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.

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>Homes</th>
<th>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>
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</tbody>
</table>

Total: 1,023,000,000 kWhs/yr

10% Reduction in Residential Use

Energy Efficiency Goals

<table>
<thead>
<tr>
<th>Energy and Consumer Forecast for 2020</th>
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<tbody>
<tr>
<td>Forecast</td>
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<tr>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Members</td>
</tr>
<tr>
<td>Energy (MWh)</td>
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<tr>
<td>EE Savings 20% (MWh)</td>
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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?

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