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SAVING BIG DOLLARS ON ENERGY

*New OnFarm Energy Efficiency Program helps
livestock producers save multi-thousands every year*

Think on-farm energy efficiency is a minor issue? Consider this: for many livestock operations, a mere one percent improvement in energy efficiency means \$1,000 extra every year. Ten percent means \$10,000 and 20 percent means \$20,000.

The surprising thing is, a lot of these savings are right there for the easy taking, but not many producers realize just how big the opportunity is to keep more energy dollars in their wallets. As a result, many are missing out on multi-thousands of dollars every year.

“It’s just not something they think about a lot and the opportunity isn’t always obvious. But if they found out how quickly and how big they could save, many of them would be kicking themselves for not taking advantage of those savings sooner,” says Jason Price, a Project Manager with Agriculture and Rural Development.

Savings of \$10,000 to \$20,000 per year or more are well within reach for many operations, says Price. Large operations can double or triple those numbers. “Improving energy efficiency is one of the simplest ways for producers to quickly fatten their bottom line.”

Program available to producers

The challenge is the best ways to improve energy efficiency are not always clear, he says. That’s where a new program is available to help.

The OnFarm Energy Efficiency Program is a program designed by agricultural engineers that is now available to dairy, swine and poultry operations in southern Alberta. ...continued on page 2

Producers in the SouthGrow region can apply for an on farm subsidized energy assessment by contacting Debbie Campbell with Agriculture and Rural Development, by phone at (403) 329-1212 or by e-mail at debbie.campbell@gov.ab.ca. Further information is also available online at the OnFarm Energy Program Web site, www.onfarmenergy.ca.

Alberta

“Improving energy efficiency is one of the simplest ways for producers to quickly fatten their bottom line” – Jason Price, Alberta Agriculture and Food

...continued from page 1 – The program was developed by Climate Change Central, Agriculture and Rural Development’s AgTech Centre and Alberta Advanced Education and Technology.

It is currently in a pilot phase, with 100 spots available on a first come, first served basis to local producers. The program involves an on-farm energy assessment by qualified experts who then provide the producer with cost-saving information and recommendations.

The regular cost of the assessment would be \$1,800. But because the OnFarm program is a not-for-profit venture subsidized by program sponsors, producers pay only \$200. That \$200 goes directly toward a customized report that producers receive with cost-saving information for their operation.

“The \$200 is an outstanding investment for the producer,” says Rick Atkins of the AgTech Centre. “It’s a small token of the assessment cost and ultimately goes toward improvements that can save thousands upon thousands every year.”

Payoff in the details

The key to identifying options to improve energy efficiency is understanding energy costs at a more detailed level, says Darryl Slingerland, a Project Manager with AgTech Centre. “There’s a lot more to it than what shows up on an electricity bill or natural gas bill.”

Producers need to see not just what they’re spending overall, but to have a detailed list of the many specific energy uses and costs that add up to that total, he says. “The energy assessment provides that detail.”

Information produced by the assessment includes kilowatt hours for electricity used, gigajoules for natural gas used, litres for gas and diesel fuels used, and additional figures for alternative energy used.

Information also includes detailed breakdowns of the specific “energy eaters” behind those totals. Ten system categories analyzed in the breakdowns include lighting, ventilation, space heating, water heating, water pumping, feed, manure, milking, eggs and other.

In addition, the assessment provides detailed observations of factors specific to an operation that may be affecting energy efficiency, along with recommendations for improvement.

“The idea is you can’t manage what you don’t measure,” says Slingerland. “The assessment provides the measurements to show producers exactly how they are using energy. That combined with the recommendations provides a basis for the producer to make management decisions to reduce energy use.”

Quick and easy process

Once producers sign-up for the program, they receive a phone call to set up an appointment for an OnFarm energy assessment, which takes a half day to a full day, depending on the size, equipment and processes of the operation.

Once the assessment is finished, a report is produced and typically delivered back to the producer within eight weeks.

There is no requirement to act on the report and all individual reports are kept confidential, says Slingerland. “What producers do with the information is up to them.”

For producers who choose to implement energy efficiency measures, there are typically many short and long-term options outlined in the report.

“The report identifies ‘low hanging fruit’ – the simple things that can be done quickly to make a big improvement,” says Price. “It also identifies other options for reducing energy use that producers can implement over time. As a result, producers participating in the program have an opportunity to make big cost reductions right away and then make further reductions at a pace that makes sense for their situation.”

Tested, tailored protocols

The program is based on tested protocols that include tailored measurements and approaches for each type of operation – dairy, swine or poultry. “Each type of operation is different, so it’s important the program recognizes those differences, in order to get accurate results and practical recommendations,” says Price.

The program is also designed to capture the judgment of knowledgeable program delivery agents, who can make assessments based on scenarios that are not easily measured, says Slingerland. “The program really covers all the bases.” ♦

Reducing energy costs also means reducing emissions – a ‘win-win’ for producers and their industry.

Quality process, quality people

Delivery agents for the OnFarm program are experienced energy assessment people from companies such as Atco or engineers with experience in agriculture or other fields. All complete an intensive training program, designed as a four-day workshop, to ensure they understand everything they need to know about the program and the environment they will be working in.

Along with program details, assessors are educated on agricultural practices and important work environment considerations such as biosecurity. Resources at the AgTech Centre are also used to educate program delivery agents on details of agricultural equipment and processes.

One of the clear goals is to build supporting industry capacity into the program. “We want not only to have the experienced assessors do the evaluations but also to have the manufacturing sector support it,” says Atkins.

SLASHING COSTS

Simple improvements add up to major savings

So how much can producers save? The short answer is, “a heck of a lot,” says Jason Price, an Agriculture and Rural Development Project Manager working on the OnFarm Energy Efficiency Program.

“You don’t need a gaping hole in the wall to have an energy efficiency problem,” says Price. “Most operations look relatively efficient, but when you start to look at the details, it doesn’t take long to see lots of room for improvement.”

Fellow Project Manager Darryl Slingerland of the AgTech Centre agrees: “Advances in lighting and equipment alone have changed dramatically. If your operation is more than a few years old, chances are there are major improvements you can make that mean big savings. Even new operations can make substantial improvements.”

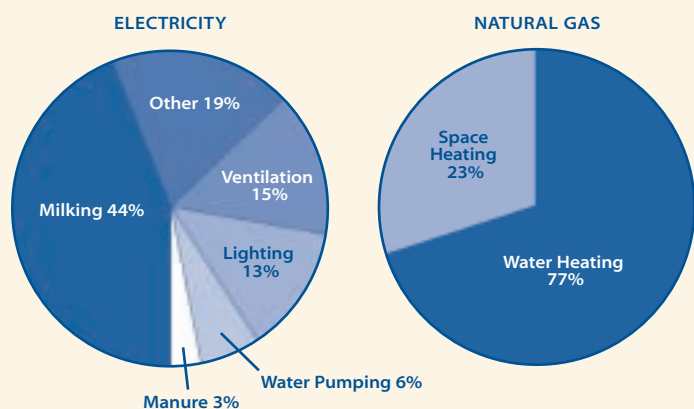
The following charts and tables offer a sample of energy use and saving opportunities for typical dairy, swine and poultry operations. Every operation is unique so it’s important producers get their own assessment done, but these examples provide an idea of the type of savings that can be realized.



Dairy Example

Sample 100 cow dairy operation

Where the energy goes



Saving opportunities

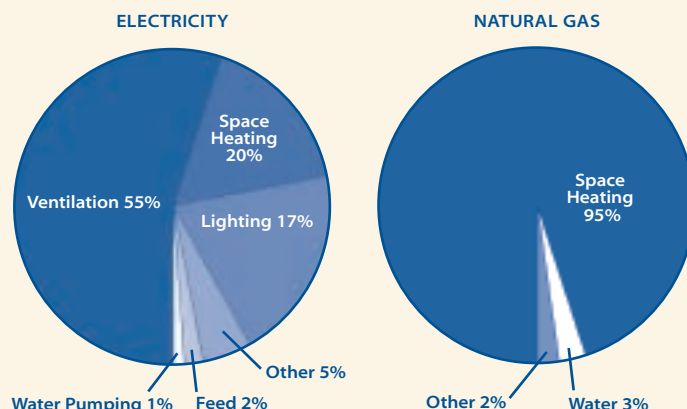
THE FIX	COST SAVINGS	EMISSIONS REDUCTION ¹
Use variable speed drives	20% off electric or \$2,000 to \$4,000	7 tonnes
Switch fluorescents from T12 to T8	10% off electric or \$1,000 to \$2,000	3-4 tonnes
Recover milk-cooling heat	15% off electric or \$1,500 to \$3,000	5 tonnes
Total:	\$4,500 to \$9,000	

AgTech Insight. Darryl Slingerland: “Dairy operations are big users of electricity. Small reductions in electricity add up because it’s relatively expensive. Decreasing electricity also makes a significant impact on emissions because most of Alberta’s electrical energy comes from coal.” Jason Price: “One of the key opportunities is to recover milk-cooling heat. Operations can be set up so that incoming cold water on its way to be warmed runs past warm milk that’s on its way to be cooled. The heat will transfer out of the milk, into the water, reducing water heating cost.”

Swine Example

Sample 500 sow farrow to wean operation

Where the energy goes



Saving opportunities

THE FIX	COST SAVINGS	EMISSIONS REDUCTION ¹
Natural ventilation for growers	60% off electric or \$4,500	35 tonnes
Switch fluorescents from T12 to T8	10% off electric or \$1,000 to \$2,000	6 tonnes
Correct settings on boilers, heaters	10% off gas or \$3,000 to \$8,000	5 tonnes
Solar wall space heating	10% off gas or \$3,000 to \$8,000	5 tonnes
Total:	\$11,500 to \$22,500	

AgTech Insight. Jason Price: “Natural ventilation has a lot of advantages. Instead of having walls and relying on a number of fans, each operating at about 0.5 horsepower, curtains that are moved by a few little actuator motors with temperature sensors are used, which operate at about 1/20 horsepower. This is a newer concept and the operators we’ve seen with this system are thrilled with it. They get better air transfer, which means fresher air, and a substantial cut to their energy bills.”

¹Emissions reductions are decreases in air pollutants including greenhouse gases, hydrocarbons, particulate matter and volatile organic compounds. One tonne equals about 556 cubic metres of carbon dioxide.

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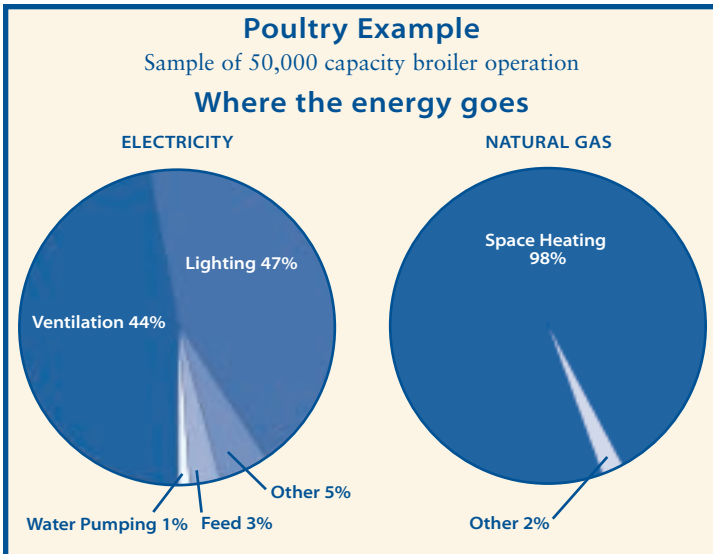
AgTech Centre projects aim to get producers more bang for their energy bucks

The current pilot version of the OnFarm Energy Efficiency Program is just one element of a broad approach that Agriculture and Rural Development's Agriculture Stewardship Division, which includes the AgTech Centre, has undertaken to support the agriculture industry with new energy saving solutions, says Rick Atkins of the AgTech Centre.

Key initiatives underway and on the horizon include:

- Completing 100 subsidized assessments under the current OnFarm Efficiency Program pilot project, for dairy, swine and poultry operations in the SouthGrow region.
- Expanding the program to address irrigation and beef feedlot operation needs.
- Establishing a regional network to provide equipment, supplies, services and financing required for long-term uptake of energy efficiency improvements on farms.
- Offering the program to more areas of the province.
- Continuing to build on efforts to evaluate energy-saving technologies and approaches.
- Expanding efforts to provide consulting services on energy efficiency to producers, as well as consulting and testing services to manufacturers and entrepreneurs.
- Strengthening focus on alternative energy options.
- Continuing to blend solutions that address both agriculture's energy footprint and environmental footprint.

"As an Agriculture Stewardship Division, one of our key focuses will be looking at the technologies and knowledge that are emerging in the area of energy, and providing services to help the industry understand what these innovations mean to them and what kind of payback they may expect," says Atkins. "This includes working directly with some of the innovators to help develop and commercialize their ideas." ♦



Saving opportunities

THE FIX	COST SAVINGS	EMISSIONS REDUCTION ¹
Use cold-cathode lighting	30% off electric or \$2,400 to \$4,800	21 tonnes
Solar wall space heating	10% off gas or \$2,500	30 tonnes
Correct settings on boilers, heaters	5% off gas or \$1,250	15 tonnes
	Total: \$6,150 to \$8,550	

AgTech Insight. Jason Price: "In a poultry barn, space heating is a huge cost. If we improve heating efficiency by only 1 percent, that's a thousand dollars saved. Differences in furnaces and boilers go from 60 percent efficient for older ones, up to 95 percent efficient for new ones, so producers who upgrade could realize savings of \$30,000 to \$35,000 per year." Darryl Slingerland: "Lighting requirements for poultry are specialized because you need good dimming capacity. The compact fluorescents normally prescribed to increase efficiency aren't quite up to par with dimming capacity yet, unless you go to these new cold cathode ones that we're recommending. It's brand new technology that can mean a strong cost reduction."



Top five hidden energy eaters

1. Maintenance and cleanliness
2. Water heating
3. Electric motors
4. Insulation levels and heat loss
5. Ventilation fans and heat loss