

# Strategies to Address Inequities

**Overall findings**

**Strong Partnerships**

**Neighborhoods as Scale**

**Job Training at Core**

**Multifamily Scale**

**Innovative Finance**

# Overall Findings

# EE Reduces Energy Burden

- For all low-income households and for multifamily low-income households, bringing their housing stock up to the efficiency level of the median household would eliminate 35% of their excess energy burden
- Reducing burden for low-income from 7.2% to 5.9%, For African-American and Latino households, 42% and 68% of the excess energy burden, respectively, was due to inefficient homes. For renters that number was 97%, meaning that almost all of their excess energy burden could be eliminated by making their homes as efficient as the median
- On average, the value of efficiency upgrades is 2.2 times greater than their cost (DOE 2015). This value does not come from energy savings alone, as WAP also aims to improve health, safety, and security for participating households
- Building efficiency upgrades also increase property value and the reliability of appliances and HVAC equipment, which reduces maintenance costs and stress
- Strategies aimed at improving energy affordability must also address the trend of rising fixed charges regardless of consumption, and their impacts on low-income customers.

Source: [Lifting the High Energy Cost Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities](#)

# EE Creates Jobs

Successful EE programs create both professional and skilled trade jobs as delivery partners build capacity to:

- manage programs
- conduct outreach
- process intake
- assess savings opportunities
- track data, and
- provide for retrofits and direct installs of energy-saving measures.

Source: [NAACP Just Energy Policies Compendium](#)

# EE Improves Health

- Energy conservation with improved ventilation is associated with:
- Improved respiratory health (especially among people who have an existing illness like asthma)
- Improved comfort (temperature and humidity)
- Improved Indoor Air Quality
- Reduced Particulate Matter
- Reduced VOCs (esp. formaldehyde)
- Reduced CO2
- Reduced NOx
- Reduced radon\*

Source: [U.S. DOE Health + Home Performance webinar](#)

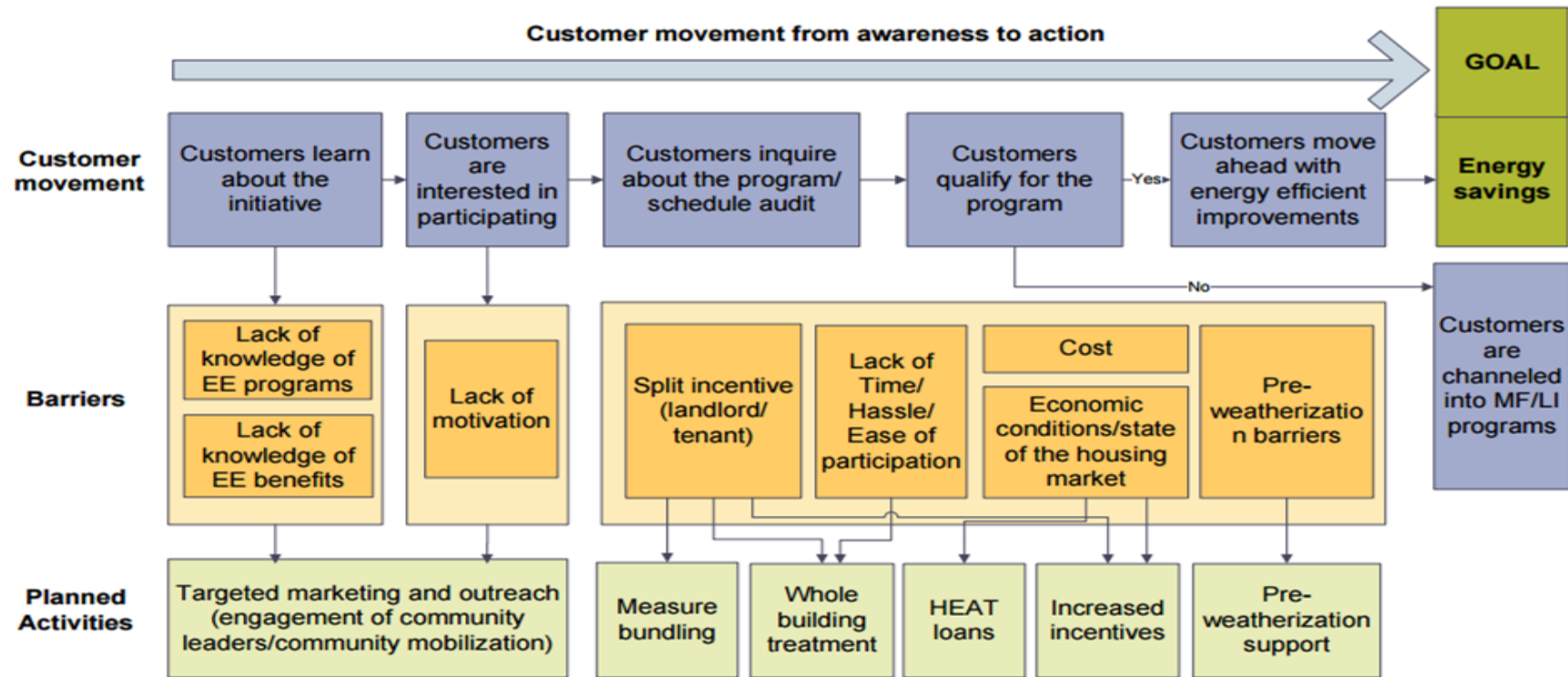
# EE Benefits Low-Wealth Households, Utilities and Communities

Benefit recipient	Energy efficiency outcome	Resulting benefit
Low-income program participants	Lower monthly utility bills	Lower household energy burden and greater disposable income
		Reduced stress and fewer trade-offs between energy and other necessities
		Reduced exposure to risk from utility rate increases
	Improvements in the efficiency of the housing stock	Improved health and safety and greater household comfort
		Increased property value, more reliable equipment, and lower maintenance costs
		Greater satisfaction with the building/unit and improved household and neighborhood stability
Utilities and ratepayers	Demand-side management (both gas and electric)	Avoided excess costs of increased generation, capacity, and transmission investments
		Contribution toward compliance with energy efficiency portfolio standards and other environmental legislation
	Cost savings to utilities and ratepayers	Reduced arrearages and cost of shutoffs, which lowers utility operating costs
		Improved customer service
Communities	Lower electric and gas demand	Reduced environmental pollutants and improved public health
	Lower monthly utility bills due to avoided utility costs	More money spent in the local economy due to greater household disposable income, with higher local multiplier effect
		Poverty alleviation and increased standard of living
	Improvements in the efficiency of the housing stock	Local job creation through weatherization programs and energy efficiency providers and trade allies
		Improved quality of life
		Increased property values and preservation of housing stock

Source: [Lifting the High Energy Cost Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities](#)

# Multi-pronged strategies are key

Massachusetts Program Administrators piloted parallel programs to test different strategies in reaching lower wealth customers



Source: <http://ma-eeac.org/wordpress/wp-content/uploads/Efficient-Neighborhoods-Plus-Initiative-Evaluation-Final-Report1.pdf>

# Community Engagement Considerations for ALL Strategies

- How are your programs and practices completely transparent and accessible to your stakeholders?
- How are sites/communities selected for pilot projects?
- Do your cities have neighborhood planning structures? How much has your office interacted with them?
- Does your advisory body reflect and represent the diversity of all stakeholders?
- Are meetings scheduled at multiple times to allow participation?
- Is childcare provided at meetings?



# Promising Practices

## **Eliminate or reduce up-front costs**

Reducing installation and equipment costs can make EE/RE more attractive to low-income communities. Costs can be covered outright (e.g., by grants) or through loans such as on-bill financing, in which households see immediate bill reductions while repaying the loan.

## **Partner with trusted organizations**

Organizations and agencies that already provide services to low-income communities offer a familiar, trusted conduit for support, information, and education. This facilitates the process of assessing needs and delivering EE/RE services.

## **Create a one-stop hub for energy assistance**

A hub improves coordination across programs that provide energy services to low-income communities, allowing them to work together to serve multiple needs and reach more households. A hub also makes it easier for households to navigate the application processes for various energy assistance programs.

Source: [EPA Bringing Benefits of EE/RE to low-income communities](#)

# Promising Practices

## **Address eligibility gaps**

By providing funding and technical assistance to low-income households that do not qualify for federal energy assistance but still struggle to pay energy bills, programs can reach a wider range of households.

## **Address split incentives**

Using green leases, virtual net metering, and other strategies to address split incentives (in which landlords and tenants have conflicting incentives for EE/RE), programs can ensure that everyone benefits from EE/RE, regardless of who pays the energy bills or the costs of upgrades.

## **Adopt a whole-building approach**

An integrated approach that treats the building as a system can achieve larger improvements in efficiency and comfort than one in which components (appliances, lighting, heating, insulation, etc.) are addressed in a piecemeal fashion.

## **Consider community solar**

Community-shared solar energy systems, in which electricity is generated off-site and distributed to households, can be used to expand the benefits of carbon-free solar power (such as lower energy bills) to low-income renters and for building owners for whom rooftop solar is not feasible.

Source: [EPA Bringing Benefits of EE/RE to low-income communities](#)

# Expand appliance offerings

- Low-income customers tend to own older and less efficient appliances and are less likely to purchase ENERGY STAR models, creating a higher energy use baseline.
- Baseline energy use for programs is likely to be higher due to the greater likelihood that appliances will be used until they fail, either by the homeowner or by a relative or friend (Navigant 2015).
- Expanding markets for ultra-efficient products can also contribute to programs' market transformation goals, yielding greater long-term energy and dollar savings for all customers.
- Higher per-unit energy savings may allow programs to increase rebate levels while still meeting cost-effectiveness criteria.

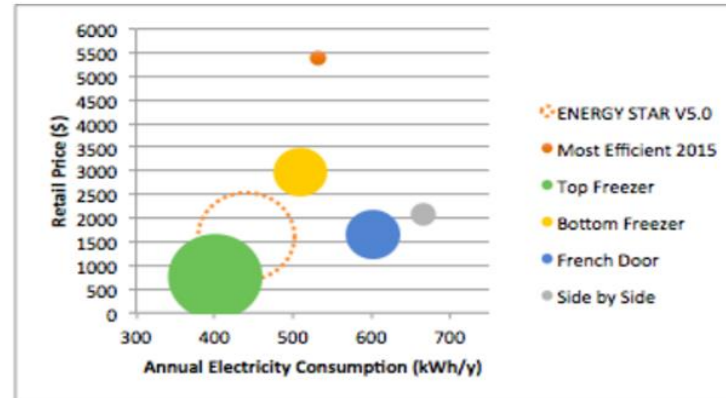


Figure 8. Refrigerator retail price and electricity use. Data represent 175 refrigerator models between 17 and 20 ft<sup>3</sup>, available for sale on May 1, 2015. The size of each circle indicates the relative number of models in each product category. *Source: Arquit-Niederberger and Frank 2015.*

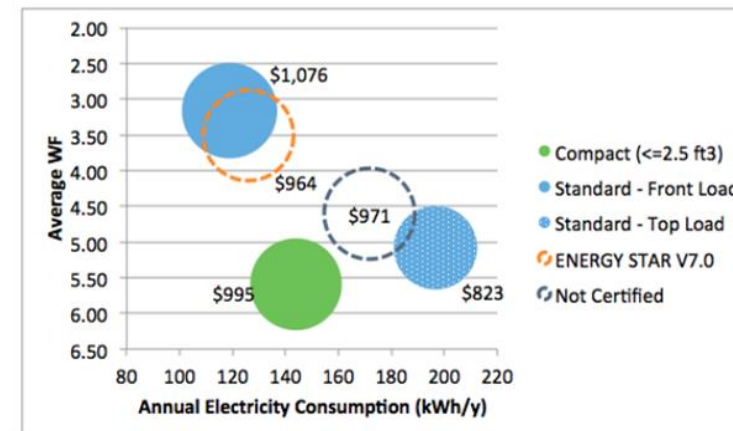


Figure 9. Clothes washer water factor, electricity consumption, and retail price. Data represent 198 clothes washer models offered for sale on May 1, 2015. The size of each circle indicates the relative number of models in each product category. *Source: Arquit-Niederberger and Frank 2015.*

Source: [Building Better Energy Efficiency Programs for Low-Income Households](#)

# Strong Partnerships

Source:

**SSDN** Advancing Equity in Energy Efficiency



# Knoxville Extreme Energy Makeover (KEEM)

- As a part of the IBM Smarter Cities Challenge, KEEM is a partnership between: Knoxville-Knox County Community Action Committee (Program Administrator), City of Knoxville, Knoxville Utilities Board, Tennessee Valley Authority (Funder), and Alliance to Save Energy
- KEEM will serve 1,278 single-family homeowners or renters living in the City of Knoxville, with electric heat and household incomes at or below 80% of HUD area median (already served more than 600 homes)
- Success attributed to strength of partnerships (rigorously evaluated by UT), and extensive education component of the program

Sources: [KEEM Overview](#), [KEEM One-Pager](#)

# Efficiency Vermont

- Program attributes success to strong foundation of community relationships
- Suite of offerings were coordinated through partnership of affordable housing providers, funders, and developers, Weatherization Assistance Providers, Vermont Foodbank, architects, engineers, and contractors who serve the affordable housing community
- Positioning Efficiency Vermont to design and construction teams as a project funder, with specific funding requirements, rather than an ‘energy program’ with voluntary metrics, was also key to success

Source: [Leaders of the Pack: ACEEE's Third National Review of Exemplary Energy Efficiency Programs](#)

# Partnering with Trusted Community Members

- Consider prominent buildings in the community as prime demonstration sites - where do the most community members frequent? Corner markets? Check cashers? Churches?
- Identify influential community members to target with job training - they can help identify other influencers and become authentic and influential spokespeople and recruiters
- Some utility-administered programs have found success when partnering with Community Action Agencies (CAAs) who are already administering WAP and LIHEAP and reaching lower-income customers

Source: [Building Better Energy Efficiency Programs for Low-Income Households](#)

# Collaboration is Key

- In Arkansas, the state's utility working group recently spearheaded the development of a consistent statewide approach to the weatherization programs administered by its investor-owned utilities and their partners.
- Public Service Commission-mandated collaboration across gas and electric utilities has resulted in better coordination and consistent messaging, joint energy assessments and delivery of energy efficiency services in a way that minimizes impact on homeowners. This also allows programs to offer a range of energy efficiency measures that address multiple energy loads in the home.
- Initial weatherization offering in 2014 exceeded participation goals.

Source: [Building Better Energy Efficiency Programs for Low-Income Households, Low-Income Landscape Assessment](#)



# Neighborhood As Scale

# Neighborhood Program Model

- Originally piloted in Florida, now also in Kentucky, Mississippi, North Carolina and South Carolina.
- Duke Energy Carolinas - not all residents within a neighborhood may qualify, some residents may feel left out of the process.
- Mississippi Power Company reported problems in rural areas, where individual homes may qualify, but may not have the right density and supporting metrics to facilitate a neighborhood approach. Utilities have also refined marketing approaches over time.
- Gulf Power noted that neighborhood kickoff meetings did not deliver the anticipated “bang for buck,” and were discontinued in favor of direct mail, door hangers, yard signs and strategic partnerships.

Source: [Low-Income Landscape Assessment](#)

# Removing barriers to participation

**EN + Core was successful at reaching low wealth customers by removing barriers to participation and combining a variety of outreach tactics:**

- In the target communities, **all residents** were eligible to participate and receive incentives, regardless of income, homeownership status, or structural characteristics of their residences.
- Door-to-door outreach, phone and word of mouth were most effective outreach strategies as well as outreach to community leaders.
- Close to two-thirds of participants who made EE improvements (64%) would have been unlikely to make them without the incentives provided.

Source: <http://ma-eeac.org/wordpress/wp-content/uploads/Efficient-Neighborhoods-Plus-Initiative-Evaluation-Final-Report1.pdf>

# Job Training at Core

Source:

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# Chumash Builds Program Interest through Jobs

- Santa Ynez Chumash Tribe has found success in delivering EE and solar services through a program that centered around apprenticeship and jobs training.
- Contractors recruited explicitly expressed interest in community well-being and patience to train community members.
- Utilizing trusted jobs trainees from the tribe as door-to-door recruiters resulted in high level of participation
- Jobs training program overcame perceived complexity in EE jobs by customizing program to fit the specific education needs and skill level of the trainees, including remedial skills training.
- Solar panel giveaway to those who completed EE retrofits, and installing solar demonstration projects on community buildings also removed barriers and incentivized participation.

Source: [Leaders of the Pack: ACEEE's Third National Review of Exemplary Energy Efficiency Programs](#)

# Tools for Ensuring Equitable Job Creation from EE

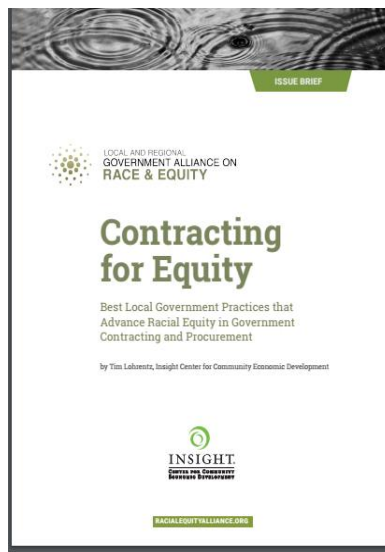
- Successful EE programs will inherently create both professional and skilled trade jobs as delivery partners build capacity to manage programs, conduct outreach, process intake, assess savings opportunities, track data, and provide for retrofits and direct installs of energy-saving measures.
- In order for utility, local government and community partners to ensure that this job creation provides equitable access and training on-ramp for all in need of employment, Project Labor Agreements such as Minority Business Enterprise Provisions and Local Hire Provisions can be helpful tools.

Source: [NAACP Just Energy Policies report](#)

# Project Labor Agreements

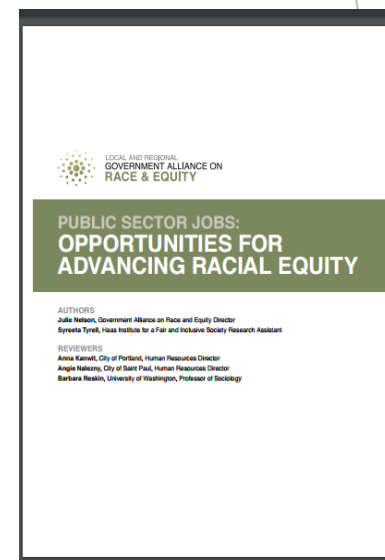
PLAs allow for the terms, wages, and conditions of employment to be established on construction projects.

The most sophisticated PLAs are crafted not only to address specific project issues (such as local hiring, scheduling, work rules, and employment outreach to workers and contractors of color, women, and veterans) but also to supplement and enhance communities' development of sustainable career opportunities within the skilled trades workforce.



[Workforce Equity! Webinar](#)

[Contracting for Equity Webinar](#)



GARE's resource documents can help you explore equity in procurement opportunities

Source: [Contracting for Equity](#)

# Local Hire Provision

- Local Hire is a goal or requirement to hire people who live near their place of work. This goal is achieved by requiring contractors that are awarded publicly funded projects to recruit a specified proportion of local residents as workers on the project.
- The practice ensures that tax dollars are invested back into the local economy, reduces the environmental impact of commuting, fosters community involvement, and preserves local employment opportunities in construction.

Source: [NAACP Just Energy Policies report](#)



# Minority Business Enterprise Provision

- A Minority Business Enterprise is a business that is at least 51% owned, operated, and controlled on a daily basis by people who identify with specific ethnic minority classifications, including African American, Asian American, Hispanic American, and Native American.
- MBEs can be self-identified, but are typically certified by a city, state, or federal agency. The predominant certifier for minority businesses is the National Minority Supplier Development Council. Often publically funded projects set a requirement or goal to source MBEs as suppliers.

Source: [NAACP Just Energy Policies report](#)

# Multifamily Scale

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# Duke Energy Multifamily

- Direct-install program (via 3rd party vendor) including water efficiency measures
- Properties are identified through install vendor and through apartment associations and property management companies
- Duke vendor conducts outreach, site visits, qualifications and installs - all at no cost to property owner
- Program has expanded significantly in recent years, with more than 100,000 units served.
- Property owners/managers who pay water utilities for tenants see direct benefit in savings.

Source: [Southeast Multifamily Market Assessment](#) (p. 21), [Duke Energy](#)

# Successful Practices

- Finance programs such as Property Assessed Clean Energy (PACE), tax credit allocations and energy performance benchmarking are some tools being experimented with to drive multifamily efficiency.
- States with loan programs worth exploring further include FL's Multifamily Energy Retrofit Program (MERP) revolving loan program and the TN Loan
- Consortium for Affordable Multi-Family Housing run by Pathway Lending to provide permanent financing to multifamily developers who had been awarded a Low-Income Housing Tax Credit.
- Property owners covering tenant water bills have been very receptive to retrofits that included water-saving devices - found to be effective in avoiding split-incentive challenge typical in multifamily.

Source: [Southeast Multifamily Market Assessment](#), [Reaching More Residents: Opportunities for Increasing Participation in Multifamily Energy Efficiency Programs](#)

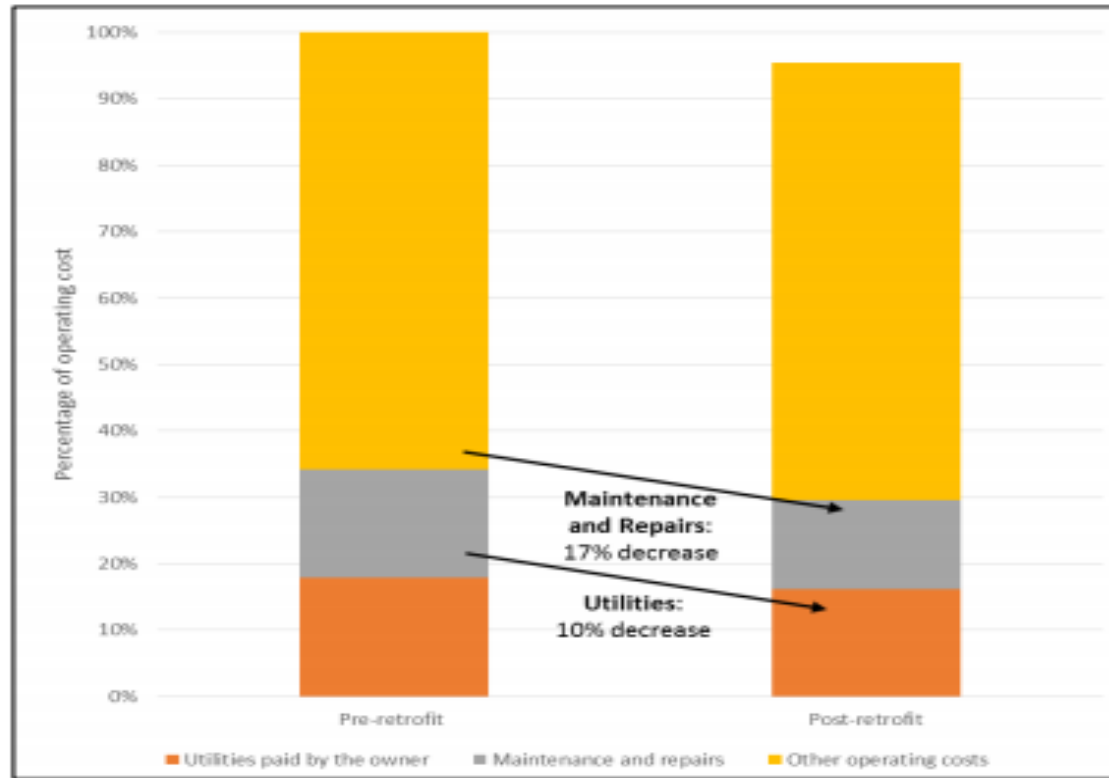
# Critical Learnings for Multifamily

- Simplify and streamline access to program and services - one stop shop with coordinated programs electric, natural gas, and water utilities.
- Target building owners and managers.
- Tailor marketing and outreach to specific segments of multifamily market.
- Partner with state and local housing organizations and trade allies to market and deliver programs.
- Incentivize in-unit measures to overcome split incentives
- Provide escalating incentives for achieving greater savings levels
- Serve both low-income and market-rate multifamily households
- Align utility and housing finance programs, on-bill repayment and low-interest financing
- Direct installation and rebate programs
- Offer multiple pathways for participation to reach more buildings

Source: [Southeast Multifamily Market Assessment](#), [Reaching More Residents: Opportunities for Increasing Participation in Multifamily Energy Efficiency Programs](#)

# Other Drivers

Reduction in other operating costs is a significant benefit for building owners and operators



**Figure 1. Pre- and post-retrofit building operating expenses.** “Other operating costs” includes payroll costs for employees hired by owner, fringe benefits, real estate property taxes, management company, insurance, other professional services (legal, accounting), scavenger, extermination, and security. The 10% decrease in utilities represents an approximation of the decrease in utility expenses for the building owner. A 10% overall decrease in utility expenses was measured for owners and tenants. While owners and tenants are each responsible for 50% of the utilities, they are broken down as follows: water (owner) 22%, gas (owner) 23%, gas (tenant) 30%, electricity (owner) 5%, electricity (tenant) 20%. Depending on retrofit measures implemented, one party could save more than the other. *Source:* Adapted from Elevate Energy 2014a.

Source: [Multifamily Multiple Benefits](#)

# Innovative Finance

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# Help My House Shows Power of On-Bill Finance

- SC pilot program served 125 rural, single-family homes in low-income communities, allowing good utility payment history to substitute for credit score, removing an eligibility barrier.
- On-bill financing allowed for payment over 10 years at 2.5% interest
- Model success also relied on strong partnership between rural electric cooperatives, power wholesalers, existing nonprofit organizations, and creation of a new dedicated nonprofit to coordinate/provide concierge services to participants.

Source: [Leaders of the Pack: ACEEE's Third National Review of Exemplary Energy Efficiency Programs](#)



# Employee Energy Benefits (EEB) Model

Also called Home Energy Affordability Loan (HEAL), this model offers employers a way to leverage their workforce to gain emission reductions. Employer uses their own EE savings to finance home EE (and transportation) investments for employees, with pilots quantifying multiple benefits to employers.

## THE EEB MODEL FOCUSES ON FIVE DIMENSIONS



Home Energy Efficiency



Commuting, Low Carbon Transportation



Water Conservation



Solar/Clean Energy



Home Health and Safety

- Deepen **material** employee engagement in employer sustainability efforts
- Improve sustainability metrics (capture Scope 3 emissions)
- Strengthen employee retention
- Reduced employee absenteeism and medical costs

Source: [Evolution of Sustainability Initiatives for Employee Engagement](#)

# Benefits for Employers, Employees, and Communities

- Employees have access to an online platform to identify and tailor opportunities, thus driving custom improvements for themselves and their communities.
- Since inception, the EEB program has been piloted with >24 employers in 8 states, resulting in an average savings of 2.5 metric tons of CO<sub>2</sub>e annually per home retrofit.

Source: [Evolution of Sustainability Initiatives for Employee Engagement](#)

## BENEFITS FOR EMPLOYERS, EMPLOYEES, AND COMMUNITIES:



Direct **utility cost savings**, estimated at an average of \$447 a year.



**Increased real estate values**, estimated at an additional \$10 to \$25 for every \$1 decrease in annual energy costs.



**Improved health**, potentially resulting in reduced absenteeism and lower medical costs.

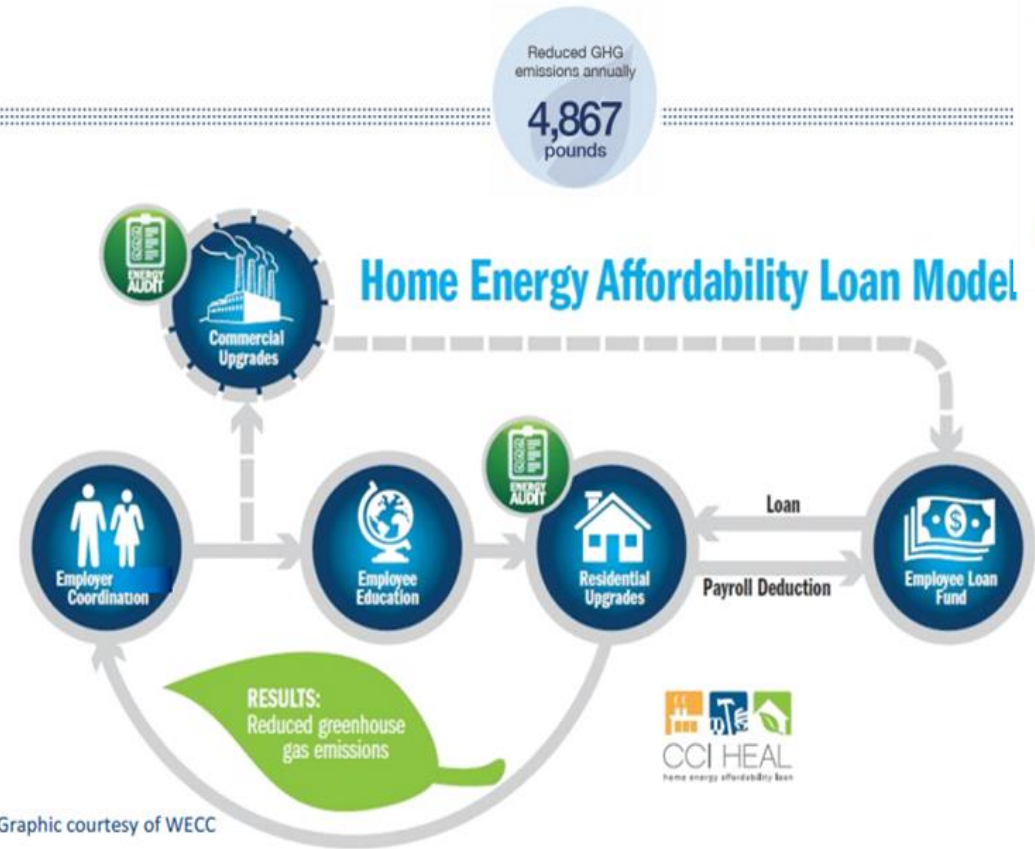


Direct economic impact resulting from the **money paid to local home auditors and contractors**, estimated at \$8 million for every 1,000 employees enrolled in the program.

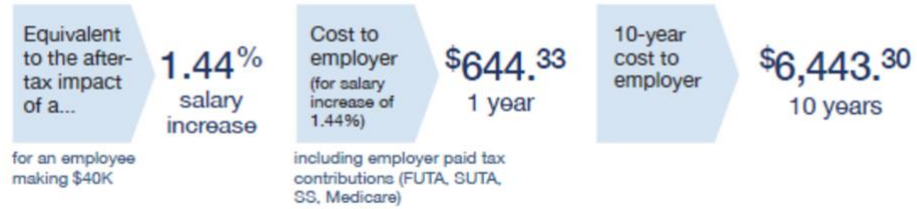
## PROGRAM BENEFITS INCLUDE:



# How does it work?



## Cost of providing similar disposable income increase through wages...



- Including concierge services and credit-agnostic financing are keys to success
- Need empirical data for some of the most promising bottom line returns:
  - Health Care Costs
  - Productivity Improvements (absentee and presentee)
  - Longevity/Turnover impact

Source: [Better Buildings Residential Network](#)

# Utility-Financed Programs - HEEM

- TVA has found success in reaching low-income households with EE services by funding retrofits through its Home Extreme Energy Makeover program, now in 7 areas including Huntsville, AL.
- HEEM allows utility to pay up to \$1000/square foot for a whole-house approach, working with local utility partners to deliver retrofits. With its partners, HEEM will provide on-bill financing at 1% interest for additional retrofits beginning in 2017.
- Additionally, TVA sees its role in building capacity of Community Action Agencies to deliver weatherization services, by sharing robust service delivery IT infrastructure.

Source: [HEEM Case Study, Interview with Frank Rapley](#)

# Arkansas HEAL/HELP Program

- Initial 2011-12 pilot - City of Little Rock and the University of Arkansas Medical Sciences.
- After highly successful City of Fayetteville pilot in 2014, program was taken over by [local electric cooperative](#).
- Program participants now have on-bill financing, as opposed to payroll deduction

## Participant Impact

Based on the home assessments performed, here are the energy, environmental and financial impacts identified for the average participating employee household.

### Energy, Environment & Financial Impacts of Recommendations



### Most Frequent Recommendations



Source: [Public Interest of Private Benefits](#), Heal Pilot Results



# Property-Assessed Clean Energy

- Innovative finance model that allows third-party financial partner to fund home and commercial energy retrofits, with debt attached to the property and repayment made through property taxes.
- Long struggle to navigate federal policy around order of lien has shown break-throughs in summer 2016 with new [Federal Housing Administration Guidance published](#).
- GA, AR, NC, AL and FL are the only states in the SE with [PACE authorizing legislation](#) – FL is most advanced with [active programs](#)
- [PaceNation](#) is the definitive resource for monitoring and exploring.

Source: [Pace Nation](#)