

Electricity conservation on **ONTARIO FARMS**



Volume 3, Issue 4, Fall 2009

FIT CREATES NEW REVENUE-GENERATING OPPORTUNITIES FOR ONTARIO FARMERS

Ontario's new Feed-in Tariff (FIT) Program opens up more potential revenue streams for the Ontario agricultural community. The program is North America's first comprehensive guaranteed pricing structure for renewable energy production.

The Ontario farming community is already a major participant in making the province more energy efficient through such programs as the Electricity Retrofit Incentive Program and the High Performance New Construction Program. The FIT Program, with its significant financial incentives, will now give farmers the opportunity to expand into renewable energy generating projects.

By encouraging the development of renewable energy, the FIT Program will:

- help Ontario phase out coal-fired electricity generation by 2014 – the largest climate-change initiative in Canada
- boost economic activity and the development of renewable energy technologies
- create new green industries and jobs.

microFIT designed for smaller generation projects

The Ontario Power Authority's microFIT Program provides you with an opportunity to develop a very small or "micro" renewable electricity generation project of 10 kilowatts (kW) or less on your farm or small business.

The microFIT Program is a simpler, streamlined program for small renewable energy projects under the umbrella of the Feed-in Tariff (FIT) Program. The renewable energy resources are the same as those in the FIT program: solar photovoltaic, wind power, waterpower, biomass and biogas.

The microFIT Program will pay a guaranteed price for all the electricity your project produces for 20 years or 40 years for waterpower. To participate in the program you must apply for a microFIT contract online.

To obtain a microFIT contract, your project must meet the program eligibility requirements, which include:

- be 10 kW or less in size and located in Ontario
- be connected, directly or indirectly, to the distribution system
- have metering that is suitable for data collection and payment calculation. All microFIT projects require a separate meter so that the amount of electricity produced by the project can be accurately measured.

For information about the OPA's microFIT Program, visit microfit.powerauthority.on.ca.

The FIT Program, which began accepting applications on October 1, 2009, offers stable prices under long-term contracts for energy generated from renewable sources, including bioenergy (biomass, biogas and landfill gas), onshore and offshore wind, solar photovoltaic and waterpower.

Prices under the FIT program are designed to cover project costs and provide a reasonable rate of return on the investment over the term of the contract. The prices paid for the electricity produced vary according to the renewable energy source used and the size of the project.

The farming community can participate in the FIT or the microFIT programs. FIT is for renewable energy projects that generate more than 10 kilowatts (kW) of electricity; microFIT is for projects generating 10 kW or less.

Once a farmer has entered into a contract, he or she will receive a fixed price for the electricity produced over a 20-year contract period, except for waterpower projects, for which the contract period is 40 years.

Farmers with existing renewable energy projects 500 kW or less in size may transition to the FIT and microFIT programs. These projects will be deemed to have met the domestic content requirements of the programs.

The Ontario Power Authority (OPA) is responsible for implementing the FIT Program, which was enabled by the *Green Energy and Green Economy Act, 2009*, which became law on May 14, 2009.

The OPA's FIT website provides detailed information on the program, including pricing, program documents, connection availability assessment and contract requirements.

For more information please visit fit.powerauthority.on.ca.

Bioenergy and the farm

The development of biomass as an energy source offers significant market opportunities for the Ontario agricultural industry.

Under Ontario's new Feed-In Tariff (FIT) program, bioenergy projects fuelled by biomass are eligible for 20-year pricing contracts. Depending on the size of the bioenergy project, the contracted price ranges from 10.3 to 19.5 cents per kilowatt-hour.

Several Ontario farming operations are already supplying electricity to the province's electricity grid with anaerobic digesters fuelled by farm-based manure and off-farm organic materials (such as food industry by-products).

Electricity can also be generated through the combustion of biomass, which has a much smaller carbon footprint than fossil fuels. Biomass is also recognized as a renewable source of energy, says Ian McDonald, applied research co-ordinator, field crops unit, for the Ontario Ministry of Agriculture, Food and Rural Development (OMAFRA).

"The displacement of electricity produced from coal or natural gas with electricity produced by biomass has a significant greenhouse gas benefit, since the carbon that is released during its combustion is sequestered in the next crop of biomass," he says.

Millions of tons of forest residues – the largest source of biomass – have the potential to serve the energy needs of close to one million Canadians, according to the Canadian Bioenergy Association. "Ontario farmers looking to turn a bigger profit should take a look at the resources in their own backyards," association president Douglas Bradley said earlier this year.

Bioenergy facilities use energy stored in biomass, such as agricultural crop residues, dedicated biomass crops, animal manure, waste wood, wood chips and bark, to generate electricity. Bioenergy can be generated using a number of conversion technologies, such as thermal treatment, anaerobic digestion, gasification, combustion, production of liquid fuels (ethanol, biodiesel) and landfill gas.

Commercial bioenergy facilities in Ontario include the Eastview Landfill Gas Energy Plant in Guelph, the Hamilton (Digester Gas) Cogeneration Plant and the Trail Road Landfill Generating Facility in Ottawa. Agriculture operations are building and operating several biomass combustion and anaerobic digestion plants producing heat and electricity.

JoAnne Butler, the OPA's Vice-President, Electricity Resources, recently spoke to the Ontario Federation of Agriculture 2009 convention in Toronto about the Feed-in Tariff Program for the agricultural sector. To view her remarks, please visit www.powerauthority.on.ca and click on "Presentations."



The development of a modern bioenergy industry on a large scale is still in its early stages in Ontario and other parts of the world, OMAFRA's McDonald says. But, he points out, it was only about 200 years ago that widespread burning of fossil fuels to produce energy began. Until then, approximately 30 percent of cultivated farmland was used to produce biomass that fuelled the engines of agriculture (horses and oxen), supplied heat and provided shelter, clothing and tools.

Today, when farmers are considering a biomass project, they need to carefully analyze the value of the project to their operation. "Whether you use it (biomass) from crop residues or you grow the crop (a bioenergy specific crop), how much is it worth?" McDonald says. "What is the market potential for the biomass, and how much does it cost to obtain that biomass?" Other considerations include the sustainability of the practices used to produce the biomass.

There is continuing research into bioenergy crops in Ontario. For example, at the University of Guelph, two specific biomass projects are under way. One is examining the establishment and production of C4 (carbon dioxide harvester) perennial grasses, while the other is evaluating short rotation woody species for biomass production.

The economic benefit to farmers from producing biomass has to be determined. Farmers need to determine whether the production of biomass crops or harvest of crop residues results in enhanced financial security for the farm by increasing revenue, decreasing costs or diversifying marketing opportunities.

Bioenergy crop production will grow if it leads to improved economic stability and security. Many agricultural commodity markets experience economic peaks and valleys. Introducing biomass crops or harvesting crop residues may open up new markets for farmers that could help them to diversify their farms. Farmers can become significant producers of food, feed, energy and new "green" products.

For additional information on bioenergy and biomass for generating electricity, please visit fit.powerauthority.on.ca.

EXISTING RENEWABLE ENERGY PROJECTS CAN TAKE ADVANTAGE OF FIT AND MICROFIT PROGRAMS

Ontario farms and agricultural businesses that developed renewable energy projects before the launch of the FIT Program – such as wind and solar generation under the Renewable Energy Standard Offer Program (RESOP) – may be able to transition to the FIT and microFIT programs.

Renewable technology projects with a capacity of 500 kilowatts (kW) or less that were purchased or in service **before October 1, 2009**, are eligible and will be deemed to have met the domestic content requirements of the programs.

Generators who have not been operating under an OPA contract will receive a 20-year (or 40 years if for waterpower) FIT or microFIT contract. Generators who have been operating under a RESOP contract will receive a contract representing the balance of a 20-year FIT or microFIT contract.

Below is a brief summary of the transition details.

RESOP projects 500 kW or less may transition to the FIT Program as follows:

- For projects larger than 10 kW and less than or equal to 500 kW that purchased generating equipment or were in service by October 1, 2009, the RESOP contract will be amended to include FIT pricing.
- Micro RESOP projects 10 kW or less that purchased generating equipment or were in service by October 1, 2009, will terminate their RESOP contracts and convert to the microFIT Program. They will sign a RESOP-to-microFIT transition agreement as part of this process.
- Projects must reach commercial operation by December 31, 2010.
- Domestic content requirements will be deemed to be met.

Net-metered projects, merchant generators or projects in service or where the generating equipment was purchased by October 1, 2009, may apply to the FIT or microFIT programs as follows:

- Projects larger than 10 kW and less than or equal to 500 kW in service by October 1, 2009, can apply to the FIT Program and declare commercial operation at the same time. No fee or securities will be required.

- Projects larger than 10 kW and less than or equal to 500 kW that purchased the generating equipment by October 1, 2009, can apply to the FIT Program.
- Projects 10 kW or less that were in service or purchased generating equipment by October 1, 2009, should apply to the microFIT Program.
- Projects must reach commercial operation by December 31, 2010.
- Domestic content requirements will be deemed to be met.

More information about how to transition to the FIT and microFIT programs can be found at fit.powerauthority.on.ca.



Are you thinking about developing a ground-mounted solar project on agricultural lands?

The OPA has provided the following guidelines that balance the benefits of more renewable energy with the need to protect Ontario's prime agricultural land.

The Canada Land Inventory (CLI) categorizes agricultural land into seven classes, based on climate and soils. CLI Class 1 soils have the highest and Class 7 soils the lowest capability to support agriculture. CLI is maintained and managed by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

The Minister of Energy and Infrastructure directed the Ontario Power Authority not to enter into contracts for ground-mounted solar photovoltaic (PV) projects greater than 100 kilowatts (kW) whose facilities are located on:

- lands comprised of CLI Class 1 or 2 soils
- specialty crop areas within the meaning of the 2005 Provincial Policy Statement.

In addition, there is a 500-megawatt cap for the province for FIT projects on Class 3-designated soils.

The restrictions related to ground-mounted solar PV projects and Classes 1, 2 and 3 soils do not apply to First Nations reserve lands or to lands zoned for non-agricultural purposes as of October 1, 2009.

All ground-mounted solar PV projects greater than 100 kW must submit evidence that the proposed ground-mounted solar PV facility is located entirely on land with Class 3 to 7 soils or unclassified land.

FIT project eligibility will be based on OMAFRA's official CLI maps on the date the FIT application is submitted to the OPA.

Please refer to the FIT website at fit.powerauthority.on.ca for more information on the restrictions for solar PV on agricultural land.