

# ENERGY WISE

for your Business



**Your farm is your business. We treat it that way as well. The commercial programs at [\[your electric coop\]](#) can be applied at your farm just like any other business. The least expensive, quickest, and easiest way to save money on your farm (including the home residence) is by using energy efficiently.**

## AGRICULTURAL

Prescriptive and custom rebates are available to members for the installation of efficient equipment.

Prescriptive rebates are available for, but not limited to:

- Agricultural audit
- Dairy free heater
- Dairy plate cooler
- Irrigation VFD
- LED lighting
- Robotic milking system (RMS)
- Ventilation Fans

### Agricultural Audit

- On-Site Audit – In-person walk through of site to identify energy efficiency opportunities; documented in a written report. \$1,000 member cost.
- Agriculture Energy Management Plan (AgEMP) – targeted to sites interested in applying for USDA Rural Energy for America Program grant and USDA Equipment grant.

### Dairy Free Heater

A heat exchanger is installed on the bulk tank refrigeration system. The heat exchangers recover waste heat from refrigeration compressors, resulting in pre-heated water for cleaning and sanitizing milking equipment.

- Reduces cost of heating water by using waste heat from the refrigeration system.
- Increases water temperature recovery time.

### Dairy Plate Cooler

Milk cooling is the largest energy expenditure on a dairy farm and is vital to milk quality. A dairy plate cooler pre-cools warm milk before it enters the bulk tank by utilizing a heat exchanger that extracts heat from the milk using cool well water. When the pre-cooled milk enters the bulk tank, the refrigeration compressor finishes cooling the milk.

- The dairy plate cooler reduces run time on the refrigeration compressor, saving energy and money.
- If a refrigeration compressor is operating near maximum cooling capacity, adding a less expensive plate cooler could increase cooling capacity and increase total milk production.

### Irrigation VFD

Pivot field irrigators installed with a variable frequency drive (VFD) can provide varying motor horse power based on variable well water tables. Higher water tables require less horse power to pump water for irrigation.

- VFDs ramp the motor up and down to optimize horse power requirements for pumping water; saving energy and money.
- Additional non-energy saving benefits include soft start motors to prevent start-up voltage spikes and reduce wear and tear on the motor.

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# The least expensive, quickest, and easiest way to save money on your farm is by using energy efficiently

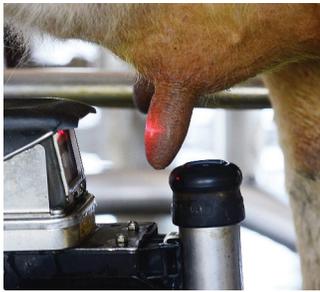
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## LED lighting

Extended daylighting hours using LED lighting increases milk and livestock output. Manipulating lighting availability to increase production has been used for decades and research consistently reveals favorable results. High efficiency lighting makes this strategy operationally affordable while positively impacting productivity.

- Reduced operating costs – LED lighting reduces energy use and costs with minimal maintenance.
- Increased production – Extended daylighting hours improves heifer growth and milk production, increases hog piglet suckling and food intake in growers/finishers, and poultry growth and egg production resulting in increased revenue.

## Robotic Milking Systems (RMS)



Robotic milking combines a milking stall, computerized milking machine, robotic arm assembly, milking pump, teat identification, cleaning equipment, steam cleaning, and a feed dispenser all in one stall. A central processing unit tracks data from each milking session to interface

with herd management. The system also provides updates or alerts to the farmer. Each stall can milk an average of 55-65 cows per day.

- Information and connectivity – a RMS offers highly advanced data monitoring and communication capabilities to keep farmers informed on each cow's health, feeding, and milk production status.
- Increased milk production – cows are able to choose when to milk based on comfort levels and feeding patterns, which results in optimized milk production through customized feeding and milking schedules.
- Efficient labor management – the cost and time associated with managing employees can be cumbersome. Farmers can reduce milking labor by up to 70%, with the use of a RMS.
- Improved quality of life – With RMS, workers have less stress on the back, knees, wrists, and hands. This affords farmers a more flexible schedule.

## Ventilation Fans

Dairy and livestock farms utilize ventilation fans to control air quality and comfort.

- Air quality control improves oxygen levels, moisture, odors, and temperature, while eliminating airborne contaminants and disease.
- Automated ventilation controls optimize fan speeds and run time based on weather conditions to reduce operating costs.

## Custom Projects

Custom projects require pre-approval and will follow the custom project rules. Custom project examples include, but are not limited to:

- Livestock water heaters
- Engine block heaters
- Diesel to electric motor conversion
- Hog farrowing heated mat with growth cycle controls

## How does it work?

Meet with your cooperative's energy expert to set up a plan and they will recommend the best actions to make your farm more energy efficient.

Rebate overview:

Equipment Type	Rebate Amount
Dairy free heater	Varies based on unit size
Dairy plate cooler	Varies based on unit size
Irrigation VFD	Rebate – \$10/HP
LED lighting	Varies
Robotic milking system (RMS)	\$5,000/stall
Ventilation fan	\$15/Exhaust fan, \$25/circulating fan \$400/High volume/ low speed (HVLS)

## CONTACT US

If you have any questions or need assistance in making these savings a reality for your business; please contact your local energy expert at your electric cooperative.