Ontario Federation of Agriculture

FACT SHEET

Energy Opportunities on Ontario Farms

Ontario farms use about 3 per cent of Ontario's electricity or approx. 4.5 terawatt hours each year. While farmers do buy power, they can also produce and sell electricity.

Energy Opportunities

Virtually every farmer could take advantage of one or more of these in the future.

Biogas (Electricity from Manure)

There are 4,500 dairy farms, 600 feedlots and 1,100 poultry and pork operations each of which could provide 150 kW for 6,000 hours a year. These 3,200 farms can produce 2.9 billion kWh annually. And they will have a peak capacity of a half gigawatt that can be used to help balance the grid and meet peak requirements.

Wind Power

If 2,500 farms each have three towers of 2 mW each, it would provide up to 15 gigawatts of capacity generating 37 million kWh per year. Farmers can also have wind towers to provide their own power on a net metered basis. These smaller towers of 80 to 600 kW in capacity can produce power at a cost of about 9 cents a kWh or for 2 cents a kWh less than the cost of power from the grid. It should be noted though that at 2 cents per kWh, the machines will be slow to pay for themselves. The range of revenue for wind leases is now $6,000 to $20,000 per tower per year.

Solar Heat

Heat from the sun can be used to heat homes, workshops, poultry or pork barns and water. This is done with solar heat collectors that resemble car radiators on roofs and/or with passive solar walls which are an extra wall on the south side of a building that traps air, heats it with sunlight and then moves it into the building. Such devices can reduce propane or other heating costs by between 50 and 80 per cent. Solar heat installations can make sense for farmers who have a south facing roof or wall on a building that has heating bills in excess of $2,500 a year.

Solar Electric

Solar electric uses photo voltaic panels to make DC electricity which is stored and converted to AC power to be used in the home, barn or sold to the grid.

Comparing on a cost per kW basis, solar power installations at $10,000 per kW are costly compared to wind at $3,500 or biomass installations at $6,000 per kW. Solar electricity is best for farm applications where the cost of extending wires to a site is forbidding or if the power is to be sold back to the grid at $0.43 per kWh. Large scale solar can pay what appear to be attractive

rents, but it is unclear how the soil will be restored afterwards and whether the rental income would in fact match farm income in the long run.

Co-Generation or Combined Heat and Power

"Co-Gen" creates electricity using diesel-, natural gas- or biomass gas-powered generators and heat from the motor that is recovered from the exhaust is used to heat a building, greenhouse or water.

Capturing the heat can add 35 to 45 per cent to the amount of energy captured for use to save up to 45 per cent on your heating bill. In a greenhouse, the CO2 from the exhaust can also be put back into the greenhouse to promote plant growth while adding to production and income.

All of these power sources are greenhouse gas neutral and will not contribute to climate warming while helping to improve Ontario's air and water. None have any emissions of toxic substances associated with them.

Financial Possibilities

In recent years farm incomes in Ontario have been $8.5 billion annually and net incomes have been in the $350 million range. Energy opportunities can add several million a year in income for farms in the short term, and between $1 and $2 billion annually in the long term, with as much as a $300 million addition each year to the farm 'take home' income. This would do a great deal for the stability of Ontario farms.

Policy Needs and Considerations

Energy from farms can help power farms and Ontario while improving our environment. It is a prospect that deserves effort from farmers, the private sector and government.

OFA believes solar power on roof tops and close to areas of use is an excellent innovation. Large scale solar on farm land is a questionable and likely harmful use of farm land and should be discouraged.

Clear long term contracts to purchase power from farms at prices that fairly compensate producers are needed in order for farmers to take on the investment risk involved. Processes to connect to the grid must be simplified and ways found to schedule several generators at each transformer station so best use can be made of the existing grid.

Access to the grid should provide preference to individuals who have paid to create and maintain it. This is 'as of right connection' subject to a test of economic reasonability. Rural renewable power should be viewed as a policy basis for rural economic development and a new foundation for Ontario's farms.

For more information on energy opportunities for farmers, contact your local OFA Member Service Representative or the OFA Guelph office.