Energy efficiency: serving the cooperative consumer/owner

May 20, 2011
What is an electric cooperative?
An electric cooperative is a business established to provide reliable, at-cost electricity to its consumers, the owners of the business.
Co-ops in S.C. Today

Today, 20 South Carolina distribution cooperatives serve 1.5 million consumers, more than any other S.C. utility.
Customer Satisfaction: Co-ops vs. IOUs

Source: American Customer Satisfaction Index, Q1 2011. For S.C., most recent.

Touchstone Energy Cooperatives of South Carolina: 87
Touchstone Energy Cooperatives: 83
Electric Utility Industry: 74
U.S. Electric Cooperatives

- In 47 states
- Serving 42 million people
- Covering 75% of the land area
For Those We Serve...
S.C. cooperative members are

- Affected by poverty
- $27,580 — S.C. average personal disposable income
- Approximately 20% lower than national average
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 7th 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 5th 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
## Targets for Energy Efficiency

<table>
<thead>
<tr>
<th></th>
<th>Number of Homes</th>
<th>Annual kWhs/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weatherization</td>
<td>160,000</td>
<td>290,000,000</td>
</tr>
<tr>
<td>Replace Resistance Heating</td>
<td>60,000</td>
<td>550,000,000</td>
</tr>
<tr>
<td>Replace Old Heat Pumps</td>
<td>32,000</td>
<td>183,000,000</td>
</tr>
</tbody>
</table>

**1,023,000,000 kWhs/yr**

10% Reduction in Residential Use
## Energy Efficiency Goals

**Energy and Consumer Forecast for 2020**

<table>
<thead>
<tr>
<th>Forecast</th>
<th>Residential</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members</td>
<td></td>
<td>623,000</td>
</tr>
<tr>
<td>Energy (MWh)</td>
<td></td>
<td>13,344,000</td>
</tr>
<tr>
<td>EE Savings 20% (MWh)</td>
<td></td>
<td>2,668,800</td>
</tr>
</tbody>
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**20% Reduction in Residential Use**
Rural Energy Savings Program (Help My House Loan Program)

Pilot Project will 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
Implementation Costs

- Overall subsidy = 50% subsidy needed to drive investment (GDS study 2007)
- Ensure quality and confidence for ALL cooperative members-consumers
Cost-Effective Measures

- Target ROI is 6.6 years or better
- Replace old electric heat pumps, electric furnaces, or strip resistance heating with new heat pump
- Primarily duct sealing, insulation, weatherization
Making it Easy on Consumers

- Immediate energy savings
- No upfront costs
- Low-interest loans
- On-bill financing
Home Energy Assessment and Coordination of Upgrades

- Need confidence in data and upgrade work, and consistently good interaction with customers, while minimizing number and duration of on-site visits
- Cooperative staff walk-through
- Initial BPI audits
- Post-retrofit audits/inspections
After 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
Questions that EESI Report Will Ask and Answer

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

- Housing stock
- Illiteracy
- Unprecedented scale of market penetration
- Capital for large-scale effort
Advantages to success of pilot and larger-scale effort

- Cooperatives are nimble
  - Limited regulatory barriers
- Historic high levels of consumer satisfaction
- Business model does not require shareholder return, only consumer/owner satisfaction
- Need to succeed (avoiding $4 billion cost of ½ of a nuclear unit)
Questions?