SMART ENERGY CONSUMER COLLABORATIVE

SECC Research Brief WEBINAR SERIES

# 2023 State of the Consumer

**Wednesday, March 29 at 3 p.m. (ET)**

# Housekeeping

SMART ENERGY CONSUMER COLLABORATIVE

## You will receive a copy of the slides & a link to the recording

- To the email you used to register.

## You can ask questions as we go along

- Simply type into the question box now or during the Q&A.

## We will answer all the questions submitted

- If we are unable to get to all the questions, they will be answered individually after the presentation.

# Today's Agenda

**Steven Nadel**
Executive Director
American Council for an Energy-Efficient Economy (ACEEE)

**Mark Wolfe**
Executive Director
National Energy Assistance Directors' Association (NEADA)

**Jason McGrade**
Deputy Director
Smart Energy Consumer Collaborative (SECC)

# Steven Nadel

SMART ENERGY CONSUMER COLLABORATIVE

## Background

### Executive Director, ACEEE

- Steven Nadel joined ACEEE in 1989 and has served as executive director since 2001.
- Before his promotion he served as deputy director and director of ACEEE's Utilities and Buildings programs.
- Before ACEEE, Steve worked for Massachusetts' largest electric utility and largest environmental group and worked with an inner-city housing organization in Connecticut.
- He has worked in the energy efficiency field for more than 40 years and has over 200 publications.

# Mark Wolfe

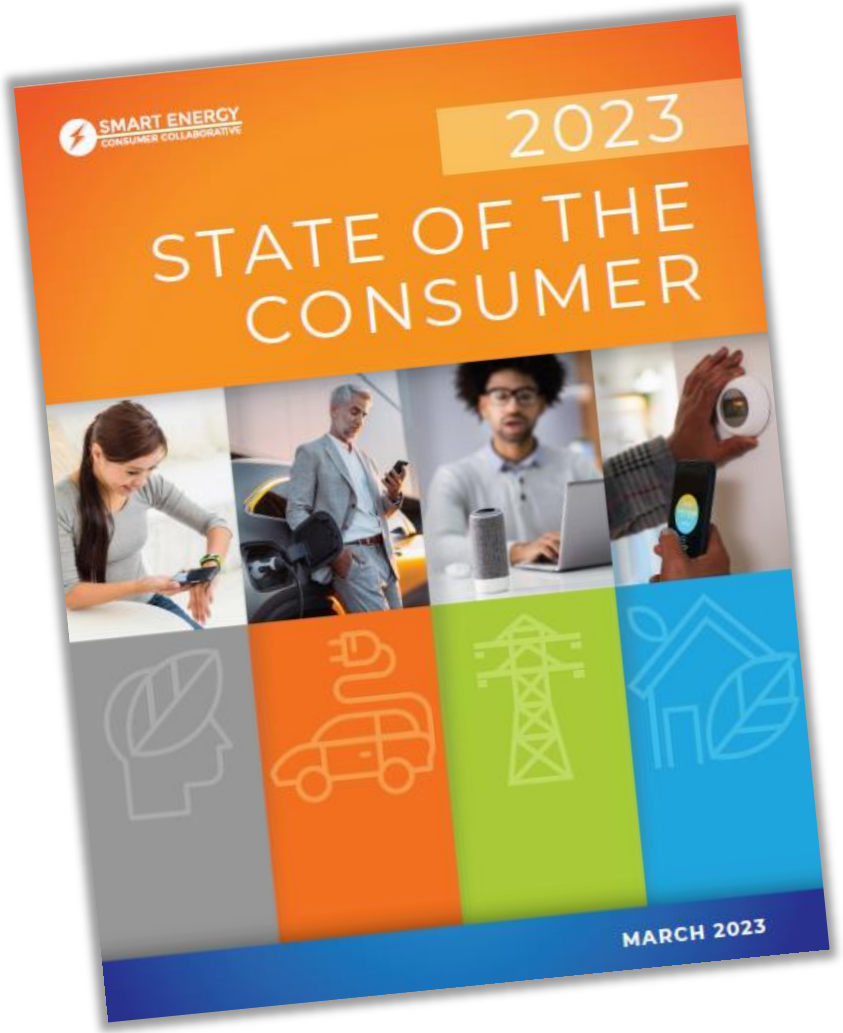
SMART ENERGY CONSUMER COLLABORATIVE

## Background

### Executive Director, NEADA

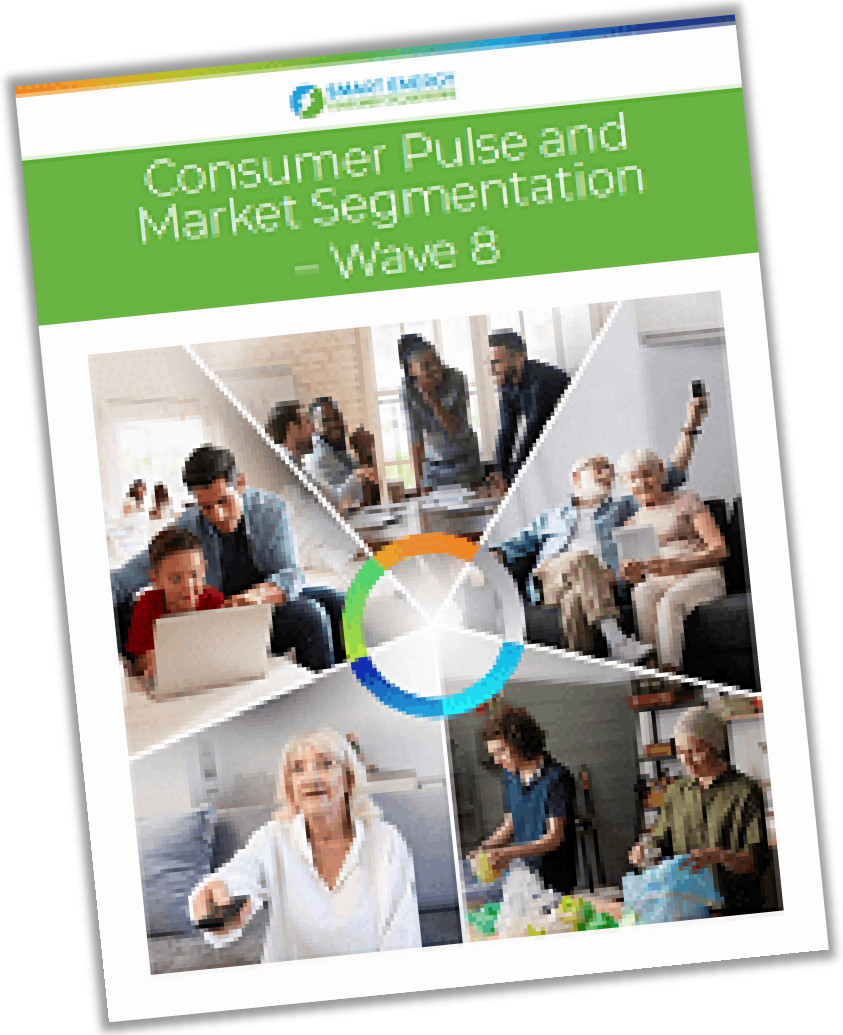
- As Executive Director, Mark Wolfe directs all activities including representing NEADA before Congress, developing and administering policy research activities and managing national outreach and education programs.
- Mark also directs the activities of the Energy Programs Consortium (EPC), an energy policy research organization sponsored by NEADA and three other national organizations representing state energy program and regulatory officials.
- Previous positions have included serving as a Senior Advisor to the US Treasury Department, Deputy Director for the Coalition of Northeastern Governors and Senior Analyst for the Congressional Research Service.

# SECC's "2023 State of the Consumer"



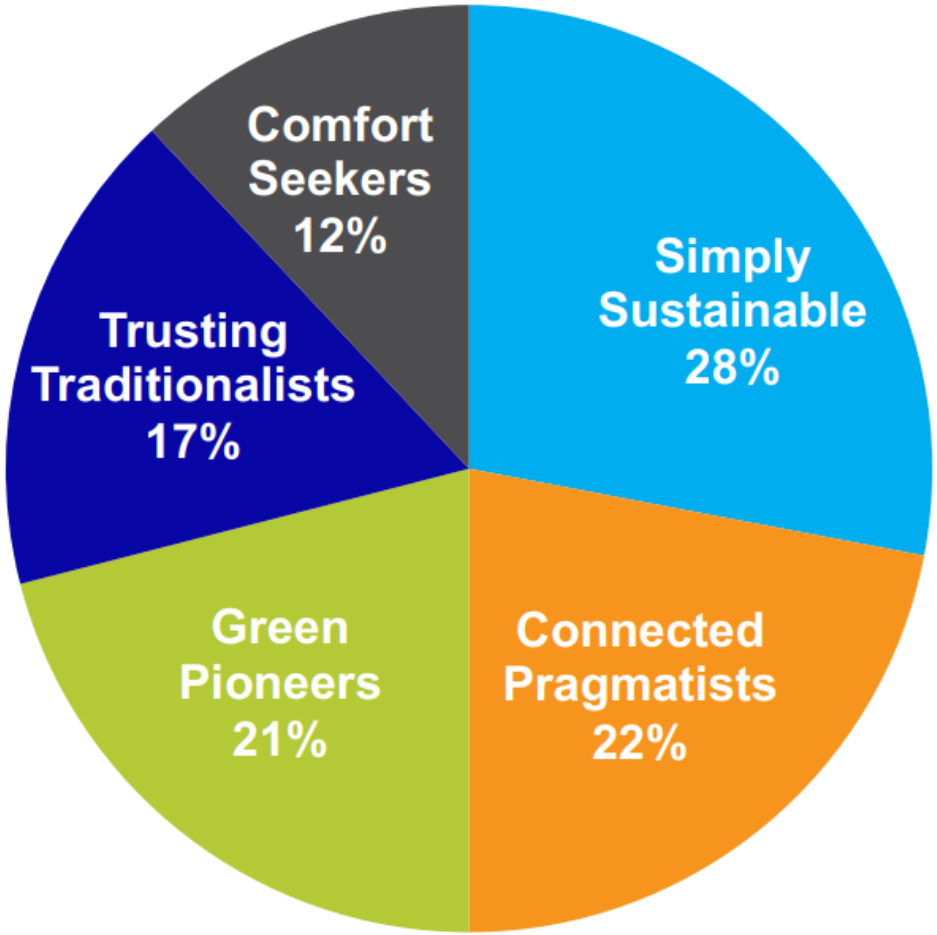

Highlights the major themes that emerged from SECC's 2022 consumer research reports and relevant efforts from ACEEE and NEADA

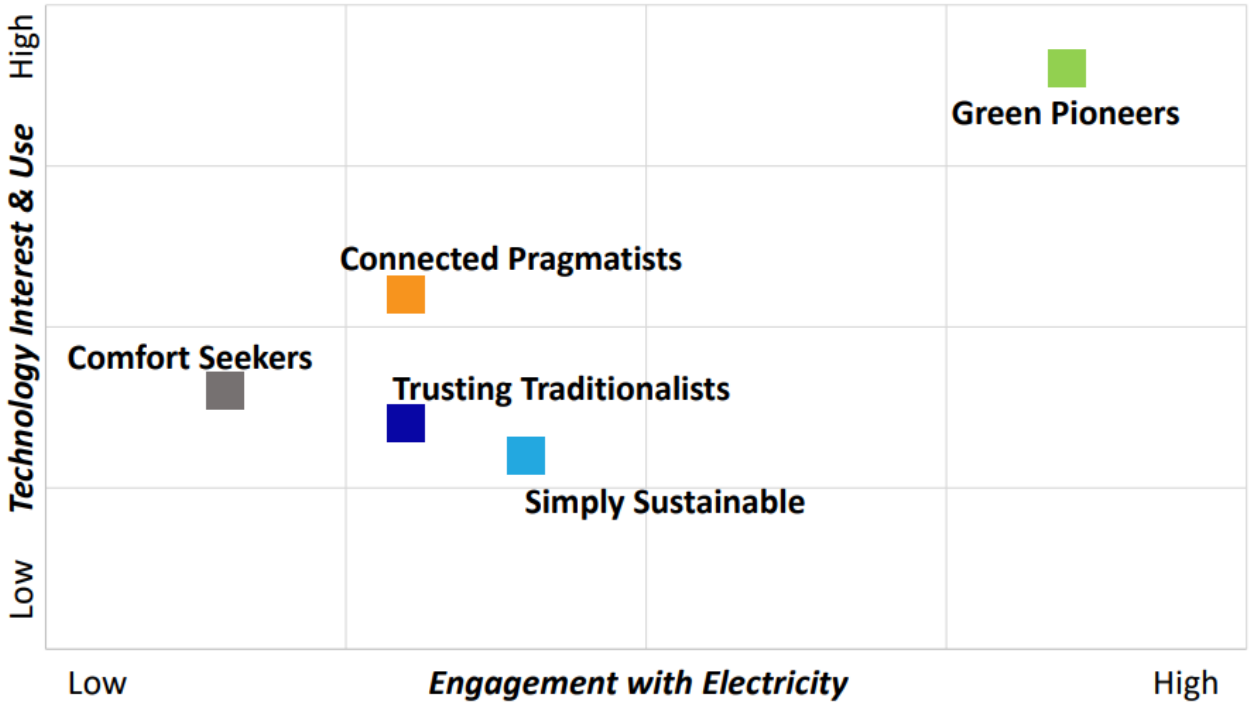
# Consumer Pulse and Market Segmentation – Wave 8




- 8th version of SECC's consumer segmentation framework
- First following the COVID-19 pandemic
- Focusing on consumer adoption of technologies and willingness to engage with their utility

# Introducing the Five New Segments



# Simply Sustainable

## SEGMENT 1: Simply Sustainable

***Consumers who value the environment and are open to using technology.***

Representing the largest segment (28% of the general population), these consumers have some understanding of the impact of their energy use on the environment and on the grid. They are not tech-savvy but want to save energy, and they're willing to use technology to do it.

**VALUES:**

Simplicity
Environment
Open to technology

**COMMON CHARACTERISTICS:**

Older
Female
Homeowners

# Connected Pragmatists

## SEGMENT 2: Connected Pragmatists

***Tech-savvy consumers who lack urgency for efficiency.***

Representing 22% of the general population, these consumers are not overly concerned about the impact of their electricity usage but are interested in energy-saving offers and opportunities. They have potential to become more proactive with the correct messaging and technologies that do not require large, upfront or permanent changes to their homes.

**VALUES:**

Tech-savvy
Realistic/sensible
Flexible

**COMMON CHARACTERISTICS:**

Younger
Well-Educated
Renters

# Green Pioneers

## SEGMENT 3: Green Pioneers

***The ideal consumer that values technology and energy efficiency.***

As SECC has studied consumers and their relationship to energy-related topics for over a decade, there has always been a segment of consumers that highly value energy efficiency and environmental stewardship. As we revisited our segmentation, this remains the case with the Green Pioneers who represent 21% of the general population. Yes, they are still green and, perhaps even more relevant today, very tech-savvy. They understand how technology works and the impact their electric usage can have on the grid.

**VALUES:**

Knowledgeable about energy
Technology leaders
Engaged

**COMMON CHARACTERISTICS:**

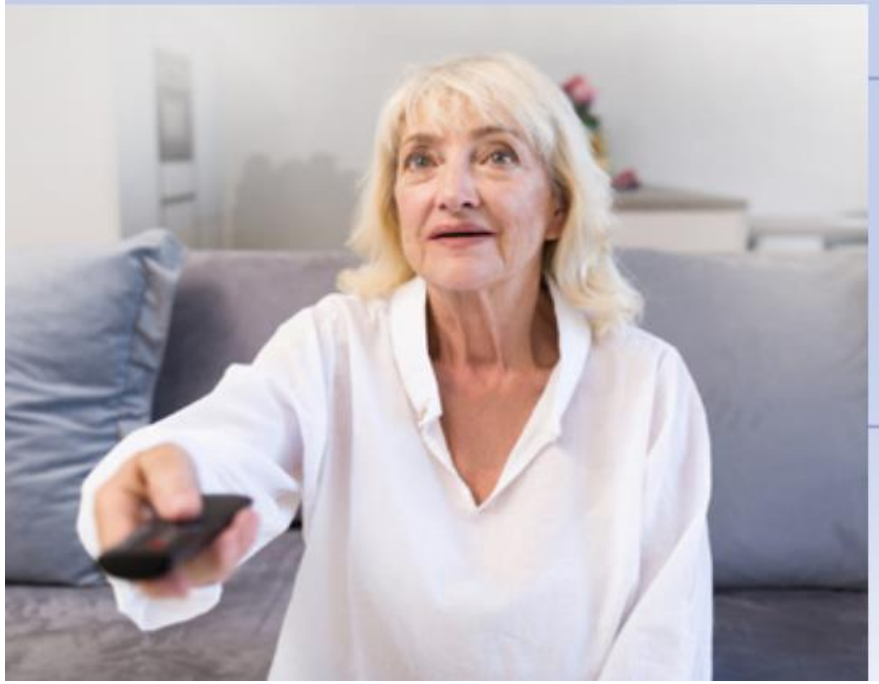
Mid-career
Homeowners with kids

# Trusting Traditionalists

## SEGMENT 4: Trusting Traditionalists

***Consumers intimidated by technology, but trusting of their electricity providers.***

Seventeen percent of the general population are what we have called Trusting Traditionalists. These consumers understand the impact of their electricity usage on the environment, but do not see how technology can help. They have the lowest adoption rates and interest in technology because it often overwhelms them.



**VALUES:**

Knowledgeable about energy
Overwhelmed by technology
Trust electricity provider

**COMMON CHARACTERISTICS:**

Senior
Non-working
Homeowners

# Comfort Seekers

## SEGMENT 5: Comfort Seekers

***Consumers who focus on their needs first, not prioritizing technology or efficiency.***

Representing only 12% of the general population, Comfort Seekers show the least amount of interest in technology and energy. Their priority at home is their comfort. It is possible to say that these consumers have a "me first" attitude. They do not put in the effort to learn about technology and to control the amount of energy they consume.

**VALUES:**

Comfort at home
Convenience
My needs first

**COMMON CHARACTERISTICS:**

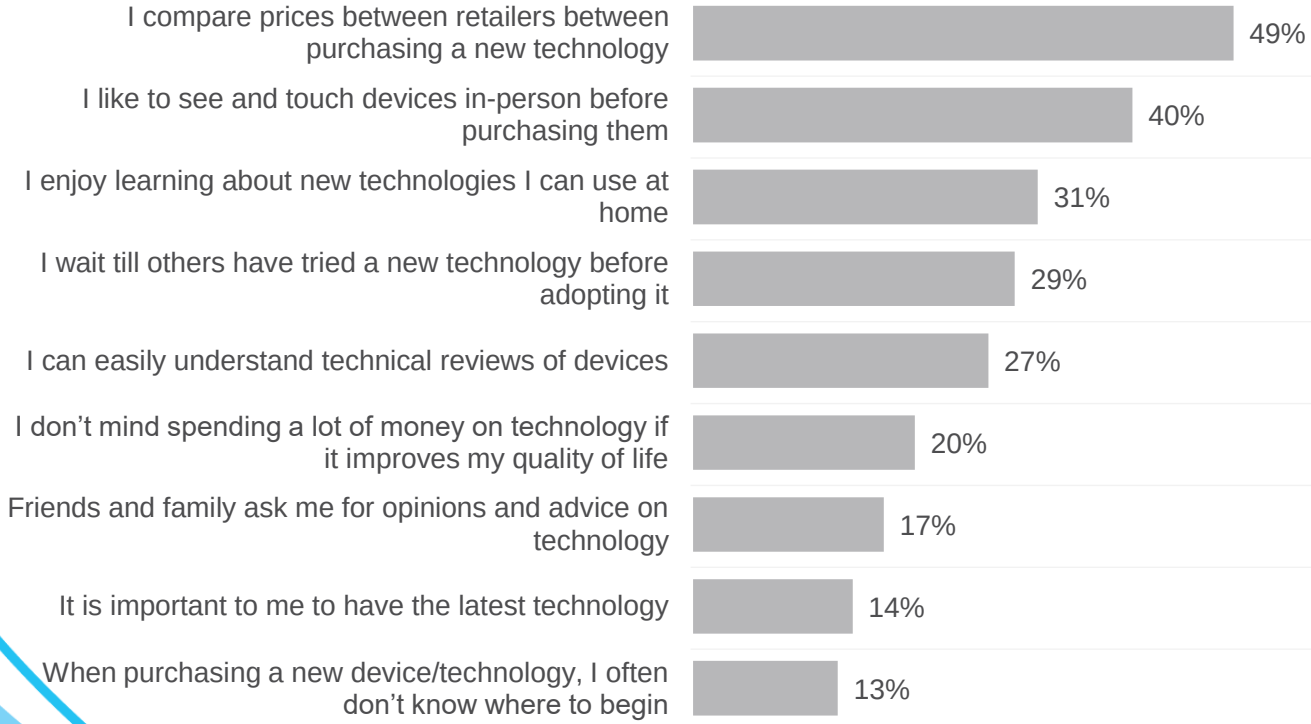
Older
Middle-income
Male

# Segment Technology Attitudes

Green Pioneers are the most comfortable with technology, with Connected Pragmatists understanding its importance and being less price sensitive. All other segments do not prioritize having the latest technology.

## Attitudes Towards Technology

*% Strongly Agree*



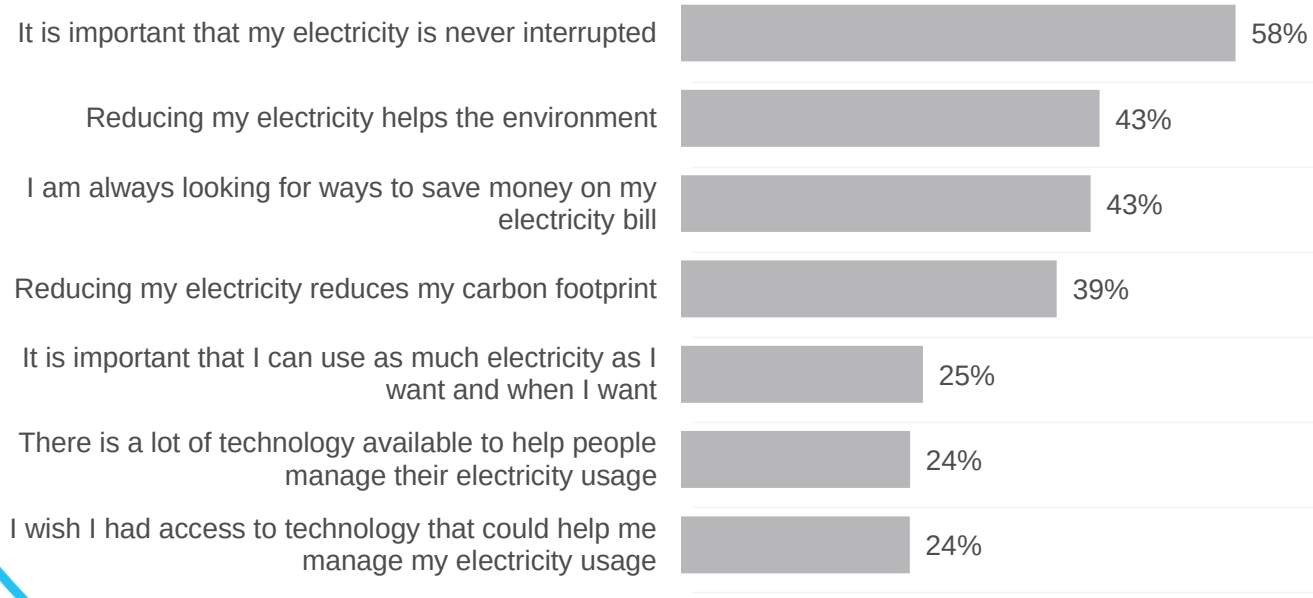

| | SEGMENT | | | | |
|---|---|---|---|---|---|
| | SIMPLY SUSTAINABLE | CONNECTED PRAGMATISTS | GREEN PIONEERS | TRUSTING TRADITIONALISTS | COMFORT SEEKERS |
| I compare prices between retailers between purchasing a new technology | 53% | 33% | 69% | 41% | 51% |
| I like to see and touch devices in-person before purchasing them | 37% | 32% | 34% | 53% | 51% |
| I enjoy learning about new technologies I can use at home | 16% | 31% | 76% | 3% | 20% |
| I wait till others have tried a new technology before adopting it | 33% | 10% | 2% | 65% | 33% |
| I can easily understand technical reviews of devices | 17% | 22% | 63% | 1% | 22% |
| I don't mind spending a lot of money on technology if it improves my quality of life | 7% | 28% | 46% | 2% | 9% |
| Friends and family ask me for opinions and advice on technology | 3% | 21% | 45% | - | 10% |
| It is important to me to have the latest technology | <0.5% | 18% | 33% | - | - |
| When purchasing a new device/technology, I often don't know where to begin | 3% | 19% | - | 34% | 2% |

# Segment Electricity Attitudes

Green Pioneers and Comfort Seekers strongly value reliability but for different reasons. Green Pioneers are environmentally motivated, while Comfort Seekers are comfort driven. The Simply Sustainable are also more environmentally motivated to reduce electricity than Trusting Traditionalists or Connected Pragmatists.

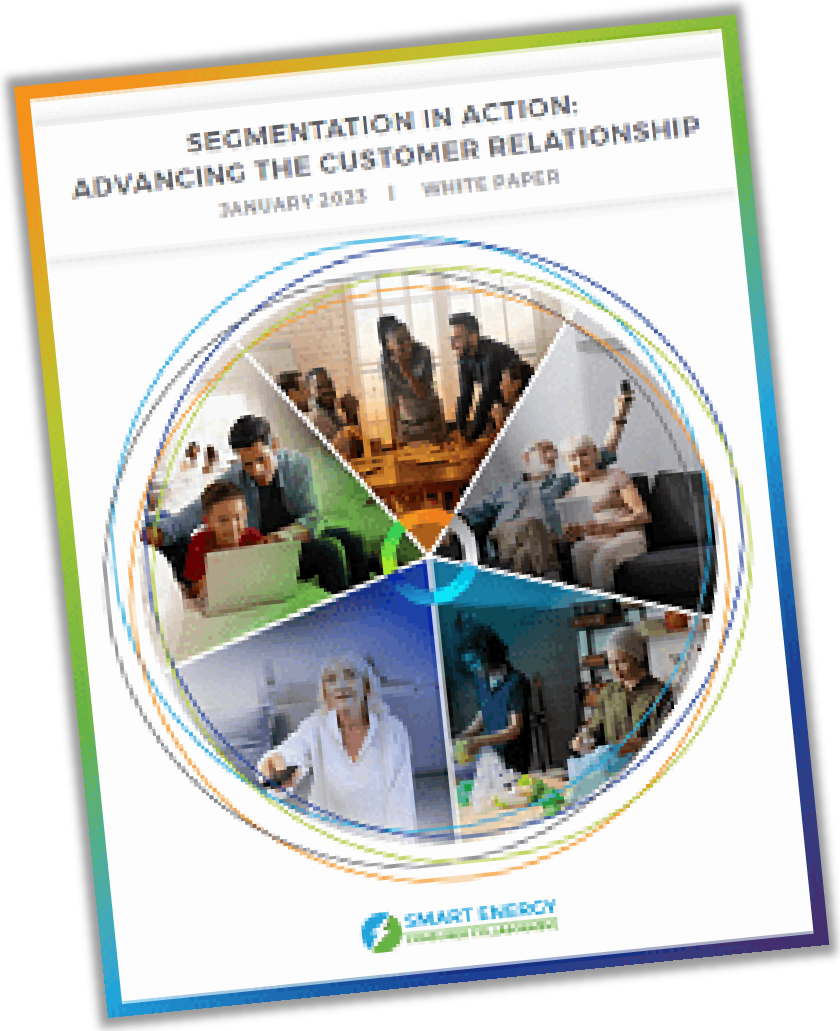
## Attitudes Towards Electricity Usage

*% Strongly Agree*



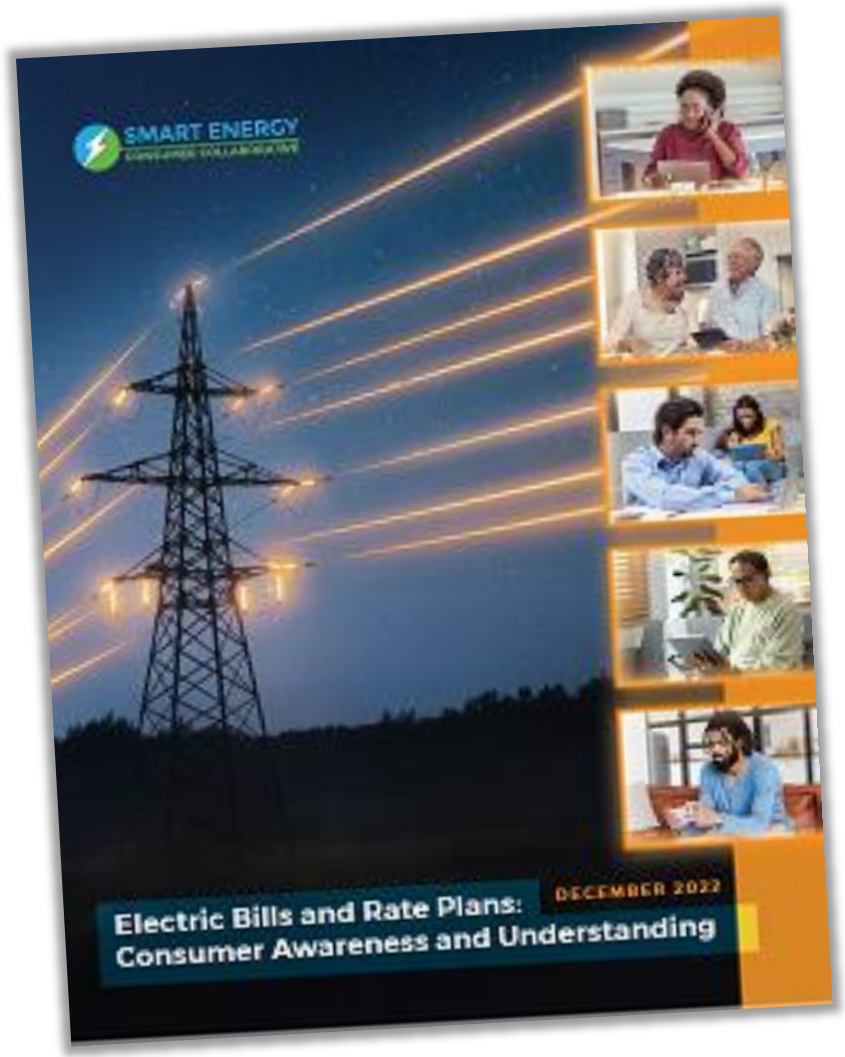

| | SEGMENT | | | | |
|---|---|---|---|---|---|
| | SIMPLY SUSTAINABLE | CONNECTED PRAGMATISTS | GREEN PIONEERS | TRUSTING TRADITIONALISTS | COMFORT SEEKERS |
| It is important that my electricity is never interrupted | 61% | 31% | 71% | 61% | 74% |
| Reducing my electricity helps the environment | 57% | 28% | 61% | 44% | 2% |
| I am always looking for ways to save money on my electricity bill | 50% | 30% | 57% | 35% | 25% |
| Reducing my electricity reduces my carbon footprint | 51% | 27% | 54% | 37% | 1% |
| It is important that I can use as much electricity as I want and when I want | 16% | 20% | 33% | 17% | 46% |
| There is a lot of technology available to help people manage their electricity usage | 19% | 23% | 37% | 17% | 10% |
| I wish I had access to technology that could help me manage my electricity usage | 21% | 26% | 37% | 13% | 4% |

# “Segmentation in Action” White Paper




Companion resource sharing tips on how to identify with each segment through real utility examples

# New Research on Bills and Rates




Quantitative study on residential consumers

Attitudes toward electric bills

Rate plan satisfaction and understanding

Interest in prepay and green rates

# How Do Consumers Feel About Their Bills?

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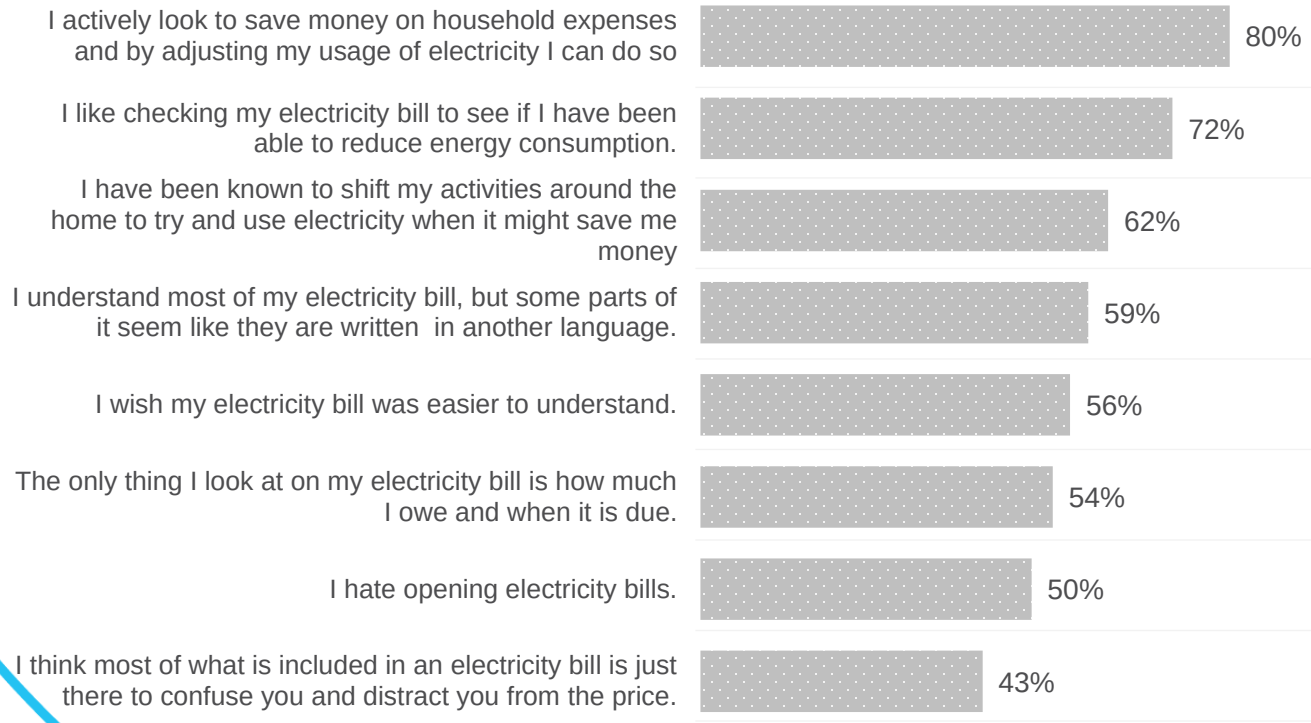
Most are looking to save by reducing consumption and recognize their bill can be tool to that end. Bills are not popular, however. About half struggle to understand their bill and are quite skeptical about the motives of utilities. Connected Pragmatists are more interested in their bills, but they are also more negative.

*% Agree (strongly + somewhat)*

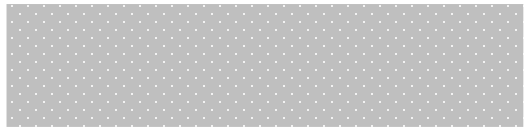



| | SEGMENT | | | | |
|---|---|---|---|---|---|
| | SIMPLY SUSTAINABLE | CONNECTED PRAGMATISTS | GREEN PIONEERS | TRUSTING TRADITIONALISTS | COMFORT SEEKERS |
| I actively look to save money on household expenses and by adjusting my usage of electricity I can do so | 82% | 83% | 86% | 77% | 61% |
| I like checking my electricity bill to see if I have been able to reduce energy consumption. | 75% | 81% | 82% | 61% | 37% |
| I have been known to shift my activities around the home to try and use electricity when it might save me money | 58% | 73% | 70% | 55% | 38% |
| I understand most of my electricity bill, but some parts of it seem like they are written in another language. | 54% | 74% | 54% | 60% | 46% |
| I wish my electricity bill was easier to understand. | 52% | 69% | 54% | 56% | 42% |
| The only thing I look at on my electricity bill is how much I owe and when it is due. | 49% | 70% | 40% | 56% | 60% |
| I hate opening electricity bills. | 46% | 63% | 44% | 50% | 47% |
| I think most of what is included in an electricity bill is just there to confuse you and distract you from the price. | 34% | 66% | 36% | 37% | 40% |

# Are Bills Seen as a Cost-Saving Tool?

Most find that paying attention to their electric bills can be helpful in lowering consumption and costs. Comfort Seekers are least likely to see a benefit in their bill. Trusting Traditionalists share the Comfort Seekers' ambivalence but to a lesser degree.

*% Agree (strongly + somewhat)*



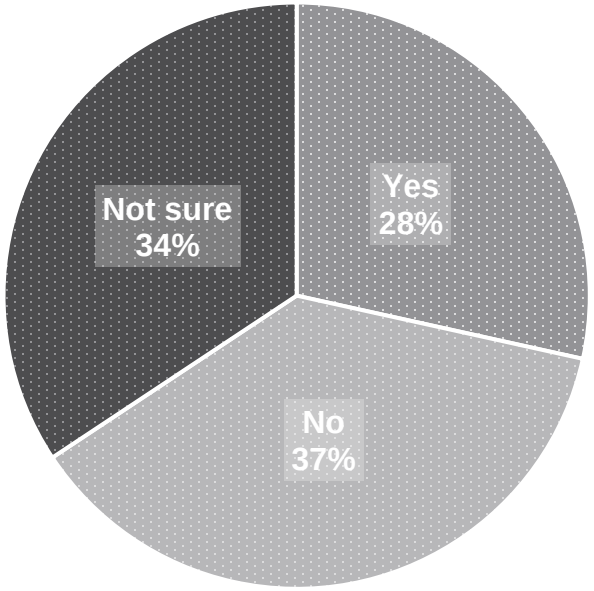
| | | SEGMENT | | | | |
|---|---|---|---|---|---|---|
| | | SIMPLY SUSTAINABLE | CONNECTED PRAGMATISTS | GREEN PIONEERS | TRUSTING TRADITIONALISTS | COMFORT SEEKERS |
| I like to see how much money I save each month when I get my bill due to my conscious effort to reduce energy consumption. | 78% | 78% | 85% | 86% | 69% | 59% |
| I like to know when electricity costs are the highest throughout the day ... | 78% | 77% | 85% | 87% | 69% | 54% |
| I find that I can reduce my energy consumption and costs by paying attention to the information on electricity rates in my bill. | 68% | 66% | 78% | 78% | 54% | 51% |
| My electricity bill provides me with insight into how I can reduce my energy consumption. | 66% | 64% | 77% | 73% | 55% | 45% |

# Do Consumers Know If They Have a Choice?

Three-in-ten say they have a choice of rate plans, but a similar number don't even know. The segments do not differ much, but the Trusting Traditionalists and Comfort Seekers were slightly less likely to say they have a choice of rate plans.

Do you have a choice?

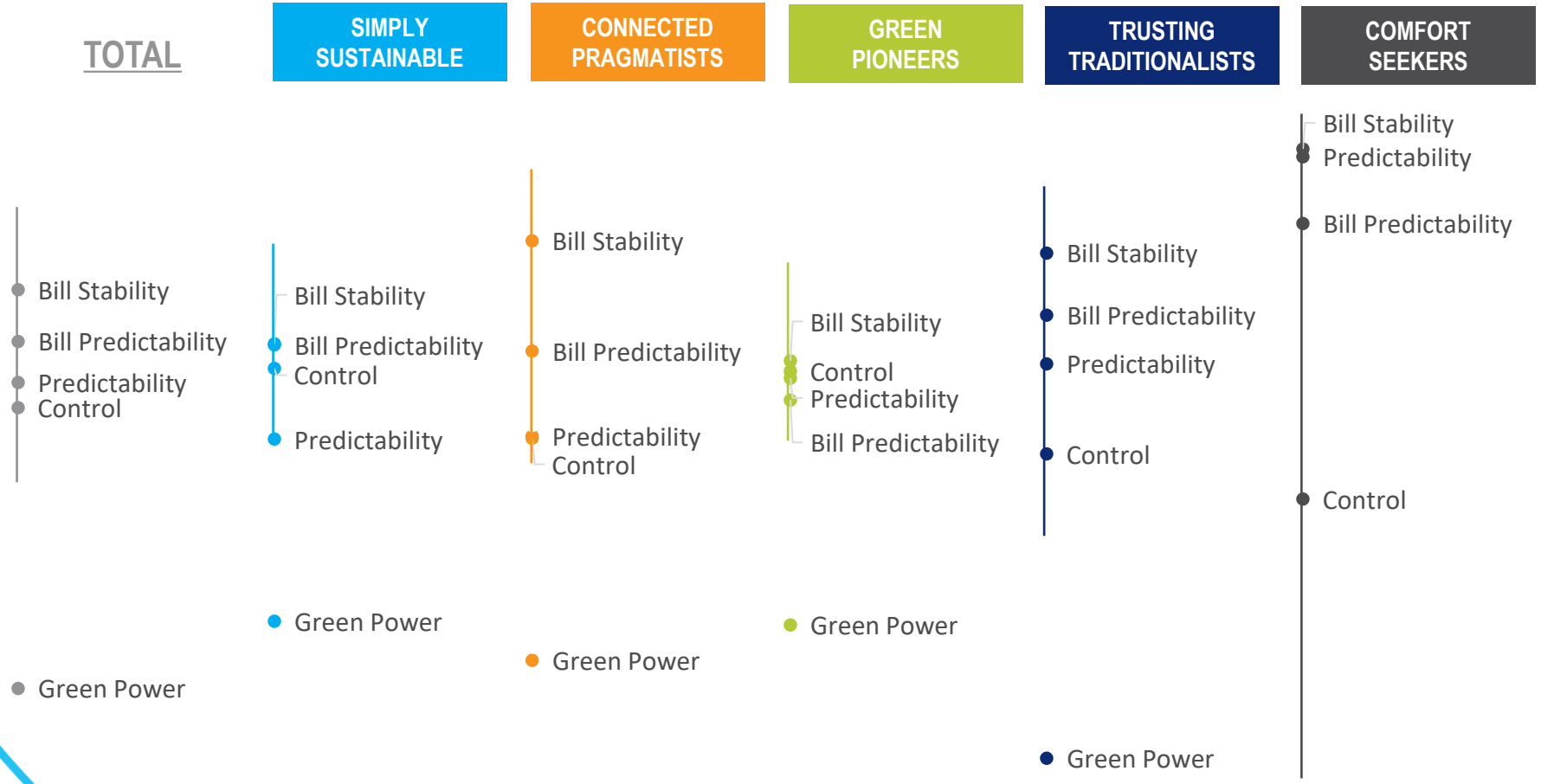
*Among Total*




| | SIMPLY SUSTAINABLE | CONNECTED PRAGMATISTS | GREEN PIONEERS | TRUSTING TRADITIONALISTS | COMFORT SEEKERS |
|---|---|---|---|---|---|
| Yes | 28% | 31% | 32% | 24% | 23% |
| No | 35% | 41% | 36% | 33% | 45% |
| Not sure | 37% | 28% | 32% | 43% | 32% |

# What's Important in a Rate Plan?

People want a rate plan to provide Bill Stability and Bill Predictability. Predictability and Control are a solid third and fourth.




Base: Total (n=2,013); Simply Sustainable (n=551), Connected Pragmatists (n=442), Green Pioneers (n=477), Trusting Traditionalists (n=345), Comfort Seekers (n=198)
QMAXDIFF_ASPECTS_RATE_PLAN. Please rank the importance of each aspect below to you.

## DEFINITIONS

**Bill Stability**
*"Bill does not change from month to month"*

**Bill Predictability**
*"Bill amount known ahead of time"*

**Green Power**
*"Electricity sourced from zero emission, renewable resources."*

**Control**
"Ability to manage bills through shifting load or automating when/how I use electricity."

**Predictability**
"Ability to use as much as I need in the month without impact on my bill."

# Recent ACEEE Research on Low-Income Programs and on Decarbonization Options


**Steven Nadel**

**Executive Director, ACEEE**

**March 2023**

ACEEE

American Council for an Energy-Efficient Economy

# Study Background and Objectives

- Update to our 2017 report
- New report uses data from 2019
- How have results changed in the five years since our previous study?
- How do the utility programs compare across spending, savings, and customers served?
- How well are utilities serving their low-income populations? What % of the low-income population receive services from each utility?

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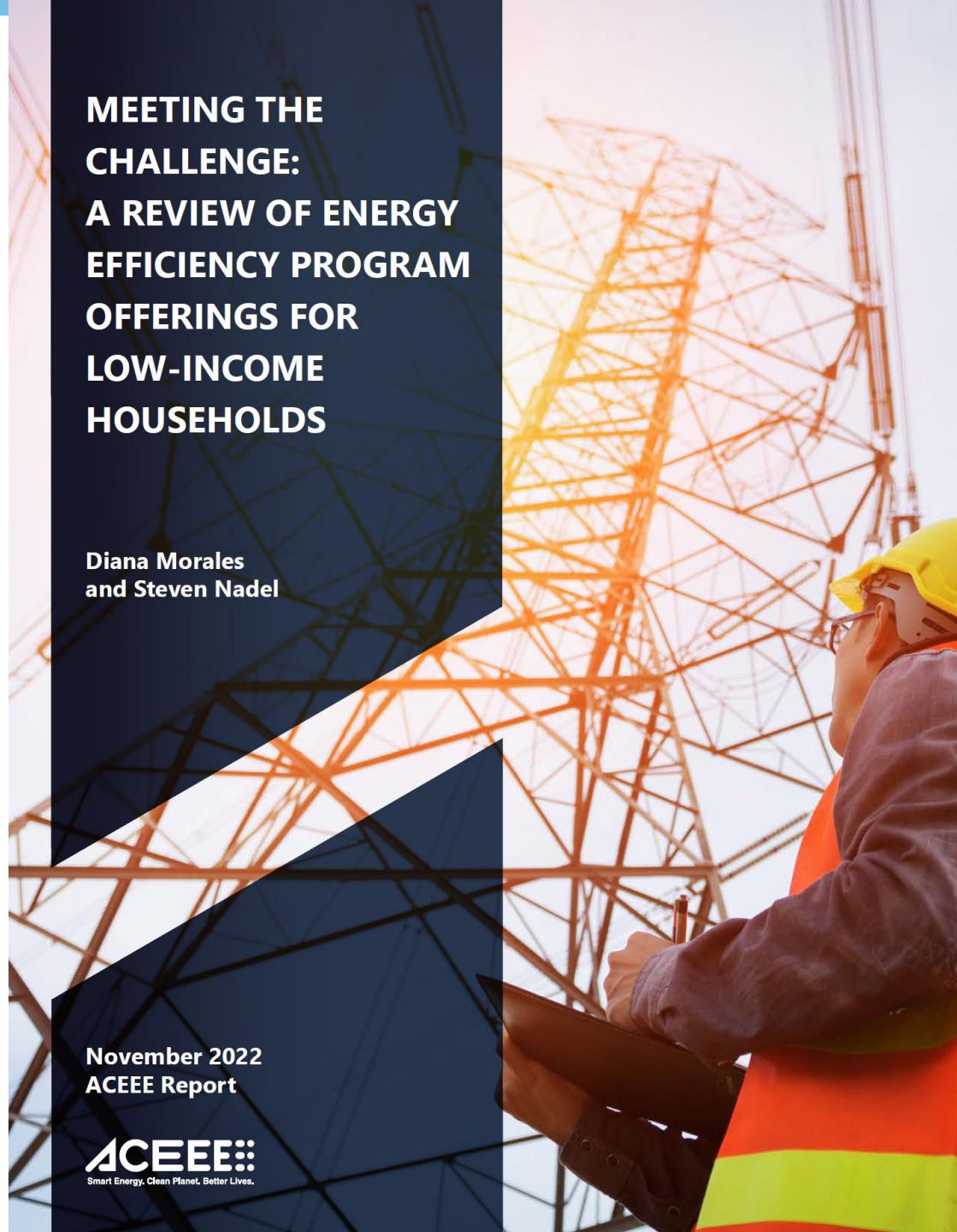
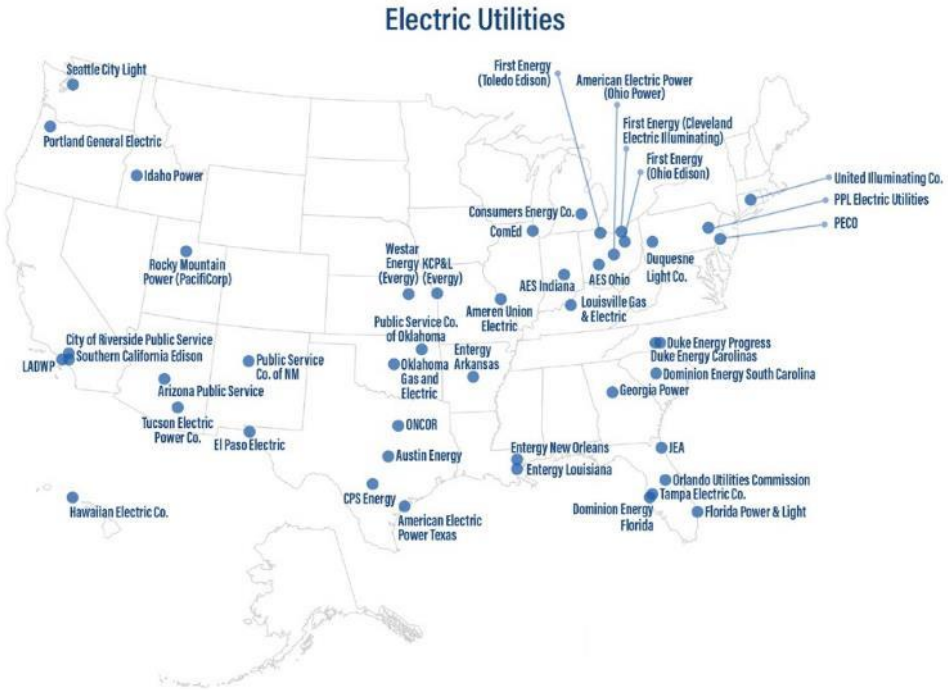
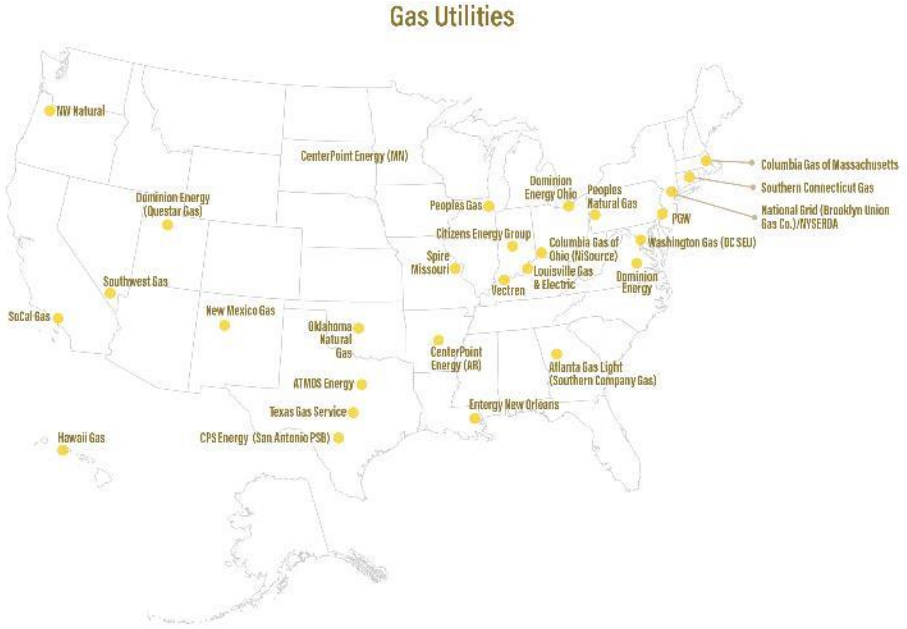
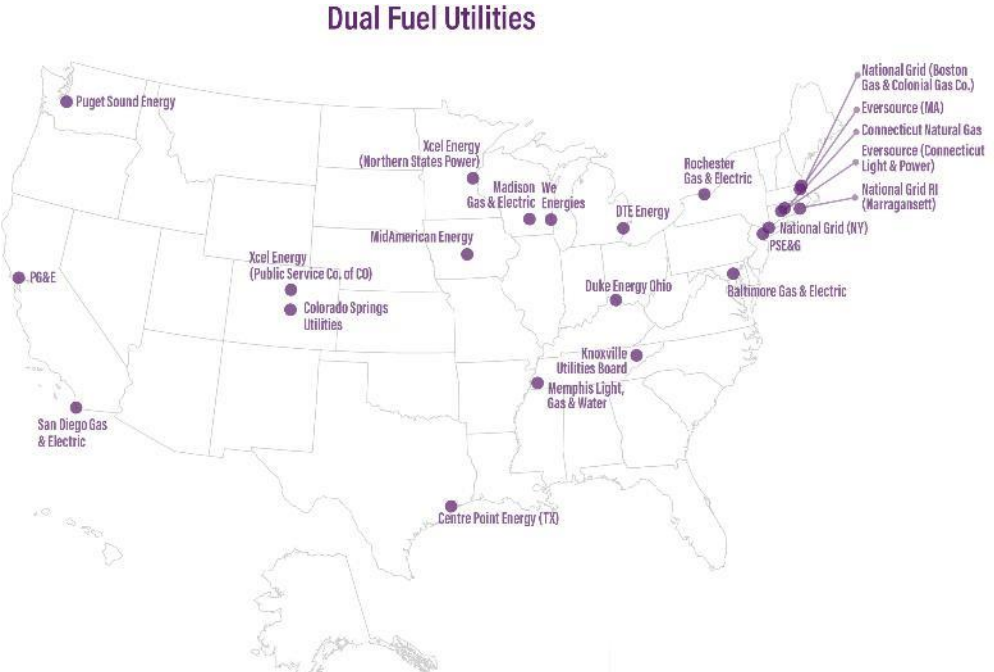


# Utilities Included

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# Data Findings

- Spending of about $936 million in 2019 on ratepayer funded low-income energy efficiency programs, up substantially from a similar study based on 2015 data.
- Median electric and gas utility LI spending is about 13% of total energy efficiency program budgets.
  - **This level of spending represents a significant shortfall relative to the approximately 27.5% of the U.S. population who are income-qualified for these programs.**
- Average program spending per participating low-income customer was $2,059 in 2019 and spending averaged over all income-eligible customers was only $36. At this current spending rate:
  - **It will take 57 years to offer average program services to all currently income-eligible households.**
  - **To provide average program services to all eligible households over 20 years, spending would need to nearly triple.**

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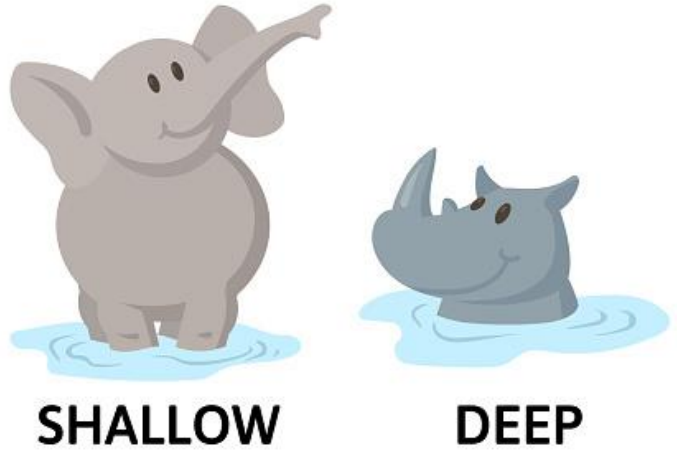
# Data Findings (2)

- The programs in our database served about 1.5 million program participants in 2019
  - **Many received low-cost measures such as LED lightbulbs and energy-saving kits; tens of thousands received more comprehensive weatherization services.**
- Average participation rate among LI customers was ~5% (based on households <= below 200% poverty level).
- Some states have recently established a goal of at least 1% average annual savings for low-income customers
  - **In our study averaged only 0.55%.**
  - **Nationwide, energy efficiency programs across all programs and income levels are reducing energy consumption by 0.72%.**

# Deep and Shallow Retrofits

- Low-cost programs with inexpensive measures (light-bulbs, energy-saving kits) can reach many households but savings limited
- Ultimately, to reduce energy burdens, comprehensive retrofits needed that can reduce energy bills by >20% but that might cost over $5000/home.
- Should seek funding to steadily ramp-up programs so they can serve most eligible households with these comprehensive retrofits over 20 years.



# Low-income Energy Efficiency Program Design Best Practices

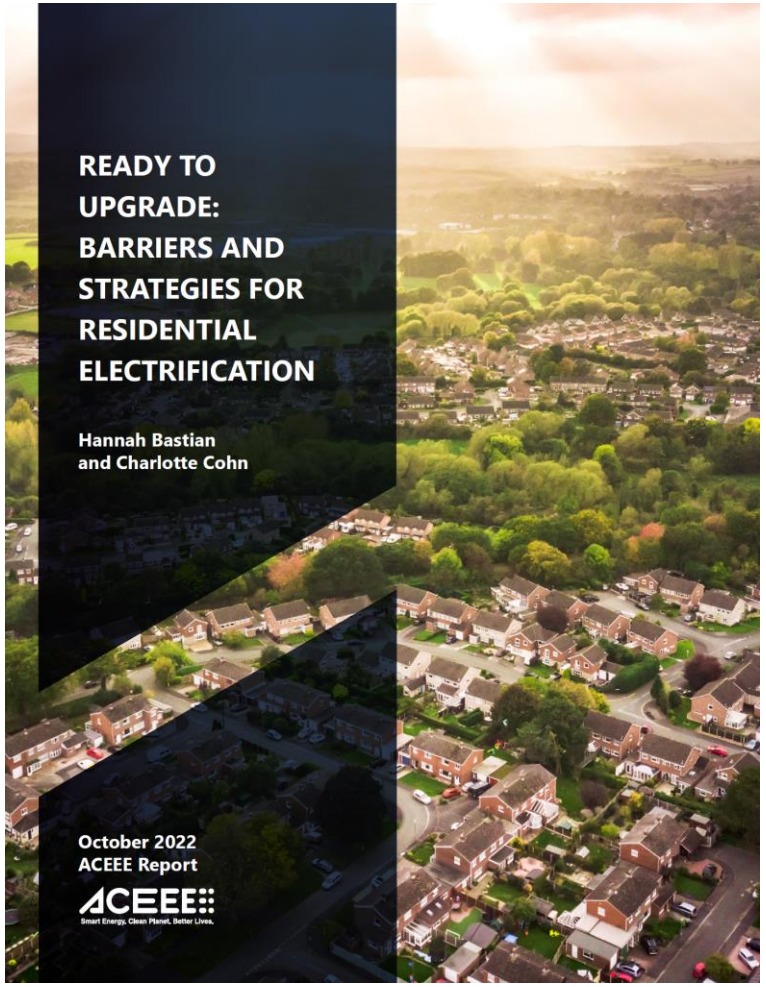
- Planning and coordination
  - Community engagement
  - Leverage multiple existing eligibility criteria
  - One-stop shop approach
  - Fuel neutral program
  - Market segmentation
- Funding and financing
  - For LI, grants, not loans
  - Leverage diverse funding sources; braid funds
  - Often need funds for home repairs

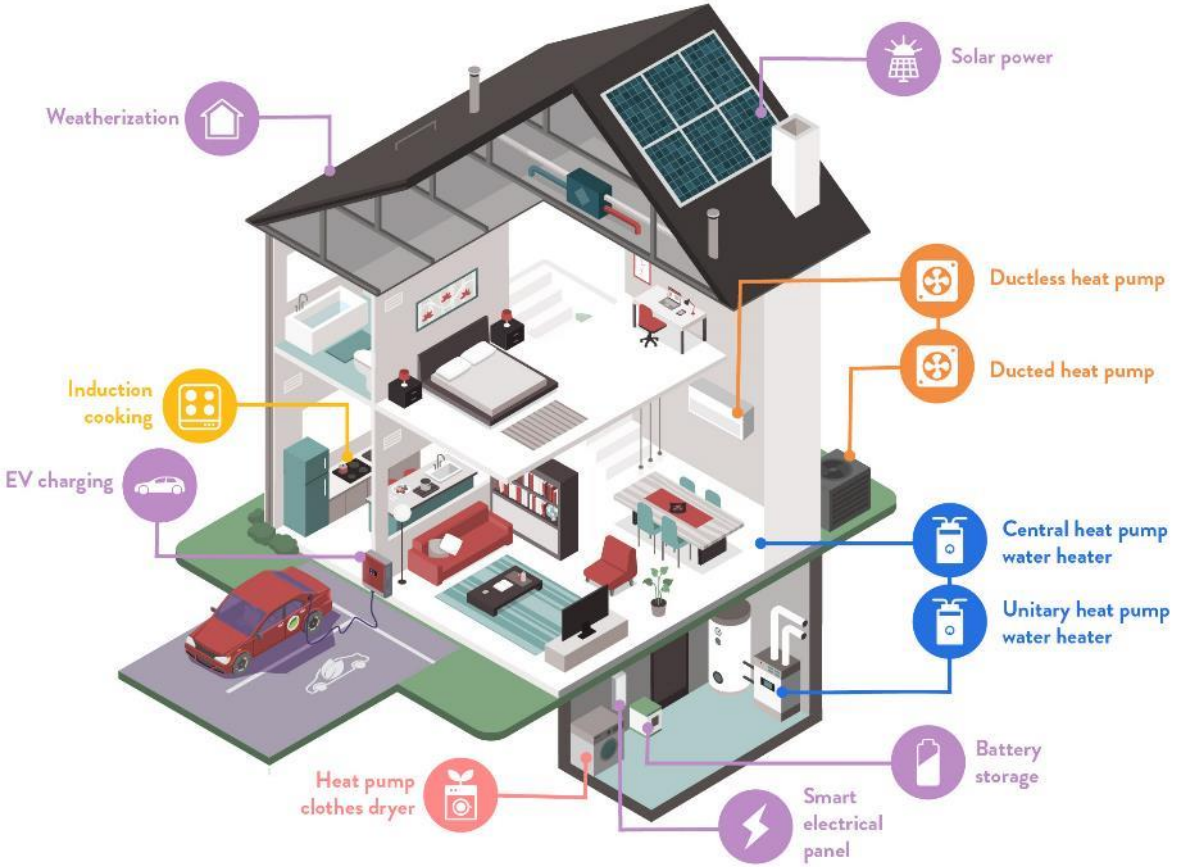
Source: City of Denver website, 'Community Engagement'.

# Program Design Best Practices (2)

Source: Whillans, S. 2022. Better Weatherization Is Within Sight. NRDC. https://www.nrdc.org/experts/sam-whillans/better-weatherization-within-sight

- Effective measures, messaging, and targeting
  - Health and safety measures
  - Direct install and rebate programs
  - Targeting high energy users and vulnerable (high burdens)
  - Work with trusted local groups
- Workforce development and training




## EFFICIENT ELECTRIC TECHNOLOGIES

**Induction cooking**

An electric stovetop that uses the electromagnetic property of induction to precisely heat cookware

**Heat pump clothes dryer**

A laundry machine that uses heat pump technology to dry clothes at a low temperature, using up to 28% less energy than a standard dryer

**Heat pump**

*Ducted, ductless, cold-climate models*

An efficient, all-electric heating and cooling system that uses the ambient temperature of outdoor air, water, or ground to heat and cool an indoor space. Consists of an exterior heat exchanger unit and an indoor temperature distribution system

**Heat pump water heater**

*Unitary, central*

Also known as an "air-to-water" heat pump. Stores heated water in a reserve tank for domestic use

**Complementary technologies**

These technologies are often associated with electrification retrofits and can affect project economics, homeowner motivations, and so on.

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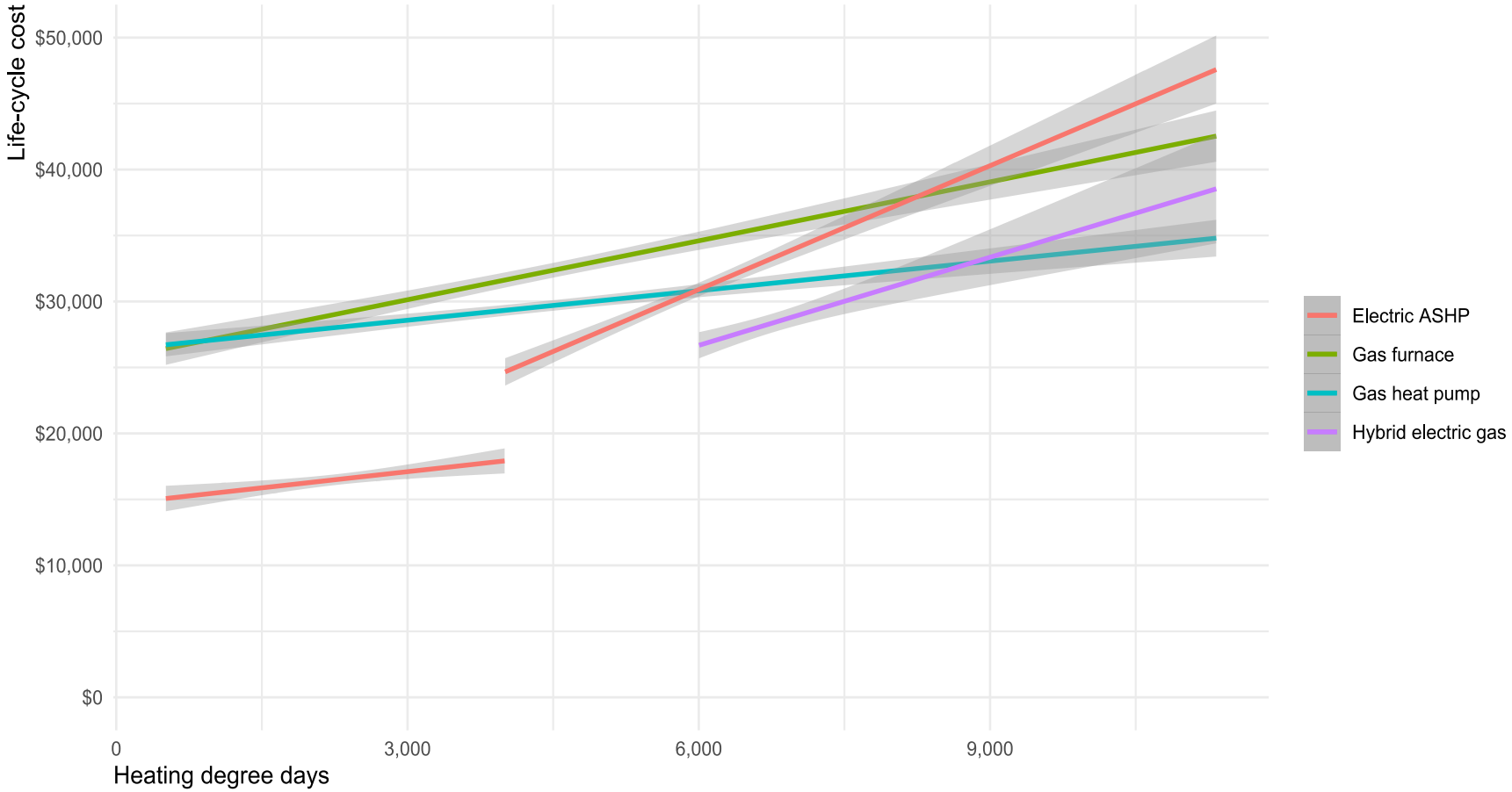
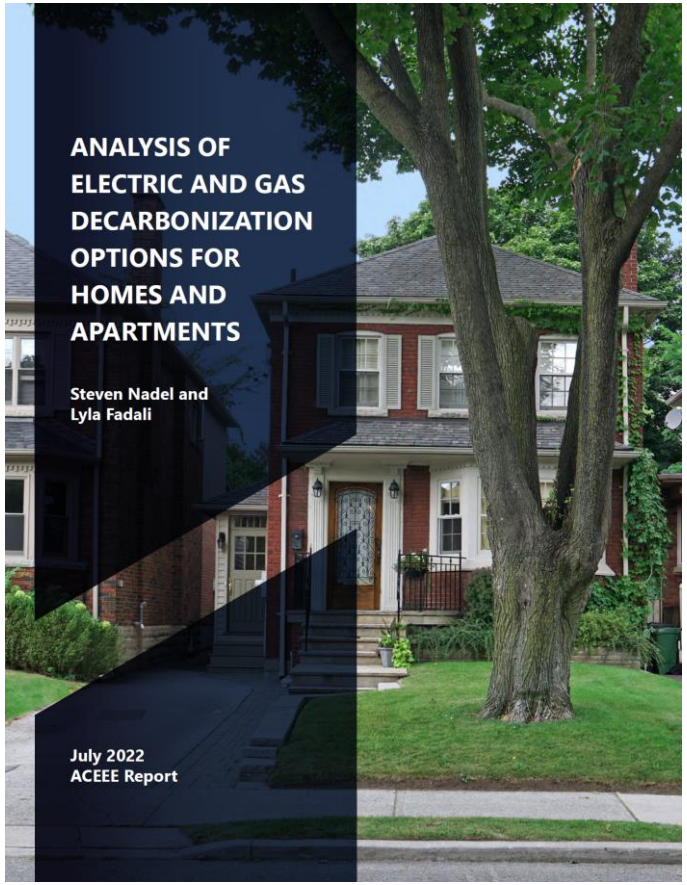
# Findings

- Market barriers include high costs, supply chain challenges (e.g., insufficient stock at distribution centers), contractor shortages, and lack of consumer awareness.
  - Programs are addressing these barriers by offering incentives, providing engagement and training to contractors, and working with manufacturers and supply chains.
- High project costs and long payback times are another major barrier.
  - Programs are incentivizing both electrification measures and complementary projects (e.g., weatherization and panel upgrades). Many programs work with other organizations and government agencies to combine incentives to improve project economics. Programs also train contractors to design cost-effective systems (e.g., how to avoid a panel upgrade through efficiency measures).

# LCC for heating a single-family home in the U.S. assuming decarbonized fuels (**best fit lines**)

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# Home Decarbonization Options

## Electrify

- Install heat pumps, heat pump water heaters, and perhaps induction ranges and heat pump clothes dryers
- May have to upgrade electric service
- Significant costs but economics best at time existing equipment needs replacement
- LMI households will need technical & financial assistance.
- May need backup heat for existing homes in very cold climates
- Contributes to growing winter peaks
- Efficiency upgrades improve comfort and reduce winter peaks and need for backup heat

## Hybrid Systems/Decarbonized Fuels

- Low-initial cost to homeowner
- Natural gas restrictions in a growing number of areas; could also be a price on GHG, raising costs of fossil natural gas
- Decarbonized fuels ~3-5X more expensive than natural gas
- In older areas, gas pipes may need replacement soon, which is expensive
- As customers leave the system, costs for other customers increase
- If/when decommission lines, undepreciated fixed costs will need to be recovered
- Gas service will get much more expensive; ACEEE now looking at scenarios

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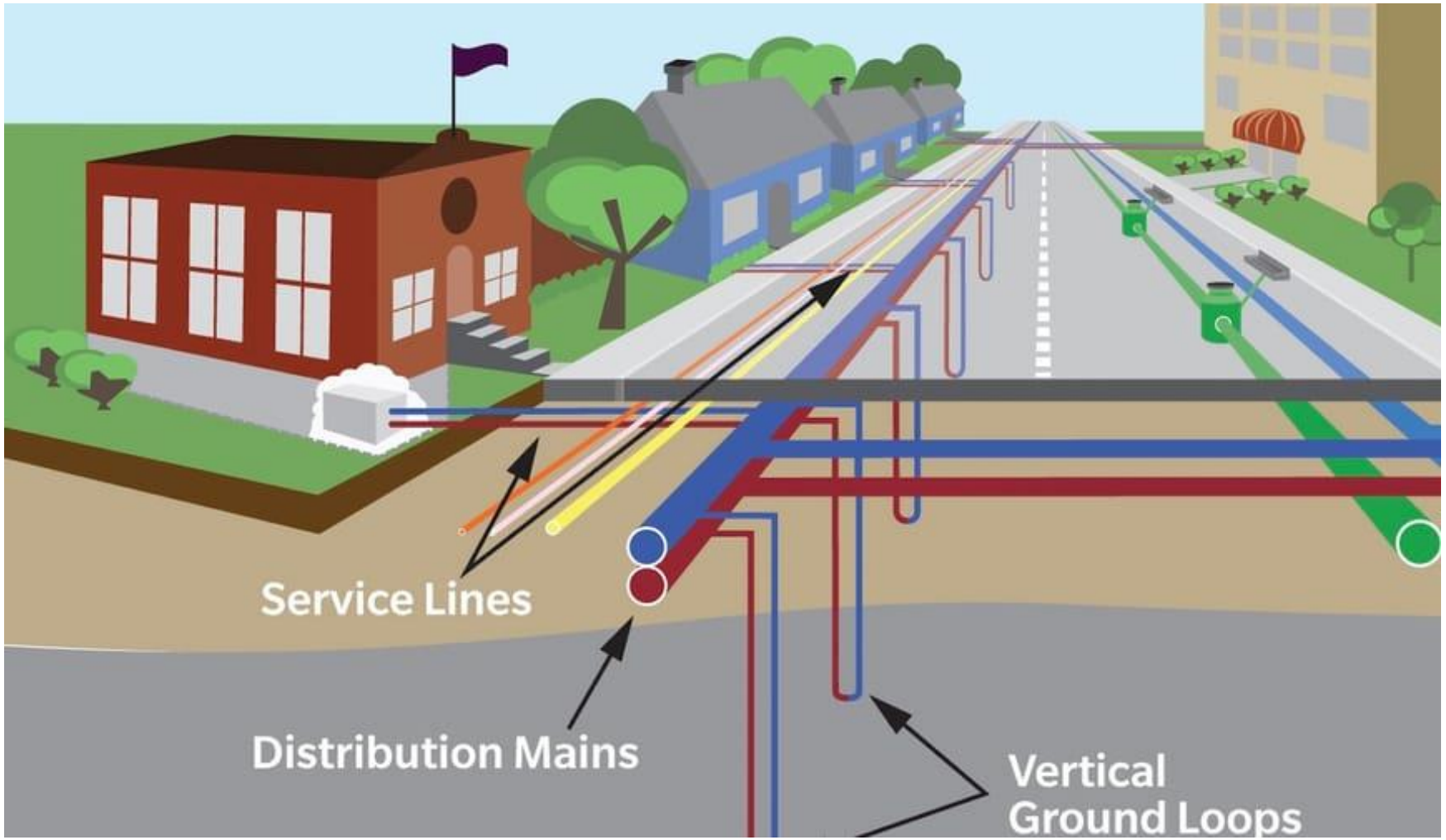
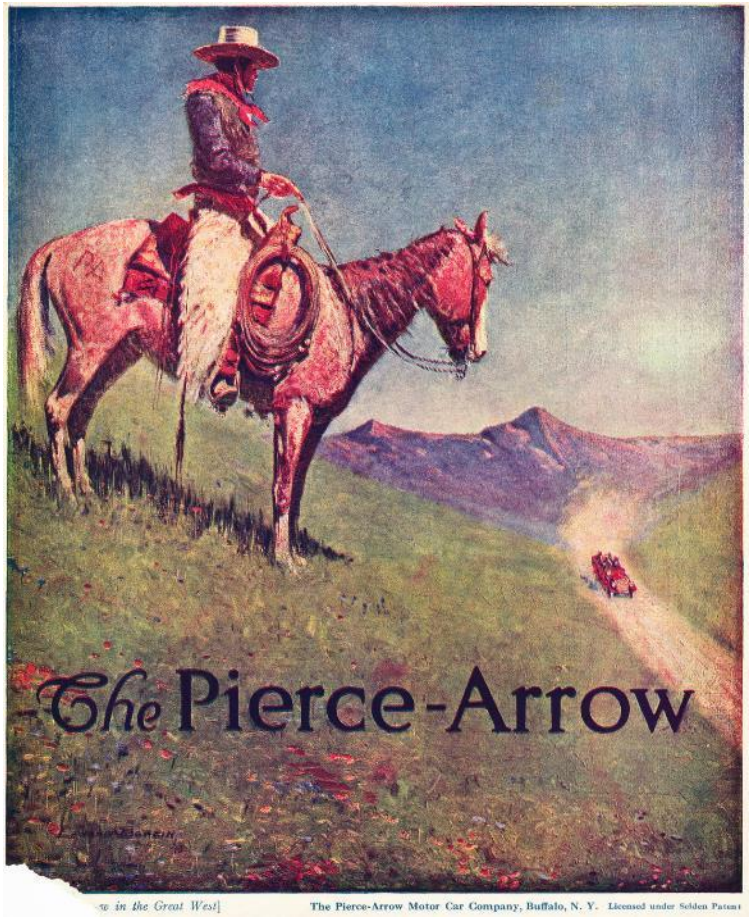
# Ground-Source Thermal Network




Source: Eversource


The Pierce-Arrow
The Pierce-Arrow Motor Car Company, Buffalo, N. Y.

## 1900 New York 5th avenue

## 1913 New York 5th avenue

# Contact Information

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ACEEE
American Council for an Energy-Efficient Economy

NEADA

NATIONAL ENERGY ASSISTANCE DIRECTORS' ASSOCIATION

# The Importance of Adequate LIHEAP Funding

MARCH 28, 2023

NATIONAL ENERGY ASSISTANCE DIRECTORS ASSOCIATION

# Families Receiving Energy Assistance

- The number of households receiving heating assistance is up by an estimated 1.3 million, up from 4.9 million the previous year to 6.2 million
- This has been the largest increase since 2009

# Are the Funds Adequate to Meet the Need?:

- States currently have sufficient funds to help families pay their winter energy bills.
- States could run out of funding if the rate of new applications continues to increase
- Reasons that the increase in the number of applications are not surprising:

1. High home energy bills
2. High rate of inflation in essential goods
3. End of enhanced child tax credit and rental assistance program

# Utility Arrearages

## Estimated National Arrearages (6/22 to 12/22)

| Month | National Arrearages (Billions) | Households in Arreares (Millions) | Arrears Per Household |
|---|---|---|---|
| 22-Jun | $16.3 | 20.8 | $783 |
| 22-Jul | $16.4 | 21.1 | $774 |
| 22-Aug | $16.3 | 20.9 | $778 |
| 22-Sep | $16.6 | 20.7 | $802 |
| 22-Oct | $16.8 | 21.2 | $792 |
| 22-Nov | $16.6 | 21.0 | $791 |
| 22-Dec | $14.1 | 21.2 | $668 |

# Home Heating Prices are at a 10 Year High

## Estimated Winter Heating Costs, 2020-21 to 2022-23

All Fuels is a weighted average of all home heating sources, using the number of households by energy type.

| Winter Heating Season | Natural Gas | Electricity | Heating Oil | Propane | All Fuels |
|---|---|---|---|---|---|
| 2020-21 | $572 | $1,180 | $1,212 | $1,162 | $885 |
| 2021-22 | $723 | $1,231 | $1,860 | $1,587 | $1,031 |
| 2022-23 | $828 | $1,360 | $2,342 | $1,727 | $1,162 |
| % Difference, 22-23 vs. 21-22 | 14.5% | 10.5% | 25.9% | 8.8% | 12.7% |
| % Difference, 22-23 vs. 20-21 | 44.8% | 15.3% | 93.2% | 48.7% | 31.2% |

Source: Average Consumer Prices and Expenditures for Heating Fuels During the Winter, U.S. Energy Information Administration Short-Term Energy Outlook • Get the data • Created with Datawrapper

# Appropriations Status

| FY 2022 | FY 2023 |
| --- | --- |
| $3.8 Billion Regular Appropriation | $4 Billion Regular Appropriation |
| $4.5 Billion ARP | 1 Billion Short-Term Continuing Resolution |
| $100 Million Infrastructure Investment Act | $1 Billion Full-Year Continuing Resolution |
| | $100 Million Infrastructure Investment Act |
| Total: $8.4 Billion | Total: $6.1 Billion |

# Reasons for Funding concerns:

- Applications are still rising, and weather conditions are colder than last year
- Program purchasing power is declining
- Summer cooling of concern – states will shift funding from summer cooling
- Arrearages remain high
- States still have adequate funds available but might have to start cutting grants if applications continue to grow

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# Questions?

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