Ontario Power Authority

Electricity conservation on ONTARIO FARMS

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Controlling energy costs in a down farm market

For Ontario pork producers, the high Canadian dollar, rising fuel costs and an oversupply of hogs have severely cut farm incomes.

"It's been really bad for the past two years," says southwestern Ontario pork producer Ben Debrouwer. A number of factors conspired at once to cause the economic downturn, says Ben, citing steep increases in feed costs – sometimes as much as a three- to four-fold jump; a 30-percent increase in the Canadian dollar; and "too many pigs in the world, especially in North America."

Ben and his wife, Patricia, and their family operate a 500-sow, farrow-to-finish farm business, in addition to growing tobacco and cash crops on 500 acres of land in Chatham-Kent County. About 70 percent of their business income is derived from hog production, and they send 8,000 to 9,000 hogs to market every year.

The Ontario Power Authority visited the Debrouwers recently to learn first-hand how energy conservation measures and the OPA's Electricity Retrofit Incentive Program (ERIP) fit into the farm's overall business strategy in this tough economic market.

Pork producer Ben Debrouwer (far left) discusses energy conservation with the OPA's (l. to r.) Victoria Gagnon, Sandy Yuen and Terry Rothwell.

"Controlling your costs is important in running your business, but cutting costs is only one part of the equation," Ben says. "Just cutting costs is easy – anyone can do that.

"You also have to have production. There has to be a balance. You have to maximize production from your assets. You have to get a return on your investment," he says.

The balancing of cost control, maximizing production and maximizing the value of the assets (land, buildings and animals) has come into play as the Ontario pork market has dropped.

"With the costs going up almost every month, we started looking more closely at more ways to save energy. But it takes time to test new equipment to see how it works. This is a pretty harsh environment."

By making the hog operation more energy efficient to reduce costs, the Debrouwers have been able to take advantage of the OPA's ERIP, available through their electricity supplier, Hydro One.

Ben learned about the program from his local farm-equipment dealer while he was looking at replacing old ventilation fans with new energy-efficient models. After hearing that the farm also was eligible for additional incentives under ERIP if energy-efficient heat pads, lighting and computer controls were installed, he decided to invest in an integrated system. The computer controller monitors and adjusts the energy use of the fans, room heaters, and heat pads, and regulates the dietary water supply for the stock.

"If you're going to replace one, you might as well do everything else at the same time. You achieve even more energy savings," Ben says.

"What the program does is make you aware of what's available to help reduce your energy costs. It helps tie everything together – lights, heating pads, computer controls – in one package. It makes a difference."

Through ERIP, the Debrouwers replaced six ventilation fans, installed 22 heat pads and replaced about 200 lights, as well as installing the computerized controls.

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Energy costs in down farm market

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Ben estimates that total farm electrical costs – which were about $4,000 a month – have dropped by about 10 percent. The estimated direct electricity cost per pig at Ben and Patricia's Diamond D farm is $3.40.

The new equipment is not only about dollars and cents. "I didn't just replace the mats. I think it's better for the animals. We get a little better improvement in production along with a bit of lower cost," Ben says.

The current downturn in the pork market has been less severe at the Debrouwer farm than at other Ontario farms because the Debrouwers grow their own feed. "Feed costs have been a big factor in pushing down farm revenues."

Details of the ERIP incentives are available at www.everykilowattcounts.com/business or at the Hydro One website, www.hydroonenetworks.com.

But Ben has no illusions about where energy costs are going. "I expect to see energy costs in Ontario going up – double, triple, quadruple – in not that long a time. It (electricity) could cost $10 to $12 per pig in a short period of time if we don't do something."

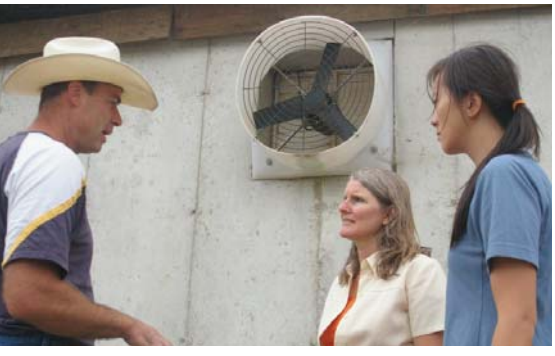
He sees the solution to rising costs in conserving resources and increasing the farm's self-sufficiency.

Because hog production uses a lot of water, the Debrouwers have concentrated on conservation. These efforts have included installing wet-dry feeders to reduce the amount of water spilled when the animals drink, pressure reducers on the water line and, most recently, water bowls.

Another conservation measure Ben is considering is geothermal power generation, which uses the energy generated by heat beneath the earth's surface.

Since the Debrouwers installed their energy-efficient equipment last year, the ERIP has been expanded to include incentives for alternative energy measures, including ground source (geothermal) heat pumps.

"We've got the land, and I know we can generate the energy from the ground. The challenge is to distribute the energy into the barns," he says.



(L. to r.) Ben Debrouwer, Victoria Gagnon and Sandy Yuen at the Debrouwers' Diamond D farm near Chatham.

Natural ventilation – a healthy and cost-effective choice

For farmers considering building a new barn, naturally ventilated barns meet two of the most important criteria for raising livestock – a healthy and productive environment and lower energy costs compared to a traditional closed barn.

Under the Ontario Power Authority's High Performance New Construction program, Ontario farmers building new barns with natural exhaust ventilation are eligible for financial incentives. The incentives are also available for energy-efficient lighting and high-volume, low-speed (HVLS) recirculation ventilation fans.

Glen MacArthur, a poultry farmer in Oxford County, estimates that based on his operating experience with both the naturally ventilated barn and closed barn, his costs for the naturally ventilated barn are about one-half the cost of a electrically ventilated closed barn of about the same size and with a similar number of birds.

He built a new, 12,800-square-foot, naturally ventilated building in 2006.

"Unless the feed system is operating, the naturally ventilated barn isn't using any hydro," he says. His lighting costs are also low, largely because of the amount of natural light coming into the barn. Glen produces about 40,000 chickens for each quota period.

The High Performance New Construction program is funded by the OPA and administered across Ontario by Enbridge Gas Distribution and Union Gas. Details about the program are available at **www.hpnc.ca**.

Ontario turkey farmer Bill Revington, who built two 26,000-square-foot grower barns to lower energy costs and ensure a healthy growing environment for thousands of birds, echoes Glen's view of naturally ventilated barns.

He wanted to save energy and reduce the number of bird losses from airsacculitis, he explains. "The logical choice was to start looking at a naturally ventilated, curtain-sided barn. This is not a new concept. It is used in other places. In the U.S., it tends to be the design of choice."

By 2007, two years after the naturally ventilated barns were built, more than two million kilograms of turkey have been produced in the new barns, and the results have more than met the original expectations, he says.

"We're losing far fewer birds due to airsacculitis, and our energy costs are way down."

Glen MacArthur and Bill Revington were featured in previous editions of *Electricity Conservation on Ontario Farms.*

Energy-saving incentives for Ontario farms

The Ontario Power Authority's Electricity Retrofit Incentive Program (ERIP) has been expanded to include incentives for installing dual natural ventilation systems. Dual systems use a combination of exhaust fans and natural ventilation.

The new ERIP incentives are available for livestock operations and greenhouses.

A dual natural ventilation system uses exhaust fans to control airflow in cold months and open side-panels to provide ventilation in warm months. The specific amount of incentive is based on the number of animals or birds in an existing barn or the total space in the case of greenhouses.

The ERIP is designed to encourage farmers and agricultural businesses, as well as other sectors of the Ontario economy (commercial, institutional and commercial), to conserve energy by replacing old lighting, heating and cooling systems with new energy-efficient technology. The program is administered though local distribution companies (LDCs) across Ontario.

Ontario farmers submitted more than 20 percent of the nearly 250 applications received by Hydro One between January 2007 and June 2008 for financial incentives under the OPA-funded program. Applicants from the farming community received more than $132,000.

The majority of the applications were for lighting replacement, according to Hydro One, whose distribution area includes most of Ontario's farming communities. The next largest categories were motors and pumps.

The incentives from all economic sectors ranged from $300 to $300,000, depending on the size and scale of the specific retrofit project, according to Jennifer Tidmarsh, segment manager, conservation and sector development for the OPA.

"The objective of the province-wide ERIP is to reduce electricity usage by 100 megawatts by the end of 2010," Tidmarsh says. "We exceeded our 2007 target and are on target for 2008."

"Working with our LDC partners, the ERIP is helping deliver energy cost savings for individual Ontario farm families, as well as for the citizens of the province."

Details about the ERIP are available at **www.everykilowattcounts.com.**

Under the OPA's High Performance New Construction (HPNC) program, Ontario farmers building new barns are also eligible for financial incentives when installing natural ventilation systems, energy-efficiency lighting and other energy-savings technologies.

Details about the HPNC program can be found at **www.hpnc.ca**.

Electricity conservation on Ontario farms is produced by the Ontario Power Authority to provide information about energy conservation and efficiency and innovative applications to help Ontario farmers better manage their electricity costs. This publication, available online at **www.powerauthority.on.ca**, examines a variety of technologies and best practices that improve farming operations and reduce energy costs. Your comments and suggestions are welcome. To have your name added to the mailing list, send an e-mail note to info@powerauthority.on.ca.