

# Utility Case for Equity in EE

Changing Region, Same Foundation

Demand-side Management

Operational Savings

Cost-Effectiveness Testing

Preparing for Federal Incentives

# Going Back to Roots in a Changing Region

- Founding legislation for much of the southeast utility infrastructure was built on the imperative to lift the region out of poverty (Rural Electrification Act).
- More than 75 years later, while our energy system has created tremendous wealth in the region, the southeast still lags behind the rest of the nation in terms of % of residents living in poverty.
- Lower energy burden = more household resources = less dependence on public benefits and services

***What is the economic and societal cost to our nation and our region from leaving these children behind?***

Sources: [Annie E. Casey Foundation 2015 Kids Count Data Book](https://www.nps.gov/home/learn/historyculture/ruralelect.htm), <https://www.nps.gov/home/learn/historyculture/ruralelect.htm>



Economic Wellbeing of Children, Ranking by State

# EE Reduces Energy Burden

- Bringing the housing stock for all low-income households (including multifamily) up to the efficiency level of the median household would eliminate 35% of their excess energy burden. 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
- Source: [Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities](#)

# Demand-Side Management

- 2014 US electric demand-side management (DSM) expenditures for the low-income customer class were 6% of total expenditures on EE (\$361 million), while spending for all residential programs was 28% (\$1.68 billion). Utilities with the least spending on EE programs were those serving southeastern cities. All southeastern cities in the City Energy Scorecard fell within the bottom 40% of the ranking.
- 81% of all funding support to address low-income energy burdens in the US is directed at helping customers pay energy bills - mitigating symptoms, not causes - while only 14% addresses root causes (and reduces energy demand) through EE programs.
- EE plays a key role in the reliability of the electric grid. The energy utility sector is critical to EE efforts, as utilities deliver a large share of efficiency programs. In fact, electric and natural gas utilities invested over \$7 billion in efficiency in 2013 through ratepayer-funded programs (Gilleo et al. 2014). Of all programs and measures, those that reduce demand have highest value for increasing the reliability of the system.
- Increased reliability means that communities are at lower risk of outages that impact their citizens and economies. Implementing reliability-focused demand reduction programs is one way in which utilities play an important role in increasing community resilience
- Sources: [ACEEE's Enhancing Community Resilience through Energy Efficiency](#), [Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities](#)

# Operational Savings to Utilities

In addition to benefits that accrue at the household level, low-income EE programs also provide benefits to the utility system and to society as a whole that should be considered, including:

- Reducing arrearages and their carrying costs
- Bad-debt write-offs
- Electricity terminations and reconnections
- Costs of bill payment assistance programs
- Reduced customer calls, collection activities, and safety related emergency calls

Sources: [Building Better Energy Efficiency Programs for Low-Income Households](#), [Recognizing the Value of Energy Efficiency's Multiple Benefits](#)

# Cost-Effectiveness Testing Considerations

**Table 1. Components of the standard cost-effectiveness tests**

	Participant Cost Test	RIM Test	Utility Cost Test	TRC Test	Societal Cost Test
<b>Energy efficiency program benefits</b>					
Avoided energy costs	—	Yes	Yes	Yes	Yes
Avoided capacity costs	—	Yes	Yes	Yes	Yes
Avoided transmission and distribution costs	—	Yes	Yes	Yes	Yes
Wholesale market price suppression effects	—	Yes	Yes	Yes	Yes
Avoided cost of environmental compliance	—	Yes	Yes	Yes	Yes
Nonenergy benefits (participant)	Yes	—	—	Yes*	Yes*
Nonenergy benefits (utility)	—	Yes	Yes	Yes	Yes
Nonenergy benefits (societal)	—	—	—	—	Yes
Customer bill savings	Yes	—	—	—	—
<b>Energy efficiency program costs</b>					
Program administrator costs	—	Yes	Yes	Yes	Yes
EE measure cost: program financial incentive	—	Yes	Yes	Yes	Yes
EE measure cost: participant contribution	Yes	—	—	Yes	Yes
Lost revenues to the utility	—	Yes	—	—	—

\*In theory, participant nonenergy benefits should be included in the TRC and societal tests. However in practice they are typically underestimated or wholly neglected. As a result, most TRC assessments understate efficiency benefits.

Source: NESP 2014.

Source: [Multiple Benefits of Multifamily Energy Efficiency for Cost-Effectiveness Screening](#)

# Cost-Effectiveness Testing Metrics

- Low Income Cost Effectiveness Working Group has proposed the following as indicators to be evaluated:
- Eliminates combustion-related safety threat
- Eliminates fire safety threat/improves home security (crime prevention) and building integrity
- Reduces or eliminates extreme temperatures and temperature variations inside the home/improves customers' ability to manage in-home temperatures
- Improves air quality, ventilation, and/or air flow

Source: [Multiple Benefits of Multifamily Energy Efficiency for Cost-Effectiveness Screening](#)



# Clean Energy Incentive Program

- Clean Energy Incentive Program (CEIP) encourages early investment in energy efficiency in low-income communities as part of CPP compliance and should provide expanded opportunity for funding via allowance trading and EPA matching allowances, once trading scheme is fully operating.
- CEIP provides double credit for energy savings from EE, awarding two allowances for each ton of emissions avoided. (In a rate-based approach the units are emission rate credits, or ERCs.) States can use CEIP allowances for compliance and apply them toward the overall reduction goal.
- Total regional investment in low-income programming (incl. WAP) is ~67% of available dollars from the CEIP. SE utility-offered low-income program spending in aggregate for the SE region for 2015 was around \$22M, which reflects roughly 1/3 of the potential funding just through CEIP (which also includes non-low-income programs).
- **SE states and utilities do not currently have the level of documented investment in low-income energy efficiency programs to fully leverage dollars available through the CEIP.**
- States must submit plans to the EPA demonstrating intended compliance activities by **September 2016**, so now is the time for conversations with state regulators to ensure that low-income energy efficiency programs have a place in compliance plans.

Sources: [Building Better Energy Efficiency Programs for Low-Income Households, Recognizing the Value of Energy Efficiency's Multiple Benefits](#) , [Utility-Administered Low-Income Programs in the Southeast: A Landscape Assessment](#)



# CEIP Benefit

Table 10. Estimated CEIP Allowances and Dollars Available to Southeastern States

State	Assumed Total State CEIP Set-Aside	State Renewable Energy Reserve (50% of Total State Set-Aside)	State Low-Income Community Reserve (50% of Total State Set-Aside)	State Set-Aside for Energy Efficiency (50% of Low-Income Community Reserve)	EPA Low-Income Energy Efficiency Match	Total Low-Income Energy Efficiency Allowances Available	Value of Allowances at \$4/ton
Alabama	9,366,916	4,683,458	4,683,458	2,341,729	2,341,729	4,683,458	\$18,733,832
Arkansas	6,561,688	3,280,844	3,280,844	1,640,422	1,640,422	3,280,844	\$13,123,376
Florida	9,690,744	4,845,372	4,845,372	2,422,686	2,422,686	4,845,372	\$19,381,488
Georgia	8,266,868	4,133,434	4,133,434	2,066,717	2,066,717	4,133,434	\$16,533,736
Kentucky	14,858,584	7,429,292	7,429,292	3,714,646	3,714,646	7,429,292	\$29,717,168
Louisiana	4,492,282	2,246,141	2,246,141	1,123,071	1,123,071	2,246,141	\$8,984,564
Mississippi	1,071,918	535,959	535,959	267,980	267,980	535,959	\$2,143,836
North Carolina	8,023,768	4,011,884	4,011,884	2,005,942	2,005,942	4,011,884	\$16,047,536
South Carolina	4,958,404	2,479,202	2,479,202	1,239,601	1,239,601	2,479,202	\$9,916,808
Tennessee	6,534,250	3,267,125	3,267,125	1,633,563	1,633,563	3,267,125	\$13,068,500
Virginia	4,159,638	2,079,819	2,079,819	1,039,910	1,039,910	2,079,819	\$8,319,276
<b>Southeast Total</b>							<b>\$155,970,120</b>
<b>Southeast Total per Year</b>							<b>\$77,985,060</b>

Source: U.S. Environmental Protection Agency 2016. CEIP Design Details: Proposed State and Tribal Shares of Matching Pool

Table 11. Southeastern State WAP Allocations

State	FY 2016 Total Allocation
Alabama	\$2,277,174
Arkansas	\$1,868,107
Florida	\$1,886,281
Georgia	2,829,878
Kentucky	\$4,260,696
Louisiana	\$1,345,356
Mississippi	\$1,499,412
North Carolina	\$3,916,921
South Carolina	\$1,666,574
Tennessee	\$4,036,524
Virginia	\$3,761,099
<b>Annual Total</b>	<b>\$29,348,022</b>
<b>Two-Year Total</b>	<b>\$58,696,044</b>

Source: Garcia 2016

Sources: [Building Better Energy Efficiency Programs for Low-Income Households, Recognizing the Value of Energy Efficiency's Multiple Benefits](#) . Utility-Administered Low-Income Programs in the Southeast: A Landscape Assessment

# Why Should Utilities Offer Financing?

- It may leverage ratepayer funds; that is, a small amount of ratepayer funds can bring in private capital to pay for a large investment in efficiency.
- Financing alone does not build volume; it supports a broader efficiency program that includes marketing, quality control, contractor management and other features. Combining these program features can lead to a successful program.
- To reduce the amount of ratepayer funds required to achieve efficiency goals, thereby making it more likely that a program will pass a cost-effectiveness test

Source: [Energy Efficiency Finance Options for Utilities](#)