

Going Green

How you can save the environment and your money

by Tracy Hanes

Even with the lights burning brightly in two arenas and stall aisles, not to mention electric heaters working to warm the office, washrooms and tack room, there's no more agonizing over the hydro bill at The Ajax Riding Academy (TARA).

Thanks to the extensive array of photovoltaic solar panels on one of the arena roofs at TARA in Durham Region, just east of Toronto, ON, the 10-kilowatt system produces enough energy from the sun to provide more electricity than the riding school, with its 24 school horses' and 80 students', needs.

The "green" movement, which is being embraced by homeowners, is finding its way into the horse world. TARA is not the only large Canadian equine facility to adopt energy efficient and sustainable measures: Woodbine Racetrack in Toronto has made "green" an integral part of its philosophy and Spruce Meadows in Calgary, AB has been a leader for years.

On a less grandiose scale, smaller horse farms are turning to options like compact fluorescent light bulbs, solar-powered electric fencing and water heaters.

James Mann, president of Mann Engineering, a company which provides energy conservation solutions for businesses, bought TARA two years ago, mainly because his four children, ages three to 12, all ride. Since then, more than \$2-million have been invested to improve the facility.

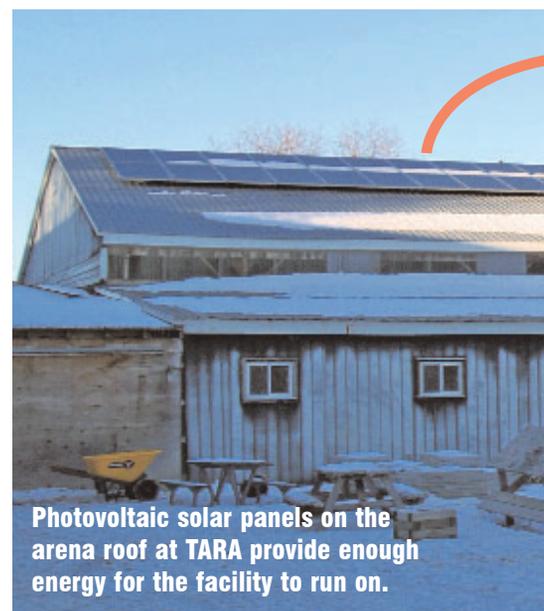
With the installation of the solar energy system, which costs about \$100,000, TARA became Canada's first "carbon zero" equestrian facility. In recognition of their efforts, the OEF presented TARA with the Just Add Horses Environmental Award at the 2008 OEF Annual Conference.

"It's a core belief of my family that we need to be conscious of the environment," said Mann of the decision to install the system at TARA.

Since its installation last year, the system has consistently produced more energy on a daily basis than it uses, even on cloudy days. It's connected to the power grid, so excess energy is sold to Ontario Power Authority at 42 cents per kilowatt hour. Under the Standard Offer Program, operators of systems like TARA's buy back their own consumption at 10 cents per kilowatt hour, with the difference going straight into their pockets.

As well as providing all electricity for the riding facility, which offers lessons and camps in hunter, jumper, dressage and cross-country riding and rider level certification, the solar system provides the electricity for a house on the property, which has two apartments.

Other improvements at TARA have included building 40 new stalls, excavating old

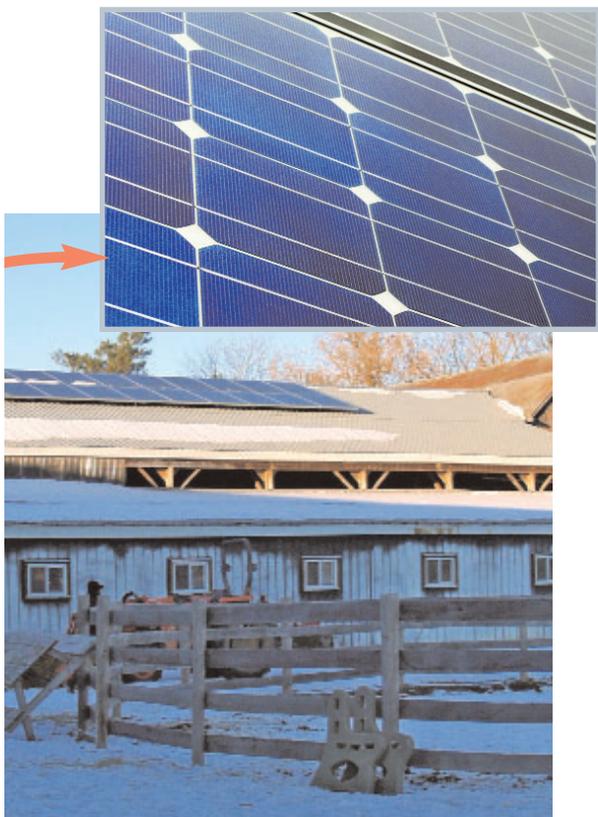


Photovoltaic solar panels on the arena roof at TARA provide enough energy for the facility to run on.

contaminated arena footing and replacing it, and adding a large viewing room and a conference area, with the intention of offering clinics and seminars. Jennifer Keeler, an Equine Canada Coach 2, whose parents owned the Audley Road Stables just south of TARA, joined as head coach in summer 2008 and since then, the riding school has grown from 15 students to 80.

Mann figures the solar system will pay for itself in 20 years and currently is designing an even larger system for a Thoroughbred breeding facility he owns in nearby Scugog Township. At TARA, other energy efficiency measures include a state-of-the-art, low energy lighting system and building automation system for remote control and monitoring of energy consumption.

Solar power is not a new concept at Spruce Meadows' famous equestrian facility. In 2001, the first commercial solar grid inter-tied power system in the city was installed at Spruce Meadows' British House, a multi-purpose facility with boardrooms, skyboxes and a patio. The battery-less 2.5 kilowatt system, with its 40 solar panels, has never needed maintenance and supplies about 25



This aerial view of Spruce Meadows shows how many trees have been planted and matured over the past 30 years.

per cent of the power for the British House, says Spruce Meadows vice president of media, Ian Allison.

“We’ve always had ‘clean, green, environmental, educational’ as operating principles,” said Allison.

For years, Spruce Meadows used only straw for bedding in its stalls, which along with manure, is used by local mushroom farmers. It wasn’t until five or six years ago that shavings came into use there, because a viable market had developed for the discarded shavings from commercial composting companies, Allison said.

“For years, we stayed away from shavings because they weren’t recyclable,” said Allison. “That has evolved over time.”

There are about 100 horses on the Spruce Meadows grounds on any given day; during the 6 weeks of summer tournaments, the number burgeons to 1,000 animals, so there’s a lot of manure/straw/shavings recycling going on.

Ceiling fans run continually in the horse barns in winter to circulate the heat created by the animals and each horse has natural light provided through stall windows.

Even the property design is based on environmental principles: run-off drains towards the northeast corner of the property, which is con-

nected to natural wetlands. Water to irrigate the grounds comes from natural catch basins and lagoons and irrigating is done early in the morning to avoid evaporation.

Marg Southern, who with her husband Ron, founded Spruce Meadows, has been at the helm of many of the environmental initiatives; when the Southern family originally purchased the farm property three decades ago, there wasn’t a tree on it.

“There have been over 2,000 trees planted, Colorado spruce and poplars, which are now mature,” said Allison. “Mrs. Southern believes that trees are sacred here and none will be cut down.”

As new housing encroached on the land near Spruce Meadows, Allison says the Southern family took a strong public position on the need to protect the wetlands from rampant development, a cause embraced by thousands of Calgarians. That was instrumental in the development of the city’s wetlands policy.

This year, Spruce Meadows, in partnership with Calgary Parks Foundation, Imperial Oil and Ducks Unlimited, will launch Eyes on the Wetlands, an educational program to teach children about environmental and habitat issues.

Other “green” measures in place at Spruce Meadows include motion-triggered lights in the British House and Congress Hall, energy efficient hand dryers and low-flow toilets. Free shuttles from the city also bring visitors to the centre of the park, reducing the volume of cars. And the extensive Christmas light display at Spruce Meadows, which runs from November to mid-January uses LED lights which use only 10 per cent of the energy of conventional Christmas lights, said Allison.

Last fall, the Woodbine Entertainment Group (WEG) unveiled a new Standardbred paddock and retention barn at Woodbine Racetrack. While it looks and feels like a traditional Kentucky barn with cupola, the 62,000 square foot complex is a state-of-the-art “green” facility. As well as 120 stalls, it houses offices, a broadcast studio and tack shop, second-floor lounge and restaurant with panoramic view of the track.

An adjacent, separate 32-stall retention barn serves both Thoroughbreds and Standardbreds and function as a quarantine barn, when necessary.

Jane Holmes, vice president of corporate affairs, said sustainability has become part of WEG’s corporate philosophy.

The new facilities have been built with improved insulation and “smart” metres installed throughout to monitor electricity consumption. Holmes said the smart metres are in the area used for ship-ins, which typically is in use 5 days a week. Its thermostats and lights are automated and timed, to reduce energy consumption during the times the stables aren’t in use.

The office lights are on motion sensors; Holmes said if she stays at her desk

too long without moving, the lights will go out.

Even Woodbine's Thoroughbred track is energy efficient. It is the first track in Canada and the second in North America to use Polytrack, a surface made of recycled carpet fibre, silica sand and wax, laid on top of an extensive drainage system, requires less maintenance than a conventional dirt track and far less watering. It has cut water use on the track by 17.5 million gallons a year and reduced diesel fuel needed for trucks and tractors to water and maintain the track by 40 per cent.

Grey water from the wash stalls and parking lot will be diverted to the infield lagoons and used for watering and conditioning the racetracks. "Grey water recycling didn't just start with this paddock, we've been doing it for a number of years," said Holmes.

Recycled products have been employed wherever possible in the new stables, including fans, lights and heaters from the old paddock building.

WEG has received several awards for its environmental initiatives; most recently it was honoured with the JohnsonDiversey's Sustainable Facility Care Award.

An ambitious sustainable master plan has been created for a farm in Ridgeway, Ontario near Niagara Falls, that is home to I CAN-T.E.R., the non-profit "I Can" Therapeutic Riding

PHOTO BY DAVE LANDRY



The new "green" Standardbred barn at Woodbine Racetrack boasts several environmentally friendly features.

Association of Niagara Inc.

The 76-acre farm, owned by I CAN-T.E.R. executive director Diane Paonessa and her husband Dominic, offers therapeutic riding for all ages, outdoor education and apprenticeship training for horse grooms, with plans to include additional rural and equestrian-related activities.

A new equestrian centre with arena and stalls is the main focus of the master plan, developed by landscape architect/environmental designer Brad Peterson, funded through the Ontario Trillium Foundation. The plan will be done in phases, as funding permits.

In keeping with I CAN-T.E.R.'s environmental goals, he suggests the

facility should include features such as super insulation to improve heating and cooling efficiency; energy efficient windows and doors; solar panels with battery bank for backup for fire, water, computer and emergency lighting systems; solar hot water panels for potable hot water and radiant floor heating; a wind generator for part electrical backup and part water pumping; an alternative septic system design to reduce or eliminate the need for pumping and area needed for septic material and allow for nutrient recycling, heat recovery and bio-gas heating or lighting potential. Some of the other measures include integrating storm water management to irrigate the property;

Don't Let Your Money Go Down the Drain



Here is an example of a drain water heat recovery system, which would be installed in a home or stable.

Heating water accounts for 20-30 per cent of energy consumption in the home. Whether your energy source is electric, oil or natural gas, you can benefit from the installation of a drain water heat recovery system (DWHR). Furthermore, with a reduction in energy consumption, comes a reduction in green house gas emissions. In a home with a DWHR system, a family of four, for example, can reduce emissions by up to one ton a year.

DWHR systems are comprised of a series of copper tubes, coiled tightly around a copper drain pipe, which is installed vertically at your home's incoming water supply, by cutting out a portion of the existing drain stack, and replacing the section with the DWHR unit.

When someone takes a shower, for example, the

warm water that goes down the drain transfers its heat through the copper walls of the DWHR unit to warm the cold water, which is circulating in the coils, before it goes into the water heater. The heat is transferred via the highly conductive copper piping and, as a result, your water heater uses less energy.

DWHR systems are available at many home improvement and building centres across the country, and depending on the length required and the manufacturer's suggested retail price, typically cost \$600-\$800. The cost, however, will depend on the application of the system (residential vs commercial uses, for example). In most cases though, the return on investment remains very good for any applications using large volumes of hot water. The system can be installed by a competent do-it-yourselfer or a professional plumber. In addition, there are various government and energy utility incentives available to home owners. Check with your energy provider to learn more.



installing cisterns to collect rainwater to be used for toilet flushing horse washing and irrigation; and using high efficiency water fixtures and energy efficient lighting.

Even small horse farm owners with limited budgets can take "green" steps.

Victoria Kendall, office manager for the Canadian Warmblood Horse Breeders Association, has electric fence surrounding around five acres of 80 on her horse farm near Saskatoon, Saskatchewan. But she's never had to plug it in – a solar-powered battery "about the size of a car battery" – provides the charge to the fence. Kendall says she has been using the solar system for about 6 years.

"I use it on the paddocks near the barn," she said. "It does work as well for long distances."

According to the Integration of Renewable Energy on the Farm (ReF) website, package solar fencing systems with panel, charger and battery sell for \$200 to \$600 for up to about 50 kilometres of fencing (does not include fencing). The ReF website (www.farm-energy.ca/IReF) is a useful source of technical information and online tools to help farmers assess renewable energy options and determine the exact return on their investment.

Broadcaster and television newscaster Bob Chelmick and his partner Teresa live in a solar-powered cabin an hour

outside of Edmonton, AB heated by wood stoves and equipped with a back-up generator. Their four Quarter Horses are off the grid, too, living in outdoor shelters and drinking from a Kelln solar-powered winter watering system. Chelmick bought a culvert he dropped vertically into the ground, which holds 1,000 gallons, as the well is not close to the horses. The Kelln system captures sun energy and charges a battery that pumps water into the watering bowl only when the horses come near, triggered by a motion detector. When they finish drinking and move away from the bowl, the water drains back, preventing bowl freeze-up.

TARA's James Mann says there are many incentives available for businesses, but they change often and can be complex to obtain. He said solar energy systems are costly and not necessarily the first energy conservation measure a horse business should invest in; he says other technologies may yield cost savings, thus produce the cash flow needed to pay for solar.

"Due to the nature of horse farms, they may consider wind power but this has a smaller government incentive compared to solar," said Mann. "This is because the government needs extra power on hot days when the electrical load is peak. The sun will always be shining on these days, but the wind may be idle at these critical times."

He says the leading energy conservation measures for farms are energy efficient lighting and geothermal energy, which involves extracting heat found within the earth.

He suggests a professional energy audit is the first step towards learning what measures, incentives and paybacks are best suited to each farm.

Mann has energy audit information on his site at www.mannengineering.com. National Resources Canada offers ecoEnergy incentive programs; ecoEnergy for Renewable Power and ecoEnergy for Renewable Heat. Visit www.ecoaction.gc.ca/index-eng.cfm for details. 

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