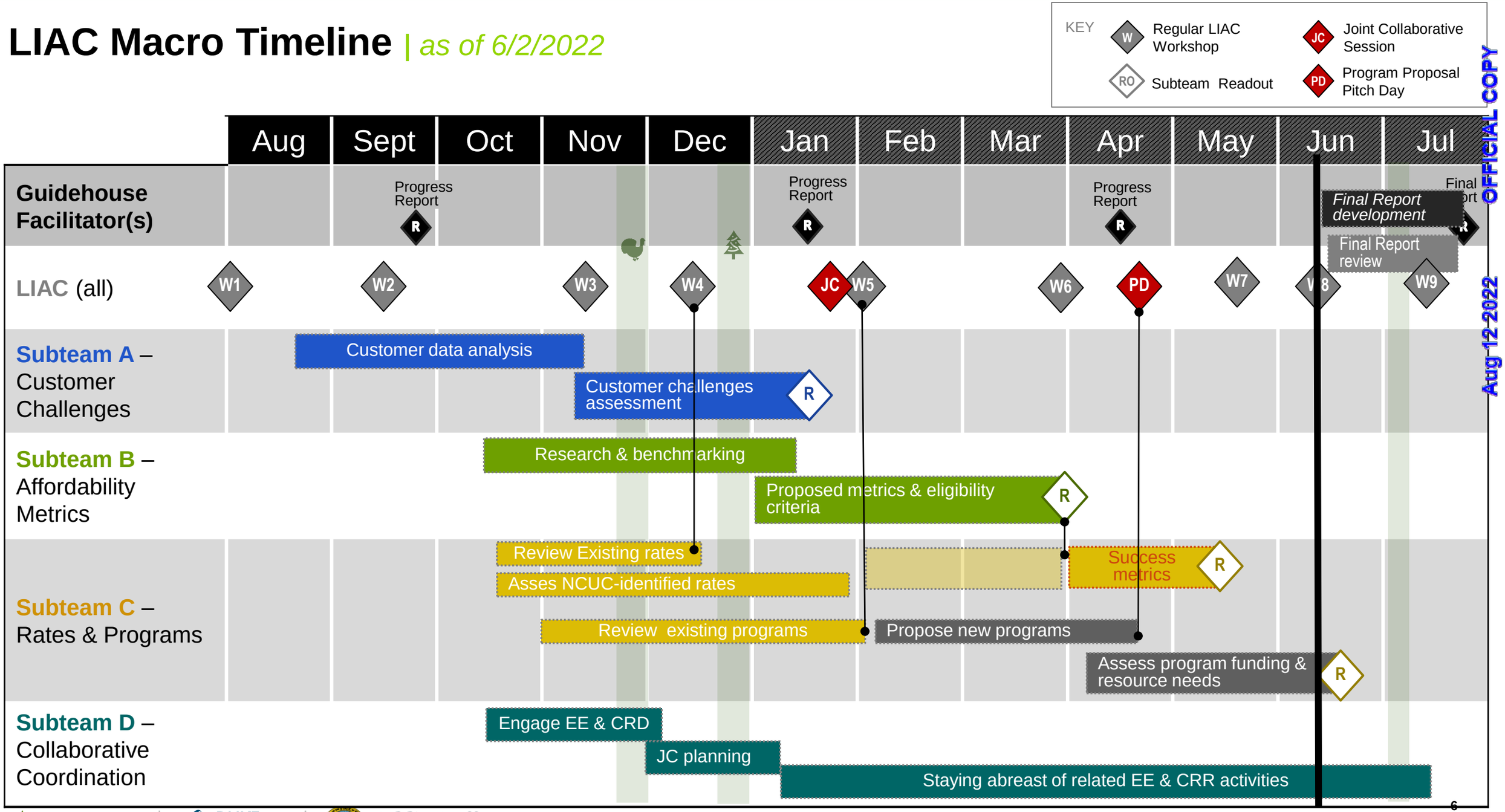
LIAC Macro Timeline | *as of 6/2/2022*



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REVIEW OF SUBTEAM OUTPUTS AND UPDATES

Key Subteam Activities

SUBTEAM A

Prepare an assessment of current affordability challenges facing residential customers

SUBTEAM B

Develop suggested metrics or definitions for “affordability”

SUBTEAM C

Investigate the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability

SUBTEAM D

Stay abreast of and consider the ongoing work of the comprehensive rate design and the EE collaboratives as they each carry out their work

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Subteam A Tasks

SUB-TEAM A Customer Challenges
Prepare an assessment of current affordability challenges facing residential customers
1.a-1) Conduct demographic assessment of residential customers with: size of household, property type, household ages, household races, household incomes
1.a-2) Characterize demographics in clusters (where possible)
1.b-1) Estimate the number of customers who are at or less than 150% of federal poverty guidelines
1.b-2) Estimate the number of customers who are at or less than 200% of federal poverty guidelines
1.b-3*) Consider if there are any other low-income thresholds to include
1.c-1) Provide an analysis of patterns and trends for energy usage
1.c-2) Provide an analysis of patterns and trends for non-pay disconnections
1.c-3) Provide an analysis of patterns and trends for payment delinquency histories
1.c-4) Provide an analysis of patterns and trends for account write-offs due to uncollectability

Subteam A Recap of Completed Tasks

SUB-TEAM A Customer Challenges			
Task	**Work Product**	**Date Shared with/Sent to LIAC**	**Date Discussed with LIAC**
1.a-1) Conduct demographic assessment of residential customers with: size of household, property type, household ages, household races, household incomes 1.a-2) Characterize demographics in clusters (where possible) 1.b-1) Estimate the number of customers who are at or less than 150% of federal poverty guidelines 1.b-2) Estimate the number of customers who are at or less than 200% of federal poverty guidelines 1.b-3*) Consider if there are any other low-income thresholds to include 1.c-1) Provide an analysis of patterns and trends for energy usage 1.c-2) Provide an analysis of patterns and trends for non-pay disconnections 1.c-3) Provide an analysis of patterns and trends for payment delinquency histories 1.c-4) Provide an analysis of patterns and trends for account write-offs due to uncollectability	Version 4 Analytics (Final)	March 28, 2022 via Email	March 31, 2022 at Workshop 6

Subteam B Tasks

SUB-TEAM B Affordability Metrics
Develop metrics or definition for "affordability" *(in the context of the Duke Energy's provision of service in NC)*
2.a-1) Research how "affordability" is defined and applied in other jurisdictions (specifically by vertically integrated IOUs) [Explore trends in affordability] 2.b-1) Determine eligibility criteria to be used for affordability programs

Subteam B Recap of Completed Tasks

SUB-TEAM B Affordability Metrics			
Task	**Work Product**	**Date Shared with/Sent to LIAC**	**Date Discussed with LIAC**
2.a-1) Research how "affordability" is defined and applied in other jurisdictions (specifically by vertically integrated IOUs) [Explore trends in affordability]	**Affordability Principles** – Subteam B LIAC Presentation	March 31, 2022, at Workshop 6	
2.b-1) Determine eligibility criteria to be used for affordability programs	**Low-income Program Eligibility Analysis** – Subteam B LIAC Presentation		
2. c-1) Develop suggested metrics for affordability in context of Company's provisions of service in its North Carolina service territory	Similar workstream as of Subteam C. LIAC members agreed to address metrics for affordability program in Subteam C workstream		

LIAC Subteam C Tasks

SUB-TEAM C **Rates & Program Offerings**
Address Commission questions regarding existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs
3.a-1) Define success criteria to be used for affordability programs
3.a-2) Determine metrics to be used to monitor program impact
3.b/c) Assess existing Duke Energy income-qualified programs *(3 tasks)*
3.d) Develop income-qualified program alternatives *(2 tasks)*
3.e) Assess set of Commission-identified rates and programs *(5 tasks)*
3.f) Determine rate impact implications of assessed programs *(4 tasks)*
3.h-1) Determine what practices and regulatory provisions related to disconnections for nonpayment should be modified or revised
3.i-1) Identify existing utility and external funding sources are available to address affordability
3.i-2) Estimate the level of resources that would be required to serve additional customers
3.j-1) Identify opportunities and challenges of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns

Recap of Completed Tasks

SUB-TEAM C Rates & Program Offerings			
Task	**Work Product**	**Date Shared with/Sent to LIAC**	**Date Discussed with LIAC**
3.a-1) Define success criteria to be used for affordability programs	Table that defines general program success criteria with metrics to monitor	June 9, 2022 via email	June 9, 2022 at Workshop 8
3.a-2) Determine metrics to be used to monitor program impact	Table that defines general program success criteria with metrics to monitor	June 9, 2022 via email	June 9, 2022 at Workshop 8
3.b/c) Assess existing Duke Energy income-qualified programs	Presentations on current Duke Program Offerings	SSI – June 9, 2022 via email WERP, RRP, & NES - May 19, 2022 via email	SSI – June 9, 2022 at Workshop 8 WERP, RRP, & NES – May 19, 2022 at Workshop 7
3.d) Develop income-qualified program alternatives (Pitch Day)	Program Proposal Process	April 12 via email Completed via email June 9th	April 20 Pitch Day Completed June 9th at Workshop 8
3.e) Assess set of Commission-identified rates and programs	General Statement	June 9, 2022 via email	June 9, 2022 at Workshop 8

Recap of Completed Tasks

SUB-TEAM C Rates & Program Offerings			
Task	**Work Product**	**Date Shared with/Sent to LIAC**	**Date Discussed with LIAC**
3.f/g) Determine rate impact implications of assessed programs	Presentation on findings/Summary on Conclusions	December 2, 2021 via email	December 9, 2021 at Workshop 4
3.h-1) Determine what practices and regulatory provisions related to disconnections for nonpayment should be modified or revised	Presentation on Findings and Conclusions	May 19, 2021 via email	May 19, 2021 at Workshop 7
3.i-1) Identify existing utility and external funding sources are available to address affordability	Tables that identifies Utility and External Funding sources	June 9, 2022 via email	June 9, 2022 at Workshop 8
3.j-1) Identify opportunities and challenges of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns	Table of Opportunities and Challenges for Specific Organizations	June 9, 2022 via email	June 9, 2022 at Workshop 8

Subteam C New Information being Shared Today

1. Legal Findings – Task 3e
2. DEP Data Update Cross-Subsidy Analysis – Task 3b/c
3. SSI Overview – Task 3b/c
4. Success Criteria and Metrics to monitor program impact – Task 3a
5. Funding Sources and Opportunities/Challenges – Task 3j/i

LEGAL FINDINGS
Task 3e

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Legal Findings

3e: Are the following programs, in addition to any others agreed upon by the collaborative, appropriate for implementation in North Carolina and, if so, what statutory or regulatory changes are necessary to permit implementation:

- minimum bill concepts as a substitute for fixed monthly charges;
- income-based rate plans, such as Ohio's percentage of income payment plan;
- segmentation of the existing residential rate class to take into account different levels of usage;
- expanding eligibility for DEC's current SSI-based program to include additional groups of ratepayers;
- a specific component in rates to be used to fund supplemental support programs,

"The Commission has broad authority under existing North Carolina law, but whether any particular proposal or program may require regulatory or statutory changes to be implemented cannot be determined in the abstract without a more detailed proposal."

Subteam C

DEP/DEC DATA UPDATE CROSS-SUBSIDY ANALYSIS

Task 3b/c

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NC Low Income Collaborative Cross-Subsidy Analysis

June 2022

DUKE ENERGY®

Causes of Cross-Subsidies

- Prices do not perfectly match cost-of-service
  - Impractical – cost allocation is often retrospective, while rate design is forward looking

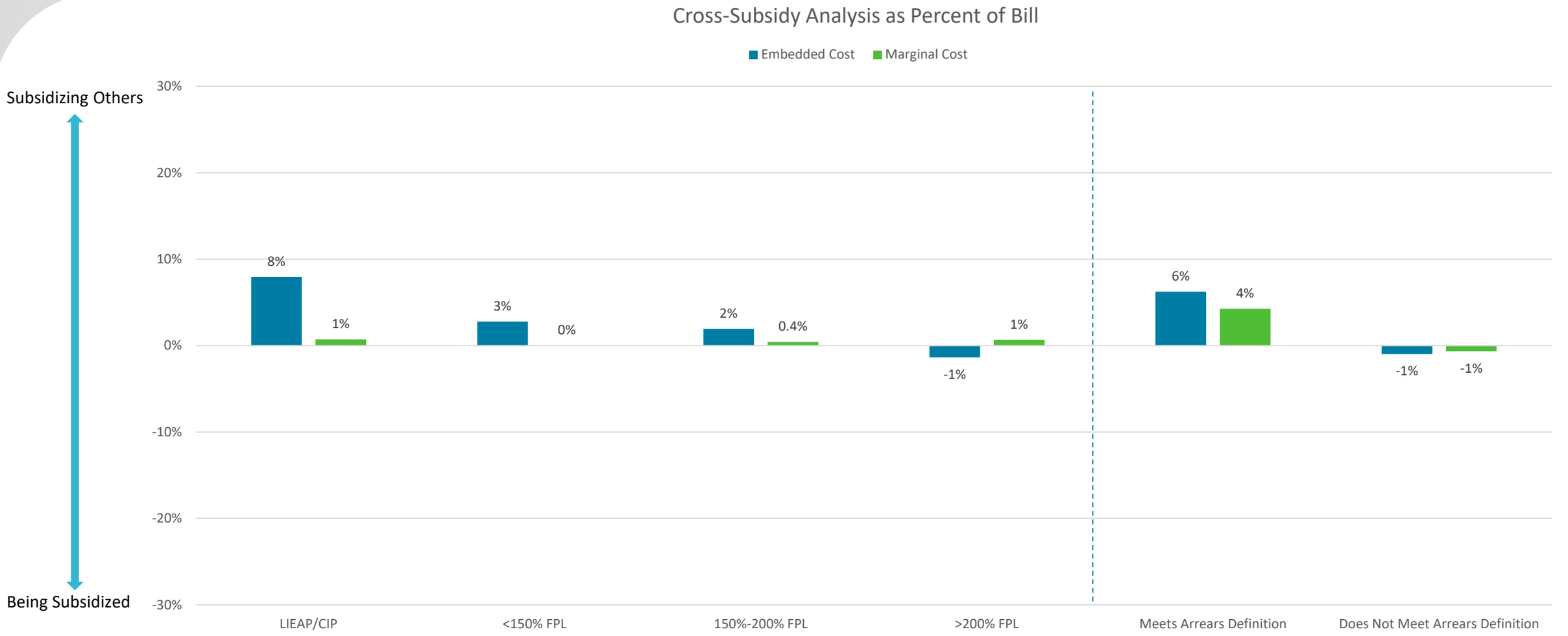
- Utilities are network systems
  - Contains a variety of joint and common system costs that are shared (i.e. socialized) among all customers
  - Cross-subsidies are inherent in network systems
    - i.e. some customers will pay more or less their fair share of the common system costs
    - i.e. some cross-subsidies or “cost shifts” are generally unavoidable in ***any*** rate design (although nature and magnitude may differ depending on the specific rate design)

Important Notes

- The cross-subsidy analysis was done using data from the Comprehensive Rate Design Study
  - Key difference is the time period for the CRDS was May 2020 – April 2021 (LIAC time period was March 2019 – February 2020)
    - Different time periods were used due to data needs for non-residential rate schedules reviewed in the CRDS, and wanted all analyses in that collaborative to be in the same time period
- The cross-subsidy analysis is a "point in time" study, and any results should be taken as instructive rather than precise measures
- Analyses relies on commission-approved methodologies for cost of service allocation, rate design allocation, and avoided cost proceedings
  - Changes in the methodologies would impact any cross-subsidy results
- Not all factors, such as location-based factors that affect transmission and distribution costs, could be included
  - For example, distribution costs for rural customers would be higher per capita than customers in a city center, however those costs are not separated by location in the cost of service study

Results

Cross-Subsidy Analysis by Income Level and Arrears Status – DEP RES



% Total Customers in Category*	3%	12%	8%	63%	12%	88%

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

Explanation of Cross-Subsidy Analysis for LIEAP/CIP Recipients – DEP RES

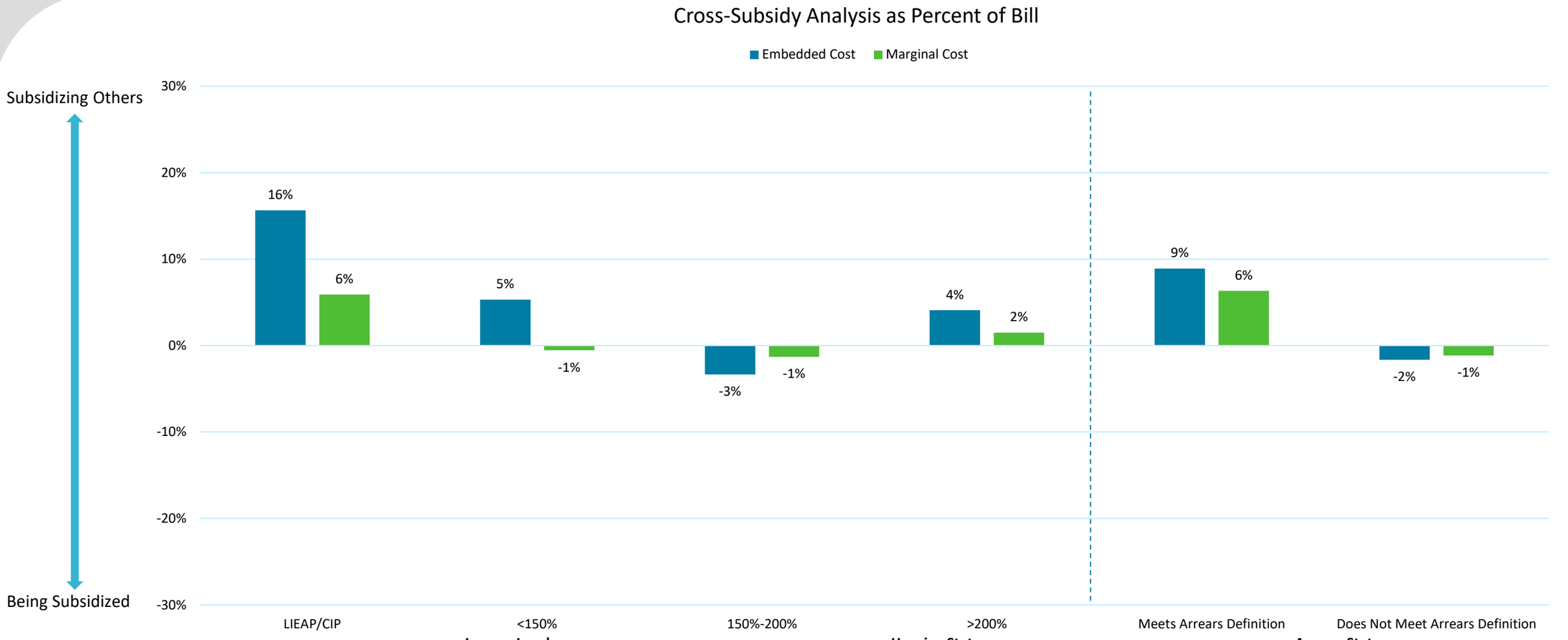
- Embedded Cost: Lower summer CP demands result in relatively fewer costs being allocated to LIEAP/CIP recipients, causing revenues to exceed costs (i.e. they are cross-subsidizing other customers by around $11/bill).

- Marginal Cost: Higher winter CP demands result in relatively more costs being allocated to LIEAP/CIP recipients than in the embedded cost analysis, essentially eliminating this cross-subsidy

- A straight average of the embedded cost and marginal cost subsidy results in a $6 subsidy per month ($72 per year)

- Higher usage (and thus revenues) year-round for customers that meet the arrearage definition, results in customers paying more than the average customer

Cross-Subsidy Analysis by Income Level and Arrears Status – DEC RS



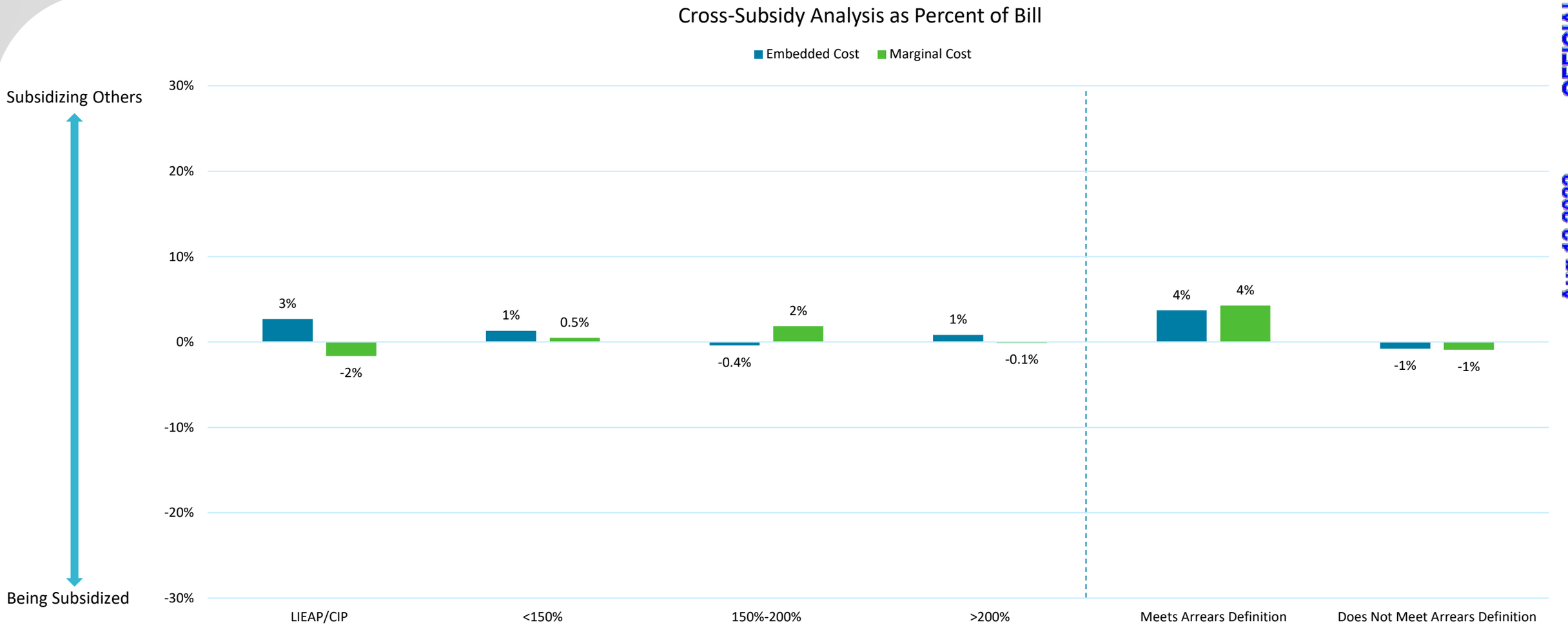
% Total Customers in Category*	2%	12%	9%	68%	14%	86%

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

Explanation of Cross-Subsidy Analysis for LIEAP/CIP Recipients – DEC RS

- A relatively higher winter CP compared to the summer CP results in the cross-subsidy being reduced in the marginal cost analysis compared to the embedded cost analysis
- RS LIEAP/CIP customer use roughly 160 kWh more energy than the average RS customer
  - It is not clear why this is the case
- Under both lenses, RS LIEAP/CIP customers subsidize others due to higher usage/revenues
- A straight average of the embedded cost and marginal cost subsidy results in a $13.50 subsidy per month ($162 per year)
- Customers that meet the arrearage definition are cross-subsidizing others due to higher usage

Cross-Subsidy Analysis by Income Level and Arrears Status – DEC RE



% Total Customers in Category*	3%	13%	9%	64%	17%	83%

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

Explanation of Cross-Subsidy Analysis for LIEAP/CIP Recipients – DEC RE

- RE LIEAP/CIP recipients on average use less than ~160 kWh less than the average RE customer, resulting in reduced bills/revenue. As a result, the embedded cross-subsidy is small and under the marginal lens they are subsidizing other customers.

- A straight average of the embedded cost and marginal cost subsidy results in a $0.50 subsidy per month ($6 per year)

- Customers that meet the arrearage definition cross-subsidize others but to a lesser extent than for RS

Numerical View of Cross-Subsidy Analysis – DEP RES

DEP-RES	Avg Customer in Analysis	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
Embedded Subsidy as Percent of Bill	n/a	8%	3%	2%	-1%	6%	-1%
Marginal Subsidy as Percent of Bill	n/a	1%	0%	0.4%	1%	4%	-1%
Embedded Subsidy	n/a	$11	$4	$3	$(2)	$9	$(1)
Marginal Subsidy	n/a	$1	$0	$1	$1	$6	$(1)
Straight Average Subsidy	n/a	$6	$2	$2	$(0.50)	$7.50	$(1)
Average Bill	$130	$135	$131	$133	$132	$143	$ 128
Average kWh	1,112	1,161	1,122	1,142	1,130	1,241	1,094
Avg Summer CP	3.3	2.7	3.1	3.2	3.5	3.2	3.3
Avg Winter CP	3.2	3.6	3.3	3.4	3.2	3.5	3.1

Embedded, marginal, and straight average subsidy are on a monthly basis

Numerical View of Cross-Subsidy Analysis – DEC RS

DEC-RS	Avg Customer in Analysis	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
Embedded Subsidy as Percent of Bill	n/a	16%	5%	-3%	4%	9%	-2%
Marginal Subsidy as Percent of Bill	n/a	6%	-1%	-1%	2%	6%	-1%
Embedded Subsidy	n/a	$20	$6	$(4)	$5	$11	$(2)
Marginal Subsidy	n/a	$7	$(1)	$(1)	$2	$8	$(1)
Straight Average Subsidy	n/a	$13.50	$2.50	$(2.50)	$1.50	$9.50	$(1.50)
Average Bill	$110	$125	$109	$110	$111	$123	$108
Average kWh	1,059	1,215	1,045	1,056	1,068	1,202	1,037
Avg Summer CP	3.4	2.8	3.0	3.6	3.2	3.3	3.4
Avg Winter CP	2.5	3.2	2.5	2.5	2.5	2.7	2.5

Embedded, marginal, and straight average subsidy are on a monthly basis

Numerical View of Cross-Subsidy Analysis – DEC RE

DEC-RE	Avg Customer in Analysis	LIEAP/CIP	<150% FPL	150%-200% FPL	>200% FPL	Meets Arrears Definition	Does Not Meet Arrears Definition
Embedded Subsidy as Percent of Bill	n/a	3%	1%	0%	1%	4%	-1%
Marginal Subsidy as Percent of Bill	n/a	-2%	0%	2%	0%	4%	-1%
Embedded Subsidy	n/a	$3	$2	$(0)	$1	$5	$(1)
Marginal Subsidy	n/a	$(2)	$1	$2	$(0)	$5	$(1)
Straight Average Subsidy	n/a	$0.50	$1.50	$1	$0.50	$5	$(1)
Average Bill	$118	$105	$115	$122	$120	$124	$117
Average kWh	1,228	1,065	1,194	1,267	1,253	1,295	1,215
Avg Summer CP	2.9	2.2	2.7	3.1	3.0	2.9	2.9
Avg Winter CP	3.9	3.2	3.8	4.0	4.1	3.9	3.9

Embedded, marginal, and straight average subsidy are on a monthly basis

Other Notes

- The DEC RS and RE results are slightly different from what was presented in the Comprehensive Rate Design Study March 11 Residential Working Group meeting
  - Small calculation error, that when corrected changed:
    - RS <150% FPL embedded cost reduced by 1 percentage point
    - RS <150% FPL marginal cost increased by 0.9 percentage points
    - RS >200% FPL marginal cost increased by 1 percentage point
    - RS Meets Arrears Definition embedded cost reduced by 1 percentage point
    - RE >200% FPL marginal cost decreased by 1.1 percentage points
    - RE Meets Arrears Definition marginal cost increased by 2 percentage points
- All LIAC analytics combined DEP and DEC customers into one group for analysis, while the cross-subsidy analyses are broken into DEP and DEC, and DEC is further broken into the RS and RE rate schedules
- DEP and DEC results cannot be directly compared because the system costs are different

SSI OVERVIEW
Task 3b/c

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North Carolina Utilities Commission

NCUC Order

Investigate the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability. Questions that should be addressed include:

- **What defines a "successful program" and what metrics should be monitored and presented that show the impact of programs on addressing or mitigating affordability challenges?**
- **What percentage of residential customers are eligible for each existing program and what percentage of eligible customers enroll in and/or take advantage of these programs?**
- **What is the impact of existing programs on the energy burden for enrolled customers?**
- **Should existing programs be maintained, replaced or terminated? If maintained, should any changes be made to improve results? If programs are replaced, what would replace them?**
- **What existing utility and external funding sources are available to address affordability? Estimate the level of resources that would be required to serve additional customers**
- **What are the opportunities (and challenges) of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns?**

Supplemental Security Income (SSI) Discount

Duke Energy Carolinas offers a bill discount to eligible Supplemental Security Income (SSI) recipients.

Supplemental Security Income (SSI) is a federal income supplement program designed to help elderly, blind, and disabled people who have little or no income. It provides cash to meet basic needs for food, clothing, and shelter.

The North Carolina Utilities Commission approved bill discount for recipients of SSI on August 31, 1978:

- Experimental discount rate under the hypothesis that SSI recipients have usage characteristics that differ substantially from the average residential customer - as a result have a small impact on system costs.
- A 1981 Research Triangle Institute study on Duke Power customers who were SSI recipients concluded: “If the North Carolina Utilities Commission feels that this particular class of customers should be granted special rate consideration, then there exist cost as well as social equity justifications for doing so.”

Supplemental Security Income (SSI) Discount

Eligibility Requirements: (Primary Account Holder) must meet all of the following:

- DEC residential customers in North Carolina
- SSI supplement check recipient
- Must be either blind, disabled or 65 years of age and older
- Head of household and/or the principal wage earner
- Recipient name must be Duke Energy account holder (Customer must be on electric rate NCER RS or NCER RE)

Program Administration:

- This rate is offered to DEC NC customers by the NC Department of Human Resources (DHS). If it is determined that a customer is eligible for this rate, DHS provides the customer with an application that must be completed and mailed to:

  Duke Energy c/o Billing Account Maintenance
  9700 David Taylor Dr.
  Charlotte, NC 28262-2363

Program Promotion:

- Bill insert is sent annually to all NC residential customers with details about available residential rates.
- Outside of the annual bill insert, and notices mailed by DHS, there are no other promotional activities involving the SSI rate that we are aware of.

Program Information:

- Customers that use more than 350 kWh per month receive a discount of $3.17
- Customers that use less than 350 kWh per month receive a discount equal to: total kWh x .9054 cents
- 9.3826 cents/kWh – 8.47772 cents/kWh = 0.9054 cents/kWh discount
- This discount is only available for DEC customers
- A previous customer taken off the SSI Rate, who qualifies again in the future, must reapply.
- SSI status will be canceled for customers that final bill or transfer service. Customers who remain eligible must reapply.

SUCCESS CRITERIA AND METRICS TO MONITOR PROGRAM IMPACT

Task 3a

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Success Criteria and Metrics to Monitor Program Impact

	Success Criteria (Desired Outcome)	Metrics recommended to Monitor Program Impact (By Program) [1]
1	Minimize Barriers for Customers to Participate	• Number of Customers Served • Percent of Customers Served • Percent of Eligible Customers Served • Percent Program Participation by Housing Type
2	Significantly and Sustainably Helps Participating Customers	• Average Electric Burden per Program Participant • Average Arrearages Amount per Program Participant • Percentage of Program Participants Disconnected [2] • Participants at Various Income Levels (50% FPL, 100% FPL, 200% FPL, etc.) • Affordability Ratio [3]
3	Significantly Helps Participating Customers (Needs Based)	• Number of Measures installed • Evaluated and Verified kWh Reductions (Due to Measures Installed) • Needs served based on Opportunity per Customer [4] • Percent of Households Deferred Due to Health and Safety Issues [5]

1. The ability to track these metrics geographically would be valuable. It is important to note that the ability to provide zip code data publicly will depending on the NCUC issuing an order approving this request. There is pending Rulemaking in Docket No. E-100, Sub 161 for zip code level data.
2. This metric could benefit from a more sophisticated calculation to account for economic impacts that are uncontrollable by Duke Energy.
3. This metric quantifies the percentage of a representative household's income that would be used to pay for an essential utility service, after non-discretionary expenses such as housing and other essential utility service charges are deducted from the household's income. It is important to note a data source to support this metric may not be available.
4. The intention of this metrics is to capture what percentage of eligible measures are served per customer/household.
5. Deferral information as a metric will need to be carefully crafted to avoid unintended incentives around program implementation.

Success Criteria and Metrics to Monitor Program Impact

	Success Criteria (Desired Outcome)	Metrics recommended to Monitor Program Impact (By Program)
4	Low Administrative Cost of Operation the Program	• Cost of Program • Cost of Program per Program Participant • Cost of Program per Program Participant weighted by Value to Participants • Maximize Leveraged Dollars [1]
5	Minimizes bill impacts for Non-Participants	• Average kWh cost across all Customers • Percentage (and/or) Average Monthly Bill Increase for Non-Participants
6	Eligible for Cost Recovery [2]	

1. This metrics should explicitly state the involvement of the agency performing the work on behalf of Duke Energy.
2. No metrics are recommended for monitoring this success criteria, though it is important to consider the reliability of funding sources for each program.

FUNDING SOURCES AND OPPORTUNITIES/ CHALLENGES

Task 3j/i

Task 3i

What **existing utility** and external funding sources are available to address affordability?

	Utility Funding Sources	
	Bill Assistance	Energy Efficiency
SSI Bill Discount (funded through base rates)	X (Monthly limit up to initial 350 kWh)	N/A
Share the Light (funded through customer contributions and shareholder contribution up to eligible annual match)	X	
Income Qualified Weatherization Program (funded through EE/DSM Rider)		X
Neighborhood Energy Saver (funded through EE/DSM Rider)		X

Task 3i

What existing utility and **external funding** sources are available to address affordability?

	External Funding Sources	
	Bill Assistance	Energy Efficiency
State Weatherization Program **Administrator: NC DEQ**		X Note: Provides funding for weatherization services and health and safety investment
Low Income Energy Assistance Program and Crisis Intervention Program **Administrator: NC DHHS**	X (Annual contribution limit)	Note: Provides funding for weatherization services and health and safety investment.
Community Development Block Grant Program **Administrator: NC Department of Commerce**		Note: Enables weatherization via funding health and safety repairs.

Task 3j

What are the **opportunities (and challenges)** of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns?

	Utility Working with other Agencies	
	Opportunities	Challenges
State Weatherization Program **Administrator: NC DEQ**	DEQ plans to deploy a new software platform that proposes to collect housing inspection data. Any weatherization deferral for health and safety needs will be visible for all local agencies to monitor.	Lack of transparency and information sharing, No standardized process to collect/track deferral information Misalignment on the timing of which organization is spending $ and when, Inconsistent communication channel between Duke and DEQ, Miscommunication/misunderstanding around priority
Low Income Energy Assistance Program and Crisis Intervention Program **Administrator: NC DHHS**	Use qualification for LIEAP/CIP to aid in energy burden calculation	Low level of funding per participant compared to the need

Subteam D Tasks

SUB-TEAM D **Collaborative Coordination**
Coordinate between the affordability collaborative and the rate study and energy efficiency stakeholder groups
4.a-1) Stay abreast of the ongoing work of the separate teams (affordability, comprehensive rate design and energy efficiency) 4.b-1) Describe the major interactions and connections between the affordability collaborative and the rate study and energy efficiency stakeholder groups 4.b-2) Identify interim material produced from LIAC to make available to the CRD and EE collaboratives 4.b-3) Identify interim material produced from the CRD and EE collaboratives to make available to the LIAC 4.b-4) Identify LIAC key areas of concern to discuss during joint meeting

Subteam Recap of Completed Tasks

SUB-TEAM D Collaborative Coordination			
Task	**Work Product**	**Date Shared with/Sent to LIAC**	**Date Discussed with LIAC**
4.a-1) Stay abreast of the ongoing work of the separate teams (affordability, comprehensive rate design and energy efficiency)	N/A	Ongoing	During LIAC workshops as needed
4.b-1) Describe the major interactions and connections between the affordability collaborative and the rate study and energy efficiency stakeholder groups	Joint Collaborative Session Findings	March 31, 2022, at Workshop 6	
4.b-2) Identify interim material produced from LIAC to make available to the CRD and EE collaboratives	Joint Collaborative Session Workshop Presentation	January 26, 2022 – Joint Collaborative Session	
4.b-3) Identify interim material produced from the CRD and EE collaboratives to make available to the LIAC	Joint Collaborative Session Workshop Presentation	January 26, 2022 – Joint Collaborative Session	
4.b-4) Identify LIAC key areas of concern to discuss during joint meeting	N/A; Identified during Subteam D Meetings	N/A	

BREAK

(Resuming at 2:35 PM)

PROGRAM PROPOSAL ASSESSMENT RESULTS

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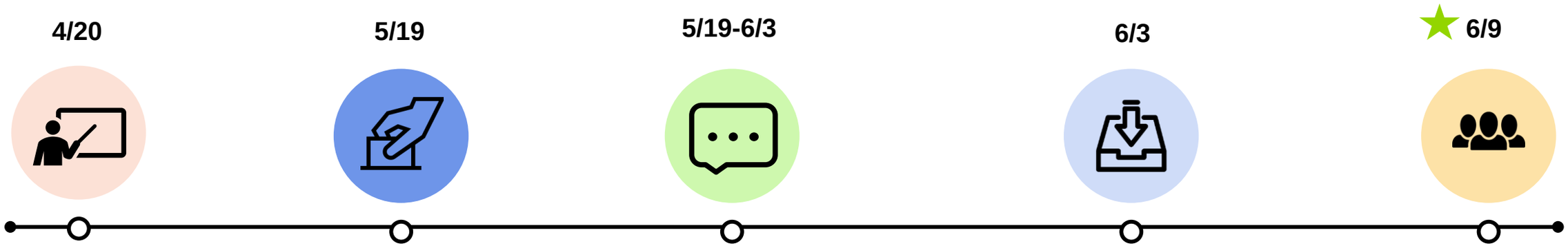
Proposal Process Timeline



LIAC Proposal Assessment

LIAC Program Proposal Reference Packet with Assessment Results was shared yesterday via email. It includes:

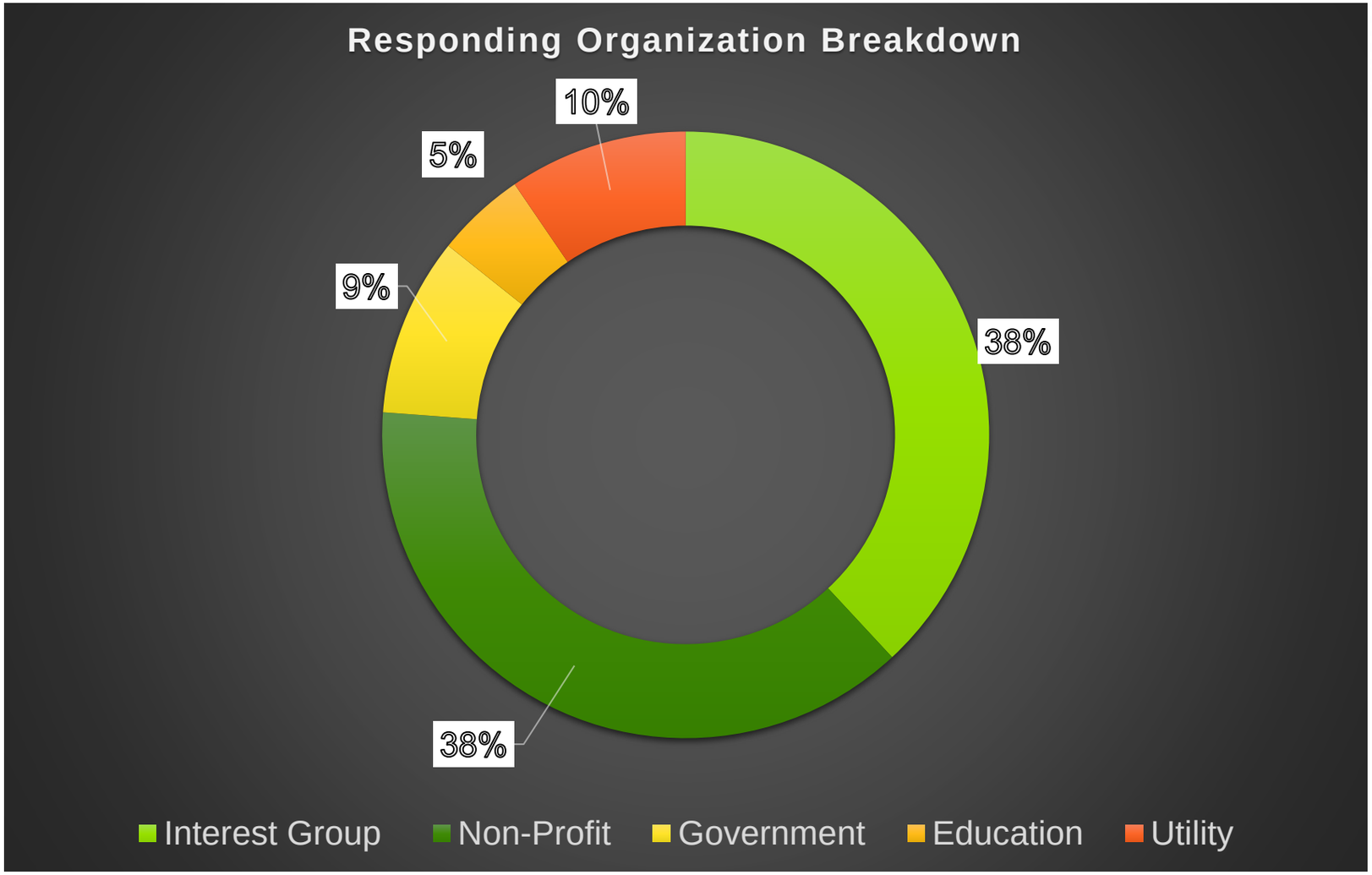
- Overview of Respondents
- Program Proposal Information
- Assessment Results in Pie Chart form
- Comments from the Assessment

Note: One organization encountered technical difficulties and has since had their responses added to the Packet, the updated Packet will be shared later today. The following slides contain the most up-to-date version of the information.

ASSESSMENT PARTICIPATION

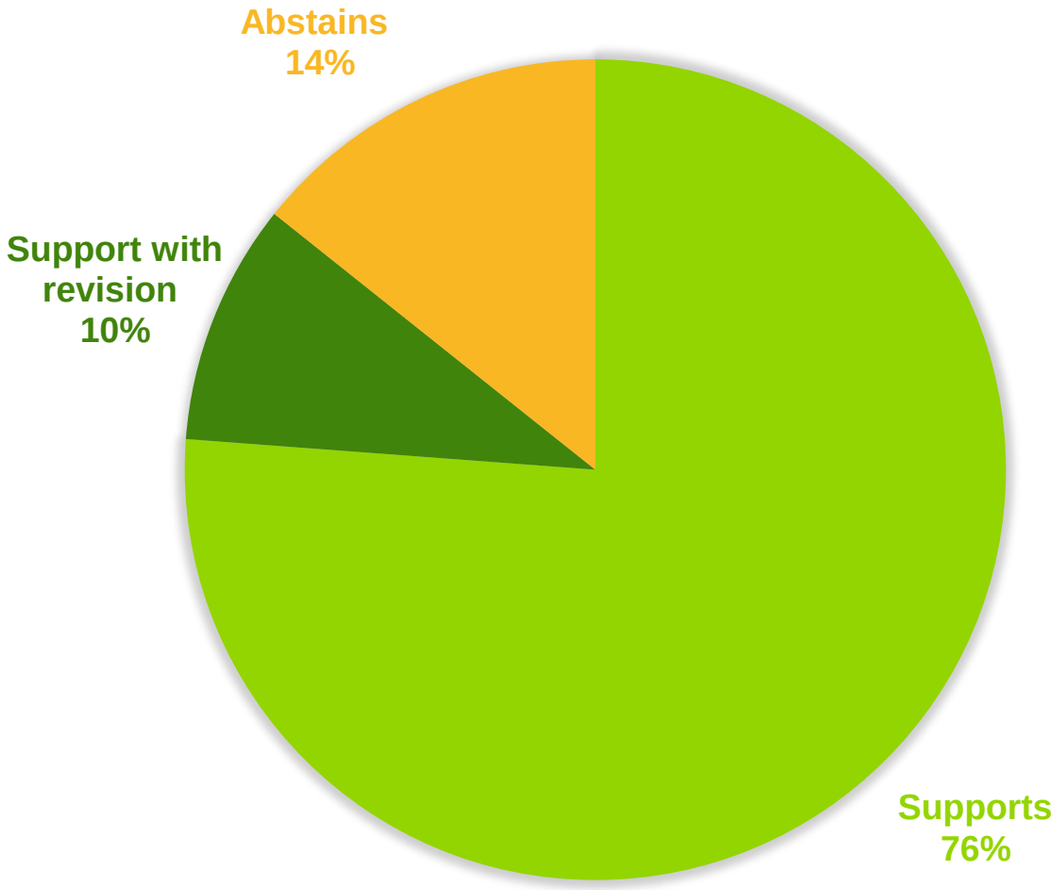
Total Number Responding Organizations	**21**
Percent of total LIAC organizations that provided input	**60%**

Overview of Assessment Results



Overview of Assessment Results

Proposal 1 - Closing the EE Spending and Savings Gap



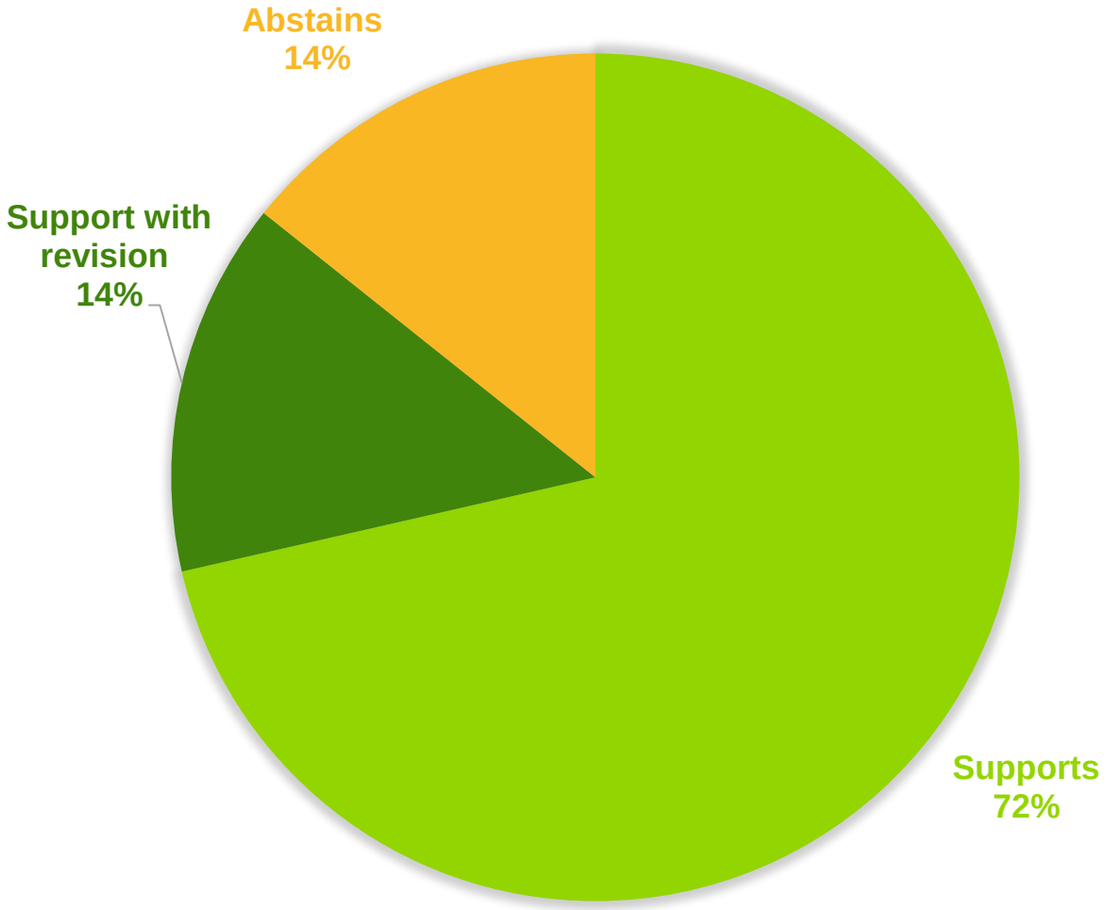
Comments:

- ““The reasons for the gap in spending should be studied and understood. There are historical differences between DEC and DEP. For instance, DEP has more Tier 1 counties compared to DEC. Additionally, pre-merger, DEP and DEC each had its own portfolio of DSM/EE programs, and there were many differences between the two portfolios. Over time post-merger, many of the programs of the two companies have been modified to be identical; however, these historical differences may account for the gap to some extent. Once the differences are understood then DEP may better target customers of need and mindfully deploy EE programs based on actual identified customer groups. The following general note should be considered included in Public Staff responses to all proposals. .” - **Public Staff of the North Carolina Utilities Commission**
- Duke Energy strives to offer programs that reasonably similar between the jurisdictions and apply learnings before expanding programs to the other jurisdiction, which is why it is filing the DEP Weatherization Program with the NCUC the week on June 7th. The addition of the Weatherization Program in DEP will immediately increase the DE Program spend and reduce the current gap in spending. However, the jurisdictional make-up of the DEC and DEP territories is different, so it’s unlikely that the low-income program spend, and energy saving will be consistently proportionate. – **Duke Energy**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 2 – DEP Income Qualified Weatherization



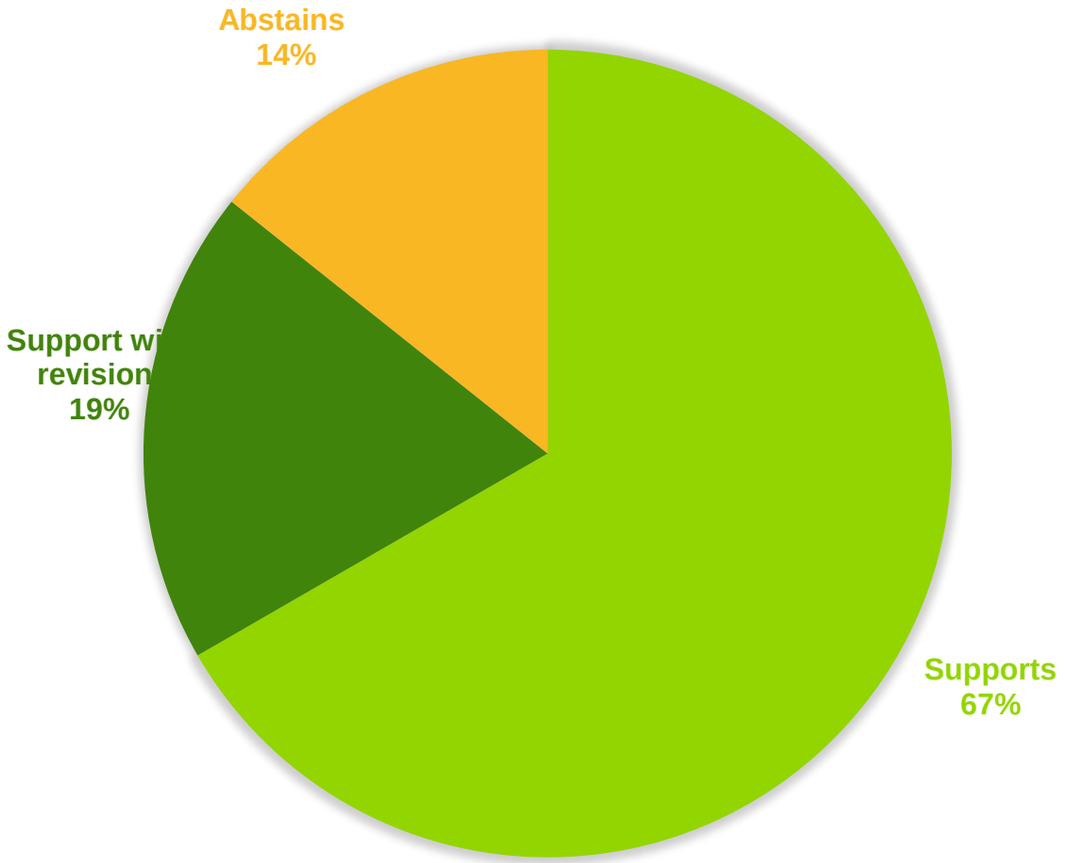
"AARP looks forward to learning more about the specific ways in which this program would lower the cost barrier to energy efficiency retrofits in low-income households, and information about the cost and savings for low-income households that participate in this and other energy efficiency programs. AARP supports cost-effective measures to promote clean energy that yield affordable energy, AARP supports energy efficiency and weatherization programs including for low income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program." – **AARP**

"Only non-ratepayer funds should be utilized for health and safety work." - **Public Staff of the North Carolina Utilities Commission**

"The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks." – **Duke Energy**

Overview of Assessment Results

Proposal 3 – Income Qualified High Energy Use



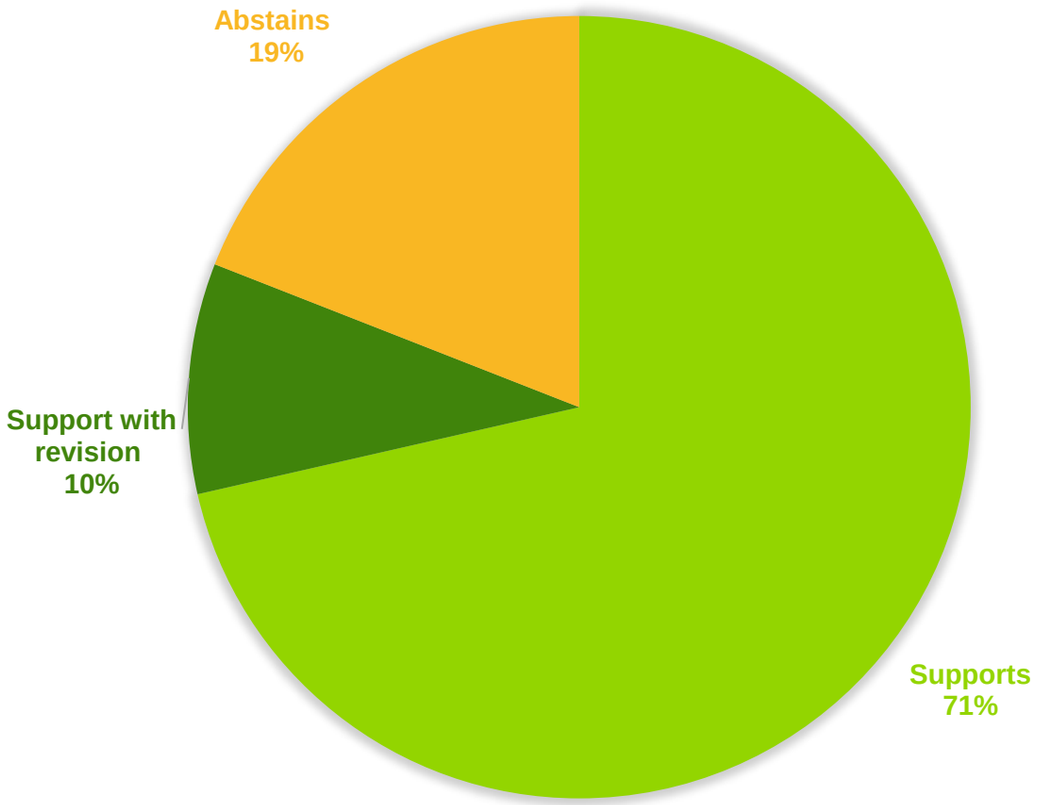
"AARP supports energy efficiency programs including for low income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program. We think a pilot program might also be a good idea." **– AARP**

"Must include a component for customer education for maintenance of equipment and practical ideas to reduce energy consumption." **– Rowan Helping Ministries**

"In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via this pilot and the resulting research could prove valuable." - **Nicholas Institute**

Overview of Assessment Results

Proposal 4 – Residential ER and HHP Water Heater Rental



"A waiver of the Commission disconnect rules may be needed to avoid disconnect based on non-payment of non-electric charges. The Public Staff has historically opposed disconnection for non-electric charges. More detail about the rental contracts needs to be provided before it can be determined whether it is appropriate to implement this program through a rental program. It may be more appropriate to implement this measure in a traditional EE program where the customer purchased, owned, and maintained the equipment and then qualified for a credit/discount similar to the Smart Saver program." **- Public Staff of the North Carolina Utilities Commission**

"The Companies are committed to evaluating a customer owned program offered via an on-tariff financing offer." **– Duke Energy**

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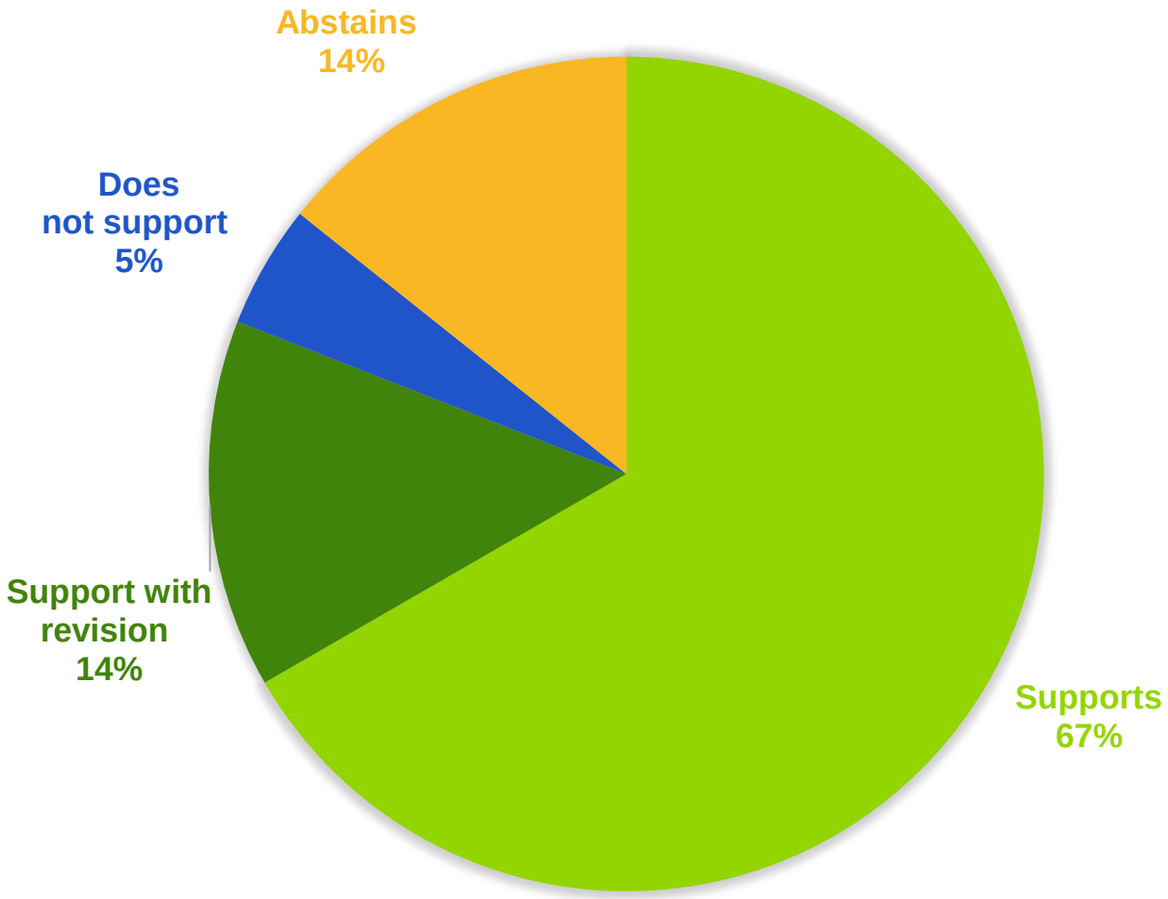
Overview of Assessment Results

Proposal 5 – Manuf. Homes EE Retrofit and Replacement



"AARP in general supports energy efficiency programs including for low income customers. We would appreciate more information on this program." **– AARP**

"It is not appropriate to use of ratepayer funds for replacement of manufactured homes. The program should implement only cost-effective EE measures for low-income customers living in manufactured homes similar to other EE programs." **- Public Staff of the North Carolina Utilities Commission**

"The findings of the statistical analysis support a focus on mobile homes regardless of the tenure of the account holder (owner or renter)." **- Nicholas Institute**

"This seems beyond the scope of the Duke Energies corporate responsibilities. Great idea for another organization to administer." **– Rowan Helping Ministries**

"Yes, the Companies are committed to evaluating this proposal although it may be cost prohibitive." **– Duke Energy**

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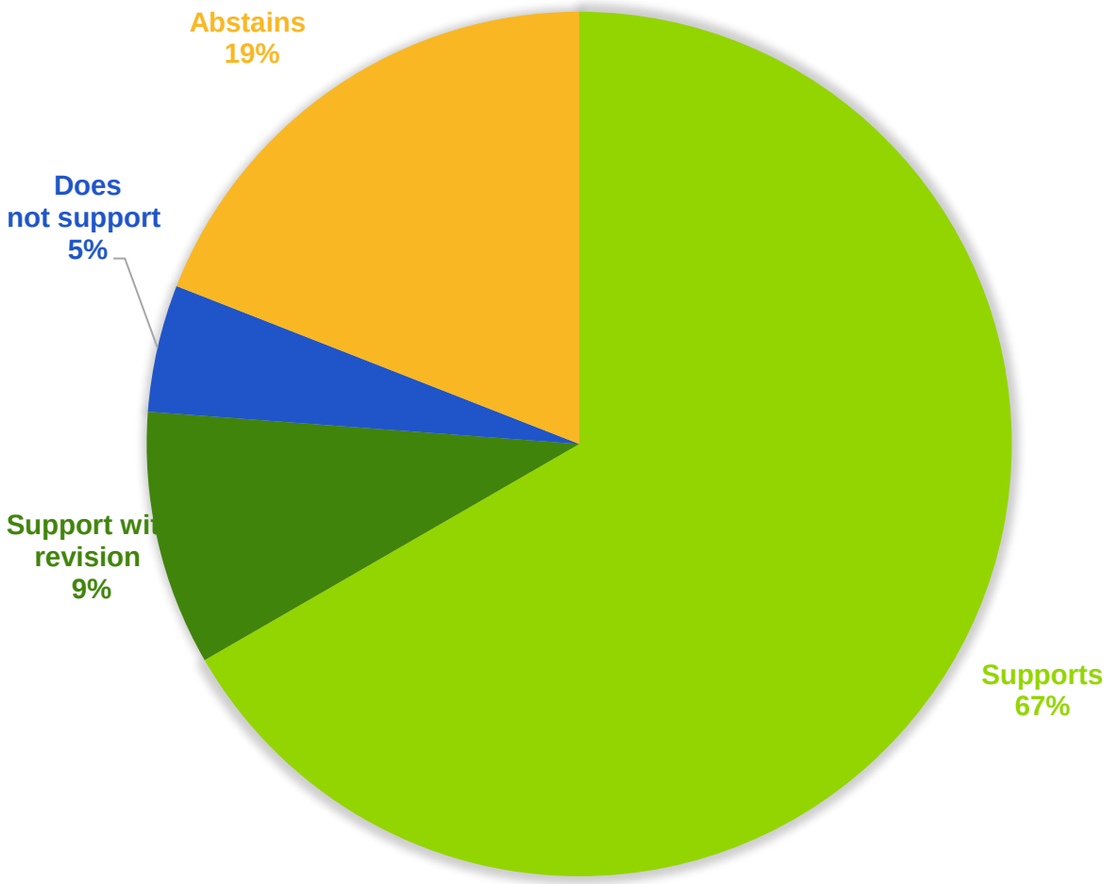
Overview of Assessment Results

Proposal 6 – Arrearage Management Pilot EE



"It is generally not appropriate to use ratepayer funds for arrearage forgiveness; however non-ratepayer funds could be utilized for arrearage forgiveness. It may be appropriate to use ratepayer funding for arrearage forgiveness to the extent that it is revenue neutral. Duke should analyze the impact to uncollectables and assess the actual administrative costs and late fees. This delta could flow back to offset arrearages/uncollectables. Such an offset would be appropriate for consideration in the next rate case. It is inappropriate for a utility to profit based on ratepayers' inability to pay their bills. Prior to arrearage forgiveness, all other sources of funding should be sought and utilized. Arrearage metrics should be tracked to ensure that no perverse incentive to stop paying bills has been created. Access to arrearage forgiveness should limited (1-5 years)." **- Public Staff of the North Carolina Utilities Commission**

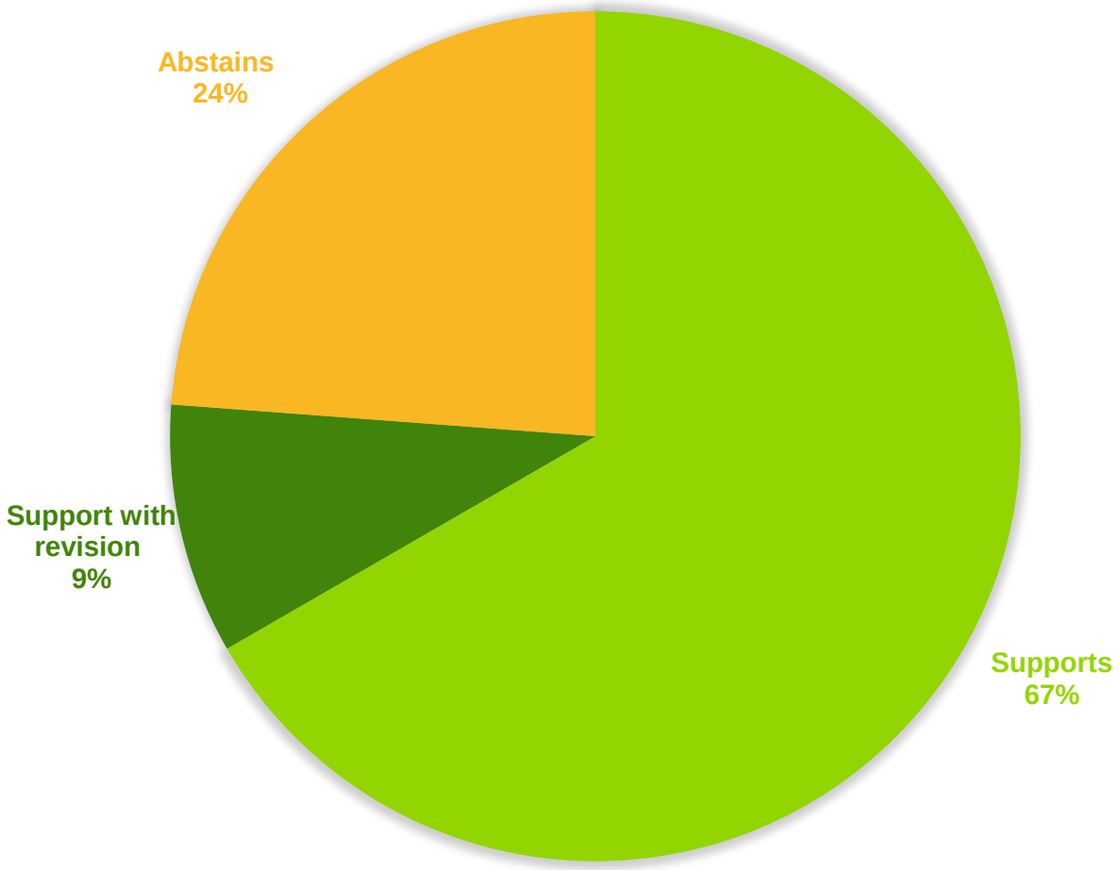
"We are seeing first hand payment arrangements - post moratorium - are not working for our clients. Our clients are making payment arrangements without the ability to pay. Arrangements need to be made soon after an arrearage occurs and payment needs to fit the financial capacity of the customer." **– Rowan Helping Ministries**

"The findings of the statistical analysis how that those with higher than the national average electric burdens were statistically significantly more likely to be in arrears and more likely to be disconnected over time." **- Nicholas Institute**

"The Companies are opening to evaluating an arrears management program in the CAP proposal that is not specific to energy efficiency program participation." **– Duke Energy**

Overview of Assessment Results

Proposal 7 – Low Income Carve-out from Market EE



"A market study is necessary before this proposal should move forward. The participant incentive should not exceed 25% of the cost of measure." - **Public Staff of the North Carolina Utilities Commission**

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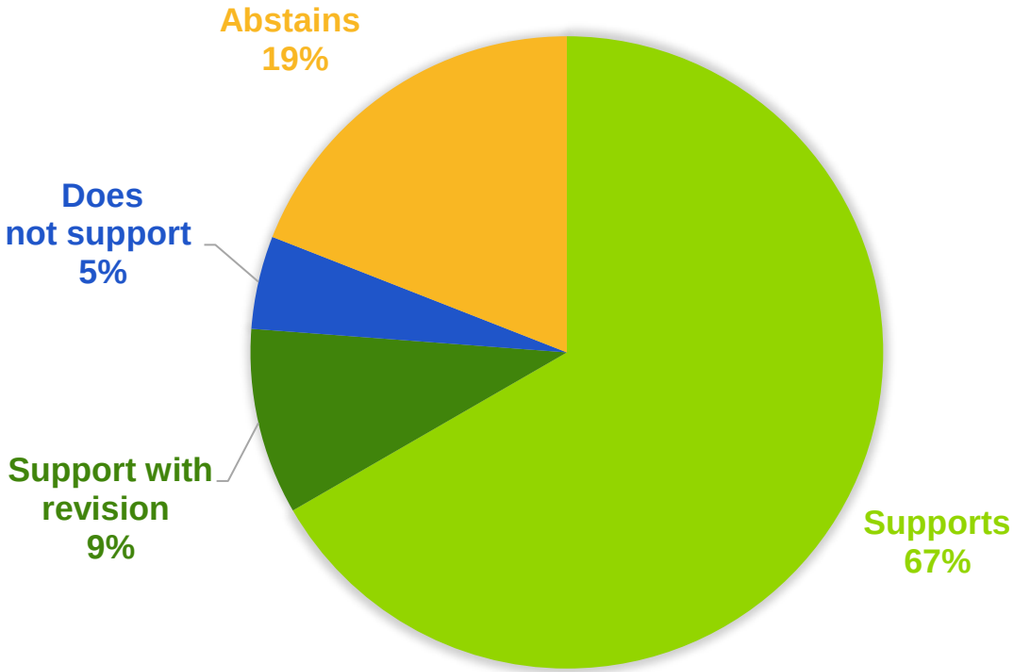
Overview of Assessment Results

Proposal 10 – Comprehensive Definition of Affordability and Develop Metrics and Methodologies for Assessing and Monitoring the Relative Affordability of Electric Service



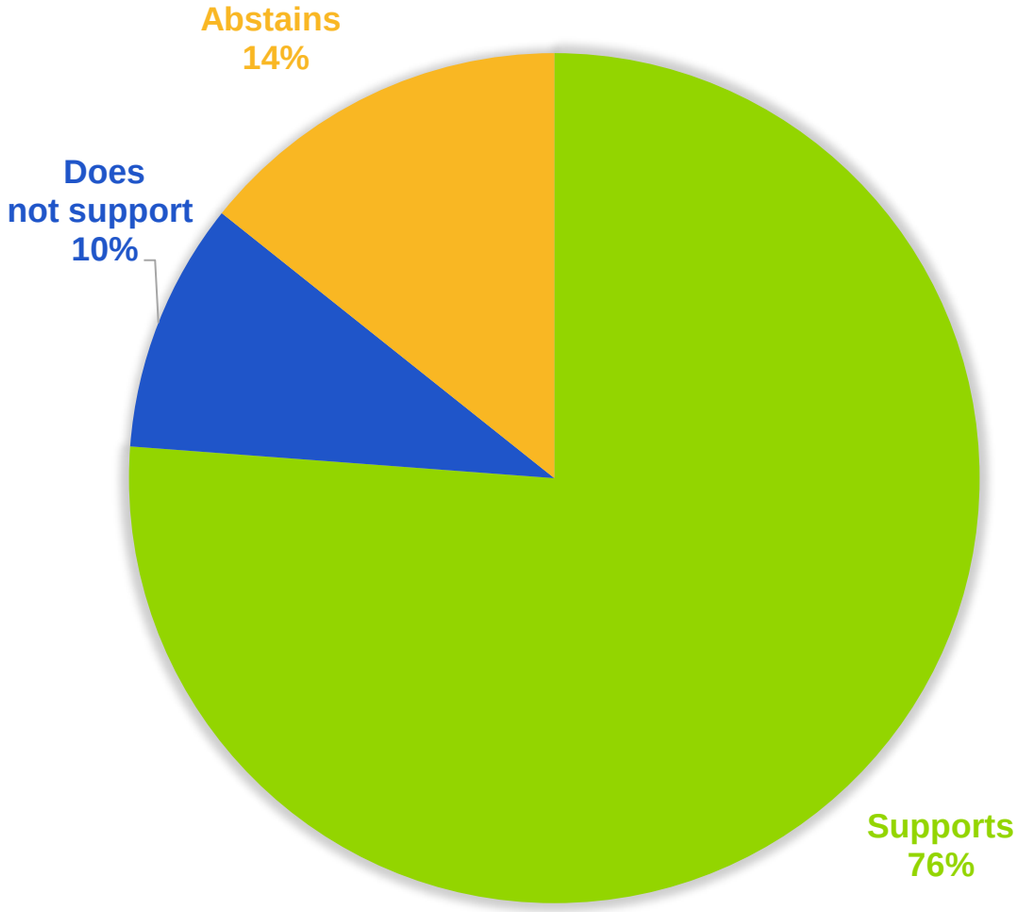
"This proposal is not a mitigation program; it seeks to define affordability for purposes of further developing programs to mitigate conditions related to affordability." **- Public Staff of the North Carolina Utilities Commission**

"The statistical analysis included predictors for many but not all of the factors proposed for the definition of affordability in Proposal 10, and generally, all were significant in predicting the likelihood of being in arrears, receiving a 24-hour notice, and disconnections (excepting home value for disconnections). This suggests complex relationships between sociodemographic, home attributes, neighborhood characteristics, and energy usage. Capturing this complexity in reported metrics over time is supported by the findings of the statistical analysis." **– Nicholas Institute**

"The Companies support the North Carolina Utilities Commission opening an affordability docket similar to the process that the California Public Utilities Commission ordered to evaluate affordability for their regulated utilities." **– Duke Energy**

Overview of Assessment Results

Proposal 11 – Prioritized Marketing and Distribution LI Funds



"All low-income customers should be eligible for low-income programs and initiatives. There does not appear to be an EE component tied to the assistance sought in this program." **- Public Staff of the North Carolina Utilities Commission**

"The findings of the statistical analysis provide support for prioritizing outreach to based on sociodemographics and electric burden." **– Nicholas Institute**

"Carving our communities for distribution of funding could negatively more rural communities/households." **– Rowan Helping Ministries**

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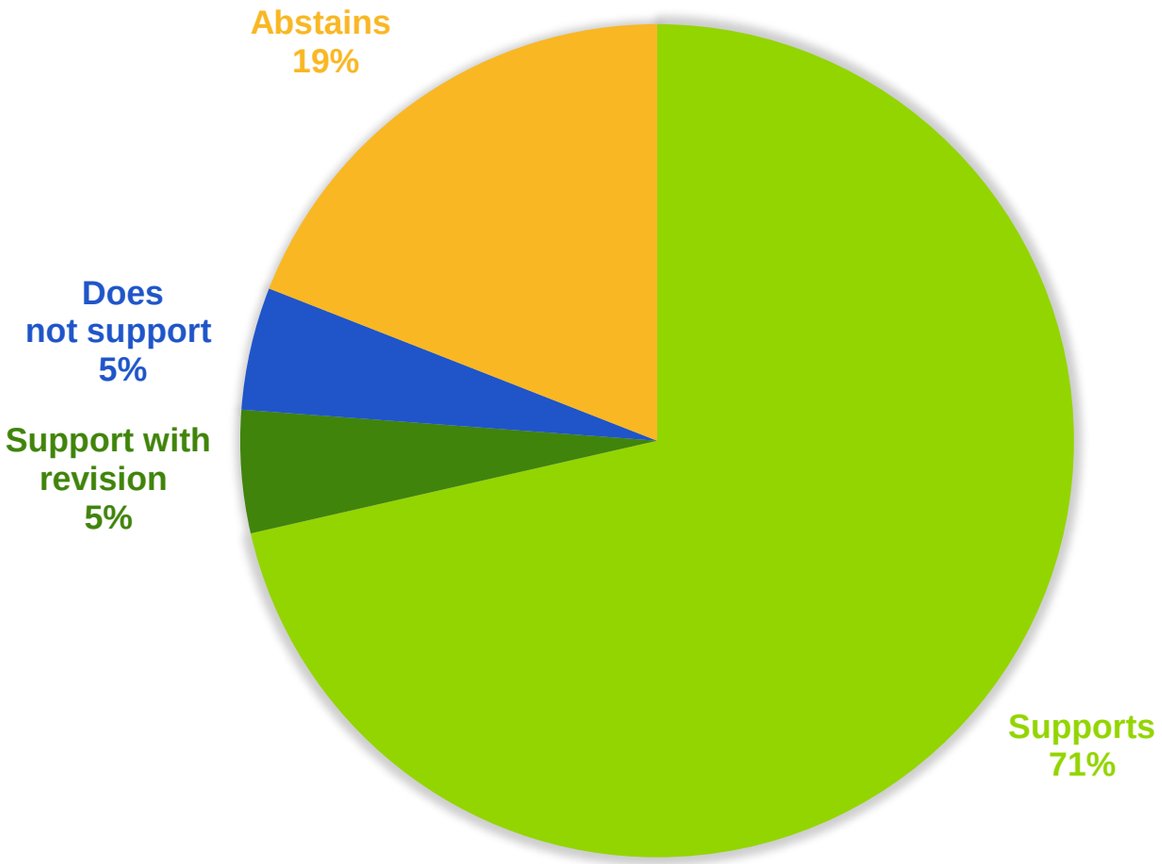
Overview of Assessment Results

Proposal 12 – Required Credit and Collections Data Reporting



"These data points could provide meaningful value and may be appropriate as one of the metrics established in the next Duke rate cases." **- Public Staff of the North Carolina Utilities Commission**

"The Companies support the supporting of aggregated data pending it meets the required requirements to keep information confidential. If the NCUC approves the reporting of zip code level data, the requirements should align with a NCUC decision in the pending Rulemaking filed in Docket No. E-100, Sub 161." **– Duke Energy**

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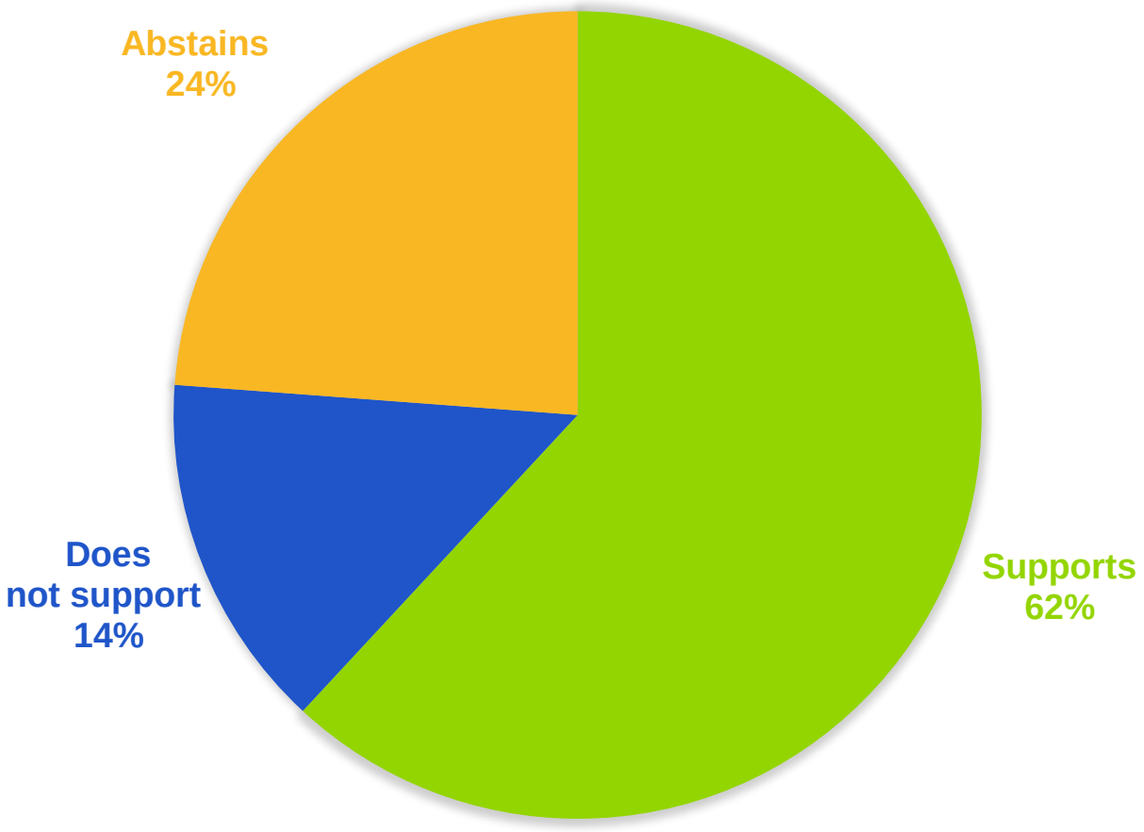
Overview of Assessment Results

Proposal 13 - Minimum Bill Pilot Program



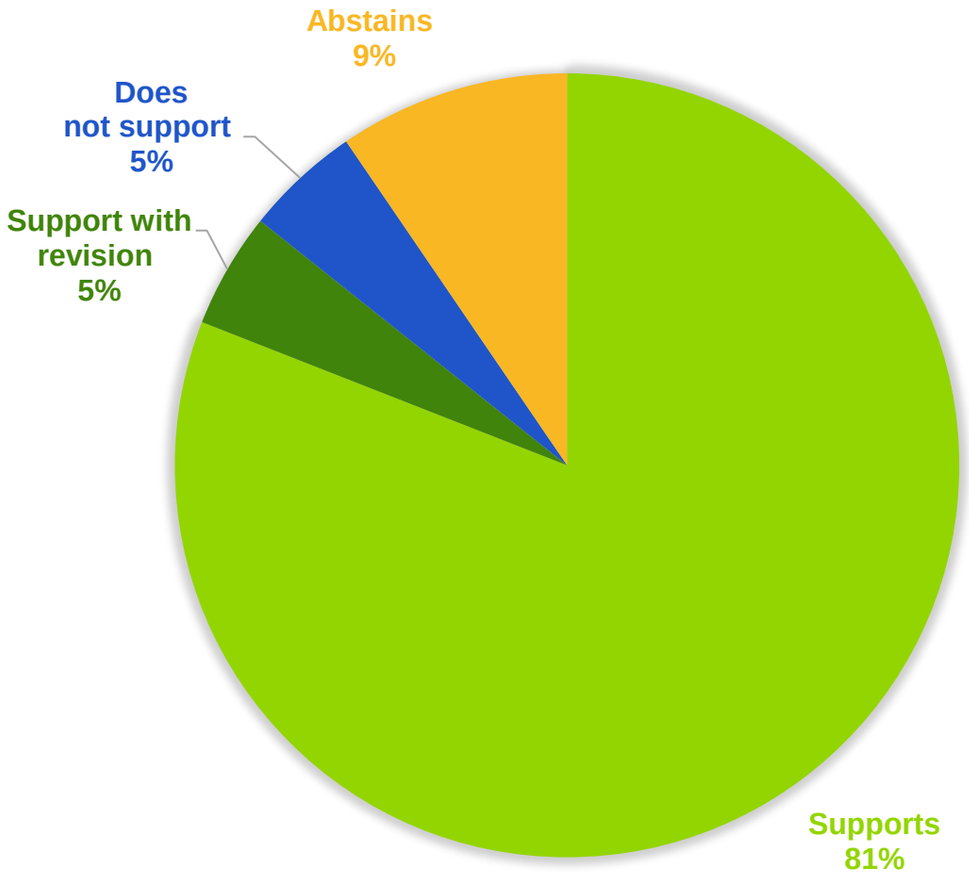
Comments:

- "This program does not follow cost of service principles. Not a mitigation program." - **Public Staff of the North Carolina Utilities Commission**
- "Proposal doesn't explain how this program will be funded. Need more information on how the utility is expected to recover costs when usage that exceeds the minimum payment." – **Dominion**
- "The statistical analysis findings showed that households with higher winter and summer peak impact were more likely to be in arrears and receive 24-hour notifications. Those households at the highest categories of impact were also more likely to be disconnected." – **Nicholas Institute**
- "The Companies do not support the proposed minimum bill pilot. Overall, the Companies support minimum bill as a rate design tool similar to minimum bill rate design offered by Duke Energy regulated utilities in South Carolina and Florida." – **Duke Energy**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 14 - Voluntary Wx, EE, UR Partnership Forum



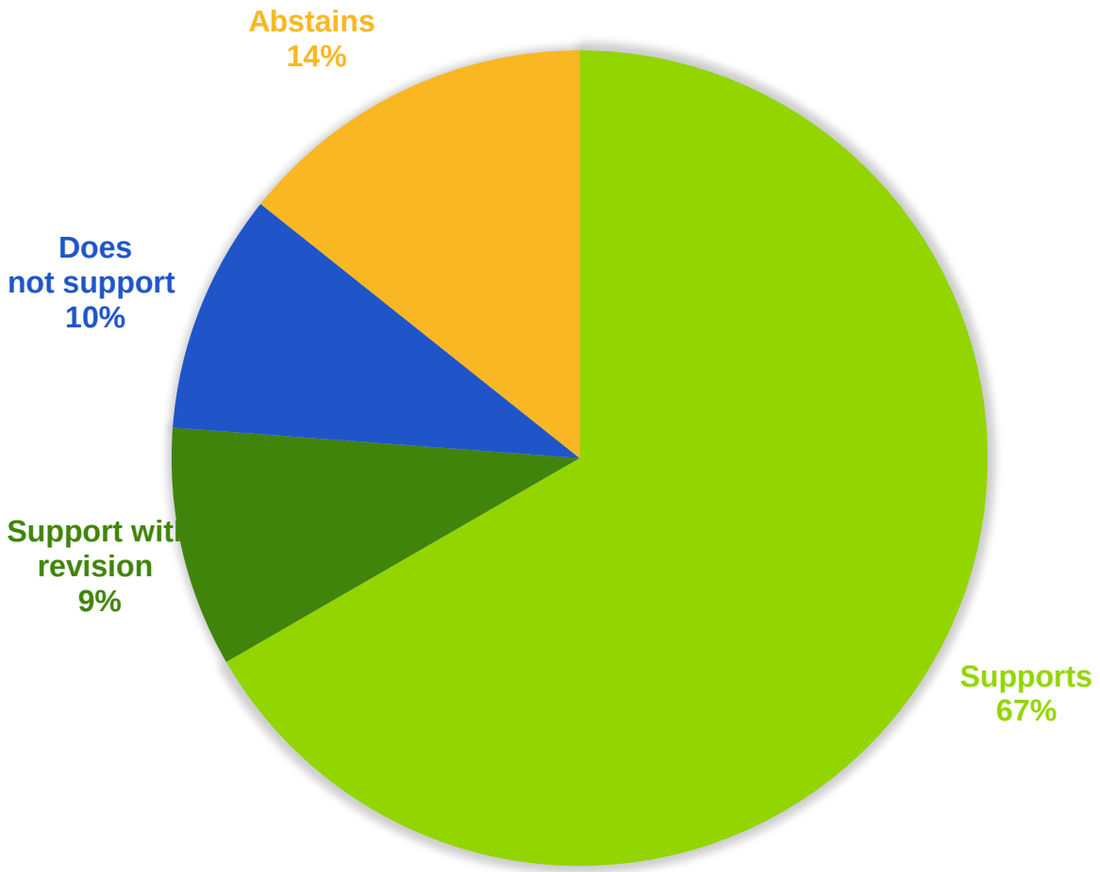
Comments:

- “This proposal would duplicate initiatives of the State Energy Office and thus is unnecessary.” - **Public Staff of the North Carolina Utilities Commission**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 15 - Duke Energy Winter Moratorium



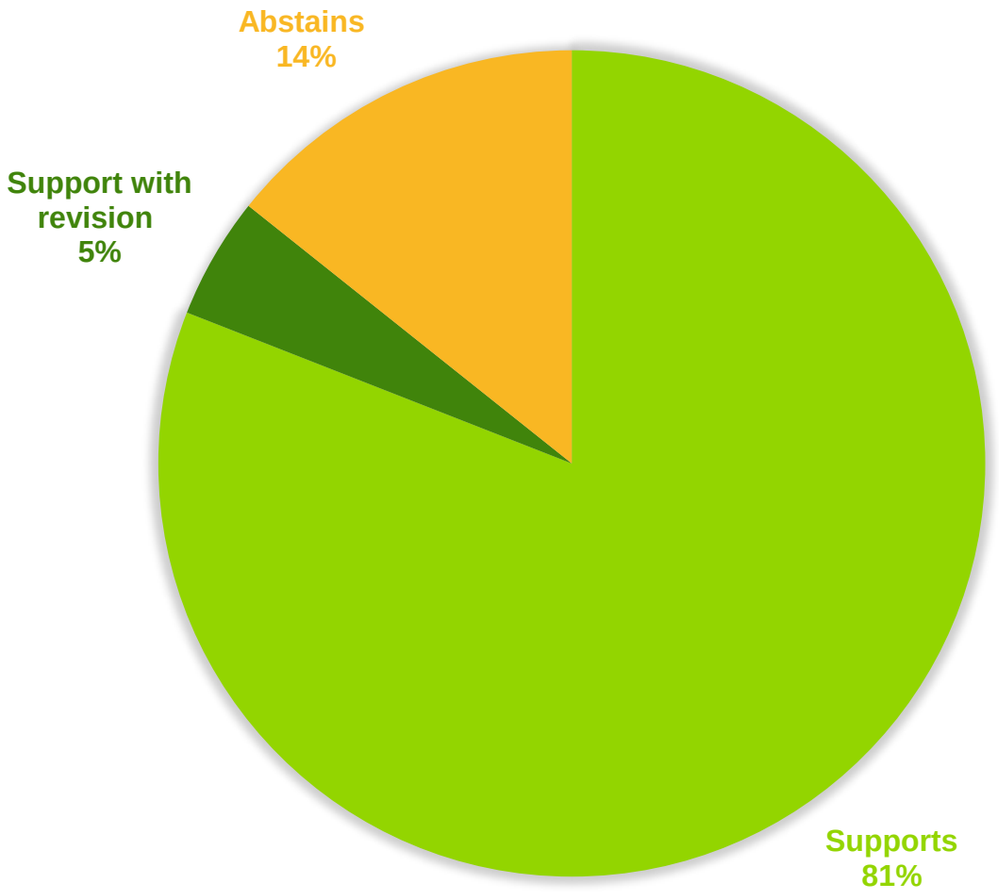
Comments:

- "Automatically enrolling customers should be done with caution. If we go this route we should send a notice that they will not be disconnected in certain temperatures but clearly stating that not only is the bill accumulating but that there are places to call for housing counseling to explore alternative options (including budget counseling if applicable) or financial assistance." – **Crisis Assistance Ministry**
- "This would be best suited as a pilot program, specific – at least initially – to the winter season only. The Commission should consider expanding any potential pilot to all IOUs and LDCs." - **Public Staff of the North Carolina Utilities Commission**
- "Our observation is that the COVID moratorium did nothing to help our clients but saddled them with higher bills and payment arrangements they could not manage once the bills came due. It created a debt tsunami." – **Rowan Helping Ministries**
- "The Companies support enrolling LIEAP and CIP recipients in a Winter Moratorium that aligns with the timeframe detailed in NCUC Rule 12-11 from November 1 – March 31. LIEAP and CIP recipients would be automatically enrolled in a 6-month payment arrangement at the end of the moratorium. The Companies do not support a summer moratorium or automated referral for arrears greater than $550. The Company will request to seek cost recover of any debts that result to uncollectible charges; similar to the existing process to collect uncollectible charges. The enrollment of LIEAP and CIP in a Winter Moratorium is dependent up receiving the required information from the NCDHHS." – **Duke Energy**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 16 - Re-examine Regulatory Consumer Protection



Comments:

- “The Companies support the review of the existing regulatory consumer protections detailed in NCUC Rule R12-11. If the output of the review requires technical system changes, the Companies request the required timeframe to update impacted systems which could be 12 months. In addition, the Companies will seek cost recovery of costs associated with required technical system changes and costs incurred as a result of any policy/rule changes.” – **Duke Energy**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

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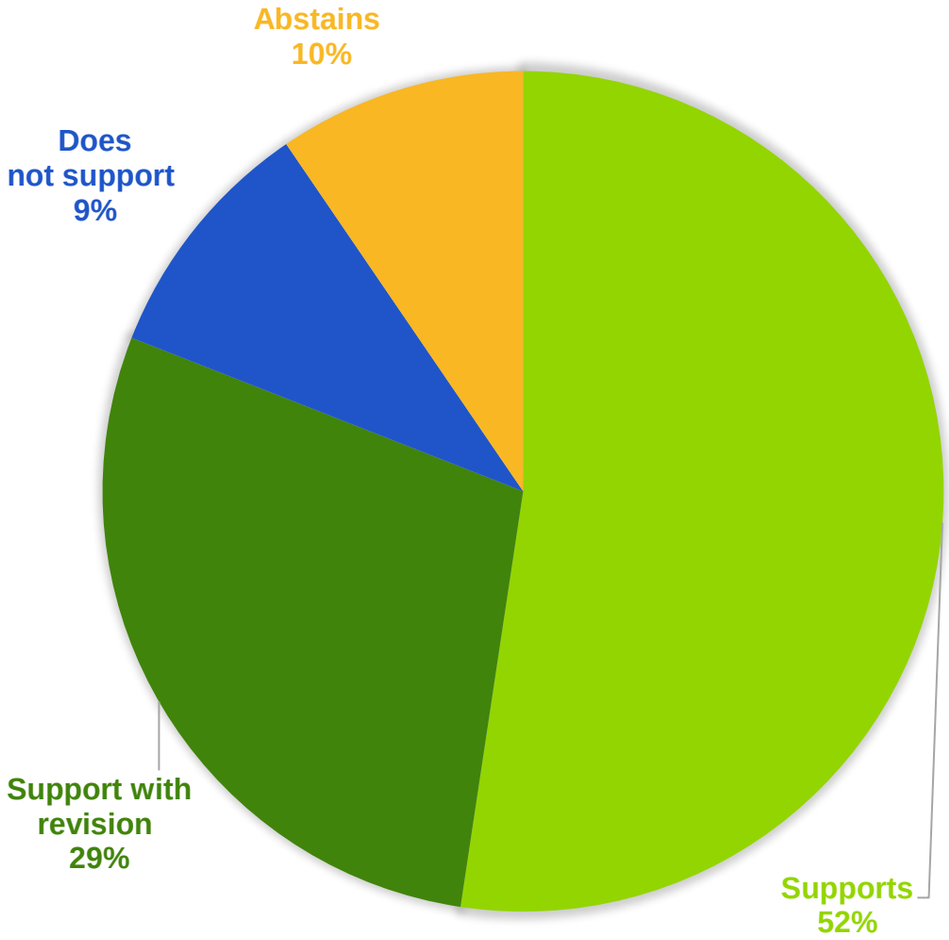
Overview of Assessment Results

Proposal 19 - NC Healthy Homes Initiative



- "This is a critically needed program and builds on NCCAA's experience with the BC/BS grant for the Healthy Homes Initiative and the Duke Healthy Home Fund. But it is not clear from the proposal where the funds would come from for this NC HHI. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, healthcare related funds or other government programs could support an initiative like this to improve the health and safety of homes and make them ready for EE upgrades." – **Southern Environmental Law Center (SELC) & North Carolina Justice Center**
- "This program should be funded first with DOE weatherization funds and LIHEAP." – **AARP**
- "The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." - **Public Staff of the North Carolina Utilities Commission**
- "Scope is focused on healthier home initiative vs removing energy burden via EE initiatives." – **Dominion**
- "We support the intent of the program but think there needs to be more discussion about where the funding for this program comes from since that does not seem to have been defined in this proposal." – **North Carolina Sustainable Energy Association**
- "We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes, but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources." – **Southern Alliance for Clean Energy (SACE)**
- "The Companies do not support this proposal as it doesn't have a specific time to the scope of identifying opportunities to address affordability for low-income customers." – **Duke Energy**

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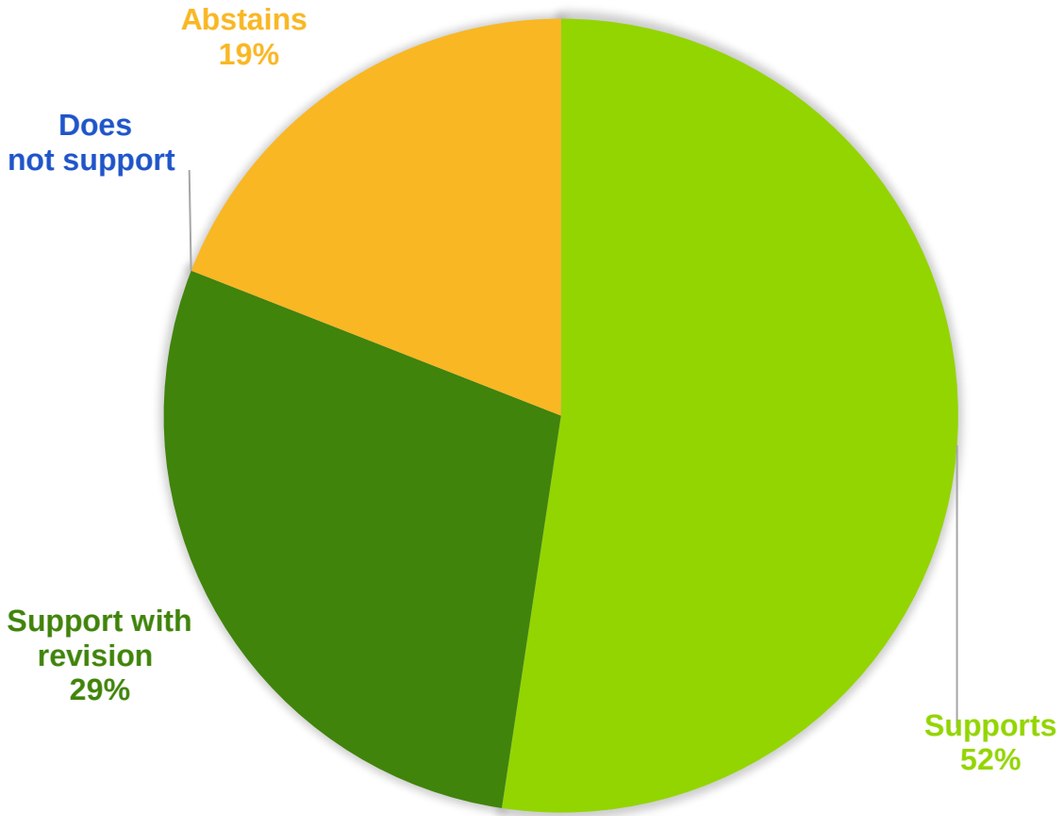
*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 20 - DEP Weatherization Program

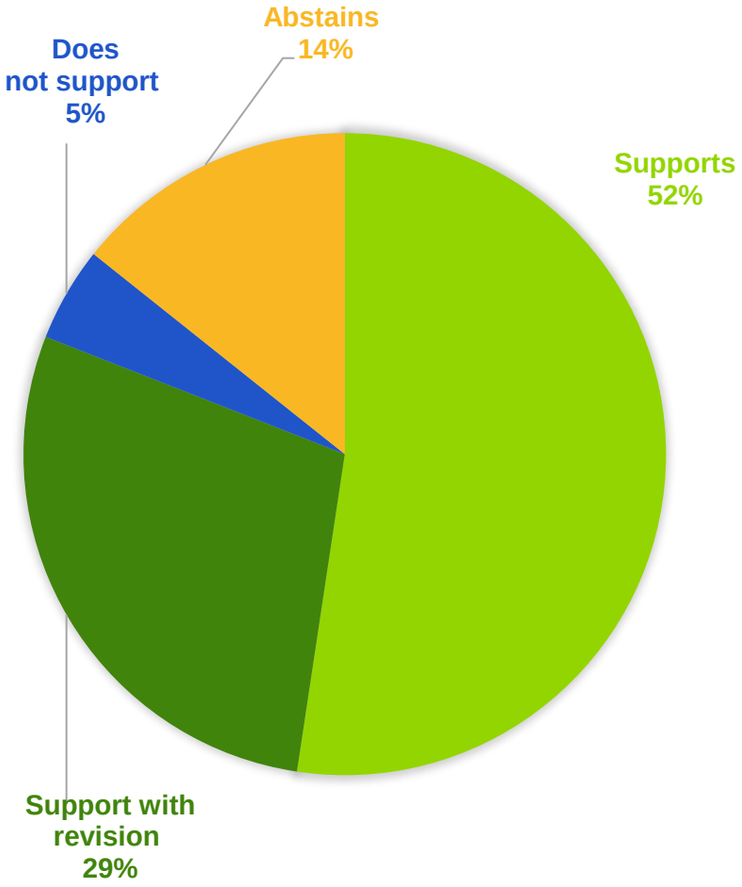


- "For the same reasons that we support LIAC Program Proposal Number 2, which calls for a DEP Weatherization Program modeled after the DEC Weatherization Program, we also support the substance of this Proposal (No. 20). Even though NCCAA has unmatched experience administering this kind of program (as it does the DEC Weatherization Program, Helping Home Fund, and HHI), it is our understanding that Duke Energy would need to go through an RFP process to identify the program administrator and that it may be premature to assign that role to NCCAA at this time." – **Southern Environmental Law Center (SELC) & North Carolina Justice Center**
- "This is not a suggested revision, it's a comment overall on this as well as the other weatherization related proposal/s all of which we do support. Weatherization solutions that are more equitability available for low income families would include more options for rental housing." – **Crisis Assistance Ministry**
- "This program should be funded first with DOE weatherization funds and LIHEAP." – **AARP**
- "The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." - **Public Staff of the North Carolina Utilities Commission**
- "In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via weatherization." – **Nicholas Institute**
- "The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks." – **Duke Energy**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 21 - NC Low-Income Energy Major Home Repair

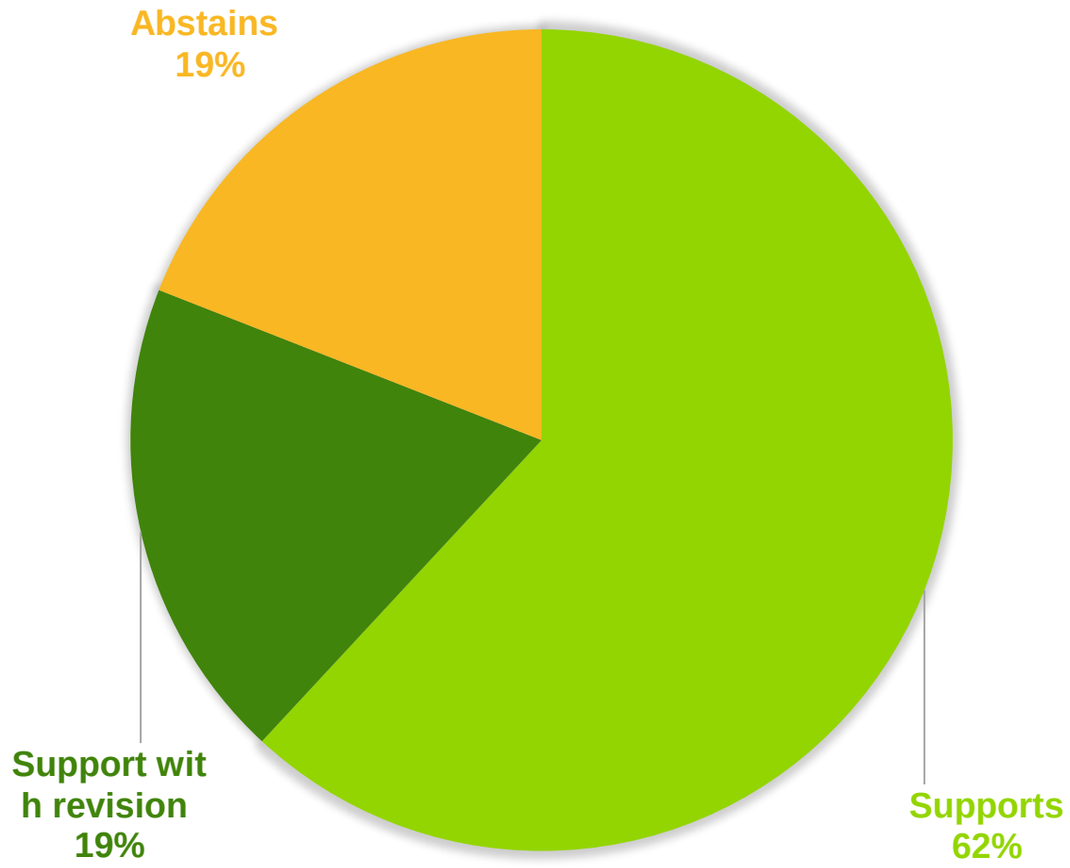


- "As we said with respect to No. 19, this is a critically needed program and builds on NCCAA's valuable experiences. But it is not clear from the proposal where the funds would come from for this Major Home Repair program. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, federal or state funds could support an initiative like this to provide the repairs necessary to make them ready for EE upgrades." – **Southern Environmental Law Center (SELC) & North Carolina Justice Center**
- "We support DOE or infrastructure funds from the Federal government be used for a pilot program." – **AARP**
- "The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." - **Public Staff of the North Carolina Utilities Commission**
- "In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use and this proposal would facilitate that process by providing for repairs and reducing deferrals from weatherization assistance." – **Nicholas Institute**
- "Similar to our response to proposal 19, we support the program but are interested in more discussion about how to fund it since that does not seem to have been defined." – **North Carolina Sustainable Energy Association**
- "We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes, but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources." – **Southern Alliance for Clean Energy (SACE)**
- "The Companies do not support this proposal as it doesn't have a specific time to the scope of identifying opportunities to address affordability for low-income customers." – **Duke Energy**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 23 - Smart $aver Low Income Multi-Family Retrofit



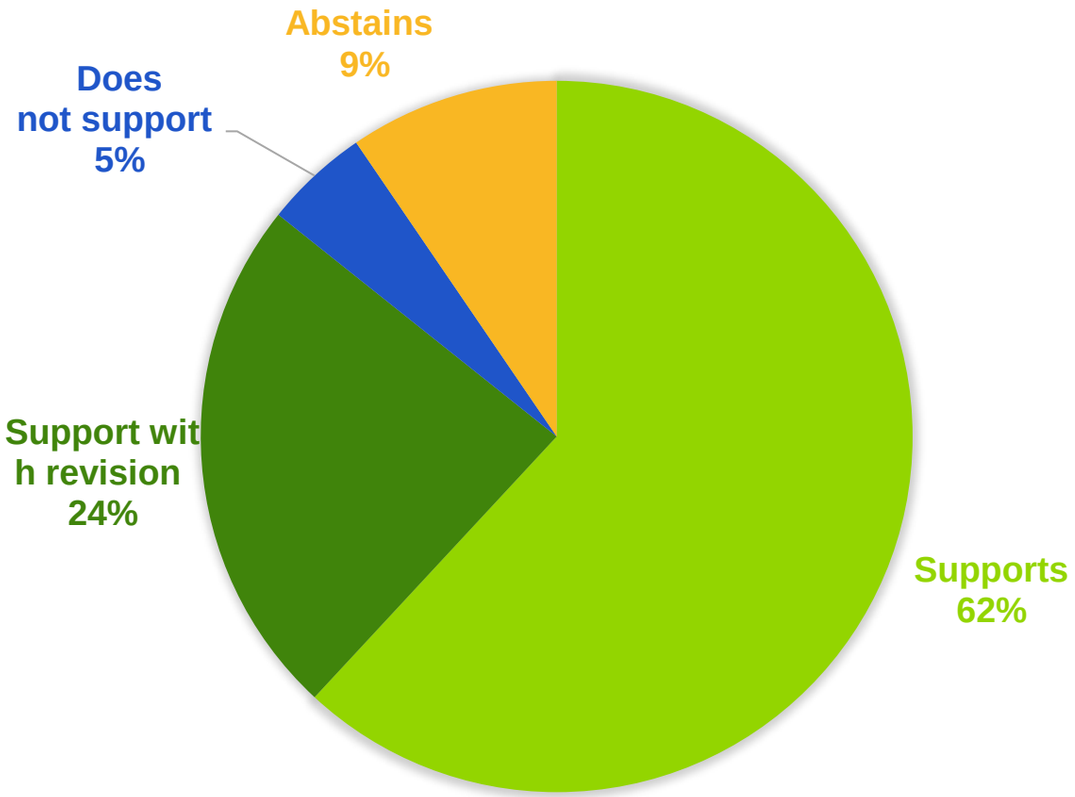
Comments:

- “We support DOE or infrastructure funds from the Federal government be used for a pilot program.” – **AARP**
- “Ratepayer funds could only be used only for the EE components; non-ratepayer funds could be leverage for non-EE components of this proposal.” - **Public Staff of the North Carolina Utilities Commission**
- “The utility should not be administering the program or leveraging funds. Seems like this should fall under a community action agency or non-profit.” – **Rowan Helping Ministries**
- ”The findings of the statistical analysis support focusing on reducing energy consumption in multi-family housing, particularly multi-family rental housing.” – **Nicholas Institute**
- “The low-income multifamily segment of the Duke Energy customer base is an area of opportunity to assist the income qualified tenants. Duke has been working with a group of interested stakeholders on a investigating a low-income multifamily pilot program and thru that work has identified challenges. The Company will continue to work with the rate-case settlement stakeholder group to work through these challenges in attempts to develop a feasible pilot as there clearly is an opportunity to assist customers, but need to better understand how it fits in the portfolio and get more granular on the specifics of the pilot that Duke will oversee.” – **Duke Energy**

*Some comments have been shortened for the purpose of this presentation. Please see the placket for complete comments.

Overview of Assessment Results

Proposal 24 - Customer Affordability Program "CAP"



- "AARP supports such comprehensive and coordinated measures to help low-income customers pay their bills and supports the idea conceptually. We especially like the auto enrollment feature. We would like more information on the complexities created by having three different benefit tiers. A pilot program should be used to test the viability of this new idea." – **AARP**
- "This program is supported to the extent that it is based upon cost of service principles. Participation in applicable EE programs should be required instead of 'highly suggested.'" - **Public Staff of the North Carolina Utilities Commission**
- "In regards to the Tiered approach, DHHS does not currently capture the data necessary to determine the FPL levels discussed in this proposal. For CIP, LIEAP, LIHWAP, SNAP, and Medicaid, a recipient's income eligibility is determined by whether they fall under a certain FPL but what percentage they fall into is not recorded. - **North Carolina Dept of Health and Human Services**
- "Violates cost-causation principles to recover costs from all classes of customers. Costs should be contained to residential class of customers. This proposed interclass cross-subsidization is not consistent with existing NC law, in particular H951." – **Carolina Industrial Groups for Fair Utility Rates (CIGFUR)**
- "The results of the analysis support efforts that would reduce electric burden for households." – **Nicholas Institute**
- "Requirement for participants in program to have an energy efficiency audit to identify ways to reduce energy consumption. Recertification would take into consideration the customers implementation of energy efficiency recommendations and/or use of the free weatherization services." – **Rowan Helping Ministries**

OPEN DISCUSSION

Next Steps

Homework & Look-Ahead

Remaining LIAC Sessions

7/7 – Workshop 9

Next up

WHEN

7/7 – Workshop 9

WHAT

- LIAC Report

YOUR TASK(S)

- Look out for updates on the consolidation of Subteam Tasks and Findings and LIAC report from Guidehouse

ADJOURN

Guidehouse | DUKE ENERGY | Public Staff North Carolina Utilities Commission

Contact

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Consultant
mshoun@guidehouse.com
919.559.7423

Guidehouse

APPENDIX F – LIAC

1/26 JOINT COLLABORATIVE MEETING BREAKOUT SESSION FEEDBACK/COMMENTS

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

Guidehouse

North Carolina

Low Income Affordability Collaborative

Joint Collaborative Session

January 26, 2022

Convened by

DUKE ENERGY.

Public Staff
North Carolina Utilities Commission

Welcome

Meet the Session Facilitators

NNEOMMA NWOSU
Breakout Facilitator

MINA HEALEY
Breakout Facilitator

JAMIE BOND
Lead Facilitator for LIAC and Joint Workshop

VIJETA JANGRA
Breakout Facilitator

SESSION OBJECTIVES

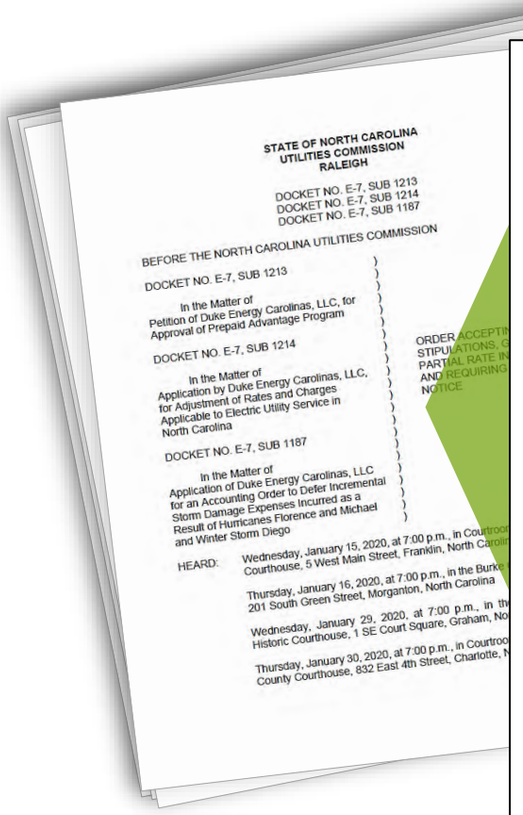
- Understand the overlapping work of the LIAC, EE, CRR collaboratives
- Determine how each collaborative might stay abreast of the ongoing work of other two collaboratives as each carries out their work

NC Joint Collaborative Session

Agenda | January 26, 2022

Hosted by NC Low Income Affordability Collaborative (LIAC)			
	CONVENE		
I	Welcome, Safety & Agenda	*Jamie Bond (Guidehouse)*	*~30 min*
	Joint Session Objectives	*Conitsha Barnes (Duke)*	
	COLLABORATIVE OVERVIEWS		
II	NC Demand Side Management and Energy Efficiency (EE) Collaborative	*EE Collaborative Members*	*~ 90 min (10 break)*
	NC Comprehensive Rate Review (CRR) Collaborative	*CRR Collaborative Members*	
	NC Low Income Affordability Collaborative (LIAC)	*LIAC Collaborative Members*	
	TOPICAL DISCUSSIONS		
III	Facilitated Group Discussion	*All*	*60-70 min*
	Looking Ahead / Closeout	*Jamie Bond*	
	ADJOURNING	*All (GH Facilitated)*	

Objectives



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

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-7, SUB 1213

In the Matter of
Petition of 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

ORDER ACCEPTI
STIPULATIONS, G
PARTIAL RATE IN
AND REQUIRING
NOTICE

HEARD: Wednesday, January 15, 2020, at 7:00 p.m., in Courtroo
Courthouse, 5 West Main Street, Franklin, North Carolin

Thursday, January 16, 2020, at 7:00 p.m., in the Burke
201 South Green Street, Morganton, North Carolina

Wednesday, January 29, 2020, at 7:00 p.m., in th
Historic Courthouse, 1 SE Court Square, Graham, No

Thursday, January 30, 2020, at 7:00 p.m., in Courtroo
County Courthouse, 832 East 4th Street, Charlotte, N

Given the overlapping nature of the work of the energy efficiency collaborative, the proposed rate study effort, and the affordability collaborative, those working on the three efforts should, to the extent possible, stay abreast of and consider the ongoing work of the separate teams as they each carry out their work.

…

[The Commission recommends a] joint meeting of the three groups to specifically identify and discuss key areas of concern.

Source: Docket No. E-7, SUB 1214 | Application by Duke Energy Carolinas, LLC, for Adjustment of Rates and Charges Applicable to Electric Utility Service in North Carolina | Order Accepting Stipulations, Granting Partial Rate Increase , and Requiring Customer Notice | Evidence and Conclusion for Finding of Fact NOS. 52–54

DUKE ENERGY®

Demand Side Management & Energy Efficiency Collaborative

Comprehensive Rate Review Collaborative

Low Income Affordability Collaborative

Go to **menti.com** and use **code 6092 4118** or access the link in the chat window

Welcome

Check the Tech:

Who's in "the room"?

6092 4118
Mentimeter

INTERACTIVE

Collaborative Overviews

DSM/EE

CRR

LIAC

Carolinas DSM/EE Collaborative

Tim Duff
Duke Energy

Forest Bradley Wright
Southern Alliance for Clean Energy

Carolinas DSM/EE Collaborative

DUKE ENERGY®

Purpose

- Originally convened in 2007 to develop the first portfolio of approved DSM/EE programs for DEC
- Took its current form through a series of settlement agreements beginning in 2010
- Not a decision-making body, but rather an open forum focused on maximizing Duke's EE efforts
- NCUC (and soon after the PSCSC) recognized the following:
  - *"the successful development and implementation of EE programs required constant monitoring and modification, and that an advisory group is helpful in that regard"*
  - *"The Commission finds that the Advisory Group provides an important forum for Duke to receive input from a variety of stakeholders. The implementation of the Advisory Group will facilitate innovation and accountability."*

MISSION STATEMENT

The Duke Energy Carolinas Collaborative is an advisory group of interested stakeholders, from across North and South Carolina, representing a wide array of customer groups and interests related to energy efficiency. The Collaborative is a forum for providing insight and input concerning topics related to energy efficiency and DSM including program design and development; measurement and evaluation; regulatory and market conditions; specific issues or topics as requested by the NC Utilities Commission and the Public Service Commission of SC; and emerging opportunities to achieve cost-effective energy savings.

Membership

- Clemson University Industrial Assessment Center
- NC State University
- NCSEA
- Environmental and Energy Study Institute
- SC Coastal
- Environmental Defense Fund
- DEQ
- SACE
- Energy Futures Group
- ACEEE
- Upstate Forever
- NC DENR
- SC State Energy Office
- NC Housing Coalition
- CUCA
- Green Built Alliance
- SC Community Action Partnership
- NC Justice Center
- Blue Horizons Project
- NC Public Staff
- SC ORS
- Institute of Energy Professionals
- Clean Energy Group
- Advanced Energy
- Vote Solar
- Apartment Association of NC

The Collaborative's Role

Be the voice for the constituents the members represent

Bring the best ideas from around the country to Duke staff

Vet Duke's programs so that customers can be sure they are the result of a good faith effort to serve responsibly

Understand the obstacles Duke faces to expanding EE/DSM and use the influence of our separate organizations to overcome those obstacles

Advance the cause of EE/DSM on all levels

Support efforts, both inside and outside Duke, to innovate and expand EE/DSM customer programs into the next era of EE technology

Signs of Successful Collaboration

Regular, robust engagement

- Meets at least every other month often more
- Agenda set by members
- Annual priorities from members and Commissions

Fewer issues requiring litigation

- Program modifications and development vetted in the Collaborative
- Informal information sharing promotes problem solving and trust
- Commission may direct the Companies to work with the collaborative to investigate areas of interest

Transparency regarding program performance and operation

- EM&V and program changes discussed in advance of filing
- SME give explanations and receive feedback on marketing, measures, challenges, etc.

Income Qualified Programs in the Carolinas - NES

Neighborhood Energy Saver

- Offered in both DEP and DEC
- Targets neighborhoods with at least half of residents at or below 200% of FPL
- No individual income qualification necessary
- Begins with coordinating a neighborhood event along with community organizations
- Each participating home receives the following:
  - In-home, walk-through energy assessment to identify EE opportunities
  - One-on-one education on EE techniques and measures
  - Comprehensive package of energy efficient measures installed by the auditor
- The goal in 2021 was to serve 11,500 homes in NC and SC

Income Qualified Programs in the Carolinas – Weatherization

Weatherization and Equipment Replacement Program

- Currently offered in DEC only, but expansion into DEP is underway
- Delivered by the State agencies that administer the state's weatherization programs
- Participating homes receive a full energy audit to determine appropriate measures
- Homes may receive any or all of the following:
  - Tier 1 homes receive $600 in weatherization measures
  - Tier 2 homes receive up to $4,000 for insulation, duct repair and air sealing;
  - Tier 2 homes may also receive up to $6,000 for a heating system replacement with a 15 or greater SEER heat pump
  - Any home could be eligible for refrigerator replacement with an Energy Star appliance.
- 2021 Goal was 535 Weatherization projects and 275 refrigerator replacements

Pilot Program

Pay for Performance Pilot

- In Buncombe County, NC (DEP territory)
- Provides incentives to local weatherization assistance providers and other non-profit organizations
- Incentive payments are based on the kWhs saved from the additional EE measures installed
- Goal is to fund more measures than the organizations would have been able to afford
- Pilot approved for 3 years with 6-month extension for EM&V; currently in year 3
- Through June 2021, the pilot has served 297 homes and incentivized 3,480 measures

Studies Underway – Non-Energy Benefits

Goal is to identify and quantify the benefits with the greatest value to the programs

Values can be used to make TRC more accurate by including all benefits not just energy-related ones

modeling to quantify pertinent non-energy benefits (benefits beyond energy and demand savings) for customers and the utility

residential customers participating in the following programs:

- Smart $aver EE Program (HVAC)
- My Home Energy Report (MyHER) Program
- Income-Qualified EE and Weatherization Program for Individuals
- Residential Energy Assessment Program
- Multifamily EE Program

Study expected to be complete early Q2

Studies Underway – LMI Participation

- Characterize LMI customer participation in Duke Energy's energy efficiency programs;
- Compare LMI customer participation to that of non-LMI customers;
- Measure energy burden reductions achieved through LMI customers participating in Duke Energy's programs;
- Identify drivers and barriers to participation among LMI customers; and
- Identify strategies to increase LMI customer participation through programmatic enhancements.
- The LMI study scope includes activities such as
  - participation analyses in LMI and non-LMI programs
  - consumption analyses
  - customer surveys to assess drivers and/or barriers to participation
  - arrearage and service disconnections analyses
  - provide insight into how Duke Energy can enhance programs to increase market penetration in the targeted populations and neighborhoods in the most cost- effective manner possible.
- Targeted completion in August 2022
- Low Income defined as up to 50% of area median income and moderate is 50-80% of area median income

EE Collaborative Current Low-Income Program Efforts

Forest Bradley Wright
Energy Efficiency Director
Southern Alliance for Clean Energy

Presented at the LIAC Joint Collaborative Session, January 26, 2022

EE Collaborative Low-Income Priorities

- Expand the scale of low-income EE spending and impact
- Serve customers with the greatest need, including hard to reach customer segments
- Deliver enough savings to meaningfully impact household finances
- Close the spending and savings gap between DEP and DEC
- Overcome program delivery barriers in South Carolina

DEC Durham Pilot

Lessons Learned and Next Steps

- A modified deployment of DEC Income Qualified Weatherization program
- Administered directly by North Carolina Community Action Assoc.
- Able to serve customers not receiving WAP dollars
- Qualifying customers are both low income and high energy intensity
- Increased per household spending - allowed for both HVAC replacement and comprehensive package of EE retrofits
- The pilot's added flexibility enabled DEC to spend its full program budget
- A process evaluation noted promising potential, but lacked full measurement and verification analysis needed for permanent deployment

DEP Income Qualified Weatherization

- Built off the existing DEC Income Qualified Weatherization program
- Deeper savings and farther reach than Neighborhood Energy Saver
- Will help to close a spending, savings, and program offering gap between DEP and DEC
- Currently in stakeholder input stage
- Advocates are seeking flexibility in program design to serve non-WAP customers, allow spending limit flexibility, and accommodate future insights from upcoming pilot programs

2020 Duke Rate Case Settlement

Overview

Settling parties: DEC/DEP, NCSEA, NCJC, NCHC, NRDC, SACE

- $6 Million of shareholder dollars for the Helping Home Fund
- Low Income Energy Efficiency Pilot Programs
- Tariffed On-Bill EE Pilot Program

Helping Home Fund

2020 Rate Case Settlement Agreement

- Added $6 million to a pre-existing shareholder funded program
- Free of EE-only spending restrictions that apply to ratepayer funds
- May be used for health, safety, and incidental repair work that would otherwise prevent access to EE services
- 2017 analysis found significant energy and non-energy benefits
- Advocates recommending use of HHF dollars exclusively to leverage and expand beyond what Duke ratepayer funded programs cover:
    1. Health, Safety, and Incidental Repairs
    2. Additional EE improvements above existing per home limits (based on needed)
    3. Reaching low-income households who would not otherwise have been served by WAP or other Duke income-qualified EE programs

Low-Income EE Pilot Programs

2020 Rate Case Settlement Agreement

Pilot Concept 1: Deep Retrofits for High Energy Use Income Qualified Customers

Follows through on insights from the Durham Pilot

Also examining effect on persistent arrearages, energy burden, and winter peak

Concept to be presented to the EE Collaborative on January 27th

Pilot Concept 2: Comprehensive Multifamily

Seeks to deliver deep efficiency savings to highly prevalent but hard to reach customers

Unique challenges to overcome:

- Split incentive between renters / landlords
- Improvement measures impact multiple customers
- Limited data available for analysis

Pilot concept is at an earlier stage of development, application later this year

Tariffed On-Bill Pilot Program

2020 Rate Case Settlement Agreement

- Save money on utility bills while overcoming upfront cost barrier
- Pay-As-You-Save or other mutually agreed upon design
- Serve 700-1000 participants over three years
- Ultimate aim is to scale up throughout Duke's service territory in the Carolinas
- 11 issue criteria are identified in Settlement Agreement
- Intended to be accessible regardless of customer credit history
- Monthly working group meetings open to all interested parties

The Cost Effectiveness Framework

- 0.5 Utility Cost Test (UCT) threshold for income qualified programs
- What drives up costs when serving low-income customers?
- Who gets served, who does not
- Potential implications of Non-Energy Benefits analysis (underway)
- The need for additional low-income customer resources
- Leveraging non-utility sources of funding
- Coordination of EE and non-EE services to cover the gaps

Cross Collaborative Coordination

- Data sharing
- Recognizing needs and covering gaps
- Delegation and coordination of work efforts
- Identifying additional (non-utility) resources
- Establishing a broad base of support ahead of NCUC applications

Go to **menti.com** and use **code 6092 4118** or access the link in the chat window

DSM /EE Collaborative:

Cross Collaborative Coordination?

INTERACTIVE

DSM/EE

CRR

LIAC

Comprehensive Rate Review Collaborative

Bradley Harris
Duke Energy

Thad Culley
Sunrun

Comprehensive Rate Review Study

Presentation for Joint CRR/LIAC/EE Collaborative Meeting





DUKE ENERGY®

Comprehensive Rate Review

- Overview
- Recap of various topics
  - TOU Period Review
  - Net Metering
  - EV Rate Design
- Residential Rate Design – Thad Culley
- Cross-over with LIAC

Overview of the Comprehensive Rate Review (CRR)

Scope

- Comprehensive: all current rate schedules + new rate structures

Deliverables

- A comprehensive review of Duke's rate offerings: load/cost and rate schedule evaluations
- A roadmap for how Duke plans to evolve its rates over time: sequencing, timelines, additional studies, etc.

Timing

- 12 months, ending March 31, 2022 with NCUC filing
- Quarterly Progress Reports:
  - Recently published: October 21, 2021 (Q3 2021)
  - Next: January 21, 2022 (Q4 2021)

Process

- Facilitator: ICF
- Stakeholder Forums
  - Forum 1: August 25, 2021
  - Forum 2: November 16, 2021
  - Forum 3: February 10, 2022
- Stakeholder Working Groups (WGs)
  - WG1: Fast Track – TOU, NEM, EVs
  - WG2: Hourly Pricing & Economic Development
  - WG3: Residential
  - WG4: Non-Residential

Overview of Stakeholder Engagement from August-November

Working Group 1: Fast Track Topics

Since last forum

- Subgroup E: Review Load Forecasting Data (NDA Only) – 9/2
- Subgroup F: Bill Impact Follow-up/Final Discussion – 9/14
- Session 2: EV Rates – 9/29
- Subgroup A: Residential EV Rates 10/27
- Subgroup B: Non-Residential EV Rates 11/4
- Subgroup C: Residential EV Rates 11/10

Upcoming

- Subgroup D: Non-Residential EV Rates 11/17

Working Group 2: Hourly Pricing & Economic Development

Since last forum

- Session 1: Hourly Pricing 9/15
- Subgroup A: Marginal Cost Pricing Analysis 9/21
- Subgroup B: Stakeholder Presentations 9/28
- Subgroup C: Modified Economic Development Rider, Dynamic Pricing for Large Businesses 10/12
- Subgroup D: Expanded HP rate, CBL 10/19
- Subgroup E: Reviewed HP and Econ Dev feedback to date 11/2

Upcoming

- Session 2 - December

Working Group 3: Residential Rates

Since last forum

- Residential Rate Overview – 9/20
- Session 1: Existing Rates and TOU Proposal Review 9/27
- Session 2: HB 951, Tariff Availability, Schedule RT, Fixed Charges and Min Bill Analytics – 10/20
- Session 3: Analytics – 11/3

Upcoming

- Session 4 – 12/10

Working Group 4: Non-Residential Rates

Since last forum

- Session 2: Load-Factor Based Rates 9/8
- Subgroup A: non-residential NEM 9/14
- Subgroup B: Load Aggregation 9/15
- Session 3: Demand Response & Interruptible/Curtailable Rates10/13

Upcoming

- Duke Subgroups C-G
- Session 4 – late Feb.

Additional Activities

Parallel efforts

- Low-Income Stakeholder Collaborative
- DSM/EE Stakeholder Collaborative
- Electric Transportation Stakeholder Working Group (presentation on CRR efforts given on 11/12)

Rate Design Study: NCUC Order Overview

Bonbright Principles*

NCUC Order Excerpts

- "The exercise…should provide the Commission with critical information regarding load characteristics of customers and customer classes, associated costs, and impacts to customers that could be used to inform future decisions of the Commission."
- "The Rate Design Study should…address the potential for new schedules to address the changes affecting utility service [and] provide more rate design choices for customers"
- "The Rate Design Study should…include an analysis of each existing rate schedule to determine whether the schedule remains pertinent to current utility service"

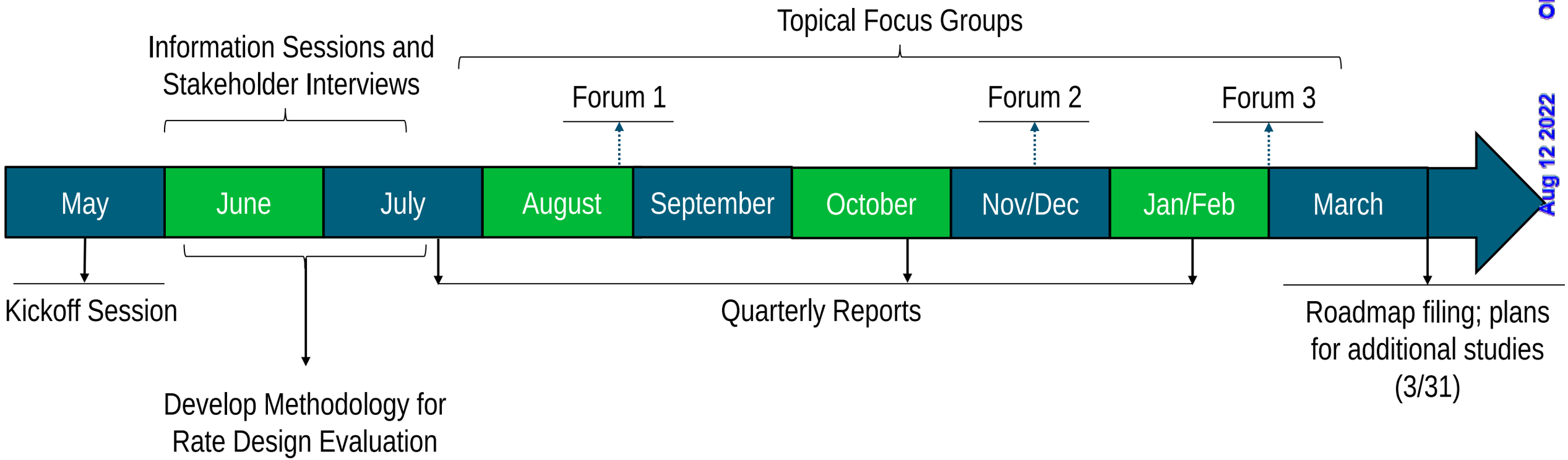
- "The Commission concludes…rate design must evolve in order to maximize the efficiency and effectiveness of these new technologies and ensure usage of the electric system that is consistent with the public interest"
- "The Commission…expects…the Rate Design Study will address the costs and benefits of customer-sited generation."

- "The Rate Design Study should…explore the feasibility of consolidating the rates offered by DEC and DEP."
- "The Commission is persuaded that in depth evaluation, debate, and discussion by and among stakeholders regarding cost to serve, rate design, and making the most efficient use of the electric system is necessary to achieve results that are in the public interest"

- Reflect cost causation
- Avoid undue discrimination
- Promote efficient use
- Discourage wasteful use
- Yield revenue requirement
- Stability and predictability
- Fairness in cost apportionment
- Practical – simple, understandable, feasible application

*From Principles of Public Utility Rates by James Bonbright

Timeline



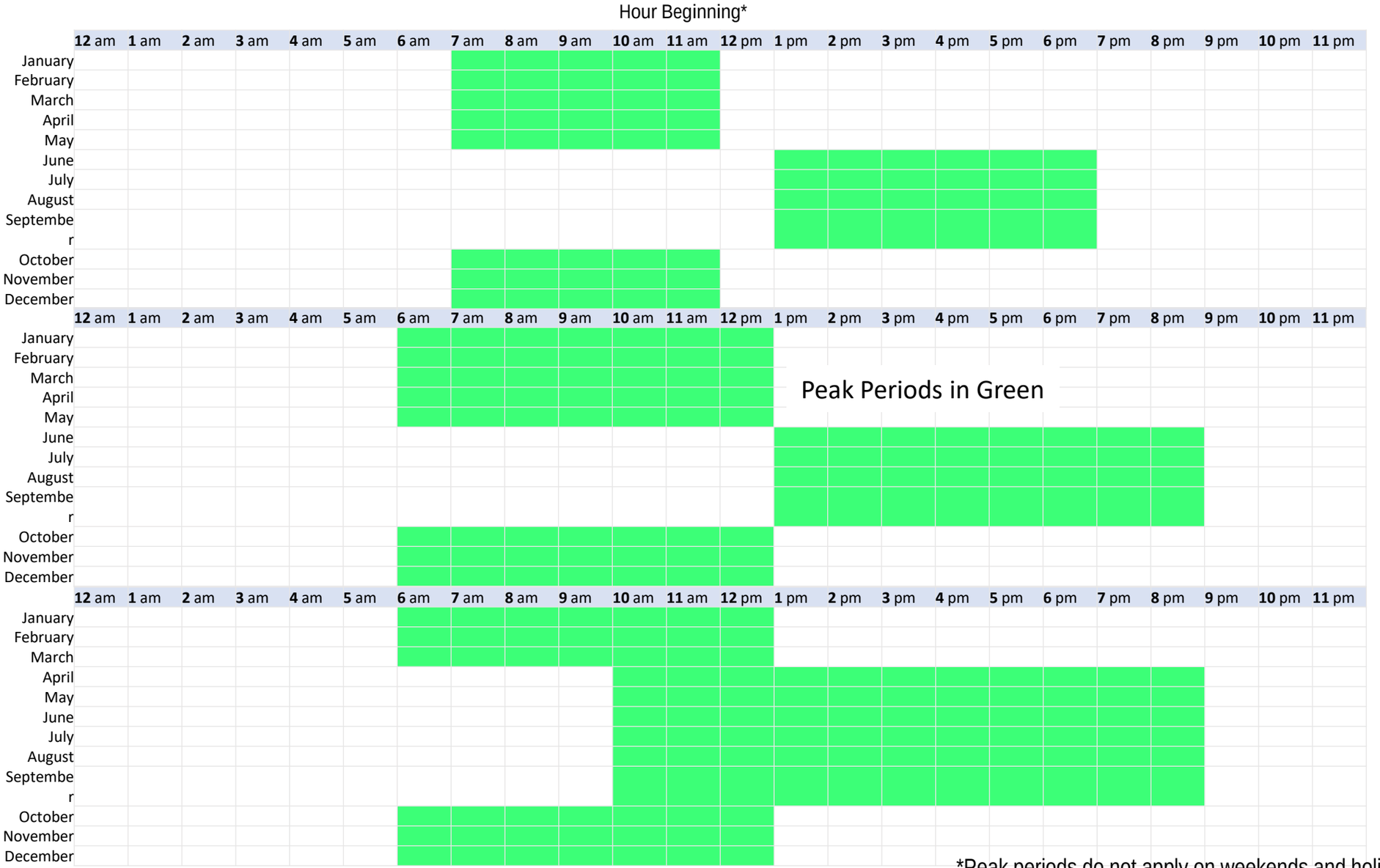
"Flexibility is necessary to ensure robust discussion amongst stakeholders."

Aligning TOU Periods between DEC/DEP and Rate Schedules

DEC RT

DEC OPT-V

DEP R-TOUD



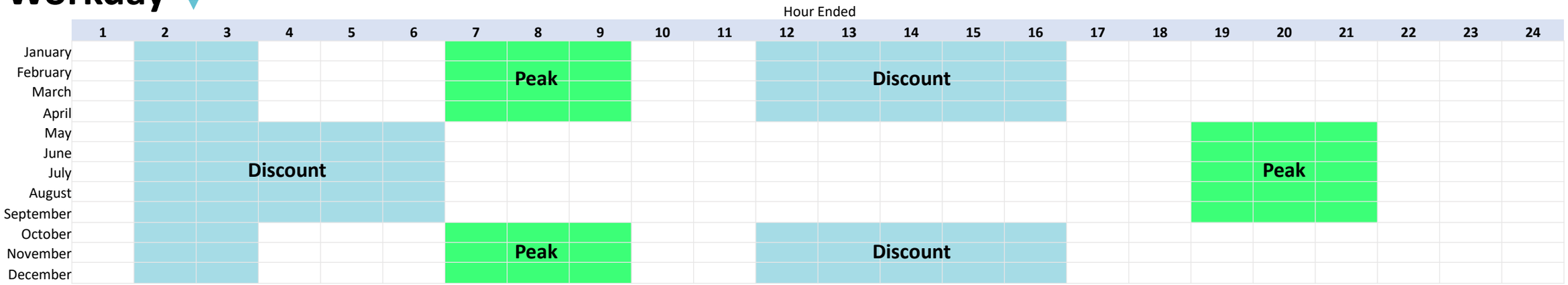
*Peak periods do not apply on weekends and holidays

New Time of Use Proposal

Overnight Discount for EV charging in all months

Fewer peak hours overall

Workday



Shorter peaks are easier for customers to respond to

Mid-day Discount reflects impact of solar

Residential EV Rate Designs

Activities and findings to date – EV Rates (Initial discussion session – 9/29)

- Duke presented on the scope of the EV rates discussion within the context of the CRR, as well as actions Duke has taken to date regarding EVs.
- Four stakeholders presented on EV rate designs topics & case studies, including: principles for EV rate design, effective residential EV design, residential charging in Xcel territory in Minnesota, PG&E EV subscription rate. Stakeholders provided the following feedback in response:
  - Stakeholders consistently highlighted a need to consider the interactions between EV charging and other customer-sited energy technologies such as solar, battery storage, and smart thermostats.
  - Stakeholders highlighted a desire to avoid demand charges in EV rate design, indicating a preference for TOU rates that encourage off-peak charging and charging during times when excess solar is available on the grid.
  - Stakeholders provided mixed opinions on EV subscription rates for residential customers. Some stakeholders presented in favor of exploring subscription rate options at the initial EV rates meeting, but subsequent proposals have not been broadly supported by stakeholders.
  - Stakeholders were interested in exploring managed charging options, EV-only TOU rates, and credits for charging off peak.

Non-Residential EV Rate Designs

Activities and findings to date – Non-Residential EV Rates (Subgroup on 11/4)

In response to stakeholder case studies and reactions to case studies, Duke presented several **Non-Residential** EV rate options:

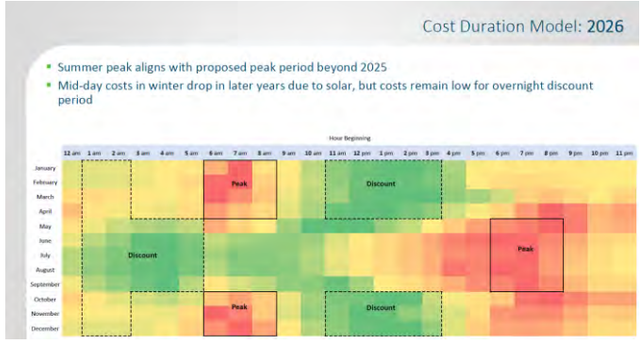
- TOU Rates:
  - Duke presented how the new TOU periods could benefit EV charging by offering shorter peak periods and creating a discount TOU period.
- Transitional Relief:
  - Duke presented potential economic development options as a way of kickstarting the market.
- Low-Load Factor Rates:
  - One stakeholder indicated that LLF rates would only help in specific applications.
  - Another stakeholder expressed that there were pathways to creating permanent LLF rates.
- Hourly Pricing Rate:
  - One stakeholder indicated that current thresholds for participation in hourly rates should be revisited (as it has been discussed in WG #2)
  - Another stakeholder indicated that Duke might need to revisit the way that hourly pricing is included in cost-of-service studies if the rate's applicability is modified.
  - Another stakeholder indicated that this is a complex rate design
- Critical Peak Pricing (CPP):
  - One stakeholder was interested in learning exactly how high critical peak prices would be, so as not to discourage customers from charging in emergencies. Another stakeholder thought CPP prices should be very high, so as to encourage responsive behavior.
  - One stakeholder emphasized CPP rates should be optional. Duke indicated the rate would remain optional for EV customers.
  - One stakeholder indicated that fleets would be very willing to respond to CPP events as long as they are infrequent.

Net Metering Discussions

Rate Schedule Design

Design TOU periods that reflect system costs based on historical load, load forecasts and reliability studies

Calculate TOU prices that are revenue-neutral to the rate class using the Cost Duration Model and most recent approved Cost of Service Study

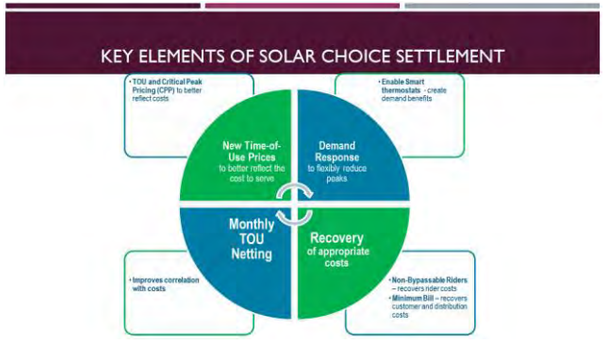


Net Metering Design

Design NEM structure based on industry best practices and local experience/context

- Netting policy
- Non-bypassable charges
- Grid access fee
- Minimum bill

Refine prices to minimize embedded and marginal cross-subsidization

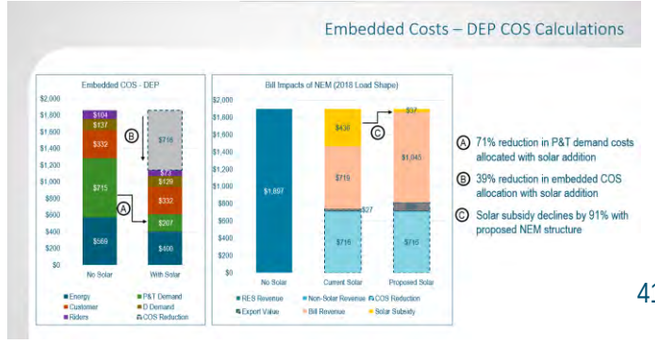


Impact Analysis

Customer: Estimate bills, savings and payback period using actual customer usage and solar data

Rate Class: Calculate cost of service for NEM customers and compare with estimated revenue from new design

- Embedded view (rate base)
- Marginal view (incremental)



Overview of Current Residential Offerings

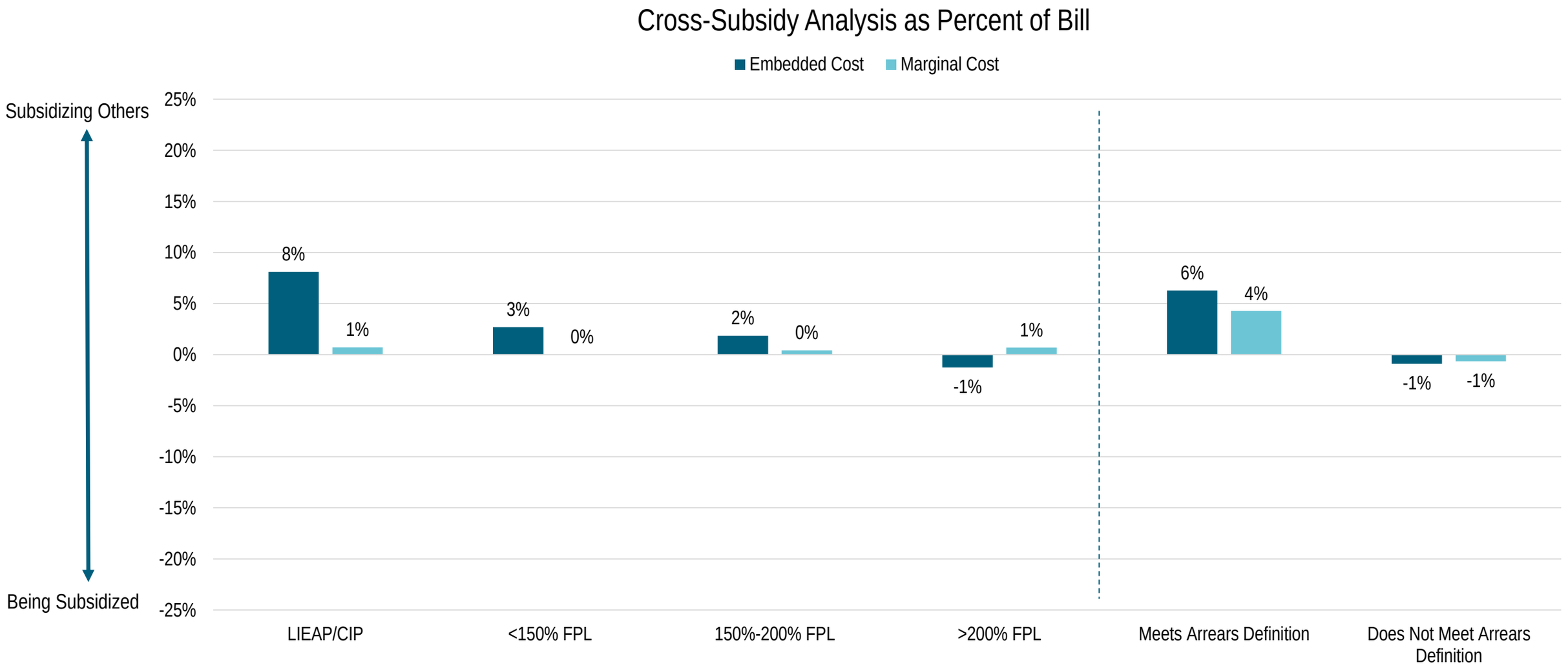
- DEC
  - Residential Service (RS)
  - Residential Service, Electric Water Heating and Space Conditioning (RE)
  - Residential Service, Energy Star (ES)
  - Residential Service, Time of Use (RT)
  - Residential Service, Time of Use with Critical Peak Pricing (RSTC)
  - Residential Service All-Electric, Time of Use with Critical Peak Pricing (RETC)

- DEP
  - Residential Service (RES)
  - Residential Service, Time of Use (R-TOUD)
  - Residential Service, Time of Use (R-TOU)
  - Residential Service, Time of Use with Critical Peak Pricing (R-TOU-CPP)

Residential Rate Design Issues Discussed

- Minimum Bill Analysis (same as shared with LIAC)
- DEC-NC RE, Declining Block Rate
- DEP-NC RES, Seasonal Price Difference
- All Electric Rate Design Option
- Demand Charge TOU Options
- Residential Rate Availability (i.e. permanent foundation language)

Cross-Subsidy Analysis by Income and Arrears Status



% Total Customers in Category*	3%	12%	8%	63%	12%	88%

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

Delineation between CRR and LIAC

CRR

- Analysis of rate designs
- Impact of rate designs on multiple policy priorities including low-income/vulnerable customers

LIAC

- Analysis of low-income/vulnerable customers
- Consideration of programs to aid low-income/vulnerable customers including:
  - Additions to standard rate designs to provide discounts such as the SSI discount in DEC-NC
  - Income-based designs that layer on top of the standard rate designs such as PIPP
  - Other discounts/policy changes

Comprehensive Rate Review Study

Presentation for Joint CRR/LIAC/EE Collaborative Meeting





DUKE ENERGY®

Go to **menti.com** and use **code 6092 4118** or access the link in the chat window

6092 4118
Mentimeter

Comprehensive Rate Review:

Competing Priorities?

INTERACTIVE

DSM/EE

CRR

LIAC

Low Income Affordability Collaborative

Conitsha Barnes
Duke Energy

Rory McIlmoil
Appalachian Voices

La'Meshia Whittington
Advance Carolina

Detrick Clark
NC Community Action Association

Low Income Affordability Collaborative (LIAC) Overview

- North Carolina Utilities Commission approved the Company's request to host a Low Income Affordability Collaborative.

- 12-month collaborative process includes evaluating a broad spectrum of regulatory programs and protections for low-income customers, ranging from affordability programs to potential new tariffs and other initiatives.

- LIAC membership represent over 30 organizations approved by the NCUC
  - Members represent government agencies, consumer advocates, low-income agencies, utilities and environmental groups

Low Income Affordability Collaborative Overview

	Subteam A	Subteam B	Subteam C	Subteam D
Co-Leads	**Rory McIlmoil:** Appalachian Voices **Arnie Richardson** Duke Energy	**Conitsha Barnes** Duke Energy **La'Meshia Whittington** Advance Carolina	**Detrick Clark** NC Community Action Association **Ken Szymanski** Apartment Association of NC	**Thad Culley** Sunrun **Paula Hemmer** NC DEQ State Weatherization
Scope of Work	**Assess Challenges:** Assessing current energy affordability challenges facing residential customers	**Define Affordability:** Developing suggested metrics or definitions for "affordability" in the context of the Company's provision of service in its North Carolina service territory and explore trends in affordability	**Assess Current State:** Investigating the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability	**Collaborative Coordination:** Coordinate between the affordability collaborative and the rate study and energy efficiency stakeholder groups

LIAC Subteam A

LANGUAGE FROM THE COMMISSION ORDER

Prepare an **assessment of current affordability challenges** facing residential customers. The assessment should:

- Provide an **analysis of demographics of residential customers**, including number of members per household, types of households (single family or multi-family), the age and racial makeup of households, household income data, and other data that would describe the types of residential customers the Company now serves. To the extent demographics vary significantly across the Company's service area, provide additional analysis of these demographic clusters.
- **Estimate the number of customers** who live in households with incomes at or less than 150% of the federal poverty guidelines (FPG), and those whose incomes are at or less than 200% of the FPG.
- For the different demographic groups identified as part of a. and b., provide an **analysis of patterns and trends** concerning energy usage, disconnections for nonpayment, payment delinquency histories, and account write-offs due to uncollectability.

Analysis Overview

Included in Analytics

- Insights into customers under 150% and 200% federal poverty level (FPL)
- Demographic/housing including dwelling type, heating source, renter/owner, racial makeup, age of account holder, housing value, population density, and number of people in the household
- Trends in delinquency, write-offs, disconnect non-pay (DNP), energy usage and energy intensity
- Analysis of Low-Income Energy Assistance Program and Crisis Intervention Program (LIEAP/CIP) recipients AMI Load Shapes
- Tables including relative information

Future Iterations

- Zip code level data (pending commission approval)
- Mobile/Manufactured Homes analysis (pending quality data source)
- Electric Burden analysis
- Statistical analysis

Analysis was completed pre-covid from 3/2019-2/2020 on all NC customers who were active for the entire 12-month period

Assessment of Customer Affordability Challenges

Significant number of Duke Energy customers qualify as low-income

- The ability to afford basic needs and services, including energy bills, is directly related to household income
- "Low-income" = households falling under 200% of FPL
  – Only customers < 130% FPL qualify for heating/cooling and crisis assistance in NC

Category	% All Customers	No. Customers (2.37M)	No. Customers (3.07M)
LIEAP/CIP	2%	52,028	52,028
< 150% FPL	15%	360,934	460,500
150 - 200% FPL	11%	258,004	337,700
Total low-income	28%	670,966	850,228

Assessment of Customer Affordability Challenges

Significant number of customers meet the “arrears definition”

- “Arrears definition” means customers 1x behind on bill for 6+ months, or 2x behind for 2+ months
- Amounts to ~15% of all residential accounts, or 360,000 to 460,000 households (60% > 200% FPL)
- ~150,000* low-income households also met arrears definition (23% of all low-income)
  - Amounts to 26% of households < 150% FPL
- Categories disproportionately meeting arrears definition:
  - low-income
  - African American and Hispanic
  - multi-family and rental
  - urban/city
  - low-value (market value of less than $100,000)
  - all-electric
  - age of the primary account holder was 54 years old
  - single-person

Assessment of Customer Affordability Challenges

Energy intensity (kWh/square foot) is a driving factor

- Low-income (incl. LIEAP/CIP) and arrears struggling households have much higher energy intensity than non-low-income
  - Same with rural, younger, low-value, multi-family and rental households
- LIEAP/CIP recipients have energy intensity ~25% greater than other low-income, and 60% greater than non-low-income
- Arrears struggling households have 25-35% higher energy intensity for all customer segments
- Higher energy intensity likely (in part) related to poor housing quality and lower energy efficiency
  - Higher energy intensity results in higher usage and electric bills
  - Not causal, but supported by seasonal usage for low-income and arrears struggling households

Assessment of Customer Affordability Challenges

Seasonal energy intensity drives higher bills

- LIEAP/CIP:
  - Energy intensity is double that of non-low-income households in the winter, 40% higher in summer
  - 100% higher bill in winter and 70% higher in summer than non-low-income
- Low-income, not LIEAP/CIP:
  - 33% higher energy intensity than non-low-income households in winter, 14% higher in the summer
- Arrears struggling:
  - Energy intensity is 50% higher in the winter and 33% in summer than non-arrears in comparison
  - Have a ~160% higher total bill in peak winter months (133% higher in summer) than upper-income households; for LIEAP/CIP customers the bill differential is 100% and ~70% higher, respectively

Assessment of Customer Affordability Challenges
Disconnections for non-pay (DNP)

- *Discrepancy in DNP data being examined, assessment to be updated as necessary*
  - Duke Energy data shows 44,412 DNP's for analysis period
  - Actual residential DNP's exceeded 220,000
- Despite having received heating/cooling bill assistance, ~10% of LIEAP/CIP recipients experienced a DNP
- Low-income households 3x more likely to experience a DNP (than non-low-income)
- Arrears struggling and LIEAP/CIP recipients 9-10x more likely to experience a DNP
- In general, same categories of customers most likely to meet arrears definition also experience higher-than-average rates of DNP
- Lowest income (<150% FPL, including LIEAP/CIP) and arrears struggling customers experience higher-than-average rates of DNP across all housing, geographic, home value and racial categories

Assessment of Customer Affordability Challenges

Racial disparities in arrears and disconnects for non-pay

- Racial disparities clearly exist but reasons are unexplained by the present analysis
- Duke Energy applies NC Rule 12-11 consistently, regardless of racial status
- Racial makeup customer households
  - 72% White
  - 11% African American
  - 5% Hispanic
  - 2% Asian
- Percent of racial category that are low-income
  - 25% of White-identified households
  - 40% of African-American
  - 36% of Hispanic
  - 17% of Asian
- Percent of all customers in racial category that meet arrears definition
  - 12% of White-identified households
  - 32% of African-American
  - 17% of Hispanic
  - 5% of Asian
- Percent of all customers in racial category that experienced a DNP
  - 1.3% of White-identified households
  - 4.1% of African-American
  - 2.6% of Hispanic
  - 0.5% of Asian

African-American households experience these outcomes despite using less energy and having only a slightly higher energy intensity than White households. Hispanic households use more energy and have a greater energy intensity.

Assessment of Customer Affordability Challenges

Income does not explain racial disparities

Ratio of AFRICAN AMERICAN percentages (likelihood) of arrears and DNP's to other categories

Race	Low-Income	Arrears	DNP
Asian	2.3	6.5	8.4
Hispanic	1.1	1.9	1.6
White	1.6	2.6	3.1

Ratio of HISPANIC percentages (likelihood) of arrears and DNP's to other categories

Race	Low-Income	Arrears	DNP
Asian	2.1	3.4	5.3
African American	0.9	0.5	0.6
White	1.4	1.4	2.0

LIAC Subteam B

How we stay on our timeline and work in collaboration with the other subteams.

- Standing weekly meeting with the stakeholders of Sub-Team B
- Collaborating with subject matter experts from within the LIAC and Sub-Team A to present relevant information to be investigated.
- Analyzing existing programs and metrics used in North Carolina and across the Nation to assess electric energy affordability for best practices and lessons learned.
  - Energy burden
  - Self sufficiency standard

What comes next?

SUB-TEAM B TASKS

October - December

Identify and compile information to be investigated.

Align on questions to be answered.

Identify expert input / opinions needed to support positions (LIAC education)

January - February

Design internal matrix to review compiled information.

Analyze information and data.

February - March

Suggest metrics / definition for “affordability”

Prepare and present suggestions to broader LIAC consideration

LIAC Subteam C

Rates & Program

Address Commission questions regarding existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs

3.a-1) Define success criteria to be used for affordability programs

3.a-2) Determine metrics to be used to monitor program impact

3.b/c) Assess existing Duke Energy income-qualified programs *(3 tasks)*

3.d) Develop income-qualified program alternatives *(2 tasks)*

3.e) Assess set of Commission-identified rates and programs *(5 tasks)*

3.f) Determine rate impact implications of assessed programs *(4 tasks)*

3.h-1) Determine what practices and regulatory provisions related to disconnections for nonpayment should be modified or revised

3.i-1) Identify existing utility and external funding sources are available to address affordability

3.i-2) Estimate the level of resources that would be required to serve additional customers

3.j-1) Identify opportunities and challenges of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns

Subteam Outputs Needed

1) Recommendation regarding existing income-qualified programs
2) Presentation of recommendation to LIAC at large to secure endorsement or input.
3) Demonstration that position regarding appropriateness of Commission-identified rates and programs.
4) Presentation of position to LIAC at large to secure endorsement or input.

Measures of Success

- **LIAC endorsed recommendation on existing programs**
- **LIAC endorsed position on appropriateness of Commission-identified rates/programs**

Sub-Team C Mini Working Teams

Roles/ Responsibilities

❑ **MINI SUBTEAM LEADERSHIP**

– Develop clear understanding of mini sub-team tasks/questions and all required outputs and expectations

– Communicate any resource needs and concerns with Co-leads (Detrick and Ken)

– Consider tasks and delivery timelines (factoring in interdependencies of other sub-team outputs)

❑ **MINI SUBTEAM COMMUNICATION**

– Serve as subject matter professional and advising body for mini sub-team

– Ensure relevant and timely communications are disseminated to Co-leads and other sub-team C members

❑ **MINI SUBTEAM PRODUCTIVITY**

– Develop and maintain Mini Sub-team Plan (task list and schedule) – supported by Co-leads

– Develop Mini Sub-team Report outs (communications to greater Sub-team C) – supported by Co-leads

– Track all relevant efforts in Trello (please let us know if you do not have access)

What's happened in Sub-Team C

October 2021 - Ken Szymanski + Detrick Clark

SUB-TEAM C MINI WORKING TEAMS										
Investigating the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability.										
Teams	**Team A**	**Team B**	**Team C**	**Team D**	**Team E**	**Team F**	**Team G**	**Team H**	**Team I**	**Team J**
Team Task	a. What defines a "successful program" and what metrics should be monitored and presented to show impact?	b. % of res customers are eligible for each existing program and % of eligible customers take advantage?	c. Impact of existing programs on the energy burden for enrolled customers?	d. Should existing programs be maintained, replaced, or terminated? Changes/replacements to improve results?	e. Are the following programs appropriate for implementation in NC? (please refer to task list link in the welcome letter)	f. How do affordability programs affect cost-causation and allowance of costs among classes?	g. How do cost-of-service allocation affect rate design and affordability of rates?	h. What disconnections for nonpayment practices/regs should be modified or revised?	i. Existing utility and external funding sources available to address affordability? Level of resources required to serve more.	j. Coordination opportunities/ challenges of the utilities working with other organizations to deliver affordability programs?
Team Members	Currently re-examine mini sub-team activities and re-evaluate mini sub-team assignments (*at least 4 members per team*)									

What's happened in Sub-Team C

November 2021 – Tim Duff

Duke Energy Low Income Energy Efficiency Offerings in the Carolinas

- Weatherization and Equipment Replacement Program ("WERP")
- Refrigerator Replacement Program ("RRP")
- Neighborhood Energy Saver Program ("NES")
- Low-Income Weatherization Pay for Performance Pilot

Potential Program Expansion and New Pilots

- Expanding Duke Energy Carolinas Weatherization Program to Duke Energy Progress

As Part of the Rate Case Settlement, Duke is working with SACE, NCSEA, NC Justice Center and NRDC to develop Low Income EE Pilots.

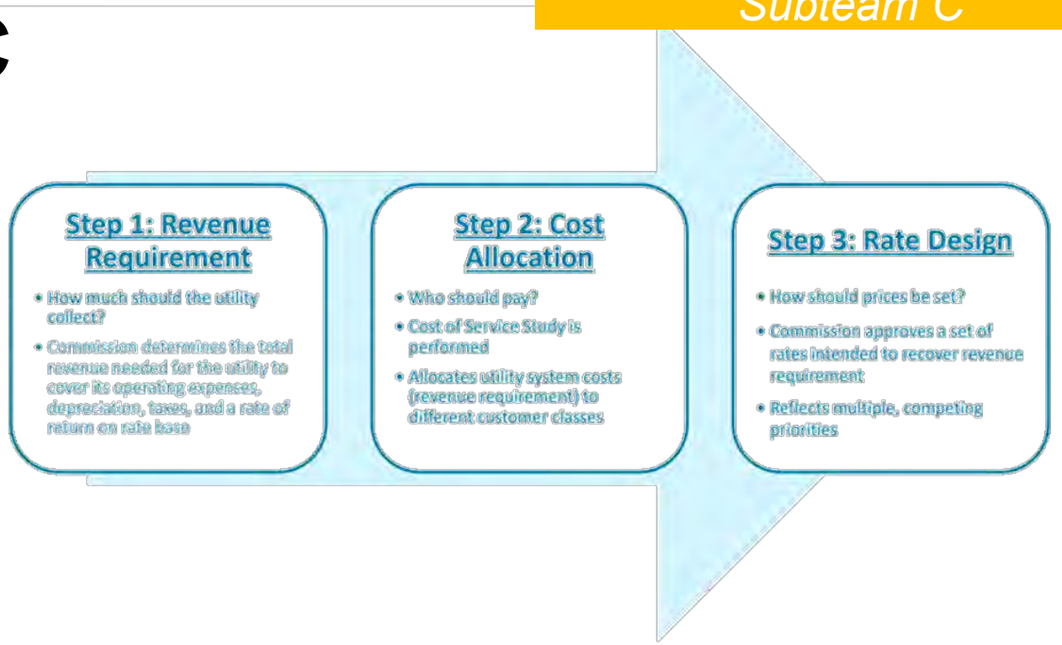
3 ideas being considered:

- Energy Burden Pilot (Follows the same model as the Durham pilot)
- Heat Strip Replacement Targets winter peak and high energy intensity in mobile/manufactured homes
- Multifamily Direct Install Expansion Targets low-income multifamily housing (LIHTC, HUD, Section 8)

Areas for Improvement to Targeted EE Offerings

What's happened in Sub-Team C

December 2021 – Bradley Harris



Cost of Service 101

- Energy
- Customer
- Demand (Capacity)

Rate Design 101

- Recognize Cost Causation (No Unjust or Undue Discrimination)
- Incent Beneficial Consumption Patterns (Efficient Price Signals)
- Recover Cost to Serve (i.e., recover revenue requirement)
- Meets Public Policy Goals (as determined by the utility commissions and state governments)

Analysis of segmenting the residential rate class

- Theory
- Methodology
- Results from DEP

Analysis of a minimum bill charge as an alterative to a fixed charge

- Very small impact by Income and Arrears Status
- Significant Impact by Usage on Very Low Usage
- A very high minimum bill would be needed to replace the revenue from eliminating the fixed charge

What's happened in Sub-Team C

January 2022 – Lisa FaJohn + John Howat

Historical

Established through the 2020 Virginia General Assembly

- Local legislators concerned about the income to home energy cost ratio for low-income constituents
- Created with input from advocates (Virginia Poverty Law Center)
- General outline established
- Details to be set by the managing agency, utilities and advocates
- The SCC ensures the USF is reasonable and accurate.
- Based on Ohio PIPP and modified for VA
- Designed to:
  - Limit the electric utility payments
  - Based upon a percentage of income
  - For customers of DEV and APCo

Objective

- Limits electric bill payments to 10% (electric heat), 6% for (other heat)
- Reduce electric usage through weatherization and energy conservation education
- Establish a non-bypassable Universal Service Fee (USF) to fund PIPP

Process

- Customers apply/screened through the Department of Social Services
  - Eligibility: 150% FPL income
  - Eligible for free weatherization and conservation education
- On-time, in-full payments result in a delta credit and 1/24 credit to the arrears
- Credits along with administrative costs paid through the USF

Next Steps for Sub-Team C

Identify Resource Needs/Dependencies

a) Submit official requests to Duke and Guidehouse for all third-party program evaluations, SWOT Analysis, and reports related to Sub-Team C's task
b) Review and disseminate all interconnected info, analysis, and reports from other NC LIAC Sub-Teams to appropriate mini-teams and its members
c) Re-examine mini sub-team activities and re-evaluate mini sub-team assignments
d) Survey sub-team members for special meeting sessions/and the group's availability to meet more frequent

LIAC February Workshop 5 – Thursday, February 3rd (1-4 pm)

Sub-Team C Presenter(s) Include:

Lucy Edmondson and **Jack Floyd** - statutory and regulatory challenges
John Howat - the history of the OH PIPP program
Tim Duff has asked (**Rick Mifflin**) to discuss existing EE programs w/ larger collaborative
Bradley Harris - DEC SSI-based program and other items

Next Steps for Sub-Team C Cont'd

Statistical Analysis of Customer Affordability Challenges Working Group (lead by Sub-Team A)

- **Christina Cress**, Partner, Bailey & Dixon, LLP
- **Munashe Magarira**, Staff Attorney, NC Utilities Commission
- ***Ken Szymanski**, Executive Director (retired), Apartment Association of NC
- ***Detrick Clark**, Director of Housing and Energy Programs, NC Community Action Association

Future Subteam C presentations and activities include, but are not limited to the following:

Topic: **Ohio PIPP Overview** (planning in progress)
Presenter(s): **Brandy Kolattukudy**, Ohio Deputy Chief of the Office of Division Support
John Starver, Executive Director for Ohio Partners for Affordable Energy

Topic: **DECWX and HHF Weatherization Program Overview** *(tentative)*
Presenter(s): **Deborah Hill**, TRC (formerly Lockheed Martin)

Topic: **Sub-Team C proposal(s)/recommendations for consideration**
Presenter(s): **TBD**

Topic: **Program Design Modeling**
Presenter(s): **John Howat**

**Sub-Team C Co-leads*

Go to **menti.com** and use **code 6092 4118** or access the link in the chat window

Bringing It Together:

What *didn't* you hear?

INTERACTIVE

BREAK

(Resuming at 11:30 AM)

Guidehouse | DUKE ENERGY | Public Staff North Carolina Utilities Commission

Group Discussion & Breakouts

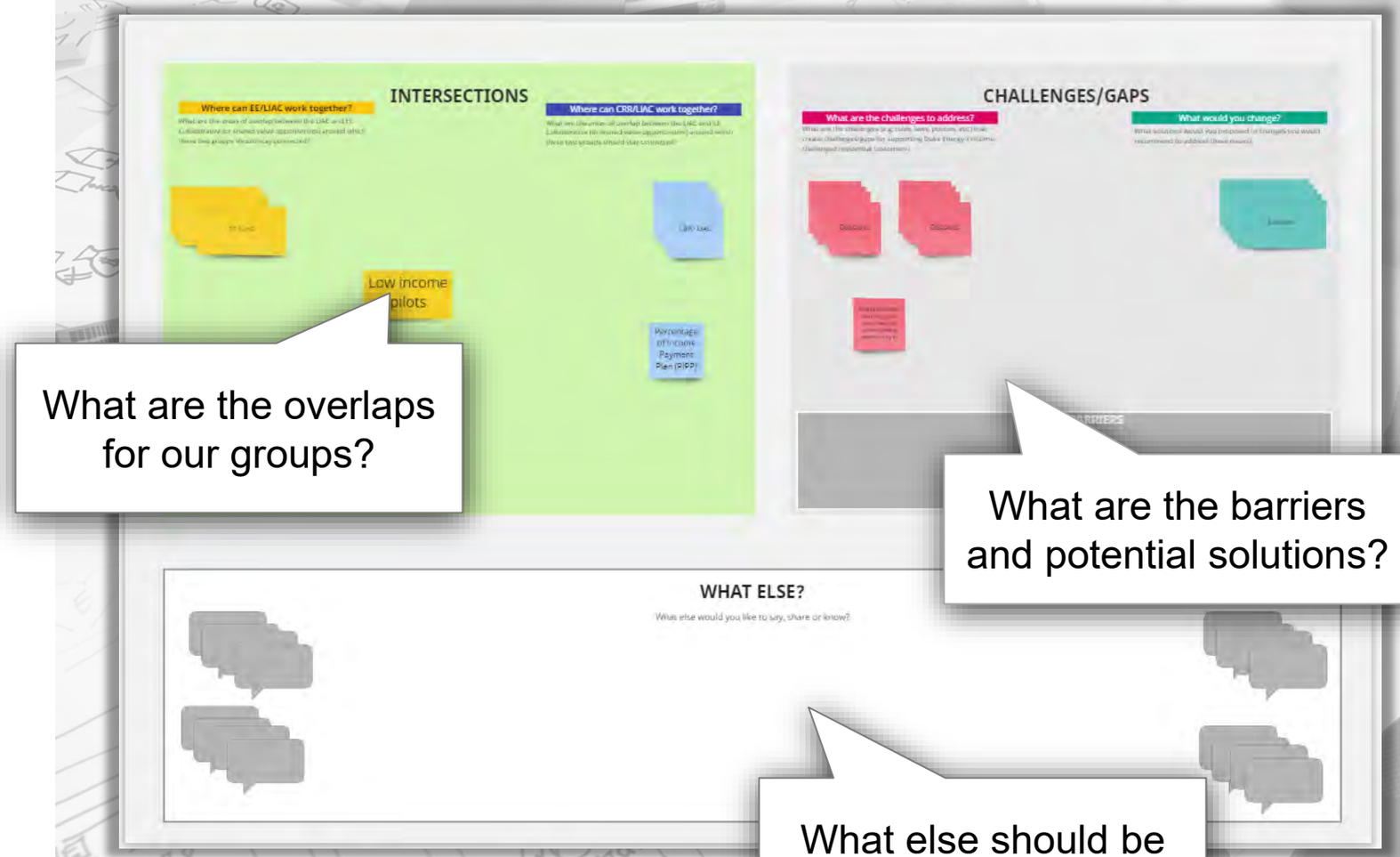
Let’s Discuss

- What we’ve heard
- What we’ve learned

Let's Breakout!

Consider

- what you have heard today,
- what you have experienced during your Collaborative participation, and
- insights you offer from your *non-Collaborative* lives.



Next Steps

How we stay abreast of and consider the ongoing work of the separate teams

- Designated cross-collaborative liaisons representing the Utility, the Public Staff and community/industry
- Standing agenda item for sharing updates

What comes next?

COLLABORATIVE LIAISONS

EE COLLABORATIVE

Duke Energy – *Tim Duff*
NCUC Public Staff – *Jack Floyd*
Community/Industry – *Claire Williamson*

CRR COLLABORATIVE

Duke Energy – *Bradley Harris*
NCUC Public Staff – *Jack Floyd*
Community/Industry – *Thad Culley*

ADJOURN

Guidehouse | DUKE ENERGY | Public Staff North Carolina Utilities Commission

Contact

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Associate Director
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Guidehouse

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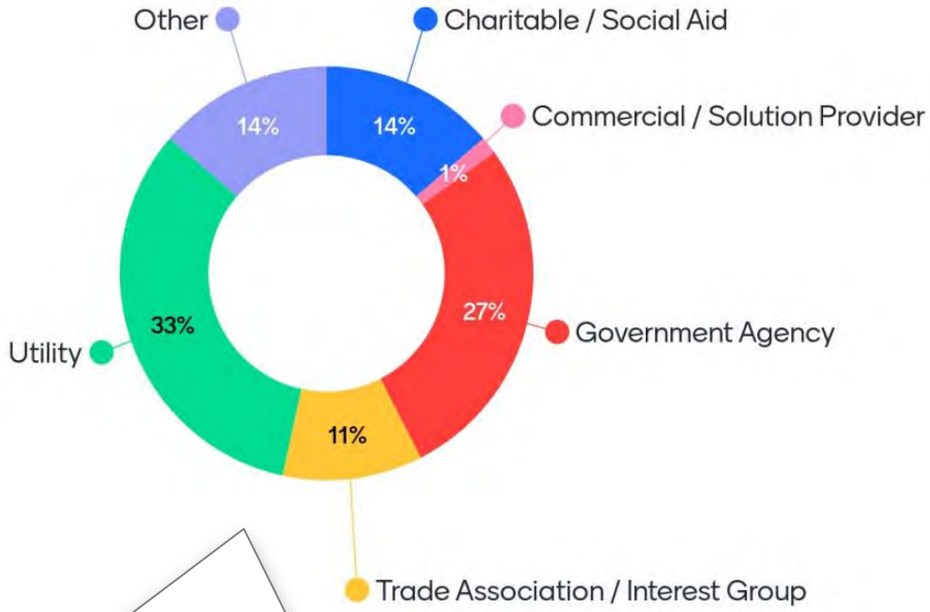
Joint Collaborative Session

Participant Input

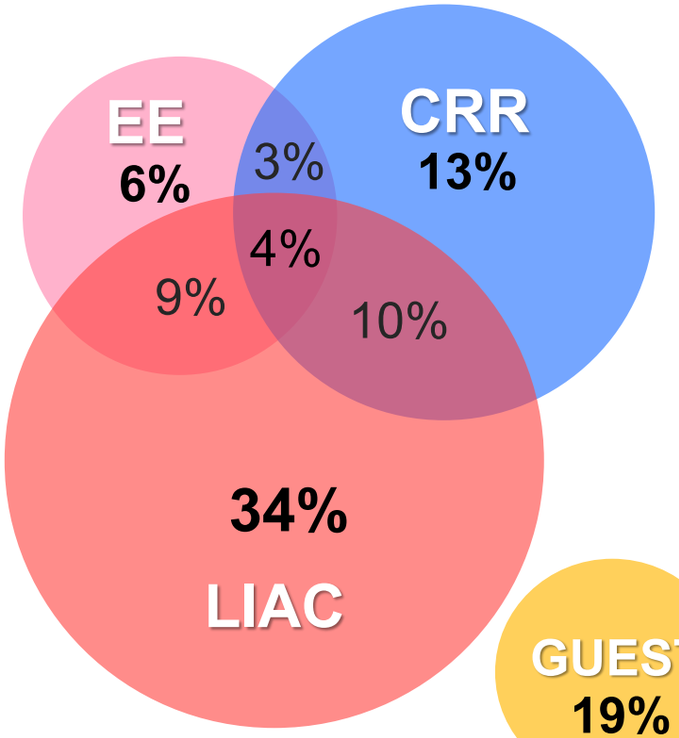
Joint Collaborative Session | January 26, 2022

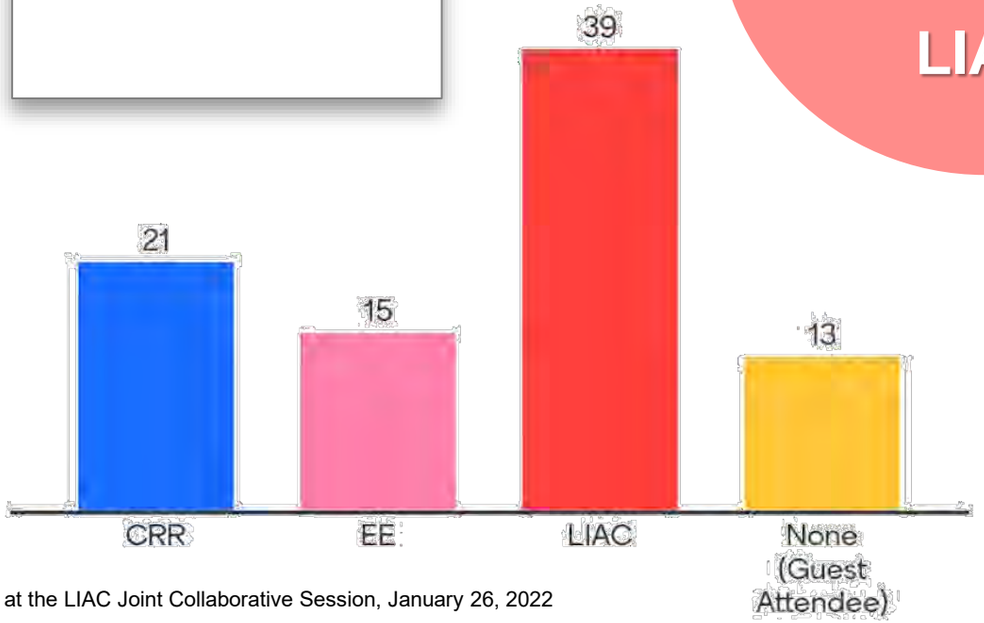
Participants in total: 147



- Sixty percent (60%) self-identified as a *utility* or *government agency* participant
- Some session participants noted that "**non-profit advocacy**" would have been a better description of their organizations

- Representation greatest from host organization (LIAC)





Participant comments related to EE Collaborative discussion

DSM/EE

Split incentive issue *is important not only for addressing the rental problem but also from a racial equity standpoint …*

…. rebates for new equipment or value from the property upgrade goes to the property owner, but the energy savings are seen on the renters' bills

… also means the cost of the upgrade goes to the owner and benefit goes to the renter

Non-energy repairs *are an issue for DOE weatherization program funds that go out to each state, and we are working to solve that issue in conjunction with DOE*

CRR

LIAC

Landlords won't invest in EE if the tenant pays the utility bill, because the landlord won't see any payback/savings from the investment …

And they are typically not incentivized to pay for expensive improvements, even if the landlord does pay the bill, especially if they are competing in a high-demand rental market

We trying decarbonize by 2050, and many homes/multi-family dwellings are being built between now and then.

Is there a way to get at [decarbonization] through building codes for low income housing or through requiring basic EE for any landlords participating in a HUD type program?

Areas of Greatest Cross Collaborative Impact

Respondents indicated that the greatest impact the collaboratives could have would come from **activities that drive greater transparency**:

1) Timely sharing of data insights with one another.
2) Timely sharing of gaps identified with one another

Participant comments related to CRR Collaborative discussion

DSM/EE

CRR

LIAC

Are marginal costs less than embedded costs? And does the marginal cost time window go long enough to capture capital costs for replacement of current generators?

*Why would there not be a **mid-day discount rate** during summer months?*

Air conditioning load to counteract solar

***Low-income customers pay more** than the cost they (and their energy usage/demand) impose on the system …. they don't necessarily pay more in in rates on average*

During spring and fall, aren't their nuclear or other baseload plants down for planned maintenance, so that the marginal energy cost is gas, even with the solar?

i.e., sometimes you are paying fairly high gas power prices then because of the need to replace baseload that is down

I'd be curious to know what the aggregated dollar value is for how much low-income customers are subsidizing non low-income customers each year.

Could add rate design leads to lower costs

Embedded costs are averaged over the whole year. This perspective can obscure what's happening in certain specific customer segments.

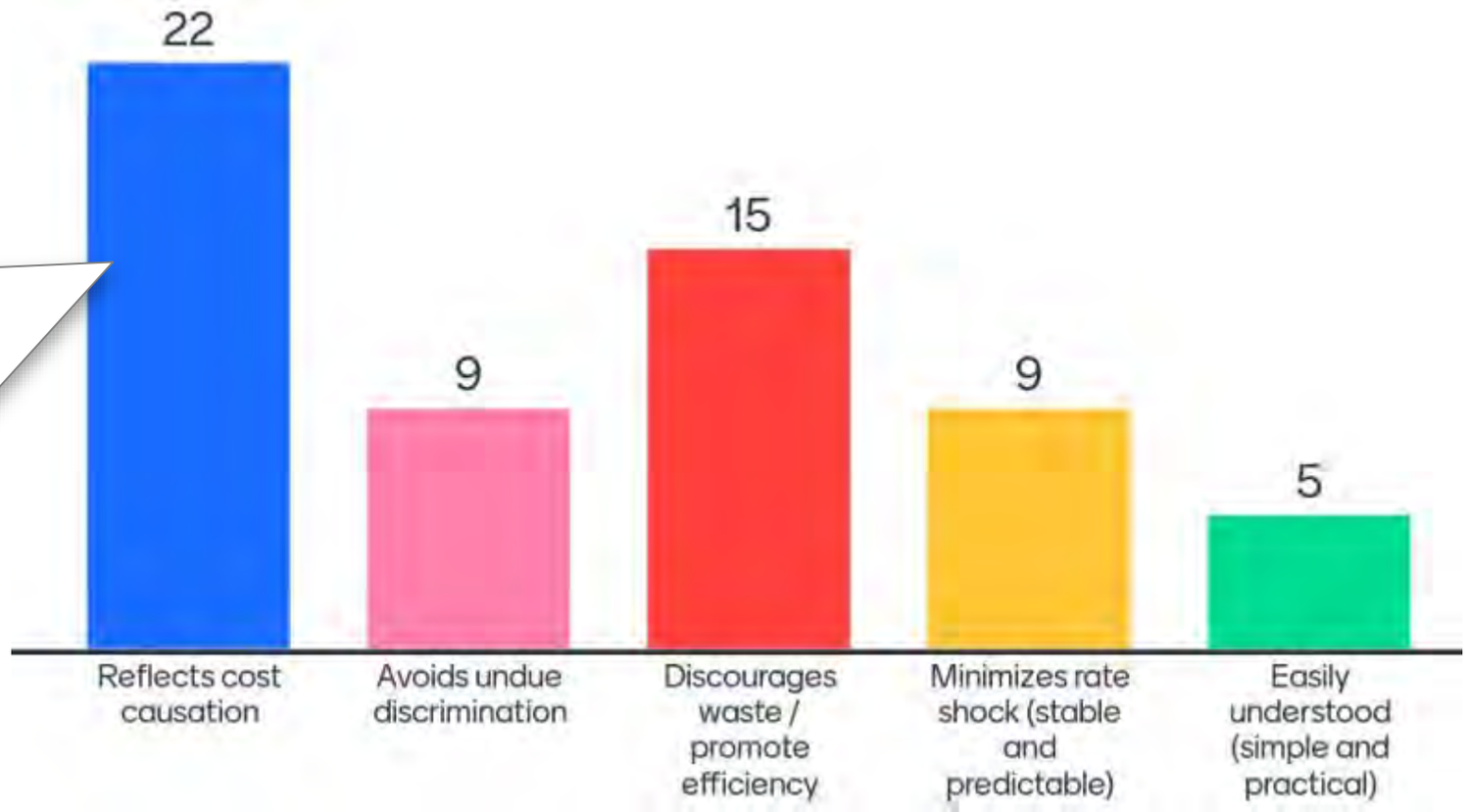
There is much debate about the notion of public interest and the objectives of regulation ..

Not saying to throw Bonbright out the window, just that there appears to be lots of interest in debate over principles outline in his treatise

Most Important Principles of the Competing Priorities

Respondents indicated ***reflecting cost causation*** as the most important of the Bonbright Principles

Session participants raised additional principles – e.g., supporting public interest,



** Note that one-third of poll participants self-identified as utility employees*

Participant comments related to CRR Collaborative discussion

DSM/EE

For LIAC work, "Energy Intensity" is specifically looking at electricity, rather than including gas and propane.

CRR

Statistical analysis is necessary for understanding WHY we are seeing the outcomes we're seeing so that we can propose/design appropriate solutions

Curious how much of the arears disparity is explained by the degree to which these various customer groups have electric heat.

Those with gas heat may be in arrears on their gas bills which wouldn't be reflected in the Customer Challenges data.

LIAC

Beyond the Customer Challenges Assessment, the next phase of LIAC work focuses on identifying and proposing solutions.

What didn't we discuss? What gaps might we have collectively?

It seems that Tim's slide on Duke's Low-Income Energy Efficiency Study got cut. Maybe there is still a way to share it today? Also wondering what level of penetration Duke's income qualified programs have achieved, compared to total LI population?

I'm going to have to digest this before I can even assess what should have been added or things that could have been left out.

Ideas on how low income families/communities can participate/benefit from electricity transformation to a more clean/connected systemHow future clean energy plan may impact all of this work

How will performance based ratemaking and future multi-year rateplans be integrated with affordability concerns?

Hind sight is 20-20, but in retrospect, in addition to income, I wish we'd carved out time to conduct analysis of household wealth to enhance our collective understanding of home energy affordability and access challenges.

Utility payment plan offerings

Because low income homes are more likely to have electric heat and electric hot water, this is a confounding variable that must be taken into account in both the analysis of low-income AND of whether customers are "overpaying" in net metering or oth

Path Forward for Renters - getting over the hump of the split incentive

Is there a way to incentizes multi-family residential owners to make energy improvements (LL pays energy bills), but also incentivizes energy efficiency by tenants if tenants can be charged for cost overages?

Fixed fees are an immovable part of a customer's bill that have an impact on costs/affordability.

I need some more time to sit down and reflect on what I've heard today. What I heard today was helpful and will inform my work going forward

time for current programs to serve the need. meaning at the current rate of program delivery it will take x years for all low income customers to be served

Fuel source and fuel switching. Split incentive. Urban/Rural metric and data differences. Multi-family vs. single family.

I may have missed it, but information on the penetration of current energy efficiency programs would be helpful. *Specifically* penetration of programs with deep retrofit measures that would yield high savings for each customer.

We did not address fixed charges (basic facilities charge) in rate design & how they have been informed by Duke's reliance on the minimum system method in its cost of service study. Keeping those low is important for affordability & efficiency

arrerage management programs

Given that low-income households have been subsidizing other households for some time, should future rate design take this into consideration - not just reduce, but reverse the subsidies?

Breakout Summary – Collaborative Intersections

Where can EE/LIAC work together (areas of overlap)?

Programs & Measures

- Low-income pilots
- Low-cost, cost-effective measures
- Funding for Non-Emergency Repairs (Weatherization)
- DEP Weatherization Program
- Large household energy costs - how to change that perspective and spread out costs

Data & Information

- Data Sharing Platform where organizations don't duplicate efforts and can prioritize investments
- Providing data from LIAC assessment and other efforts that can inform future low-income pilots
- Information about the most effective LI programs, measures, cost-effectiveness challenges, how to serve the most people the most effectively
- Penetration of EE programs especially deep retrofit programs which would have big impact on customer bills
- Penetration of Duke EE programs compared to the low income EE population

Outreach & Education

- Combine EE with any low-income program recommended (teaching/changing behavior - voluntary measure)
- Education strategies for low-income customers on when/how to save energy (iPhone plugged in, when to run dishwashers)
- Talking to individuals about why/how this is important

Where can CRR/LIAC work together (areas of overlap)?

Customer Offerings

- Percentage of Income Payment Plan (PIPP) and other low-income rate designs - they really sit on top of base rate designs. "low income offering"
- Low-income customer participation in Shared Solar offering
- Fixed fees

Rate Design Considerations

- Cross-subsidization
- Evaluation of past subsidization
- Use of shadow billing for different rate tariffs
- Understanding the impacts of multi-year rate plan (PBR) on LIAC recommendations
- TOU Load Shifting discount times (implications for low-income customers)
- Application of Bonbright Principles
- Self-explanatory rate design principles like "use less, pay less“
- “Rate design" distinct from "low income offering“
- Consistent eligibility requirement for all departments (rates/EE - components of a bill)
- Do we have a "fair and firm" income requirement or do we design in flexibility to enable It can shift depending on needs (e.g., raising LI EE program eligibility up to 200% the federal poverty level)
- Low-income offerings complex to model (ex. PIPP) - takes a long time

Breakout Summary – Challenges & Gaps

Customer Challenges

- Customers balancing paying their electric bill with other needs
- Total magnitude of cost per house
- Poor housing quality leading to low efficiency
- Prequalifying conditions of home as barriers to participation (e.g., hole in roof)
- Customers in crisis - have to apply for many assistance opportunities
- Seniors on Fixed income limited in ability to invest in EE measures
- Energy affordability / high energy burden experiences may be very different – "one size fits all" approach is hard

Outreach & Education Needs

- Lack of general education, e.g., how to use less energy, what programs available, how to apply
- Lack of free time (overwhelming times); need to make it easy and quick
- No "one stop" for people applying for aid, services, assistance, etc.
- Reaching hard to reach customers (e.g., rural or remote customers, customers who are already receiving education on many different programs, etc.)
- Earning customer trust in utility programs
- Fear (scams) for those coming into homes to support vulnerable communities
- Ways to help customers ensuring legitimacy of offers

Data & Information Needs

- Understanding program enrollment process and existing program participation
- More data on manufactured homes and multifamily related to EE

Program Design Considerations

- Automatic Enrollment based on work supports/gov't assistance
- Understanding human behavior on EE and payments
- Energy burdened low energy use customers not currently being addressed by EE
- Multifamily and tenant sharing energy reductions/investments
- Utility process needed for interaction w/customers who apply for programs as barriers to participation (e.g., hole in roof)
- Utility Cost Test (UCT); evaluation of program effectiveness and value for customers
- Program administration barriers for utility and state; Limitations to WAP or other government funding impacting ability to service homes
- Supporting improvements for both gas and electric when limited to only electric KWH reduction for cost recovery
- Determining appropriate EE funding from the EE Rider given lack of cost effectiveness
- PIPP Payment Behavior and success rate
- Multi-year rate plan complicating our proposed solutions
- Balancing carbon reduction with affordability

Cost & Resource Considerations

- Utility administration cost for programs
- Cost of serving the LI population scale of need
- High cost to reduce energy usage vs energy cost savings
- Utility cost recovery for new programs
- Securing a reliable funding stream to pay for something like a PIPP or discount rate
- Ensuring program longevity and funding streams
- Supply chain issues and increased cost of EE improvements
- Workforce constraints (COVID)

Breakout Summary – Changes and Solutions

Offerings

- Offer high usage alerts (note: Duke already provides)
- Offer a collection of programs (EE, Rates, Policies, etc.) to better serve customers
- Consider longer term solution similar to helping home funds to help with home improvements (health and safety)
- Have other avenues such as midstream program, renter payment program, on-bill program
- Create data driven solutions

Program Administration & Tools

- Implement a "one stop" for applying for assistance and services
- Create "hotline" for customers to call and ask about their bill and programs
- Create Data Sharing Platform where organizations don't duplicate efforts and can prioritize investments; households could be referred to other programs like health and safety and then be referred back to a WAP
- Train service providers to give easy consistent information and guidance
- Leverage auto enrollment - auto enrolled based on services (ex. automating food stamps, medicaid, etc. - if you apply for one of those, the application is auto-populated for other programs

Engagement

- Focus on Simplicity - easy to understand, apply
- Collaborate with community stakeholders to help address lack of trust/legitimacy/scams
- Coordinate with service agencies to qualify customers
- Enlist existing participants for helping walk new/potential participants through the process

Other

- Ensure larger properties stay affordable - landlords who own 1-5 vs large developers (tangible improvements vs "making it look nice")Create "hotline" for customers to call and ask about their bill and programs
- Seek governmental intervention to compel landlords participate in EE measures for their renters ("you have to make your properties energy efficient")
- Utility should weigh in on improving housing / building code
- Seek non-ratepayer funding for health, safety, and incidental repairs

APPENDIX G – LIAC

LIAC PROPOSALS

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

North Carolina
Low Income Affordability Collaborative

NC LIAC Proposal Assessment Results

July 7th, 2022

Convened by

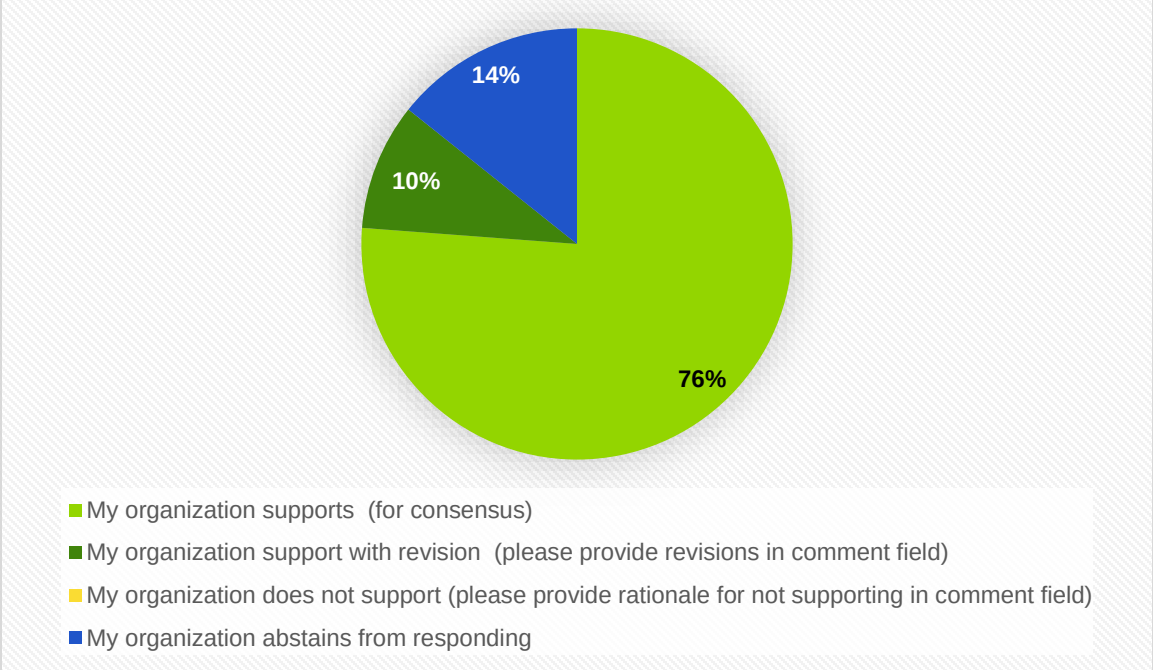
DUKE ENERGY®

Public Staff
North Carolina Utilities Commission

Table of LIAC Proposals

Proposal 01 – Closing the EE Spending and Savings Gap

Assessment Results



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Crisis Assistance Ministry
- Dominion
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Duke Energy
- Public Staff of the North Carolina Utilities Commission

Does not Support:

- None

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment

"The reasons for the gap in spending should be studied and understood. There are historical differences between DEC and DEP. For instance, DEP has more Tier 1 counties compared to DEC. Additionally, pre-merger, DEP and DEC each had its own portfolio of DSM/EE programs, and there were many differences between the two portfolios. Over time post-merger, many of the programs of the two companies have been modified to be identical; however, these historical differences may account for the gap to some extent. Once the differences are understood then DEP may better target customers of need and mindfully deploy EE programs based on actual identified customer groups. The following general note should be considered included in Public Staff responses to all proposals.

The Public Staff has reviewed each of these proposals in isolation without any projections of costs, benefits, cost-effectiveness, participation, etc. Only with this and other pertinent information could the Public Staff make a final determination as to whether it supports or does not support a proposal. The Public Staff would also have to consider the cost and rate impact of all programs or proposals to be implemented at the same time before making a final determination as to its position. This statement applies to each proposal." **– Public Staff of the North Carolina Utilities Commission**

"Duke Energy strives to offer programs that reasonably similar between the jurisdictions and apply learnings before expanding programs to the other jurisdiction, which is why it is filing the DEP Weatherization Program with the NCUC the week on June 7th. The addition of the Weatherization Program in DEP will immediately increase the DE Program spend and reduce the current gap in spending. However, the jurisdictional make-up of the DEC and DEP territories is different, so it's unlikely that the low-income program spend, and energy saving will be consistently proportionate. Fundamentally, qualified customers will be the key to driving program demand and participation for each jurisdiction. Customer engagement levels difficult to predict and often changes over time as the marketplace conditions change. Duke Energy will make reasonable efforts to engage, educate and encourage participation low-income energy efficiency programs for eligible customers in both jurisdictions.

The weatherization programs are dependent upon the agencies working in each territory. State and federal determine the foundational funding provided for each agency to and perform

weatherization services for their assigned area of responsibility. The amount of funding provided is determined by the low-income need for each agency and the past performance in providing services for eligible applicants. The amount of funding provided to each agency or non-profit entity can vary substantially at the individual and aggregate level, so not always an apple to apples comparison.

In addition, the city v. rural make up of the DEC v. DEP territories is quite different and can impact the low-income opportunity for Duke Energy served customers and how applicants are prioritized for low-income services by the local agencies. Other influencing factors include, but are not limited to:

- *The age, type and condition of the housing stock occupied by income qualified customers*
- *Health and Safety issues are customer specific which vary widely by the number and cost of improvements required to serve weatherization applicants*
- *Prioritization of applicants is conducted by the agencies using a specific scoring protocol required by the governmental funding sources*
- *Willingness and capability of each agency to incorporate Duke Energy incentives into the program funding structure*
- *Waitlist of applicants can impact which customers can be served, when they can be served and if they are served at all*
- *Not all customer deemed to be income qualified want or need to participate in the programs, so a straight-line correlation to participation may not be accurate*

It is Duke Energy's intention and aspiration to serve as many qualified customers as possible through low-income energy efficiency programs, but a singular territory comparison of program spending and energy savings rarely tells the whole story of how well customers in need are being helped." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Closing the income-qualified energy efficiency program spending and savings gap between DEP and DEC

Program Description: Proportionately, Duke Energy Carolinas has historically spent and delivered more efficiency savings than Duke Energy Progress. This recommendation is for DEP to increase its spending and savings to close this gap.

Program Objective: Increase the level of DEP low-income customer participation and energy / bill savings.

Target Participants: Customers who meet the income-qualified criteria for Duke's low-income energy efficiency programs.

Program Administration: DEP

Eligibility Criteria: Customers who meet the income-qualified criteria for Duke's low-income energy efficiency programs.

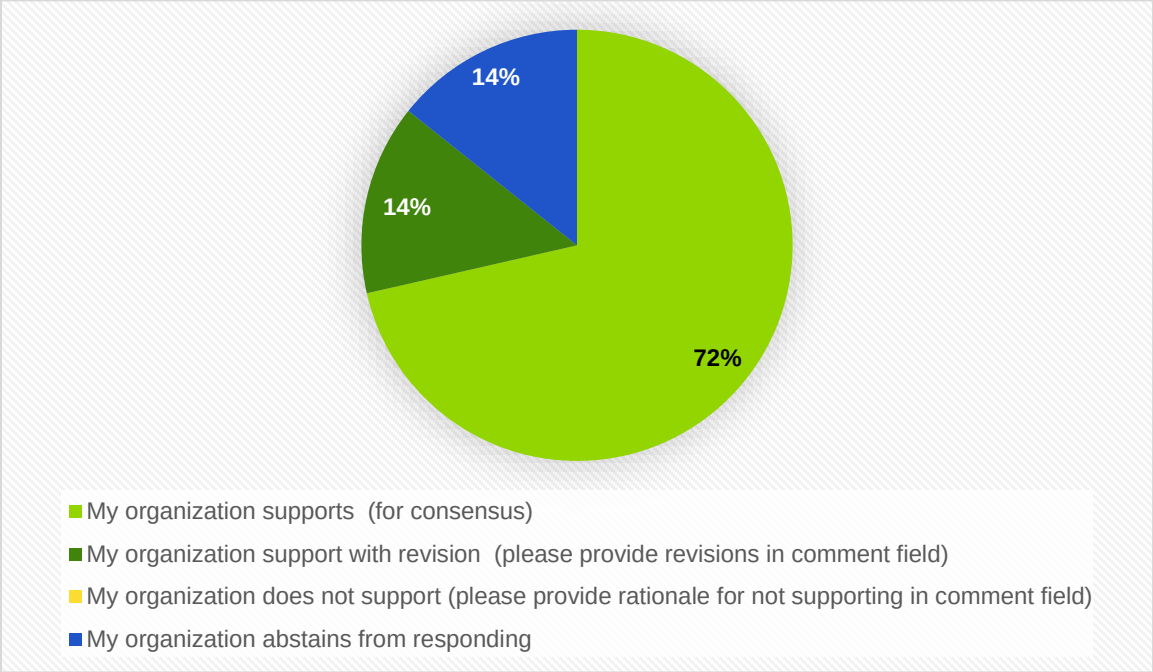
Success Metrics: Increase the level of DEP low-income customer participation and energy / bill savings.

Program Partners: N/A

Additional Information: For more information contact Forest Bradley-Wright (504) 208-7597 forest@cleanenergy.org

Proposal 02 – DEP Income Qualified Weatherization

Assessment Results



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- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- AARP

- Duke Energy
- Public Staff of the North Carolina Utilities Commission

Does not Support:

- None

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment:

"AARP looks forward to learning more about the specific ways in which this program would lower the cost barrier to energy efficiency retrofits in low-income households, and information about the cost and savings for low-income households that participate in this and other energy efficiency programs. AARP supports cost-effective measures to promote clean energy that yield affordable energy, AARP supports energy efficiency and weatherization programs including for low income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program." – **AARP**

"Only non-ratepayer funds should be utilized for health and safety work." - **Public Staff of the North Carolina Utilities Commission**

"The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks." – **Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Duke Energy Progress Income Qualified Weatherization Program

Program Description: Modeled off of the Duke Energy Carolinas program of the same name, the DEP IQ Wx program will incorporate the ability for Duke to fund the entire project cost for EE improvements with flexibility for in per-home spending levels (up to $10,000) comparable to the 2019 Durham Pilot. Total program spending levels will at least match those on a per residential customer basis as the DEC program.

Program Objective: Deep energy efficiency retrofits to low-income households.

Target Participants: Customers who meet the LIAC definition of low-income including, but not limited to, customers served by Weatherization Assistance Program administrators.

Program Administration: Duke Energy Progress

Eligibility Criteria: Customers who meet the LIAC definition of low-income including, but not limited to, customers served by Weatherization Assistance Program administrators.

Proposal 02 - DEP Income Qualified Weatherization

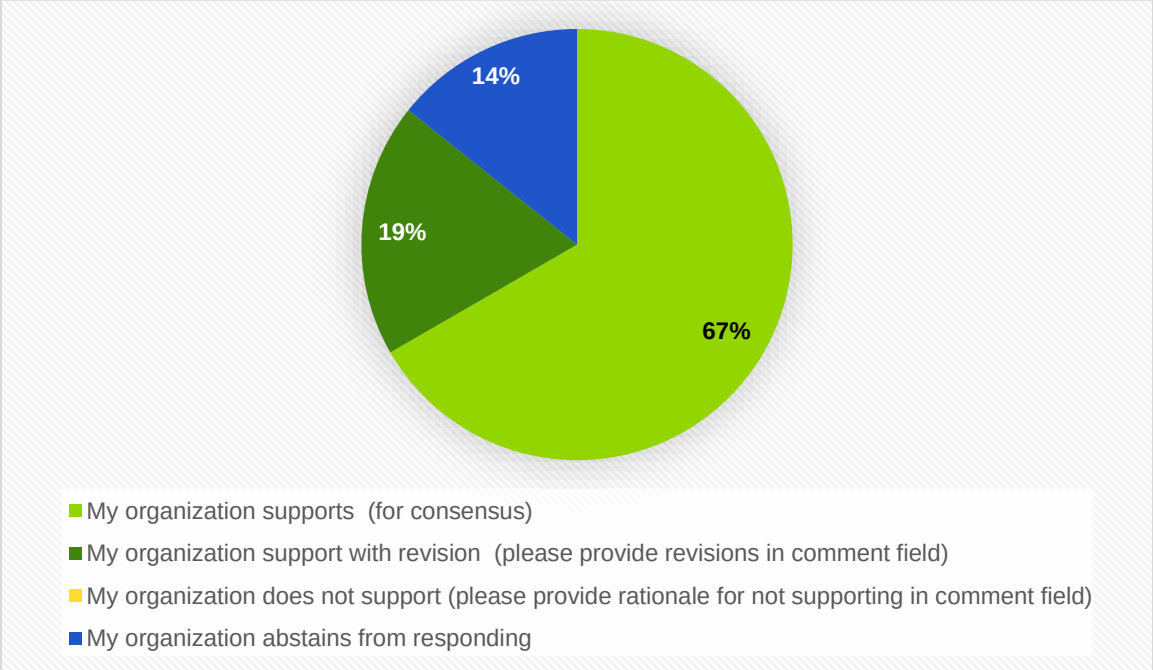
Success Metrics: Number of low-income households served, and depth of energy / bill savings for participating customers.

Program Partners: WAP program implementers

Additional Information: For more information contact Forest Bradley-Wright (504) 208-7597 forest@cleanenergy.org

Proposal 03 – Income Qualified High Energy Use

Assessment Results:



Breakdown of Results:

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- Vote Solar

Supports with Revision:

- AARP
- Duke Energy
- Public Staff of the North Carolina Utilities Commission
- Rowan Helping Ministries

Does not Support:

- None

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment:

"AARP supports energy efficiency programs including for low income customers. We urge that DOE and Federal infrastructure funds be used first to fund such a program. We think a pilot program might also be a good idea." **– AARP**

"The system impact is greatest by targeting high electric energy consumption customers. Only non-ratepayer funds should be utilized for health and safety work. If ratepayer funds are used for the energy-related portions of the program, any savings claimed by Duke must go through the EM&V process." **– Public Staff of the North Carolina Utilities Commission**

"Must include a component for customer education for maintenance of equipment and practical ideas to reduce energy consumption." **– Rowan Helping Ministries**

"In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via this pilot and the resulting research could prove valuable." - **Nicholas Institute**

"The Companies support an income qualified high electric use pilot program with plans to file it for NCUC approval in the near future." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Income Qualified High Energy Use

Program Description: This program provides deep energy retrofits at no cost to low-income customers with high energy use. The program will develop processes to incorporate additional funding for health and safety repairs from non-ratepayer sources to serve previously ineligible customers.

The program would be based on a proposed pilot program developed by advocates and Duke Energy out of a 2021 rate case settlement agreement and will likely be filed at the NCUC in early Summer 2022. The pilot will serve 1,000 customers in two selected test regions.

The proposed pilot is a first step to developing a full program that addresses the systemic and persistent need of high energy use low-income customers.

Measures included:

- HVAC Replacement
- Comprehensive Air Sealing
- Insulation (Attic and Belly)
- Duct Sealing
- Heat Pump Water Heater
- Refrigerator Replacement with ENERGY STAR model
- Tier 1 Base Load Package (LED bulbs and electric hot water measures)

Research questions of the pilot are:

- Does pairing H&S with EE result in significant savings for LI customers?
- Can work be accomplished in a reasonably cost effective to achieve a 0.5 UCT?
- Are current deemed savings estimates accurate for this segment of high energy using LI customers?
- Does this program result in lower arrearage rates and less energy insecurity for participants?
- Does sufficient 3rdparty funding exist to make this pilot a sustainable program?
- Does this design hold potential for reducing winter peak or for encouraging enrollment in DR?

Program Objective: The objective of the program is to deliver deep energy savings to low-income customers with high energy use. The top 50% of energy users consume at least 17,800 kwh annually.

The findings from the LIAC subgroup A show low-income customers receiving CIP or LIHEAP assistance have on average much higher energy use, and higher energy intensity compared to other customer groups. This high energy use is persistent across all demographics studied including housing type, housing location, arrearage status, heating source, race.

These high energy use customers are often not eligible for existing weatherization services, and thus cannot lower their energy use, because their home is in some state of disrepair. Currently as many as 40% of homes are turned away from state-administered weatherization programs for health and safety reasons. The objective of this program is for Duke Energy to serve an important role identifying and coordinating available health and safety funds from around the state with whole home energy efficiency projects. The data shows high energy use is an enduring trend and if we are to address energy affordability, programs must find a way to incorporate health and safety funds.

Target Participants: Low-income single-family customers not served by Weatherization Assistance Program

Program Administration: Duke Energy with a 3rd party program administrator

Eligibility Criteria:

- At or below 200% of Federal Poverty Level
- Enrollment in LIHEAP or similar state/federal
- Top 50% of energy users (minimum 17,800 kwh annually)
- Homeowners and renters

Success Metrics:

- As found energy savings for the customer
- Winter peak reduction
- Cost effectiveness rating – UTC
- Level of 3rd party H&S funding
- Arrearage rates as compared to non-program participants

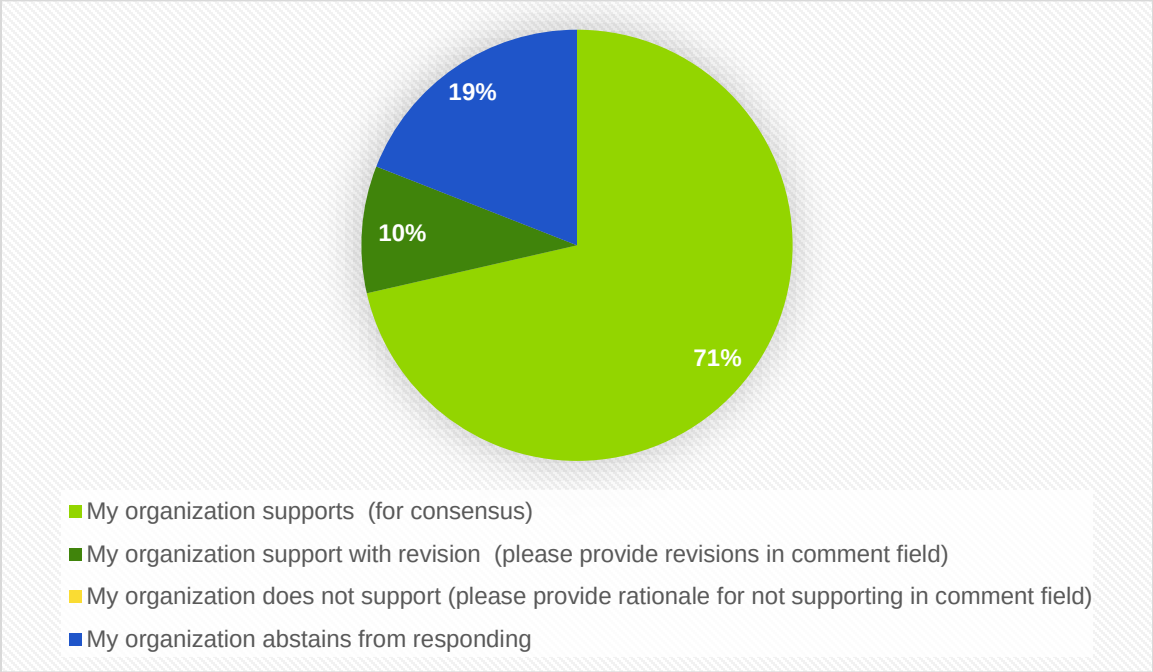
Program Partners: Local governments with home repair funding

Additional Information: The pilot will be administered by Duke and build on Duke's Income-Qualified Weatherization pilot in Durham. The Durham pilot used a combination of Helping Home Fund and ratepayer dollars to targeted high-energy low-income customers for retrofits. The Durham Pilot lacked rigorous EM&V to adequately determine cost effectiveness for a full-scale program.

For more information contact Claire Williamson (919) 619-0315 claire@ncjustice.org

Proposal 04 – Residential ER and HHP Water Heater Rental

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Crisis Assistance Ministry
- Dominion
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Duke Energy

- Public Staff of the North Carolina Utilities Commission

Does not Support:

- None

Abstains:

- AARP
- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment:

"A waiver of the Commission disconnect rules may be needed to avoid disconnect based on non-payment of non-electric charges. The Public Staff has historically opposed disconnection for non-electric charges. More detail about the rental contracts needs to be provided before it can be determined whether it is appropriate to implement this program through a rental program. It may be more appropriate to implement this measure in a traditional EE program where the customer purchased, owned, and maintained the equipment and then qualified for a credit/discount similar to the Smart Saver program." **- Public Staff of the North Carolina Utilities Commission**

*"The Companies are committed to evaluating a customer owned program offered via an on-tariff financing offer***." – Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Residential Electric Resistance Tank Water Heater (ER) and Hybrid Heat Pump Hybrid Water Heater (HHPWH) Rental Program

Program Description: The Residential Electric Resistance Tank Water Heater (ER) and Hybrid Heat Pump Water Heater (HHPWH) Rental Program is operated by Duke Energy DEP and DEC (Hereinafter Duke) as a service to residential rate payers.

The program will market water heater replacement services to all residential ratepayers. The service will have the following characteristics:

1) Duke will bulk purchase ER and HHPWH units to help lower rental costs to end uses.
2) Duke will incorporate any available rebate program benefits into the service
3) Due to the significant energy savings of HHPWHs, Duke will prioritize, HHPWH where conditions of the installation location allow (i.e.: ambient air requirements, space constraints, wiring, plumbing, and condensation requirements).
4) The service will include qualified plumbers that will identify best options for end users, install units, and service units as needed.

5) All units will be DR ready CTA-2045-A compliant and have built in WI-FI components.
6) Duke must develop a comprehensive approach to capturing the load management opportunities provided by HHPWH through a DSM program to utilize all installed units for maximum DSM benefits including thermal storage and time of use dynamics. As appropriate, customer rental costs should be reduced to reflect the DSM benefits. Units should be installed with thermal mixing valves included so that residential users do not experience unreasonable lack of hot water.
7) All participants must allow Duke to utilize thermal storage, time of use, and other DSM characteristics of units.
8) Rental payments will be structured to not exceed the expected lifetime of the units
9) Rental payment amounts will be determined on the basis of installation costs, unit costs, expected average service and maintenance costs, less any applicable DSM rebates used to "buy-down" the rental costs, especially for income-eligible customers. Additional benefits to bring down rental costs should be considered as part of the program for qualified Low-income customers.
10) Service would include installation of pipe insulation, and low-water shower heads and faucets.

*Note that this program could also be structured as part of a Tariff-On-Bill (TOB) program.

Program Objective:

1) Overcome cost barriers to obtaining the most efficient ER and HHPWH units.
2) Maximize EE benefits to the residential customer and to Duke.
3) Maximize DSM benefits including thermal storage to the residential customer and to Duke.
4) Lower residential energy bills through EE and DSM utilization of units.
5) Lower grid impacts through EE and DSM utilization of units

Target Participants: All residential customers would be encouraged to use the service, however, special program designs to help low-income customers utilize the service can be considered. Through large scale adoption, the benefits of bulk purchase, EE, and DSM can be fully leveraged.

Program Administration: Duke Energy with 3rd party administer.

Eligibility Criteria: Aggressively market program benefits for replacement of inefficient existing units and for replacement when existing units fail. Use SMART meter technology and other data screens to target residential users with likely inefficient high intensity water heater units.

Success Metrics: Track energy savings, reduction in electric bills, DSM savings, and water consumption savings.

Program Partners: Partner with ER and HHPWH manufactures and plumbing companies.

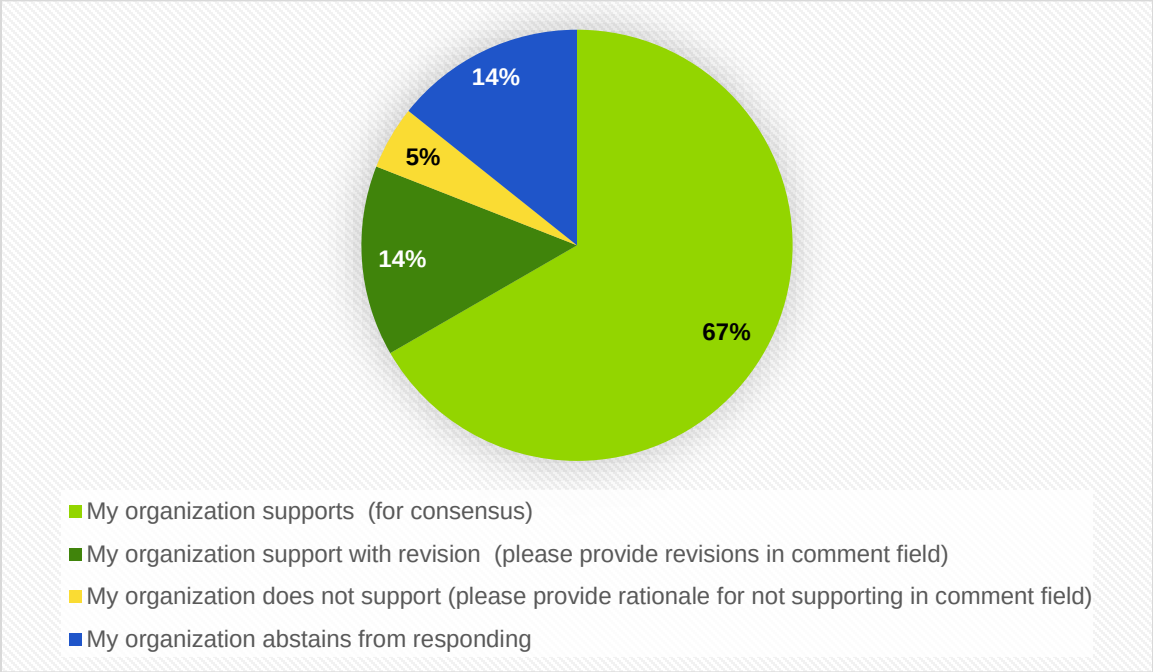
Additional Information:

A similar program has been successfully run by Energy NB Power for many years: https://www.nbpower.com/en/products-services/water-heaters

For more information contact Al Ripley (919) 274-8245 al@ncjustice.org

Proposal 05 – Manuf. Homes EE Retrofit and Replacement

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Crisis Assistance Ministry
- Dominion
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- AARP
- Duke Energy

- Public Staff of the North Carolina Utilities Commission

Does not Support:

- Rowan Helping Ministries

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)

Comments from Assessment:

"AARP in general supports energy efficiency programs including for low income customers. We would appreciate more information on this program." **– AARP**

"It is not appropriate to use of ratepayer funds for replacement of manufactured homes. The program should implement only cost-effective EE measures for low-income customers living in manufactured homes similar to other EE programs." **- Public Staff of the North Carolina Utilities Commission**

"The findings of the statistical analysis support a focus on mobile homes regardless of the tenure of the account holder (owner or renter)." **- Nicholas Institute**

"This seems beyond the scope of the Duke Energies corporate responsibilities. Great idea for another organization to administer." **– Rowan Helping Ministries**

"Yes, the Companies are committed to evaluating this proposal although it may be cost prohibitive." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Manufactured Homes Energy Efficiency Retrofit and Replacement Program

Program Description: Manufactured homes on average use substantially more energy per square foot than other housing types, while residents frequently lack the financial resources to address problems of energy waste. This program aims to overcome barriers to affordability and dramatically increase the efficiency of Duke's manufactured homes through improvements to existing manufactured homes, replacement of the most outdated units, and increasing the overall efficiency performance of new manufactured homes.

Program Objective: Reducing high energy bills, lowering energy burden, and improving health and comfort for residents of manufactured homes.

Target Participants: Manufactured home residents and prospective manufactured home purchasers, with a priority on serving customers that meet LIAC-established low-income and energy burden criteria.

Program Administration: Duke Energy Carolinas and Duke Energy Progress would administer these programs (through a third party implementer), enroll participants, validate eligibility, and track progress by contracting regular EM&V, comparable to other energy efficiency programs.

Eligibility Criteria: The program could be targeted only to customers who meet the low-income eligibility criteria established by the LIAC, or such customers could receive a higher level of financial support (e.g., free retrofits and larger discounts for home purchases) than customers non-income qualified customers.

Success Metrics:

a) Number of customers receiving retrofits, b) participant energy / bill savings, c) number of customers acquiring high efficiency units, d) broad-based market transformation for manufactured home sales.

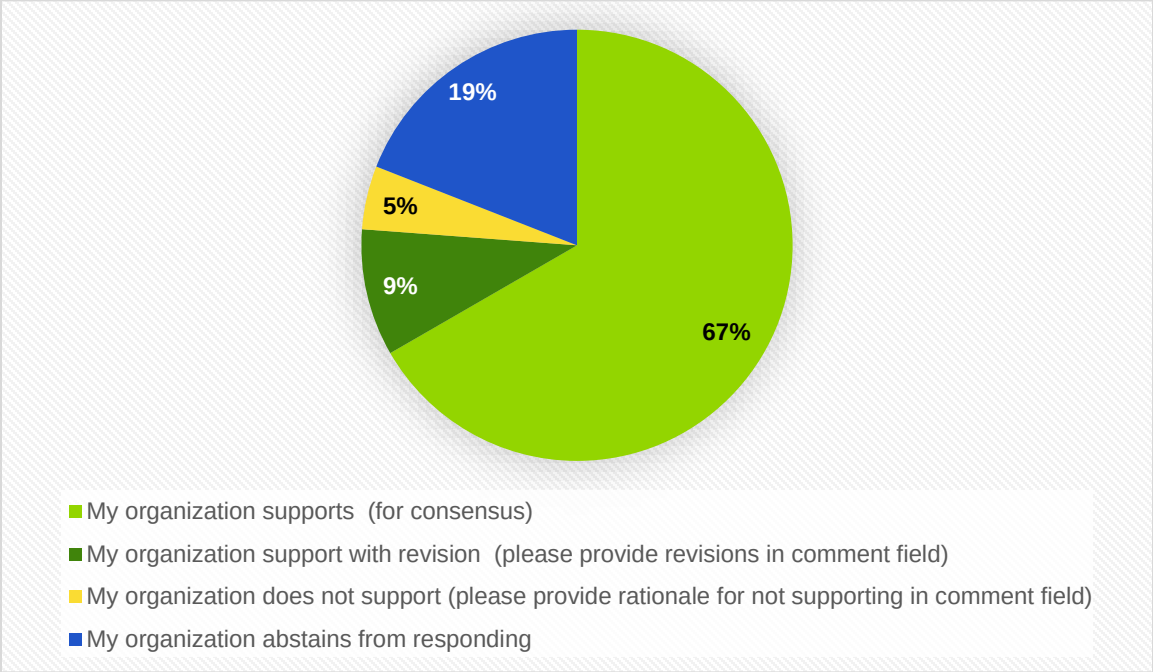
Program Partners: Manufactured home manufacturers and dealerships (to ensure supply availability).

Additional Information: Comparable programs have been successfully implemented in Arkansas, Oregon, TVA, and Vermont. These program concepts have been proposed to Duke through the Energy Efficiency Collaborative and preliminary analysis has been conducted.

For more information contact: Forest Bradley-Wright (504) 208-7597 forest@cleanenergy.org

Proposal 06 – Arrearage Management pilot EE

Assessment Results:



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Public Staff of the North Carolina Utilities Commission
- Rowan Helping Ministries

Does not Support:

- Duke Energy

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment:

"It is generally not appropriate to use ratepayer funds for arrearage forgiveness; however non-ratepayer funds could be utilized for arrearage forgiveness. It may be appropriate to use ratepayer funding for arrearage forgiveness to the extent that it is revenue neutral. Duke should analyze the impact to uncollectables and assess the actual administrative costs and late fees. This delta could flow back to offset arrearages/uncollectables. Such an offset would be appropriate for consideration in the next rate case. It is inappropriate for a utility to profit based on ratepayers' inability to pay their bills. Prior to arrearage forgiveness, all other sources of funding should be sought and utilized. Arrearage metrics should be tracked to ensure that no perverse incentive to stop paying bills has been created. Access to arrearage forgiveness should limited (1-5 years)." **- Public Staff of the North Carolina Utilities Commission**

"We are seeing first hand payment arrangements - post moratorium - are not working for our clients. Our clients are making payment arrangements without the ability to pay. Arrangements need to be made soon after an arrearage occurs and payment needs to fit the financial capacity of the customer." **– Rowan Helping Ministries**

"The findings of the statistical analysis how that those with higher than the national average electric burdens were statistically significantly more likely to be in arrears and more likely to be disconnected over time." **- Nicholas Institute**

"The Companies are opening to evaluating an arrears management program in the CAP proposal that is not specific to energy efficiency program participation." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Arrearage Management pilot EE program

Program Description: This program would be intended to link energy burden, energy inefficiency, and arrearage management in a unified, encompassing program offering. Households with limited incomes typically face much higher energy burdens that the general population, and as such may be at much higher risk of not being able to pay utility bills on time – especially when they are higher than they could be due to inefficient structures, HVAC equipment, and appliances. The program assumes that most households that fall behind in

paying their bills would pay them if they could. Therefore, to make paying those bills more manageable this program would identify households that have fallen behind in their bills and offer a three-part program that includes the following: 1) installation of energy efficiency measures to reduce forward-going bills, preferably through a comprehensive weatherization approach; 2) a payment plan for affordably repaying a portion of the arrearage, and; 3) if the household adheres to the payment plan, forgiveness of the remaining unpaid arrearage. The program revolves around the creation of a relationship between the utility and participating households that is less focused on collections than on working together to identify a plan to reduce the likelihood of future arrearages.

Program Objective: Working with energy-burdened households to change the cycle of recurring hardship in paying utility bills, which creates hardship for both affected household and the utility and its general customers.

Target Participants: Households who are in arrears, especially when it can be determined that bills could be reduced through energy efficiency.

Program Administration: Given its key role in coordinating repayment plans this should be administered by the utility.

Eligibility Criteria: This would be available to households meeting eligibility requirements for the utility's income-eligible energy efficiency programs who are in arrears.

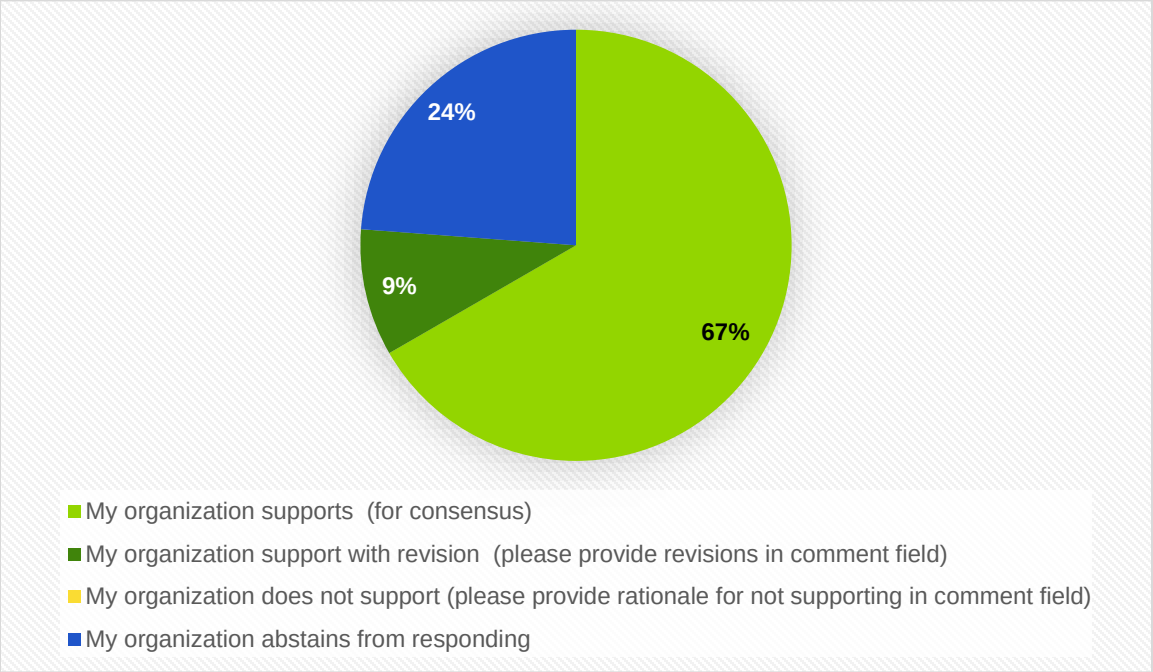
Success Metrics: This program would track the magnitude of utility bills, success in adhering to payment plans, success in achieving arrearage forgiveness, ability of households to stay current with bills after participation.

Program Partners: Community-based agencies and organizations that support low-income households.

Additional Information: For more information contact Al Ripley (919) 274-8245 al@ncjustice.org

Proposal 07 – Low Income Carve-out from Market EE

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Duke Energy
- Public Staff of the North Carolina Utilities Commission

Does not Support:

- None

Abstains:

- AARP
- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment:

"A market study is necessary before this proposal should move forward. The participant incentive should not exceed 25% of the cost of measure." - **Public Staff of the North Carolina Utilities Commission**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: LI Carve-out from Market EE programs

Program Description: The extent to which income eligible customers may participate in programs designed for the general public is a topic of discussion in many jurisdictions. It is likely true that income-eligible utility customers participate to some degree in these programs, however this raises important questions about whether those programs serve these customers well, given that in many cases the participant is required to share in the costs of the measure, which may place additional financial burdens on the household. To ensure this would not be the case, residential general market programs can be designed with enhanced incentives for income-eligible customers. For example, a program that promotes heat pump water heaters to the general residential customer base could also offer an enhanced incentive for income-eligible customers that would significantly reduce the out-of-pocket costs of the water heater to a level that research showed could be viable for these customers. In such a program it would be critical for program marketing and information to clearly identify this enhanced incentive option to ensure that income-eligible customers do not end up paying more than is necessary. See, e.g., https://www.efficiencyvermont.com/rebates/list/heat-pump-water-heaters.

Program Objective: The program would be intended to make energy efficiency accessible to income-eligible households who would otherwise not be able to afford EE measures. Such a program would be additive to, rather than in lieu of any primary income-eligible programs such as comprehensive weatherization and should include a referral to those programs as a matter of course.

Target Participants: All income-eligible customers who might need to make a purchase to replace failed equipment and who might either not be in the queue for comprehensive services or whose need is more immediate

Program Administration: As an enhanced element of the utility's general market programs this should be administered by the same entities that already administer those programs.

Eligibility Criteria: Given the objective of using participation in enhanced general market programs as a tool to enroll income-eligible customers in comprehensive income-eligible programs, the income eligibility criteria should be the same as for the existing income-eligible comprehensive programs.

Success Metrics: Increase in number of income-eligible customers getting enhanced incentives and referrals to comprehensive programs over time, reduction in number of income-eligible customers not getting enhanced incentives.

Program Partners: All the trade allies that currently participate in general market programs.

Additional Information: For more information contact Jim Grevatt (802) 373-2488 jgrevatt@energyfuturesgroup.com

~~Proposal 08 - Comprehensive Affordable Multifamily EE~~ (see P23)

~~**Name and Organization**: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)~~

~~**Program Name:** Comprehensive Affordable Multifamily Energy Efficiency program~~

~~**Program Description:** Various regulations commonly drive utility energy efficiency programs aimed towards multifamily housing to take a fragmented approach in providing services. Multifamily tenants who are income-eligible may receive no-cost efficiency measures that are applicable only to their units, such as efficient lighting, but may not be eligible for incentives or measures that are tied to the property owners' utility bills, which are commonly on commercial rates. The incentives available through standard commercial programs may not be sufficient to make efficiency measures affordable – and clearly operating costs play a key role in determining the costs of operating multifamily housing. The result is that comprehensive efficiency projects in affordable multifamily housing are unlikely to occur, thus failing to make a significant dent in the energy costs for these buildings. To overcome these obstacles, this program would provide a one-stop shop approach where a single program point of contact would work with property owners to facilitate comprehensive efficiency projects that address both in-unit (residential) and common area/common system (commercial) efficiency measures. Rather than treating the commercially metered elements of affordable multifamily housing as a business, the program would offer enhanced incentives on the basis of the income-eligible residents, thus helping reduce the operating costs for the building as well as tenants' bills.~~

~~**Program Objective:** Comprehensively address all efficiency opportunities in affordable multifamily housing regardless of metering configurations and utility rate structures.~~

~~**Target Participants:** Affordable multifamily housing~~

~~**Program Administration:** This program could be administered by a third-party vendor, or community action/weatherization agency.~~

~~**Eligibility Criteria:** Eligibility would be based on the income-eligibility of tenants.~~

~~**Success Metrics:** Overall bill reductions for affordable housing including both residential and commercial meters.~~

~~**Program Partners:** State housing authority, non-profit affordable housing providers, tenant organizations, community action/weatherization agencies~~

~~**Additional Information:** For more information contact Jim Grevatt (802) 373-2488 jgrevatt@energyfuturesgroup.com~~

~~Proposal 09 - Comprehensive Tiered Discount Bill Pay Assist~~ (see P24)

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Comprehensive Tiered Discount Bill Payment Assistance

Program Description: The Electric Payment Assistance Program will provide certain income eligible residential customers with monthly payment assistance to help electric energy insecure rate payers pay their electric bill. The program will have the following characteristics:

1) Three income tiers of assistance Tier 1, 0-50% FPL, Tier 2, 51-100% FPL, and Tier 3, 101% - 150% FPL with the highest level of assistance to Tier 1 and lowest level to Tier 3.
2) The goal of assistance will be to reduce the electric energy burden (i.e., the amount of income spent on electricity) to no more than 5% of family income
3) The program would provide arrearage assistance for participating customers. Arrearages would be forgiven if a residential customer remains current for a period of 12 months after enrolling in the program.
4) Admin – no more than 5% of the value of discounts and arrearage write-down could be used for program administration, however, in the first year of the program the 5 % cap would not apply to allow for the appropriate and reasonable recovery of one-time program launch costs.
5) Program would use a streamlined auto enrollment protocol in partnership with NC DHHS to enroll Tier 1-3 income verified customers. Persons qualified for certain income eligible programs within the preceding 18 months would be automatically enrolled. Programs might include CIP, LIEAP, LIWAP and/or Medicaid.
6) Participants would be provided the opportunity to apply for applicable and free EE and Weatherization programs where available.
7) Program participants would also be targeted for weatherization and EE programs.

Program Objective: Reduce electric energy burden to no more than 5% for persons at or below 150% of FPL with three assistance Tiers: Tier 1, 0-50% FPL, Tier 2, 51-100% FPL, and Tier 3, 101% - 150% FPL with the highest level of assistance to Tier 1 and lowest level to Tier 3.

Target Participants: Residential customers at or below 150% FPL that are verified to meet certain Federal program income eligibility requirements.

Program Administration: Duke Energy with 3rd party administer and DHHS support.

Eligibility Criteria: As referenced above.

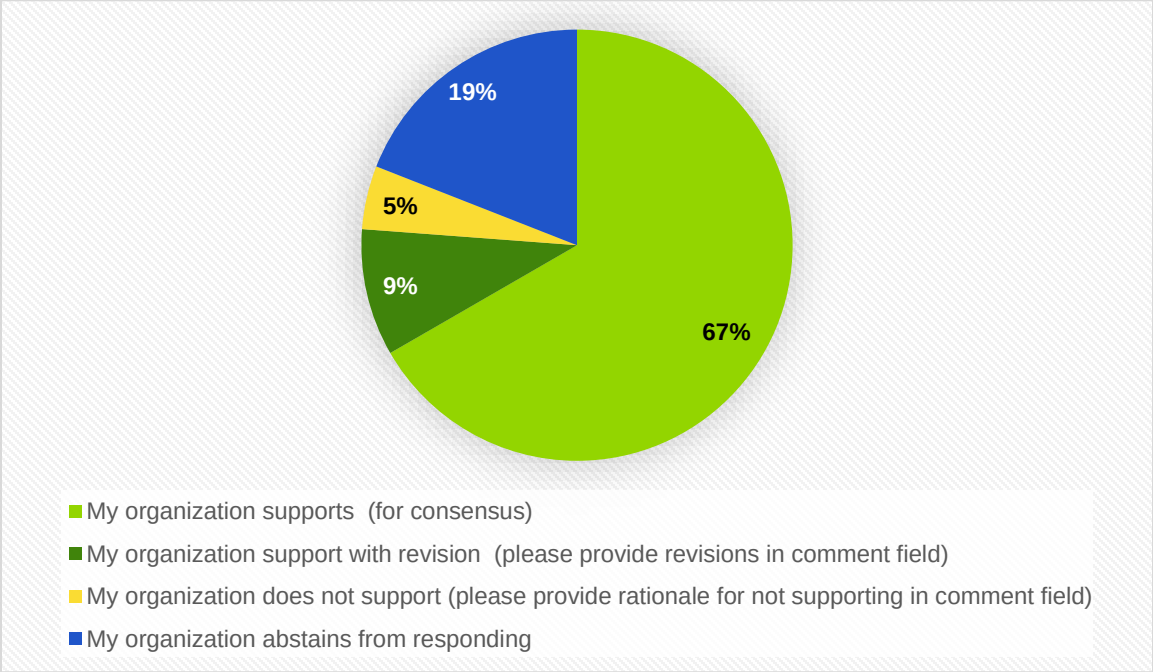
Success Metrics: Metrics for program evaluation would be developed.

Program Partners: DHHS

Additional Information: For more information contact Al Ripley (919) 274-8245 al@ncjustice.org

Proposal 10 - Comprehensive Definition of Affordability and Develop Metrics and Methodologies for Assessing and Monitoring the Relative Affordability of Electric Service

Assessment Results:



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Duke Energy
- North Carolina Community Action Association

Does not Support:

- Public Staff of the North Carolina Utilities Commission

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)
- Rowan Helping Ministries

Comments from Assessment:

"This proposal is not a mitigation program; it seeks to define affordability for purposes of further developing programs to mitigate conditions related to affordability." **- Public Staff of the North Carolina Utilities Commission**

"The statistical analysis included predictors for many but not all of the factors proposed for the definition of affordability in Proposal 10, and generally, all were significant in predicting the likelihood of being in arrears, receiving a 24-hour notice, and disconnections (excepting home value for disconnections). This suggests complex relationships between sociodemographic, home attributes, neighborhood characteristics, and energy usage. Capturing this complexity in reported metrics over time is supported by the findings of the statistical analysis." **– Nicholas Institute**

"The Companies support the North Carolina Utilities Commission opening an affordability docket similar to the process that the California Public Utilities Commission ordered to evaluate affordability for their regulated utilities." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Adopt a Comprehensive Definition of Affordability and Develop Metrics and Methodologies for Assessing and Monitoring the Relative Affordability of Electric Service

Program Description: Until the Low-Income Affordability Collaborative was initiated, and Duke Energy began analyzing customer data related to energy consumption and costs, income, demographics, arrearages, disconnections and other factors, very little information or data was available to understand the scale and depth of affordability challenges facing the Companies' low-income residential customers. Thanks to that analysis we now have a deeper understanding of who is impacted by those challenges as well as the socioeconomic, housing and other factors that are contributing to those challenges. However, it is critical to both have a more comprehensive definition of affordability as well as metrics that can be used to more accurately assess affordability on the household level and track changes in those metrics over time as new

programs are developed and implemented. The proposed program would adopt the California Public Utilities Commission's (CPUC's) definition of affordability along with the three metrics the CPUC adopted for annually measuring and monitoring affordability. The adopted definition is as follows: "the degree to which a representative household is able to pay for an essential utility service charge, given its socioeconomic status. A "representative household," rather than households in general, recognizes that households will have a wide variety of experiences that cannot be perfectly captured by depicting a single household. "Essential utility service charge" refers to the costs borne by a representative household for the quantity of utility service required to enable a ratepayer's health, safety, and full participation in society. "Socioeconomic status" refers to the social and economic standing of a given household." The three metrics the CPUC has adopted are: (1) the Affordability Ratio, which "quantifies the percentage of a representative household's income that would be used to pay for an essential utility service, after non-discretionary expenses such as housing and other essential utility service charges are deducted from the household's income"; (2) the Hours at Minimum Wage, which "quantifies the hours of earned employment at the city minimum wage necessary for a household to pay for essential utility service charges"; and, (3) the Socioeconomic Vulnerability Index, which "represents the relative socioeconomic standing of census tracts, referred to as communities, in terms of poverty, unemployment, educational attainment, linguistic isolation, and percentage of income spent on housing," and as such "considers how a rate change may affect one community's ability to pay more than another's." Maps, data and annual reports should be produced and made public.

Program Objective: Adopting a comprehensive definition of affordability of electric service, along with appropriate metrics for measuring and monitoring changes to affordability over time, will benefit low-income customers by enabling utilities to appropriately target affordability programs to the customers and communities that struggle the most with electric bills, and to assess the impact of those programs in terms of improving the affordability of electric service.

Target Participants: All low-income customers that struggle with affording electric service, and more specifically, the customers and communities that struggle the most (assuming that those customers are prioritized).

Program Administration: This program could be administered by the Companies, with oversight by the NC Utilities Commission and/or Public Staff. Alternatively, it could be administered by a third-party vendor in partnership with the Companies as well as local community action/weatherization agencies and/or Departments of Social Services.

Eligibility Criteria: N/A

Success Metrics: The adoption of the CPUC's definition of affordability and affordability metrics and successful implementation and use of those metrics in reducing/alleviating affordability challenges and associated impacts.

Program Partners: See language about program administration. Additional partners could be low-income and clean energy advocates, housing agencies and advocates, academic research institutions, etc.

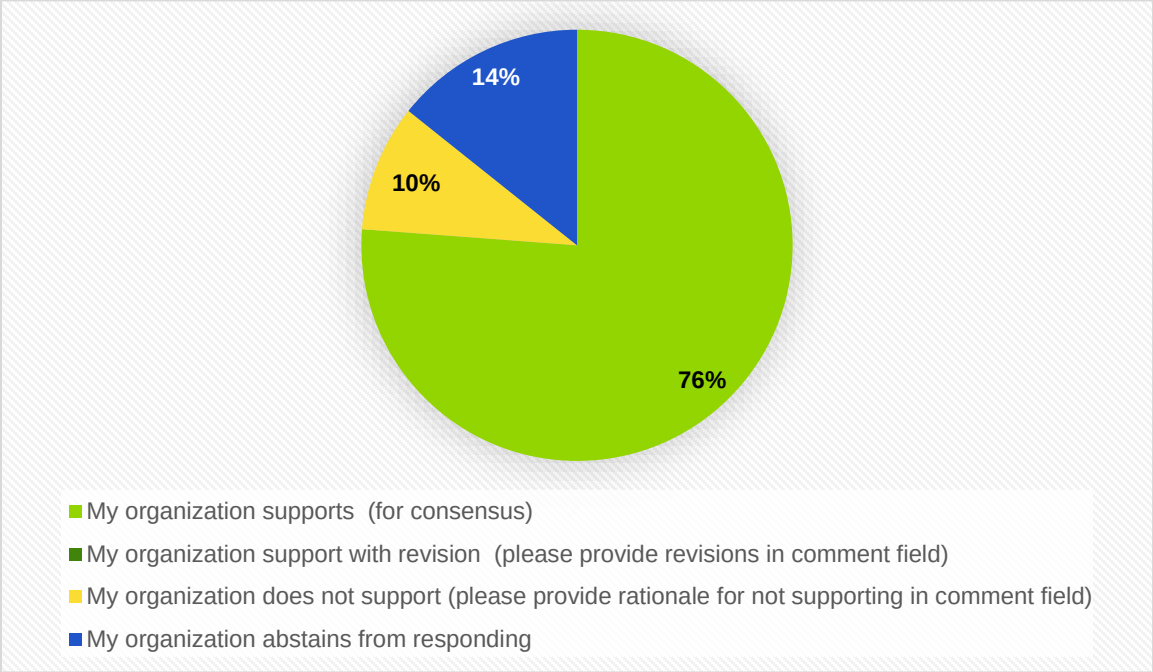
Additional Information: As noted, the CPUC has already adopted the definition and metrics proposed here and requires annual reporting that is made available to the public. No similar program has yet been proposed in North Carolina, with the exception of numerous proposals to

require the Companies to provide monthly, zip-code level reports on customer energy use, arrearages, disconnections for non-pay, etc. We don't foresee any regulatory or policy barriers that would need to be addressed. More information about the CPUC Affordability Rulemaking can be found here: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability

For more information contact Rory McIlmoil (828)278-4558 rory@appvoices.org

Proposal 11 - Prioritized Marketing and Distribution LI Funds

Assessment Results:



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Crisis Assistance Ministry
- Duke Energy
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Community Action Association
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- None

Does not Support:

- Public Staff of the North Carolina Utilities Commission
- Rowan Helping Ministries

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)

Comments from Assessment:

"All low-income customers should be eligible for low-income programs and initiatives. There does not appear to be an EE component tied to the assistance sought in this program." **- Public Staff of the North Carolina Utilities Commission**

"The findings of the statistical analysis provide support for prioritizing outreach to based on sociodemographics and electric burden." **– Nicholas Institute**

"Carving our communities for distribution of funding could negatively more rural communities/households." **– Rowan Helping Ministries**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Prioritized Marketing and Distribution of Low-Income Funds

Program Description: This recommendation could work in combination with or independently of recommendation LIAC PP011. Recognizing that affordability challenges and impacts are experienced more acutely by some households and communities than others, there is a need to ensure that low-income funds and other support are prioritized in a manner that has the greatest impact for those most affected and addresses, to the extent practicable, certain disparities that were exposed as a result of the Companies' analysis. For example, the analytics show that African American households served by the Companies experience the highest rate of meeting the Companies' arrears definition (33% of all households, compared to the average of approximately 16% for all households) as well as the highest rate of disconnections for non-pay (8% compared to 3.9%). Rental, multifamily, mobile home and low-value households experienced similar disparities. In summary, the marketing and distribution of low-income funds and programs should prioritize the customers that experience the highest rate of arrearages and disconnections for non-pay.

Program Objective: Prioritizing and targeting program funds to households and communities that disproportionately experience affordability challenges and impacts.

Target Participants: Low-income households and communities that disproportionately experience affordability challenges and impacts.

Program Administration: This program could be administered by the Companies, with oversight by the NC Utilities Commission and/or Public Staff. Alternatively, it could be administered by a third-party vendor in partnership with the Companies as well as local community action/weatherization agencies and/or Departments of Social Services.

Eligibility Criteria: N/A

Success Metrics: The adoption of the CPUC's definition of affordability and affordability metrics and successful implementation and use of those metrics in reducing/alleviating affordability challenges and associated impacts for priority communities would be helpful for this new recommendation. In the absence of that, ongoing analysis of customer data as was performed for the Low-Income Affordability Collaborative could achieve the same goal.

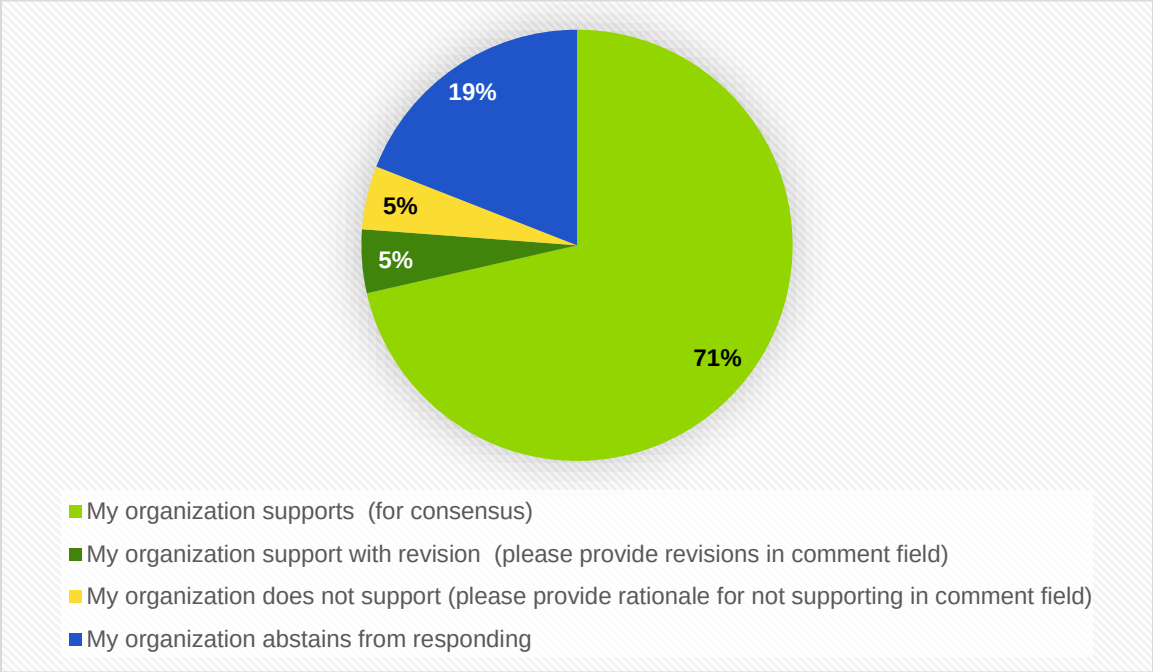
Program Partners: See language about program administration. Additional partners could be low-income and clean energy advocates, housing agencies and advocates, academic research institutions, etc.

Additional Information: We don't foresee any regulatory or policy barriers that would need to be addressed.

For more information contact Rory McIlmoil (828)278-4558 rory@appvoices.org

Proposal 12 - Required Credit and Collections Data Reporting

Assessment Results:



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Duke Energy

Does not Support:

- Public Staff of the North Carolina Utilities Commission

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment:

"These data points could provide meaningful value and may be appropriate as one of the metrics established in the next Duke rate cases." **- Public Staff of the North Carolina Utilities Commission**

"The Companies support the supporting of aggregated data pending it meets the required requirements to keep information confidential. If the NCUC approves the reporting of zip code level data, the requirements should align with a NCUC decision in the pending Rulemaking filed in Docket No. E-100, Sub 161." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Required Reporting of Key Credit and Collections Data by NCUC Regulated Utilities

Program Description: The challenges posed by the Covid-19 crisis have heightened the importance of sustained, affordable access to essential home energy service for all households in NC and across the nation. Yet, there is currently only limited capacity and opportunity in NC to gain a clear, data-driven understanding of the number of households that lose access to home energy services and otherwise struggle with utility affordability and security. Without the data, home energy affordability challenges and their often-dire consequences remain invisible, and the effectiveness of utility credit and collections practices cannot be assessed. Further, development and implementation of effective programs and policies to address access and affordability challenges is thwarted by lack of data. There is a pressing need to step up utility collection and public reporting of data reflecting service disconnections and restorations, as well as other measures of home energy security.

The following "key Data Points" would be required for monthly reporting by zip code:

- Number of customers,
- Dollar amount billed,
- Number of customers charged a late payment fee,
- Dollar value of late fees collected,
- Number of customers with an arrearage balance by vintage

    - 60 – 90 days
    - 90+ days,
- Dollar value of arrearages by vintage
    - 60 – 90 days
    - 90+ days
- Number of disconnection notices sent
- Number of disconnections for nonpayment
- Number of service restorations after disconnection for nonpayment
- Average duration of disconnection
- Dollar value of level of security deposits collected
- Number of security deposits collected,
- Number of new deferred payment agreements entered into
- Average repayment term of new deferred payment agreements
- Successfully completed deferred payment agreements, and
- Average repayment term of payment agreements.

Program Objective: Requiring the sharing of certain aggregated utility data in NC to gain a clear, data-driven understanding of the number of households that lose access to home energy services and otherwise struggle with utility affordability and security will provide a meaningful opportunity to utilize this data to improve programs and services to residential rate payers that are low-income.

Target Participants: Low-income residential customers.

Program Administration: Utility Companies.

Eligibility Criteria: N/A

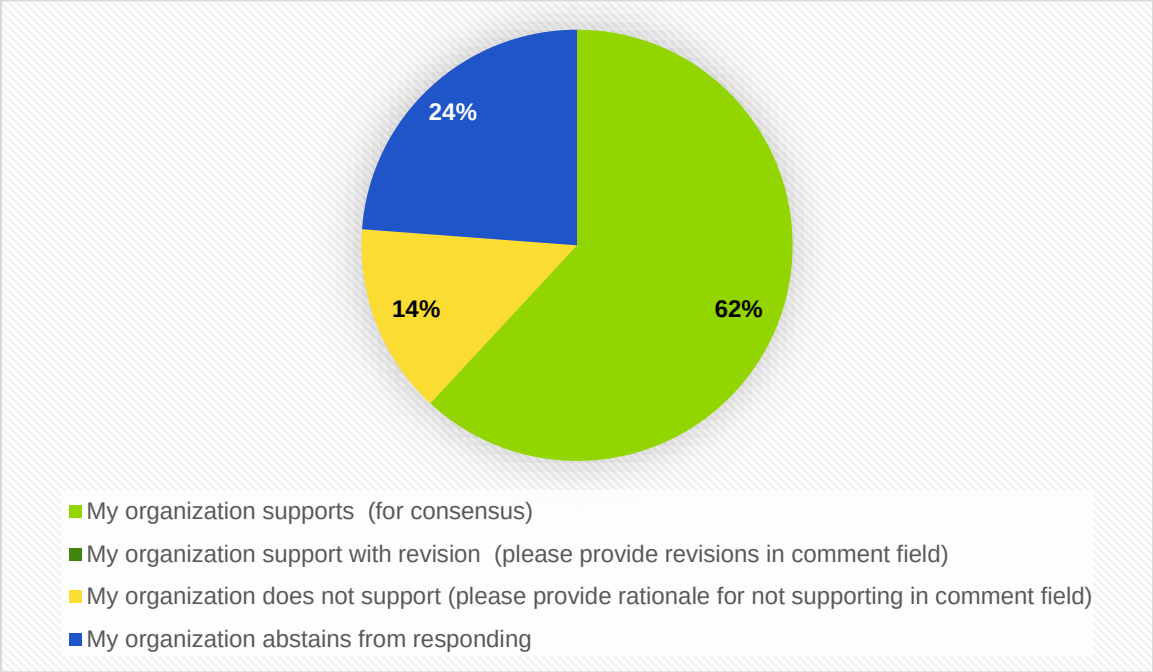
Success Metrics: This proposal would actually help provided clearer metrics for accessing the impacts of all programs intended to assist customers that are low-income.

Program Partners: N/A

Additional Information: For additional information contact Al Ripley (919) 274-8245 al@ncjustice.org

Proposal 13 - Minimum Bill Pilot Program

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- None

Does not Support:

- Dominion
- Duke Energy
- Public Staff of the North Carolina Utilities Commission

Abstains:

- AARP
- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Nicholas Institute (Duke University)
- North Carolina Community Action Association
- Rowan Helping Ministries

Comments from Assessment:

"This program does not follow cost of service principles. Not a mitigation program." **- Public Staff of the North Carolina Utilities Commission**

"Proposal doesn't explain how this program will be funded. Need more information on how the utility is expected to recover costs when usage that exceeds the minimum payment." **– Dominion**

"The statistical analysis findings showed that households with higher winter and summer peak impact were more likely to be in arrears and receive 24-hour notifications. Those households at the highest categories of impact were also more likely to be disconnected." **– Nicholas Institute**

"The Companies do not support the proposed minimum bill pilot. Overall, the Companies support minimum bill as a rate design tool similar to minimum bill rate design offered by Duke Energy regulated utilities in South Carolina and Florida." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Minimum Bill Pilot Program

Program Description: Historically, Duke Energy has had a two-part rate for residential customers: (1) a volumetric, or per kilowatt hour rate; and (2) a fixed, customer charge, currently set to $14.00 per month. As part of its Order establishing the Low-Income Affordability Collaborative, the Commission asked whether a minimum bill concept would be appropriate as a substitute for fixed monthly charges. To explore this minimum bill rate design, Duke Energy will offer customers who enroll in bill payment assistance programs and customers that enroll in any low-income energy efficiency or any tariffed on-bill financing program a minimum bill option. Under the minimum bill option, participating customers would owe a minimum of about $14.00 per month, regardless of usage, and the prior $14.00 customer charge would be removed from the bill and folded into the volumetric rate. This would result in an increase of about 1.27 cents/kWh, increasing the value of any energy efficiency investments and providing bill savings for all customers who use less than about 1,100 kWh/month. Any customers who consume

more than 1,250 kWh/month and may face an increase in their monthly bill but are enrolled in a discount rate or bill-payment assistance program would be protected from being harmed from the risk of bill increases from the incremental increase in the volumetric rate.

Program Objective: Reduce the bills of low-usage, low-income customers, increase the value of all energy efficiency programs for those customers, experiment with the minimum bill approach, while guaranteeing the same monthly minimum bill that the utility expects from the basic customer charge. Gain experience with the minimum bill approach and consider expanding to all residential customers.

Target Participants: Customers who participate in any (1) bill-payment assistance or discount programs; (2) any income-eligible energy efficiency programs; and (3) any future tariffed on-bill programs for financing energy efficiency.

Program Administration: Duke Energy Carolinas and Duke Energy Progress

Eligibility Criteria: Customers who meet the income-qualified criteria for Duke's low-income energy efficiency programs, customers who participate in any bill-payment assistance or discount programs, and customers who participate in on-bill financing programs.

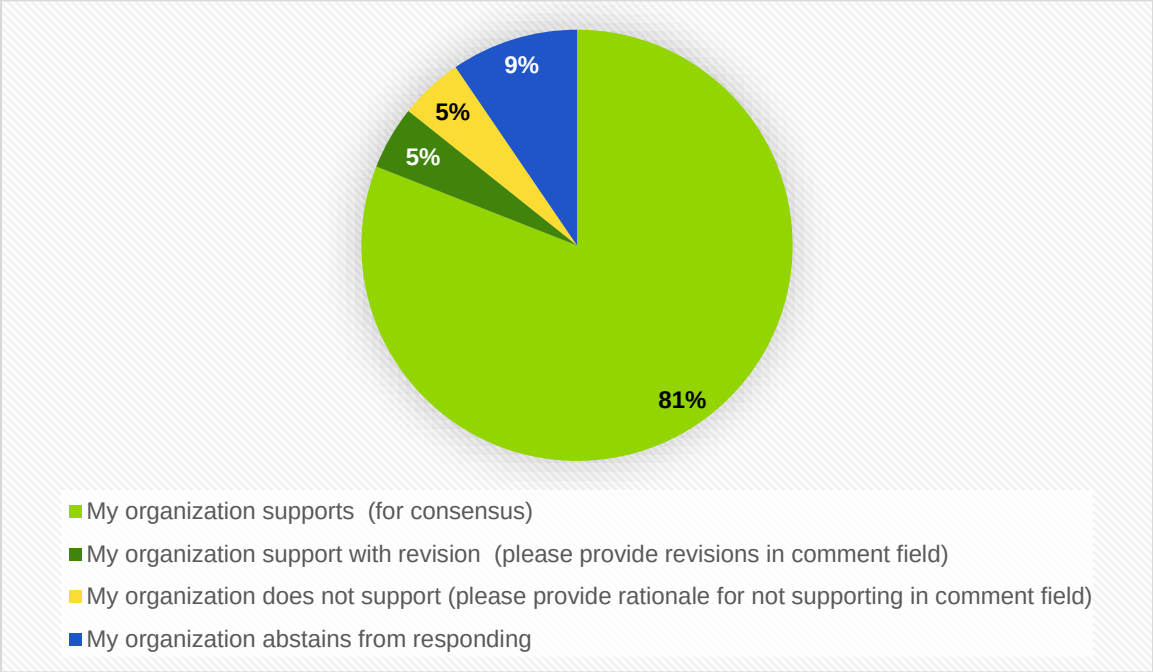
Success Metrics: Increase the level low-income customer participation and energy / bill savings.

Program Partners: N/A

Additional Information: For more information contact David Neal (919) 967-1450 dneal@selcnc.org

Proposal 14 - Voluntary Wx, EE, UR Partnership Forum

Assessment Results:



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Crisis Assistance Ministry
- Dominion
- Duke Energy
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- North Carolina Community Action Association

Does not Support:

- Public Staff of the North Carolina Utilities Commission

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Nicholas Institute (Duke University)

Comments from Assessment:

"This proposal would duplicate initiatives of the State Energy Office and thus is unnecessary." **- Public Staff of the North Carolina Utilities Commission**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Voluntary Weatherization, EE, UR Partnership Forum co-led by NC DEQ and the NCUC

Program Description: This proposal recommends the creation of a voluntary forum where leaders from DEQ, the NCUC, the NC Housing Finance Agency, regulated utilities, and other stakeholders, would periodically meet to coordinate the operation of respective EE, Urgent Repair, and Weatherization programs.

The NC Department of Environmental Quality (DEQ) is responsible for administering the Weatherization Assistance Programs (WAP) in North Carolina. The North Carolina Housing Finance Agency runs an Urgent Repair Program. The NC Utility Commission oversees certain energy efficiency programs in NC and some utilities maintain programs that address certain weatherization and urgent repair / health and safety dynamics for residential ratepayers

The goal of the Forum would be to create new ways that operators of these respective programs could meet the needs of low-income residential customers through better coordination of program design, administration, and implementation.

Program Objective: The goal of the Forum would be to create new ways that operators of these respective programs could meet the needs of low-income residential customers through better coordination of program design, administration, and implementation.

Target Participants: Low-income residential customers.

Program Administration: NC DEQ and NCUC

Eligibility Criteria: N/A

Success Metrics: N/A

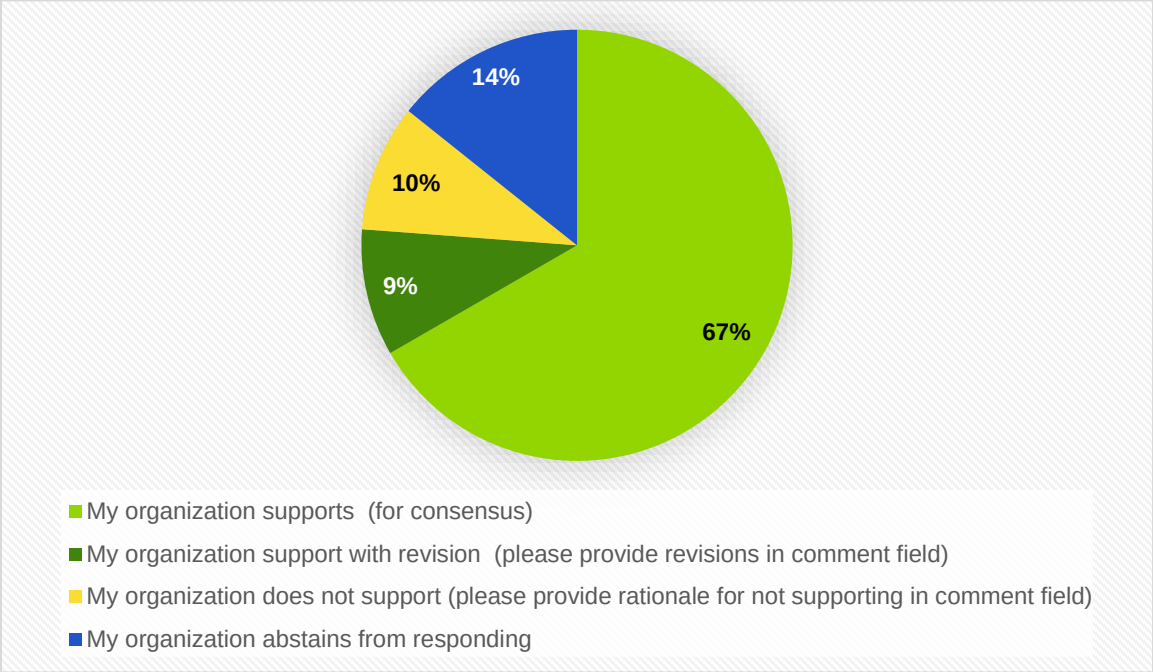
Program Partners: N/A

Proposal 22

Additional Information: For additional information contact Al Ripley (919) 274-8245 al@ncjustice.org

Proposal 15 - Duke Energy Winter Moratorium

Assessment Results:



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Community Action Association
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Duke Energy
- Public Staff of the North Carolina Utilities Commission

Does not Support:

- Crisis Assistance Ministry
- Rowan Helping Ministries

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)

Comments from Assessment:

"Automatically enrolling customers should be done with caution. If a family cannot keep up with their payment, stopping the disconnection automatically doesn't make it any easier for them to afford electricity of course. Alternatives are -- work with the person to pay as much as they can each month to minimize debt build up, encourage them to apply for all the available funds so as not to lose them, help the person realize they can't afford to stay where they are and help them move in with a family member, friend or in some cases a shelter can be their best option (some approaches we consider at Crisis Assistance Ministry.) Each of these could be more empowering than encouraging a person to continue amassing debt, even if there are 24 months to pay it off or inadvertently encouraging them not to seek available winter aid. If we go this route we should send a notice that they will not be disconnected in certain temperatures but clearly stating that not only is the bill accumulating but that there are places to call for housing counseling to explore alternative options (including budget counseling if applicable) or financial assistance." **– Crisis Assistance Ministry**

"This would be best suited as a pilot program, specific – at least initially – to the winter season only. The Commission should consider expanding any potential pilot to all IOUs and LDCs." **- Public Staff of the North Carolina Utilities Commission**

"Our observation is that the COVID moratorium did nothing to help our clients but saddled them with higher bills and payment arrangements they could not manage once the bills came due. It created a debt tsunami." **– Rowan Helping Ministries**

"The Companies support enrolling LIEAP and CIP recipients in a Winter Moratorium that aligns with the timeframe detailed in NCUC Rule 12-11 from November 1 – March 31. LIEAP and CIP recipients would be automatically enrolled in a 6-month payment arrangement at the end of the moratorium. The Companies do not support a summer moratorium or automated referral for arrears greater than $550. The Company will request to seek cost recover of any debts that result to uncollectible charges; similar to the existing process to collect uncollectible charges. The enrollment of LIEAP and CIP in a Winter Moratorium is dependent up receiving the required information from the NCDHHS." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: Revisions to the Duke Energy Winter Moratorium

Program Description: During part of the COVID pandemic, and to the credit of the Utility Commission, the Public Staff, the NC Attorney General, and Duke Energy, what is commonly known as the Duke Energy Winter Moratorium (WM) was expanded to include LIEAP, CIP, and NC Hope recipients. The modified WM covered three of Duke's Companies; Duke DEC, Duke DEP, and Piedmont Natural Gas and covered 114,000 residential accounts.

This proposal would permanently alter the Winter Moratorium by adding the following provisions:

1) Automatically enroll CIP and LIEAP recipients in the moratorium

2) A moratorium against disconnections would be provided to eligible customers provided arrearages remain below $550.

3) An automatic CIP assistance referral would be triggered when arrears reach $550.

4) A 24-month repayment plan for any arrearage balances that remain upon the conclusion of the moratorium with a provision allowing for 2 missed payments per year during the repayment period.

Consider adding a Summer Moratorium with the same provisions for the months of July and August and/or an extreme weather moratorium that prohibits non-pay disconnections and requires temporary reconnections whenever temperature or weather conditions would lead to an undue risk of unsafe conditions.

Program Objective: To protect low-income eligible customers from disconnection during extreme weather conditions.

Target Participants: Low-income residential customers that receive LIEAP and CIP assistance.

Program Administration: Utility Companies.

Eligibility Criteria: N/A

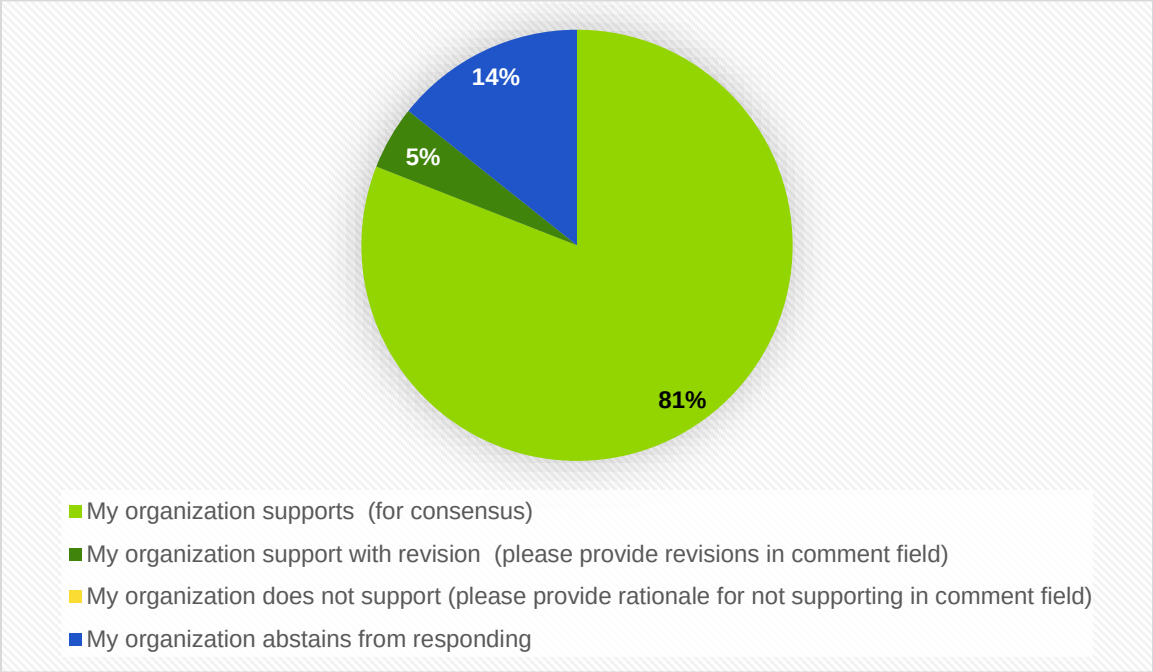
Success Metrics: Reduction in disconnections during moratorium months.

Program Partners: N/A

Additional Information: For additional information contact Al Ripley (919) 274-8245 al@ncjustice.org

Proposal 16 - Re-examine Regulatory Consumer Protection

Assessment Results:



Breakdown of Results:

Supports:

- AARP
- Appalachian Voices
- Crisis Assistance Ministry
- Dominion
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Community Action Association
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Public Staff of the North Carolina Utilities Commission
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- Duke Energy

Does not Support:

- None

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Nicholas Institute (Duke University)
- Rowan Helping Ministries

Comments from Assessment:

"The Companies support the review of the existing regulatory consumer protections detailed in NCUC Rule R12-11. If the output of the review requires technical system changes, the Companies request the required timeframe to update impacted systems which could be 12 months. In addition, the Companies will seek cost recovery of costs associated with required technical system changes and costs incurred as a result of any policy/rule changes." **– Duke Energy**

Program Proposal Information:

Name and Organization: Al Ripley, Multi-Stakeholder Program Proposals (as submitted by NC Justice Center)

Program Name: NCUC Rulemaking to Re-examine the Effectiveness of the Regulatory Consumer Protection Structure

Program Description: In light of the sweeping economic and technological transformation of the electric power sector, and with the prospect of dramatically increased reliance on electricity service in the face of electrification and decarbonization efforts, low-income and historically disadvantaged households and communities are particularly reliant upon effective utility consumer protections. However, many of the existing state consumer protection frameworks are no longer effective in providing consumers with reasonable security from loss of vital service. Today's energy price levels and critical importance of service may not have been contemplated when original regulations were adopted decades ago. As evidenced LIAC assessments of residential customer involuntary service disconnections, existing North Carolina consumer protections have proven inadequate to provide an acceptable level of household energy security and uninterrupted access to vital service. Meantime, the necessity of electricity service is increasing for a wider range of purposes — school, work, building end uses, and transportation. When consumer protections are inadequate and energy security is compromised, the protections for low-income households actually work counter to the goals and objectives of federal and state payment assistance and energy efficiency programs. For example, when a state LIHEAP office scrambles to cobble together the resources necessary to keep a client from losing utility service, those efforts may be undermined by an unreasonable payment plan or onerous security deposit and late payment fee provisions. What is needed now is a re-examination of existing utility consumer protections to ensure that vulnerable customers who

demonstrate good faith efforts to make affordable utility payments are protected from loss or degradation of service.

Program Objective: The purpose of this proposal is to recommend that the North Carolina Utility Commission initiate a Rulemaking proceeding to re-examine existing rules and regulations regarding provision and denial of electric service; provision of consumer information; security deposits; late payment fees; disconnection, termination and restoration of service; establishment and terms of payment plans, and resolution of disputes between customers and utility companies.

Target Participants: The intent of this proposal is to recommend a Rulemaking proceeding focused on consumer protections applicable to residential utility service customers.

Program Administration: N/A

Eligibility Criteria: To be determined by outcome of a prospective Rulemaking.

Success Metrics: Increase the level low-income access to and retention of necessary electric utility service.

Program Partners: N/A

Additional Information: For additional information, including summaries of state utility consumer protections and service delivery rules, see National Consumer Law Center, Access to Utility Service, (6th ed. 2018), Appx. A.1–A.4 updated at www.nclc.org/library.

For more information contact Al Ripley (919) 274-8245 al@ncjustice.org

~~Proposal 17 - Help My House Model~~ (Redirected to Tariff Working Group)

Name and Organization: Christina Cress, Bailey & Dixon, LLP

Program Name: Help My House Model (based on South Carolina program)

Program Description:

“The results of the 'Help My House' pilot [in South Carolina] were extremely positive. Billing data on the 125 participating homes indicates a 34 percent reduction in energy use (1.35 million kWh) in the year after the energy efficiency improvements were completed, an average savings of $288 per home after loan payments."

https://www.eesi.org/files/HelpMyHouseBrochure_June2013.pdf

https://www.eesi.org/files/HelpMyHouseFinalSummaryReport_June2013.pdf

Program Objective: Give LMI ratepayers the opportunity to improve their homes and make them more energy efficient while also reducing their monthly electric bills through low-cost on-bill financing.
https://www.eesi.org/obf/case-study/helpmyhouse

Target Participants: “Rural communities in South Carolina have a relatively high percentage of older, less efficient homes and low-income residents, which for some households means spending more than 70 percent of their income on energy during peak heating and cooling months. In addition to having poor insulation and weatherization, many rural homes still use electric resistance heating, which is notoriously inefficient and costly. These homes represent some of the simplest and most cost-effective opportunities to save energy in the state.”

Program Administration: Utility would proactively solicit program participation from households who meet certain threshold energy usage/burden and income criteria. An audit team comprised of utility and third-party independent administrator would solicit additional information to verify eligibility. The Public Staff would also have audit power. Quarterly reports could be submitted to the NCUC to allow it and the Public Staff (and any intervenors) to track progress. Seek federal grant and/or loan-funding to pay for costs, with any remaining administrative costs recovered over the life of the on-bill financing terms from program participants. Lost revenues would be recovered through EE/DSM rider.

Eligibility Criteria: Electric heat eligibility

Success Metrics: ""The HMH pilot program was conceived and designed to determine the cost-effectiveness of energy efficiency measures and whole home retrofits. The pilot defined cost-effectiveness as annual energy savings exceeding annual loan payments. Measures must be cost-effective in order for an OBF program to be viable. Co-ops are also concerned about the effect of whole house weatherization on system peak. This analysis examines energy savings, demand savings and the value of each of these to the participants and to the co-ops.""

Program Partners: USDOE and other federal/state government agencies, possible NGOs, Public Staff, independent auditor/administrator

Additional Information: Yes, this program was successful in South Carolina. In addition, H951 directs the NCUC to evaluate on-bill financing options for energy efficiency measures, so I think this kind of program is ripe for consideration/potential regulatory approval. If it could be paired with LMI initiatives, all the better.

""The results of the ""Help My House"" pilot were extremely positive. Billing data on the 125 participating homes indicates a 34 percent reduction in energy use (1.35 million kWh) in the year after the energy efficiency improvements were completed, an average savings of $288 per home after loan payments.

The low-interest 10-year loans (which averaged just under $7,700) are on track for a simple payback of 6.6 years, nearly identical to projections made at the time the loans were made. The average participating home is expected to save a net of more than $8,500 over 15 years. The pilot applied a comprehensive ""whole house"" approach, in which all of the energy efficiency measures were evaluated as part of the same system. Participating homes received a combination of air sealing, duct repair, HVAC upgrades, and insulation improvements. More than 95 percent of participants reported that they were more satisfied with their co-op after participating in the pilot.""

~~Proposal 18 - Smart $aver Low Income Multi-Family Retrofit~~ (see P23)

Name and Organization: Christina Cress, Bailey & Dixon, LLP

Program Name: Smart $aver Low Income Multi-Family Retrofit Program (Smart $aver LIMP)

Program Description: Smart $aver LIMP projects would involve efficiency upgrades for buildings with currently high energy consumption, specifically for lighting, appliances, weatherization, heating systems, controls, domestic hot water, and HVAC/mechanical systems. Eligible measures under the LIMRP would be directly installed at no charge to the low-income customer, and would include: (1) comprehensive energy assessment, including customer education; (2) weatherization, including wall, attic, floor, and pipe and duct insulation, as well as air sealing (caulking, weather stripping, door and window hardware, window parting beads and stops); (3) programmable thermostats; (4) blower door analysis; (5) heating system tune-up, repair, and replacement; (6) low-flow showerheads and faucet aerators; (7) minor building repairs, including glass replacement and adjustment of window meeting rails; (8) replacement of inefficient appliances, including refrigerators and clothes washers; (9) installation of compact fluorescent lamps (CFLs) and LEDs; (9) health and safety measures such as wire inspection, ventilation, and the DOE lead-free protocol; and (10) multi-family-building-specific measures, such as common area lighting fixtures, HVAC motors and controls and heating systems.

Program Objective: To provide cost-effective energy efficiency improvements to multi-family buildings, including nonprofit and public housing authorities. For-profit entities are eligible to apply for funds to improve the energy usage of their buildings.

Target Participants: 1-4 unit residential buildings where at least 50% of the units are occupied by low-income residents earning at or below 60% of area median income and are high energy users. For single-family dwellings, 50% of occupants at or below 60% of the state median income level.

Program Administration: The utility would provide the primary administrative and functional roles. Potentially a third-party administrator or contractor could oversee the day-to-day operations, including scheduling, assessing and installing eligible measures in income-eligible customers' homes and buildings. The utility (or an entity acting on its behalf) would also be responsible for leveraging other federal and state funding sources to provide the most comprehensive energy efficiency projects possible. The NCUC would have oversight authority to review multi-family projects and ensure utility compliance with best practices, including ensuring cost-effectiveness and managing overall program costs. The NCUC would also have additional oversight authority through the cost-recovery regulatory mechanism set forth in G.S. 62-133.9

Eligibility Criteria: 1-4 unit residential buildings where at least 50% of the units are occupied by low-income residents earning at or below 60% of area median income and are high energy users. For single-family dwellings, 50% of occupants at or below 60% of the state median income level.

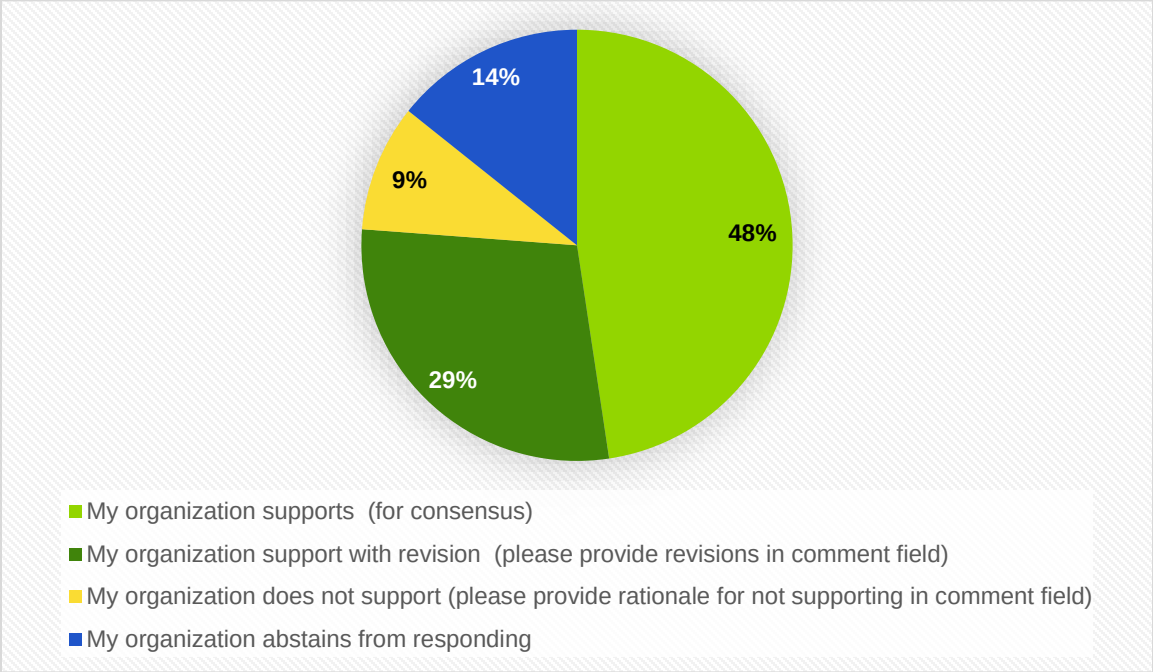
Success Metrics: Net Annual Savings (MWh); Net Lifetime Savings (MWh); # of customers participating; CCE ($ per lifetime kWh); annual peak demand savings (summer/winter kW).

Program Partners: U.S. Department of Energy; U.S. Department of Health and Human Services; North Carolina Department of Health and Human Services; Building Performance Institute (BPI); North American Technician Excellence (NATE)

Additional Information: This program has been successfully implemented in Massachusetts and has received tons of accolades as being an "exemplary" energy efficiency program.

Proposal 19 - NC Healthy Homes Initiative

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Community Action Association
- North Carolina Housing Coalition
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Vote Solar

Supports with Revision:

- AARP
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Public Staff of the North Carolina Utilities Commission
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)

Does not Support:

- Dominion
- Duke Energy

Abstains:

- Nicholas Institute (Duke University)
- North Carolina Dept of Health and Human Services
- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)

Comments from Assessment:

"This is a critically needed program and builds on NCCAA's experience with the BC/BS grant for the Healthy Homes Initiative and the Duke Healthy Home Fund. But it is not clear from the proposal where the funds would come from for this NC HHI. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, healthcare related funds or other government programs could support an initiative like this to improve the health and safety of homes and make them ready for EE upgrades." **– Southern Environmental Law Center (SELC)**

"This program should be funded first with DOE weatherization funds and LIHEAP." **– AARP**

"The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." **- Public Staff of the North Carolina Utilities Commission**

"Scope is focused on healthier home initiative vs removing energy burden via EE initiatives." **– Dominion**

"This is a critically needed program and builds on NCCAA's valuable experience with the BC/BS grant for the Healthy Homes Initiative and the Duke Helping Home Fund. But it is not clear from the proposal where the funds would come from for this NC HHI. Ratepayer funds have historically been limited for energy efficiency related upgrades. Ideally, healthcare funds could be identified to support an initiative like this to improve the health and safety of homes, which would have the added benefit of making them ready for EE upgrades." **– North Carolina Justice Center**

"We support the intent of the program but think there needs to be more discussion about where the funding for this program comes from since that does not seem to have been defined in this proposal." **– North Carolina Sustainable Energy Association**

"We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes, but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources." **– Southern Alliance for Clean Energy (SACE)**

"The Companies do not support this proposal as it doesn't have a specific time to the scope of identifying opportunities to address affordability for low-income customers." **– Duke Energy**

Program Proposal Information:

Name and Organization: Detrick Clark, The North Carolina Community Action Association

Program Name: The NC Healthy Homes Initiative (NC HHI)

Program Description: One of the by-products of weatherization programs is the positive impact on health, as outlined in the CDC's HI-5 (Health Impact Interventions in 5 years). But unfortunately, some repairs are ineligible for NC WAP and DEC WX funding, leaving important health-related concerns untouched.
The NC Healthy Homes Initiative will provide families with home repairs that are crucial to improving their overall health. Considering most Americans spend nearly 60 percent (pre-COVID) of their time in their homes, the condition of their homes has a significant impact on their health and overall quality of life. As a result, the condition of one's home plays a vital role in our health. Poor quality and inadequate housing contribute to health problems such as chronic diseases and injuries and can have harmful effects on childhood development. Unfortunately, many of North Carolina's families cannot afford the repairs and home safety updates necessary to protect their physical and mental health.
The NC HHI will help fill these gaps by providing funding to North Carolina's most underserved communities to make those additional, health-centered, repairs for families to increase overall health outcomes. The NC HHI will lean on the expertise of the NCCAA, and its dedicated weatherization service providers to administer this program. If approved, funds will be allocated to NC WAP service providers and non-profit agencies equipped to provide health and safety services and energy efficiency services. The allocations will be determined using Census data, and the number of low-income utility customers represented in each geographical area.

Program Objective: The overall goal of NC HHI is to equip weatherization service providers with the resources needed to ensure NC's most vulnerable families are provided with home repairs that have the greatest impact on their overall health. Through this program, NCCAA will work with partner agencies to treat hidden dangers in the homes of NC's most vulnerable families. The health and safety measures offered are intended to address repairs and adverse home conditions that are grossly perpetuating the underlying root causes of many illnesses. The implementation of this program will not only improve the comfort and the overall health of low-income families but will also provide energy savings for these households and utility providers.

By implementing this program, the following shall be completed for qualified program participants:

1. Conduct an energy audit to identify energy efficiency opportunities in the customer's home;
2. Conduct a Healthy Home Assessment
3. Replacement of carpet with hard surface flooring (Entire home or select rooms that would most improve the health of homeowners)
4. Deep cleaning of home since the removal of the carpet could stir up dust/dirt
5. Interior pest control
6. Air purification
7. Asbestos

8. Accessibility/fall prevention (Interior)
9. Moisture control (Basement and crawl space sealing)
10. Filter change-out and a pre-determined number of additional replacements
11. Carbon monoxide and smoke detectors (installation and/or a battery change out)
12. Install a comprehensive package of electric conservation measures to increase the home's energy efficiency and lower program participants' energy costs;
13. . Provide one-on-one customer education on energy efficiency techniques and measures; and
14. Educate customers on other applicable energy efficiency programs that are available.

The combined spending on measures installed would be capped at $3,500.
NC HHI Service Provider will assess and perform program services for residents whose household income is at or below 200% of the federal poverty level. Service providers will identify families in need, perform eligible health and safety measures, and post-completion audits to ensure all health and safety measures were properly installed.

A goal of the NC HHI is to create healthier and safer environments for NC families. Service providers will be required to gather information on any family member who may suffer from chronic health conditions. This information will be recorded and tracked. Further, service providers would be asked to record client quotes and testimonials.

NCCAA is proposing four options to participate in the NC Healthy Home Initiative.
State Completed Projects - Submit for NC HHI reimbursements after completion of State Weatherization or Refrigerator Replacement Projects. Service Providers would submit their materials and labor summary report, receipts, and a copy of the State Completed Jobs Report. All service providers would be paid based on eligible measures (including labor and materials, and a flat 7% admin fee would be accessed.)

DEC WX/DEP WX (assuming approval) Projects - Submit for NC HHI reimbursements after completion of DEC or DEP WX Projects. Service Providers would submit their materials and labor summary report, and receipts. All service providers would be paid based on eligible measures (including labor and materials, and a flat 7% admin fee accessed.)

The Helping Home Fund (HHF) Projects - Submit for NC HHI reimbursements after completion of HHF Projects. Service Providers would submit their materials and labor summary report, and receipts. All service providers would be paid based on eligible measures (including labor and materials, and a flat 7% admin fee would be accessed.)

Stand-Alone Projects - Submit for NC HHI fixed cost payments after completion of approved health and safety measures. Service Providers must submit invoices for materials and labor detailing the number of installed materials. All service prov

Target Participants: The NC HHI will target program-eligible households with incomes at or below 200 % percent of the federal poverty guidelines or those receiving cash assistance payments under Work First or Supplemental Security Income. Like other low-income-related programs, this program will prioritize assistance to the elderly, individuals with disabilities, and families with children.

Program Administration: "As the lead organization, NCCAA would provide project implementation and overall program oversight. NCCAA will work with Duke Energy and NC WAP service providers to plan, coordinate, and implement a series of comprehensive strategies to address health and safety needs for vulnerable families.

The implementation of this program will allow low-income North Carolinians to experience energy savings, utility bill reductions, and safe, healthy homes. To assist Duke in reducing low-income families' electric burden, and overall health outcomes, NCCAA will focus on high energy users and populations who are most vulnerable.

NC WAP service providers will follow the State's Weatherization Installation Standards or industry-recognized weatherization practices."

Eligibility Criteria: The NC Healthy Home Initiative (NC HHI) will target income-qualified customers state-wide.
Customers will be eligible to participate if:

- They are utility customers with an active account; and
- Household income must be at or below 200% of the Federal Poverty Guidelines.

Each participant would be eligible to receive up to $3,500 in health and safety repairs. All DEC WX, HHF, and NC WAP participants will be auto-enrolled into the NC Healthy Home Initiative. Service Providers will need to submit for payment of qualified measures installed and services performed on the home.

The NC HHI Program will be available to:

- Owner-occupied, single-family residences including condominiums and manufactured homes; mobile homes and
- Renters with owner approval.

The NC HHI program will not perform health and safety services on condemned homes, nor perform services on homes that are for sale. For example, if a home is placed for sale while work is in progress, the Service Provider shall end work at the soonest, safe stopping point, and consider the job complete.

Success Metrics: The overall purpose of the program is to help participants reduce their electric burden, improve their health, and provide KWH savings for Duke.

The NC HHI program will build on Duke's existing weatherization and refrigerator replacement platform by allowing families to participate in all three simultaneously. The implementation of this program will allow agencies to provide deeper and more expansive retrofits. Undoubtedly, access to these three programs will have a profound impact on all low-income utility customers.

Drivers of household energy burden

PHYSICAL

- Inefficient and/or poorly maintained HVAC systems
- The heating system and fuel type
- Poor insulation, leaky roofs, and inadequate air sealing

- Inefficient large-scale appliances (e.g., refrigerators, dishwashers) and lighting sources
- Weather extremes that raise the need for heating and cooling

ECONOMIC

- Chronic economic hardship due to persistent low income
- Sudden economic hardship (e.g., severe health event or unemployment)
- Inability or difficulty affording the up-front costs of energy efficiency investments

POLICY

Insufficient or inaccessible policies and programs for bill assistance, weatherization, and energy efficiency for low-income households

Certain utility rate design practices, such as high customer fixed charges, that limit the ability of customers to respond to high bills through energy efficiency or conservation

BEHAVIORAL

- Lack of access to information about bill assistance or energy efficiency programs
- Lack of knowledge about energy conservation measures
- Increased energy use due to age or disability

The implementation of the NC Health Home Initiative would have a significant impact on the well-being of low-income households, utilities, and communities in the following ways.

BENEFIT RECIPIENT: LOW-INCOME PROGRAM RECIPIENTS

OUTCOME: LOWER MONTHLY UTILITY BILLS

- Lower household energy burden and greater disposable income
- Reduced stress and fewer trade-offs between energy and other necessities

- Reduce exposure to risk from utility rate increases

OUTCOME: IMPROVEMENTS IN THE EFFICIENCY OF THE HOUSING STOCK

- Improved health and safety and greater household comfort
- Increased property value, more reliable equipment, and lower
- Greater satisfaction with the building/unit and improved household and neighborhood stability

BENEFIT RECIPIENT: UTILITIES AND RATEPAYERS

OUTCOME: DEMAND-SIDE MANAGEMENT (BOTH GAS AND ELECTRIC)

- Avoided excess costs of increased generation, capacity, and transmission investments
- Contribution toward compliance with energy efficiency portfolio standards and other environmental legislation

OUTCOME: COST SAVINGS TO UTILITIES AND RATEPAYERS

- Reduced arrearages and cost of shutoffs, which lowers utility operating costs
- Improved customer service

BENEFIT RECIPIENT: COMMUNITIES

OUTCOME: LOWER ELECTRIC AND GAS DEMAND

- Reduced environmental pollutants and improved public health

OUTCOME: LOWER MONTHLY BILLS DUE TO AVOIDED UTILITY COST

- More money is spent in the local economy due to greater household disposable income, with a higher local multiplier effect
- Poverty alleviation and increased standard of living

OUTCOME: IMPROVEMENTS IN THE EFFICIENCY OF THR HOUSING STOCK

- Local job creation through weatherization programs and energy efficiency providers and trade allies
- Improved quality of life
- Increased property values and preservation of housing stock

Program Partners:

Duke Energy
North Carolina Community Action Association (NCCAA)
North Carolina Weatherization Assistance Service Providers (mostly CACs)
TRC (formerly Lockheed Martin)
North Carolina Weatherization Assistance Program (NCWAP)
NCCAA's current contractor network (HHF, DECWX, and HHI)
Regional Specialty Contractors
Community Development Organizations
Private Weatherization Contractors
Non-profit Agencies
Community Action Agencies (NC's 34-member network)

Additional Information: Based on our current experience as the administrator of the BlueCross and BlueShield Healthy Homes Initiative (HHI), we feel there are no regulatory or statutory barriers to implementing this program. NCCAA has successfully managed and administered the Healthy Home Initiative, since 2018. As of March 1st, 2022, the HHI has provided served over 1224 low-income households and 2133 low-income household members. BlueCross and BlueShield of NC provided NCCAA with a $2M grant in November 2018 to serve 56 rural NC counties. Due to the success of the program outcomes, an additional $1M investment by BCBSNC in April of 2020 to expand to 94 rural counties. The HHI is served by 24 participating community action agencies.

The Healthy Home Initiative Program provides improvements to make homes healthier and safer. This funding is typically leveraged with weatherization funds, or improvements can be made to income-qualified homes that may not receive weatherization services. As of March 1st, 1,224 homes have been impacted and over 2133 household members in 86 NC counties have benefited from this program. In Q4 of 2021, the HHI program completed 148 new projects, and $119K was used to complete these projects. Over 65% of those homes in Q4 had one or more family members who suffer from chronic health conditions.

Community Impact: $1,978,395.25 (As of 3.1.2022)
Number of Completed Projects/Homes Served: 1224
Number of Household Members Impacted: 2133 (Seniors: 1009, Adults: 747, Children: 377)
Number of Homeowners Helped: 1207

Health Outcomes
Overall, the program has served over 700 (58%) households that were suffering from one or more household members were suffering from one or more of the following chronic illnesses:

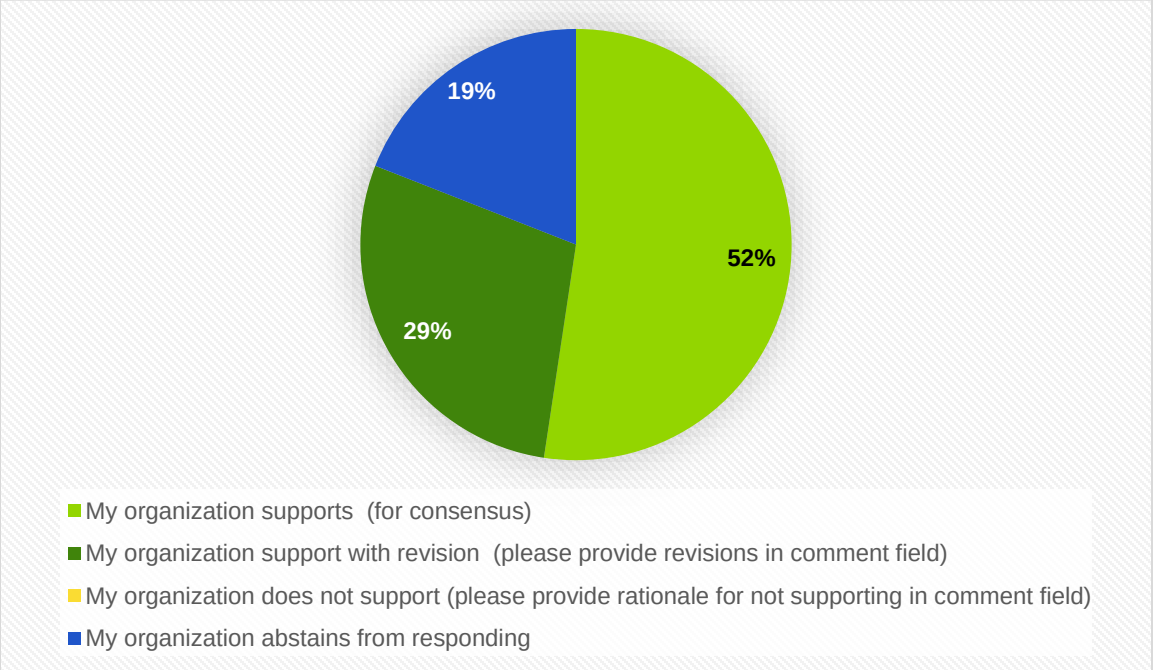
- Diabetes
- COPD
- Asthma
- Musculoskeletal
- Heart Disease
- Cancer
- Epilepsy
- Mental Health
- Alzheimer's
- Arthritis
- Stroke
- Blind

Demographics Served through the BCBC HHI Program

- 50% of households served were African American
- 46% White
- 1% Hispanic
- 2% Native American
- 1% Other (Native American, Asian, and Indian)

Proposal 20 - DEP Weatherization Program

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Community Action Association
- North Carolina Housing Coalition
- North Carolina Sustainable Energy Association
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Vote Solar

Supports with Revision:

- AARP
- Crisis Assistance Ministry
- Duke Energy
- North Carolina Justice Center
- Public Staff of the North Carolina Utilities Commission
- Southern Environmental Law Center (SELC)

Does not Support:

- None

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)
- North Carolina Dept of Health and Human Services

Comments from Assessment:

"For the same reasons that we support LIAC Program Proposal Number 2, which calls for a DEP Weatherization Program modeled after the DEC Weatherization Program, we also support the substance of this Proposal (No. 20). Even though NCCAA has unmatched experience administering this kind of program (as it does the DEC Weatherization Program, Helping Home Fund, and HHI), it is our understanding that Duke Energy would need to go through an RFP process to identify the program administrator and that it may be premature to assign that role to NCCAA at this time." **– Southern Environmental Law Center (SELC)**

"This is not a suggested revision, it's a comment overall on this as well as the other weatherization related proposal/s all of which we do support. It's also somewhat similar to the concept in #23. We operate in a space at Crisis Assistance Ministry where over 15,000 renting households annually need help with utilities and/or rent (often times it's rent one month and utilities the next month when juggling on a limited income.) Less than 1% are homeowners. Weatherization solutions that are more equitability available for low income families would include more options for rental housing. In the vast majority of apartment complexes there is income segregation (apartments class A, B, C corresponds to income.) Could we work with landlords running low income apartment complexes as the target of weatherization outreach? Certainly many are owned from out of state vendors or equity funds but still there are thousands of complexes owned by local "mom and pop" landlords who could help 200-300 families at one time if they are given an opportunity to receive help weatherizing their units." **– Crisis Assistance Ministry**

"This program should be funded first with DOE weatherization funds and LIHEAP." **– AARP**

"The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." **- Public Staff of the North Carolina Utilities Commission**

"In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use via weatherization." **– Nicholas Institute**

"For the same reasons that we support LIAC Program Proposal Number 2, which calls for a DEP Weatherization Program modeled after the DEC Weatherization Program, we also support the substance of this Proposal (No. 20). Even though NCCAA has unmatched experience administering this kind of program (as it does the DEC Weatherization Program, Helping Home Fund, and HHI), it is our understanding that Duke Energy would need to go through an RFP

process to identify the program administrator and that it may be premature to assign that role to NCCAA at this time." **– North Carolina Justice Center**

"The Company plans to file the DEP Income Weatherization Program with the NCUC within the next two weeks." **– Duke Energy**

Program Proposal Information:

Name and Organization: Detrick Clark, The North Carolina Community Action Association

Program Name: The Duke Energy Progress Weatherization Program (DEP WX)

Program Description: The Duke Energy Progress Weatherization Program (DEP WX) is a robust weatherization program designed to assist DEP income-qualified customers by directly installing energy-efficient measures and providing education on energy efficiency. Like the Helping Home Fund, Healthy Home Initiative, and the DEC WX program, the DEP WX Program would lean on the collaboration and expertise of the NCCAA, and its dedicated weatherization service providers network for implementation. If expanded, funds will be distributed to participating Service Providers involved in assisting income-qualified customers with energy efficiency. The DEP WX program would function as a rebate program.

Program Objective: The goal of the DEP WX program is to provide comprehensive weatherization and efficiency measures to the greatest number of customers in the Duke Energy Progress (DEP) service territory. The DEP WX Program will reduce energy consumption for income-qualified customers by directly installing energy [1] efficient measures and providing education on energy efficiency. Whenever possible and cost-effective, homes shall be thoroughly insulated and air sealed, thus achieving the greatest gains in energy conservation and improved comfort.

By implementing this program, the following shall be completed for qualified program participants:

1. Conduct an energy audit to identify energy efficiency opportunities in the customer's home;
2. Install a comprehensive package of electric conservation measures to increase the home's energy efficiency and to lower program participants' energy costs;
3. Replace inefficient refrigerators with ENERGY STAR® refrigerators;
4. Provide one-on-one customer education on energy efficiency techniques and measures; and
5. Educate customers on other applicable energy efficiency programs that are available.

In addition, using Duke Energy's income-qualified weatherization funds:

- Upgrade high-efficiency heat pumps (HEHP) to a minimum of SEER 15 and HSPF 8.2 with an electronically commutated motor (ECM); and

- Promote behavioral changes that help program participants more effectively control their energy usage and lower their costs.

Like the Helping Home Fund (HHF), Duke Energy Carolina's Weatherization Program (DEC WX), and the BlueCross and BlueShield of NC Healthy Home Initiative (HHI), this program will utilize independent contractors, and leverage existing community action agencies, and WAP service provider resources to make improvements in eligible homes within Duke's DEP service territory.

Any funding not requested for energy efficiency expenditures by the end of the calendar year will be forfeited.

We are proposing multiple options to participate in the DEP WX Program.

1. State Completed Projects - Submit for DEP WX rebates after completion of State Weatherization or Refrigerator Replacement Projects. Service Providers would submit their materials and labor summary report, refrigerator receipts and a copy of the State Completed Jobs Report. Service Providers would be paid a fixed cost rebate based on eligible measures (including labor and materials.)
2. Stand-Alone Projects - Submit for DEP WX fixed cost payments after completion of approved weatherization measures and/or refrigerator replacement. Service Providers must submit invoices for materials and labor detailing the number of installed materials. Service Providers would be paid a fixed cost payment based on eligible measures (including labor and materials.)
3. HVAC Projects - Payment towards a leveraged project (ie. HARRP) or a stand-alone project for installation of a 15 SEER HP replacement. Eligibility and maximum costs would be identical to the current DEC WX program. Service Providers must submit contractor invoices, and AHRI certificates and indicate any source/amount of leveraged funding. Reimbursement/payments for HVACs would not be supported if any systems were paid using HARRP or other program dollars. The HVAC portion of this project would not be considered a rebate measure. Service Providers would receive an agreed-upon administrative fee based on the total project cost. The admin fee should be comparable to the state NC WAP admin fee. Once determined this administrative fee will be automatically calculated and added to project payments.

Target Participants: The DEP WX program will target DEP eligible households with incomes at or below 200 percent of the federal poverty guidelines or those receiving cash assistance payments under Work First or Supplemental Security Income. Like DEC WX this program will prioritize assistance to the elderly, individuals with disabilities, and families with children.

Program Administration: In this proposal, the North Carolina Community Action Association is the lead organization providing project implementation and overall program oversight. NCCAA will work with Duke Energy Progress, and NC WAP service providers to plan, coordinate, and implement a series of comprehensive strategies to address weatherization needs for struggling families.
The implementation of this program will allow low-income North Carolinians to experience energy savings, utility bill reductions, and safe, healthy homes. To assist Duke Energy Progress in reducing low-income families' electric burden, and overall health outcomes, NCCAA will focus on high energy users and populations that are most vulnerable.

NC WAP service providers will follow the State's Weatherization Installation Standards or industry-recognized weatherization practices as applicable.

Eligibility Criteria: The DEP WX Program will target income-qualified customers located in DEP NC territory.

Customers will be eligible to participate if:

- They are a DEP customer with an active account; and
- Household income must be at or below 200% of the Federal Poverty Guidelines. Service Providers will need to submit for payment of qualified measures installed and services performed on the home.

The DEP WX Program will be available to:

- Owner-occupied, single-family residences including condominiums and manufactured homes; and
- Renters with owner approval for refrigerator replacement only.
  The DEP WX program will not perform weatherization services on condemned homes, nor perform services on homes that are for sale. For example, if a home is placed for sale while work is in progress, the Service Provider shall end the work at the soonest, safe stopping point, and consider the job complete.

Success Metrics: The overall purpose of the DEP WX program is to help participants reduce their electric burden, improve health outcomes, and provide KWH savings for Duke. All the services will be provided at no cost to the customer.
Through the DEP WX (DEC WX) expansion families will have access to two of the three existing EE programs, Weatherization and Refrigerator Replacement. Access to these two programs will have a considerable impact on LIEAP and CIP customers' electric burdens. If expanded, NCCAA will work with Duke to increase the number of customers served, the number of measures installed, and provide KWH reductions.

HVAC Replacement HVAC Replacement up to $ 6,000.00

WX Refrigerator Replacement

- Refrigerator Replacement 15 cu ft
- Refrigerator Replacement 18 cu ft
- Refrigerator Replacement 21 cu ft

WX Tier 1

- Air Sealing
- Clean and/or Replace Dryer Vent
- Door Weatherstripping
- Pipe Insulation - 2-5' sections
- Tank Insulation
- Heating System Tune-Up
- Heating System Repair

- LED 5W Chandelier
- LED 5W Generic
- LED 5W Globe
- LED 9W
- LED A-Line - any wattage except 9W
- Low Flow Aerators - max 3
- Low Flow Showerheads - max 2
- Water Heater Temp Adjustment

WX Tier 2

- Attic Insulation - Cellulose, Blown - R-30
- Attic Insulation - Cellulose, Blown - R-38I
- Attic Insulation - Fiberglass, Blown - R-30
- Attic Insulation - Fiberglass, Blown - R-38
- Belly Fiberglass Loose
- Duct Insulation
- Duct Sealing
- Floor Insulation - Fiberglass, Batts - R19
- Knee Wall Insulation
- Manufactured Home Roof Cavity
- Roof Cool Seal - Mobile Home
- Wall Insulation - Cellulose. Blown - R13
- Wall Insulation - Fiberglass. Blown - R13

If given the opportunity NCCAA would like to see the following enhancements added to this program and the DEC WX program.

1. Secure long-term funding for Health and Safety funds to ensure customers can continue to receive needed Weatherization services.
2. . Explore opportunities to expand services and include additional measures as identified.
3. Earmark marketing dollars so agencies can better market the services and program.
4. Re-evaluate the rebate measures to ensure they are parallel with true cost/inflation.
5. Access to more customer-related data (Acxiom)

For example, to serve more customers and increase overall program outcomes NCCAA, would like to work with Duke to better identify high energy users and DEP program eligible customers. The CAA network feels earmarking a percentage of the overall budget to assist agencies with marketing the program would help to increase program visibility and outcomes.
Ideally, NCCAA would like to gain access to Duke's Acxiom data and other customer and neighborhood-level data to better identify high concentrated DEP income eligible areas. This is a model that is currently being used for Duke's Neighborhood Energy Saver Program (NES2.0). If DEC WX and DEP WX agencies were equipped with the same data, it would allow them to better direct their limited resources and ramp up the reach of the program.

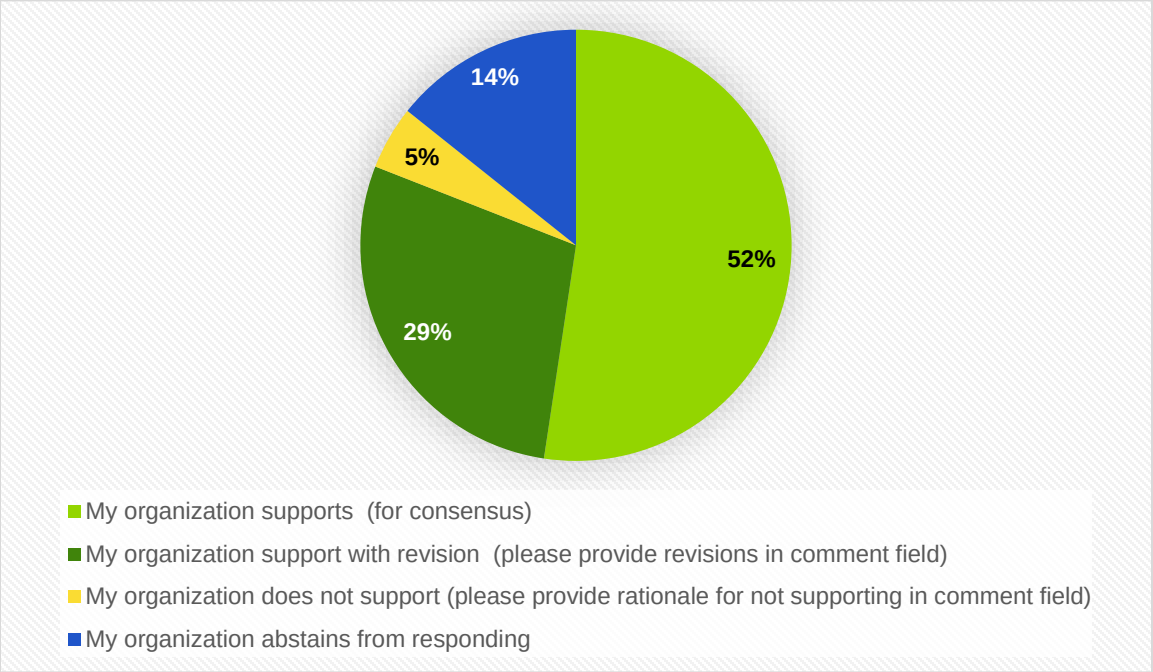
Program Partners:

Duke Energy Progress
North Carolina Community Action Association (NCCAA)
North Carolina Weatherization Assistance Service Providers (mostly CACs)
TRC (formerly Lockheed Martin)
North Carolina Weatherization Assistance Program (NCWAP)
NCCAA's current contractor network (HHF, DECWX, and HHI)
Historically Underutilized Businesses (HUB)
Minority and Women-Owned Businesses (MWBE)
Veteran Owned Small Businesses
Regional Specialty Contractors
Community Development Organizations
Private Weatherization Contractors
Non-profit Agencies
Community Action Agencies (NC's 34-member network)

Additional Information: Based on our current experience as the administrator of the DEC WX program and the North Carolina Utility Commissions' support of that work, we feel there are no regulatory or statutory barriers to implementing a similar program in the DEP service territory. Over the past several months, Duke, NCCAA, and TRC have had a few informal discussions about a possible program filling. NCCAA and Duke have discussed the launching of this program and some of the program recommendations identified in the Success Measures section of this proposal, amongst other program enhancements tools and processes.
NCCAA has successfully managed and administered the Duke Energy Carolinas (DEC WX) Weatherization program since 2015. As of March 4th, 2022, the DEC WX program has provided low-income customers with more than $13 million in direct weatherization assistance and has served more than 4,200 families with over 5,100 weatherization-related measures.
As noted, by Duke's self-evaluation of the DEC WX program the average cost per DEC participant in 2019 was $3,486.89 and respectively $3,405.21 in 2020. In 2019, families that participated in the DEC WX program experienced significant energy savings. The program can deliver anywhere from a 241-kWh to a 3774-kWh reduction for participants depending on the measures the customer qualifies for and receives. In 2019, on average families experienced 1994 kWh WERP, 805 kWh RRP in savings, and in 2020 families on average experienced 1909 kWh WERP, 805 kWh RRP in savings.
According to Duke's recent analysis, there are approximately 780,000 DEC low-income program eligible customers that can benefit from the program. The number of eligible participants reflects the current approximate number of customers in the respective service territory that have been identified as Low Income (200% of FPL). Expanding the DEC WX program into the DEP service territory will be an added resource to approximately 350,000 to 375,000 low-income DEP customers.

Proposal 21 - NC Low-Income Energy Major Home Repair

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Community Action Association
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- Rowan Helping Ministries
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Vote Solar

Supports with Revision:

- AARP
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Public Staff of the North Carolina Utilities Commission
- Southern Alliance for Clean Energy (SACE)

- Southern Environmental Law Center (SELC)

Does not Support:

- Duke Energy

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)

Comments from Assessment:

"As we said with respect to No. 19, this is a critically needed program and builds on NCCAA's valuable experiences. But it is not clear from the proposal where the funds would come from for this Major Home Repair program. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, federal or state funds could support an initiative like this to provide the repairs necessary to make them ready for EE upgrades." **– Southern Environmental Law Center (SELC)**

"We support DOE or infrastructure funds from the Federal government be used for a pilot program." **– AARP**

"The program administration should be determined by RFQ. Only non-ratepayer funds should be utilized for health and safety work. Ratepayer funds could be used for EE measures and to reduce cost of service." - **Public Staff of the North Carolina Utilities Commission**

"In the statistical analysis, higher winter peak and summer peak usage were associated with a customer being more likely to be in arrears, receive a 24-hour notice, and be disconnected. These results would support reducing high energy use and this proposal would facilitate that process by providing for repairs and reducing deferrals from weatherization assistance." **– Nicholas Institute**

"As we said with respect to No. 19, this is a critically needed program and builds on NCCAA's valuable experiences. But it is not clear from the proposal where the funds would come from for this Major Home Repair program. Ratepayer funds have historically been limited to energy efficiency related upgrades. Ideally, federal or state funds could support an initiative like this to provide the repairs necessary to make them ready for EE upgrades." **– North Carolina Justice Center**

"Similar to our response to proposal 19, we support the program but are interested in more discussion about how to fund it since that does not seem to have been defined." **– North Carolina Sustainable Energy Association**

"We strongly support the establishment of consistent funding for health, safety, and incidental repairs to supplement federal, state, and ratepayer funds for energy efficiency. We know there are potential challenges with regard to use of ratepayer funds for these purposes, but are committed to working through the associated regulatory issues and/or assist in seeking additional funding from other sources." **– Southern Alliance for Clean Energy (SACE)**

"The Companies do not support this proposal as it doesn't have a specific time to the scope of identifying opportunities to address affordability for low-income customers." **– Duke Energy**

Program Proposal Information:

Name and Organization: Detrick Clark, The North Carolina Community Action Association

Program Name: The NC Low-Income Energy Major Home Repair Program

Program Description: The NC Low-Income Energy Major Home Repair Program is a pre-weatherization deferral assistance program designed to help DEP and DEC program eligible families with costly home repairs and other health and safety issues that have previously prevented them from receiving assistance from weatherization assistance program service providers.

Annually, hundreds of families are added to the NCWAP deferral list because their homes were deemed fiscally and physically inadequate. Since 2018, over 1,100 low-income families have been placed on the NC Weatherization Assistance Program deferral list because the condition of their homes rendered the delivery of weatherization services either unsafe or ineffective. Because the NCWAP program prioritizes families with children and those that are either elderly, disabled or high-energy users, deferrals present an additional hardship for these families who are already struggling to simply make ends meet.

Reasons for deferrals vary, but some common causes include:

- The client has known health conditions that prohibit the installation of insulation and/or other weatherization materials;
- The building structure or its mechanical systems, including electrical and plumbing, are in such a state of disrepair that they cannot be repaired immediately;
- The house has sewage or other sanitary problems that would further endanger the client and weatherization installers if weatherization work is performed;
- Home repair is beyond the scope of reasonable cost justification;
- The house has been condemned or electrical, heating, plumbing, or other equipment has been "red-tagged" by local or state building officials or utilities;
- Moisture problems are so severe that they cannot be resolved;
- Dangerous conditions cannot be reasonably resolved due to high carbon monoxide levels and combustion appliances;
- The extent and condition of lead-based paint in the house would potentially create further health and safety hazards if disturbed.

In this program proposal the North Carolina Community Action Association will plan, coordinate, and implement a series of comprehensive strategies to address major home repairs currently preventing low-income DEP and DEC customers from experiencing energy savings, utility bill reductions, and safe, healthy homes. Due to the NC Low-Income Energy Major Home Repair Program, being deferred will no longer mean indefinitely postponing weatherization assistance.

Program Objective: The Objective of the NC Low-Income Energy Major Home Repair Program is to address a list of high-priority repairs preventing low-income DEP and DEC customers from

utilizing weatherization services. The goal for this deferral prevention program is to generate a robust pipeline of newly eligible clients for NCWAP Weatherization agencies to serve and to reduce the number of homes that are deferred each year.

Only measures that are necessary to make a home eligible for the NCWAP Program shall be provided. This strategy will enable the program to provide major repairs to the greatest number of customers while also decreasing the number of ineligible homes and transitioning these customers to the active NCWAP waitlist. Once energy efficiency measures are installed families may also experience the nonenergy benefits of having more disposable income and improved overall health outcomes.

Like the Helping Home Fund (HHF), Duke Energy Carolina's Weatherization Program (DECWX), and the BlueCross and BlueShield of NC Healthy Home Initiative (HHI), this program will utilize licensed independent contractors, and leverage existing community action agencies, and WAP service provider resources to make improvements in eligible homes within Duke's DEP and DEC service territories.

By implementing this program, the following shall be completed for qualified program participants:

1. Conduct a Major Repair Audit to identify major repairs and other energy efficiency opportunities.
2. Install a comprehensive package of Major Repair Measures preventing the home from being weatherized through the NCWAP program that includes items such as: (1) Installing and/or repairing non-functional HVAC units; (2) completing roof repairs and replacements; (3) addressing structural issues (floors/ceiling repairs/replacements); (4) mitigating mold/moisture issues; (5) fixing major plumbing, drainage, gutters, septic/sewage; and (6) fixing major electrical issues, including knob and tube wiring removal and replacement.
3. Subcontractors shall provide one-on-one customer education on energy efficiency techniques and measures while conducting necessary repairs.
4. NCCAA will promote information to help program participants to better understand their energy usage and ways they can reduce their household energy consumption. NCCAA will achieve this objective by providing participants with materials such as, but not limited to, flyers, one-pagers, refrigerator magnets, and other informational materials.
5. Agencies will inform participants of other applicable energy efficiency programs for which they may be eligible such as DEC WX, the Healthy Home Initiative, and the Helping Home Fund.

Target Participants: This program will target deferred NC WAP eligible households with incomes at or below 200 percent of the federal poverty guidelines or those receiving cash assistance payments under Work First or Supplemental Security Income. Like NC WAP this program will prioritize assistance to the elderly, individuals with disabilities, and families with children.

Again, clients are eligible if they have met all the NC WAP guidelines and they have been denied NC WAP assistance for one or more health or safety reasons. Service providers will use the deferral data from databases such as AR4CA as its reference guide to identify participants that meet the program's eligibility criteria within a feasibly specific timeframe.

Program Administration In this proposal, the North Carolina Community Action Association is the lead agency providing overall project and program implementation and oversight. NCCAA will plan, coordinate, and implement a series of comprehensive strategies to address major home repairs currently preventing low-income North Carolinians from experiencing energy savings, utility bill reductions, and safe, healthy homes. To assist Duke with reducing low-income families' electric burden, and increasing health outcomes, NCCAA will focus solely on clients that are currently on the NC WAP deferral list. Due to the NC Low-Income Energy Major Home Repair Program, being deferred will no longer mean indefinitely postponing weatherization assistance for NC's most vulnerable.

Eligibility Criteria: Customers are eligible to participate in this program if they meet all the following criteria:

1. The customer is a North Carolina resident; and
2. The customer is currently on the NC WAP Deferral List; and
3. The customer resides in a tenant-occupied or owner-occupied home; and
4. That home is not for sale.

NCCAA will work with the NC DEQ, NC WAP, and community action agencies to identify program-eligible clients. Clients are eligible if they have met all the NC WAP guidelines and they have been denied NC WAP assistance for one or more health or safety reasons. NCCAA will use the deferral data from databases such as AR4CA as its reference guide to identify participants that meet the program's eligibility criteria.

Success Metrics: If the program is successful, the current deferral list will decrease over time, and the NC WAP pipeline and output will increase. The program will also help participants reduce their electric burdens and help NC WAP service providers to fulfill their state weatherization contracts. As agencies can fulfill their state contracts their budgets will increase allowing more North Carolinians to benefit from weatherization.
This program will provide the following measures:

A. Roof Repair or Replacements
B. Structural Issues (Floors and/or Ceiling)
C. Control or Remediation of Mold/Moisture
D. Major Plumbing, Drainage, Gutter, Septic, and Sewer issues

Program Partners: North Carolina Weatherization Assistance Service Providers (mostly CACs)
North Carolina Weatherization Assistance Program (NCWAP)
NCCAA's current contractor network (HHF, DECWX, and HHI)
North Carolina Department of Environmental Quality (DEQ)
North Carolina Community Action Association (NCCAA)
Community Action Agencies (NC's 34-member network)
Historically Underutilized Businesses (HUB)
Minority and Women-Owned Businesses (MWBE)
Veteran Owned Small Businesses
Regional Specialty Contractors
Community Development Organizations
Private Weatherization Contractors
Non-profit Agencies

Additional Information: NCCAA has launched a comparable pilot program in conjunction with the NC DEQ, NCWAP, and community action agencies to assist 120-180 low-income households with project costs ranging between a few hundred dollars to several thousand dollars. Contractors will access all projects on a case-by-case basis to determine what major repairs are needed to bring homes up to NCWAP “weatherization ready” standards. All work will be pre-approved by NCCAA before contractors begin home improvements. This requirement will ensure the measures being addressed are fiscally appropriate and in line with the scope of the project.

The NCCAA Major Repair Program will achieve this work through a two-phase process that considers both project resources and community economic well-being. The NCCAA Major Repair program has the latitude to offer major repair services to all 100 NC counties. However, in Phase I of our launch we will place a heavy emphasis on 60 of North Carolina’s 100 NC counties. Through this community economic well-being ranking, The NCCAA Major Repair Program will look to serve some of NC’s most distressed communities by focusing over 80% of its efforts in tier 1 and tier 2 designated counties. For the remaining 20% of its campaign in Tier 3 counties, efforts would be focused on key low-income areas such as low-income census blocks.

~~Proposal 22 - Customer Affordability Program~~ (see P24)

Name and Organization: Brad Harris. Duke Energy Carolinas, LLC. ("DEC") and Duke Energy Progress, LLC. ("DEP") (collectively "the Companies").

Program Name: Customer Affordability Program (CAP). DEC and DEP would have separate programs with separate funding from the respective ratepayers. However, the program design would be the same for DEC and DEP. For ease, CAP is referred to singularly throughout this document.

Program Description: CAP is a monthly credit applied directly to the customer's bill. The customer would receive the credit for 12 months. Eligible customers would be automatically enrolled in the program via a list given to the Companies from eligible state agencies that are already qualifying people for government assistance programs. Customers would be eligible for CAP for a predetermined amount of time and will require recertification after this timeframe from a CAP participating organization. [1]

Program Objective: The Companies recognize assisting customers with affordability challenges may come through products and services designed to reduce energy usage and provide billing assistance. CAP provides bill credits to eligible customers automatically as they qualify for other eligible assistance. The opportunities to identify and assist low-income customers exist when customers apply for services offered by agencies administering income-qualified programs or when customers contact Duke Energy's customer service center for assistance. Customers who are enrolled in CAP will be referred to Duke Energy's Residential Income-Qualified Energy Efficiency - Weatherization and Equipment Replacement Program to receive weatherization services. CAP will allow the Companies to refer income-qualified customers to receive weatherization services in addition to the bill credit designed to lower a customer's bill via a flat, monthly credit.

Target Participants: The analysis conducted on DEC and DEP NC residential customers shows customers who receive Low-Income Energy Assistance Program (LIEAP) and Crisis Intervention Program (CIP) assistance use more electricity in the winter months and more usage per square foot in comparison to other customers. LIEAP and CIP recipients are more likely to have arrears and experience disconnection for non-pay. For this reason, the target participants for the CAP initially will be LIEAP and CIP recipients. Upon successfully implementing the program, the Companies will evaluate opportunities to expand CAP to include recipients of other income-qualified assistance programs.

Program Administration The North Carolina Department of Health and Human Services (DHHS) administers LIEAP and CIP. The Companies want to leverage that existing work with DHHS to receive a list of customers for assistance programs identified as CAP eligible (i.e., LIEAP and CIP). The Companies will work with DHHS to discuss requirements for participating customers to receive the CAP bill credit. The Companies would auto-enroll eligible customers

[1] The majority of government assistance programs require annual recertification of recipients. Because of the annual recertification process, customers can be automatically recertified for CAP through recertification in the other government assistance programs.

identified by the state agency and update the information directly in the billing system. The Companies would also be responsible for tracking program success.

Eligibility Criteria: Any customer that receives assistance from one of the CAP eligible programs, i.e., LIEAP or CIP. The Companies will explore the feasibility of enrolling customers who would have qualified for LIEAP or CIP but did not receive assistance due to funding running out before enrollment was closed for the year.

Success Metrics: Metrics could include timely enrollment of eligible customers, tracking of program information, customer satisfaction with the program, and reduce customer's electricity burden.

Program Partners: Qualifying state agencies, such as NC DHHS

Additional Information: CAP could be combined with energy efficiency (EE) program and weatherization program awareness and education campaigns. Increasing access and knowledge of EE programs, in addition to direct bill assistance, is a win-win for all involved. In the analytics presented in the Low-Income Affordability Collaborative (LIAC) showed the LIEAP/CIP customers use more electricity than all other income groups in nearly all segments of customers studied. Additionally, the average LIEAP/CIP customers were disconnected for non-payment ("DNP") over four times more than the total North Carolina customers (16.3 percent of LIEAP/CIP customers were DNP compared to 3.9 percent for all NC customers). Reducing the amount of kWh used reduces the total bill. Reducing the total bill further with the CAP credit can greatly impact the lives of LIEAP/CIP customers. As previously mentioned, the Companies are open to exploring expanding the list of CAP eligible government assistance programs but believes starting with LIEAP/CIP customers can have the biggest impact, even though only two percent of North Carolina customers received LIEAP/CIP assistance in the LIAC review period.

There are alternative options for the CAP design. The following alternatives are not mutually exclusive and can be mixed and matched.

1. Instead of a flat credit for 12 months, customers could receive double the credit amount for six months when customers experience an increased heating or cooling cost for their homes. Customers would receive the same annual credit level, and it would just be a matter of how and when distributed. The LIAC analysis revealed LIEAP/CIP customers' bills were highest in the winter months (December through February), followed by the summer months (June through September).

2. If the eligible agency has the ability, or could do so at low cost, the Companies will request the agency denote CAP eligible customers by various federal poverty level (FPL) groups. This would enable the Companies to potentially provide a higher level of assistance to customers whose need is more significant based on the customer's federal poverty level. For example, the CAP credit could be higher for customers in the 0-50 percent FPL group compared to customers in the 101-150 percent FPL group. The Companies will continue to explore this option with eligible agencies.

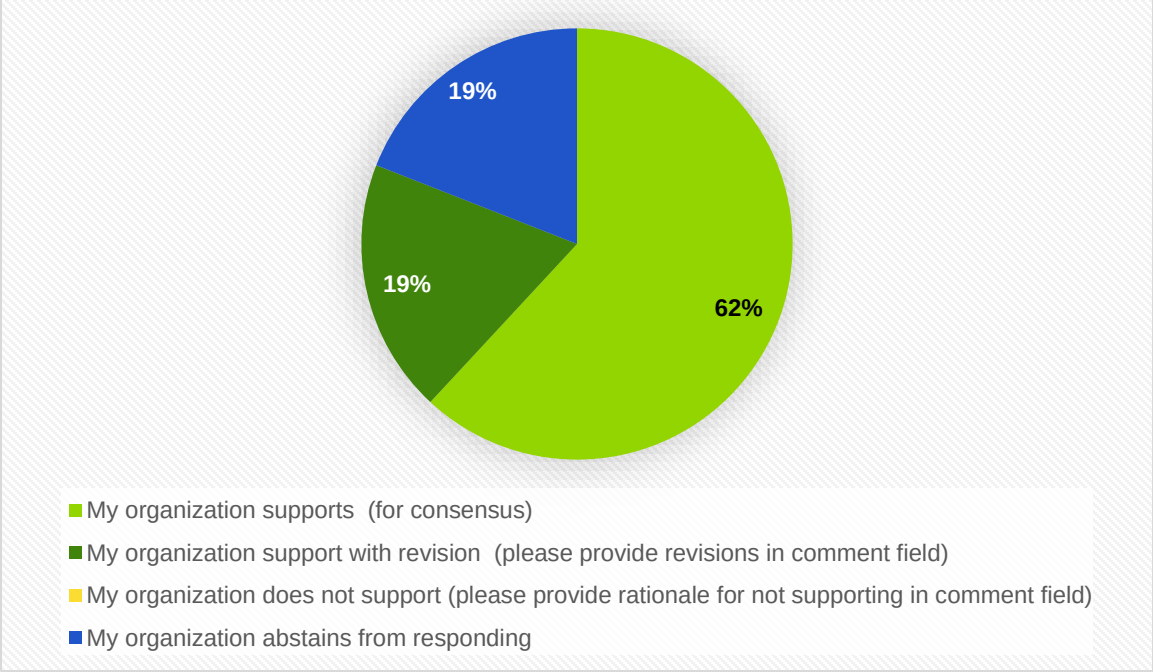
3. An arrears management component could be added. Nearly 60 percent of LIEAP/CIP customers met the arrears definition used in the LIAC analytics. LIEAP/CIP customers had a past due amount that ranged between $120 to $180. Other arrears management programs the Companies are aware of typically forgive a portion of the customer's

balance if the customer makes a monthly payment on-time and in-full. For example, a customer's arrears balance may be forgiven in full if the customer makes on-time and in-full payments for 12 months. The arrears management component would be in addition to the monthly CAP credit.

Proposal 23 - Smart $aver Low Income Multi-Family Retrofit (P08 + P18)

Combination of Proposal 08 and Proposal 18

Assessment Results:



Breakdown of Results:

Supports:

- Appalachian Voices
- Crisis Assistance Ministry
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Dept of Health and Human Services
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- AARP
- Duke Energy
- Public Staff of the North Carolina Utilities Commission
- Rowan Helping Ministries

Does not Support:

- None

Abstains:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)
- Dominion
- Nicholas Institute (Duke University)
- North Carolina Community Action Association

Comments from Assessment:

"We support DOE or infrastructure funds from the Federal government be used for a pilot program." **– AARP**

"Ratepayer funds could only be used only for the EE components; non-ratepayer funds could be leverage for non-EE components of this proposal." **- Public Staff of the North Carolina Utilities Commission**

"The utility should not be administering the program or leveraging funds. Seems like this should fall under a community action agency or non-profit." **– Rowan Helping Ministries**

"The findings of the statistical analysis support focusing on reducing energy consumption in multi-family housing, particularly multi-family rental housing." **– Nicholas Institute**

"The low-income multifamily segment of the Duke Energy customer base is an area of opportunity to assist the income qualified tenants. Duke has been working with a group of interested stakeholders on a investigating a low-income multifamily pilot program and thru that work has identified challenges including, but not limited to the following: • These income qualified customers maybe receiving overlapping efficiency measures through the Neighborhood Energy Saver Program • There is an existing direct install multifamily program in the Duke Energy program portfolio that can serve all customers, so there is potential confusion for this program. Are these programs related or operated separately while serving the same multifamily dwellings? • There isn't a intake process for determining low-income eligibility directly through Duke Energy right now. The information is sensitive and time constrained. Is the intent to use other low-income entities to determine eligibility? • The weatherization agencies also can serve this segment of the population, what is the best way to coordinate services between the programs? • This program seems to be targeted and reported through the tenant meter, since the property owner must agree to the upgrades, what is the proposed coordination with tenant and property owner? • Does the landlord or property owner have to agree not increase rent for some period of time? • How will energy savings be captured when the measure might include shared space like attic insulation? • Is fully up to Duke Energy to determine the best method, process and cost to implement the upgrades? Would Duke be expected to submit or assist with grant applications? At what point would the NCUC evaluate the program for best practices by project or at/after EM&V? • How often are he income qualification criteria updated?

Is there a single version of the truth to reference? • Why are there 2 different eligibility criteria for 1-4 units multifamily v. single family? Are the eligible single-family units required to be part of the larger complex of buildings?

The Company will continue to work with the rate-case settlement stakeholder group to work through these challenges in attempts to develop a feasible pilot as there clearly is an opportunity to assist customers, but need to better understand how it fits in the portfolio and get more granular on the specifics of the pilot that Duke will oversee." **– Duke Energy**

Program Proposal Information:

Name and Organization: Christina Cress, Bailey & Dixon, LLP with NCJC and other Stakeholders

Program Name: Smart $aver Low Income Multi-Family Retrofit Program (Smart $aver LIMP)

Program Description: Smart $aver LIMP projects would involve efficiency upgrades for buildings with currently high energy consumption, specifically for lighting, appliances, weatherization, heating systems, controls, domestic hot water, and HVAC/mechanical systems. Eligible measures under the LIMRP would be directly installed at no charge to the low-income customer, and would include:

1. comprehensive energy assessment, including customer education;
2. weatherization, including wall, attic, floor, and pipe and duct insulation, as well as air sealing (caulking, weather stripping, door and window hardware, window parting beads and stops);
3. programmable thermostats;
4. blower door analysis;
5. heating system tune-up, repair, and replacement;
6. low-flow showerheads and faucet aerators;
7. minor building repairs, including glass replacement and adjustment of window meeting rails;
8. replacement of inefficient appliances, including refrigerators and clothes washers;
9. installation of compact fluorescent lamps (CFLs) and LEDs;
10. health and safety measures such as wire inspection, ventilation, and the DOE lead-free protocol; and
11. multi-family-building-specific measures, such as common area lighting fixtures, HVAC motors and controls and heating systems.

Additional Stakeholder support for this proposal notes the following:

Various regulations commonly drive utility energy efficiency programs aimed towards multifamily housing to take a fragmented approach in providing services. Multifamily tenants who are income-eligible may receive no-cost efficiency measures that are applicable only to their units, such as efficient lighting, but may not be eligible for incentives or measures that are tied to the property owners' utility bills, which are commonly on commercial rates. The incentives available through standard commercial programs may not be sufficient to make efficiency measures

affordable – and clearly operating costs play a key role in determining the costs of operating multifamily housing. The result is that comprehensive efficiency projects in affordable multifamily housing are unlikely to occur, thus failing to make a significant dent in the energy costs for these buildings. To overcome these obstacles, this program would provide a one-stop shop approach where a single program point of contact would work with property owners to facilitate comprehensive efficiency projects that address both in-unit (residential) and common area/common system (commercial) efficiency measures. Rather than treating the commercially metered elements of affordable multifamily housing as a business, the program would offer enhanced incentives on the basis of the income-eligible residents, thus helping reduce the operating costs for the building as well as tenants' bills.

Program Objective: To provide cost-effective energy efficiency improvements to multi-family buildings, including nonprofit and public housing authorities. For-profit entities are eligible to apply for funds to improve the energy usage of their buildings.

Target Participants: 1-4 unit residential buildings where at least 50% of the units are occupied by low-income residents earning at or below 60% of area median income and are high energy users. For single-family dwellings, 50% of occupants at or below 60% of the state median income level.

Program Administration: The utility would provide the primary administrative and functional roles. Potentially a third-party administrator or contractor could oversee the day-to-day operations, including scheduling, assessing and installing eligible measures in income-eligible customers' homes and buildings. The utility (or an entity acting on its behalf) would also be responsible for leveraging other federal and state funding sources to provide the most comprehensive energy efficiency projects possible. The NCUC would have oversight authority to review multi-family projects and ensure utility compliance with best practices, including ensuring cost-effectiveness and managing overall program costs. The NCUC would also have additional oversight authority through the cost-recovery regulatory mechanism set forth in G.S. 62-133.9

Eligibility Criteria: 1-4 unit residential buildings where at least 50% of the units are occupied by low-income residents earning at or below 60% of area median income and are high energy users. For single-family dwellings, 50% of occupants at or below 60% of the state median income level.

Success Metrics: Net Annual Savings (MWh); Net Lifetime Savings (MWh); # of customers participating; CCE ($ per lifetime kWh); annual peak demand savings (summer/winter kW).
Proposal 18 - Smart $aver Low Income Multi-Family Retrofit

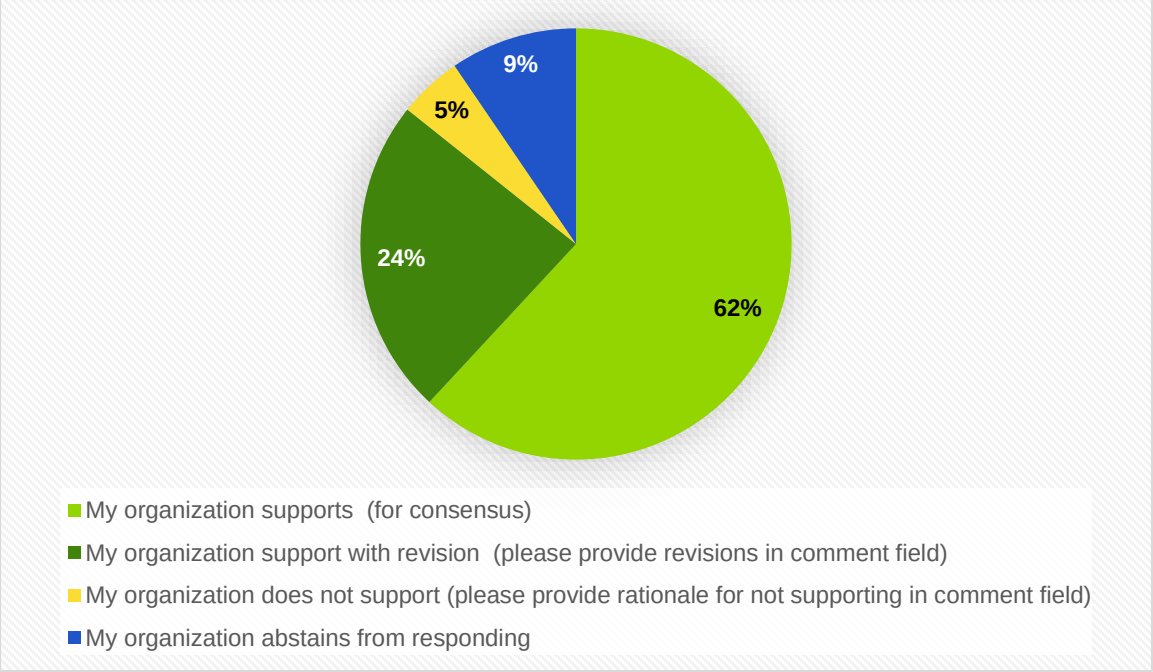
Program Partners: U.S. Department of Energy; U.S. Department of Health and Human Services; North Carolina Department of Health and Human Services; Building Performance Institute (BPI); North American Technician Excellence (NATE)

Additional Information: This program has been successfully implemented in Massachusetts and has received tons of accolades as being an "exemplary" energy efficiency program.

Proposal 24 - Customer Affordability Program "CAP" (P09 + P22)

Combination of Proposal 09 and Proposal 22

Assessment Results:



Breakdown of Results:

Supports:

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- Crisis Assistance Ministry
- Duke Energy
- Legal Aid of North Carolina
- National Association for the Advancement of Colored People (NAACP)
- North Carolina Housing Coalition
- North Carolina Justice Center
- North Carolina Sustainable Energy Association
- Sierra Club
- Southeast Energy Efficiency Alliance (SEEA)
- Southern Alliance for Clean Energy (SACE)
- Southern Environmental Law Center (SELC)
- Vote Solar

Supports with Revision:

- AARP
- North Carolina Community Action Association
- North Carolina Dept of Health and Human Services
- Public Staff of the North Carolina Utilities Commission
- Rowan Helping Ministries

Does not Support:

- Carolina Industrial Groups for Fair Utility Rates (CIGFUR)

Abstains:

- Dominion
- Nicholas Institute (Duke University)

Comments from Assessment:

"AARP supports such comprehensive and coordinated measures to help low-income customers pay their bills and supports the idea conceptually. We especially like the auto enrollment feature. We are interested to ensure that the program can be readily understood by consumers and can be administered without undue complexity. We would like more information on the complexities created by having three different benefit tiers. A pilot program should be used to test the viability of this new idea." **– AARP**

"This program is supported to the extent that it is based upon cost of service principles. Participation in applicable EE programs should be required instead of 'highly suggested.'" **- Public Staff of the North Carolina Utilities Commission**

"In regards to the Tiered approach, DHHS does not currently capture the data necessary to determine the FPL levels discussed in this proposal. For CIP, LIEAP, LIHWAP, SNAP, and Medicaid, a recipient's income eligibility is determined by whether they fall under a certain FPL but what percentage they fall into is not recorded. This could potentially change in the future; however, due to the amount of work that is ongoing with our NC FAST team on making changes to our system that take priority, it is unclear as to when our team would have availability to make these upgrades to capture this data." - **North Carolina Dept of Health and Human Services**

"Violates cost-causation principles to recover costs from all classes of customers. Costs should be contained to residential class of customers. This proposed interclass cross-subsidization is not consistent with existing NC law, in particular H951." **– Carolina Industrial Groups for Fair Utility Rates (CIGFUR)**

"The results of the analysis support efforts that would reduce electric burden for households." **– Nicholas Institute**

"Requirement for participants in program to have an energy efficiency audit to identify ways to reduce energy consumption. Recertification would take into consideration the customers implementation of energy efficiency recommendations and/or use of the free weatherization services." – **Rowan Helping Ministries**

Program Proposal Information:

Name and Organization: Joint proposal from multiple stakeholders merging Program Proposal # 9 with # 22

Program Name: Customer Affordability Program (CAP). DEC and DEP would have separate programs with separate funding from the respective customers. However, the program design would be the same for DEC and DEP. For ease, CAP is referred to singularly throughout this document.

Program Description: CAP is a monthly credit applied directly to the qualified customer's bill. Eligible customers would be automatically enrolled in the program via a list given to the Companies from eligible state agencies that are already qualifying people for government assistance programs. Customers would be eligible for CAP for a predetermined amount of time and will require recertification after this timeframe. The CAP program will strive to develop a process so that customers can be automatically recertified.

Program elements would also include:

1) Three income tiers of assistance: Tier 1, 0-50% FPL; Tier 2, 51-100% FPL, and Tier 3, 101% - 150% FPL. The highest level of assistance will go to Tier 1 and lowest level to Tier 3.
2) Annual assistance payments will be designed to reduce the electric energy burden (i.e., the percentage of annual income spent on electricity) to a target of 5% of household income, based on the average income and energy costs for participants in each tier.
3) The program would provide arrearage assistance for participating customers. Arrearages would be forgiven if a residential customer remains current on their bill for a period of 12 months after enrolling in the program.
4) Admin – no more than 5% of the value of discounts and arrearage write-down could be used for program administration; however, in the first year of the program the 5% cap would not apply to allow for the appropriate and reasonable recovery of one-time program launch costs.
5) The program would strive to use a streamlined auto enrollment protocol in partnership with NC DHHS and other appropriate agencies to enroll income-verified customers. Persons qualified for certain income-eligible programs within a yet to be determined time period would be automatically enrolled. Programs might include CIP, LIEAP, LIWAP, SNAP and/or Medicaid.
6) Customers who are enrolled in CAP will be referred to residential income-qualified programs to receive no-cost weatherization and EE services where available.

Program Objective: Proposal sponsors recognize assisting customers with affordability challenges may come through products and services designed to reduce energy usage and provide billing assistance. CAP provides bill credits to eligible customers automatically as they qualify for other eligible assistance. The opportunities to identify and assist low-income customers exist when customers apply for services offered by agencies administering income-qualified programs or when customers contact Duke Energy's customer service center for assistance. CAP will allow the Companies to refer income-qualified customers to receive

weatherization services in addition to the bill credit designed to lower a customer's bill via a flat, monthly credit.

Target Participants: The analysis conducted on DEC and DEP NC residential customers shows customers who receive Low-Income Energy Assistance Program (LIEAP) and Crisis Intervention Program (CIP) assistance use more electricity in the winter months and more usage per square foot in comparison to other customers. LIEAP and CIP recipients are more likely to have arrears and experience disconnection for non-payment. For this reason, the target participants for the CAP would initially include gas and electric LIEAP and CIP recipients but may include other program participants verified to meet certain Federal program income eligibility requirements.

Program Administration: The Companies want to work with DHHS to receive a list of customers for assistance programs identified as CAP eligible (i.e., LIEAP and CIP) and possibly other programs. The Companies and other stakeholders will work with DHHS to discuss requirements for participating customers to receive the CAP bill credit. The Companies would ideally auto-enroll eligible customers identified by the state agency and update the information directly in the billing system. The Companies would also be responsible for tracking program success.

Eligibility Criteria: Any DEC or DEP NC customer that receives assistance from one of the CAP eligible programs, i.e., LIEAP or CIP for either electric or non-electric fuels, or possibly other similar income-eligible programs. The proposal sponsors will also explore the feasibility of enrolling customers who would have qualified for LIEAP or CIP but did not receive assistance due to funding running out before enrollment was closed for the year.

Success Metrics: Metrics could include timely enrollment of eligible customers, tracking of program information, customer satisfaction with the program, reduced customer electricity burden, reduced disconnections for nonpayment, and reduced arrearages and uncollected write-offs.

Program Partners:

- Qualifying state agencies, such as NC DHHS

Additional Information:

The intention is to combine CAP with energy efficiency (EE) and weatherization programs and related energy education campaigns. Increasing access to and participation in EE programs, in addition to direct bill assistance, is a win-win for all involved. The analytics presented in the Low-Income Affordability Collaborative (LIAC) showed the LIEAP/CIP customers use more electricity per square foot than other income groups. Additionally, the average LIEAP/CIP customers were disconnected for non-payment ("DNP") over four times more than the total North Carolina customers (16.3 percent of LIEAP/CIP customers were DNP compared to 3.9 percent for all NC customers). Reducing the amount of kWhs used reduces the total bill, saving participants money. In addition, EE investments that reduce overall usage from participating CAP customers also can reduce the amount of bill payment assistance needed to reach the target energy burden, helping to save money for all customers. Reducing the total bill further with the CAP credit can greatly impact the lives of LIEAP/CIP customers. As previously

mentioned, the Companies are open to exploring expanding the list of CAP eligible government assistance programs but believe including LIEAP/CIP customers initially can have the biggest impact, even though only two percent of North Carolina customers received LIEAP/CIP assistance in the LIAC review period.

Alternative design element to add to CAP design:

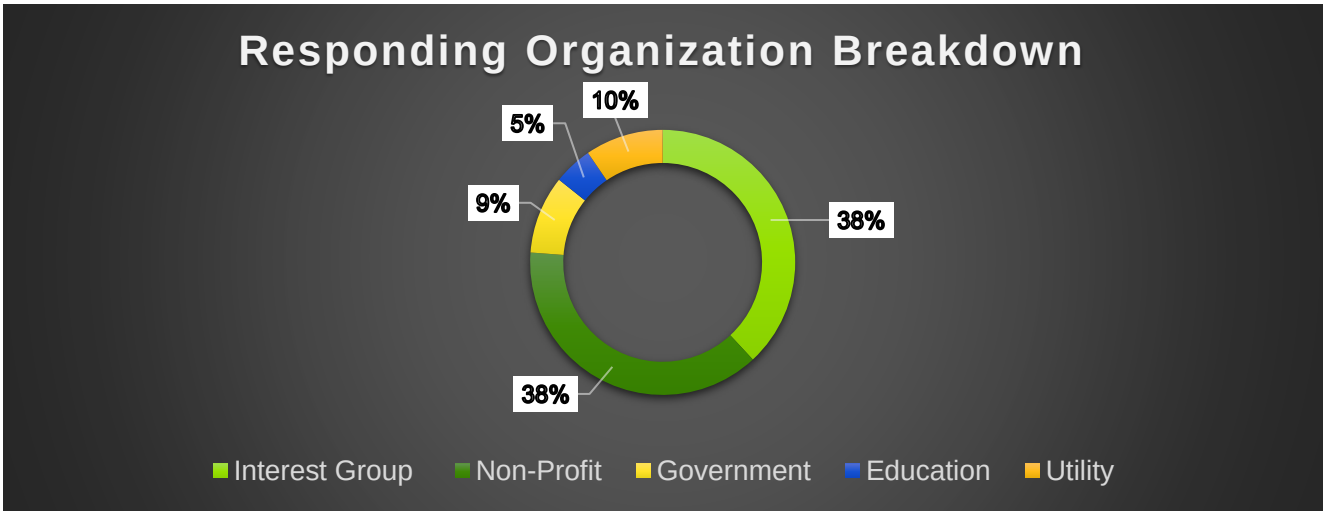
1. Instead of a flat credit for 12 months, customers could receive double the credit amount for six months when customers experience an increased heating or cooling cost for their homes. Customers would receive the same annual credit level, and it would just be a matter of how and when distributed. The LIAC analysis revealed LIEAP/CIP customers' bills were highest in the winter months (December through February), followed by the summer months (June through September)

Appendix

Responding Organizations (21 Total)

Organizations (and Individuals who submitted the response on behalf of their organization):

- AARP (Michael Olender)
- Appalachian Voices (Rory McIlmoil)
- Carolina Industrial Groups for Fair Utility Rates (CIGFUR) (Christina Cress)
- Crisis Assistance Ministry (Carol Hardison)
- Dominion (Lisa FaJohn)
- Duke Energy (Conitsha Barnes)
- Legal Aid of North Carolina (Scheree Gilchrist)
- National Association for the Advancement of Colored People (NAACP) (Tina Katsanos)
- Nicholas Institute (Duke University) (Kay Jowers)
- North Carolina Community Action Association (Detrick Clark)
- North Carolina Dept of Health and Human Services (Allison Smith)
- North Carolina Housing Coalition (Adrienne Spinner)
- North Carolina Justice Center (Alfred Ripley)
- North Carolina Sustainable Energy Association (Daniel Parker)
- Public Staff of the North Carolina Utilities Commission (Tommy Williamson)
- Rowan Helping Ministries (Kyna Grubb)
- Sierra Club (Cassie Gavin)
- Southeast Energy Efficiency Alliance (SEEA) (Will Bryan)
- Southern Alliance for Clean Energy (SACE) (Forest Bradley-Wright)
- Southern Environmental Law Center (SELC) (David Neal)
- Vote Solar (Lindsey Hallock)



APPENDIX H – LIAC

LIAC WORKSHOP VII

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

Guidehouse

North Carolina

Low Income Affordability Collaborative

Workshop 7

May 19, 2022

Convened by

DUKE ENERGY.

Public Staff
North Carolina Utilities Commission

Welcome

MACIE SHOUN
Workshop Facilitator

Workshop Support

JAMIE BOND

NNEOMMA NWOSU

Guidehouse

40-50
active LIAC participants

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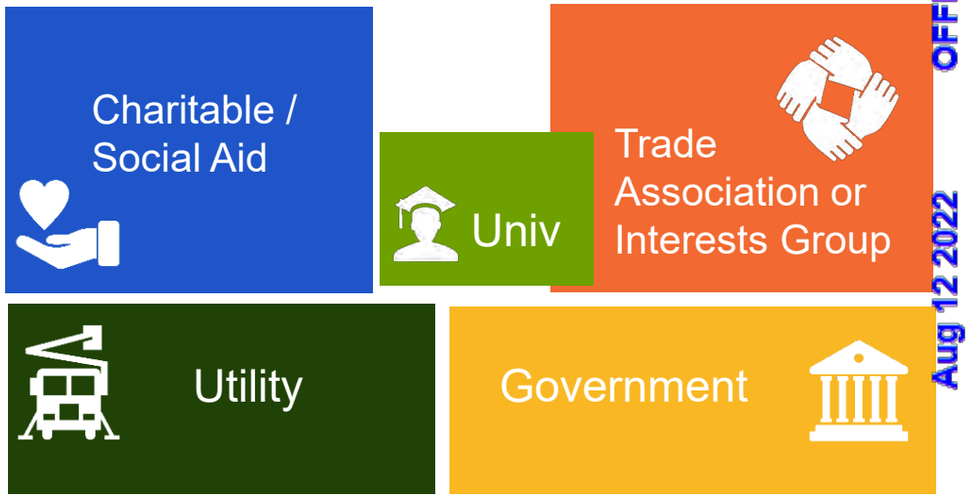
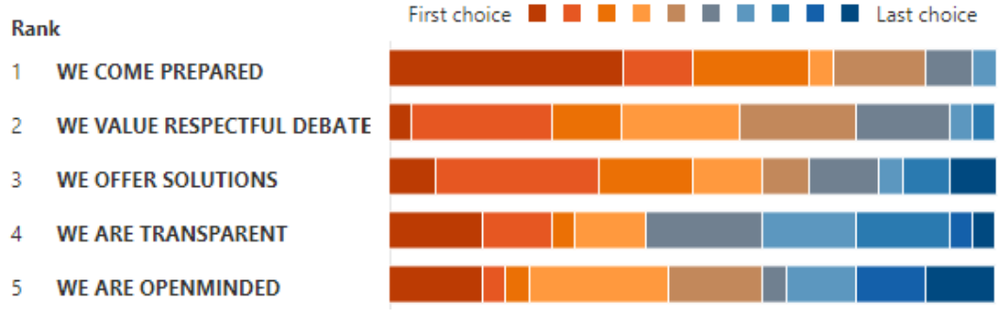
Aug 12 2022

Organizational Representation



4 LIAC subteams

Top Guiding Principles



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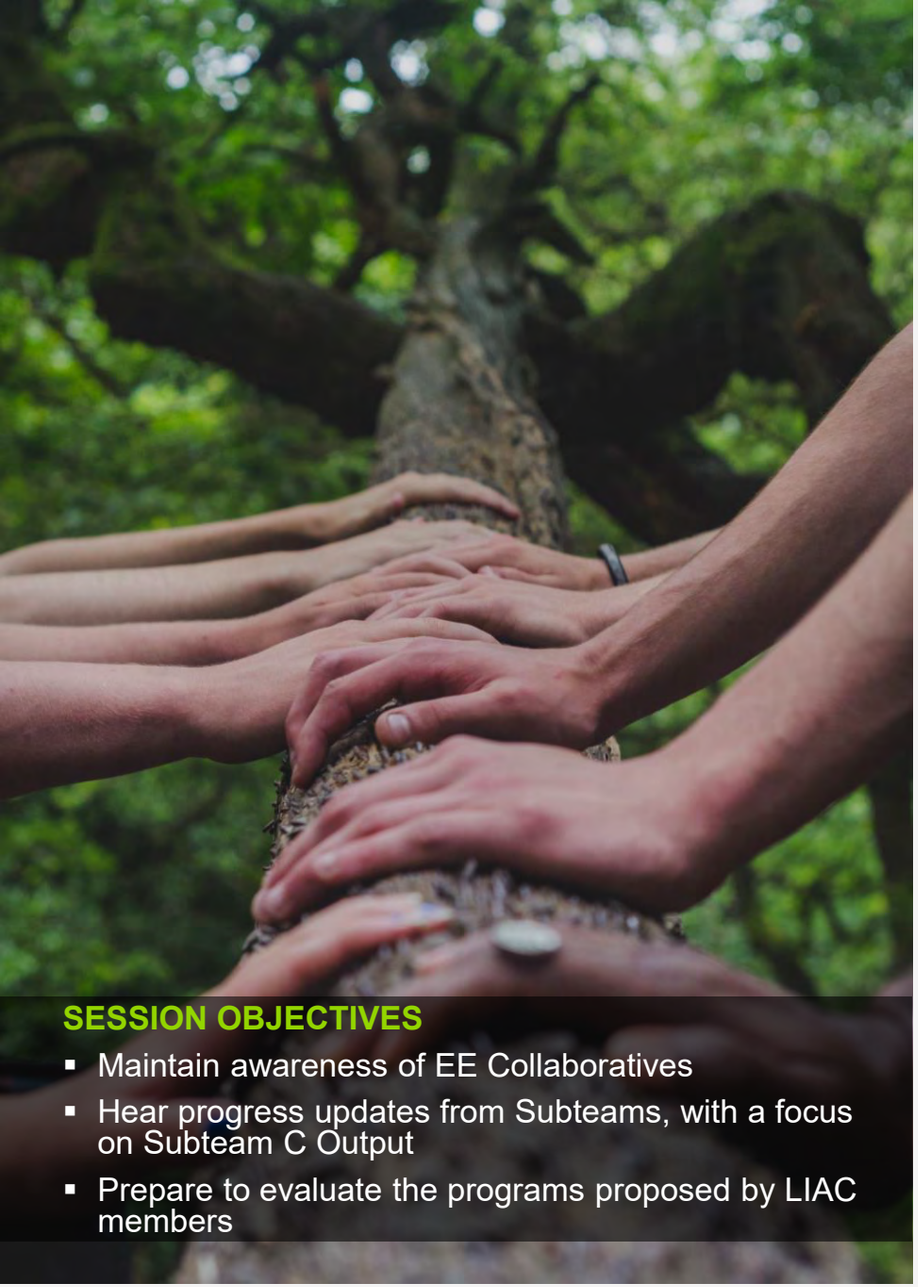


SESSION OBJECTIVES

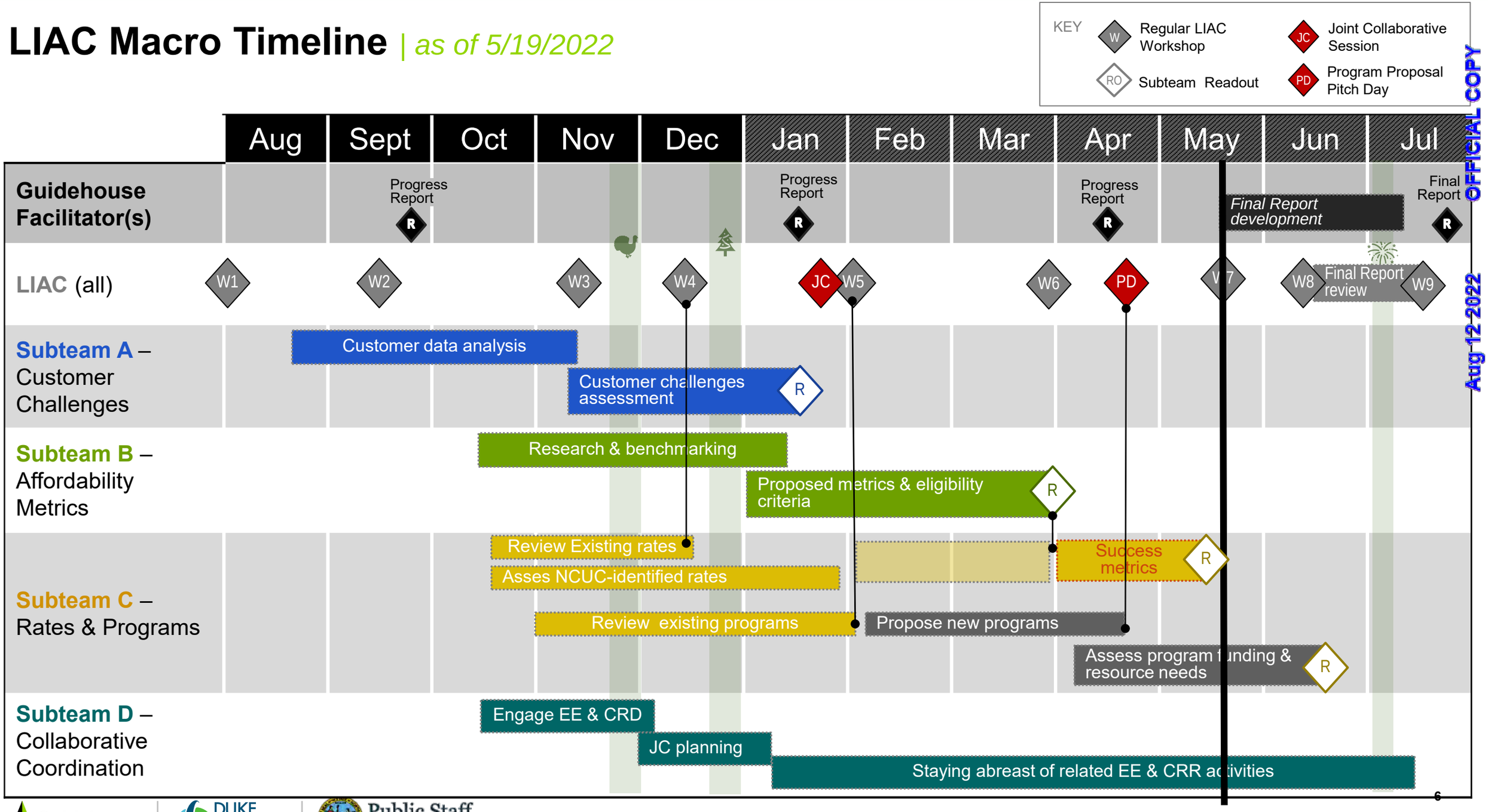
- Maintain awareness of EE Collaboratives
- Hear progress updates from Subteams, with a focus on Subteam C Output
- Prepare to evaluate the programs proposed by LIAC members

NC Low Income Collaborative

Agenda | May 19, 2021

Workshop VII: Funding & Resource Needs			
	CONVENE		
PART I	Welcome, Safety & Agenda	*Guidehouse*	*60-75 min*
	Collaborative Updates (EE)	*EE Liaisons*	
	Subteam A Update	*Subteam Co-Leads*	
	Rates & Programs (Subteam C): • Review of Delinquency	*LIAC Subteam C*	
	BREAK		
PART II	Rates & Programs (Subteam C): • Existing Programs & External Opportunities	*LIAC Subteam C*	*60-75 min*
	Program Proposal Evaluation Process	*Guidehouse*	
	Round Table	*All (GH Facilitated)*	
	Wrap-up & Look Ahead	*Guidehouse*	
	ADJOURN		

LIAC Macro Timeline | *as of 5/19/2022*



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EE LIAISON UPDATES

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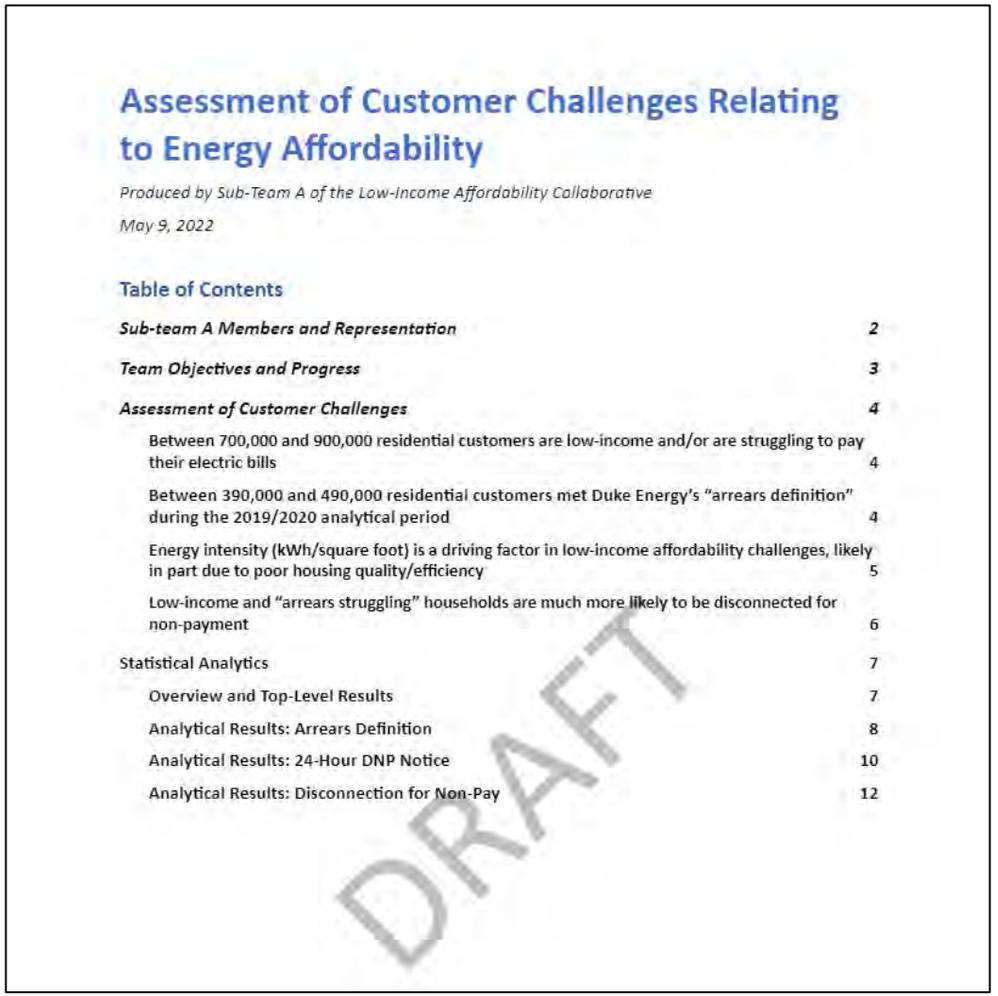
Assessment of Analytics

Subteam A Update

May 19, 2022

Update on Assessment of Affordability

- Assessment is still being finalized since V4 of the analytics that were published
- Final draft will be shared with the full collaborative
- Additions to Assessment:
  - Statistical Modeling overview
  - Details of key variables impacts on affordability
  - Updated numbers and minor enhancements throughout



Assessment of Customer Challenges Relating to Energy Affordability

Produced by Sub-Team A of the Low-Income Affordability Collaborative

May 9, 2022

Table of Contents

DRAFT

Key Findings & Opportunities

Key Findings:

- Younger customers are more likely to be in arrears and disconnected for non-pay
- Electric burden has a significant impact on electric bill affordability
- Winter impact & heat source are more impactful than summer
- Renters have more affordability challenges than owners

Opportunities:

- Bill assistance programs may help customers who are low-income or have low cash reserves/liquid assets to pay their electricity bills
- Improving a household's energy efficiency through air sealing, insulation, and efficient heating systems could substantially help affordability challenges
- Identifying low-income customers who are experiencing affordability challenges is necessary to offer the right solutions to address these challenges

SUBTEAM C UPDATES

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Review of Practices and Regulatory Provisions Related to Disconnections

May 19, 2022

Review of Disconnect Rules

What, if any, practices and regulatory provisions related to disconnections for nonpayment should be modified or revised?

NCUC Rule R12-11. Disconnection of Residential Customer's Electric Service

- NCUC Rule R12-11 is applicable to all residential customer who receive electric service from a regulated utility.

NCUC Rule R12-11 Requirements

- Bill past due shall not be less than twenty-five (25) days after the billing date.
- Payment due to company or designated payment agency during regular business hours by 5:00 p.m. on the twenty-fifth (25th) day, unless such day is a Saturday, Sunday, or legal holiday in which event the last day for payment runs until the end of the next day which is not a Saturday, Sunday, or legal holiday.
- Electric service to a residential customer shall not be terminated for nonpayment of a delinquent account until the utility has given such customer **at least 10 days' written notice** that his service is subject to termination.
- **At least 24 hours prior** to a proposed service termination, the utility shall, in good faith, attempt to contact a customer to whom a written disconnect notice has been mailed (as well as any third party who may have been designated by the customer to receive notice pursuant to subsection (n) of this rule), either by telephone or by visit to the customer's premises.
- **Immediately prior to the actual termination of service**, the utility's representative shall attempt to personally contact the customer on the premises.

NCUC Rule R12-11 Requirements

- With respect to bills rendered between November 1 and March 31 of every year and in conformity with the policy considerations expressed by Congress in the Public Utility Regulatory Policies Act (PURPA) of 1978, the notice of proposed termination shall also contain a statement that no termination shall take place without the express approval of the Commission if the customer can establish all of the following:

  (a) That a member of the customer's household is either handicapped or elderly (65 years of age or older), or both.

  (b) That the customer is unable to pay for such service in full or in accordance with subsection (I)(3) of this rule.

  (c) That the household is certified by the local social service office which administers the Energy Crisis Assistance Program or other similar programs as being eligible (whether funds are then available or not) to receive assistance under such programs.

Current Notice Effectiveness

DEC - Average Monthly Residential Notices							
Pre & Post COVID		10 Day Notice	24 Hour Notice	Day of Disc. Notice	Disconnected	Reconnected	No Action
PRE	July 2019 – Dec 2019	~335,000	~179,000	~32,000	~9,300	~8,700	~600
	Reduction from previous notice		46%	82%	72%		Less than 1% (of delinquent population)
POST	Nov 2020 – Feb 2021	~228,000	~105,000	~48,000	~6,700 ~7,500 (purged)	~5,000	~9,200 (includes purge)
	Reduction from previous notice		54%	54%	70%		4% (of delinquent population)

DEP - Average Monthly Residential Notices							
Pre & Post COVID		10 Day Notice	24 Hour Notice	Day of Disc. Notice	Disconnected	Reconnected	No Action
PRE	July 2019 – Dec 2019	~180,000	~101,000	~21,000	~8,000	~6,800	~1,200
	Reduction from previous notice		44%	79%	62%		Less than 1% (of delinquent population)
POST	Nov 2020 – Feb 2021	~159,000	~105,000	~25,000	~7,300 ~200 (purged)	~6,500	~1,000 (includes purge)
	Reduction from previous notice		34%	76%	70%		Less than 1% (of delinquent population)

Current Notice Effectiveness

DEC - Average Monthly Residential Notices							
Pre & Post Campaign Implementation		10 Day Notice	24 Hour Notice	Day of Disc. Notice	Disconnected	Reconnected	No Action
PRE	Jan 2019 – Jun 2019	~320,000	~169,000	N/A	~13,000	~10,100	~2,900
	Reduction from previous notice		47%	N/A	92%		.91% (of delinquent population)
POST	July 2019 – Dec 2019	~335,000	~179,000	~32,000	~9,300	~8,700	~600
	Reduction from previous notice		46%	82%	72%		.18% (of delinquent population)

DEP - Average Monthly Residential Notices							
Pre & Post Campaign Implementation		10 Day Notice	24 Hour Notice	Day of Disc. Notice	Disconnected	Reconnected	No Action
PRE	Jan 2019 – Jun 2019	~177,000	~108,000	N/A	~5,000	~4,300	~700
	Reduction from previous notice		44%	N/A	95%		.40% (of delinquent population)
POST	July 2019 – Dec 2019	~180,000	~101,000	~21,000	~8,000	~6,800	~1,200
	Reduction from previous notice		44%	79%	62%		.67% (of delinquent population)

NC Programs & Payments

NC Residential Payment Channel Breakdown March 2019 – February 2020				
Jurisdiction	Mail-In	One-Time (Speedpay)	Electronic / Draft	Walk-In
DEC	22.0%	30.6%	43.9%	3.5%
DEP	23.4%	28.7%	38.8%	9.0%

NC Residential Installment Plans January 2022			
Jurisdiction	Arrears	Deposit	Total
DEC	75,435	2,541	77,976
DEP	42,781	1,842	44,623

NC Budget Billing
April 30, 2022
287,046[1]

[1] Approximately 9% of the DEC and DEP NC residential customers

Conclusion

Review for possible revisions of rules best addressed through rulemaking procedure ordered by the North Carolina Utilities Commission.

BREAK

(Resuming at 2:00 PM)

SUBTEAM C UPDATES

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Existing Programs and External Opportunities Discussion

Led by Subteam C

NCUC Order

Investigate the strengths and weaknesses of existing rates, rate design, billing practices, customer assistance programs and energy efficiency programs in addressing affordability. Questions that should be addressed include:

- **What defines a "successful program" and what metrics should be monitored and presented that show the impact of programs on addressing or mitigating affordability challenges?**
- **What percentage of residential customers are eligible for each existing program and what percentage of eligible customers enroll in and/or take advantage of these programs?**
- **What is the impact of existing programs on the energy burden for enrolled customers?**
- **Should existing programs be maintained, replaced or terminated? If maintained, should any changes be made to improve results? If programs are replaced, what would replace them?**
- **What existing utility and external funding sources are available to address affordability? Estimate the level of resources that would be required to serve additional customers**
- **What are the opportunities (and challenges) of the utilities working with other agencies and organizations to collaborate and coordinate delivery of programs that affect affordability concerns?**

Weatherization and Equipment Replacement Program ("WERP") & Refrigerator Replacement Program ("RRP")[1]

Duke Energy Carolinas launched WERP and RRP in February 2015.

Program is designed to assist low - income customers with installing energy efficiency measures in their home through WERP and RRP. WERP and RRP are delivered in coordination with State agencies that administer the state's weatherization programs.

WERP and RRP are available for income-qualified customers residing in existing, individually metered single-family homes, condominiums, and mobile homes.

- Funds are available for (i.) weatherization measures and/or (ii.) heating system replacement with a 15 or greater SEER heat pump, and/or (iii.) refrigerator replacement with an Energy Star appliance.

Measures eligible for funding identified via a full energy audit. Customers are placed into a tier based on energy usage so that high energy users to receive more extensive weatherization measures.

- Tier 1 provides up to $600 for energy efficiency services
- Tier 2 provides up to $4,000 for energy efficiency services
- Up to $6,000 for HVAC replacement.
- Refrigerator Replacement $1,080

% of Eligible Customers: ~ DEC 33.2%

Program Funding: Energy Efficiency Rider

Program Administrator: North Carolina Community Action Agency (NCCAA) and TRC.

- Agencies use a combination of federal, local and Duke Energy funds to administer program.
- Program eligibility determined by state assistance agencies.

Metrics used to evaluate program success:

- Number of customers served
- Number of measures installed
- Evaluated and verified kWh reductions driven by installed measures

Energy Burden Impact

	Weatherization Tier I			Weatherization Tier II			Refrigerator Replacement		
	Before	After	Change	Before	After	Change	Before	After	Change
LIEAP/CIP	6.9%	6.8%	0.1%	7.7%	6.8%	0.9%	6.9%	6.8%	0.1%
<150% FPL	6.6%	6.5%	0.1%	7.5%	6.5%	1.0%	6.8%	6.5%	0.3%
150% to 200% FPL	3.8%	3.8%	0.0%	4.3%	3.8%	0.5%	4.0%	3.8%	0.2%

	Customer Served	WERP Energy Savings Per Participant (kWh)	RRP Energy Savings Per Participant (kWh)	Avg Cost Per Participant	Budget	Actual Spend
2019	1,044	1,994	805	$3,487	$4,493,243	$3,642,979
2020	502	1,909	805	$3,935	$ 2,769,257	$1,975,502
2021	976	1,827	805	$3,463	$3,200,131	$3,380,340

[1]Work is underway to file similar program for approval with the NCUC in DEP service territory.
[2] Data in tables reflect system values.

Weatherization and Equipment Replacement Program ("WERP") & Refrigerator Replacement Program ("RRP")

PROGRAM OPPORTUNITIES AND CHALLENGES

- **What are the challenges of working with other agencies or organizations to collaborate and coordinate delivery of this program?** The Company has no insight into how customers are prioritized at the State Agency level. Number of customers served is limited by State Agencies staffing as well as contracting services available for installation.
- **What are the opportunities of working with other agencies or organizations to collaborate and coordinate delivery of this program?** The agencies work directly with the customers and provide actionable feedback for how to expand the program.
- **In your opinion what are the strengths of this program?** Services are provided at no cost to the customer, lowers customer's energy bills, and provides kWh savings to the Company.
- **In your opinion what are the weaknesses of this program?** Limitations to being able to address all customer needs at the time of service (health and safety).

PROGRAM RECOMMENDATIONS

- **If given the opportunity what are (3) three things, you would change or add to this program to make it better and why?**
  - Improve reporting to provide more visibility into where Healthy and Safety funds are going, tracking of weatherization deferrals, understanding of additional funding needed to enable customers to participate in WERP/RRP.
  - Potential prioritization of customers based on energy intensity, income level, potential for customer assistance funds.
  - Determine long term funding for Health and Safety funds to ensure customers are able to continue to receive needed Weatherization services. Explore opportunities to expand services provided and include additional measures as identified.

LIAC Sub-Team C Working Group 1 – Recommendations

The recommendations detailed below were provided by LIAC Sub-Team C Working Group 1 members for the Company to consider to increase program participation and outreach.

- Identify opportunities to increase program participation through existing network of providers
- Evaluate opportunities to expand network of providers that supports increasing number of program participants
- Work with network providers to identify opportunities for the Company to market program to eligible customers
- Evaluate opportunities with providers for increased health and safety investment

Neighborhood Energy Saver ("NES")

Duke Energy Carolinas and Duke Energy Progress offer Neighborhood Energy Saver.

Program provides energy savings by providing measures and services at no cost to customers. The goal is to offer persistent energy savings to income-qualified customers through the direct installation of energy-saving measures.

NES is available to individually metered residential customers in selected neighborhoods where ~50% of the homeowners have income equal to or less than 200% of the Federal Poverty Guidelines, based on third party and census data.

Marketing for NES targets neighborhoods with a significant low-income customer base using a grassroots marketing approach to interact on an individual customer basis and gain trust. Participation is driven through a neighborhood kick-off event that includes trusted community leaders and local and state officials explaining the benefits of the Program. Historically, 65% of the customers marketed participate in the program.

% of Eligible Customers[1] - DEC ~33.2% & DEP ~33.5%

Program Funding: Energy Efficiency Rider

Program Administrator: Franklin Energy

Metrics used to evaluate program success:

- Number of customers served
- Number of measures installed
- Evaluated and verified kWh reductions driven by installed measures

Energy Burden Impact			
	Neighborhood Energy Saver		
	Before	After	Change
LIEAP/CIP	8.7%	8.3%	0.4%
<150% FPL	8.1%	7.7%	0.4%
150% to 200% FPL	4.6%	4.3%	0.3%

	Year	Customer Served	Energy Savings Per Participant (kWh)	Avg Cost Per Participant	Budget
DEC	2019	9770	693	$347	$3,981,170
	2020	1753	693	$364	$3,680,962
DEP	2019	4517	819	$349	$1,911,674
	2020	617	819	$595	$1,888,543

[1] Reflects current residential approximate percent of customers in the respective service territory identified as Low Income (200% of FPL) out of the total number of residential customers. However, due to the nature of the program design, additional customers which live in neighborhoods where ~50% of the homeowners have income equal to or less than 200% of the Federal Poverty Guidelines will also be eligible to participate. Additionally, customers which have been identified as low income but which live in very rural settings may not be eligible to participate.

[2] Data in tables reflect system values.

Neighborhood Energy Saver (“NES”)

PROGRAM OPPORTUNITIES AND CHALLENGES

- **What are the opportunities of working with other agencies or organizations to collaborate and coordinate delivery of this program?** Utilize NES to recommend state agencies for health and safety repairs. Engage local weatherization and agencies in kickoff and neighborhood events to better support customer additional needs.
- **In your opinion what are the strengths of this program?** Services are provided at no cost to the customer. Able to serve a large number of customers and provide 1:1 recommendations and improvements to their home.
- **In your opinion what are the weaknesses of this program?** Limitations to being able to address all customer needs at the time of service (health and safety).

PROGRAM RECOMMENDATIONS

- **If given the opportunity what are (3) three things, you would change or add to this program to make it better and why?** Explore expansion into additional energy savings measures such as HVAC repair and replacement opportunities and AC units. Explore opportunities to partner with additional contractor networks to provide services to qualifying customers who do not happen to be located within a “neighborhood”.

PROGRAM PROPOSAL PROCESS UPDATE

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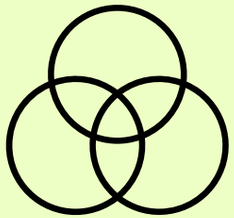
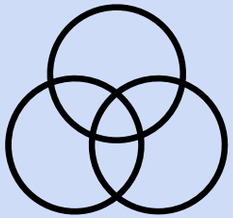
Total Number of Proposals now 19

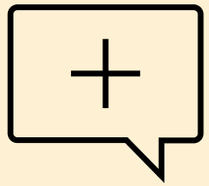
Proposal Updates



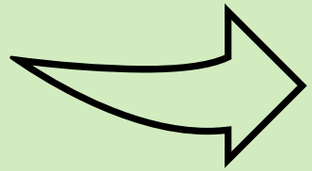
Proposal 8 and 18 combined to make ***Proposal 23***



Proposal 9 and 22 combined to make ***Proposal 24***

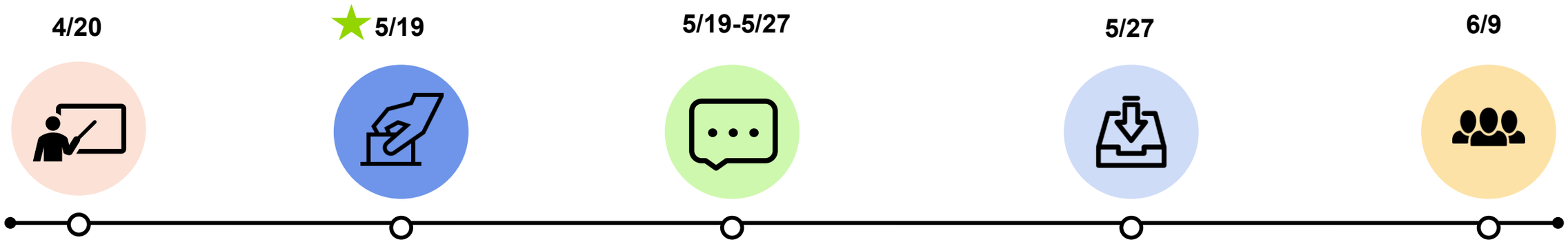


Proposal 16 added examples

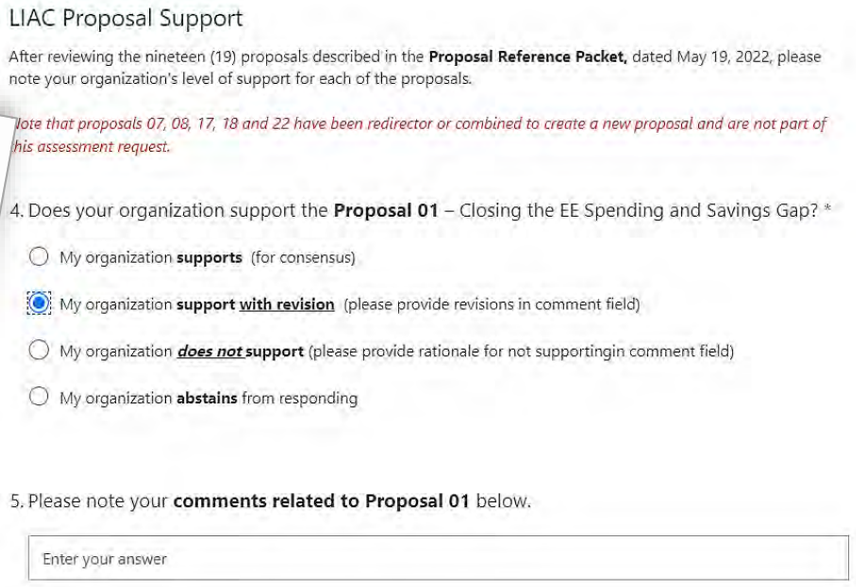


Proposal 17 transferred to on-tariff working group

Proposal Process Timeline



LIAC Proposal Assessment



LIAC Proposal Support

After reviewing the nineteen (19) proposals described in the **Proposal Reference Packet,** dated May 19, 2022, please note your organization's level of support for each of the proposals.

Note that proposals 07, 08, 17, 18 and 22 have been redirector or combined to create a new proposal and are not part of this assessment request.

4. Does your organization support the **Proposal 01** – Closing the EE Spending and Savings Gap? *

- ○ My organization **supports** (for consensus)
- ◉ My organization **support with revision** (please provide revisions in comment field)
- ○ My organization ***does not*** **support** (please provide rationale for not supportingin comment field)
- ○ My organization **abstains** from responding

5. Please note your **comments related to Proposal 01** below.

Enter your answer

LIAC Proposal Assessment Package will be shared following this session:

- Reference Guide (19 proposals plus examples for Proposal 16)
- Assessment Link for designated representative to provide consensus or feedback

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DESIGNATED LIAC ORGANIZATION REPRESENTATIVE

RED – To Confirm

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Aug 12 2022

LIAC Organization	Designated Rep
AARP	Steven Hahn
Advance Carolina	La'Meshia Whittington
Apartment Assoc. of NC	*N/A*
Appalachian Voices	Rory McIlmoil
Carolina Small Business Development Fund	Kevin Dick
ChargePoint	Matthew Deal
Charlotte Area Fund	Nick Wharton
CIGFUR	Christina Cress
City of Raleigh	Gregory Jenkins
Crisis Assistance Ministry	*Carol Hardison*
Dominion Energy	Lisa FaJohn
Duke Energy	Conitsha Barnes
Legal Aid of NC	Scheree Gilchrist
NAACP	Dr. Anthony Spearman
National Institute Economic Development	Kevin Price

LIAC Organization	Designated Rep
NCCAA	Detrick Clark
NC OAG	*Peggy Force*
NC DEQ (State Weatherization)	Paula Hemmer
NC DHHS	Allison Smith
NCJC	Al Ripley
NC ORR (HOPE/ERA)	Tara Fikes
NC Pandemic Recovery Office	Daniel Parker
NCSEA	Daniel Parker
Nicholas Institute	Kay Jowers
PS NCUC	Lucy Edmondson
Rowan Helping Ministries	Kyna Grubb
Sierra Club	*Will Harlan*
SEEA	William Bryan
SACE	Forest Bradley-Wright
SELC	David Neal
Sunrun	Thad Cully
Vote Solar	Lindsey Hollock

OPEN DISCUSSION

Guidehouse | DUKE ENERGY | Public Staff
North Carolina Utilities Commission

Next Steps

Homework & Look-Ahead

Remaining LIAC Sessions

6/9 – Workshop 8

7/7 – Workshop 9

Next up

WHEN

6/9 – Workshop 8

WHAT

- Review of final output from each Subteam
- Proposal portfolio follow-up

YOUR TASK(S)

- Ensure that the designated individual for your organization completes the assessment by ***EOD 5/27***
- Reach out to Macie (mshoun@guidehouse.com) if you would like a legal representative from your organization to be involved in the discussions around Subteam C task 3E

ADJOURN

Guidehouse | DUKE ENERGY | Public Staff North Carolina Utilities Commission

Contact

Chip Wood
Partner
chip.wood@guidehouse.com
704.347.7621

Jamie Bond
Associate Director
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704.347.7626

Guidehouse

APPENDIX I – LIAC

LIAC WORKSHOP IX

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

Guidehouse

North Carolina

Low Income Affordability Collaborative

Workshop 9

July 7, 2022

Convened by

DUKE ENERGY.

Public Staff
North Carolina Utilities Commission

Welcome

MACIE SHOUN
Workshop Facilitator

NNEOMMA NWOSU
Workshop Support

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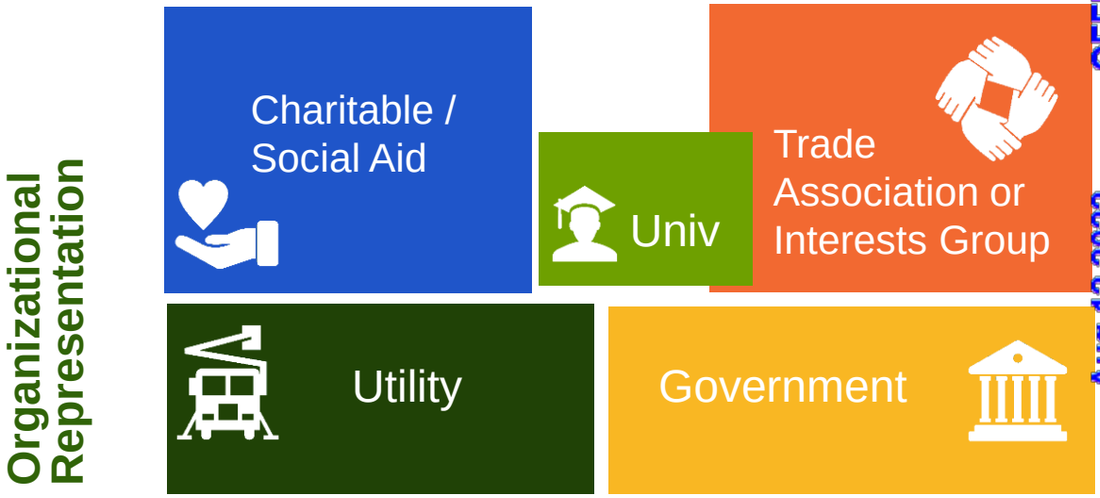
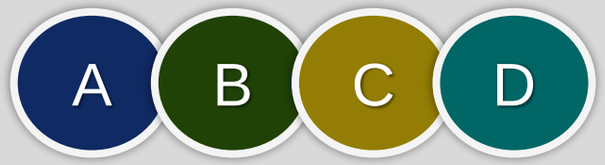
Aug 12 2022

40-50
active LIAC participants

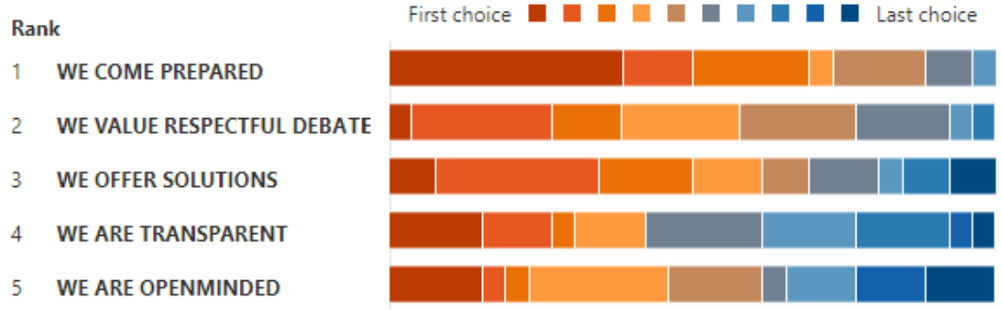
Organizational Representation



4 LIAC subteams



Top Guiding Principles



Guidehouse | DUKE ENERGY. | Public Staff North Carolina Utilities Commission

SESSION OBJECTIVES

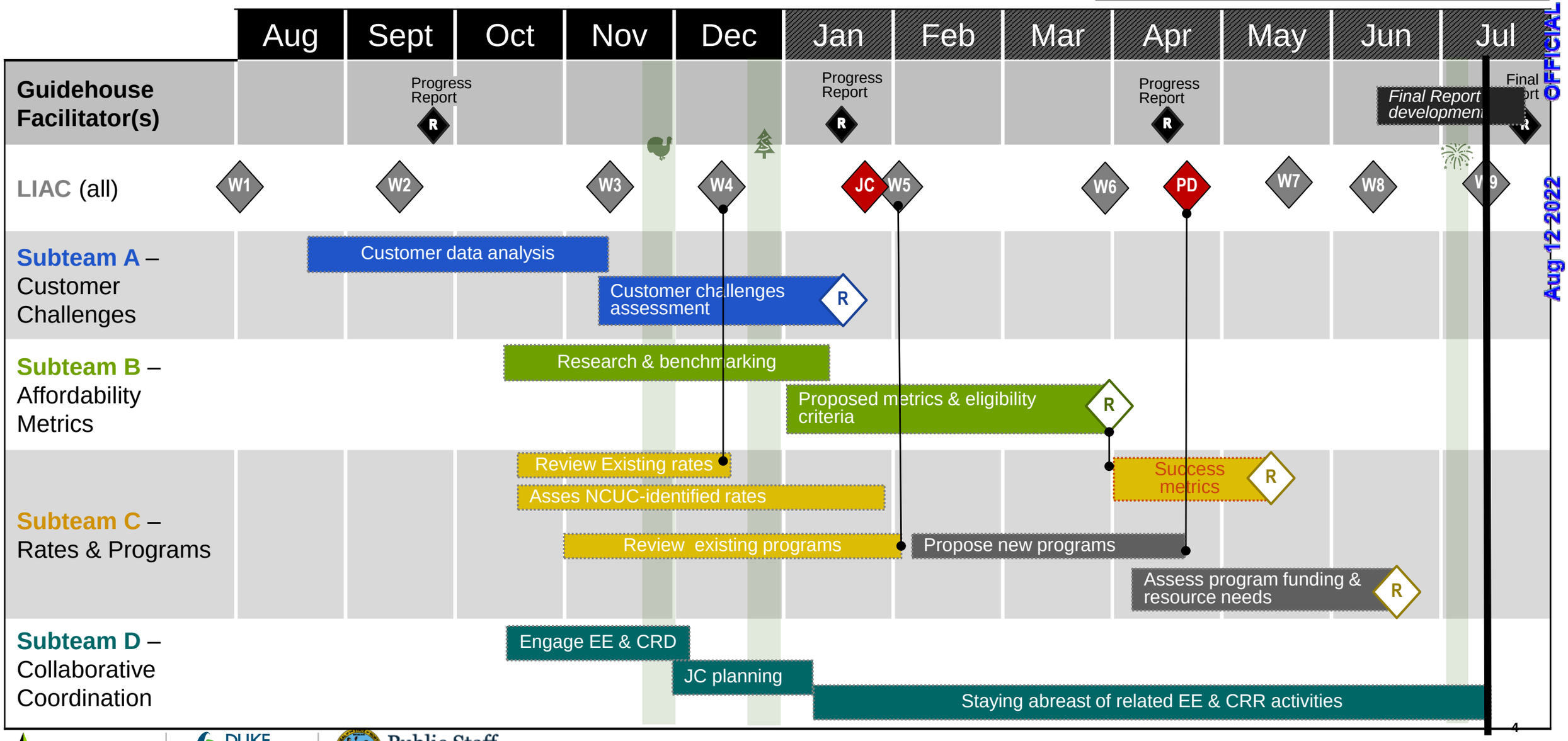
- Share the report framework with collaborative members
- Review the next steps in the Regulatory Process as defined by the NCUC order approving the LIAC

NC Low Income Collaborative

Agenda | July 7, 2022

Workshop IX: Collaborative Final Meeting		
CONVENE		
Welcome & Opening Remarks	*Guidehouse*	30-45 min
Program Filing Overview	*Guidehouse* *Duke Energy*	
Final Report Framework	*Duke Energy* *Public Staff*	
Thank you & Next Steps	*Guidehouse* *Duke Energy* *Public Staff*	
ADJOURN		

Look Back: LIAC Macro Timeline | *as of 7/7/2022*



Program Filings

June 30, 2022

VIA ELECTRONIC FILING

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

RE: Duke Energy Carolinas, LLC's Proposed Residential Income-Qualified High-Energy Use Pilot
Docket No. E-7, Sub 1272

Dear Ms. Dunston:

Enclosed for filing with and approval by the North Carolina Utilities Commission (the "Commission") is Duke Energy Carolinas, LLC's ("DEC" or the "Company") proposed Residential Income-Qualified High-Energy Use Pilot ("High-Energy Use Pilot" or "Pilot"). This High-Energy Use Pilot is filed in accordance with Commission Rule R8-68 and the Commission's Orders dated February 29, 2008, and March 13, 2008, in Docket No. E-100, Sub 113, Rulemaking Proceeding to Implement Session Law 2007-397 (Senate Bill 3).

The High-Energy Use Pilot will install deep retrofits at no cost to the participants with the aim of improving building performance to ensure greater energy efficiency impacts. The Pilot will target low-income households that demonstrate high energy usage and determine if a program with the Pilot's design could achieve greater energy savings than the existing DEC Weatherization Program. The Pilot will be eligible to income-qualified Duke Energy customers who are either homeowners or renters in the following counties: Forsyth, Guilford and Mecklenburg. The Pilot is the product of the rate case order which approved a settlement in which Duke Energy and the settling parties agreed to propose low-income pilot programs jointly to the Energy Efficiency and Demand Side Management Collaborative ("Collaborative"). Representatives from the settling parties and the Company have worked together to research and design this Pilot and presented it to the Collaborative during the bimonthly meetings for vetting.

In the past month Duke Energy has filed two programs that have similarities to programs we have discussed:

- **DEP: Residential Income Qualified EE & Weatherization Program** (Filed June 13th)
  - –Docket No. E-2, Sub 1299
  - –Similar to Proposal 2
- **DEC: Residential Income-Qualified High Energy Use Pilot** (Filed June 30th)
  - –Docket No. E-7, Sub 1272
  - –Similar to Proposal 3

Report Framework

1. **Procedural History/Background**

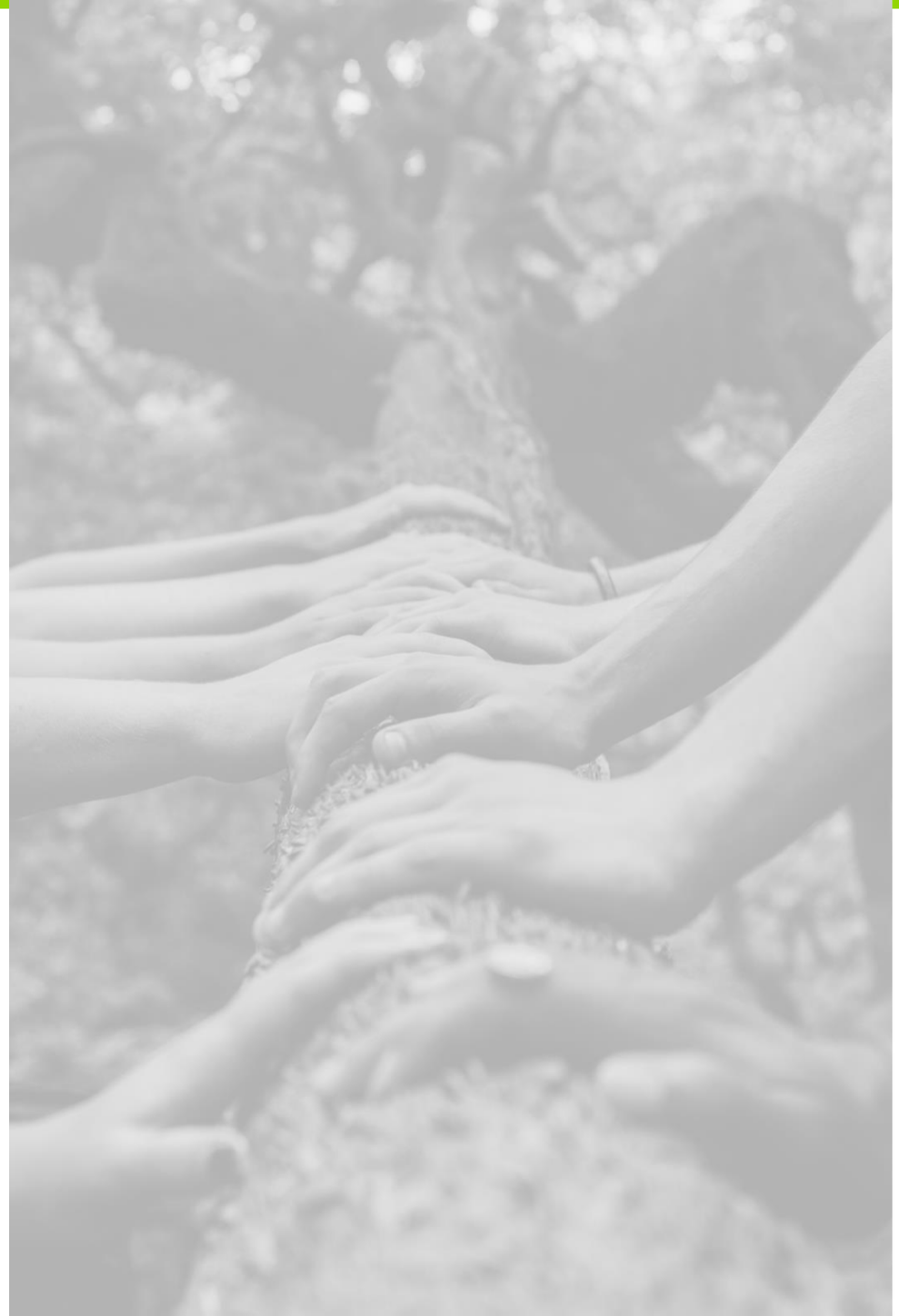
2. **Current Affordability Challenges**
   LIAC – Sub team A Work Product
   Duke Energy
   Public Staff

3. **Research on Affordability Metrics and Trends**
   LIAC – Sub team B Work Product
   Duke Energy
   Public Staff

4. **Investigation of Current Programs**
   LIAC – Sub team C Work Product
   Duke Energy
   Public Staff

5. **Joint Collaborative Meeting**
   LIAC – Sub team D Work Product
   Duke Energy
   Public Staff

6. **Low-Income Programs, Proposals, and Recommendations**
   LIAC – Proposal Assessment Findings
   Duke Energy
   Public Staff



From Duke Energy and the Public Staff:

Thank you!

Next Steps in the Regulatory Process:

Duke Energy and the Public Staff will file the Joint Final Report on July 29th

The Commission will issue a procedural order allowing for comment on the Joint Final Report

Guidehouse | DUKE ENERGY | Public Staff North Carolina Utilities Commission

ADJOURN

Guidehouse | DUKE ENERGY | Public Staff North Carolina Utilities Commission

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