The Importance of Energy Efficiency to Agriculture & Rural Communities

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The American Council for an Energy-Efficient Economy is a nonprofit 501(c)(3) founded in 1980. We act as a catalyst to advance energy efficiency policies, programs, technologies, investments, & behaviors.

Our research explores economic impacts, financing options, behavior changes, program design, and utility planning, as well as US national, state, & local policy.

Our work is made possible by foundation funding, contracts, government grants, and conference revenue.
Rural Energy Use in Context

• Urban/suburban & rural energy use are very different
• Only one in ten households are in rural communities
• On average rural households are 30% bigger, but use only 10% more energy & are generally newer
• Rural households have fewer energy options
• Transportation options & vehicles are different
• Typical rural family drives more than 7,000 additional miles annually
<table>
<thead>
<tr>
<th>Housing Unit Characteristics</th>
<th>Housing Units (millions)</th>
<th>Urban/Rural Location (as Self-Reported)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>City</td>
</tr>
<tr>
<td>Electricity</td>
<td>111.1</td>
<td>47.1</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>69.5</td>
<td>33.3</td>
</tr>
<tr>
<td>Wood</td>
<td>14.4</td>
<td>3.6</td>
</tr>
<tr>
<td>Fuel Oil</td>
<td>8.4</td>
<td>2.6</td>
</tr>
<tr>
<td>LPG</td>
<td>12.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Kerosene</td>
<td>1.7</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Source: EIA, 2005 RECS
The Rural Economy

- Rural economies are dependent on agriculture, forestry, mining & manufacturing
- More than 2/3 manufacturing is in counties outside metro regions
- Industry accounts for majority of direct, indirect & induced jobs in rural communities
- Many farmers & ranchers also work in manufacturing
Energy Use in Agriculture

- Agriculture one of the most energy intensive economic sectors
- Ag consumes 1-3% total U.S. energy—food systems 10-17%
- Important to consider both:
  - Direct energy (fuel & electricity)
  - Indirect energy (fertilizer, feed & water)
Energy is one of the largest controllable costs of agricultural production

Farm Production Expenditures 2004

- Direct energy: 5%
- Indirect energy: 10%
- Livestock & poultry: 10%
- Feed: 13%
- Labor: 11%
- Seeds, supplies, etc: 11%
- Farm services: 12%
- Farm improvements: 5%
- Machinery & vehicles: 7%
- Rent, interest & taxes: 16%

Source: USDA/ERS 2006
Challenges for Energy Efficiency in Agriculture

- Farmers are busy—energy efficiency an afterthought
- Competition for dollars intense
- Need to work through existing trust networks
- Farm operations are complex—need to understand the impacts of measures
- In many cases, electricity savings is modest so utilities impact limited
Conclusions

• Rural communities & energy use is different from metro areas
• Energy resources & uses then to be different
• Rural transportation & vehicles are different than in metro regions
• In general, rural businesses tend to be more energy intensive, with ag, forestry, mining & manufacturing dominating
• We need tailored programs to respond to rural needs
Upcoming ACEEE Conferences

<table>
<thead>
<tr>
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<tr>
<td>Hot Water Forum</td>
<td>February 26</td>
<td>Portland, OR</td>
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<tr>
<td>National Symposium on Market Transformation</td>
<td>April 2</td>
<td>Arlington, VA</td>
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<tr>
<td>Energy Efficiency Finance Forum</td>
<td>May 21</td>
<td>Chicago</td>
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The top convener in energy efficiency: aceee.org/conferences