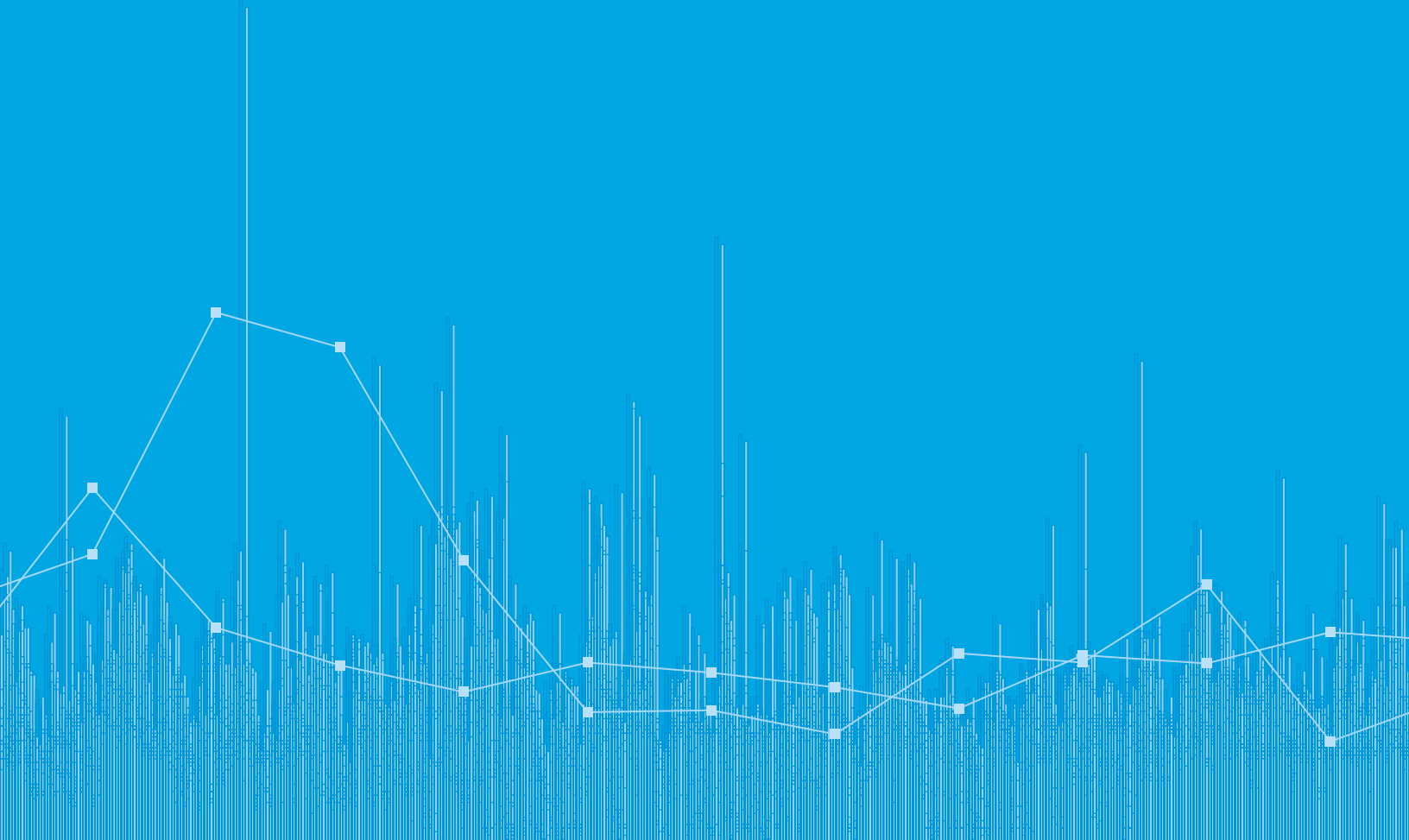


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18037.9	20968.1	21206.5	22738.5	20415.5	17118.3	21120.3	20824.8	22072.4	17294.8	19082.9	19751.4
17778.9	21121.4	21271.2	23057.9	19381.4	17513.5	21278.8	21040.3	21429.8	17019.0	19960.7	19817.0
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THE BOTTOM LINE ON ENERGY MANAGEMENT

Making Ontario's electricity market work for your business



Table of contents

- 1 WHAT'S INSIDE?
- 2 MARKET FUNDAMENTALS
 - Changes in Ontario's electricity market
 - How electricity pricing works
 - Making the market work for your business
- ENERGY MANAGEMENT TOOLS THAT WORK
- 4 INTERVAL METERS: Region of Peel
- 6 CONSERVATION: Unilever Canada
- 8 RETAIL CONTRACTS: Confederation Freezers
- 10 LOAD SHIFTING: Oxford Properties
- 12 SUMMING UP

WHAT'S INSIDE?

If you were looking for ways to increase your company's profitability, chances are the first place you'd go to trim unnecessary waste would be your operating expenses – in areas such as wages, benefits, taxes and raw materials. But what about your electricity costs?

For many managers, electricity is seen as a fixed cost – something they depend on to keep their production lines moving, but that can also take a sizable chunk out of overall profits. While they may regret the impact on the bottom line, there is certainly no way around it. Or so they think.

Increasingly, smart companies are beginning to understand that electricity costs are actually controllable costs. They are even finding that energy efficiency is good for business, good for the environment, and is particularly well-received by their company's shareholders. In 2002, Canadian businesses actually saved \$3.4 billion in purchased energy, simply by managing their energy use more effectively.⁽¹⁾ That's money they were able to re-invest in their plants, in customer service and in their employees. Money that helped them stay competitive.

It might also surprise you to know that for some companies, a 20 per cent reduction in energy use is roughly equivalent to a 5 per cent increase in sales.⁽²⁾ That's a significant impact on any company's bottom line. And given how far technology has come in improving the efficiency of industrial lighting, heating and cooling systems, 20 per cent is certainly a realistic energy management target for many businesses.

Ontario's electricity market, opened in May 2002, provides new opportunities for companies to take control of their energy costs. This brochure, created by Ontario's Independent Electricity System Operator (www.ieso.ca) – the not-for-profit entity entrusted with managing the province's power system and wholesale electricity market – provides basic information about four such options, including:

- interval meters
- conservation
- retail contracts
- load shifting

Through a series of real-life examples, this brochure will show you how four Ontario businesses are making the market work in their favour, with positive results measured on their bottom line, in overall competitiveness and in their corporate reputation.

We hope this brochure will guide you toward greater understanding of the market and that, going forward, every dollar you spend on managing electricity is a dollar well-invested in your company's future.

(1) *Energy Ideas at Work*, 2002/2003 Annual Report of Canadian Industry Program for Energy Conservation, Office of Energy Efficiency, Natural Resources Canada

(2) *Why Energy Efficiency?*, 2005 Briefing, Conference Board of Canada

MARKET FUNDAMENTALS

Changes in Ontario's electricity market

Electricity is a controllable expense. The trick is in knowing how the market works and using this information to your advantage.

But first, a little history. Faced with the prospect of a significant long-term supply shortage, the Ontario Government passed Bill 100, the *Ontario Electricity Restructuring Act*, in December 2004. The primary purpose of the legislation was to reorganize Ontario's electricity system to more effectively address the critical need for new supply, to encourage electricity conservation and to ensure

greater price stability for consumers across Ontario. There was also a need to encourage investment in new sources of electricity.

For businesses, the result is a market structure that offers a combination of regulated, contract and competitive market prices for electricity, which provides them with the flexibility to better manage their electricity costs. Overseeing this market is the Ontario Energy Board – the provincial watchdog.

How electricity pricing works

A number of businesses pay the *Hourly Ontario Energy Price* (HOEP) for electricity. This price – which is determined through a competitive process of generators bidding to supply electricity into the market – fluctuates throughout the day according to supply and demand.

There are many factors that influence pricing. One is the season in which electricity is used – prices are generally higher in winter and summer than they are in the spring and fall. Another is the time of day – prices tend to be higher in late afternoon and early evening. And still another is the source of electricity, some being much more expensive to run than others. When demand for electricity is high, more expensive generation is needed to meet that demand, driving up the cost of power.

In the wholesale electricity market, *interval meters* – devices that measure and record electricity use over a given period of time – play a key role. If your business has an interval meter, you can monitor the data it gathers to determine exactly how much electricity is used at any given time of day. With this information in hand, you can determine how much you are paying for each kilowatt-hour you use. You might decide that it makes economic sense to stagger your production when prices are high and to start it up again when prices are low. Or you might schedule plant maintenance during the hot summer months, when prices are typically higher, rather than during milder springtime months when prices may be lower. If you do not have an interval meter, you are paying based on the consumption pattern of your area, rather than your own. Your Local

Distribution Company (LDC) can help you to determine if it makes financial sense to invest in an interval meter based on your consumption pattern.

Interval meters, along with the data they provide, and the ability to shift your electricity use from one time of day to another (called *load shifting*), are just two energy management strategies at your disposal. The pros and cons of each will be discussed in this brochure starting on page 4.

Still other electricity users may choose a *fixed price contract* which means that they purchase short-or long-term contracts with electricity retailers who provide them with a fixed price per kilowatt-hour. Retail electricity contracts are like mortgages with fixed terms. Customers benefit from the security of knowing exactly what their electricity will cost them per kilowatt-hour, without having to worry about the ups and downs of the wholesale electricity market.

Monthly Average Wholesale Prices (2004) (Weighted*)			
January	6.95¢/kWh	July	4.78¢/kWh
February	5.43¢/kWh	August	4.55¢/kWh
March	5.02¢/kWh	September	5.13¢/kWh
April	4.73¢/kWh	October	5.04¢/kWh
May	5.05¢/kWh	November	5.38¢/kWh
June	4.94¢/kWh	December	5.28¢/kWh

*Weighted based on Ontario Demand.

Making the market work for your business

What can you do to make Ontario's wholesale electricity market work for you? Here are some considerations for ensuring your electricity budget is invested wisely.

Watch the clock... and the calendar. Because the price for electricity fluctuates, it pays to understand the electricity needs of your business on any given day, throughout the year, and to plan accordingly. This is simple to do if your business has an interval meter. If it doesn't, your local utility can help you to evaluate whether or not it makes sense to have one installed so that you can begin to monitor and manage your usage.

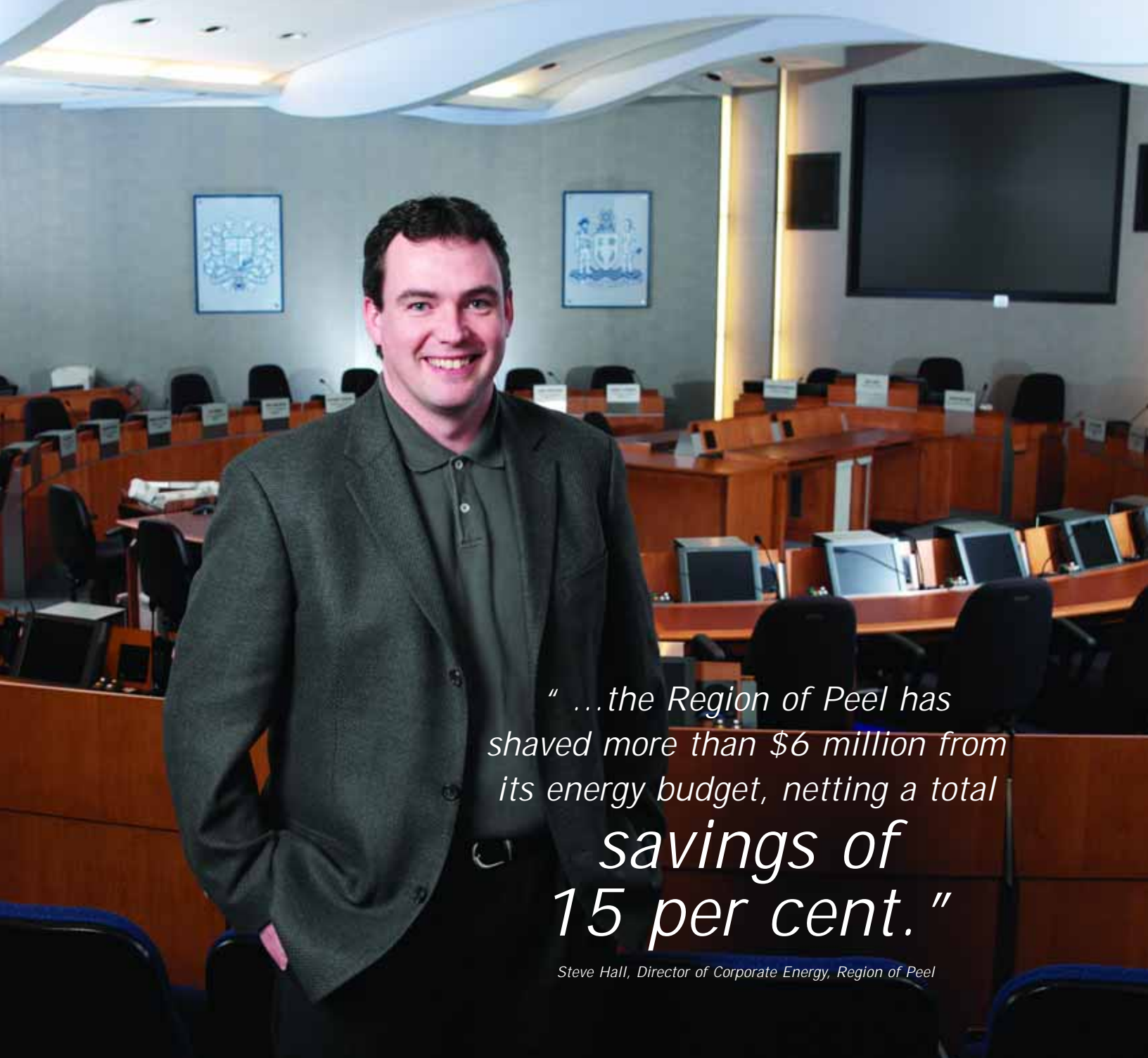
Know your threshold for risk. Some businesses – such as Confederation Freezers in Brampton (see page 8) – prefer the security of knowing exactly what all their fixed costs will be from one month to the next. For them, fixed price retail contracts are a sound choice. All electricity retailers are licensed by the Ontario Energy Board. For a list of approved retailers, visit <http://www.oeb.gov.on.ca/html/en/licences/licensedmarketparticipants.htm>.

Consider conservation. It may seem simple, but conservation still works. It works on the bottom line because you don't pay for what you don't use.

And it works for the environment because using less electricity results in fewer emissions and less waste.

Energy-efficient light bulbs such as compact fluorescent lights, modern heating and air conditioning systems and equipment upgrades are all effective ways to save money. Unilever Canada began implementing a company-wide conservation plan in 1999, and the full story on the financial benefits of this energy management strategy can be found on page 6.

The following pages will highlight four ways to start managing your company's electricity costs. Knowing which option to choose will depend on the nature of your business and its long-term goals. We hope these examples will begin to answer some of the questions you may have about Ontario's wholesale electricity market and, more importantly, how to make it work for you. If you decide to look into energy management further, you can turn to the inside back cover of this brochure for a list of resources. To learn more about the electricity market, how it works, and the price at any time, visit the Independent Electricity System Operator's website at www.ieso.ca.



" ...the Region of Peel has shaved more than \$6 million from its energy budget, netting a total savings of 15 per cent."

Steve Hall, Director of Corporate Energy, Region of Peel

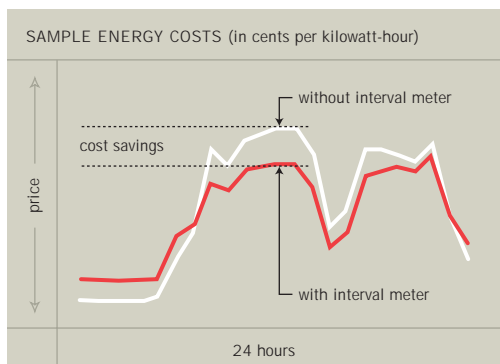
Who takes advantage of interval meters?

 **Region of Peel**
Working for you

The Region of Peel is the second-largest municipality in Ontario, with a population of one million people. It includes the cities of Brampton and Mississauga, west of Toronto, and the Town of Caledon, to the northwest.

INTERVAL METERS

Interval meters are devices that measure electricity use and record that usage for each hour of a month. The hourly usage can then be matched to the hourly electricity price to calculate your electricity bill. When monitored on a regular basis, interval meters make it easier to decide if electricity is being used cost-effectively.



If there was ever any doubt about how critical interval meters are in managing an organization's energy budget, just ask Steve Hall, Director of Corporate Energy for the Region of Peel.

"As a large municipality with an annual budget of \$40 million – 75 per cent of it for electricity – we have to manage our costs just like everyone else, particularly because we are expected to use taxpayers' dollars wisely. Our problem was that when the wholesale market first developed, it quickly became apparent that we needed timely and meaningful information on our energy consumption – information we didn't have at the time."

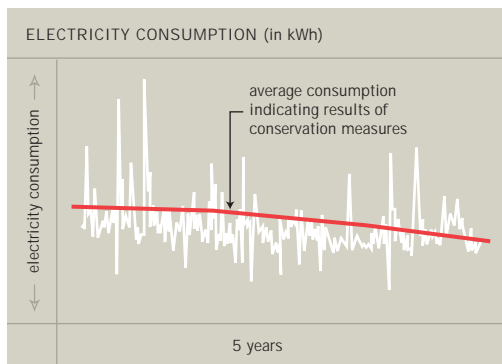
What the Region of Peel now knows is that interval meters are a gold mine of information. Information about when, where and how much electricity is being consumed. With the help of an interval meter, you can avoid using – and being charged for – electricity at times when it is expensive.

Recognizing the potential for significant savings on its overall hydro bill, Peel's recently-established Corporate Energy Department decided to install interval meters on all of its loads greater than 200 kilowatts and to benchmark energy consumption. "Looking at the data, we began to see some areas for immediate improvement, including opportunities to reduce demand and better manage the risks associated with energy commodity markets. Interval meters have become a critical tool in our conservation initiatives. For example, by undertaking energy retrofits on a number of our buildings, we can reduce the energy consumed in these facilities by up to 32 per cent. That's roughly \$1.5 million that can be spent on other regional services."

All told, in the eighteen months since it began mining its interval metering data, the Region of Peel has shaved more than \$6 million from its energy budget, netting a total savings of 15 per cent.

"The investment we made in interval meters is paying off for us," says Steve. "We're a large electricity user and ultimately, we're accountable to our ratepayers. By controlling our costs, we can manage the Region's overall budget more effectively, and provide better service to our citizens."

CONSERVATION



Nobody knows better than Doug Dittburner, Chief Engineer for Unilever Canada's manufacturing plant in Rexdale, Ontario, that energy conservation is first and foremost a numbers game. Get the numbers right, and the bottom-line and environmental benefits will follow.

Six years ago, 15 per cent of the plant's total operating costs were consumed by electricity. "In 1999, our electricity costs were already high and we knew they would only get higher, so we decided to try to wrestle that 15 per cent to the ground by conserving energy. It meant looking critically at all of our systems to see where we could improve," says Doug.

With the full backing of Unilever Canada's senior management team and a corporate culture committed to continuous improvement, Doug and his energy team began to meet their conservation challenge by setting measurable targets. "In the first year, our goal was a 6 per cent reduction in overall energy costs. To our surprise, we achieved a solid 11 per cent result."

In the intervening years, plant staff installed energy-efficiency equipment such as new lighting and temperature controls. Motion sensors now flip

lights on only as needed. Pumps work more efficiently to deliver just the right amount of lift. Maintenance is scheduled on a regular basis. The result is that natural gas consumption at the plant has decreased by 39 per cent; electricity use has fallen by 24 per cent; and steam, by 50 per cent. The plant uses 52 per cent less water, captures almost all of its cardboard for recycling, and sends 468 metric tonnes less waste to landfill.

Energy conservation refers to practices that help companies use less energy without compromising production, and reduce greenhouse gas emissions that contribute to global climate change. For some businesses, the best way to save electricity is to turn off the lights when leaving the room or to shut down computers at night. For others, it involves a comprehensive energy plan that might call for the installation of energy-efficient lighting and more streamlined manufacturing processes.

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"What began as a plan to save on our electricity bill has ended up yielding \$4 million in savings every year, at an overall cost of \$2.7 million," says Doug. "The impact on our bottom line has been phenomenal."


While targets are a necessary part of any conservation strategy, Doug is adamant that to achieve sustained results requires careful monitoring of each new procedure or piece of equipment. At his plant, employees know exactly which conservation measures work and which do not contribute to the overall target.

They also know that for each kilowatt-hour of energy they don't use, their plant is managing its environmental footprint. "That makes a world of difference for our local community, who see us as responsible corporate citizens, but it also means a lot to our shareholders. They look at the bottom line, but they also need to know that we achieved our results in a responsible manner."

Who has a
conservation program?



Unilever is one of the world's largest consumer products companies. In Canada, it is best known for brands such as Becel, Lipton, Red Rose, Popsicle, Sunlight and Dove. The company's plant in Rexdale, Ontario, is ISO 14001 registered and shares its parent company's global commitment to sustainable environmental management.

A photograph of Doug Dittburner, Chief Engineer at Unilever Canada, standing on a metal walkway at an industrial facility. He is wearing a white lab coat with a name tag that says 'Doug', a red hard hat, and has a goatee. He is smiling and looking towards the right. The background shows large industrial tanks and structures under a clear blue sky.


*"What began as a plan to save on our
electricity bill has ended up yielding
\$4 million in savings
every year, at an overall cost of
\$2.7 million."*

Doug Dittburner, Chief Engineer, Unilever Canada

Who uses retail contracts?



Confederation Freezers is one of the largest public refrigerated warehousing, cold storage and blast freezing companies in Southern Ontario. To keep its 19 million cubic feet of warehousing space cold – sometimes as low as -40 °C – requires significant amounts of electricity, and operating the plant's refrigeration systems efficiently is critical. In this highly competitive business, the company's biggest challenge since the electricity market opened in 2002 has been to develop a plan to deal with volatile spot market prices – costs that cannot be passed on to customers.

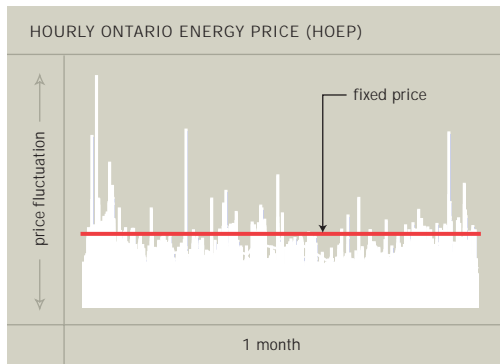
A photograph of Fred Leonenko, Chief Operating Engineer at Confederation Freezers, smiling and leaning against a stack of wooden pallets in a warehouse. He is wearing a dark vest over a maroon long-sleeved shirt and dark trousers. In the background, a sign reads "NOTICE SAVE REFRIGERATION CLOSE DOORS" and a large "F15" is visible on the wall.

"There is no way I would have been able to evaluate their offerings – whether simple or structured blocks of power – had I not become an informed consumer first."

Fred Leonenko, Chief Operating Engineer, Confederation Freezers

RETAIL CONTRACTS

Retail electricity contracts offer customers one major benefit: peace of mind from the certainty of knowing they are paying a fixed price for electricity over the duration of the contract. Customers know the cost is fixed and will not change no matter how volatile the market becomes.



Fred Leonenko, Chief Operating Engineer, at Confederation Freezers in Brampton, Ontario, says that as the market opened, the senior management team knew there would be new complexities and dynamics at play, and that to stay competitive they would need to understand the new rules of the game.

Prior to May 2002, when the Government of Ontario opened the electricity market to competition, Fred's job consisted of managing Confederation Freezers' four warehousing facilities, ensuring the equipment was keeping customers' frozen products at the right temperature for storage. However, overnight, his job description expanded. He had to start learning how the new electricity market worked, how electricity was priced, who sold it and how it was produced, so that he would be able to help his company to weather the price spikes that were having a significant impact on the bottom line.

After teaching himself the basics, Fred contacted several electricity retailers for advice. "It was a bit like the Wild West out there, in the early days of retail contracts. I wanted someone who would partner with us, understand our business, recognize how competitive it is and recommend a solution that was tailored to our needs. I remember it being really confusing."

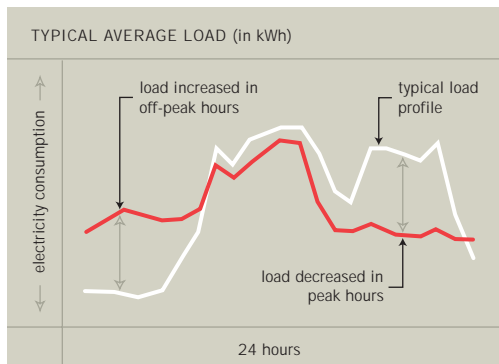
After careful consideration of its load profile – the amount of electricity used at certain times of the day and at specific times of the year – Confederation Freezers' solution was to purchase a short-term retail contract. The fixed-price contract was designed to cover 60 per cent of Confederation's electricity requirements. Fred reasoned that if the bulk of Confederation's electricity needs were locked into a fixed-price contract – much like purchasing a fixed mortgage – the company would have peace of mind most of the time. For the remainder, he knew that as an engineer, he could keep costs down by ensuring his equipment ran as smoothly and as efficiently as possible. It was cost containment based on his philosophy of not being wasteful.

"I couldn't have made a decision about which retail contract was better than the next if I hadn't done my homework first," says Fred. "I needed to know how our business operated – when we used more electricity, when we used less. With that information in hand, I went to retailers to see if they had the type of contracts we needed. There is no way I would have been able to evaluate their offerings – whether simple or structured blocks of power – had I not become an informed consumer first."

Fred says Confederation Freezers is encouraged by the results of its decision to manage its electricity costs with retail contracts. "We didn't go into this to save money. We signed these contracts so we would be able to forecast and plan better. I'm very happy with the results so far."

LOAD SHIFTING

Load shifting refers to the practice of rescheduling operations to periods of the day when the cost of electricity is cheaper. Since interval meters are the only way to determine exactly how much electricity is used at any given time of day, the prerequisite for load shifting is an interval meter. (Using interval meter data to shift your load may help reduce the electricity component of your bill).



In the highly competitive world of corporate real estate and property management, competitiveness comes down to costs per square foot. Keep the costs low and tenants are attracted; raise them and when they're thinking of renewing their lease, they may start to look around at the competition.

Bill Braun manages Oxford Properties' Bell Trinity Square – a one million square foot property located in downtown Toronto. The building has been ranked one of the most energy efficient in its peer group of buildings and, in 2002 it won the Building Owners and Managers Association (BOMA) Canada's Certificate of Building Excellence.

How does Oxford maintain a target of 24 kilowatt-hours of electricity per square foot, when other buildings of a similar size use 23 per cent more?

"We need to make every cent we spend on electricity work as hard as it can for us," says Bill. "That's why we installed variable-speed drives on our HVAC systems and motion sensors on our lighting systems. We also have a thermal water storage tank in the basement of the building. It allows us to cool water at night and store it so that during the daytime, when tenants are at work, it can be circulated to condition air and supply chilled water. Because electricity costs less at night than during the day,

this giant tank allows us to achieve tremendous savings. The minute we have to rely on our chillers to cool the building during the day, I know we will exceed our energy budget for the month."

Load shifting is an integral part of Oxford Properties' energy management strategy. And it means that Bill and his team have to constantly be on the alert. They need to understand exactly how much electricity is used when, and for what purpose, at any point during the day. And know what to turn off, or on, if it looks like the buildings' systems are using too much electricity.

While load shifting is not a new concept – some companies do it, for instance, by scheduling electricity-intensive activities in the evening when electricity is less expensive – it has become more common since Ontario's electricity market was restructured. As a result of these changes, smart companies are learning to manage their consumption during 'peak' (more expensive) and 'off-peak' (less expensive) times. They want to avoid expensive price spikes and try to keep their costs as close to level as they can.

"This building is one finely-tuned machine," says Bill. "Our tenants sign leases based on a projected cost per square foot. We can't change the conditions of the lease just because electricity costs more. What we can change is the way we manage our costs. Our challenge, every day, is to get as much out of every dollar we spend on electricity as possible."



"We need to make every cent we spend on electricity work as hard as it can for us."

Bill Braun, Property Manager, Oxford Properties' Bell Trinity Square

Who takes advantage of load shifting?



oxford

Oxford Properties owns 44 million square feet of commercial space across Canada, half of it in Toronto and surrounding areas. One of its landmark buildings is Royal Bank Plaza in the city's financial core. Oxford also manages about 40 million square feet of commercial, retail and industrial property Canada-wide.

SUMMING UP

With the changes introduced three years ago to Ontario's wholesale electricity market, businesses have been given a challenging but potentially rewarding opportunity: managing the bottom-line impact of a commodity whose price fluctuates according to the laws of supply and demand. A commodity that may be more expensive at certain times of the day, or during certain months of the year. A commodity whose price they never had much control over... until now.

Electricity costs can be managed, just like any other operating expense. Whether you choose to level out your costs by signing up with an energy retailer, by shifting your production from peak hours to off-peak hours, or by implementing energy-conservation measures such as turning your company's computers off at night when they're not in use, the point is that you are now in the driver's seat.

Managing your electricity costs starts with monitoring your usage. Know how much electricity you use, know when you use it, know why you use it. Your Local Distribution Company (LDC) can help you with this. By developing an energy plan that's tailor-made for your business, you can then begin to monitor your plan's progress, take corrective measures as required and reap the rewards of knowing that you invested your electricity budget wisely.

To learn more about energy efficiency, here is a list of additional resources you may wish to consult:

Natural Resources Canada
www.oeenrncan.gc.ca/english/index.cfm

Ministry of Energy
www.energy.gov.on.ca

Ontario Energy Board
www.oeb.gov.on.ca

Your Local Distribution Company
www.ieso.ca/imoweb/siteshared/local_dist.asp



This brochure was prepared by Ontario's Independent Electricity System Operator (IESO) – a not-for-profit entity established by the Government of Ontario to manage the province's power system so that Ontarians receive power when and where they need it. Ontario's IESO balances demand for electricity against available supply through the wholesale market and directs the flow of electricity across the transmission system. To find out more about the IESO, visit our website at www.ieso.ca.

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17778.9	21121.4	21271.2	23057.9	19381.4	17513.5	21278.8	21040.3	21429.8	17019.0	19960.7	19817.0
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