On-Bill Financing is a Replicable Solution for Rural Electric Cooperatives

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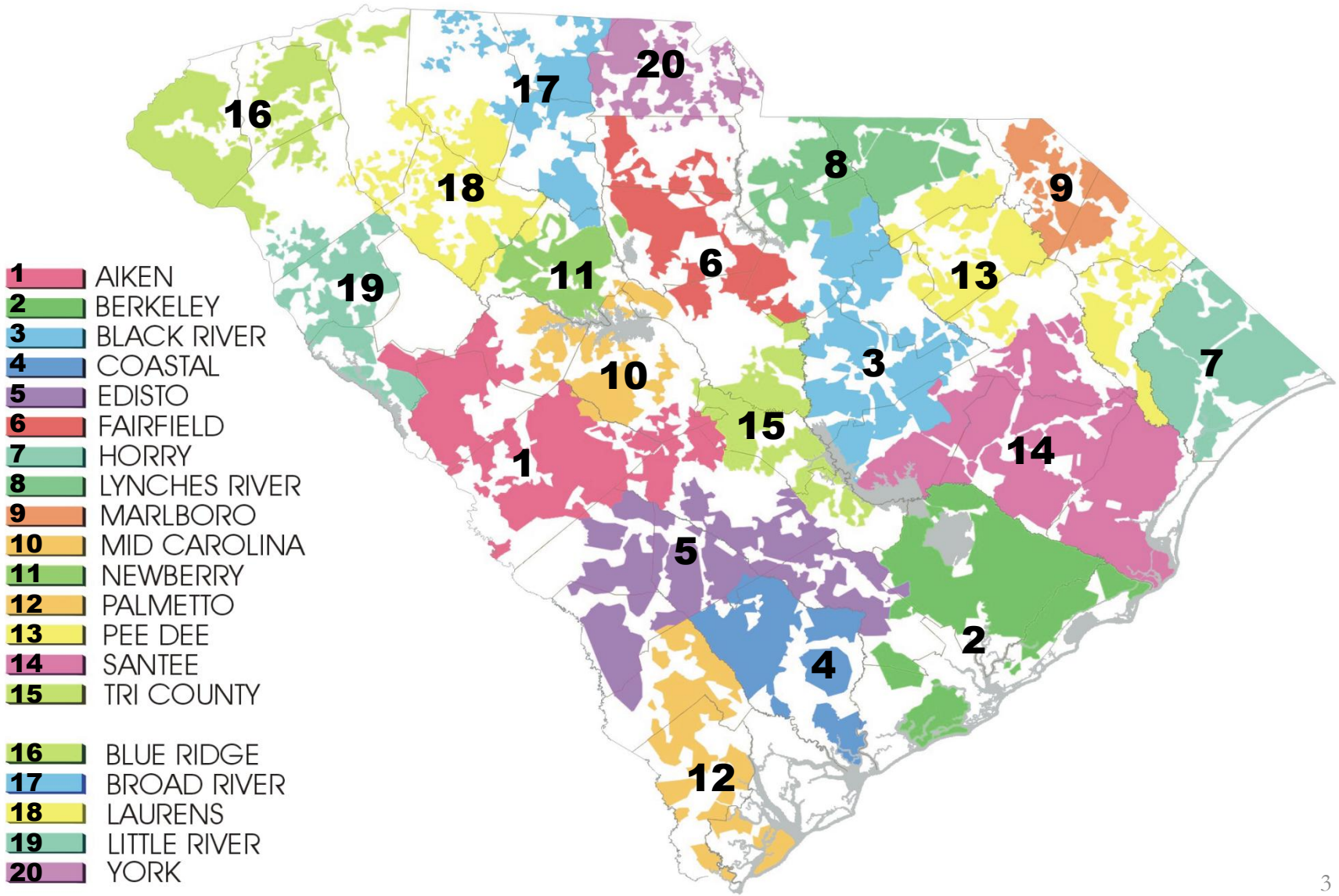
- Founded in 1984 by a bipartisan Congressional caucus
- Independent non-profit organization that receives no Congressional funding.
- Source of non-partisan information on energy and environment policy development for Congress and other policymakers.

SOUTH CAROLINA ELECTRIC COOPERATIVES



SOUTH CAROLINA ELECTRIC CO-OPS

- Highly reliant on coal
  - ~60% of the state's cooperative electricity is generated from coal
  - Average system cost of $750,000 per MW
  - Replacement Natural Gas - $3 M per MW
  - Replacement Nuclear - $5 M per MW

Costs to build **nuclear plants** to replace coal as a fuel source [1]

Year	Capacity (megawatts)	Capital Expenditure	Reduction in Carbon Dioxide (% of total)
2025	404 MW	$2,020,000,000	46.6%
2030	1,200 MW	$6,100,000,000	100%

Costs to build **natural gas** plants to replace coal as a fuel source[2]

2025	404 MW	$1,050,000,000	18.6%
2030	1,200 MW	$3,230,000,000	40%

[1] Assumption: All CO_2 emissions that are not covered by allowances are to be eliminated based on $5,000 per kW installed cost for nuclear generation. Does not include costs of fuel.

[2] Assumption: All coal is to be replaced by natural gas based on $2,599 per kW installed cost. Cost of fuel is not included. Does not eliminate CO_2 emissions, but reduces it by 40%.

South Carolina Electric Co-op 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

On-Bill Financing (OBF)

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

On-Bill Financing (OBF)

- 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

Federal Policy

RURAL ENERGY SAVINGS PROGRAM (RESP)

- Proposed federal loan program to support on-bill financing projects
- To be managed by USDA's Rural Utility Service
- Would provide 0% loans to co-ops and public utilities for up to 20 years
- Passed by House in Sept 2010 with bipartisan vote ($993 million over five years)
- Passed by Senate in 2012 and 2013 as part of the farm bill (funding levels not specified)
- Supported by National Rural Electric Cooperatives Association (NRECA)

RUS Efficiency Loan Program

- Proposed rule announced July 2012
- Proposed $250 million per year (over 5 years) loan program to rural electric utilities for energy efficiency projects
- Co-ops would be charged the direct Treasury rate plus one-eighth
- SC pilot encouraged USDA to move forward
- Final rule expected in October

Shape Up Your Home for Energy Savings

LOAN PROGRAM PILOT

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. Electric Cooperatives of South Carolina
   - State co-op association

3. Central Electric Power Cooperative, Inc.
   - Provides wholesale electric service to state's co-ops

KEY PARTNERS

4. Environmental and Energy Study Institute
   - Assisted with program design, outreach

5. Doris Duke Charitable Foundation
   - Grant supported EESI's work

6. Ecova
   - Program planning, management

7. Carton Donofrio Partners
   - Surveys, marketing support

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

GOALS OF HMH PILOT

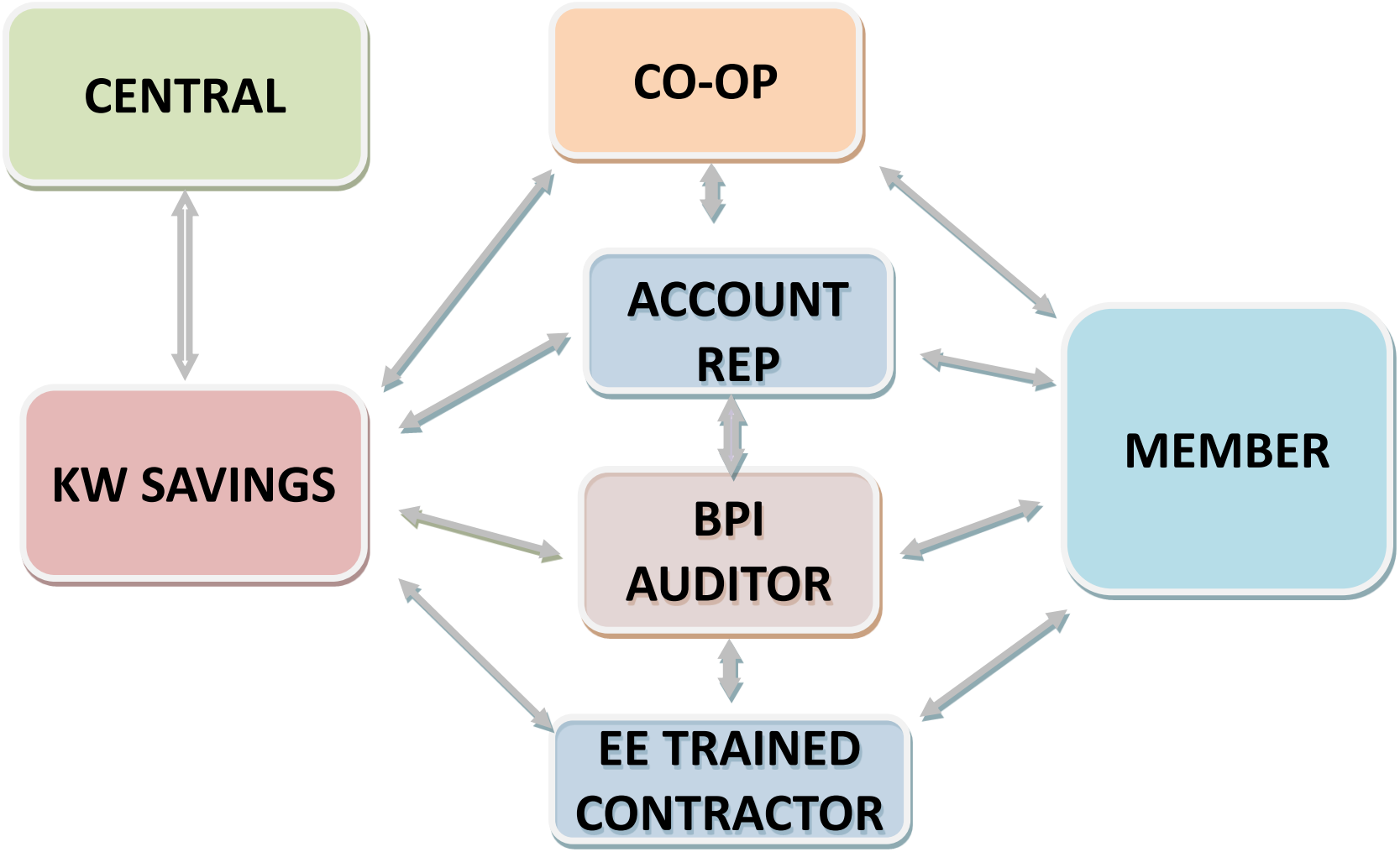
- Determine how to overcome barriers to implementation of energy efficiency improvements

- Establish a functional model for OBF
  - Will members participate?
  - Viable source of loan funds
  - Centralized support function
  - Co-ops playing different roles

- Determine cost-effectiveness
  - To the participant. Savings enough to cover loan payments?
  - To co-ops. Demand savings? Load factor?
  - Long term resource. Cost/kWh

- Determine member satisfaction

HMH Pilot Structure and Process

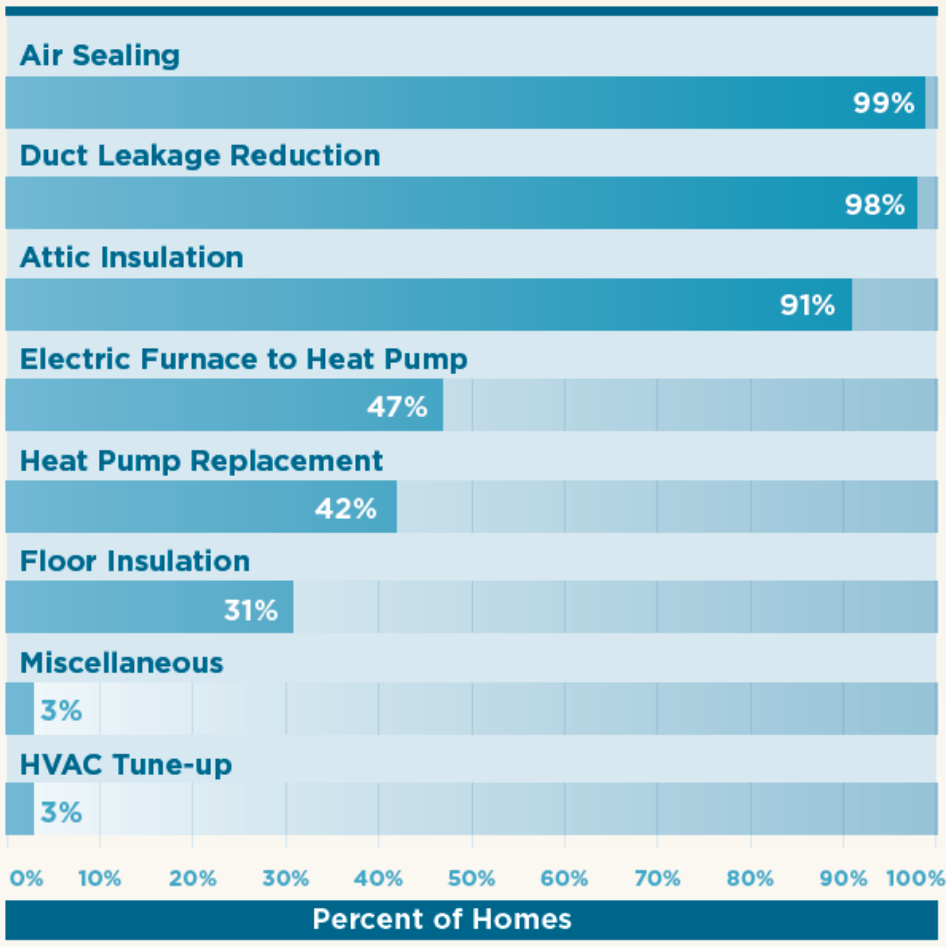


HMH Pilot Process

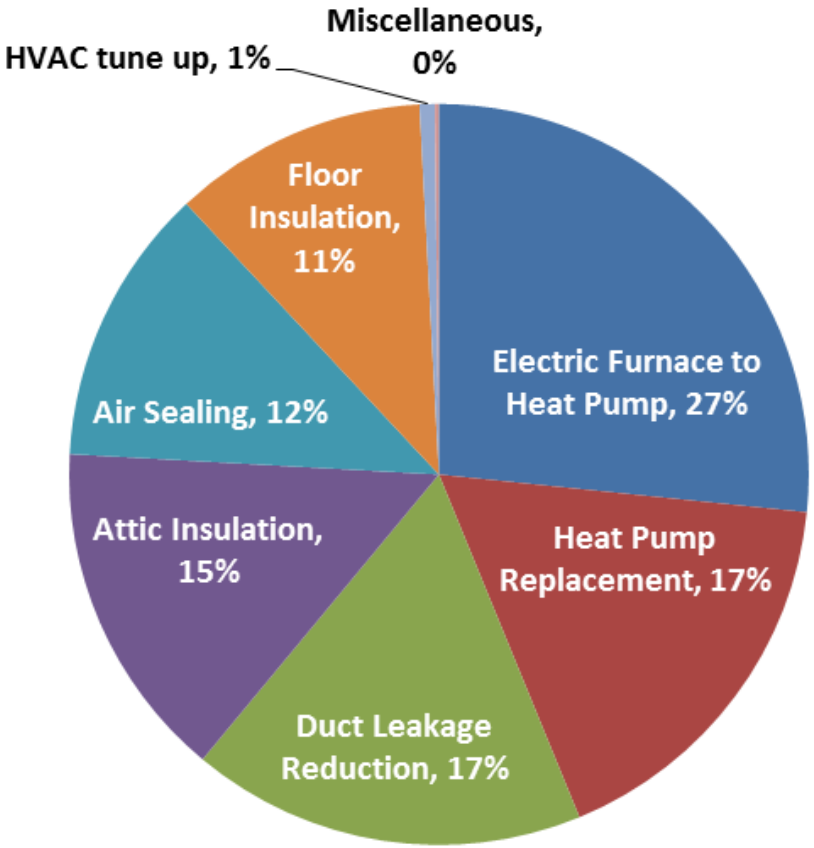
1.	**Participant Selection**
2.	**Visual Audit**
3.	**Comprehensive BPI Audit**
4.	**Loan Approval & Contractor Selection**
5.	**Measure Installation**
6.	**Final Inspection & Project Approval**

MEASURES

Percent of homes with each measure



Percent of savings from each measure

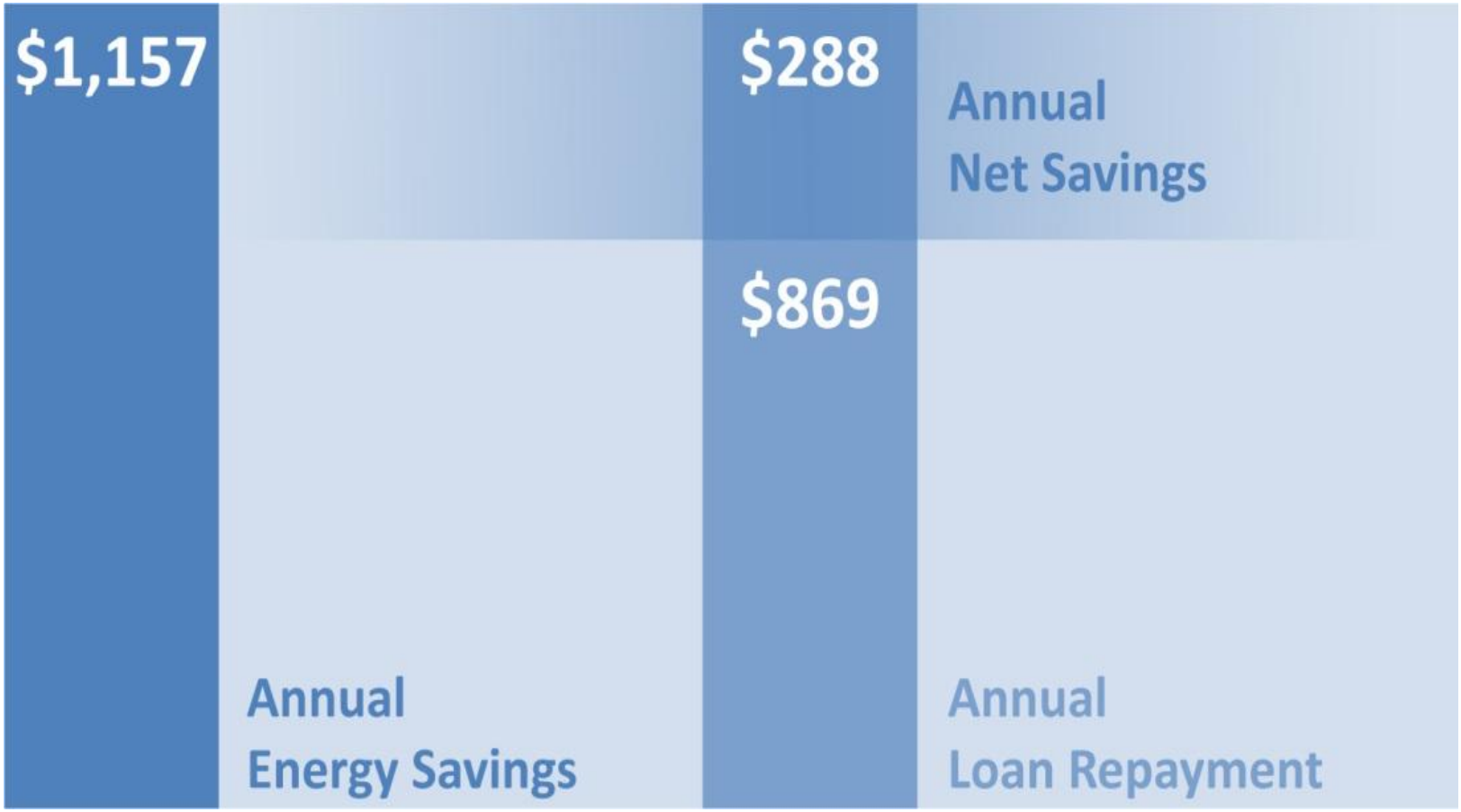


Measured Results Close to Predicted

	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 HMH HOME



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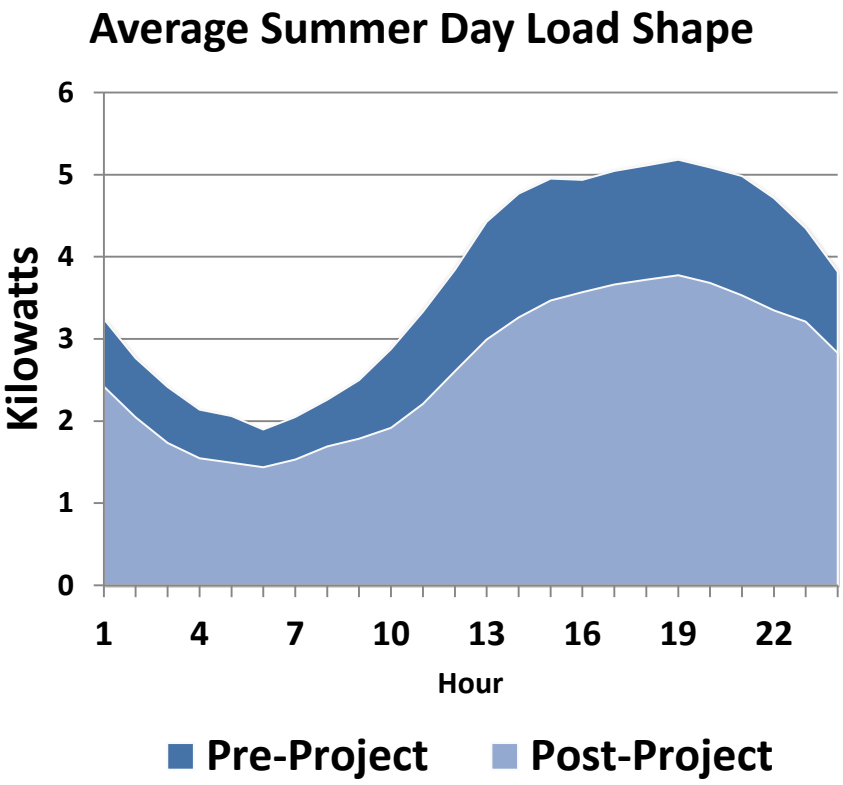
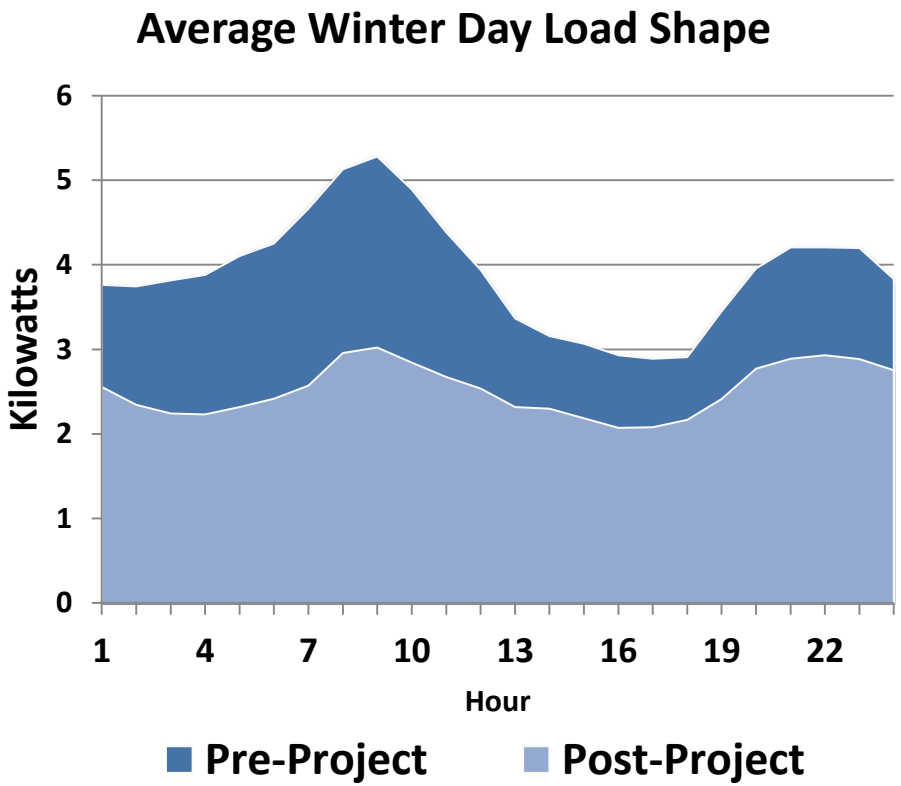
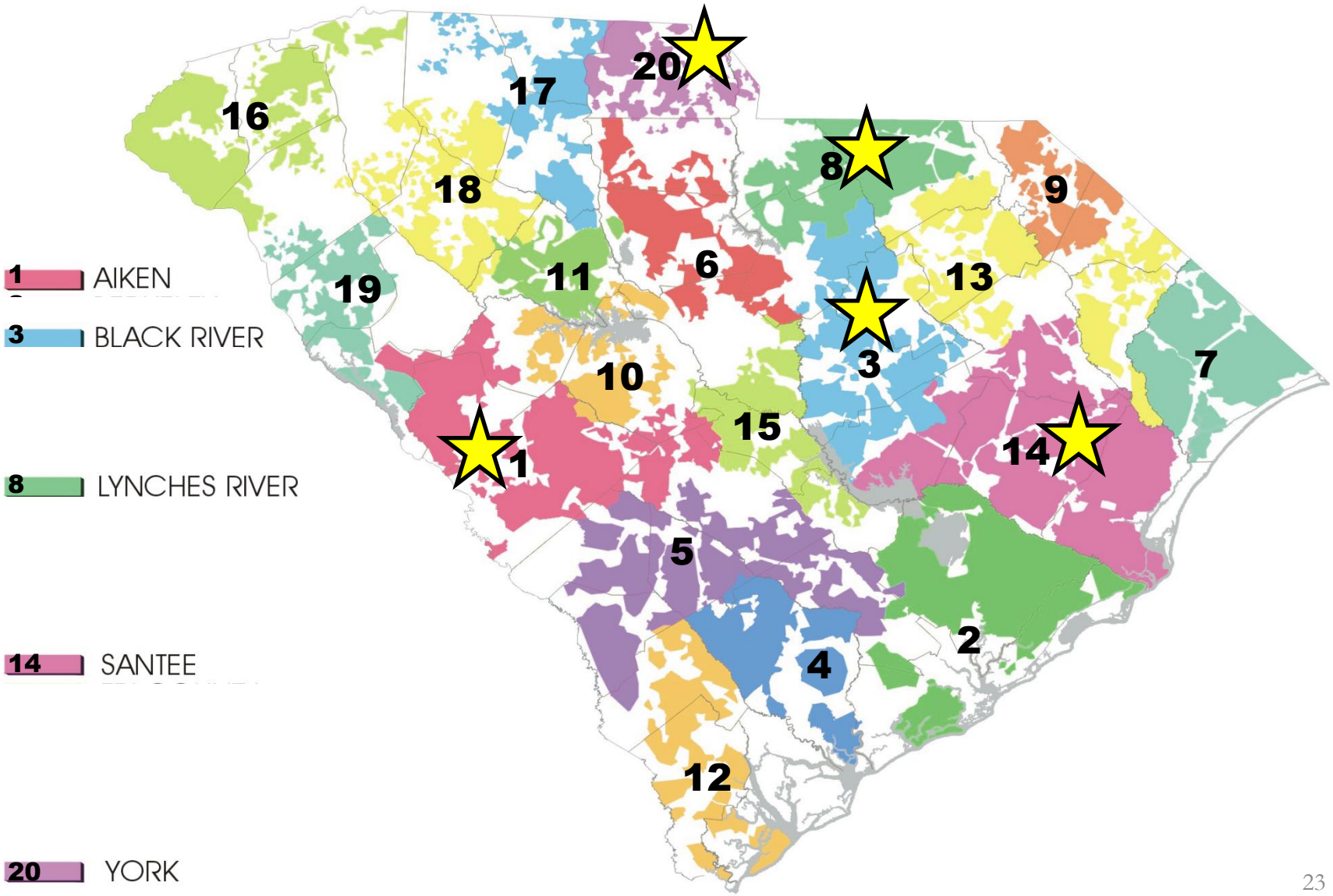
DEMAND SAVINGS





HMH Spawns New OBF Programs



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

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

CONCLUSIONS

- The average home in the HMH 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
- HMH has spawned ongoing OBF (4 active programs, 1 more preparing to launch)

CONCLUSIONS

- HMH showcased some advantages of co-ops working together
- Central Electric's support function helped keep program consistent
- The HMH pilot does not prove how many homes in S.C. are good candidates for OBF
- The HMH pilot was a research program and therefore requires some design modifications to be a sustainable model

CONCLUSIONS

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
  - Energy efficiency from OBF likely to cost less than 2 cents/kWh
  - Broader economic benefits: good for contractors and other local businesses; supply chain

RECOMMENDATIONS

Co-ops should…

- Consider offering full-scale OBF programs
- Collaborate to reduce program costs, improve quality
- Identify a centralized support function
- Support emergency replacements for heat pumps and water heaters
- Deploy load control devices
- Consider adding renewables and energy storage
- Look to their affiliates, organizations and associations for help facilitating the development of business plans for interested co-ops

For More Information

Fact Sheet

"Help My House" Loan Pilot Program: Program Design and Results

Regulations.gov

RUS Energy Efficiency Loan Program

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