



# Utah

## Office of Energy Development

### CASE STUDY

## Utah Dairy Sees Opportunity to Cut Energy Use by 22 Percent

**B**rian Hardy is a fourth-generation dairy producer who milks 2,000 cows at three farms in Northern Utah. He is a well-known fixture in both the Utah and national dairy industries, currently serving on the board of directors for Dairy Farmers of America and the National Milk Producers Federation.

Brian's volunteer positions within dairy organizations speak to his commitment to the industry as a whole and his concern for other dairymen. Naturally, it makes sense for Brian to take steps to make his dairy as profitable as possible and set an example for other producers.

With many expenses on the dairy farm outside of his control, Brian knows that cutting energy costs is a

good way to improve the bottom line. That's why he decided to sign up for an Agricultural Energy Management Plan (AgEMP) to learn how to better manage his energy costs for his 450-cow Little Mountain Dairy.

Brian had already taken care of many energy efficiency improvements on this 30-year old dairy farm. He uses a variable speed drive on his milking vacuum pump, a plate cooler, and T-8 fluorescent lighting in many areas, all of which help his farm use less energy.

Even with this equipment in place, the AgEMP uncovered opportunities to save about \$7,000 per year on Little Mountain Dairy's energy costs—about 22 percent of the overall energy bill.

The USDA Natural Resources Conservation Service (NRCS) offers financial assistance for the AgEMPs as well as implementation of recommended measures, making it easy for producers to discover and install energy efficiency improvements.

AgEMPs are funded by NRCS and performed by qualified Technical Service Providers—energy experts familiar with farm energy auditing.

**To participate, farmers should contact their local NRCS service center to sign up for funding.**

*Technical Service Provider EnSave, Inc. made several recommendations for cost-effective energy efficiency improvements, as shown below.*

Measure	Electricity Savings (in kWh)	Propane Savings (in MBtu)	Installed Cost	Annual Energy Cost	Estimated Payback (in Years)
Lighting	15,506	—	\$3,730	\$1,427	2.6
Hot Water (Compressor Heat Recovery)	—	2,432	\$12,000	\$4,529	2.7
Other Motors and Pumps (Chiller Pumps)	2,369	—	\$600	\$218	2.8
Air Heating & Building Environment (Radiant Heater)	—	178	\$1,674	\$332	5.0
Refrigeration (Milk Transfer Pump Variable Speed Drive)	6,804	—	\$8,560	\$625	13.7
<b>TOTALS</b>	<b>24,679</b>	<b>2,610</b>	<b>\$26,564</b>	<b>\$7,131</b>	<b>3.7</b>

# ENERGY EFFICIENT CHANGES FOR LITTLE MOUNTAIN DAIRY



## BEST PRACTICE:

### 1 Compact Fluorescent Lighting

T-8 and light emitting diode (LED) lighting have a longer lifespan and greater efficiency than mercury vapor and metal halide lighting.

## BEST PRACTICE:

### 2 Compressor Heat Recovery

Compressor heat recovery units use heat recovered from the refrigeration system to pre-heat water before it enters the water heater.

## BEST PRACTICE:

### 3 Air Heating and Building Environment

Replacing a hot air space heater with a more energy efficient radiant heater will generate the same amount of heat using less energy.

## BEST PRACTICE:

### 4 Milk Transfer Pump Variable Speed Drive

A variable speed drive for the milk transfer pump provides a steady flow of milk through the plate cooler, optimizing the energy efficiency of the milk cooling.

## BEST PRACTICE:

### 5 Other Pumps and Motors

The farm could replace the chiller pump motor with a motor meeting the NEMA Premium® standards.



*The AgEMP identified ways to save about \$7,000 on the farm's energy bill.*

	Current Status	Energy Savings	Current Cost	Cost Savings	% Savings
Annual electricity use (kilowatt hours)	204,100 kWh	24,679 kWh	\$18,369	\$2,271	12%
Annual propane use (gallons)	7,639 gallons	2,611 gallons	\$14,208	\$4,860	34%

“Energy audits are a good opportunity for dairy producers to learn how to reduce their energy costs, and it’s great that programs now exist for farms to get help paying for a high-quality audit.”

— UTAH DAIRY FARMER