

# ELECTRICITY RATES AND RATE SETTING

Presentation to the KUB Community Advisory Council | March 3, 2022

**Presented by:**

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# OBJECTIVES AND AGENDA

## OBJECTIVES

- SACE is in no way interested in interfering with KUB's ability to raise the revenues required to maintain a reliable system.
- It is important that ratemaking decisions be informed and transparent.
- High fixed fees are regressive, disproportionately harm low-income customers, and discourage conservation.
- Rates are a part of a comprehensive approach to serving low-income customers in an equitable manner.

## AGENDA

- Background on ratemaking for electric utilities
- KUB rate history and comparison
- Rate impacts on low-income customers

# BONBRIGHT PRINCIPLES DATE BACK TO 1961

Rates are designed to satisfy numerous objectives, some of which may be in competition with others. In his seminal work, *Principles of Public Utility Rates*, Professor James Bonbright enumerated ten guiding principles for rate design, summarized below:

**Sufficiency:** Rates should be designed to yield revenues sufficient to recover utility costs.

**Fairness:** Rates should be designed so that costs are fairly apportioned among different customers, and “undue discrimination” in rate relationships is avoided.

**Efficiency:** Rates should provide efficient price signals and discourage wasteful usage.

**Customer Acceptability:** Rates should be relatively stable, predictable, simple, and easily understandable.

Source: Melissa Whitehed, Synapse Energy Economics, Paul Chernick, Resource Insight, Jim Lazar, RAP, *The Ratemaking Process*, July 2017. <https://www.synapseenergy.com/sites/default/files/Ratemaking-Fundamentals-FactSheet.pdf>.

# PRINCIPLES FOR FAIR REFORM OF RESIDENTIAL RATE STRUCTURE

*Southern Alliance for Clean Energy and 5 Lakes Energy*

**Fair cost allocation:** Customers should pay for grid services and power supply in proportion to how much they use and when they use it. To the extent that a customer's capacity demand is more or less predictable than the typical customer, they may bear a disproportionate share of system reserve or regulation costs.

**Economic security:** Just as utilities pursue economic development for their communities, they should also pursue economic security by focusing on the circumstances of low income customers - including attention to the impact of rate structures on arrearages and disconnect costs, as well as energy efficiency incentives and opportunities.

**Basic customer charge:** A customer should be able to connect to the grid for no more than the utility's cost to connect the customer to the grid.

**Align customer control of bills with utility cost control:** Rates should be designed to align customer behavior with controlling long-term costs of the utility (e.g., marginal costs). Revenue goals should not be met by encouraging customer behavior that will drive up costs.

**Transparency of bills:** Customer bills should provide clear information regarding how they are charged for electricity.

# PRINCIPLES FOR FAIR REFORM OF RESIDENTIAL RATE STRUCTURE, CONT'D

*Southern Alliance for Clean Energy and 5 Lakes Energy*

**Transparency of utility practices:** Customers should be provided with sufficiently clear and detailed information so that they have the opportunity to reach an informed opinion regarding whether the utility's rates are set using appropriate policies and standards.

**Simplicity of rates:** Customer size and sophistication matters: rate complexity should scale with the level of demand and the sophistication of the customer's energy systems. Customers should be able to control their bill through straightforward decisions. Utilities should not use randomized or mysterious charges to increase revenues from customers who are reducing their use of electricity.

**Gradualism:** Utility cost recovery should be adaptive, not protectionist, when adapting to changes in marginal costs. Similarly, utility rates should facilitate customer adoption of new technologies, without creating special, permanent benefits tied to specific technologies.

**Fair valuation of DERs:** Customers who provide services to the grid should be fairly compensated. Utility rates and policies should utilize an "open architecture" system that does not single out specific technologies (or ownership), other than using fees to cover directly associated costs (e.g., metering and interconnection).

**Special purpose rates:** New utility-owned infrastructure may require special rate design. Examples could include public electric vehicle charging stations and microgrids.

# ELECTRIC RATE-SETTING BEST PRACTICES

- Rates should be based on costs; start with cost allocation
- Industry best practice is to have a transparent **Cost of Service Study** before setting rates
- Cost of Service Studies are performed to determine how to allocate a utility's revenue requirement among the customer classes (residential, commercial, industrial) and between fixed and variable rate components (basic service charge, energy rate)
- Comprehensive and transparent review of both the cost of service study and resulting rates by a regulatory body, a process that typically includes public filing of all documents and the opportunity for stakeholder to intervene and present testimony from subject matter experts

# TWO MAIN COST OF SERVICE METHODS

## BASIC CUSTOMER METHOD

- Only customer-related utility costs are included in the monthly fixed fee
- These costs include:
  - Cost of meter
  - Cost of billing
  - Cost of service line (pole to house)
- Most common in 2000, the most recent survey\*

## MINIMUM SYSTEM METHOD

- Includes the per customer costs from the Basic Customer method
- Adds to that the cost of a mythological “minimum” distribution system to serve each customer with a chosen amount of energy (i.e. 1 kWh)
- Cost of minimum system can be very sensitive to assumptions like the chosen amount of energy

\* Source: Frederick Weston, “Charging for Distribution Utility Services: Issues in Rate Design,” Prepared for the National Association of Regulatory Utility Commissioners (Montpelier, VT: Regulatory Assistance Project, December 2000).

# QUOTES FROM REGULATORS ON FIXED FEES

SACE has a long history of intervening in rate cases across the Southeast, including an instrumental role in the rejection of fixed fee increases in Florida, the Carolinas, and Georgia.

## **In 1990 the Washington Utilities and Transportation Commission rejected the minimum system method.**

“In this case, the only directive the Commission will give regarding future cost of service studies is to repeat its rejection of the inclusion of the costs of a minimum-sized distribution system among customer-related costs. As the Commission stated in previous orders, the minimum system method is likely to lead to the double allocation of costs to residential customers and over-allocation of costs to low-use customers. Costs such as meter reading, billing, the cost of meters and service drops, are properly attributable to the marginal cost of serving a single customer. The cost of a minimum sized system is not. The parties should not use the minimum system approach in future studies.”

Source: WUTC v. Puget Sound Power and Light Company, Cause U-89-2688-T, Third Supp. Order, P. 71, 1990

## **National Association of State Utility Consumer Advocates (NASUCA) adopted a resolution in 2015 opposing utilities' attempts to increase fixed fees. Some highlights:**

- “In recent years, gas and electric utilities have sought to substantially increase the percentage of revenues recovered through the portion of the bill known as the customer charge”
- “These gas and electric utilities have sought to justify such increases by arguing that all utility delivery costs are “fixed” and do not vary with the volume of energy supply delivered to customers”
- “High customer charge rate design proposals... are unjust and inconsistent with sound rate design principles”
- “The imposition of high customer charge... unjustly shifts costs and disproportionately harms low-income, elderly, and minority ratepayers”
- High fixed charges “significantly reduce” a “customers' incentive to engage in conservation as well as federal and state energy efficiency programs” that are “a means to reduce customer utility bills, help mitigate the need for new utility infrastructure, and provide important environmental benefits”
- “NASUCA urges state public service commissions to reject gas and electric utility rate design proposals that seek to substantially increase the percentage of revenues recovered through the flat, monthly customer charges on residential customer utility bills – proposals that disproportionately and inequitably increase the rates of low usage customers, a group that often includes low-income, elderly and minority customers”

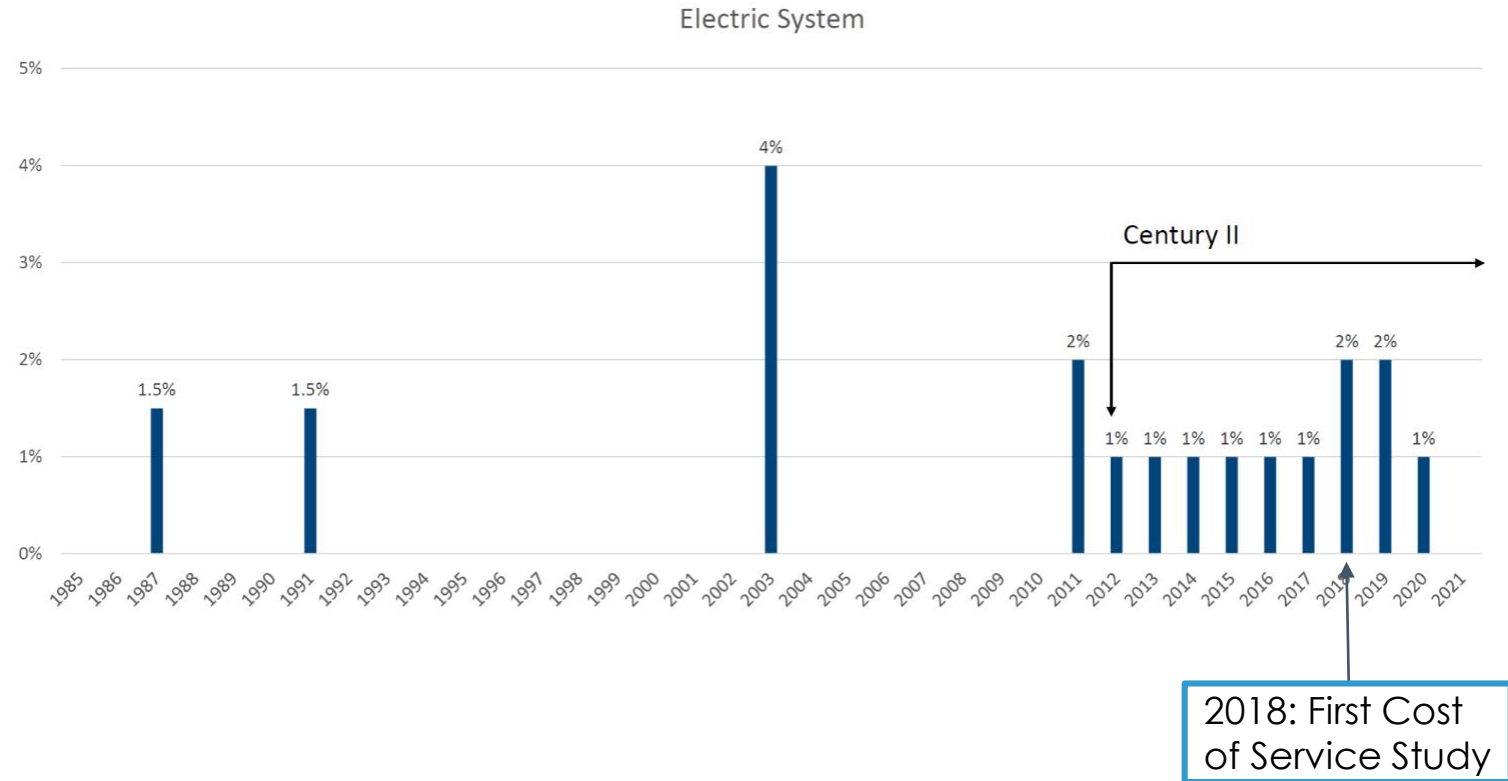


# KUB RATE REGULATORY STRUCTURE & RATE HISTORY <sup>9</sup>

**KUB's rates are regulated by two entities:**

- KUB Board, appointed by Knoxville mayor, approved by city council
- TVA (this is not typical, usually separate from wholesale provider)

## Electric Rate Increase History



# KUB'S MINIMUM SYSTEMS METHODS RESULTS

## Monthly Customer Charge Cost Breakdown

	Residential	
Distribution Customer Costs	\$ 11.60	<b>Minimum System calculations = \$14.79</b>
Transformer Customer Costs	2.65	
Substation Customer Costs	0.54	
Meter O&M	1.86	<b>Customer-related costs = \$5.47</b>
Meter Reading	1.04	
Billing	1.28	
Services	0.40	
Customer Service	0.89	
<b>Customer Charge</b>	<b>\$ 20.26</b>	

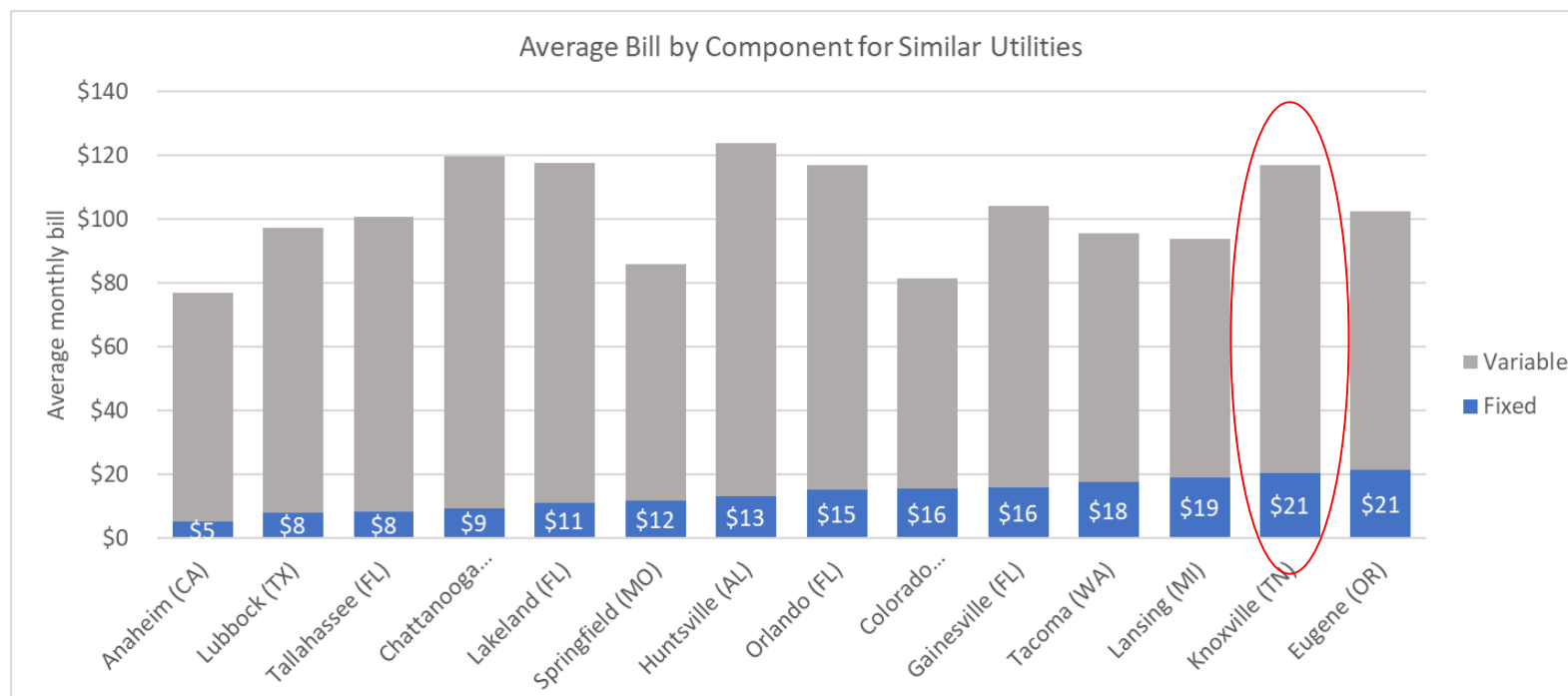
Keeping KUB's revenues in 2020 flat we calculated an illustrative change to the fixed fee and energy rate when only customer-related costs are included in the fixed fee.

- Fixed fee changes from \$20.50/month to **\$6/month**
- Energy rate changes from 8.9 ¢/kWh to **10.1 ¢/kWh**

From KUB's 2018 Cost of Service Study, which used the Minimum System Method

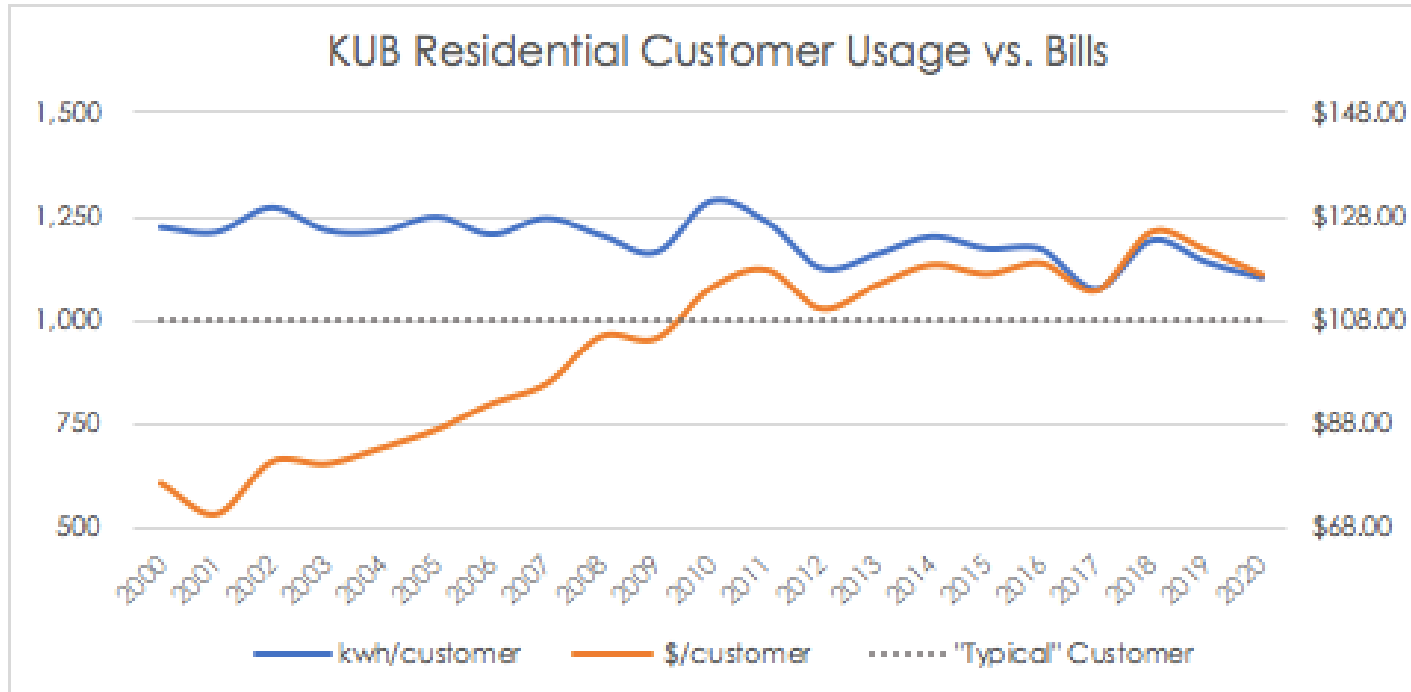
# COMPARISON OF KUB RATES TO LIKE UTILITIES

- Rates should not be based on comparisons to other utilities, but these comparisons can be a helpful check
- Fixed fees have risen across TVA, so important to look beyond TVA utilities for comparisons
- Here similar means municipal utilities with similar residential customer numbers and percent of total customers



Source: U.S. Energy Information Administration (EIA), Annual Electric Power Industry Report Form-861, sales to ultimate customers; SACE research

# HOW MUCH ENERGY DOES A TYPICAL CUSTOMER USE?



## DEPENDS ON MANY FACTORS, INCLUDING:

- **Timeframe:** Historical, current, multi-year average, forecasted.
- **House/apartment size:** 1,000-1,200 may be reasonable for a single family home, but what about apartment?
- **Income:** Even “average” bills can be unaffordable when incomes are low enough.

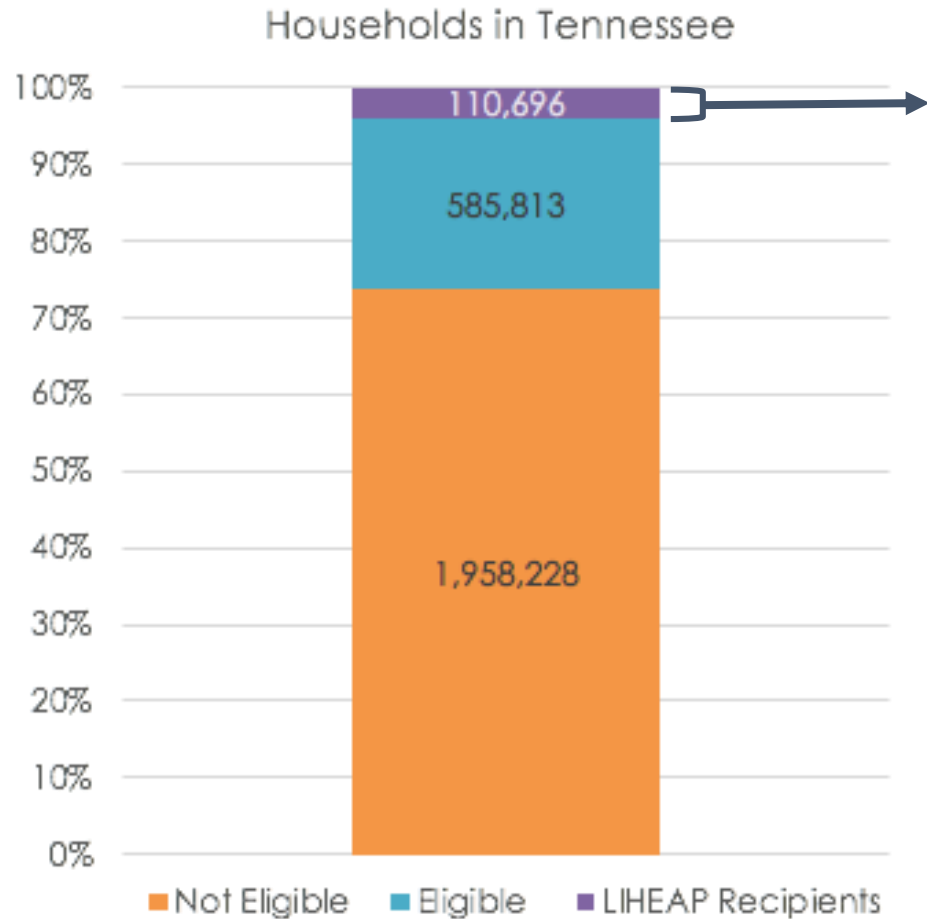
## KUB-SPECIFIC INSIGHTS:

- KUB rate overview sets typical customer use at 1,000 kwh per month, \$108 bill.
- The kwh used per customer shows low to flat growth, while the monthly \$/customer has risen.

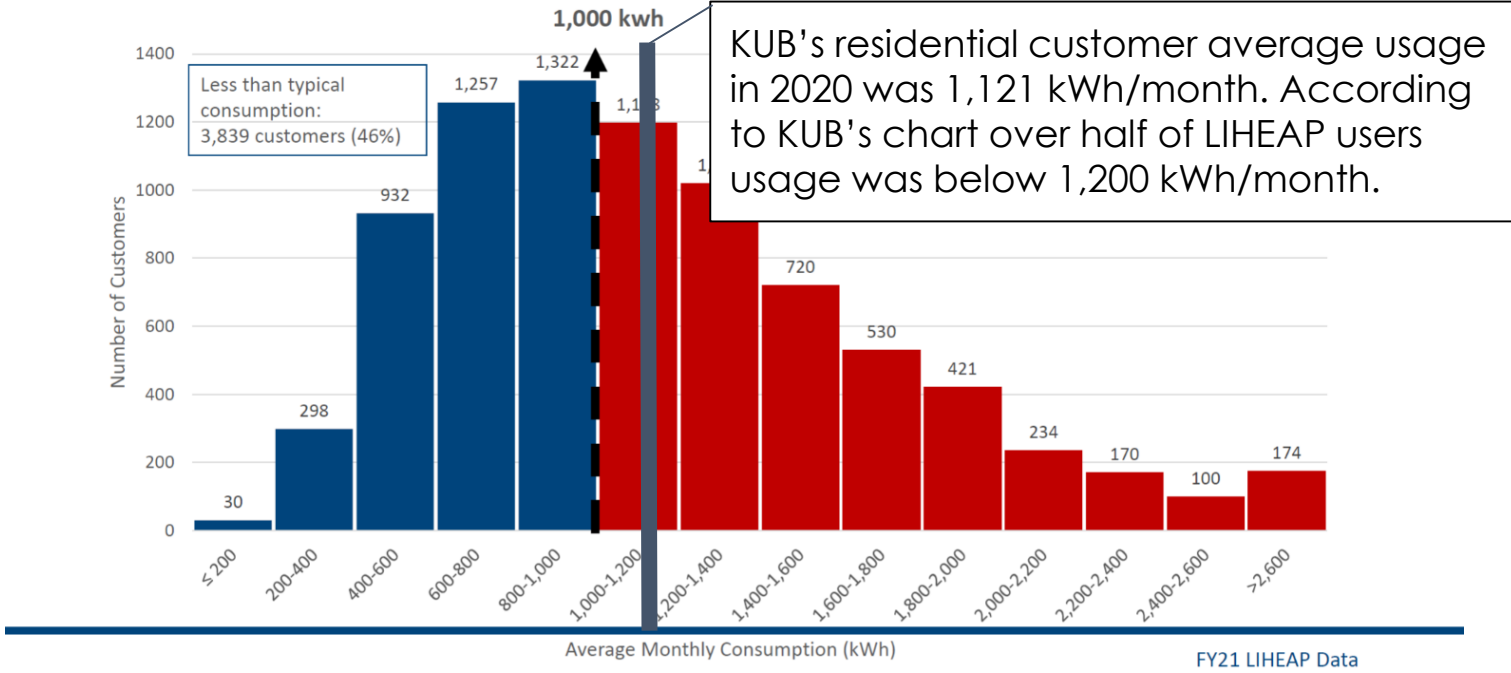
Source: U.S. Energy Information Administration (EIA), Annual Electric Power Industry Report Form-861, sales to ultimate customers



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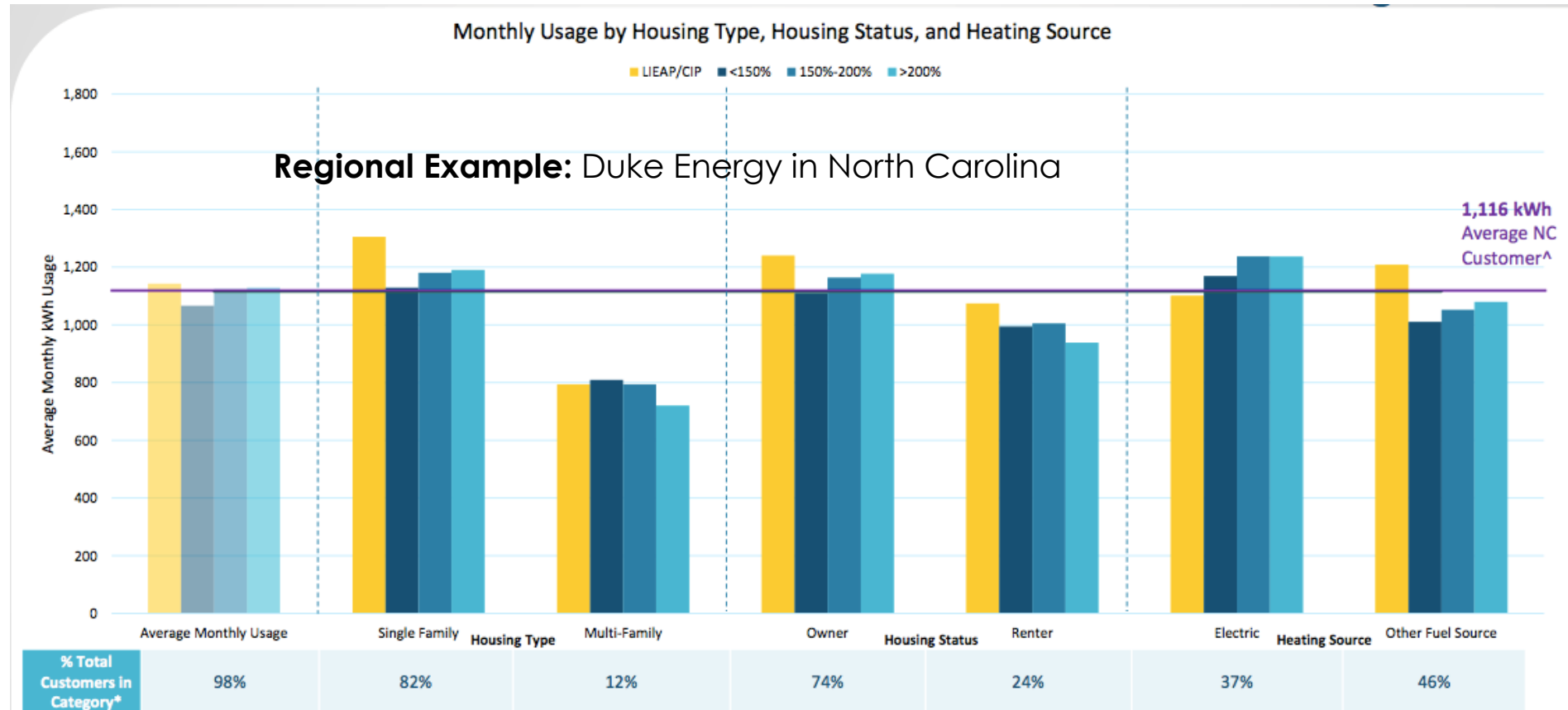


## Low Income Home Energy Assistance Program (LIHEAP) Customer Usage



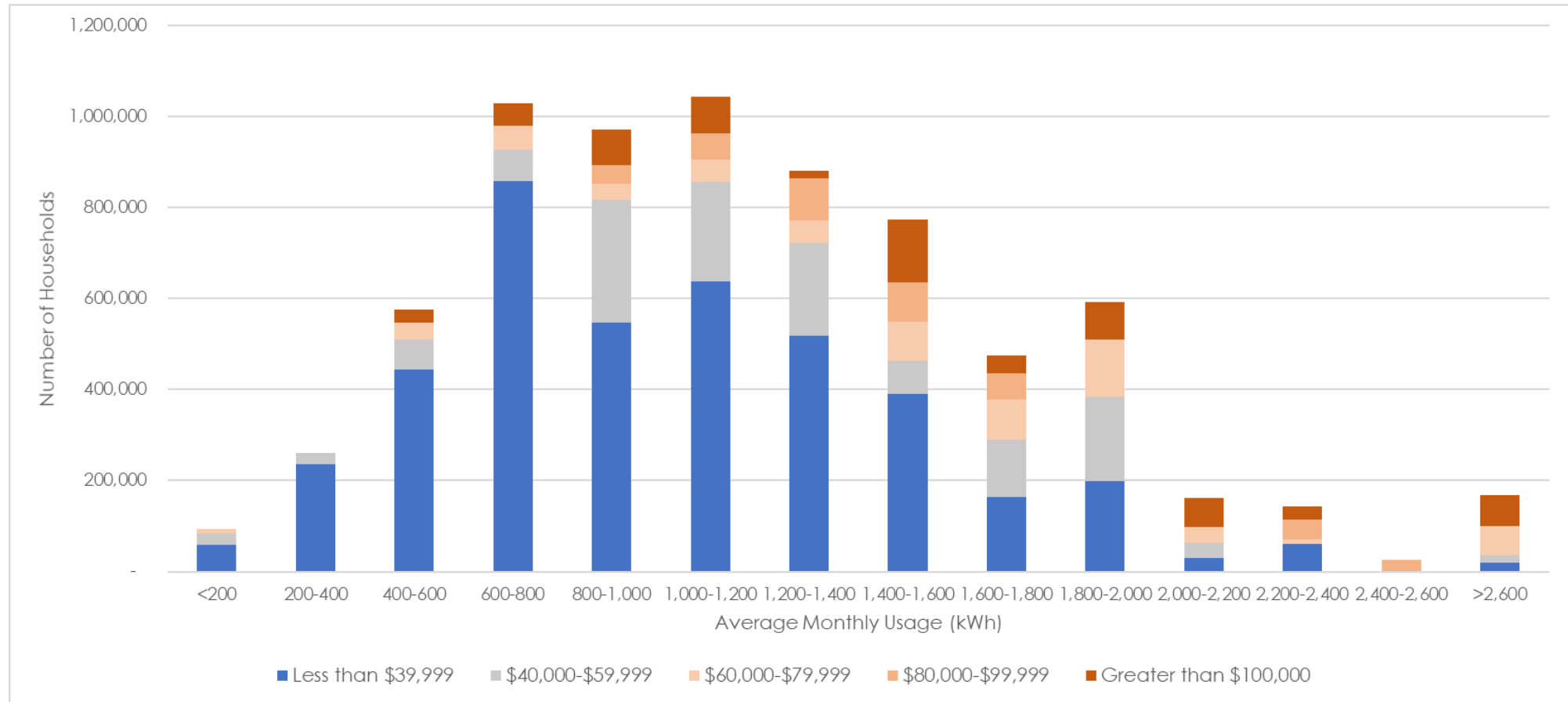
Sources: LIHEAP Performance Measurement Website (<http://liheappm.acf.hhs.gov>) for # of Eligible Households and Households Served; American Community Survey for Total # of Households in Tennessee

# HOW MUCH ENERGY DOES A TYPICAL CUSTOMER USE?



Source: Duke Energy presentation to Low Income Affordability Collaborative (LIAC), December 2021

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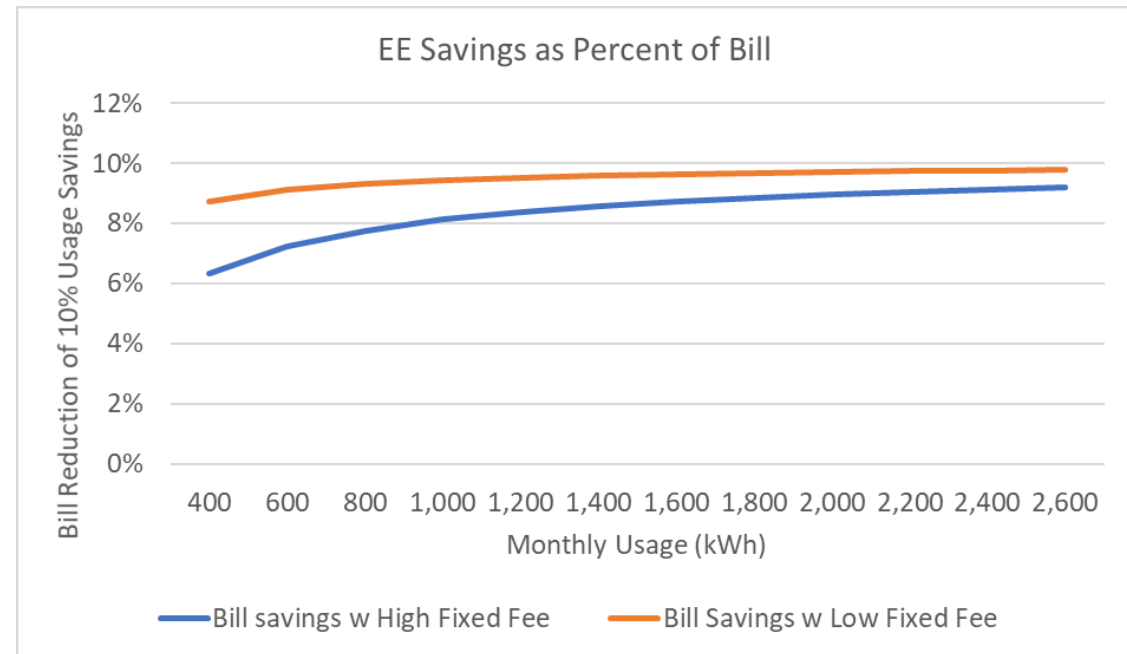
Sources: U.S. Energy Information Administration (EIA) Residential Energy Consumption Survey for East South Central Region (Tennessee, Mississippi, Alabama, and Kentucky)



# KUB NEEDS TO ALIGN CUSTOMER COST CONTROL WITH UTILITY COST CONTROL

**Fixed fees limit a customer's ability to lower their bills since a large portion of their bill comes from costs not related to volumetric usage.** Residential customers should be able to control their bill through straightforward decisions, such as lowering behavioral usage, or undergoing energy efficiency improvement to their home.

Over time, KUB customers have trended towards low to no increases in energy usage, but the amount that customers pay each month has not followed this trend. Even at 1,000 kwh, the a customer bill is nearly 20% from fixed charges. At 500 kwh, it is approximately 32%.





# HOW CAN KUB DETERMINE TRUE IMPACT OF ENERGY AFFORDABILITY?

## LISTEN TO CUSTOMERS STRUGGLING WITH BILLS

- “I am on a **fixed income** and it’s hard enough to buy food, medicine. The electricity is high enough without having to pay that extra amount.” - Phyllis
- “I’m a **single parent with two children on a limited income** and tight budget; can’t afford high bills to stay warm.” - Robin

## UNDERGO A COMPREHENSIVE ASSESSMENT OF RESIDENTIAL CUSTOMERS

- For example, following the most recent rate case, the North Carolina Utilities Commission ordered Duke Energy to “**prepare an assessment of currency affordability challenges facing residential customers**”, including information on arrearage status and disconnection for non-payment (DNP)

# FAIR RATES ARE PART OF THE SOLUTION TO ENERGY AFFORDABILITY

**Fair utility rate structures are one part of a comprehensive approach to ensure residential customers needs are met.** Changes to rates are necessary because relying solely on bill pay assistance programs may leave customers out.

## LOWER FIXED FEES

- Goal of rolling back to Basic Service Method amount
- Fixed fees limit a customer's ability to *understand* their bills, and therefore *lower* their bills

## EXPAND AND SUPPORT EXISTING PROGRAM

- LIHEAP and WAP may not be enough for local needs (such as homes requiring health/safety repairs).
- KUB's low-income weatherization budget has dropped from \$15 million budget that weatherized 1,278 homes in 2015-2017, to \$1 million per year to weatherize 728 homes since 2015.

## CONSIDER WHERE NEW PROGRAMS CAN MEET GAPS

- Expand EE offerings available to hard to reach customers, such as low-to-moderate income (LMI).
- On-bill financing is tariff-based rather than loan-based so may be more inclusive/accessible.
- KUB should join in advocating for the prioritization of energy efficiency

# DISCUSSION

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