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

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DSM /EE Collaborative:

Cross Collaborative Coordination?

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DSM/EE

CRR

LIAC

Comprehensive Rate Review Collaborative

Bradley Harris
Duke Energy

Thad Culley
Sunrun

Guidehouse | DUKE ENERGY. | Public Staff North Carolina Utilities Commission

Presented at the LIAC Joint Collaborative Session, January 26, 2022

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

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**."

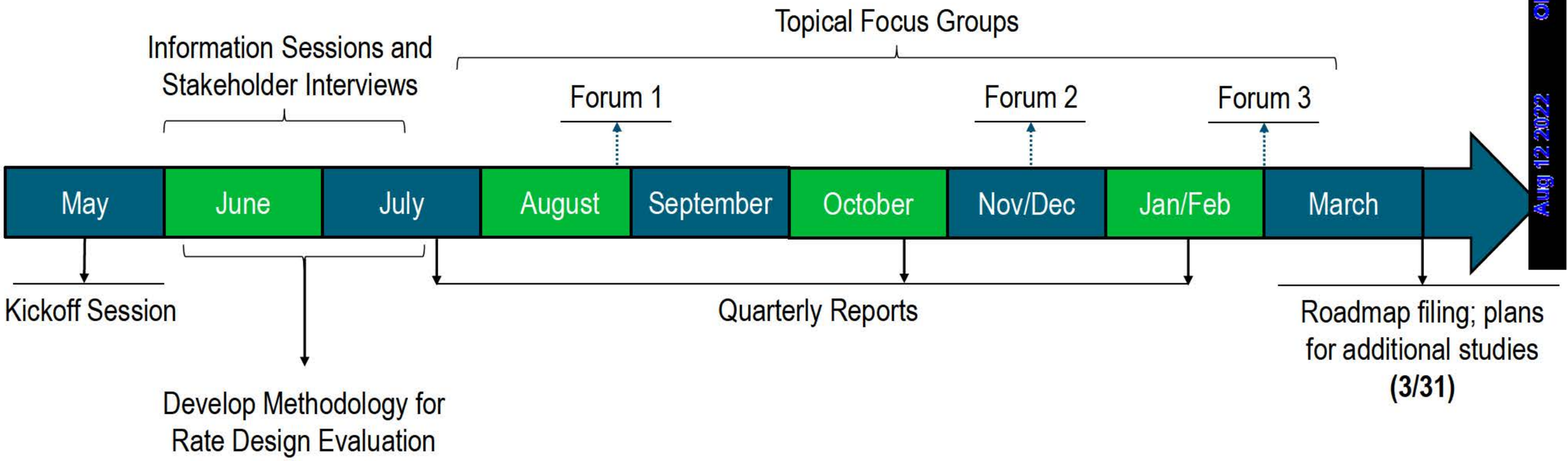
- "The Rate Design Study should…explore the feasibility of **consolidating** the rates offered by DEC and DEP."
- "The Commission is persuaded that in depth **evaluation, debate, and discussion by and among stakeholders** regarding cost to serve, rate design, and making the most efficient use of the electric system is necessary to achieve results that are in the public interest"

Bonbright Principles*

- 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

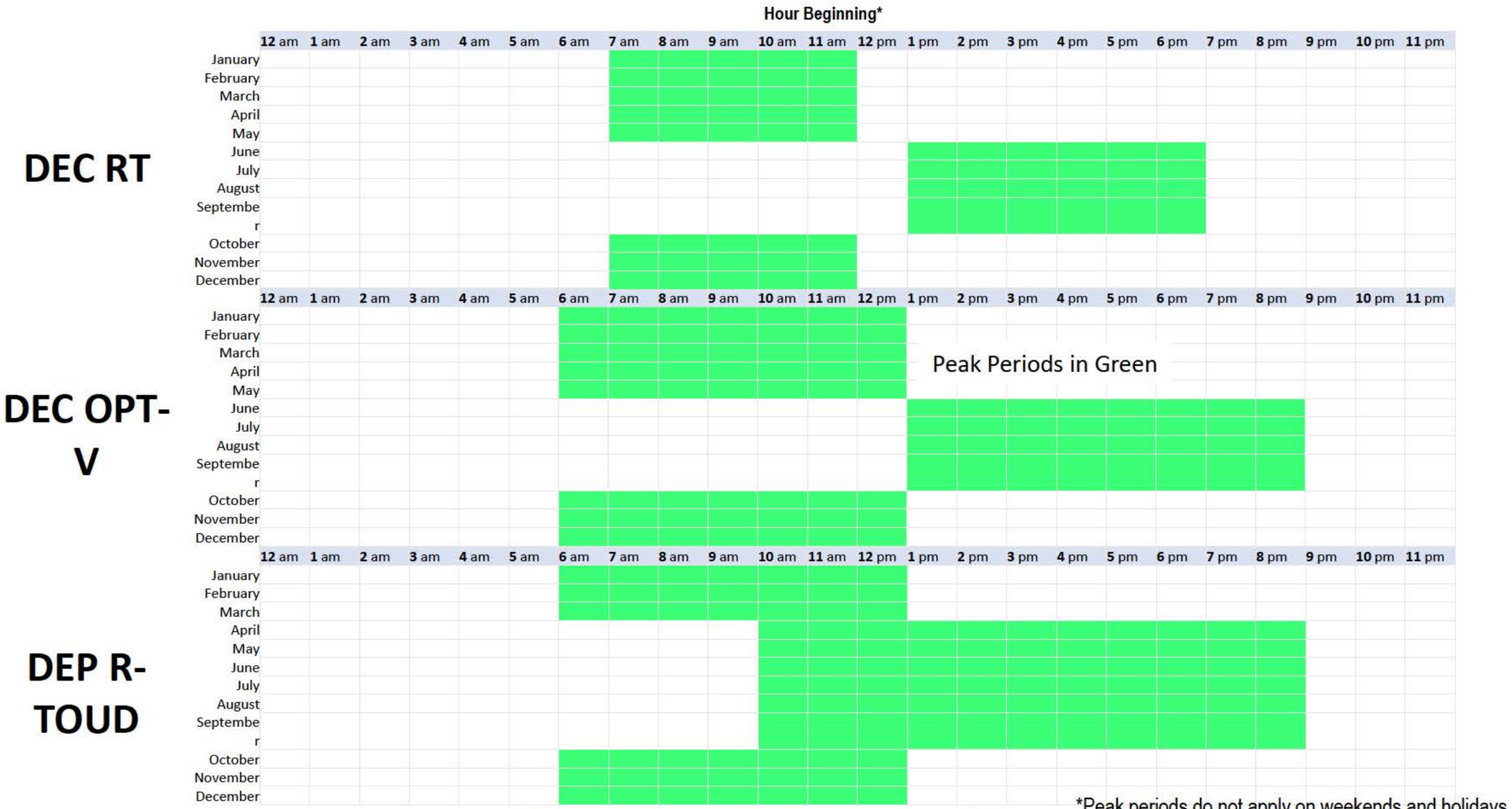
*From Principles of Public Utility Rates by James Bonbright

Timeline



"Flexibility is necessary to ensure robust discussion amongst stakeholders."

Aligning TOU Periods between DEC/DEP and Rate Schedules



*Peak periods do not apply on weekends and holidays

Presented at the LIAC Joint Collaborative Session, January 26, 2022

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

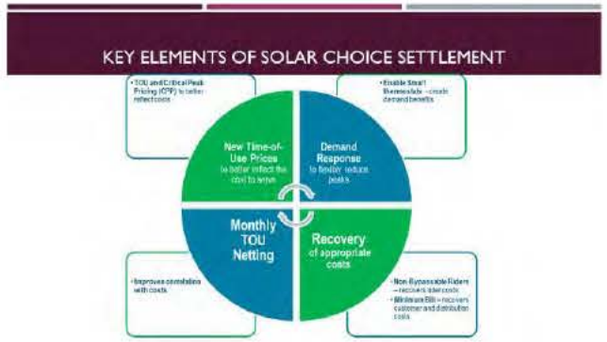
Calculate **TOU prices** that are revenue-neutral to the rate class using the Cost Duration Model and most recent approved Cost of Service Study

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

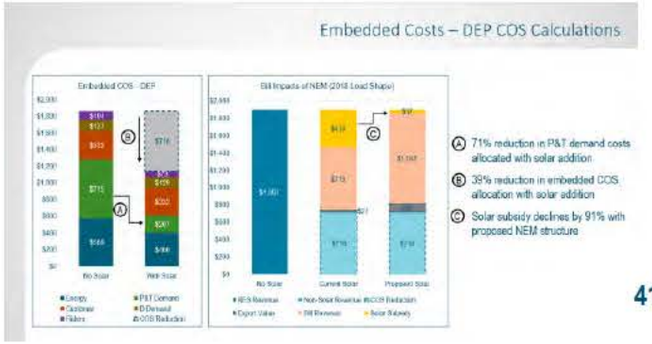


Impact Analysis

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

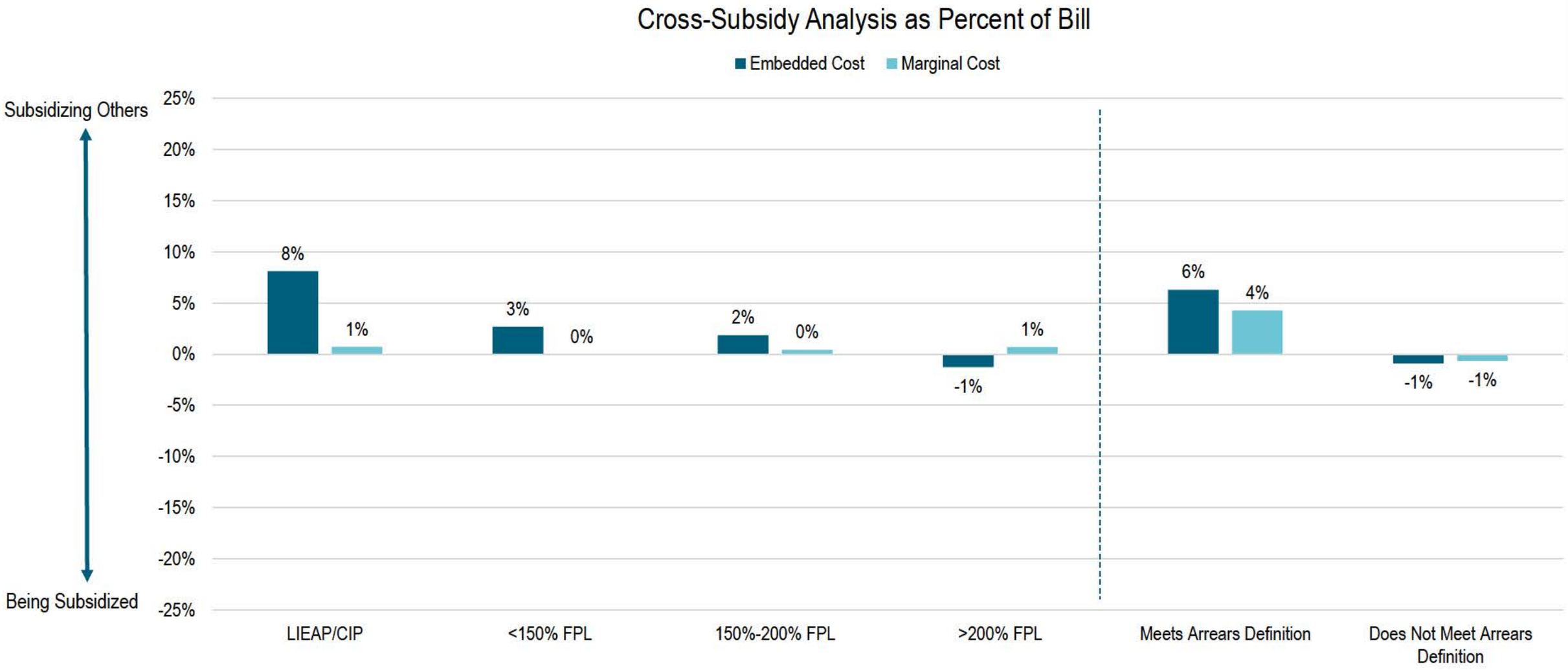
- DEC
  - Residential Service (RS)
  - Residential Service, Electric Water Heating and Space Conditioning (RE)
  - Residential Service, Energy Star (ES)
  - Residential Service, Time of Use (RT)
  - Residential Service, Time of Use with Critical Peak Pricing (RSTC)
  - Residential Service All-Electric, 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





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Comprehensive Rate Review:

Competing Priorities?

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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*

North Carolina
Low Income Affordability Collaborative

Go to **menti.com** and use **code 6092 4118** or access the link in the chat window

6092 4118
Mentimeter

Bringing It Together:

What *didn't* you hear?

INTERACTIVE

BREAK

(Resuming at 11:30 AM)

Group Discussion & Breakouts

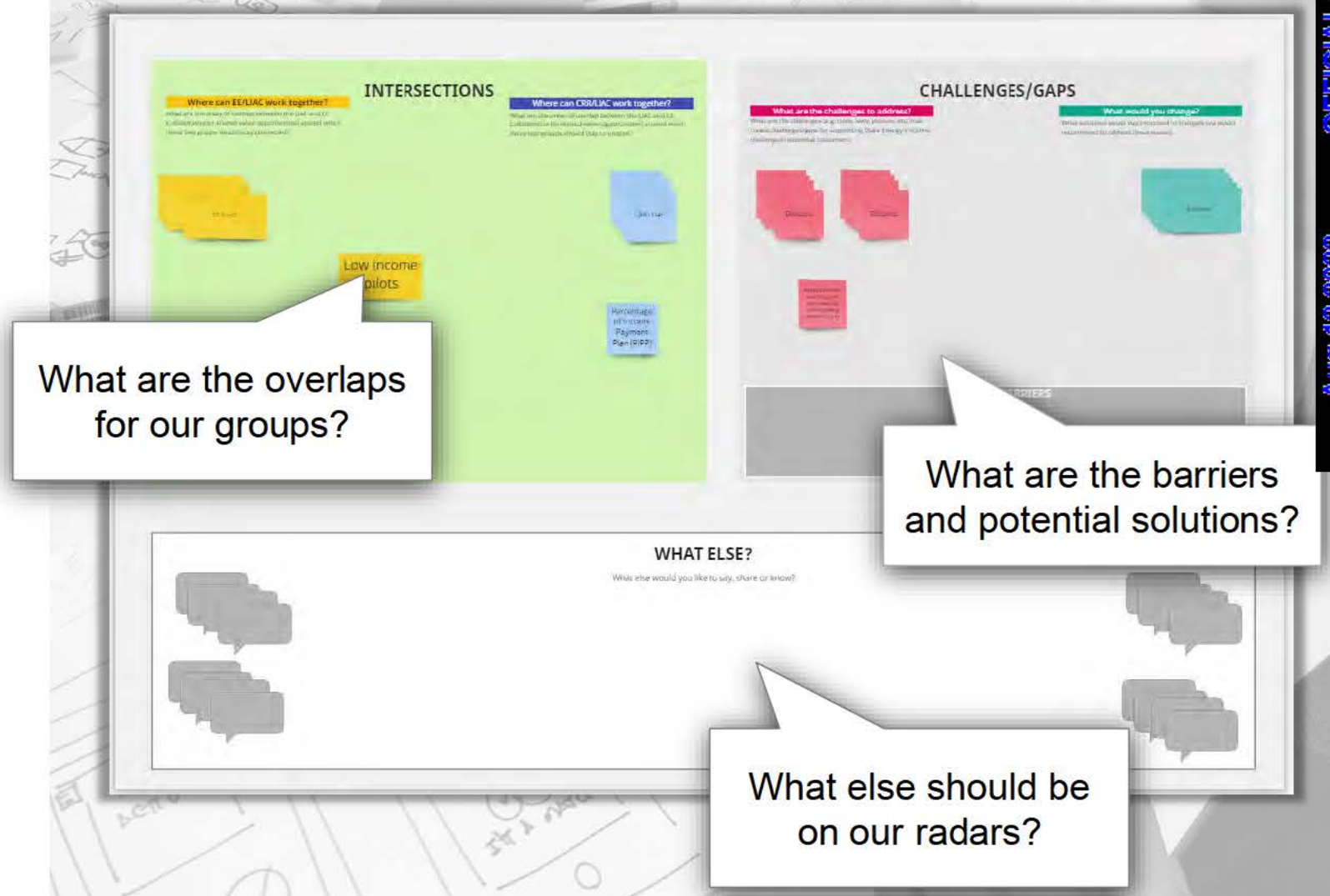
Let's Discuss

- 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

THANK YOU

all for your participation

Guidehouse | DUKE ENERGY. | Public Staff North Carolina Utilities Commission

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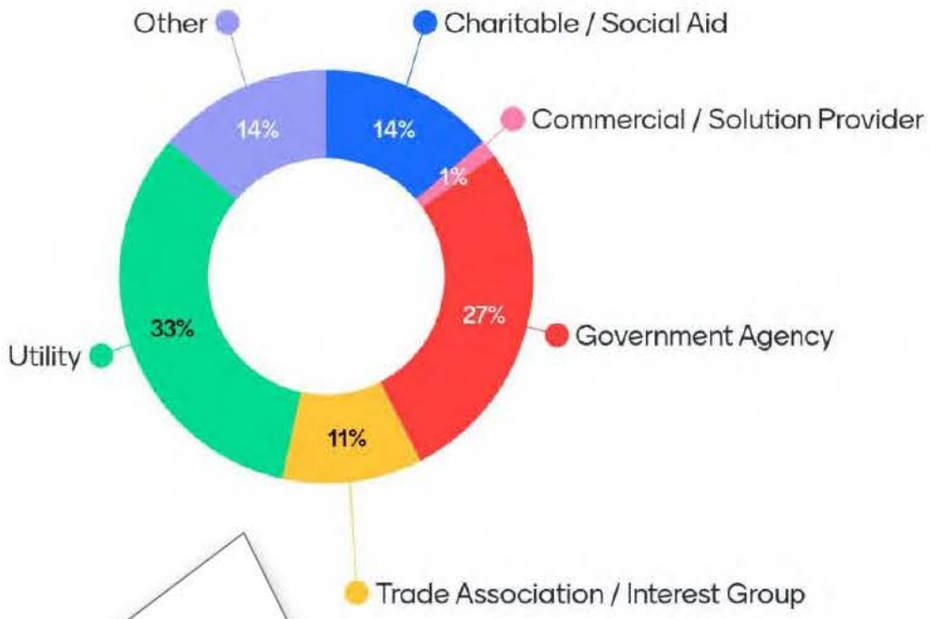
Joint Collaborative Session

Participant Input

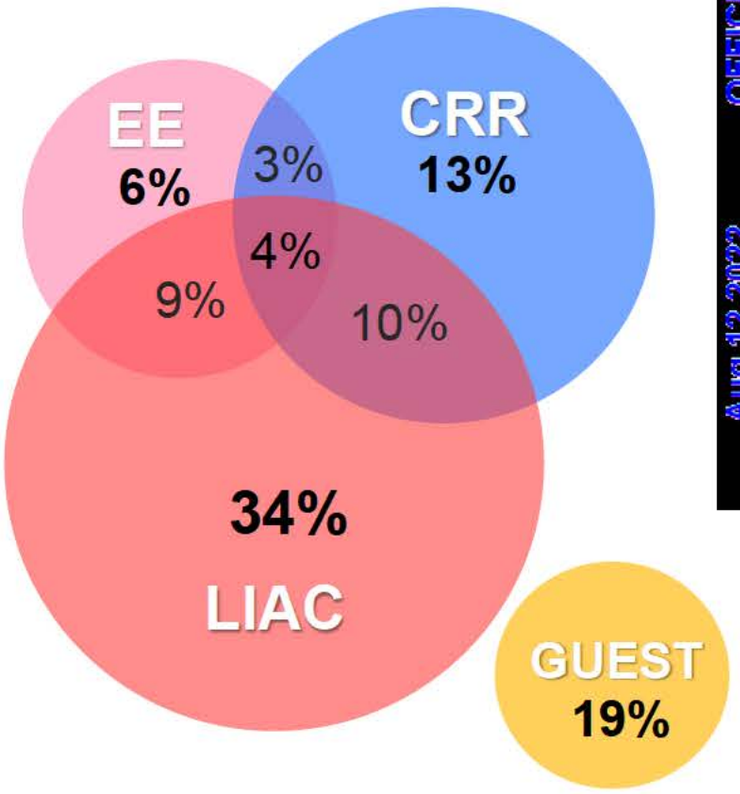
Joint Collaborative Session | January 26, 2022

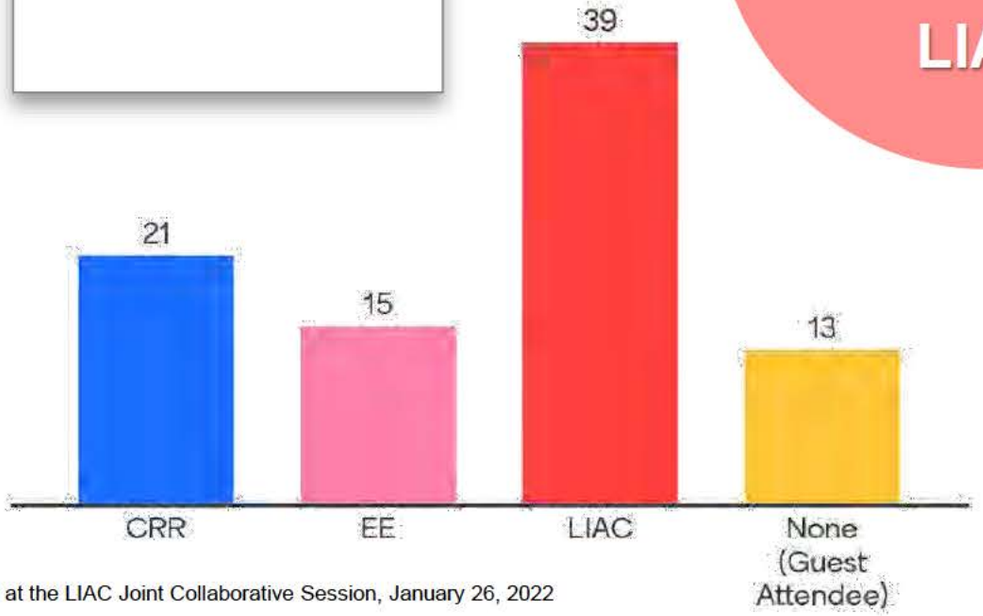
Participants in total: 147



- 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

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*

CRR

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

LIAC

Embedded costs are averaged over the whole year. This perspective can obscure what's happening in certain specific customer segments.

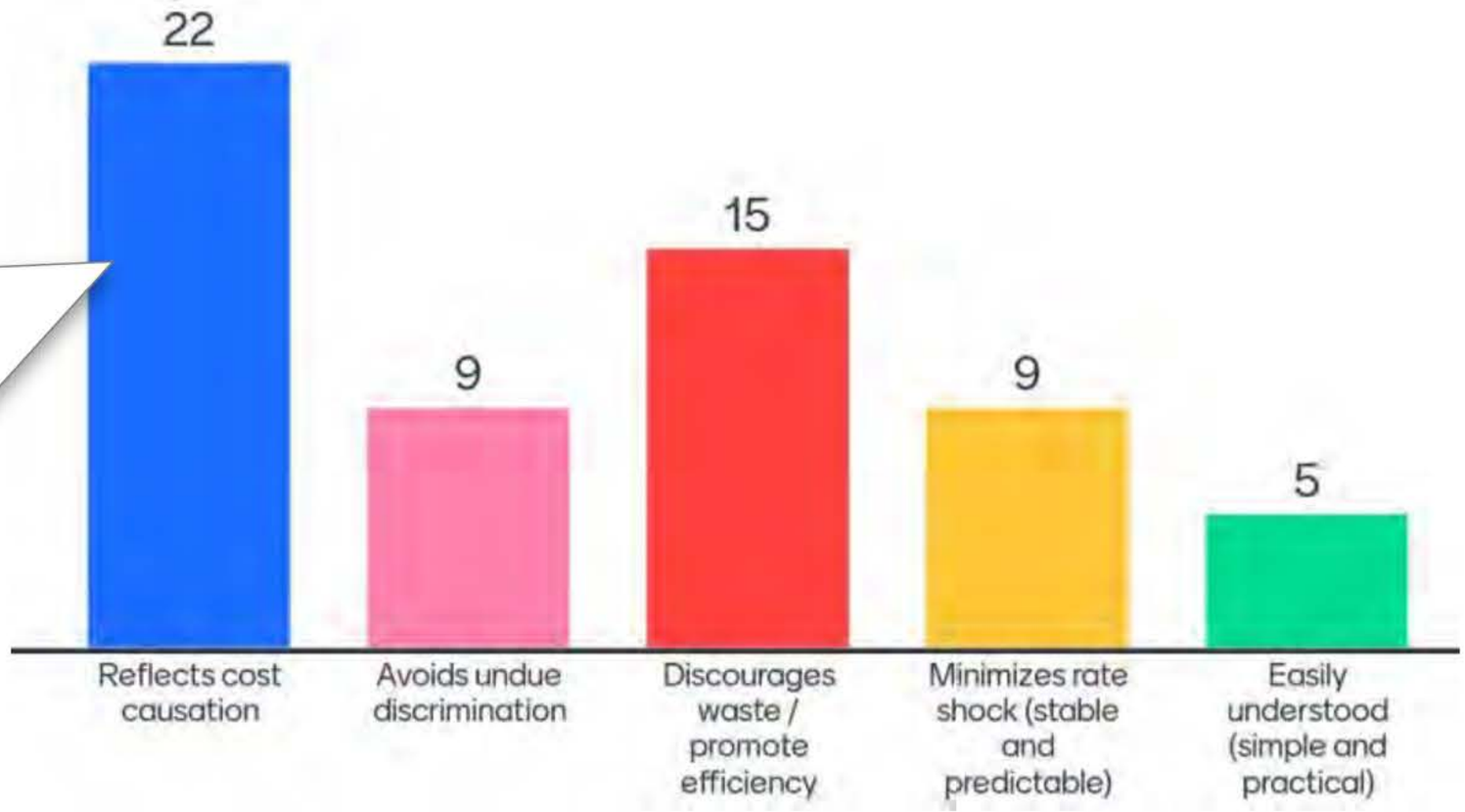
There is much debate about the notion of public interest and the objectives of regulation ..

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

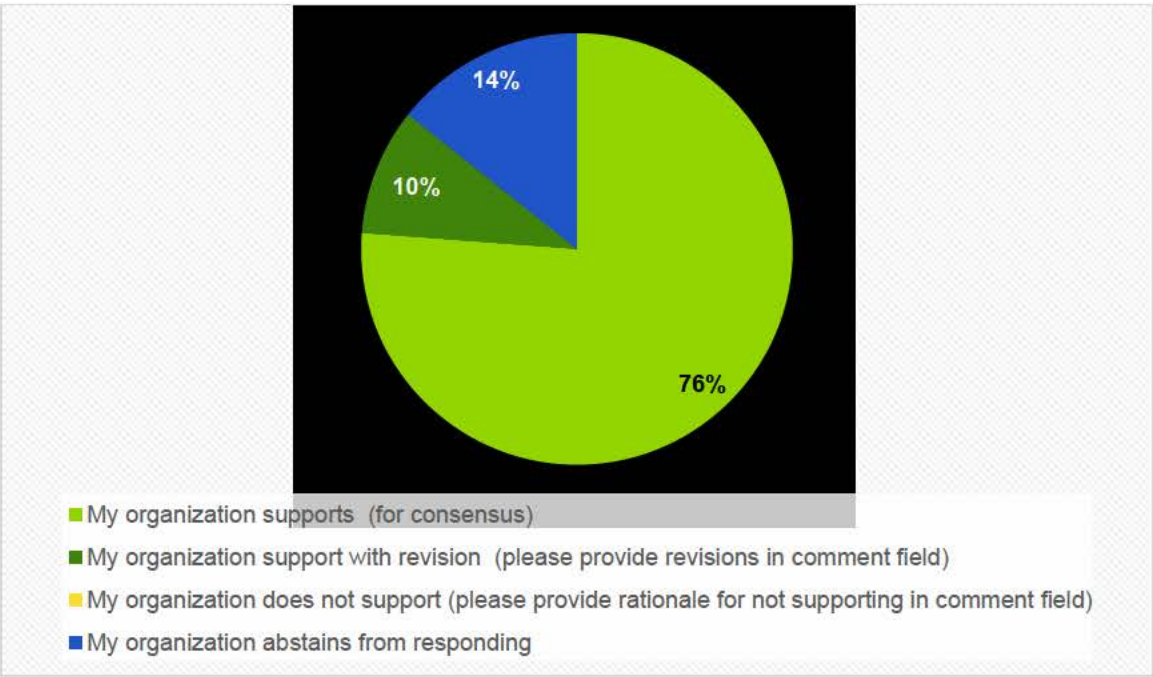
DUKE ENERGY.

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

Proposal 01 – Closing the EE Spending and Savings Gap

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

Proposal 01 – Closing the EE Spending and Savings Gap

Eligibility Criteria: Customers who meet the income-qualified criteria for Duke's low-income energy efficiency programs.

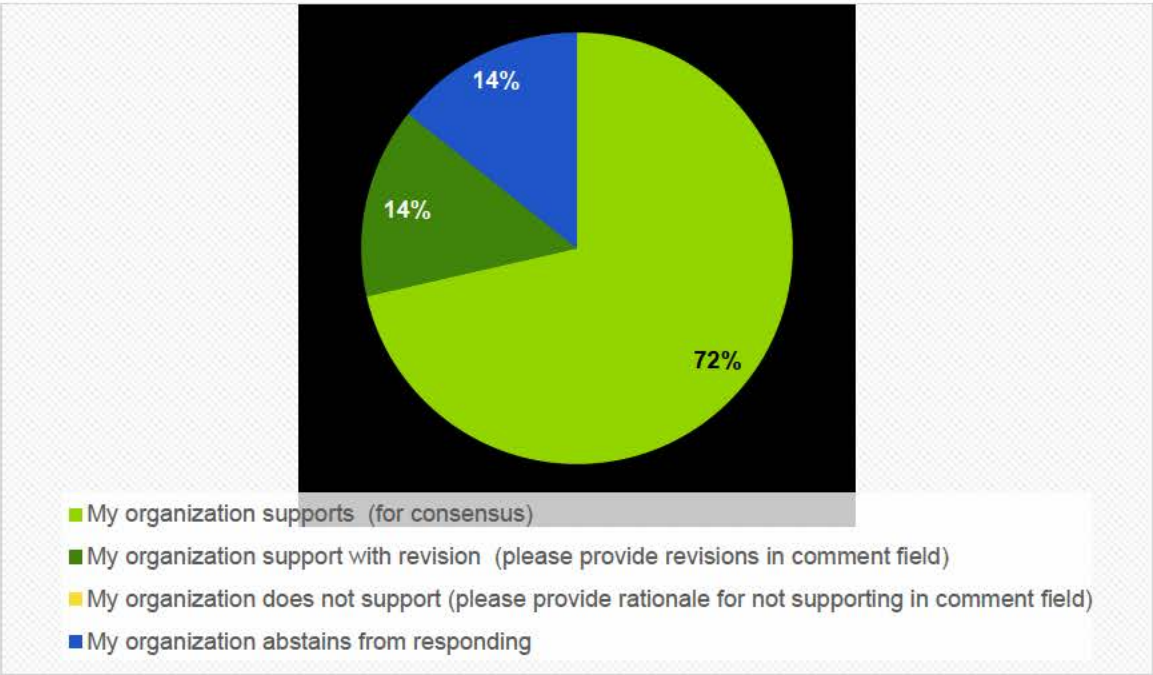
Success Metrics: Increase the level of DEP low-income customer participation and energy / bill savings.

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



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:

- 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

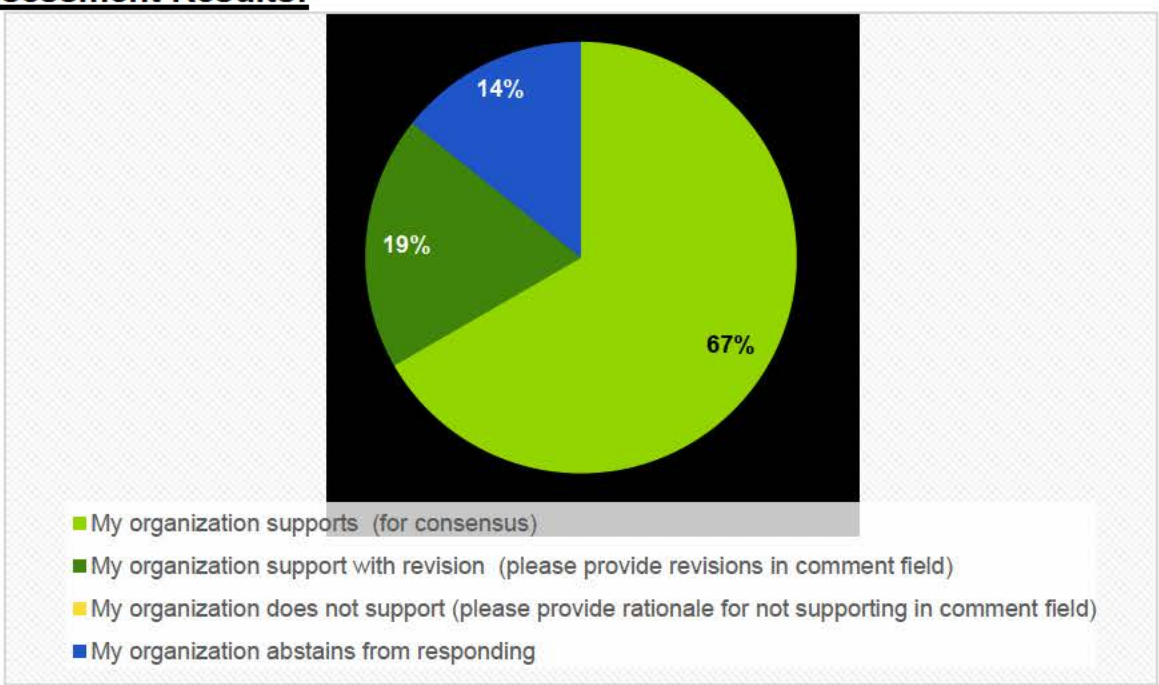
Success Metrics: Number of low-income households served, and depth of energy / bill savings for participating customers.

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:

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
- 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.

Proposal 03 - Income Qualified High Energy Use

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.

Proposal 03 - Income Qualified High Energy Use

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

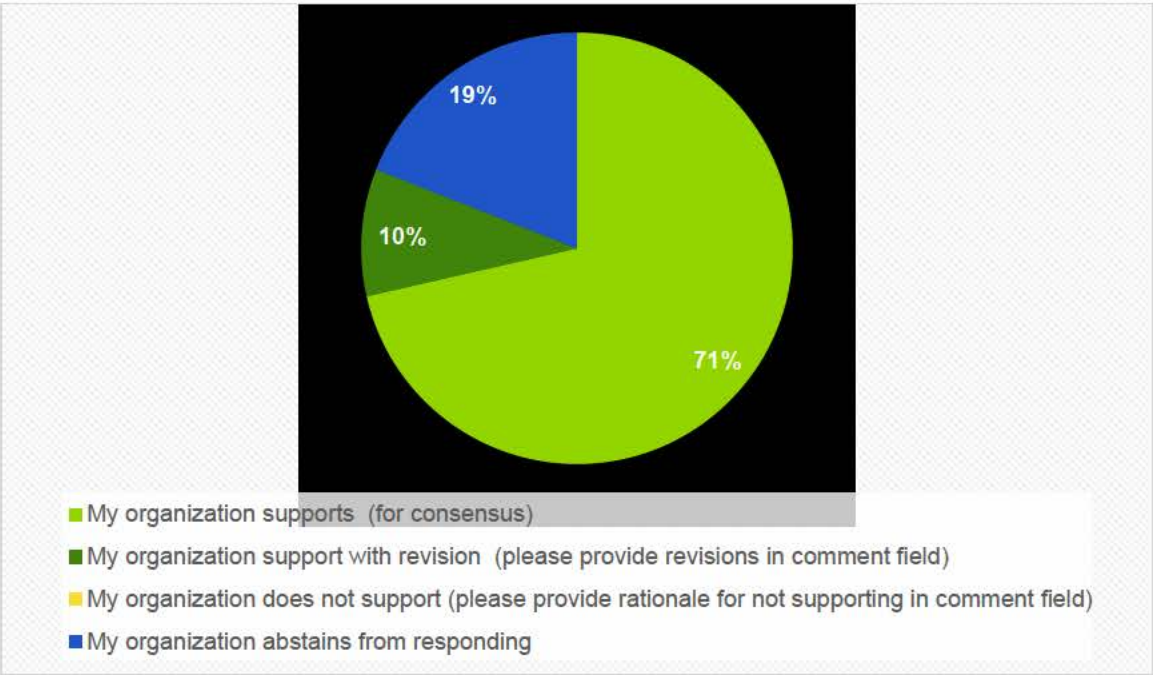
Program Partners: Local governments with home repair funding

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.

Proposal 04 - Residential ER and HHP Water Heater Rental

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.

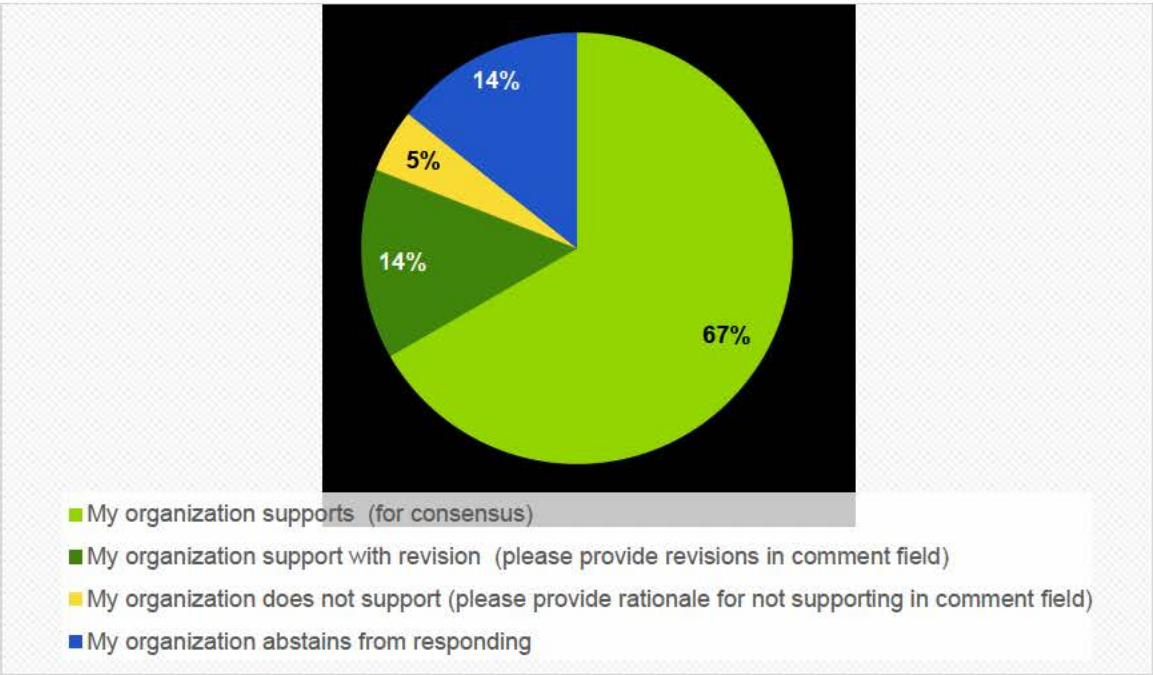
Additional Information:

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
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- 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.

Proposal 05 - Manufactured. Homes EE Retrofit and Replacement

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