

Toronto Energy Action News

The **ENERGY ACTION COUNCIL OF TORONTO** newsletter
Agents of Change for Conservation and Renewable Energy.

Green Power Curb Appeal

Energy from renewable sources that are exploited in ways that are ecologically benign has come to be called "green". Of course, the colour selection is based on chlorophyll, that ingenious catalyst of photosynthesis that fuels virtually all life on Earth.

The great chemical cycles thus generated have maintained stable conditions for ecosystem survival over the Ages. Now, however, our species has massively perturbed the equilibrium through technological domination.

We desperately need to get back in the "metabolic loop" and this means recognizing that in Nature, waste is food is energy. So, let's talk garbage.

The obscenity of dumping Toronto's detritus in a Kirkland Lake mine was made sufficiently

evident to compel a fit of conscience on City Council. But underlying the concerns over despoiling northern waters lies the sin of waste.

About 70% of what we put out on the curb is referred to as organics-our food scraps, pa-

per, and garden cuttings. When landfilled, it rots to form contaminated leachate, odour, greenhouse gases and unstable land. In newer, large-scale sites, methane is recov-



ered to produce electricity.

The mayor's Task Force on waste diversion recognized the basic reality: If the City is to phase out landfilling, organics must be rendered into resource. Curb-side separation is now the City's policy which will help to avoid contamination and support recycling of non-organics.

The City has adopted a preference for processing the waste to soil amendment (ie. compost) using anaerobic digestion (AD) followed by aerobic stabilization. AD is the work of bacteria that like it hot and airless and happens at a "gut level". Carbohydrates are converted to methane (natural gas) and carbon dioxide, in roughly equal volumes. Depending on how and how long it's processed, the waste converts to energy and nutrient-rich peat. For

Save Money, Save Energy! Top 10 Energy Savers:

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1. Replace your most frequently used incandescent bulbs with compact fluorescent lights:

Compact fluorescent light bulbs use only about a third as much electricity as standard incandescents. According to some experts, if you substitute compact fluorescent bulbs for a quarter of the incandescents used in high-use areas, you can cut the amount of electricity you use on lighting by half -- saving money and our environment.

2. Replace outdoor lighting with a motion-detector equipped bulb or fixture:

Now that your interior lighting is more efficient, its time to look outside. Outdoor lights that are left on all night can add unnecessary costs to your power bill. Using a bulb or fixture with a motion detector solves the problem.

3. Lower your hot water heater to 48 degrees and drain any sediment:

Though changing light bulbs is easy, heating cold water is much more energy intensive -- and also a great place to save energy. Though you need to keep your water heater above 48°C to prevent bacteria from building up, many hot water heaters are set

too high. Experts also recommend draining a pint or so of water from your water heater a few times a year to reduce sediment and increase efficiency.

4. Add insulation to your hot-water heater:

As long as you're dealing with your water heater, you might as well add some insulation. Since the standard hot water heater is on all the time, adding extra insulation will save more energy than you think. Most hardware stores sell pre-made insulator "jackets" that can be easily wrapped around one's water heater. Experts estimate that adding insulation to your water heater and any exposed pipes can knock up to 15 percent off the costs of heating water.

5. Install a low-flow shower head: Low-flow shower heads are also a worthwhile investment (especially for renters, because you can take them with you) that will reduce the amount of hot water you use and hence the energy needed to heat it.

6. Check for and seal any cracks or gaps: Heating one's home is the single largest use of energy for the average customer. And since experts estimate

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Final Report of the Solar Domestic Hot Water project.

I am pleased to report that the DHW project came to an end on June 30, 2001. The result of the project was the installation of 26 solar DHW systems in Toronto.

The aim of the project was to raise the profile of solar DHW systems in Toronto and to build a foundation for further work with DHW that would create

momentum in the DHW markets.

I wish to thank: Mario Kani, Jim Hinton, Rob McMonagle and the rest of the EnerACT Board; Mike Holm of Birkholm Heating; Liz Reynolds of Autoshare, Rabi Martyn of the Better Buildings Partnership and the many others who have dedicated their

time and effort to the project.

The experience gained from this project is invaluable and will be used later on as EnerACT continues its work toward greater implementation of renewable energy technologies in Toronto.

Ravi Mark Singh,
DHW Project Manager.

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FOCUS



on Biomass Power.

What is Biomass Power?

Biomass power is all around us, but how many of us actually know what it is? Biomass power is one of the oldest power sources used by human beings.

As plants grow, they store the sun's energy in leaves, stems, roots and barks. This material is similar to other non-renewable energy sources (like fossil fuels) and can be used in power plants in a similar fashion. If biomass is cultivated and harvested properly, it can be a carbon-neutral, renewable resource that can be used to generate large amounts of electricity on demand.

According to Natural Resources Canada, Canada's climate is ideally suited for biomass combustion systems. Biomass displaces heating fuel, which means cost effectiveness rises with the length of the

heating season. Many biomass combustion systems typically run from mid-September to late May.

Cost effectiveness also depends on variables such as the cost of the system, the cost and availability of biomass fuel, the amount of biomass used and the corresponding amount of heating fuel displaced.

In one instance, a hog farmer in Prince Edward Island displaced 36,000 litres of heating oil by burning 130 tonnes of sawdust instead. His savings over one heating season? \$8400 (1995 figures).

20 MW Biomass Plant in the works for Germany

A 20 MW biomass power plant for Baden-Wurttemberg has been announced by RWE Power, part of Germany's largest utility.

The plant will burn untreated waste wood and is expected to generate 150 million kWh per year. The estimated project costs are DM 100 million

marks (CDN \$72 million).

Germany has a target of cutting its CO₂ emissions by 23 tonnes by 2010. While a plant such as this is CO₂ neutral, it will displace CO₂ emitting power-generating capacity.

Taken from Renewable Energy World, May/June issue.

ENERGY ACTION

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The EnerACT board meets on the **4th Tuesday of every month**

Our **2001-2002 Business Directory** is out!

The Business Directory is a listing of local, environmentally related businesses. For your free copy of the Directory, please contact us.

For a listing of

www.eneract.org

Demand Side Management and a Green Energy Future

Over the past decade, Ontario's electricity demand has remained constant despite large population and GDP growth, thanks primarily to efficiency improvements in end-use (also known as **Demand Side Management or DSM**). DSM, improved Codes and Standards, and previous Government efforts contributed greatly to the commercial success of efficiency advancement that has saved all sectors of the economy enormous public expenditures, maintained stable electricity costs, and reduced pollution emissions from generation.

Market price control, rate structures, unaccounted and misallocated benefits, and debt restructuring have contributed to inappropriate signals to consumers resulting in lost opportunities for further efficiency and fiscal savings. Many studies for Ontario

and throughout Canada and the US have affirmed that the economic potential of efficiency improvements is at least 50% for retrofits and replacement with widely available technology and at least 75% for new buildings and products.

A problem with most current market efficiency investments is that only short term paybacks, typically less than 3 years, are deployed, not only missing optimal economic investment opportunity but deteriorating the economics of future further upgrades. For example, replacing failed windows with slightly better performance delays an upgrade to high-performance glass (which would have been more cost-effective over a slightly longer payback period) until the new windows need replacing.

It is our belief that government

corrective actions are critical to the realization of sustainable energy and the consequent health of the Ontario economy.

The government is also in the business of regulating energy utilities, setting market rules, creating and enforcing standards, supporting industrial development, and operating a large energy-consuming portfolio.

Through various means at its disposal, most of the other barriers can be removed. Some examples are:

1. ensuring rate structures reflect actual marginal costs and customers see the full benefits (eg. line loss are currently proposed to be charged uniformly yet losses are much higher per kWh during peak periods, and customers who reduce peak demand receive no proportional benefit)

2. developing protocols for evaluating energy savings to enable allocating credits

3. maintaining minimum performance standards for products, buildings, vehicles etc. reflecting customer and societal economic benefit and establishing a level foundation for the playing field.

4. providing support for industrial development such as education and generic research as with the Information Technology sector

5. utilizing best practice with full-cost accounting for managing the Government's energy portfolio thereby leading by example

The Government may choose to demonstrate leadership and

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Energy Saver Tips ...

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that all of the tiny gaps and cracks in an older home are roughly equivalent to a one-foot square hole punched in your wall, sealing any cracks or gaps with caulking and weather stripping can greatly improve energy efficiency. After you've sealed the gaps, think about adding some insulation to your floor, ceiling or walls -- a bit of modern insulation can often work wonders for older houses.

7. Set your computer to go into "sleep" mode when not in use: People who use computers at home or at work may have a "screensaver" program that floats animated toasters or whatnot across the screen when the computer is idle. Instead of using a screensaver, program your computer to go into "sleep" mode when not in use. And be sure to turn off televisions, computers, stereos and the like when not in use.

8. Replace old appliances with more efficient models: Though buying a new appliance isn't cheap, replacing an old dishwasher -- or an old refrigerator, washing machine, or furnace -- with a new, energy-efficient model can really save some energy and

money.

9. Look For EnerGuide (or Energy Star)

Approved Products. When shopping for appliances or compact fluorescent light bulbs, look for products that have received EnerGuide or Energy Star certification - meaning that the products meet guidelines for energy efficiency as set by Natural Resources Canada or the US EPA.

10. Install a Light Dimmer. This simple device can help you save big on your lighting costs. For example, an incandescent light dimmed by 25 percent can save 10 percent on energy use and extend the life of the bulb.

Visit the EnerACT website often as we will regularly update and add similar information for your viewing.

ATTENTION: Event Organizers!

The Solar Trailer is a mobile, photovoltaic electrical generator used to provide clean, quiet, green power for outdoor musical events, festivals, fairs and parades - rain or shine. It is ideal where conventional grid power is not available.

Solar power provides an excellent opportunity to educate the public about renewable energy and energy conservation, with displays and demonstrations on-site.

Contact the EnerACT office for more info on renting the Solar Trailer for your event!

EnerACT transitions

The Board is pleased to welcome **Matt Caruana** as our newest member, bringing the total number of Board members up to eight.

EnerACT is also pleased to have re-hired Ravi Mark Singh as the EnerACT Co-ordinator. Ravi will be responsible for handling all administrative matters while continuing the implementation of EnerACT's transition to a more active community partner.

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- Unwaged: \$10.00
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Green Power ...

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thermophilic (50°C) processing, the residual is pathogen and seed-free and could fetch \$50/tonne if well marketed.

The best news is you can have your cake and heat, too. As much as 60 m³ of natural gas per tonne of garbage, enough to generate 500 kWh of combined heat and electricity can be netted by large plants. Approximately 1 million tonnes of organics are collected municipally and privately in Toronto each year.

If half were anaerobically processed, fuelling a combined cycle gas turbine, 15 MW of continuous power could be produced, enough for the electricity of 25,000 households (and 100,000 households if as efficient as is cost-effective). Most of the carbon is returned to

the soil to rebuild humus along with essential nutrients. Thus, organic horticulture, the displacement of fossil-fuel based nitrogen fertilization with its water and air contamination, and carbon sequestering add to the virtues of an AD strategy.

So we close the cycle and plants grown in the rich soil, harvest the Sun's fusion transmissions which feeds the creatures who employ the energy and feed the microbes that make the soil. Now there's Green Power.

The technology has been in use in European cities for many years. Two versions, one in Newmarket, the other in Guelph, have been built but not adequately evaluated.

Will Toronto reach an informed decision and do something that is

world-class? It's up to those of us with vision and commitment to hold out politicians to account and garner the necessary knowledge and resources to do it right.

Greg Allen

EnerACT Board of Directors

DSM ...

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commitment in effecting an energy efficient economy through programmes, market mechanisms, enabling utility DSM, industrial support, education, and getting its own operations ship-shape. If not, the pace will be slower and our economy will be much poorer for it.

We are confident in our claims that a transformation to a Green Energy future is demonstrably practical, affordable, and rests on demand side management.

*The EnerACT
Board of Directors.*