

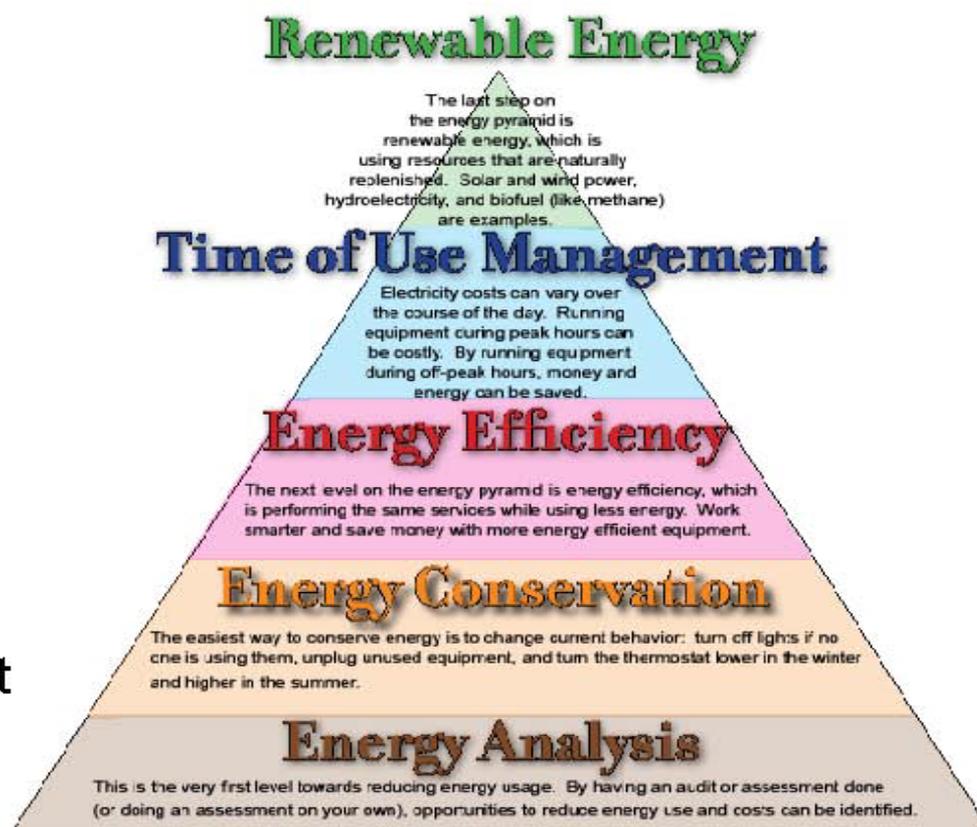
Farm Energy Audits

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What is the purpose of a Farm Energy Audit?

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

EnSave Energy Pyramid



Farm Energy Audit

- 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 - U.S.D.A. 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	Continue
No	Low-Cost/No-Cost brochure

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	15 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	Low-Cost/No-Cost brochure
Likely	10 points
Very likely	20 points

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.

Energy Enhancement Activities

For 2004, the Conservation Security Program (CSP) offers a limited number of enhancement payments as incentives to reward or encourage on-farm energy conservation and management. These enhancements are available once the applicant qualifies for CSP by meeting the program's entry requirements for soil and water quality.

This information will help landowners and managers determine if they are eligible for the offered payment(s) for energy enhancement activities.

Energy Audits and Recycling On-Farm Lubricants

Energy Audit of Agriculture Operations

Agriculture faces rising costs for energy, regardless of whether the energy is embedded (energy used for production, transportation, and application that is 'captured' in fertilizer and pesticides), photosynthetic, or direct (energy derived directly from a source, such as electricity, butane, etc., and consumed for a particular use like heating, lighting, or transportation). Through CSP, USDA's Natural Resources Conservation Service (NRCS) is encouraging farmers and ranchers to review how they use energy in their operations and look for ways to reduce costs, improve energy efficiency, and reduce impacts on the environment. An energy audit is the first step in energy management. Operators need to know current energy use before changes in efficiency can be measured. Once energy consumption and costs have been measured, users can perform a variety of analyses to determine which actions are most efficient, and take steps to make changes where necessary.



Definition – An energy audit identifies and evaluates energy management opportunities on the farm or ranch. During an audit, a baseline is developed to characterize and record energy use. Individual unit operations, processes, and major energy-consuming equipment are evaluated to identify energy management opportunities and high-return-on-investment projects. Typically an action report is produced that describes the baseline, each conservation opportunity area, an estimate of the cost to implement the changes, the savings that will be generated, and an estimation of the payback period.

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

ASABE Audit Standard x612

Type 1

Type 2

Major Activity	Components	Dairy	Field crops
Lighting	bulbs, timers, sensors	x	
Refrigeration	compressor, evaporator/chiller, motor, insulation	milk, products	
Ventilation	fans, control system, variable drives, humidity control	x	
Drying Equipment	energy source, airflow (motors/fans), handling		x
Irrigation	motors/engines, pumps, power source, other		x
Cultural Practices	planting, tilling, harvesting, other, equipment		x



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.

Agricultural Energy Management Conservation Activity Plan AgEMP(122)

- 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





Partnerships



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.