

Energy Use Assessment

- **Water Heating (Electric, Propane, Fuel Oil)**
 - On-Demand Water Heating
 - Insulated Water Lines
 - Milk Cooler Heat Used for Water Heating
 - Fuel: Electric, Natural Gas, Propane, Fuel Oil
 - Solar Assist for Water Heating
- **Heating**
 - Check for Air Leaks
 - Weatherproof Windows
 - Areas Not Adequately Insulated
 - Need Ideas for New Construction
- **Lighting**
 - Incandescent: Mercury Vapor - Low Efficiency
 - Sodium Lamps - Outside/High Clearance Bldgs
 - Metal Halide - High Clearance Bldgs
 - Fluorescent Fixtures and Electronic Ballasts
 - Day-Long Lighting
 - Timers and Sensors
- **Vacuum Pump**
 - 3-Phase Motor
 - Single Phase Environment
 - Variable Speed Drive
 - High Efficiency Pump
- **Milk Cooling**
 - Plate Cooler
 - Heat Exchanger for Heating Water
 - Milk Cooler/Motor Heat Used for Heating
 - Compressors
- **Ventilation**
 - Fans in Free Stall Barn
 - Fans in Milking Area
- **Electric Rate From Utility**

Many farms can reduce their electric bill by changing to the most appropriate rate.

 - Do you know what rate you are on?
 - Is your house on the same meter with farm bldgs?
 - Do you also use 3 Phase Power?



Farm Energy Audit Sources

- Michigan State University Extension
- Michigan Agricultural Electric Council
- Biosystems and Agricultural Engineering Department – Michigan State University
- Agriculture, Food and Resource Economics Department – Michigan State University
- Michigan Milk Producers Association
- RETAP - Michigan Department of Energy, Labor and Economic Growth
- Great Lakes Energy
- Thumb Electric
- Detroit Edison
- Consumers Energy

Farm Energy Audit Program
 Room 120, A.W. Farrall Hall
 Michigan State University
 East Lansing, MI 48824-1323



MI Farm Energy Audit Program



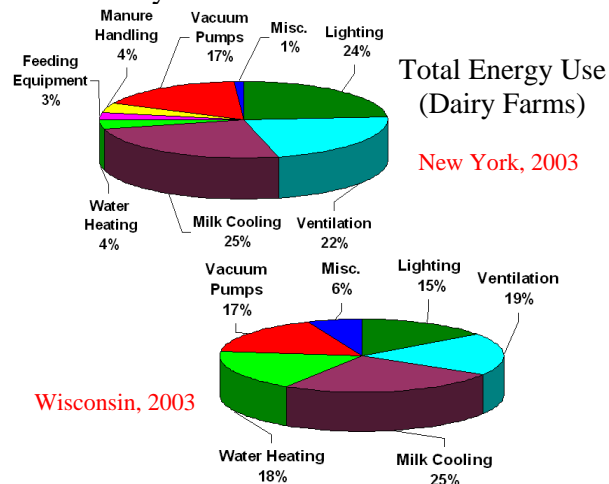
Farm Energy Audit Program – Dairy Farms

Farm Energy Cost

Michigan Dairy producers spent about \$91 per cow annually on energy. This comes out to an average annual utility cost of \$16,874 for Michigan Dairy farmers or an equivalent of \$0.46 per hundredweight (cwt.) of milk produced. That amounts to \$3 million dollars spent by commercial dairy farmers on energy (excludes fuel and oils).

Our recent experience with farm energy audits on Michigan dairy farms show a 30-40% potential energy efficiency savings with an average annual saving of over \$5,000. Similar savings could be expected for other farms enterprises and possibly more for farms with diesel irrigation and grain drying operations. Additional saving from reduced fossil fuel use can be further achieved with the incorporation of alternative energy options.

Energy use information from similar dairy states show the general breakdown of energy use on dairy farms.



Energy Audit Benefits

- ✚ **Practical solutions with projected costs, savings (from 10 to 40% or more), and payback information to help you make energy saving decisions.**
- ✚ **A certified farm Energy Audit report.**
- ✚ **Possible funding option review.**
- A farm energy audit is an essential mgt. tool in developing a comprehensive energy plan for agricultural operations.
- It is confidential report developed by a qualified farm energy auditor that identifies potential energy efficiency strategies and provides operational benchmarks to compare future energy investments.
- It provides information for implementation prioritization decisions based upon energy efficiency improvements, complexity, capital outlay, and payback
- It can improve operational efficiency and may pinpoint areas for reducing energy cost and energy use.

Certified Energy Audits are required to be eligible for State and Federal programs dealing with energy efficiency and conservation.

Requirements

- ✚ **Your time and cooperation.**
- ✚ **Farm access by the Audit team.**
- ✚ **Farm energy bills and energy usage.**
- ✚ **Equipment and facility technical information that can not be determined by the Audit team.**

The Program

This program aims to reduce energy use on Michigan farms while maintaining or improving overall productivity, safety and operator comfort.

The program is geared towards training, technical assistance, continuing education development for certified Michigan farm energy auditors and administration of the certification process

Its initial activities were limited to dairy farms but now the program has been expanded to greenhouse and other farm operations.

It is being coordinated by MSU Extension and MAEC and being implemented by the Departments of Biosystems & Agricultural Engineering and Agriculture, Food & Resource Economics.

The training program, technical materials and calculation tools were reviewed by USDA Rural Development and Natural Resources Conservation Service to be utilized through their REAP and CSP programs.



Any Questions? Call us at (517) 353-0643 or visit our web site at web5.anr.msu.edu/fa/