



Energy Efficiency Retrofits and On-bill Financing for Existing Homes: **A Replicable Model**

August 19, 2015

Lindsey Smith

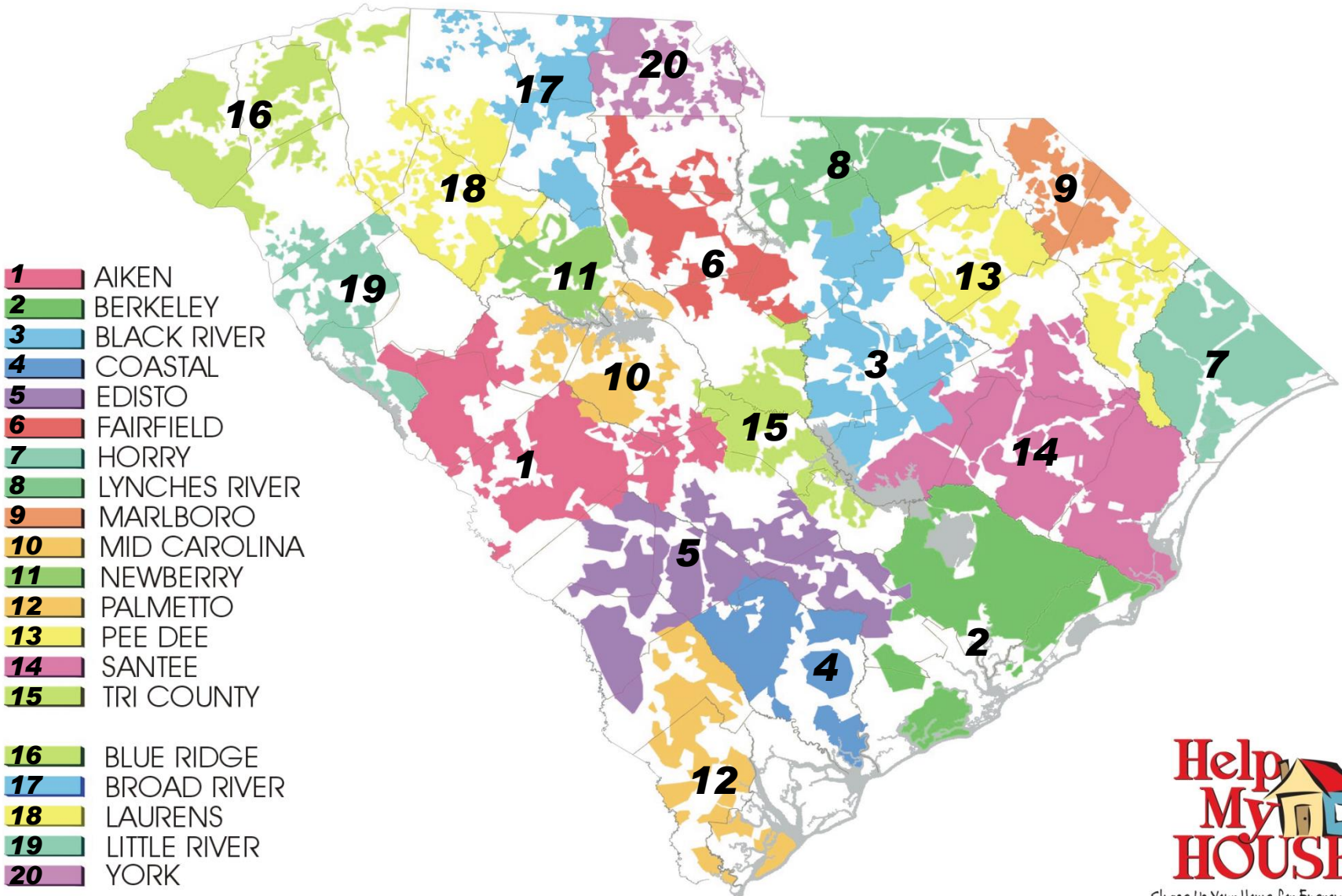
The Electric Cooperatives of South Carolina

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WHAT WE WILL TALK ABOUT

- Who we are (S.C. co-ops)
- Why on-bill financing
- How our program works
- Results/Lessons Learned
- What we're doing now/next

SOUTH CAROLINA ELECTRIC COOPERATIVES



SOUTH CAROLINA ELECTRIC COOPERATIVES

We don't own generation...

...**We're** Super Consumers!



S.C. COOPERATIVE MEMBERS

- 24% live in manufactured housing (3X the national average)
- 50% more likely to live below the poverty line
- In some months, many may spend 60-80% of income on energy
- The state ranks 7th in cooling degree days per year
- 80% use electricity as primary form of heating

ONE IDEA, TWO PHASES



Shape Up Your Home for Energy Savings

Loan Pilot

- 2011-2012
- 8 co-ops, 125 homes
- Main Purpose: test EE vs. new generation
- RUS and G&T funding

Ongoing Programs

- 2012- Present
- 5 co-ops, 311 homes (so far)
- Purpose: Member service
- Mix of co-op and RUS dollars for lending capital

HMH PILOT BACKGROUND

- Central Electric board's 2010 efficiency goals
 - 10% reduction in residential energy use by 2020
 - Reduce wholesale residential power purchase costs
 - Maintain or improve member satisfaction
- Central partnered with ECSC to design pilot program
- Federal legislation enables more financing of efficiency
- Pilot Program kicks off, accesses USDA financing

ON-BILL FINANCING (OBF) – A TARIFF

- 2010 South Carolina state law (Section 58-37-50) allowed co-ops to move forward
 - Loans are tied to the meter
 - Power can be shut off for lack of payment
 - Loan stays with home if home is sold
 - These provisions eliminate need for credit check

ON-BILL FINANCING (OBF) – A TARIFF

- Allows co-op members to finance energy efficiency measures with low-interest loans
- Loans are repaid on monthly utility bills
- Enables those without sufficient cash in hand to make prescribed and long-awaited efficiency upgrades



Shape Up Your Home for Energy Savings

PHASE #1: THE PILOT

2011-2012

KEY PARTNERS

1. Participating Co-ops

Aiken Electric	Palmetto Electric
Black River Electric	Pee Dee Electric
Broad River Electric	Santee Electric
Horry Electric	Tri-County Electric

2. Central Electric Power Cooperative

- Purchases wholesale power and distributes it to the state's co-ops



3. Electric Cooperatives of South Carolina

- Co-ops' state-wide trade association



KEY PARTNERS

4. Environmental and Energy Study Institute

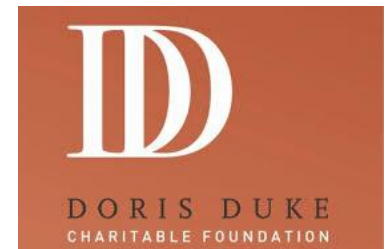
- Assisted with program design, outreach, evaluation



EESI

5. Doris Duke Charitable Foundation

- Grant supported EESI's work

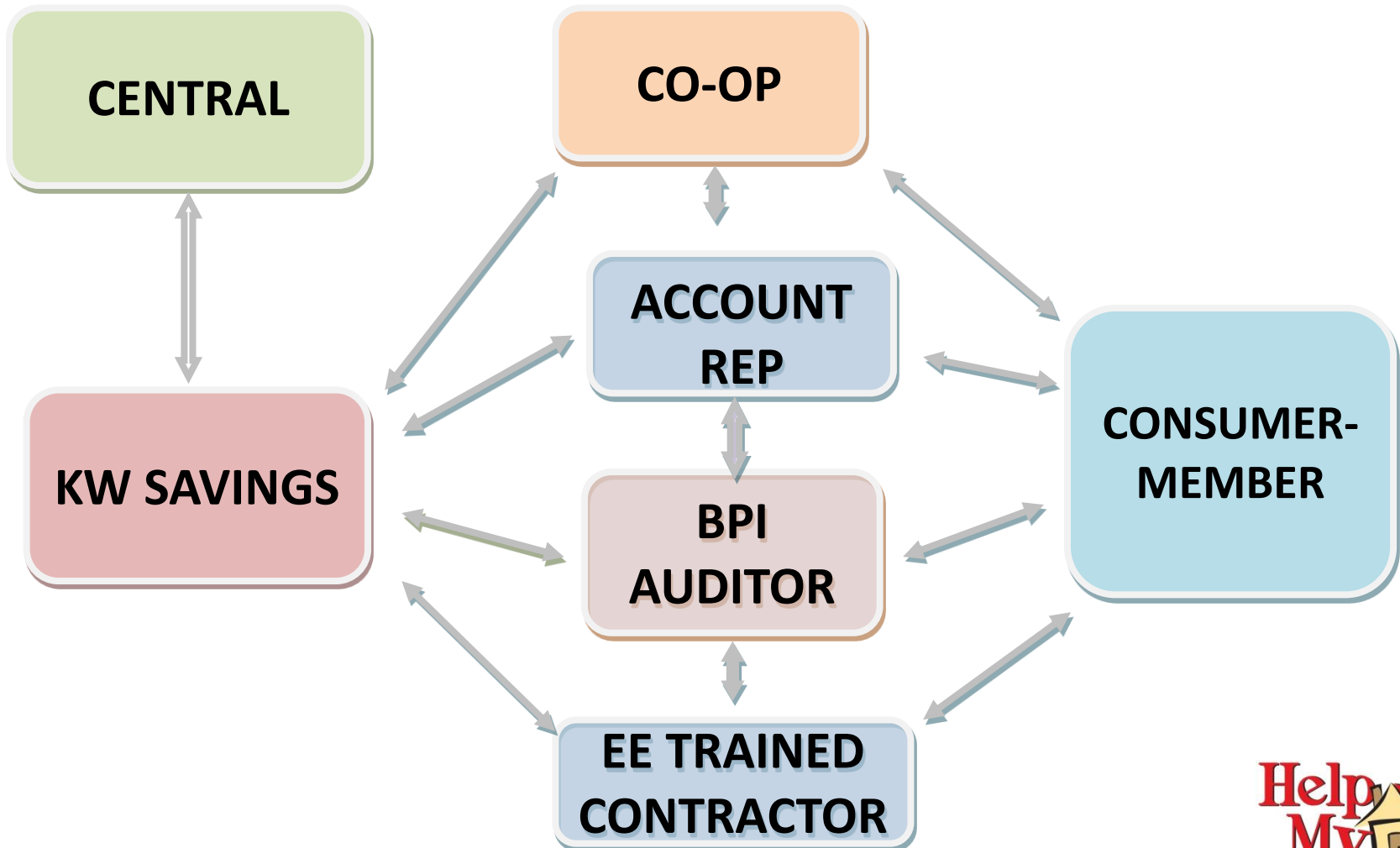


6. Ecova

- Program planning, management

ecova™

HMH PILOT STRUCTURE AND PROCESS



KW SAVINGS: A LA CARTE ADMIN

- Available services include:
 - Total program management
 - Energy Audits
 - Contractor management
 - Loan review and processing (Credit Union)
 - Member support and communications
 - Post-retrofit problem resolution
 - Member-contractor mediations

KW Savings

Sets and Maintains Brand Standards

Quality Controls

Bookend comprehensive audits of each home per the SC statute.

Oversight of Loan Processing

Loan documents either drafted by KW Savings or drafted by the co-op and sent to KW Savings for review before distribution to homeowners.

Data Collection

Location of homes, list of installed measures, costs, work and audit results, ongoing energy usage, and any other data required by KW Savings Co.

Shared Business Plan

Each cooperative must submit an acceptable written business plan before implementing the program, including any proposed differences from the pilot model.

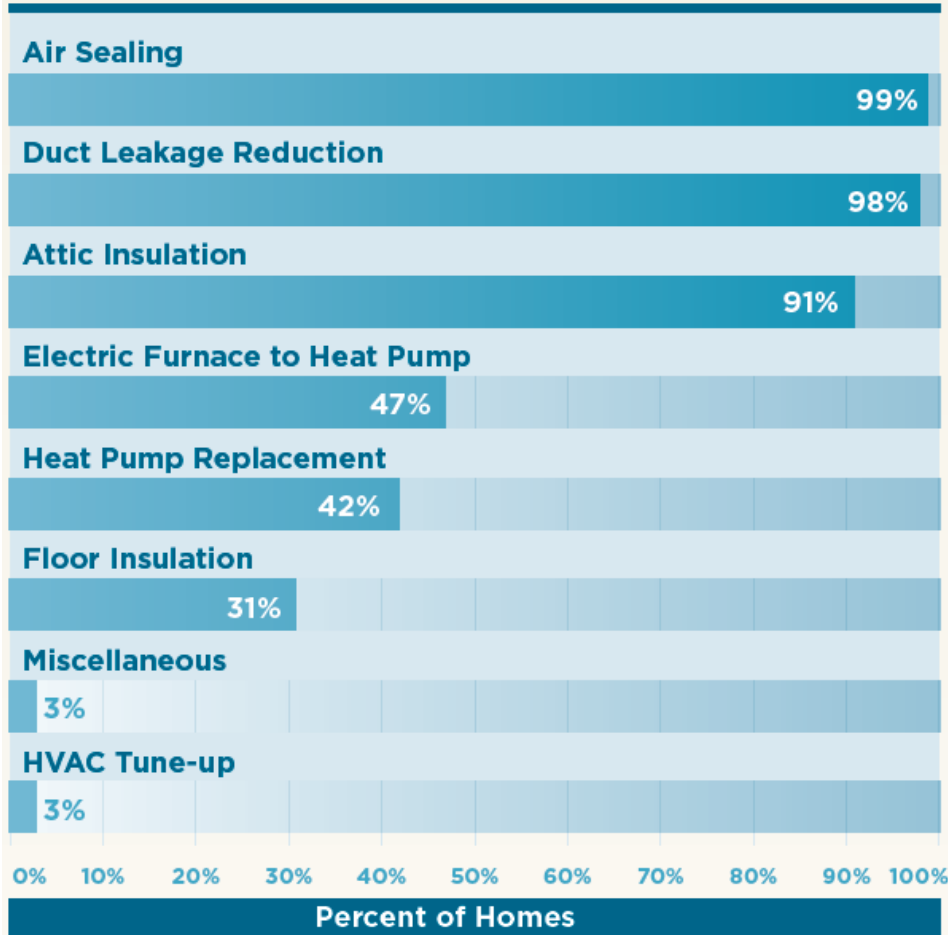


HMH PILOT PROCESS

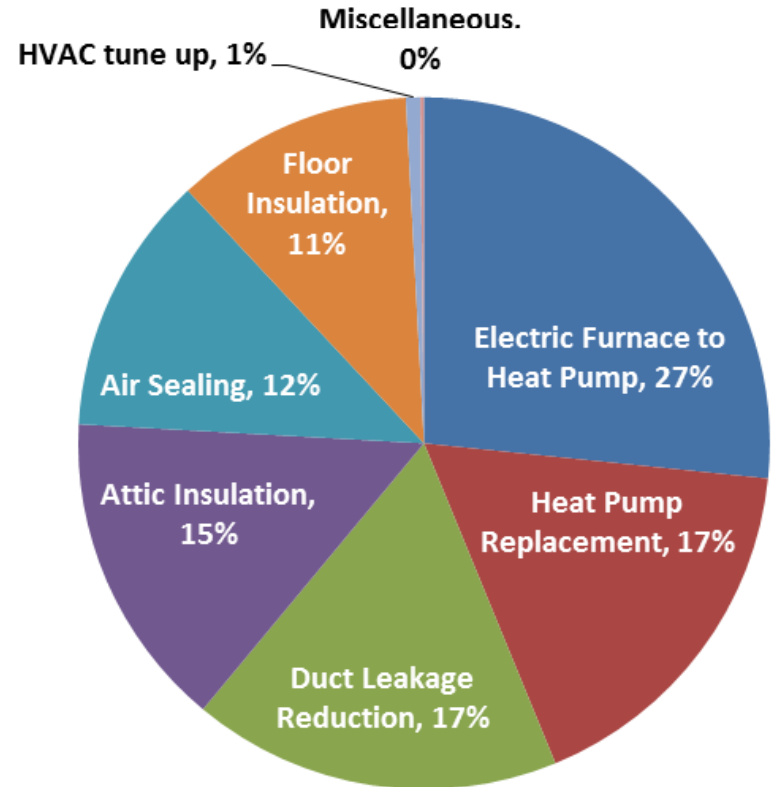
1.	Participant Selection
2.	Visual Audit
3.	Comprehensive BPI Audit
4.	Loan Approval & Contractor Selection
5.	Measure Installation
6.	Final Inspection & Project Approval

MEASURES

Percent of homes with each measure



Percent of savings from each measure



MEASURED RESULTS CLOSE TO PREDICTED

	Predicted	Actual
Annual kWh Savings	11,593 kWh	10,809 kWh
Annual \$ Savings	\$1,285	\$1,157
Project Costs	\$7,684	\$7,684
Project Simple Payback	6.0 years	6.6 years

* All values are per home averages for a typical meteorological year.

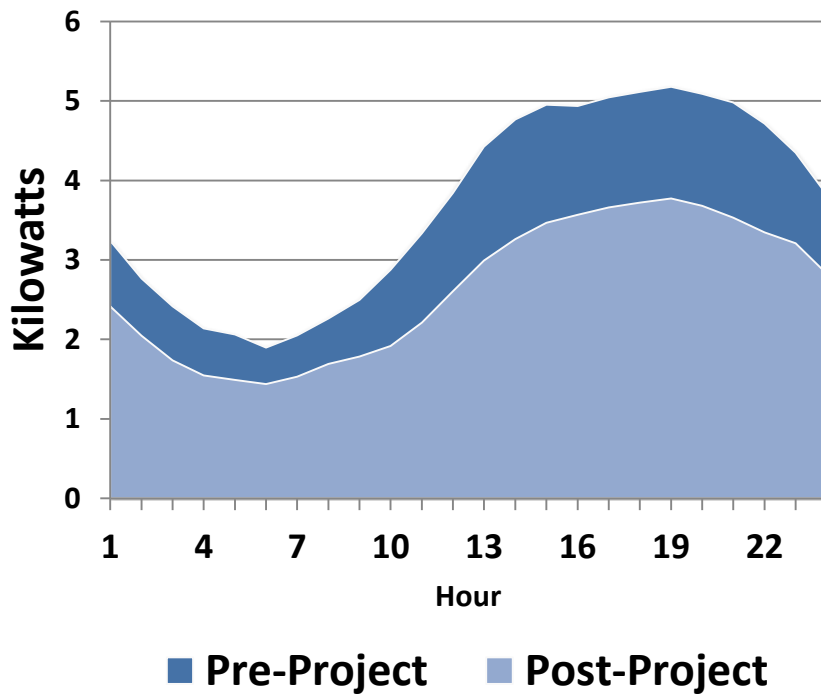
ANNUAL SAVINGS: AVERAGE HMM HOME

\$1,157		\$288	Annual Net Savings
	Annual Energy Savings	\$869	Annual Loan Repayment

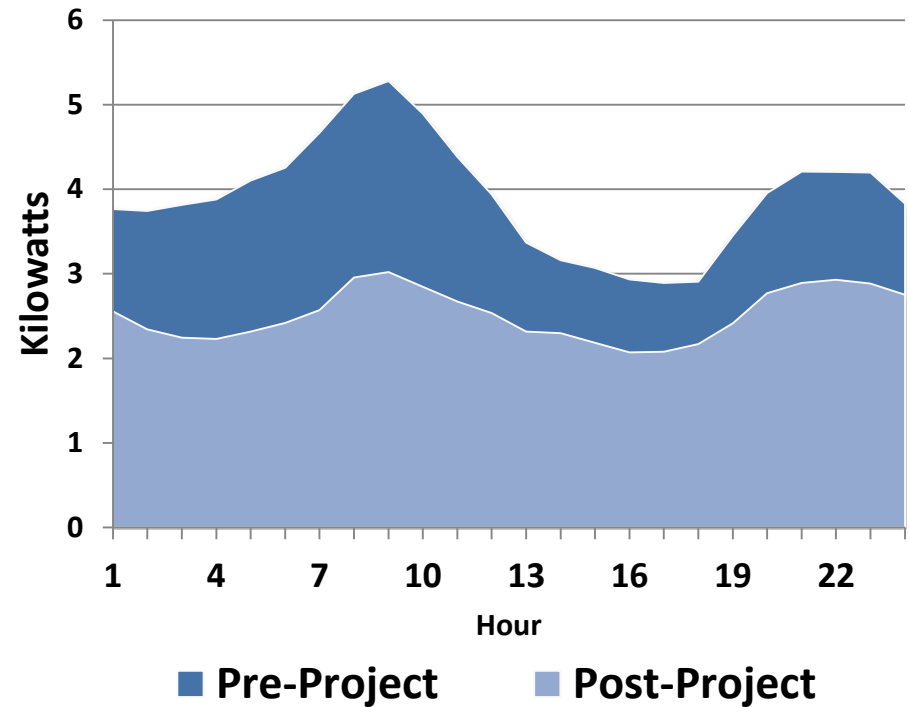
All values are per home averages for a typical meteorological year.

DEMAND SAVINGS

Average Summer Day Load Shape



Average Winter Day Load Shape



PILOT PARTICIPANT SURVEY

SATISFACTION WITH CO-OP

96% same or higher

ARE YOU MORE COMFORTABLE?

A lot more 76%

Somewhat 13%

About the same 11%

SATISFIED WITH POST-REPAIR ELECTRIC BILLS?

Very satisfied 69%

Somewhat 20%

Neutral 0%

Somewhat not 7%

Very unsatisfied 4%

TERI AND JOHN NORSWORTHY'S HOME

Summerton, S.C.

Santee Electric

Site built home, 1979

Size: 2013 sq. ft.

3 bedrooms

Energy efficiency measures:

New heat pump,
duct sealing, air sealing,
attic insulation

Loan amount: \$6,540



**Monthly
bills
\$150
to
\$200
lower!**

PILOT LESSONS AND CONCLUSIONS

The average Help My House pilot home...

- used 34% less electricity, saved \$288/yr. *after* payments
- had coincident peak savings of about one-third
- showed no change in load factor (would have improved with installed control switches)
- was more comfortable to the homeowners
- had an extremely satisfied homeowner

The Business Case for OBF

- Short Term
 - Positive participant and member satisfaction
 - Minimal impacts on load factor impacts minimal
 - Nominal lost revenue for co-ops, even for a long-term aggressive program

- Long Term
 - EE incentives for states in EPA's final 111(d) rules
 - Energy efficiency is cheaper than new generation - likely less than 2 cents/kWh
 - Broader economic benefits: good for contractors and other local businesses; supply chain



Shape Up Your Home for Energy Savings

PHASE #2: ONGOING PROGRAMS

2012-PRESENT

ONGOING PROGRAMS



Co-op	Homes/Loans Completed
Aiken Electric	182
Black River Electric	40
*Little River Electric	n/a
*Lynches River Electric	n/a
Santee Electric	116
*York Electric	10
	Running Total 348



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