

Whether driven by social and environmental responsibility, concerns over energy security, or bottom-line dollar savings, forward-thinking organizations across Ontario are embracing energy-saving technologies and practices. What's more, Ontario Power Authority incentives are helping them make the shift. What more motivation do you need to start saving?

Energy con\$ervation

All across Ontario, in office towers, hotels, shopping malls and industrial buildings a quiet revolution is taking place. The success of that revolution will have a profound effect on all our futures.

Commercial property owners are teaming up with the Ontario Power Authority (OPA) to help conserve electricity to cut costs and to help the environment.

Many are already embracing the environmentally sensitive Leadership in Energy and Environmental Design (LEED) standard in new construction. Equally, if not more importantly, they are also beginning to retrofit existing structures with energy-saving lighting, heating and cooling systems.

Increasingly, energy conservation is becoming an industry standard.

"Energy savings are at the top of the agenda with an increasing number of tenants and landlords," says Pierre Bergevin, president of Cushman & Wakefield LePage Inc. "What is driving that move is a combination of the need to control operating costs plus a sensitivity toward environmental protection.

"You can understand how important this is when you consider that commercial real

estate consumes a significant percentage of all electricity generated in this province, according to OPA research."

Property taxes and energy costs for downtown Toronto office buildings have been rising, affecting overall operating costs.

"You can't do much about taxes, but you can control energy costs through retrofits, adopting new technology and embracing conservation," Mr. Bergevin says.

One of the most impressive initiatives undertaken by the industry is the new conservation and demand management program sponsored by the Building Owners and Managers Association (BOMA) of Toronto in partnership with the OPA.

BOMA can access grants from the OPA which it makes available to any landlord with a property larger than 25,000 square feet willing to undertake retrofit projects designed to cut electricity use. The target is to reduce demand by 150 megawatts by spring of 2010, says Wayne Proulx, Conservation and Demand Management program director at BOMA Toronto.

Those grants can cover as much as 40 per cent of the cost of a demand-reducing retrofit, depending on the amount of electricity saved,

Results

Organization:	Building Owners and Managers Association (BOMA) Toronto
ROI:	An estimated 150-megawatt reduction in demand by 2010
OPA program:	OPA/BOMA Conservation and Demand Management Program

For information on how your organization can participate, visit:
www.everykilowattcounts.com/business, or
www.bomacdm.com



Ontario's commercial property owners are among the groups that are tuning in to the benefits of energy conservation and the stimulus provided by the Ontario Power Authority and other agencies. PHOTO: ISTOCKPHOTO.COM

he says.

"To date, we have funded 123 projects representing about 13,600 kilowatts of reduced demand and savings of 18,500 tonnes of greenhouse gases," he says. "Judging by the reception to date, we are confident we are going to hit that target."

The great attractiveness of the BOMA-OPA program is that it makes solid financial sense to be an energy conservator if you are a landlord or a tenant, says Constantine Eliadis, director of commercial and institutional programs at OPA.

"Those savings can go straight to the bottom line," he says. "Landlords can see energy conservation as a competitive edge when it comes to attracting and retaining tenants, and the payback for both tenants and landlords can be surprisingly speedy."

The largest single demand-reduction project to date involved the replacement of air conditioning chillers, which previously used a huge amount of electricity, with a new deep lake water cooling solution from Enwave.

The Enwave approach draws cold water from the depths of Lake Ontario, circulates it through the cooling systems of structures in the core of Toronto's downtown

and then it is sent to the city's potable water system.

"What landlords love about the program is its simplicity," he adds. In essence, they fill in an application giving details, including the electricity savings; an evaluator then visits the property and either recommends or rejects it. Once work is complete, the evaluator returns to ensure everything promised has been completed.

"If the evaluator signs off, then I can cut a cheque to cover the grant within 30 days," says Mr. Proulx.

Cushman & Wakefield's Mr. Bergevin says demand for energy-efficient rental space is certain to grow and can be expected to be a standard throughout the commercial real estate industry.

"Tenants are demanding energy efficiency and conservation not just to control occupancy costs but to reinforce their image as a great place to work," he says. "Banks, professional service companies and high-tech enterprises have been the early adopters."

"They have young, engaged, environmentally conscious workers. Attracting and retaining them means they have to be seen to be in the forefront of the conservation movement." ■

Institutional

University's energy-reduction efforts offer valuable lessons

The University of Windsor has two very good reasons to be at the forefront when it comes to energy conservation, says Phil Diett, the university's electrical systems maintenance supervisor and the person responsible for maintaining its electricity needs.

"The first is cost savings," says Mr. Diett. "We have 40 buildings on the campus, and in total we use about 12 million kilowatt-hours (kWh) a year. Anything we can do to reduce our annual energy costs is well worth looking at."

The second is simply the need to practice what it teaches. The university has a thriving

environmental studies program and is home to the Great Lakes Institute for Environmental Research. "We have a moral obligation to be a leader in conservation," he says.

This past year, the university clearly showed it took its leadership role seriously. It undertook a program to replace incandescent lighting in four of its structures with long-life, low-wattage fluorescent fixtures, introduced new photoluminescent technology and continued its program of adding occupancy detectors to switch lights on and off.

The result was total savings of approximately 635,000 kWh of consumption. "That is

the equivalent of reducing greenhouse gases by 139,700 kilograms a year," says Mr. Diett.

The University of Windsor's lighting replacement program is just one example of the ways in which Ontario's Ministry of Training, Colleges and Universities, institutions across the province and the Ontario Power Authority are working together to conserve energy, says Constantine Eliadis, OPA's director of commercial and institutional programs.

"What we are finding is that universities like the

See University, OPA 2

Industry

Modern compressor squeezes savings for Air Liquide Canada

For Air Liquide Canada Inc. in Hamilton, a relatively small grant from the Ontario Power Authority has proved enough to spark big energy savings.

At Air Liquide, which produces industrial and medical gases at a trio of plants near Hamilton Harbour, a \$120,000 grant from the OPA was the incentive needed to spend a total of \$1.44 million over nine months to install an additional leading-edge, energy-efficient compressor in the newest of those three plants.

While the company focuses on meeting as much of its production demand as possible with its new, energy-effi-

cient plant, peaks in sales often mean turning to the older plants as well. When that happens, energy consumption rises along with operating costs.

Air Liquide wanted a way to deal with both.

Its \$1.44-million investment in a new compressor substantially reduced the need to rely on aging, inefficient equipment. The result will be a forecast savings of 7 million kilowatt-hours (kWh) a year in energy use or cash savings of over \$500,000 a year, says Keith Rowan, manager of air separation units and co-generation for Canada at Air Liquide.

"The ability to add that new compressor has had a terrific impact," he says. "Not just on cost savings, but on the environment as well. Think of the tonnes of greenhouse gases created by coal-fired power generation plants."

"Now, think of how much less will be created by the ability to reduce consumption by plants like ours. Reducing the carbon footprint has become a special sensibility in Hamilton."

Energy conservation is rapidly becoming a strategic tool for commercial and industrial concerns like

See Innovative, OPA 3

OPA 2

CBC business commentator Michael Hlinka weighs in on the advantages energy conservation brings

OPA 3

Paul Shervill, Ontario Power Authority vice-president of conservation and sector development, answers questions on the business drivers for saving energy

OPA 4

Demand response programs offer valuable advantages

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Energycon\$ervation

Institutional

Retrofit at Kingston's Hotel Dieu Hospital saves big dollars from annual electricity bill

The staff and management team at Kingston's historic Hotel Dieu Hospital have a great deal to celebrate these days. Thanks to boldly innovative retrofit and replacement programs and grants from both the Ontario Power Authority and Natural Resources Canada, the hospital has slashed \$535,000 off its annual \$1.5-million energy bill.

In its use of electricity alone, those programs reduced annual consumption by 1,144,000 kilowatt-hours (kWh) and peak demand by 376 kilowatts – enough to supply all the electrical needs of about 100 Ontario homes for a year.

"We are all enormously proud of what we have achieved," says John Johnson, the hospital's assistant executive director for planning and facilities. "We have been able

to take a leadership role in preserving the environment by cutting back significantly in energy use and have saved a considerable amount of money at the same time.

"In these days when the entire health-care system is cash-strapped, those energy savings will prove to have a major impact on the patient care we can deliver to this community."

Mr. Johnson readily admits that the age and condition of Hotel Dieu posed challenges to conservation programs. Of the four structures that make up the 630,000-square-foot facility, the oldest dates back 160 years; the newest was opened in 1983.

Further complicating the situation was a shift in the hospital's focus. It is in the midst of making the transition from traditional hospital in-

bed patient care to becoming an ambulatory patient facility.

"About three-and-a-half years ago, we decided energy conservation would have to become a top priority and put out requests for proposals," explains Mr. Johnson, who says programs presented by Quebec City-based Ecosystem Energy Services Inc. offered "great value."

The first was an ambitious program to replace more than 14,000 fluorescent lights and 325 exit signs with more energy-efficient fixtures. The second was to convert the existing steam heating system into one run on hot water. As part of the heating system conversion, Hotel Dieu would also replace motor-driven air handling units – blowers – with new energy-saving, variable-frequency, high-efficiency motors.

"In the lighting system, we

did things like replace existing T12 fluorescent lights with T8 models and, at the same time, replaced all the ballasts that control the power to the lights," he says. "That alone cut the electricity needed to light the hospital by 39 per cent."

With the exit signs, the solution was to replace incandescent bulbs with small, energy-saving LED bulbs. "The energy savings are considerable and these LED lights last much longer so there is less waste going to landfills," he says.

When the Ontario Power Authority introduced its new Electricity Retrofit Incentive Program (ERIP) part way through the lighting system conversion, Hotel Dieu quickly signed up through its local Utilities Kingston, Mr. Johnson says.

"In mid-September we

had cause to celebrate," he says. "Our rebates from the OPA through the ERIP program had by then totalled \$81,180."

Those savings will work two ways for the hospital, Mr. Johnson continues. First, they will allow Hotel Dieu to pay off the loan taken out to cover

the programs faster. Then once that is done, the annual savings will go straight to the operating budget and will be available for improving patient care.

"For us it has been a great program and a great partnership with agencies like the OPA," he says.

Results

Organization:	Hotel Dieu Hospital, Kingston
Grants/incentives:	Electricity Retrofit Incentive Program from the OPA plus a \$200,000 grant from Natural Resources Canada
ROI:	\$535,000 cash savings on a \$1.5-million annual energy bill
Electricity saved:	1,144,000 kilowatt-hours a year and 376 kilowatts during peak demand

For information on how your organization can participate, visit: www.everykilowattcounts.com/business

Energy conservation unifies business and environmental priorities

By Michael Hlinka
Business Commentator,
CBC Radio



There is often a frustrating and absolutely unnecessary divide between the business community and the environmental movement. Most business people I know are concerned about maximizing efficiency.

They want to use resources in a cost-effective manner in order to create goods and services of real value. And after that wealth is created, they surely want to live in a community where the air is clean and water is pure. Most environmentalists I know work for a living – and often in the for-profit sector – so they understand that a modern economy requires inputs,

raw materials and energy...they just wish that the necessary, desirable production process was more sensitive to the natural space around us.

I've got good news for both groups. The articles in this section will warm the cockles of the hearts of bottom-line driven business people and if-you-only-loved-this-planet-as-much-as-I-do envi-

ronmentalists. You can read a number of fascinating case studies – for example, how Hamilton, Ontario-based Air Liquide figured out how to save seven million kilowatt-hours a year in energy use, while generating an ROI of about 200 per cent on its investment! The University of Windsor undertook a lighting replacement program and before you could say Phi Beta Kappa, it cut its energy use by over 635,000 kilowatt-hours. You'll get the details about how VersaCold/Atlas has saved more than \$30,000 in the past two months.

These are inspiring stories – on a couple of fronts. In a world where resources are increasingly scarce, efficient use of energy becomes something akin to a moral imperative. The hyper-growth of China is no secret. One day – even though it's a distant one – its standard of living will approach Canada's. However, what is a sobering fact is that if this occurred magically – overnight – and China's per-capita oil consumption was similar to ours, daily world oil consumption would

explode from 85 million barrels a day to 170 million barrels a day. And that's just China – throw in the other BRIC countries and the world would be faced with both a business and an environmental crisis.

So the OPA is helping for-profit companies and other leading institutions take steps in the right direction. Efficient energy use and conservation are a good start. But there are other exciting programs on the horizon – a tiered cost structure that charges more during peak times and less when demand is lower, achieving efficiencies in power generation. And one that really turns my crank: A two-way grid where business and consumers can both buy energy and capture and/or produce energy and sell it for a profit...but the bottom line, in both a financial and environmental sense, is that we're heading towards greener pastures – in every sense of that word!

Michael Hlinka is a CBC business commentator and lectures at universities and colleges.

From OPA 1

University of Windsor lighting retrofit generates savings

University of Windsor have become enormously innovative in the way they are adopting the latest technology," he says. "They are helping lead the way to a better, more sustainable future."

In the case of the University of Windsor, that meant replacing 197 400-watt metal halide fixtures in the 5,852-square-metre St. Denis Field Hall with custom-built T5 fluorescent fixtures and installing sensing devices to reduce energy use when the five basketball courts are not in use.

Savings are estimated at between 233,000 and 272,000 kilowatt-hours a year, Mr. Diett says.

In the Leddy Library, the university is installing 200 occupancy sensors in the stacks. "The stacks only need lighting when they are used, which our studies indicate is as little as eight minutes out of every hour," explains Mr. Diett. Here the savings are anticipated to be between

87,000 and 100,000 kWh.

It will replace 382 100-watt incandescent lights in the underground connecting tunnels with 200 32-watt fluorescent bulbs for an annual savings of 211,000 kWh. Perhaps the most innovative step is the plan to replace 60 per cent of the traditional exit signs with new, self-powered photoluminescent versions supplied by PNA Group of Oakville – demonstrating that conservation not only saves money, it supports Ontario's economy and creates jobs.

"The signs use strontium oxide aluminate, which is non-toxic, non-radioactive and compatible with our environmental objectives," he says. "They absorb energy from adjacent light sources and release it in the form of visible light when the external source is extinguished." No other additional energy input is required.

"We are accepting responsibility to practise what we teach," says Mr. Diett.

Results

Organization:	University of Windsor
ROI:	Reduced consumption of 625,000 kilowatt-hours
Grant/incentives:	OPA Electricity Retrofit Incentive Program, Ontario Ministry of Training, Colleges and Universities

For information on how your organization can participate, visit: www.everykilowattcounts.com/business

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Better management of electricity demand and costs integral to good business planning

Q&A

Paul Shervill

Vice-President of Conservation and Sector Development, Ontario Power Authority



the economy. There are now many great opportunities to participate in Ontario.

Q: How is the OPA investing in programs to get businesses to adjust their electricity consumption?

A: The OPA always looks for the most cost-effective conservation programs. In other

words, programs that cost us less than the avoided or comparable cost of new generation. Our focus is on reduction of peak use of electricity which will reduce the overall level of investment in generation to effectively power Ontario.

Q: Do you expect more businesses to get involved with your programs now that we appear to be entering a period of economic uncertainty?

A: Some businesses will clearly see this as a strategic opportunity to invest in positioning themselves more effectively for the future. This can be particularly true in terms of energy efficiency and enhancing your competitiveness.

Q: How would you suggest today's business leaders motivate their organizations to adopt a

culture of conservation?

A: Actually, I don't see this as being all that difficult. If you are in a business that favours continuous improvement and are always looking for ways to improve your competitiveness, and your employees are key to achieving these goals, then it should not be all that hard to stimulate them towards conservation. We are promoting conservation on a large scale across the province so employees also get the message at home, as well as at work.

Q: You have some big challenges ahead. What do see as your biggest?

A: We have a fairly aggressive target of achieving 6,300 megawatts of electricity savings from peak demand by 2025. On Sept. 18, we also received a new Directive, from Energy and Infrastruc-

ture Minister George Smitherman, to look at how that target might be accelerated. I am confident that we can reach our goals with good programs, good management and good people.

Q: What kind of programs?

A: Programs for all segments of the market, from consumer to commercial, institutional and industry. It's working with business to get them to realize that their demand for electricity is an asset that can be managed.

Q: Do you have partners to help you with these programs?

A: Absolutely. We have chosen an approach where we contract with third parties in the market, including local electric distribution companies (LDCs), industry associations, social agencies, NGOs and not-for-profit organiza-

tions. We are also trying to stimulate entrepreneurs, and share some of their risk, to come to us with ideas on how to save electricity costs.

Q: What is your final word to businesses? What would you like Ontario's business leaders to know?

A: It is important that business and industry understand that the OPA is ready to work with them. We don't have a commercial interest in the programs we design or the contracts we let—but we do have a great interest in making these programs successful. It is also important that all Ontarians can rely on us to have their electricity system at heart. ■

Paul Shervill is responsible for the design, operation and marketing of OPA conservation programs in all market segments.

Manufacturing

Grants help spark action for plastics maker

Last year, when the Electricity Retrofit Incentive Program was launched, Oakville Hydro received 40 grant applications, of which 10 are now completed.

Like all mid-sized Canadian businesses, Ropak Packaging must keep a sharp eye on controlling costs. So when Oakville Hydro suggested taking advantage of provincial and federal grants to slash electricity consumption, the Oakville plastic container company jumped at the chance.

Thanks to grants through the Electricity Retrofit Incentive Program (ERIP), offered by the OPA in co-operation with Oakville Hydro, and additional support from Natural Resources Canada's EcoEnergy Retrofit program, Ropak was able to save 739,000 kilowatt-hours (kWh) of annual consumption by replacing older metal halide and fluorescent fixtures in its 160,000-square-foot facility.

"We are a big energy consumer," says Don DiFlorio, project manager at Ropak. "We operate 24 hours a day. Reducing energy consumption is high on our corporate agenda. Those grants were the spark we needed to take action."

The project took about 10

days and involved replacing the 1,000-watt metal halide lights on the factory floor with clusters of eight-lamp T5 57-watt fluorescent lights; it also saw the removal of up to half the existing fluorescent lights in office areas.

"We estimate seeing a payback within a year, and after that, savings go straight

to the bottom line," Mr. DiFlorio says.

The ERIP program is finding great favour among Oakville businesses, says Stewart Lawson, conservation program manager at Oakville Hydro. Last year, when the Electricity Retrofit Incentive Program was launched, Oakville Hydro received 40

grant applications, of which 10 are now completed.

Grants are made under two categories: Prescriptive, which involves exchanging existing light fixtures for those that use much less energy – such as changing those rated T12 for T8 – and Custom where applicants propose a design for new lighting sys-

tems targeted at energy savings. Grants can also cover replacing motors and heating, ventilation and air conditioning equipment.

"It has been a huge success," he says. "Industry now understands that conservation is equally important when it comes to ensuring the future as creating new supply." ■

Results

Company: Ropak Packaging
Grants/incentives: OPA Electricity Retrofit Incentive Program, Natural Resources Canada's EcoEnergy Retrofit program
ROI: Demand reduction of 739,000 kWh a year

For information on how your organization can participate, visit: www.everykilowattcounts.com/business

From OPA 1

Innovative technologies provide powerful solutions

Air Liquide, says Constantine Eliadis, the OPA's director of commercial and institutional programs.

"It strikes home three ways," he says. "The first is that conservation is every bit as important to Ontario as increasing generating capacity to meet need. That is why we offer grants to companies like Air Liquide."

The second, he says, is that conservation encourages the development of innovative technologies. If there is a significant demand for energy-efficient compressors, for

example, companies will spring up to build them – with the potential of supporting Ontario's economy and creating Ontario jobs.

Finally, for companies that pursue conservation, energy savings have an impact on the bottom line, reducing expenses and strengthening a company's competitive edge, he points out.

Air Liquide's Mr. Rowan agrees with all those points. The grant helped prompt Air Liquide to add the new compressor, and already the return on investment is showing. ■

Results

Company: Air Liquide Canada Inc.
ROI: Savings of 7 million kilowatt-hours a year or \$500,000
Grants/incentives: \$120,000 OPA Electricity Retrofit Incentive Program

For information on how your organization can participate, visit: www.everykilowattcounts.com/business



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