Energy Enhancement Activities

For 2005, 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.

Who Performs Energy Audits? – Farmers and ranchers interested in receiving an enhancement payment for an energy audit may hire a professional contractor or utility of their choice to conduct the audit. Operators should ensure that the

contractor has relevant educational and professional experience, has a successful track record, can provide objective advice, has declared any financial relationships with equipment vendors or service companies, and has qualified staff.

***Self-Audits* –** In some areas contractors or utilities are not readily available to perform energy audits on farms. A self-audit process is being developed. Farmers will be allowed to use this process to establish a baseline energy usage from which they can document energy savings over the life of the CSP contract. Payments will not be made for self-audits, themselves, however.

Documentation Required: A receipt from the professional energy auditor is required prior to payment approval.

Recycle 100 Percent of On-Farm Lubricants

Lubricants are widely used on farms and ranches to reduce friction in a variety of machinery and equipment. Without proper disposal, lubricants enter the environment, especially groundwater or surface water. Good management of these wastes can help protect the quality of the groundwater and of drinking water supplies furnished by the watershed.

The first step in reducing potential associated water quality degradation is to carefully purchase and use only essential products, reuse them when possible, and recycle them at a recycling depot. Through CSP, NRCS is encouraging farmers and ranchers to review how they treat waste lubricants in their operations, look for ways to reduce dependence on fossil fuels, and reduce potential impacts on the environment. Payments are offered for several of these activities through the program.

***Definitions* –** For purposes of CSP, farm lubricants are defined as oils, fluids, or greases, including all mineral-based oils, synthetic oils, or semi-synthetic oils used to reduce friction in equipment and machinery. Recycling involves disposal of lubricants through a recycling company or depot. Burning is not considered recycling unless burning is performed in a furnace that has been certified by EPA to meet or exceed all emission standards for the area.

Documentation Required: Receipts from the receiving recycling company or depot are required prior to payment approval.

United States Department of Agriculture

NRCS Natural Resources Conservation Service

CSP Energy Enhancement
Energy Audit Guidance

April 2005

Producer: **Date:** **Watershed:**

Farm Identification:

This guidance sheet is to be used with the Conservation Security Program (CSP) where an energy audit is being performed.

A **Comprehensive Energy Audit** is a written report prepared by an independent, qualified entity or individual that documents the following:

- current energy usage,
- recommended improvements and their costs,
- expected energy savings from these improvements, and
- an estimated payback, including dollars saved (based on approximate energy costs) and period in years.

Deliverable: To earn CSP enhancement payment for Energy Audit the applicant must have completed or agree to complete a Comprehensive Energy Audit. A baseline energy assessment can be accomplished through a producer self-assessment but will not qualify for an Energy Audit enhancement payment..

Key Definitions:

- Energy: Fuels (purchased propane, diesel and natural gas) and electricity used to perform stationary farm and ranch activities. This definition includes renewable energy sources.
- Energy Management: Optimization of energy use on farms and ranches to minimize non-renewable energy consumption.
- Certified Energy Auditor: A person who has the technical qualifications to perform an agricultural energy audit. In most cases a Certified Energy Auditor will be a professional engineer.
- Energy Source: The type of fuel (liquid or gas), electricity or renewable power used to perform farm and ranch activities.
- Current Energy Usage: The annual usage of grid electricity and/or natural gas and purchased fuels (liquid or gas) for stationary farm or ranch operations.

Baseline energy assessment: The minimum requirement for participation in the "energy reduction" enhancement is the baseline energy assessment. Documentation shall include records of metered electricity, natural gas, propane or other fuel used for stationary equipment. A list of proposed energy saving activities and anticipated energy savings due to conservation actions or equipment modifications are also required. The producer (farmer or rancher) should consider activities to reduce energy usage for items such as:

Lights
Fans
Stationary Engines
Pumps – vacuum pumps
Hot water
Fans
Heating/Cooling Systems
Drying systems
Refrigeration
Miscellaneous (e.g., electric Fences, livestock water heaters)

Record Keeping: It is the responsibility of farmers and ranchers, or their agents to maintain records which document energy use. Records include:

- Utility and/or fuel purchase bills
- Quantities and sources of energy applied;
- Dates (month and year) documenting energy use.
- Methods of energy use
- The results of reviews including the identification of the person completing the
- Review and any recommendations that resulted from the review.
- Energy Audit and energy rates.
- Actions taken to improve energy efficiency
- Removal or addition of energy use components to the farm or ranch.

Additional Guidance:

A Comprehensive Energy Audit will include a written report signed by a Certified Energy Auditor. The Energy Audit should be tailored to the individual farm and should cover the primary energy users such as irrigation pumping, heating and cooling of livestock production facilities, manure collection and transfer, grain drying and similar common on-farm activities.

Producer Acknowledgement:

I agree to maintain energy records, and to obtain a Comprehensive Energy Audit utilizing a qualified auditor as described above as indicated in the Conservation Security Program contract.

Client:_____**Date:** _____

Listed below are some example components to consider for typical individual on-farm or ranch activities. You may have others for your specific location and operation:

a. Irrigation
- Pumps
- Stationary Motors (all types)
- Miscellaneous

b. Grain Drying
- Stationary Motors
- Fans
- Heating Systems
- Type of Drying System
  - Batch Drying
  - Continuous Flow Drying
- Miscellaneous

c. Animal Housing and Processing
- Lighting
- Heating/Cooling – including insulation type and amount
- Ventilation
- Stationary Motors
- Pumps
- Refrigeration
- Hot water heaters
- Miscellaneous – cleaning systems

d. Other Farm Buildings excluding homestead:
- Lighting
- Heating/cooling systems
- Miscellaneous

e. Greenhouses
- Lighting
- Artificial lighting
- Heating
- Ventilation
- Pumps
- Stationary Motors
- Miscellaneous

f. Animal Waste collection
- Pumps
- Stationary Motors
- Lighting
- Miscellaneous – Methane Digesters