



Submits this

Farm Energy Audit Report

To:

**John and Jane Smith
Typical Dairy Farm
North End of Town
AnyTown, USA**

Administered for:

Conservation Security Program

February 8, 2008



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Typical Dairy Farm
John & Jane Smith
North End of Town
AnyTown, USA

Dear John and Jane:

Enclosed is your Farm Energy Site Assessment Report conducted and developed by EnSave, Inc., administered for the Conservation Security Program (CSP). For your convenience, we have also included an invoice for you to submit to your NRCS contact for reimbursement.

This report presents electrical and oil energy saving opportunities on your dairy facility. The energy savings estimates are based upon information gathered during the phone interview and therefore are as accurate as possible. However, changes in equipment operation, such as an increase in operating hours, may affect actual savings and payback results.

EnSave would be more than happy to work with you to provide more specific equipment recommendations, for an additional fee, in order to save you time and money in determining what types of energy-saving equipment would be best to install. However, by reading through our "*How To Get Started: Easy Steps to Achieving Energy Savings on Your Farm*" and the other references provided in the Resources section of this report, we know you will find them to be very useful if you decide to start saving energy and lower your annual operating costs.

Please contact me at (800) 732-1399 with any questions or comments regarding your report.

Sincerely,

A handwritten signature in black ink, appearing to read "Corey Conant".

Corey Conant
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Note:

- EnSave’s goal is to help our clients save energy and conserve natural resources on America’s farms and in food processing facilities. EnSave does not represent any equipment manufacturer or dealer.
- Energy savings presented in this document are estimates and are based upon information gathered during the process of conducting this energy audit. Actual savings may vary from estimated savings due to a variety of factors including changes in energy usage and energy costs.
- Equipment costs presented in this report are estimates and are based upon available pricing information. Actual costs may vary from estimated costs due to variables such as product availability and geographic location.
- Numbers presented in this document may not add up precisely due to rounding.

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CURRENT FARM OPERATION

Summary

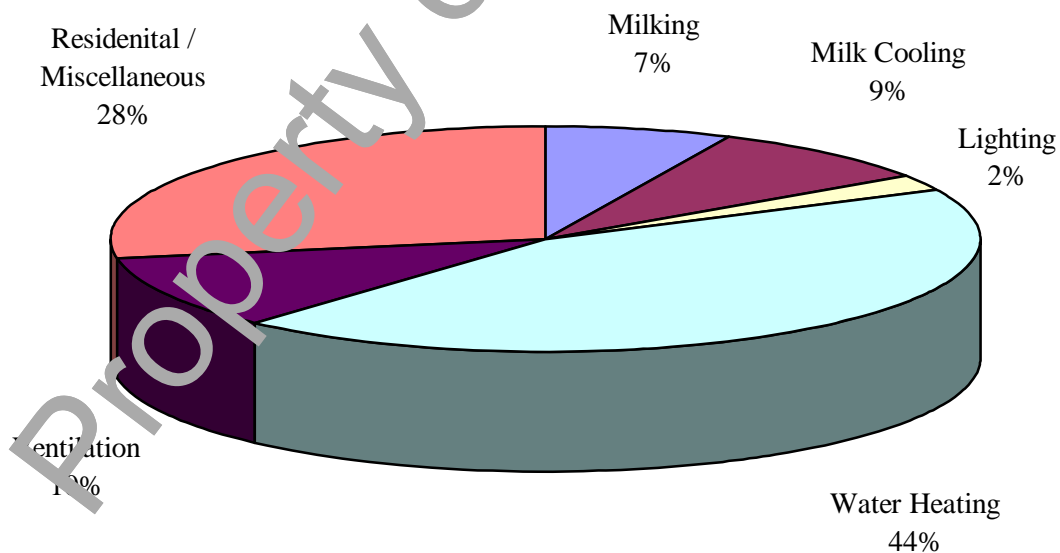
John and Jane Smith operate the Typical Dairy Farm, which is an 80-cow dairy farm that produces approximately 1,642,500 pounds (lbs) of milk per year. They have their milk picked up every other day and typically ship around 9,000 lbs per pick-up. John and Jane both participated in the data collection process for this report, and provided thorough information about their operation.

The Smiths currently hold a contract with the Natural Resource Conservation Service (NRCS) in the Conservation Security Program (CSP), to apply better land use and conservation management enhancement practices to their dairy farm operation. For more information about specific enhancement opportunities for Typical Dairy Farm, please refer to the References section of this report

During a recent twelve-month period, Typical Dairy Farm used approximately 71,995 kWh of electricity with a total cost of \$6,995, for an average electricity cost of \$0.097 per kWh. The farm also used approximately 837 gallons of oil with a total cost of \$1,748, for an average cost of \$2.09 per gallon. Here and throughout this report, an average cost per kWh of \$0.097 is used, and an average cost of \$2.09 per gallon of oil is used.

Figure 1 illustrates the end uses of the electricity and oil used on the farm, along with the residential and miscellaneous small end use equipment, such as rag washing machines.

Figure 1. Energy Use Breakdown



ENERGY EFFICIENT EQUIPMENT EVALUATION

Summary of Energy Saving Opportunities

This report presents energy saving equipment opportunities that Typical Dairy Farm should consider based on our initial conversations. Energy efficient equipment lowers usage costs by performing the same or greater work with lower energy inputs. Table 1 summarizes the benefits of installing more energy efficient milk harvesting, milk cooling, and water heating equipment, as well as lighting, ventilation, and motors. More details about specific equipment opportunities for each category can be found in the Resources section of this report.

The largest and most cost-effective energy saving opportunities seen below can be achieved with improvements made in the areas of water heating, lighting, and ventilation. It is generally not recommended to install or upgrade equipment with paybacks of greater than ten years, or that exceed the life of the equipment. We recommend working directly with your equipment dealers to go after and achieve the energy savings opportunities that are of most interest to you.

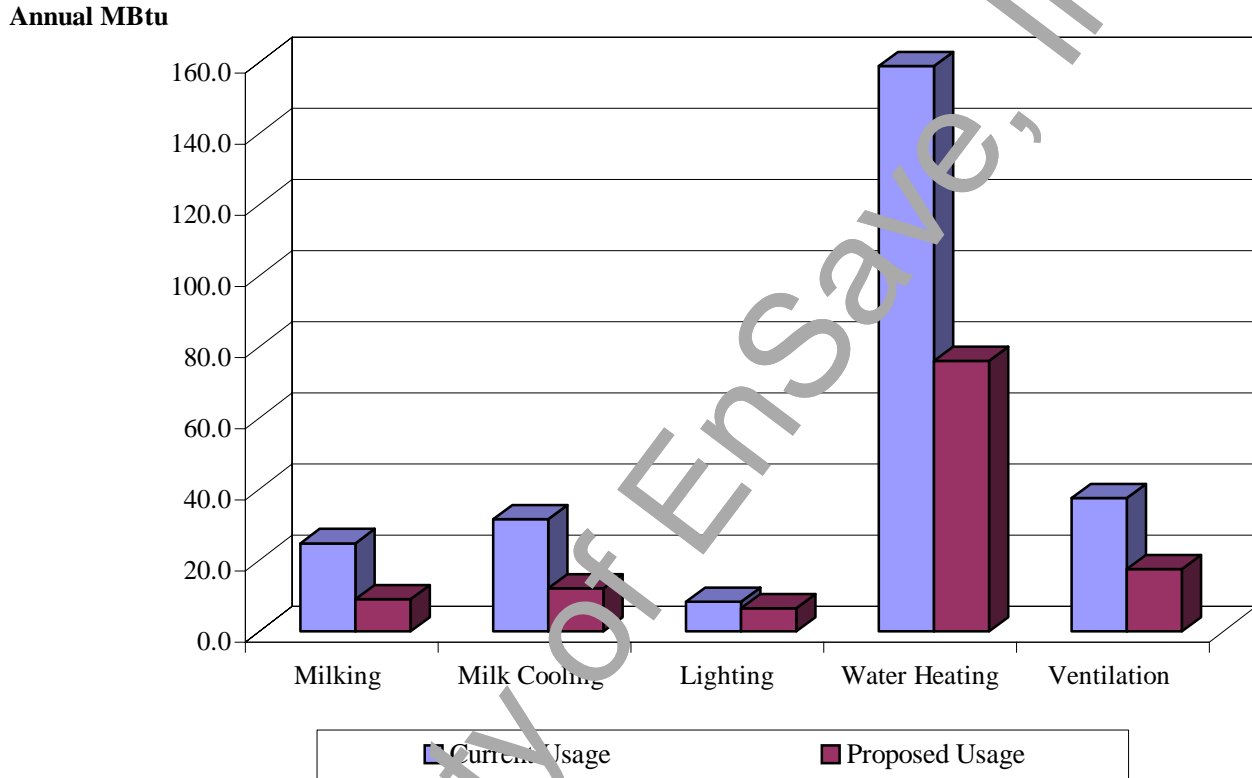
Table 1. Benefits of Energy Saving Opportunities

Equipment	Estimated Annual Electricity Savings (kWh)	Estimated Annual Oil Savings (gallons)	Estimated Annual Energy Cost Savings	Estimated Cost to the Farm	Estimated Payback in Years
1. Water Heating		577	\$1,246	\$2,750	2.2
2. Lighting	527		\$51	\$420	8.2
3. Ventilation	5,862		\$569	\$4,450	7.8
4. Milking	4,627		\$449	\$8,500	18.9
5. Milk Cooling	7,689		\$552	\$12,750	19.2
6. Motors	1,145		\$111	\$8,170	73.5
Totals	7,851	597	\$2,977	\$30,040	12.4

Current vs. Proposed Energy Use

To effectively illustrate the comparison of the current energy use versus the proposed energy use, after upgrading or installing more energy efficient equipment, we have converted the total electric and the oil usage to millions of British thermal units (Btu). In Figure 2 below, the largest energy saving opportunities for Typical Dairy Farm is presented.

Figure 2. Comparison of Current and Proposed Energy Use



Conversion Factor: A single kWh is equivalent to 3,413 Btu, and one gallon of oil is equivalent to 139,000 Btu.

RESOURCES

The following resources provide additional information on ways to save energy at your facility. (This is a partial resource listing. The full list was included in the original audit, and hard copies were sent along with the final report.)

1. *How to Get Started: Easy Steps to Achieving Energy Savings on Your Farm*, published by EnSave, Inc.
2. *Variable Speed Drive for the Milking Vacuum Pump*, published by EnSave, Inc.
3. *Variable Speed Drive for the Milk Pump*, published by EnSave, Inc.
4. *Milk Pre-Coolers*, published by EnSave, Inc.
5. *Scroll Compressors on the Dairy Farm*, published by EnSave, Inc.
6. *Dairy Farm Lighting*, published by EnSave, Inc.
7. *T-8 and T-5 Efficient Fluorescent Lighting*, published by EnSave, Inc.
8. *Compressor Heat Recovery Units*, published by EnSave, Inc.
9. *Dairy Ventilation*, published by EnSave, Inc.
10. *Energy Efficient Fan Ranking Guide: Ventilation Fan Simple Payback Calculator, Page 3*, published by EnSave, Inc.
11. *Energy Efficient Fan Ranking Guide: 24-26" Three Phase / Non-Exhaust Fan Test Results, Page 38*, published by EnSave, Inc.
12. *Energy Efficient Fan Ranking Guide: 36" Three Phase / Non-Exhaust Fan Test Results, Page 39*, published by EnSave, Inc.
13. *Mercury Concerns on the Farm*, published by EnSave, Inc.
14. *NEMA Premium[®] Motors*, published by EnSave, Inc.
15. *Best Practices Guide: Energy Savings for Your Dairy*, published by EnSave, Inc.