Farm Energy Audits

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What is the purpose of a Farm Energy Audit?

- Identify opportunities to reduce energy use and costs
- Change current behavior
- Use energy efficient equipment

Energy Pyramid

- Renewable Energy
- Time of Use Management
- Energy Efficiency
- Energy Conservation
- Energy Analysis
• A farm energy audit records and analyses energy used on the farm and recommends actions to reduce energy usage while maintaining (or at times) increasing farm production.
When does it make sense to get a Farm Energy Audit?

- Minimum fossil fuel usage
- Likelihood of installing energy saving recommendations
- Number of years will be in business

Criteria to Receive a Farm Energy Assessment

To ensure a fair and appropriate use of program funds, the highest priority will be given to farmers who are the most likely to install equipment and reap significant energy savings. EnSave and the program partners USDA Natural Resources Conservation Service, Maryland Energy Administration and the Eastern Shore Resource Conservation and Development Council, Inc. have developed criteria to determine eligibility to receive an energy assessment.

Your responses to the following questions will determine whether you will receive an on-farm assessment or Low-Cost/No-Cost brochure.

1. In order to qualify for a farm assessment, do you meet the minimum electric usage of 10,000 kilowatt-hours annually?
   - Yes
   - No

2. What is your average annual kWh usage? (>10,000 kWh)
   - 10,000 – 20,000: 5 points
   - 20,000 – 30,000: 8 points
   - 30,000 – 40,000: 10 points
   - 40,000 – 50,000: 12 points
   - > 50,000: 12 points

3. Once you have received your assessment and energy savings have been identified, how likely are you to install the recommended equipment? Keep in mind that if cost is an issue, you may qualify for grant funding or low-interest loans to offset some of the cost of installing equipment.
   - Not Likely
   - Likely
   - Very Likely

4. In years how long do you see yourself in business?
   - 1 – 2 Years: 5 points
   - 2 – 3: 10 points
   - 3 – 4: 15 points
   - 4 – 5: 20 points
   - 5 – 10: 25 points
   - 10 or more: 30 points

Total Point Value: □ Assessment □ Low-Cost/No-Cost brochure
Applicant must have a total point value of 30 or greater in order to receive an assessment.

Name of Applicant: ________________________ Date: ____________________

Interviewer: ____________________________
One of the CSP Enhancement Categories:

CSP was the first program to offer farm energy audits as an enhancement.
On-Farm Energy Audits

NRCS Adopted Standard
July 2009

American Society of Agricultural and Biological Engineers (ASABE)

ANSI/ASABE S612
Scope

• Energy Audits of all types of farming operations (include ranching). Excludes the farm residence.

• Does not address secondary (off farm) energy savings in the development and evaluation of alternatives. For example reduction in fertilizer and energy used at production facility.
On-Farm Energy Audit

• Determines and documents current energy usage, over the past annual cycle.
• Provides cost effective alternatives and recommendations for energy conservation of each farm enterprise.
• A field crop system and livestock production system on the same farm would be considered two separate enterprises.
Baseline Condition

- Overview of each enterprise
- Description of the specific tasks of operation.
- 12 month cost data (utility invoices).
- Major activities that utilize energy resources.
- Type of energy (source) and electrical service information (single or 3-phase electricity).
Assessment Recommendation and Certifications

• An estimated cost to replace or modify existing equipment.
• Estimated energy and cost savings including assumptions made to calculate the estimates.
• An estimated simple payback period (in years) for implementing each recommendation.
• Auditor meets technical expertise
Two types of Farm Energy Audits:

**TYPE I**
An evaluation and report of farm enterprise energy use that considers, at a minimum, the major activities highlighted in Table 1 at the end of the standard, as applicable

**TYPE II**
A more detailed evaluation and report of farm enterprise energy use that considers all major activities and components included in Table 1, as applicable
<table>
<thead>
<tr>
<th>Major Activity</th>
<th>Components</th>
<th>Dairy</th>
<th>Field crops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting</td>
<td>bulbs, timers, sensors</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Refrigeration</td>
<td>compressor, evaporator/chiller, motor, insulation</td>
<td>milk, products</td>
<td></td>
</tr>
<tr>
<td>Ventilation</td>
<td>fans, control system, variable drives, humidity control</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Drying Equipment</td>
<td>energy source, airflow (motors/fans), handling</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Irrigation</td>
<td>motors/engines, pumps, power source, other</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Cultural Practices</td>
<td>planting, tilling, harvesting, other, equipment</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
Value of a Farm Energy Audit?

- **ZERO**, if none of the energy conservation and energy efficiency recommendations are not implemented.
- **IMPLEMENTATION** requires partnerships with other Federal agencies, State agencies, local governments, private industry, utility companies, etc.
The 2008 Farm Bill has been interpreted to authorize the use of EQIP Financial Assistance to fund “conservation activities involving the development of plans…”

- 12 FY 2009 pilot conservation activity plans
- 35 states volunteered to pilot one or more of the conservation activity plans
Conservation Activity Plan
AgEMP 122

• The Agricultural Energy Management Plan (AgEMP) contains the strategy by which the producer will explore and address on farm energy problems and opportunities.
• 8 states volunteered to pilot: Colorado, Connecticut, Louisiana, Maryland, South Dakota, West Virginia, Wisconsin, Maine
• 2009: 31 applications for AgEMPs shown in ProTracts
How does the AgEMP energy audit differ from the CSP energy audit?

- CSP enhancement payment was $500
- AgEMP payment is up to 75% of the cost (up to 90% for socially disadvantaged & beginning farmers & ranchers)
- Headquarters and/or Landscape audits offered in AgEMP
- AgEMP energy audit providers must be certified Technical Service Providers (TSPs) through TechReg.
Energy audit experts wishing to become TSPs must meet the qualifications for either the Landscape Plan Development or the Headquarters Plan Development.

A sample plan must be submitted with the TSP application.

http://techreg.usda.gov/ (then click on “Conservation Activity Plans”)
What’s required in an AgEMP?

- Plan Criteria located Section III of the FOTG – for pilot effort all volunteer states using standard version
- Plan cost located in Section I of the FOTG – example: Louisiana Practice Cost Data from LA FOTG Section I 2009 Payment Schedules
Title IX – Energy

Section 9007. Rural Energy for America Program

(1) Grants for energy audits and renewable energy development assistance

Rural Development awarded ~ $2.2 million in grants to electric cooperatives, universities, and local governments to provide energy audits. (18 states)

- Cost share for each audit: 75% / 25%
- Audits will be offered to ALL potential Rural Development clients – small business and agricultural operations
An MOU has been developed between USDA Rural Development & NRCS

- to share energy audits across agencies,
- avoid duplication of funding, and
- encourage coordination across programs offered to help the producer implement energy efficiency improvements and renewable energy systems.