



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

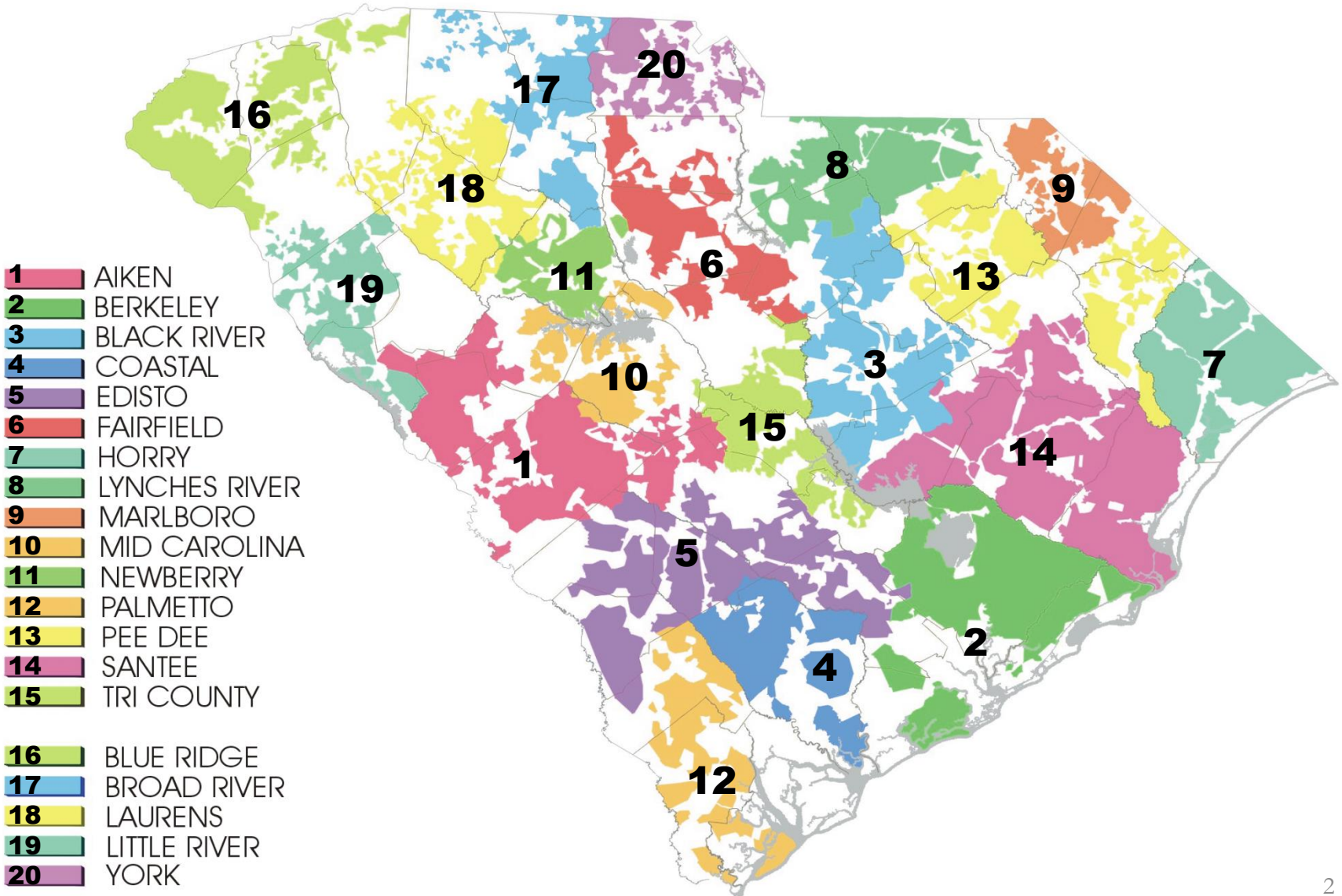
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SOUTH CAROLINA ELECTRIC COOPERATIVES



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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

A TALE OF TWO PROGRAMS



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

Working 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 established 2010 efficiency goals
 - 10% reduction in residential energy use by 2020
 - Reduce wholesale residential power purchase costs
 - Maintain or improve member satisfaction
- Central Electric partnered with ECSC to design pilot program
- Since 2010, progress with federal legislation to enable 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

PROGRAM #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



5. Doris Duke Charitable Foundation

- Grant supported EESI's work

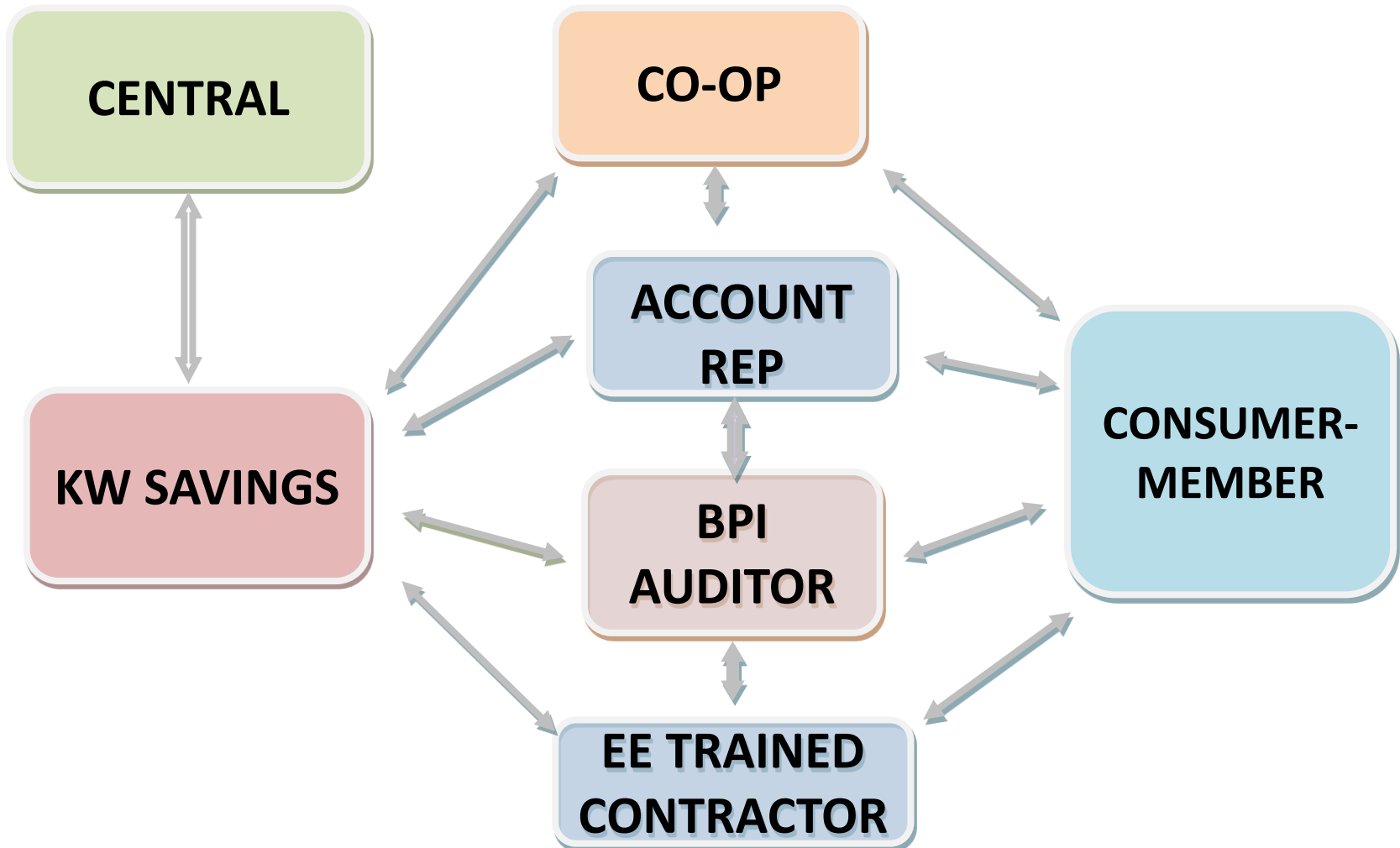


6. Ecova

- Program planning, management



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

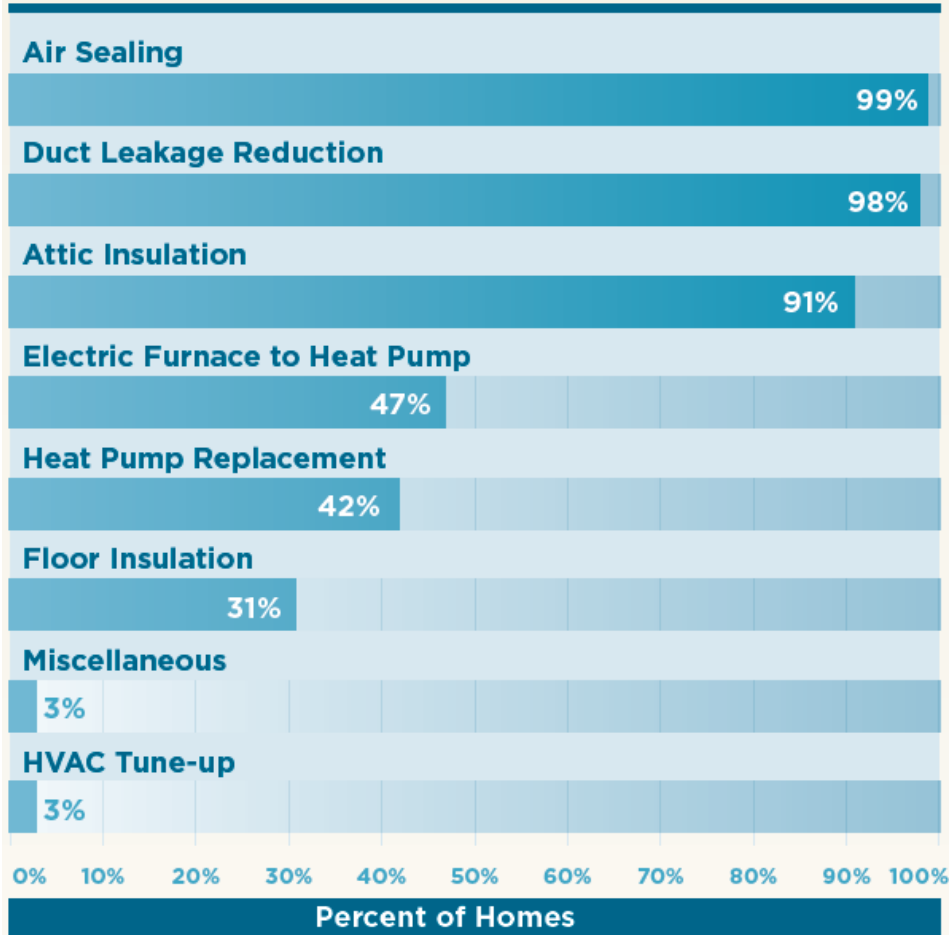
Each cooperative must submit an acceptable written business plan before implementing the program, including any proposed differences from the pilot model.

HMH PILOT PROCESS

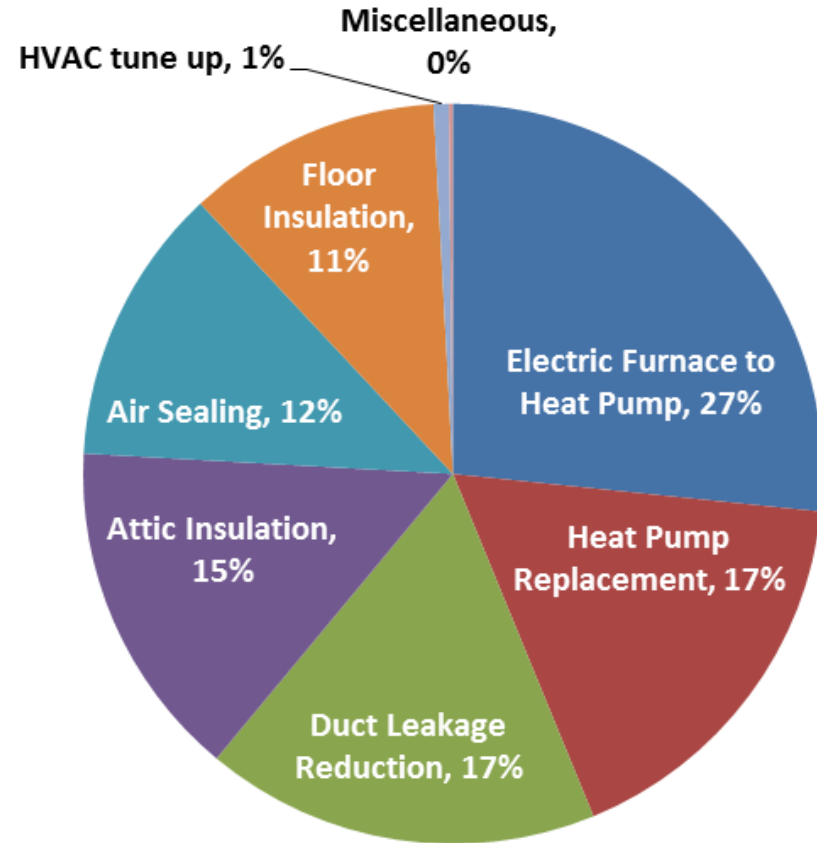
1.	Participant Selection
2.	Visual Audit
3.	Comprehensive BPI Audit
4.	Loan Approval & Contractor Selection
5.	Measure Installation
6.	Final Inspection & Project Approval

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.

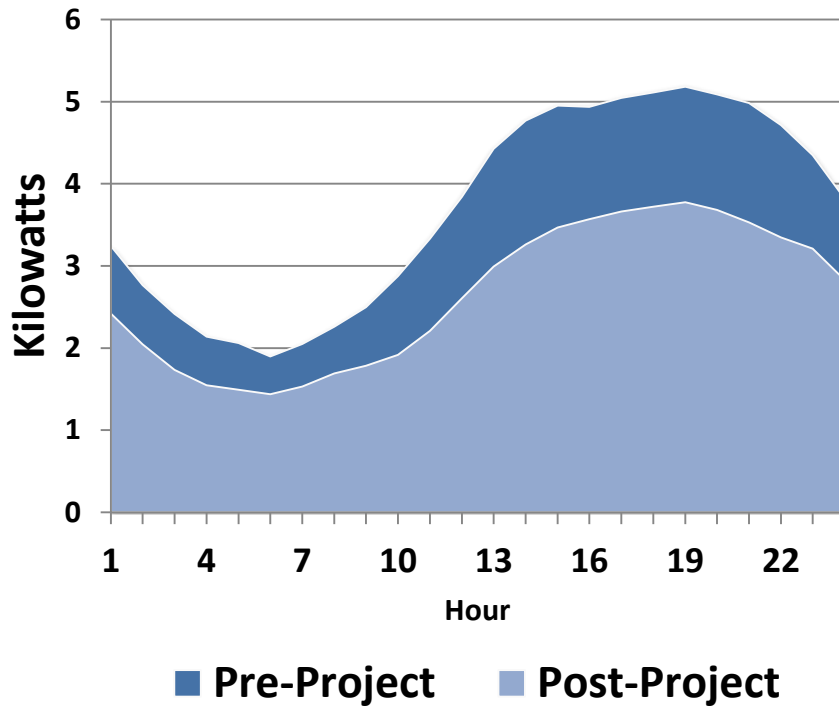
ANNUAL SAVINGS: AVERAGE HMM HOME

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

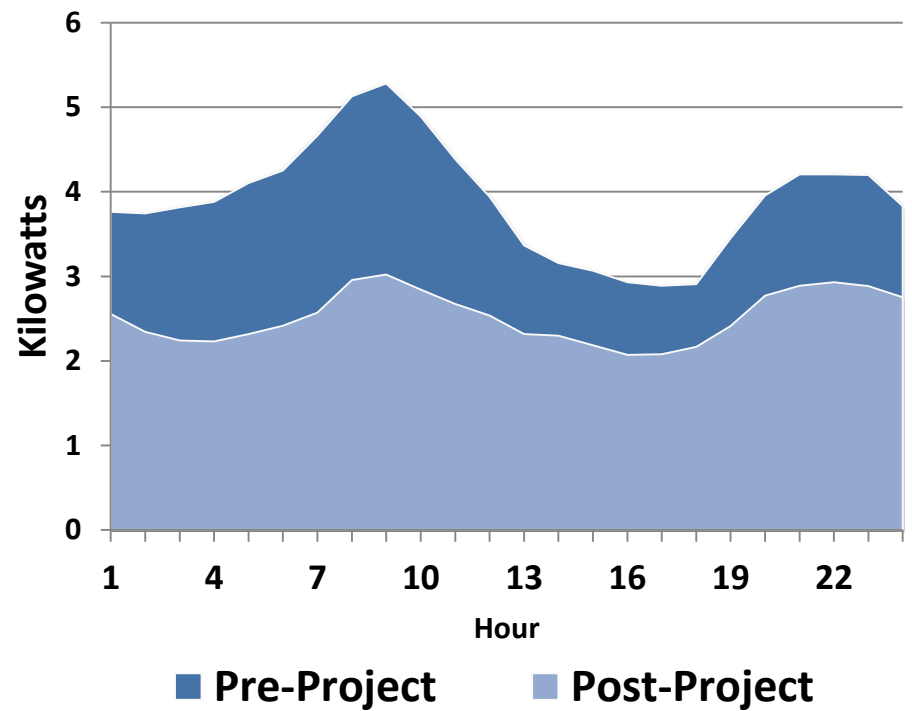
All values are per home averages for a typical meteorological year.

DEMAND SAVINGS

Average Summer Day Load Shape



Average Winter Day Load Shape



PARTICIPANT SURVEY RESULTS

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%

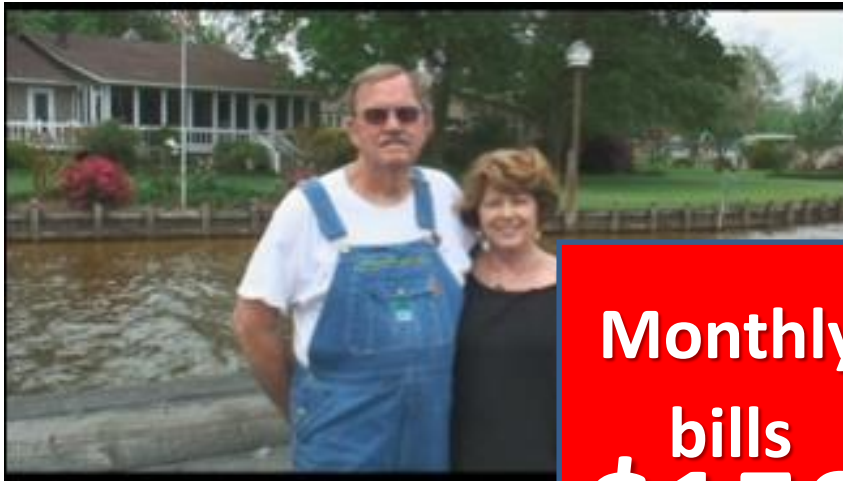
Somewhat 20%

Neutral 0%

Somewhat not 7%

Very unsatisfied 4%

TERI AND JOHN NORSWORTHY'S HOME



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

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

PILOT CONCLUSIONS

- The average home in the HMM Pilot
 - Electricity use dropped by 34% (about 11,000 kWh/yr)
 - Savings exceeded loan repayment by \$288/yr
- Coincident peak savings also dropped about one-third
- Load factor unchanged, would have improved with load control switches
- Homes became more comfortable
- Participants were extremely satisfied with the program and their co-ops
- HMM has spawned ongoing OBF (4 active programs)

The Business Case for OBF

- Short Term
 - Participant and member satisfaction positive
 - Load factor impacts minimal
 - Lost revenue would be small, even for a long term aggressive program

- Long Term
 - EE targets in EPA's proposed 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

PROGRAM #2: WORKING PROGRAMS

2012-PRESENT

WORKING PROGRAMS PROGRESS



Co-ops	Homes/Loans Completed
Aiken Electric	168
Black River Electric	38
*Little River Electric	n/a
*Lynches River Electric	n/a
Santee Electric	95
*York Electric	10
	Running Total 311



On-Bill Financing Project Assistance

EESI offers free assistance:

- Provide experience and lessons learned from South Carolina co-ops' OBF pilot
- Assess whether OBF is a good fit
- Identify resources, help overcome barriers to get projects off the ground
- Help design the OBF program
- Help utilities and others access funding
- Advise on program implementation

For more
information:

www.eesi.org/OBF

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