

# Help My HOUSE!



Shape Up Your Home for Energy Savings

## **S.C. Electric Cooperatives Pilot Program**

NASEO Financing Committee February 2, 2012

# How We Got Here

Rural Energy Savings Program  
“Rural Star”  
(H.R. 4785 and S. 3102)

# Rural Energy Savings Program

- Low-interest loans from RUS for upgrades
- Money saved repays loans
- Low-risk lending, repaid through power bill

**GOAL: Reduce Energy Use 20% by 2020**

# What Happened?

- RESP passed the US House in September 2010, failed to reach the US Senate in that session
- Political tide turned in 2011
- Still a future possibility (2013?), members of Congress still actively promoting/supporting it

# Co-op Mantra

- Measure twice, cut once
- It costs extra to make water run uphill
- Fail fast, fail cheap

# Help My House Loan Pilot

- A small-scale residential energy efficiency research pilot
- Low-interest loans, on-bill financing, whole-house weatherization
- Uses Rural Energy Savings Plan model to test:
  - Consumer acceptance, experience and satisfaction
  - Impact on energy consumption
  - Impact on energy demand (peak)
  - Program model and all processes (outreach, loans, payments, etc.)
  - Contractor acceptance and compliance

# Partners



Bipartisan Environmental and Energy Study  
Institute

# Partners



***CARTON DONOFRIO PARTNERS***





Committed to the future of rural communities.

- \$740,000 REDLG loan to Central Electric Power Cooperative.
- First loan of its kind dedicated strictly to study of energy efficiency

# Cost-Effective Measures

- Weatherize homes
- Replace resistance heating and old heat pumps
- Target ROI is 6.6 years or better



# The Pilot Transaction



# Status Report

- 8 co-ops participated
- 125 homes weatherized
- Total Est. kWh Savings 1,162,190
- Total Est. \$ Savings \$126,586
- Average Act. Project Costs \$7,151
- Average Est. Annual \$ Savings \$1,229
- Average Payback (Yrs.) 5.82



# Now that the work is done

- Monitor daily energy use in weatherized homes for at least 12 months
- Measure impact on demand
- Compare new data with historical usage and demand
- Include findings in EESI report in 2012
- Support co-ops that want to continue

# Why Do This?

# S.C. Co-ops Today

- 20 S.C. cooperatives pay 70% of Santee Cooper's capital costs and use 55% of their electricity
- Serve 1.5 million people, cover 70% of the land area
- Largest distribution system in S.C.





# S.C. cooperative members are

- Affected by poverty
  - \$31,799 — S.C. average personal income
    - Approximately 19% lower than national average

# S.C. cooperative members

- 50% more likely to live below the poverty line
  - 17% statewide
- In some months, many may spend 60-80% of income on energy
- 26% of SC counties (12 out of 46) qualify as Persistent Poverty Counties\*

\*(Defined as any county with a poverty rate of 20% or higher in every census 1970-2010)

# S.C. cooperative members are

- Affected by climate
  - Winter
    - Electricity is primary form of heating  
(80% of cooperative homes use electricity as primary form of heating)
  - Summer
    - S.C. ranks 7<sup>th</sup> in cooling degree days per year

# S.C. cooperative members are

- Impacted by housing stock
  - 24% of electric co-op homes in S.C. are manufactured homes (three times higher than the national average)

# S.C. cooperative members are

- Affected by functional illiteracy
  - S.C. has 5<sup>th</sup> highest percentage of Level 1 and Level 2 illiteracy — 56%

# S.C. cooperative members are

- Affected by coal-based generation
  - Over 80% South Carolina cooperative electricity is generated from the burning of coal (average system cost of \$750 per KW)

Replacement Natural Gas- \$3,000 per KW

Replacement Nuclear- \$5,000 per KW

# Two Paths to the Future

**We are nearing the fork in the road.**



# Path One

- Default to nuclear
  - Expensive.
  - Politically volatile in light of Japan's recent experience at Fukushima.
  - High costs potentially mitigates investment in other renewable resources.



# Path Two

- Coordinated build of nuclear -- at a slower pace
- Investment in evolving technologies and in renewables that work for S.C.
- Unprecedented investment in energy efficiency

# A huge payoff: Energy efficiency retrofits & other residential programs

Energy and Consumer Forecast for 2020	Residential total
Energy (megawatt-hours)	13,344,000
Goal -- save 20%	<u>X 0.20</u>
Energy efficiency savings (megawatt-hours)	<b>2,668,800</b>

**20% Reduction in  
Residential Use**



# Possible S.C. Results

- Energy savings
  - 2,700,000 megawatt-hours per year.
- Consumer savings
  - \$270 million per year.
- Reduced CO<sub>2</sub> emissions
  - up to 2.4 million metric tons per year.
- Avoid paying for ½ of a nuclear unit (\$4 billion)

# Possible S.C. Results

## Coastal Carolina University Economic Study

- Robust job creation in counties of persistent poverty
- 1,500 new SC jobs created in first year
- 4,618 new SC jobs created by 2020
- 7,113 new SC jobs created by 2030

# Questions to Ask and Answer

- What are the lessons learned from the pilot project?
- Is the model replicable in other states and for other electric service providers?
- Is the model readily scalable, in South Carolina and in other states?
- What adaptations may need to be made?
- How can federal policies best support?

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