



GETTING SMART ABOUT
**SMART
METERS**
ANSWER
BOOK



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SMART METERS: A NEW WAY TO THINK ABOUT ELECTRICITY

Your SMART METER is a key part of Ontario's new smart metering system – and of building a culture of conservation across this province.

By 2010, every home and small business in Ontario will have a SMART METER.

This guide explains what SMART METERS are, why Ontario is introducing them, and how they can help you manage and reduce your electricity costs.

This guide will give you all the information you need to take advantage of SMART METERS when they become fully operational.

As you'll see, with smart metering, you'll have new options for managing and reducing your electricity costs. And as you'll learn, if we all make some small changes to how we use electricity, we can also have a positive impact, both on the environment and on Ontario's energy system.

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WHY IS ONTARIO INTRODUCING SMART METERS?



SMART METERS WILL HELP ONTARIO MEET ITS ENERGY NEEDS.

Between now and 2025, Ontario must build almost a whole new electricity system. This includes replacing about 80 per cent of our current generating facilities as they retire over time, and expanding the system to meet our future growth.

Building new supply is vital. So is conservation.

Conservation will help us to make the best use of our existing electricity resources and slow the growth in our demand.

That's why Ontario is introducing new tools – like SMART METERS – that can help. SMART METERS will encourage us all to think more about how and when we use electricity.

SMART METERS WILL HELP SMOOTH PEAK DEMAND.

When we're all using a lot of electricity at the same time we create a "peak demand" period. And supplying electricity at those peak times has a range of impacts:

1. It adds to our electricity costs because higher demand often means higher market prices.
2. It's hard on the environment because more of the less attractive forms of generation must be run to meet them.
3. It adds to the amount Ontario needs to invest in the system because meeting the peaks requires even more new generation, and more transmission and distribution infrastructure.

So, working together to reduce our use at peak times makes good sense.



SMART METERS? TELL ME MORE ABOUT THEM.

HOW IS A SMART METER DIFFERENT?

A SMART METER is a huge advance over Ontario's current devices.

Our old-style meters can only measure the **total amount** of electricity used over an **entire billing period** because they have to be read manually. That's why, between actual readings, you might get an estimated bill that will be "trued up" at a later date.

A SMART METER can automatically record when electricity is used.

That's what makes a SMART METER so different. In the future, your SMART METER will record your total electricity consumption **hour by hour**. And it will send that information to your utility through either a wireless or another form of technology.

SMART METERS make time-of-use (TOU) prices possible.

With the ability to measure **when** electricity is used, **different prices** can apply at **different times** of the day. With time-of-use pricing, you will have a new way to manage your electricity use and your bills.



WHAT ARE THE BENEFITS OF SMART METERING FOR ME?

Here are just some of the benefits you'll see as soon as your SMART METER is fully operational and time-of-use – or TOU – pricing is in place:

1. **You'll be able to take action to manage your electricity bills.**
With attention to how and when you use electricity, you'll be able to contain or reduce your costs.
2. **You'll get real feedback about your electricity use.**
Your electricity bill will show how much you consumed within each TOU period – and, in the future, detailed information may be available to you via the Internet or by telephone.
3. **You'll get more precise electricity bills.**
The bills you receive will be based on the hourly readings taken and sent by your SMART METER.

TIME-OF-USE (TOU) PRICES? HOW WILL RATES CHANGE?

HOW WILL TOU PRICING WORK?

With TOU pricing, electricity prices will vary, based on when it is used.

That includes by **time of day**, by **day of week** (weekdays versus weekend), and by **season** (winter or summer).



TOU pricing will encourage Ontarians to shift some electricity use to off-peak hours. TOU pricing better reflects the way the electricity market works. Prices rise and fall over the course of the day, and drop overnight and on weekends, based on the amount of supply available and our levels of demand.

WHAT WOULD TOU PRICING LOOK LIKE TODAY?

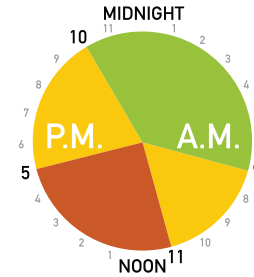
To prepare for smart metering, the Ontario Energy Board (OEB), which is responsible for setting our electricity prices, has developed the daily and seasonal time-of-use periods shown in the charts on the opposite page. (For more information on current TOU pricing, visit www.oeb.gov.on.ca.)

There are three time-of use periods:

On-peak (¢¢¢)
– demand is highest

Mid-peak (¢¢)
– demand is moderate

Off-peak (¢)
– demand is lowest



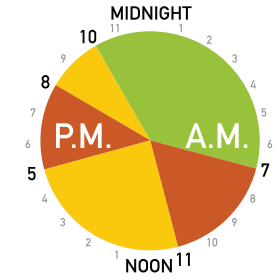
The Summer weekdays

The highest energy prices occur over the afternoon, largely due to greater air-conditioning use. That's why the on-peak rate is from 11 a.m. to 5 p.m.



Weekends and Holidays

Demand and electricity prices are lower on weekends and holidays – as well as overnight – so these periods are all off-peak.



The Winter weekdays

Energy prices peak twice – in the early morning and in the evening – mainly due to space heating, plus increased lighting and appliance use.

WHAT ARE THE BEST STRATEGIES FOR CONSERVATION AND SMART METERING?



There are lots of simple things we can do to save electricity and reduce electricity costs. Over the next few pages, you'll find some useful advice.

FIRST, GIVE ME THE FUNDAMENTALS.

There are a number of effective ways to approach conservation. Your **best** strategy might combine some or all of the following:

- 1. Shift some electricity use to off-peak periods.**
Under TOU rates, shifting activities that are energy-intensive to the less expensive mid-peak and off-peak hours will make a lot of sense. (See *"What are the big electricity users in my home?"* on page 10.)
- 2. Reduce electricity use across all periods of the day.**
Conservation always makes good sense. (See *"How about some energy-saving tips that I can use right now!"* on page 12 to learn some easy ways to reduce your electricity use.)
- 3. Ensure you're not paying for nothing!**
Many electronic items – for example, computers, TVs and cell phone chargers – aren't fully off unless you pull the plug. Since each can use between four and 10 watts of electricity, try to plug them into a power bar that you can turn off.
- 4. Opt for energy-efficient products wherever you can.**
ENERGY STAR® appliances and compact fluorescent light bulbs (CFLs) use less power, reducing both your electricity consumption and your costs.
- 5. Take advantage of conservation promotions.**
Many utilities, and the Ontario Power Authority (OPA), are creating programs that can help you conserve. Call us or visit powerWISE.ca to find out more.

WHAT ARE THE BIG ELECTRICITY USERS IN MY HOME?

All appliances are not created equal. Some of the most costly appliances to run are those that either heat or cool, such as the following:

Air Conditioning – can account for half or more of those summer electricity bills. Setting a room air conditioner to 25°C (77°F) will provide the most comfort at the least cost. Every degree below that costs three to five per cent more energy. But consider, too, that a ceiling fan or portable fan costs a fraction of what a central room air conditioner would cost for every hour of active use.

Clothes Dryers (and washers) – consume up to five kilowatt-hours (kWh) for every hour of use, and that can add up fast. So, when time-of-use rates are in effect, shifting clothes washing and drying to off-peak hours will result in real savings.

Electric Heat – is one of the more costly methods of home heating. Installing programmable thermostats, however, can help control this expense. (For baseboard heaters, this job should be undertaken by a licensed electrician, as it can be complex.) Baseboard heaters should also be kept free of dust build up. Just ensure that the power is turned off at the breaker panel before starting this task.

Electric Stoves – are also a heavy electricity consumer, so it makes sense to maximize every hour of use. For example, try to plan meals that allow more than one dish to be cooked in it. Or, consider using another option like a microwave or toaster oven, whenever you can.

Electric Water Heaters – An electric water heater is second only to electric heat in terms of electricity use. Depending on your consumption, an alternative, such as a solar system or one that will produce hot water “on-demand”, may be worth considering. It’s also possible to save significantly through the use of a programmable thermostat – this will be particularly true when TOU pricing takes effect. Installation, however, should be undertaken by a licensed electrician.

Be aware, too, of old appliances and equipment that are not as efficient as today’s models. A refrigerator that is 10 or more years old might be using twice as much electricity, and an older electric hot water heater that is not insulated well will also consume more.

HOW DO I DETERMINE HOW MUCH ELECTRICITY MY APPLIANCES USE?

It’s always a good practice to know just how much electricity your equipment and appliances might be using. That way you can make informed choices about how and when you use them.

- watts (W) = amps x volts
- 1 kilowatt (kW) = 1,000 watts
- 1 kilowatt-hour (kWh) = 1,000 watts x 1 hour

Here’s the formula:

$$\begin{array}{r} \text{Total hours of use} \\ \times \\ \text{appliance wattage} \\ \hline 1,000 \text{ (converts watts to kilowatts)} \\ \hline = \\ \text{Total kWh of electricity consumed} \end{array}$$

For example, if you want to know how many kWh of electricity it might use to run a clothes dryer for two hours:

$$\begin{array}{r} 2 \text{ hours (total usage)} \\ \times \\ 5,000 \text{ watts (wattage for clothes dryer)} \\ \hline 1,000 \text{ (watts to kilowatts conversion)} \\ \hline = \\ 10 \text{ kWh} \end{array}$$

HOW ABOUT SOME ENERGY SAVING TIPS THAT I CAN USE RIGHT NOW!

Here are some low and no-cost ways to start saving electricity right now.

Heating and Cooling

- **Keep your heating and cooling equipment in good repair.** Change or clean filters regularly. Anything that blocks airflow is making your equipment work harder and costing you more.
- **Check for drafts and leaks** that will let winter heat out and invite muggy summer air in. Caulking and weather-stripping are simple and inexpensive.
- **Install a programmable thermostat** and set it to reduce the heat when you're not home and when you're sleeping.
- **Consider a fan first for cooling.** Ceiling and portable fans cost pennies to operate, and can either replace or reduce your need for air conditioning.
- **Keep your curtains closed** to keep the summer heat out and the winter heat in. But you can open them on sunny winter days to take advantage of solar heat.



Appliances and Home Equipment

- **Economize on your dishwasher.** Always run full loads, set your dishwasher to the economy cycle and use the air-dry setting.
- **Make sure your refrigerator and freezer doors are sealing tightly** by testing how firmly they close and hold onto a piece of paper, such as a five-dollar bill. If it slips out easily, the rubber seals should be replaced.
- **Don't overfill your refrigerator** as it prevents the cold air from circulating. (But do keep a chest freezer full as it will perform better.)
- **Don't keep an old, extra refrigerator running** just for occasional use. It could cost you \$150 or more per year in electricity.
- **Clean your dryer's lint trap after every few loads to reduce drying time.** And clean its exhaust ducts at least once a year for the same reason.
- **If you have a pool pump, use a timer** that will allow you to run it just a few hours a day. Using a solar blanket will keep the water warm overnight and also reduce heater use.
- **Plan energy-efficient meals.** Smaller appliances, such as toaster ovens or microwaves, use less energy than stoves. When using an oven, try to plan a meal that will allow you to use it for more than one dish.

Electronics

- **Shut your computer down when it's not in use.** Powering up and down does not use extra energy and actually reduces wear. And turn the monitor off instead of using a screen saver. Screen savers actually increase energy use by preventing your monitor from sleeping.

Hot Water

- **Fix leaking hot faucets to save on hot water heating.** A one drip per second leak will waste about 9,000 litres per year! That's enough water for about 95 five-minute showers (and that's using a less than efficient showerhead).
- **Wash in cold water.** With today's detergents, clothes come just as clean.
- **Wrap your electric hot water tank and pipes in a special tank blanket** to help it keep its heat. (Don't wrap a gas heater as an inappropriate or incorrectly installed blanket is dangerous.)

Lighting

- **Replace your most frequently used incandescent bulbs with compact fluorescent light bulbs (CFLs)** which use 75 per cent less power and last up to 10 times longer. There are many kinds of CFLs for indoor and outdoor use. Make sure you choose the right ones for you.
- **Consider automatic timers, motion sensors and dimmers,** where you can't use CFLs, to help maximize your control over lighting costs. Only timers with a mechanical switch can be used with CFLs.



A FEW MORE Q & A's

Will I see a SMART METER charge on my bill?

The cost of the SMART METER initiative will be recovered through the electricity rates paid by all customers in the same way that costs for existing meters and services are recovered today.

When will I begin paying time-of-use prices?

A date has not yet been established for the implementation of time-of-use (TOU) rates for our customers with SMART METERS installed. You will be notified in advance when you can start to take advantage of TOU rates.

Will I see lower electricity bills?

With time-of-use rates, you'll see the results of your conservation efforts – and you'll save money if you can shift your heaviest electricity use to off-peak hours. Equipment like air conditioners, electrical heating, as well as ovens, dryers and even lighting, for example, can use a great deal of energy.

Will I receive a SMART METER if I am currently with, or moving to, a retailer? Will I pay time-of-use rates?

Yes, you will receive a SMART METER, but your rates will be determined by the terms and conditions of the contract you choose to sign.

Is my usage information secure and will it remain confidential?

Yes. Ontario's electricity distribution companies are required, by law, to ensure that the SMART METERS and communication networks that are put into place are equipped with security features to prevent unauthorized access. We must also comply with federal laws regarding the privacy, protection and disclosure of personal information. Any data that is sent to the central data repository will be provided in such a way as to prevent identification of an individual customer.

For More Information

If you have questions about SMART METERS, please contact:

Veridian Connections

Call: 1-888-420-0070

Visit: www.veridian.on.ca

Or visit: www.smartmetersontario.ca

For tips and advice on how to use energy wisely,
visit: www.powerWISE.ca



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