

## Investing in environmental technologies is a social responsibility at this greenhouse

By Jeffrey Carter  
*Ontario Farmer*

There's no single solution when it comes to energy efficiency at Rosa Flora Ltd., one of Canada's largest producers of cut flowers.

The controller of the Dunnville-area greenhouse operation says a range of energy creation and conservation initiatives are involved.

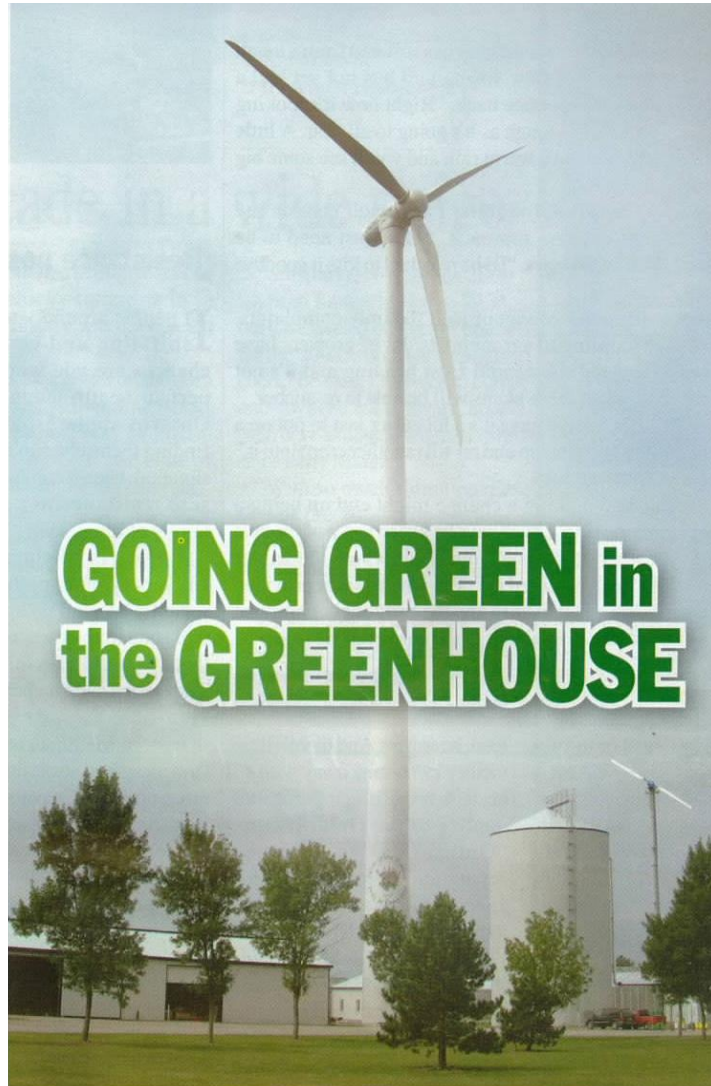
"For the past five years, Rosa Flora has spent 50 per cent of its capital budget on green technologies," Arjan Vos says.

The latest project was the 615-kilovolt wind turbine but the business has also installed a biomass-fueled boiler system for heat and has invested in energy-efficient lighting and other measures.

"For every dollar we spend on labour, we spend 50 cents on energy. As a company, we want to take care of employees, providing them with good jobs," Vos says.

That means cutting costs in a way that the benefits are shared among the owners, the employees and society as a whole.

Along the way, the wholesale flower business has developed a green reputation for more than its plants. This may not be measured in dollars and cents, but there are positive implications, Vos says.



**While numbers may vary from year to year, the wind turbine at Rosa Flora is expected to meet 20 per cent of the greenhouse operation's electricity needs.**

"For our customers, those who can visit, they're quite impressed with our innovations and the techniques we use to grow flowers. People want to feel that they're a part of that."

The German-engineered turbine installed in 2006 stands out as the most obvious energy solution at Rosa Flora to the casual observer. While numbers change according to wind conditions, roughly 20 per cent of the annual electricity needs are now met with wind.

That's more than a million kilowatts of energy a year despite the turbine's location in a less than ideal wind location.

Depending on the numbers and the availability of incentives, Vos says consideration will be given to adding a second turbine.

The biomass heating system at the Rosa Flora consists of two KVM boilers installed in 2003 and a Blue Flame boiler added later. Together, they're capable of delivering 100 per cent of the required heat.

"We went with a Blue Flame because we wanted to try a different design. Both systems work very well. In order to ensure optimum performance 24/7, you need to invest in a good maintenance team," Vos says.

"Biomass is not like natural gas in that you have to make a commitment of a significant amount of time to make it work for you."

Ralph DeBoer, operations manager, is responsible for the biomass system. The wood waste is sourced through a broker. After the initial installation, Rosa Flora began to pre-process the material, which includes lumber scraps and old pallets, to product a more consistent fuel that's free of foreign objects.

With the price of natural gas having fallen since 2003, Vos says burning biomass has become less attractive.

However, it's a long-term investment and the team at Rosa Flora likes that fact they they're diverting a significant amount of material from landfill sites.

The investment in energy generation is complimented by a variety of energy conservation measures at Rosa Flora, including a switch to 440 electronically-ballasted, 600-watt, high-pressure-sodium (HPS) lights. These replace 760 magnetically-ballasted, 400-watt HPS lights. The exchange was supported through the Ontario Power Authority's Electricity Retrofit Incentive Program.

The installation has resulted in a 75-kilowatt reduction in month peak power usage and an energy savings of 75,000 kilowatt-hours for every 1,000 hours of use. It adds up to a savings of about \$10,000 a year.

The new lights also last longer, lose less illumination with age, produce a better light colour and have a high power factor and low harmonic distortion.

Another electricity savings measure was the installation of variable-speed drives on many of the motors used for water pumps and conveyors.

While the company has stepped up its investment in energy solutions over the past five years, Rosa Flora's propensity for technological solutions dates back much further.

In 1992, for instance, two 800 kW generators were installed to provide a source of electricity for lighting crops in the fall and winter. During the day, when

there is a large demand on the grid, Rosa Flora becomes a net producer of electricity and, after sunset, when demand is reduced, a net consumer.

"This is a perfect partnership with Haldimand Hydro, our local utility," Vos says.

Unlike traditional natural- gas-fired generators that waste nearly 70 per cent of the fuel consumed in the form of lost heat, much of this is captured at Rosa Flora to warm the greenhouses. In addition, the carbon dioxide generated by the engines is uses in the greenhouses.

Rosa Flora was also the first greenhouse operation to erect water towers to store excess heat for later use and use underground cooling lines for certain crops.

Rosa Flora was started by Otto and Corine Bulk in 1978. They initially grew only hybrid tea roses but later diversified into other species.

There are now more than 1.2 million square feet of growing space and close 150 employees, most of whom are local. Rosa Flora was featured as the Ontario Power Generation's 2009 winter newsletter.