

# Electricity conservation on **ONTARIO FARMS**



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## **WESTBROOK GREENHOUSES BALANCES ENERGY COSTS AND CROP PRODUCTION**

**With over 30 acres of production area for growing flowers in four greenhouses, a corporate office, a refrigerated 80,000 square-foot warehouse and a distribution centre, lighting is critical to the Niagara Peninsula's Westbrook Greenhouses Ltd.**

"We've over 5,000 high-intensity discharge fixtures alone," says Westbrook's Russ Lowden, who oversees the electrical requirements of the flower and greenhouse manufacturing business, which has facilities in Beamsville and Grimsby.

The company has just completed a major lighting replacement and installation project for its warehouse. The project saw nearly 300 400-watt metal halide lamps replaced by an equal number of energy-efficient four-lamp T5 fixtures.

The result in both improved lighting and lower electricity cost has been impressive, says Russ. "Energy costs were reduced by 40 percent, and the lighting output (efficiency) more than doubled."

The change to T5 fixtures resulted in a 60-kilowatt (kW) reduction in power demand and saved 152,000 kilowatt-hours (kWh) of electricity per year for each shift of operation. Based on a monthly demand cost of \$5.30/kW and an energy cost of about 7.7cents/kWh, this changeover represents an annual savings of more than \$15,000.

For its initial lamp replacement and installation project, Westbrook is eligible for an incentive of about \$8,850 under the Ontario Power Authority's Electricity Retrofit Incentive Program (ERIP). In the next phase of the replacement program, Westbrook will be replacing another 150 400-watt metal halide lamps with an equal number of four-lamp high-bay T5 fixtures by end of the year.

Grimsby Power's Sean Perry, who worked with Westbrook in developing the ERIP application for the first phase of the lighting improvement, says there are more opportunities within the company's large operation for additional incentives under the OPA program.

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**Discussing energy costs at Westbrook Greenhouses were Westbrook's Russ Lowden (l.) and Rej Picard (c), consultant Terry Rothwell (2nd from left), the OPA's Victoria Gagnon (2nd from right), and Sean Perry (r.) from Grimsby Power.**



## Westbrook Greenhouses balances energy costs and crop production

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The OPA's  
Victoria Gagnon  
with Westbrook  
CEO Rej Picard.

The financial return on the T5 investment – about \$35,000 – was sufficient to warrant the technical upgrade to T5s, says Rej Picard, Westbrook's Chief Executive Officer and chair of the Ontario Greenhouse Alliance. "The greenhouse industry is extremely competitive today, and investments in new equipment must be carefully considered."

The incentive, along with the support from Grimsby Power, played a role in the financial rationale behind the lighting upgrade project, Rej adds. "When the payback is there, as it was with this project, we move ahead."

Combined with the ERIP incentive, the payback is about two years, Russ points out.

While the lighting replacement project has a positive payback period, the company's number one focus is always the crop, says Rej.

"If we can produce cheaper, we will do that. But if we don't have light, we don't have a crop," he says.

Westbrook continuously looks at reducing its costs. But if these potential cost reductions (whether in energy or transportation or any other aspect of the business) could negatively affect the crop, "we don't do it," he emphasizes.

One of Westbrook's best-selling crops is a miniature rose, which requires lots of light. "If someone can show us how to cut electricity costs while still maintaining quality, we'll look at it."

The company has a continual focus on reducing electricity demand, provided it doesn't interfere with crop production, explains Russ. "Energy efficiency is a priority," he emphasizes. In manufacturing Westbrook's greenhouses, "we also try to introduce more energy efficiencies – reducing our electricity needs." Customers can choose from a range of energy-efficient options.

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## ERIP funding helps reduce farm energy use

Ontario farmers submitted nearly one-third of all applications to Hydro One for the Ontario Power Authority's Electricity Retrofit Incentive Program (ERIP).

The OPA program is designed to encourage farmers and agricultural businesses, as well as other sectors of the Ontario economy (commercial and industrial) to conserve energy by replacing old lighting, heating and cooling systems with new energy-efficiency technology.

Of the 689 ERIP applications made to Hydro One since the program was initiated in late 2007, 209 applications have been from the Ontario farming community, says Tom Semler, Manager, Conservation and Demand Management, for Hydro One Networks Inc.

"The farming community may be a smaller overall user of energy compared to other sectors, but it is a major player in Ontario's energy-efficiency program and is helping to reduce electricity demand," he says.

The ERIP has funded more than \$260,000 in farm-based energy-efficiency projects. The majority of the funding has been for lighting replacement and exhaust fans in barns.

A complete list of the recently expanded energy-efficient technologies eligible for funding under ERIP is available at [everykilowattcounts.ca](http://everykilowattcounts.ca).



## FARM ENERGY PROJECTS RECEIVE \$240,000 FROM THE OPA

Two technology projects based on agricultural bio-energy systems were recently awarded funding from the Ontario Power Authority's Technology Development Fund.

Queen's University will receive \$185,000 for its Biomass Energy from Field to Grid project. It will develop a made-in-Ontario bio-energy system targeting wood waste with innovations in biomass compaction, pelletization, gasification and syngas.

The Centre for Energy Advancement through Technological Innovation (CEATI) will receive \$55,000 for its High-Percentage Biomass Utilization in Coal-Fired Power Plants project. It will identify and prioritize the key gaps and challenges that must be overcome for successful high-percentage biomass utilization in existing and future coal-fired plants.

Since its inception, the OPA's Technology Development Fund has approved more than \$3.1 million in funding for 30 projects. This funding has leveraged more than \$35.6 million in partner support.

More information is available at [www.powerauthority.on.ca/tdfund](http://www.powerauthority.on.ca/tdfund).

## Feed-in Tariff Program update

Ontario's legislature passed the landmark *Green Energy and Green Economy Act, 2009 (GEA)* on May 14, 2009. It establishes the province as North America's leader in renewable energy development and creates the first comprehensive feed-in tariff program on the continent.

Ontario's Feed-in Tariff (FIT) Program will expedite the growth of renewable sources of energy in the province and support job creation, climate-change initiatives and the development of renewable energy technologies. It will provide opportunities for developers, farmers, community groups and First Nation and Métis communities to develop wind, solar, bio-energy and

water projects, while the microFIT Program will be geared to homeowners and small business owners who want to install small renewable energy projects, such as rooftop solar panels.

The OPA is leading implementation of the FIT and microFIT programs. Their design was informed by extensive technical consultation with a wide range of stakeholders.

Successful implementation of the GEA and the FIT Program requires that a number of changes be made across the energy sector to bring renewable energy into service more quickly and efficiently. The OPA, the Ontario Energy Board, the Independent Electricity System Operator, the transmitters, the local electricity distribution companies and the government are all working together to bring about these changes.



The OPA has posted the draft FIT contract, rules, standard definitions and price schedule on the FIT website, which is the best source of timely information on the program. You are encouraged to review these documents to better understand the current design of the FIT Program. Information on the microFIT Program is also available online at [www.powerauthority.on.ca/fit](http://www.powerauthority.on.ca/fit).

## OEB takes steps to deal with stray voltage issues facing farmers

The Ontario Energy Board (OEB) recently addressed stray voltage issues affecting the Ontario's farming sector.

Farm stray voltage refers to voltage or current occurring on a farm when livestock make contact with it and which may have a negative effect on the livestock. The amendments to the Distribution System Code, which come into effect in September 2009, include:

- Distributors must investigate farm stray voltage complaints using qualified people.
- A specified distributor investigation procedure must be used to determine whether problem levels of farm stray voltage are present and if so, whether the distributor system is contributing in excess of a specified threshold.
- When a distribution system is found to contribute to stray voltage in excess of a specified threshold, the distributor must take steps to reduce the voltage to acceptable levels.
- Distributors serving livestock farm customers must prepare and make available a farm stray voltage "customer response procedure" that sets out the process for responding to stray voltage inquiries and complaints from customers.

The amendments are the result of a 2007 directive from the Minister of Energy to the OEB to implement measures to address stray voltage issues in the farm sector. The amendments stem from consultations held by the OEB.

**Additional information is available at the OEB website, [www.oeb.gov.on.ca](http://www.oeb.gov.on.ca).**

## Westbrook Greenhouses balances energy costs and crop production

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In one of its own greenhouses, the company lowered the greenhouse basement to allow the run-off water to flow naturally rather than by using a pump. This eliminated the need for an electrically powered pump and cut electricity costs, says Russ.

Installing more computer-based controls for refrigeration and heating in its facilities, to operate at specific times and temperatures rather than being continuously on, has also reduced electrical costs.

Looking forward, Russ expects Westbrook will be pursuing several other power conserving strategies and technologies, such as variable speed controls for pumps and automated lighting controls, in addition to continuing to install more efficient lighting.

"We continue to look at a variety of technologies and strategies that help control costs while ensuring our products continue to provide the quality that our customers demand," says Rej. "We've had a lot of opportunities. But the crops come first."