



Smart Meters and Time-of-Use Electricity Prices

Federation of Ontario Cottagers Association
November, 2010

Presentation Overview



- **Introduction to Smart Metering and Time-of-Use Prices**
- **Time-of-Use Electricity Prices Explained**
- **Bill Impacts on TOU Prices**
- **Short and Long Term Benefits to Seasonal Customers**
- **Conclusions/Questions**



Introduction to Smart Metering and Time-of-Use Pricing

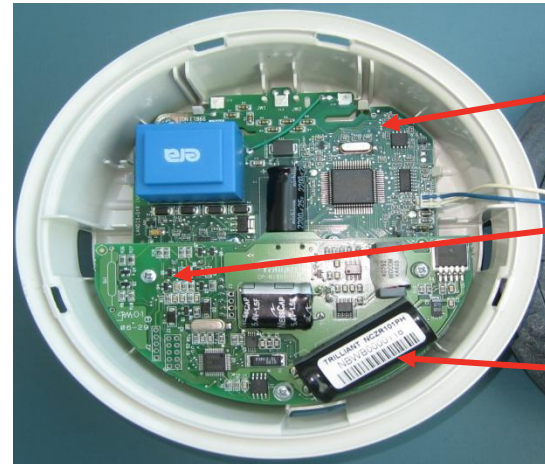
Smart Meters and Time-of-Use Prices: Overview



- Smart meters and Time-of-Use (TOU) prices are Provincial government initiative to promote a culture of energy conservation in the province
- TOU prices are a new way to help customers:
 - Manage electricity use (and costs)
 - Reduce strain on the electricity system
 - Help the environment



our new meter meter



standard
meter circuit
ry

communication
module

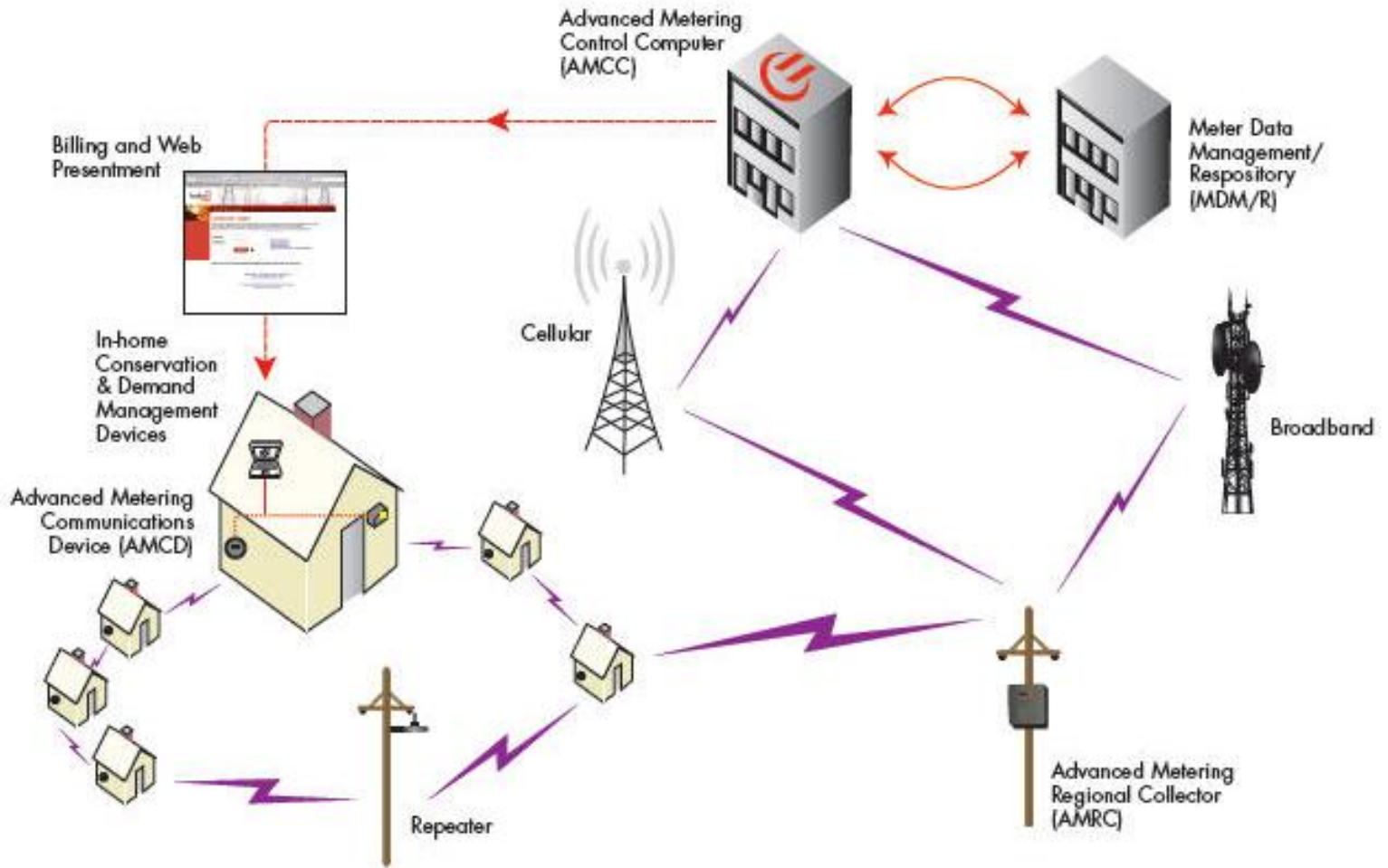
upper ap

- fast gasp for outag

- Meter consists of two components
 - Solid state meter (industry has been using for years)
 - Radio that enables the meter to communicate
- Meters approved by Measurement Canada, tested by manufacturer, and tested by Hydro One before they are deployed
- Meters measure hourly electricity use and communicate wirelessly



How Does The Smart Metering System Work?





Electricity Billing and Time-of-Use Electricity Prices Explained

Time-of-Use Pricing

Impacts the Electricity Line Item of Your Bill



From **HYDRO ONE**

Metered usage in kilowatt-hours
According to the meter, the amount of electricity you use, measured in kilowatt-hours (kWh).

Adjusted usage in kilowatt-hours
When electricity is transmitted over long distances and passes through different wires and transformers, there is a small amount of power lost.

Time-of-Use pricing
The majority of customers will be introduced to Time-of-Use pricing within the next year.

Delivery charges
Hydro One's cost to move electricity from where it is generated to customers.

Regulatory charges
The charge for administering the electricity system and maintaining the reliability of the provincial grid.

		Service address: MR. DAN SMITH 123 MAIN STREET PEMBROKE, ON	Page 2 of 2
		Your account number: 12345-67890	
How we calculated your charges			
Balance forward	Amount of your last bill		\$115.00
	Amount we received on July 30, 2010 - thank you		\$115.00 CR
	Balance forward		\$ 0.00
Your new charges	Your service type is Residential - High Density		
	Electricity used this billing period		
	Meter J254247 for billing period July 2, 2010 to August 3, 2010		
	Metered usage in kilowatt-hours (100 x 10) = 1,000 kWh		
	Adjusted usage in kilowatt-hours (1,000 x 1.085) = 1,085 kWh		
	Electricity:		
	On-Peak:	215.00 kWh @ 9.9000 c	\$21.29
	Mid-Peak:	363.00 kWh @ 8.0000 c	\$29.04
	Off-Peak:	507.00 kWh @ 5.3000 c	\$26.87
	Delivery:		\$64.27
	Regulatory Charges:		\$7.71
	Debt Retirement Charge:		\$7.00
	HST (87086-5821-RT0001)		\$20.30
	Total of your electricity charges:		\$176.48

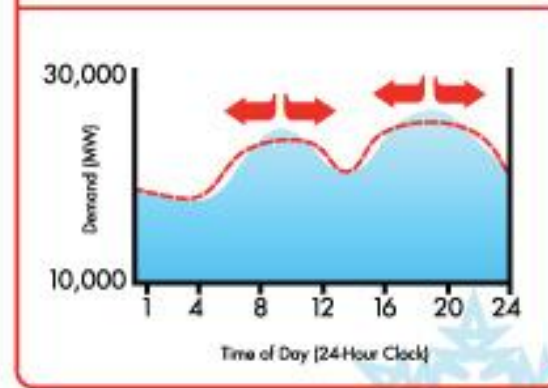
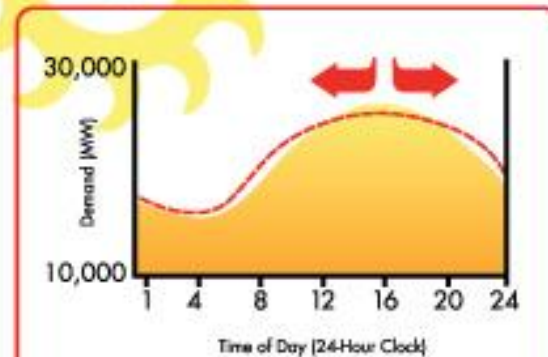
Time-of-Use Periods f

Demand for Electricity in Ontario



- Electricity demand is a fundamental concept related to Time-of-Use prices
- When we all use electricity at the same time, we produce “peak demand” periods
- In Ontario, we have:
 - One peak in the summer
 - Two peaks in the winter

PEAK DEMAND ON A TYPICAL SUMMER DAY



PEAK DEMAND ON A TYPICAL WINTER DAY

The Problem: Supplying Electricity at Peak Times Has A Range of Negative Impacts



- Supplying electricity at peak times has a range of negative impacts:
 - It adds to electricity costs
 - It's hard on the environment
 - It adds to the amount of new transmission and distribution infrastructure Ontario must build (and customers must pay for) and puts a strain on the electricity system
- So working together to reduce our electricity use at peak times makes good sense... and that's where Smart meters and Time-of-Use prices come in





Time-of-Use Electricity Prices Explained

- Today, consumers pay the “average” price for electricity even though prices change throughout the day
 - Consumers that use electricity off-peak are paying more than it costs to produce
 - Consumers that use electricity on-peak pay less than what it costs to produce
- Time-of-Use prices better reflect what it costs to produce electricity during off-peak, mid-peak, and on-peak periods

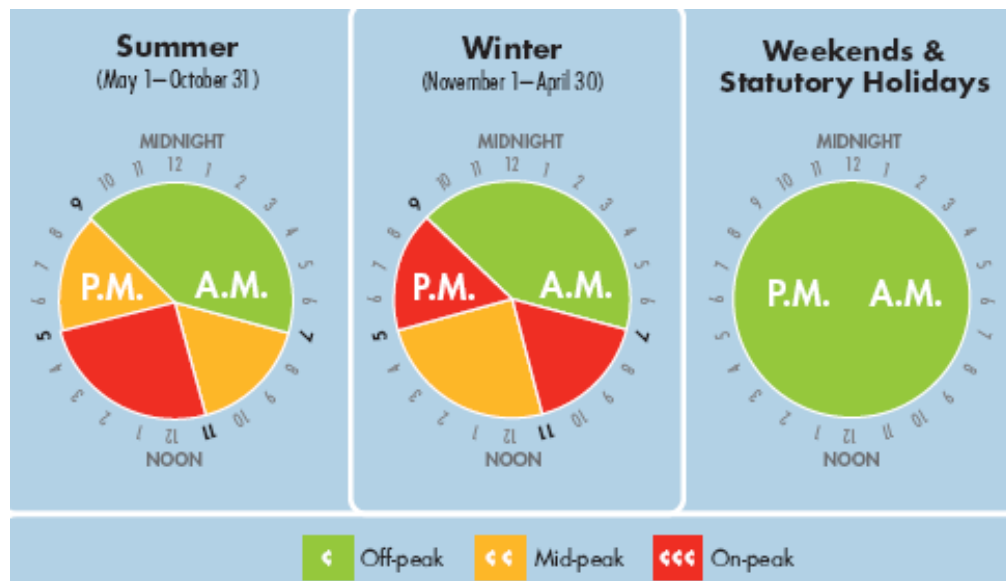
Regulated Price Plan (RPP) - Tiered Prices	
Lower-tier Price:	6.4 ¢/kWh
Higher-tier Price:	7.4 ¢/kWh
Current Tier Threshold:	Residential winter threshold: 1,000 kWh per month

Regulated Price Plan (RPP) - Time-of-Use (TOU) Prices	
Off-peak Price:	5.1 ¢/kWh
Mid-peak Price:	8.1 ¢/kWh
On-peak Price:	9.9 ¢/kWh



TOU Price Periods

- TOU prices are set by the OEB in May and November
- Three Time-of-Use Periods
 - On Peak
 - Mid-Peak
 - Off-Peak
- Time-of-Use Periods vary
 - Time of day, Day of week
 - Season (Summer/Winter)
- The lowest prices:
 - 9:00 pm-7:00 am weekdays
 - All day weekends
 - All day holidays

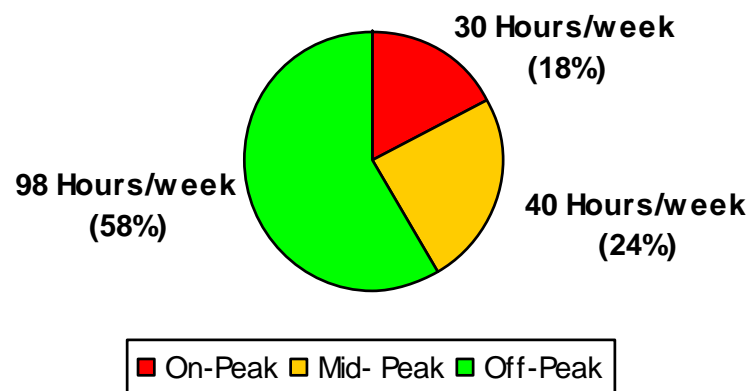




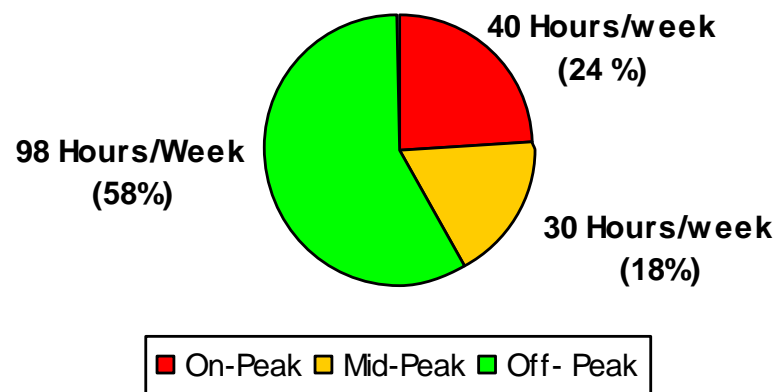
Bill Impacts on Time-of-Use Prices

- Bill impacts on TOU prices depend on usage characteristics and ability/desire to shift use where possible
- Difficult to make generalizations but:
 - Customers who use most of their electricity off-peak will experience downward pressure
 - Customers who use most of their electricity on-peak (and do not shift) will experience upward pressure
 - Customers who have the average load profile in the province will see little difference
 - Equipment/appliances that operate 24/7 experience little difference

SUMMER BREAKDOWN



WINTER BREAKDOWN





Time-of-Use Pricing Pilot

A Time-of-Use price pilot was conducted with about 500 customers in northern York Region. Results:

- 76% of customers paid a lower bill on TOU prices
- Average savings over 4 months -- \$23 (--\$5.75/mo.)
- Maximum savings over 4 months -- \$125 (--\$31.25/mo.)

- Average increase over 4 months -- \$7 (+\$1.75/mo.)
- Maximum increase over 4 months -- \$23 (+\$5.75/mo.)

- Only 4% of customers found the rate to be inconvenient
- 75% wanted to stay on TOU pricing

Potential Savings from Shifting Electricity Use



Appliance	Time-of-Use Price Examples		
	Off-peak 5.1¢ per kWh	Mid-peak 8.1¢ per kWh	On-peak 9.9¢ per kWh
Clothes Dryer (1 load)	11¢	18¢	22¢
Clothes Washer (1 load/hot wash)*	40¢	63¢	77¢
Clothes Washer (1 load/cold wash)	6¢	9¢	11¢
Dishwasher (1 load)*	18¢	29¢	36¢
AC Central – 25 degrees (1 hour)	14¢	22¢	27¢

*Cost of electric water heating included.

Prices shown are as of November 2010 and reflect only the electricity cost on your bill. They do not include delivery, regulatory or other charges. Prices are subject to change by the Ontario Energy Board in May and November each year.

Benefits of Smart Meters/TOU for Seasonal Customers



- Quarterly bills based on actual usage under normal conditions
 - Begins when customer moves to automated meter reading
- Electricity usage on weekends at off-peak prices when switched to TOU prices
 - Think about what equipment/appliances you leave on during the week
- Improved outage management as the meter will tell us when your power is out
 - Future benefit when all systems are in place
- TOU web portal
 - Available to customers when they are switched to TOU prices



Register at www.HydroOne.com
to view your Electricity Use



 **Customer Login**
Click here to login >>>
Did you [forget your password?](#)
Not registered? [Create an online profile](#)

Power Outages



Call 1-800-434-1235 to report a power outage, fallen tree hazard or emergency (24 hours).

How do I?

- Save Energy
- Pay My Bill
- Understand My Bill
- Find Rates & Prices
- Get Time-of-Use Info
- Move In or Out
- Search Unregistered Easements

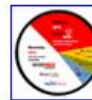
Popular Links

- Tenders & Proposals
- Industrial & LDCs
- Contractors
- Generators
- Feed-in Tariff Program
- Electricity and Safety
- Conditions of Service
- First Nations and Métis
- En français

Hydro One News



Understanding Your Power is an [online exhibit](#) designed to help you learn more about what we do, your power's journey, the value of electricity, your bill, the future smart grid, and more. (Adobe Flash Player required)



Where does your electricity dollar go? See a [breakdown of the charges](#) found on a typical residential customer bill. For a closer look, read our latest fact sheets that explain [standard](#) and [time-of-use](#) bills.



Visit 10 Smart Meter Lane to learn more about [Time-of-Use prices](#) and how to make them work for you. For more information, read our customer newsletter, [Staying Connected](#), or visit our [TOU](#) and [smart meter](#) sections.

[More Hydro One News...](#)



My Account Summary View

[TOU Home](#)

[Hourly](#)

[Daily](#)

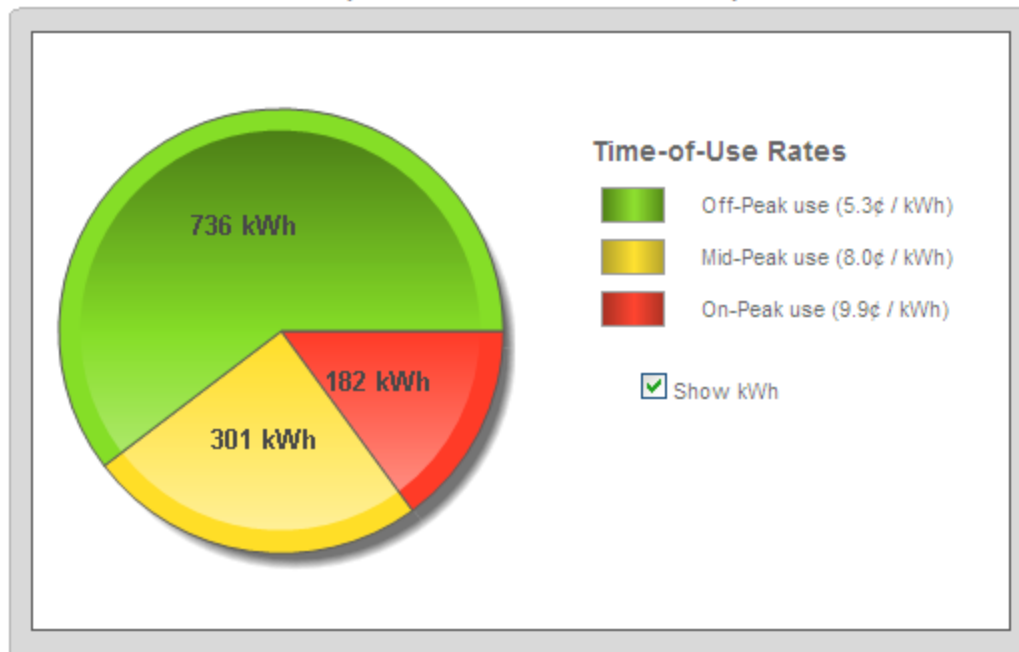
[Monthly](#)

[Billing Period](#)

[About TOU](#)

MY ELECTRICITY USE: SUMMARY

MOST RECENT 30 DAYS (SEP 24, 2010 - OCT 23, 2010)



Information presented on this site is preliminary until billed.

Time-Of-Use prices reflect the cost of the 'electricity' line of your bill only. Delivery, Regulatory and Debt Retirement charges are additional line items found on your bill and are not included here. See [my bill explained](#) for more information.



Did You Know?

Electricity consumers across Ontario are making the switch to Time-of-Use (TOU) prices; a new way for consumers to manage their electricity use (and costs), reduce strain on the electricity system, and help the environment. You are scheduled to make the switch to TOU prices on the date provided in your TOU notification letter.

Popular Links

- [Learn more about TOU prices](#)
- [View my daily electricity use](#)
- [Compare my bills](#)



My Account Hourly View

TOU Home

Hourly

Daily

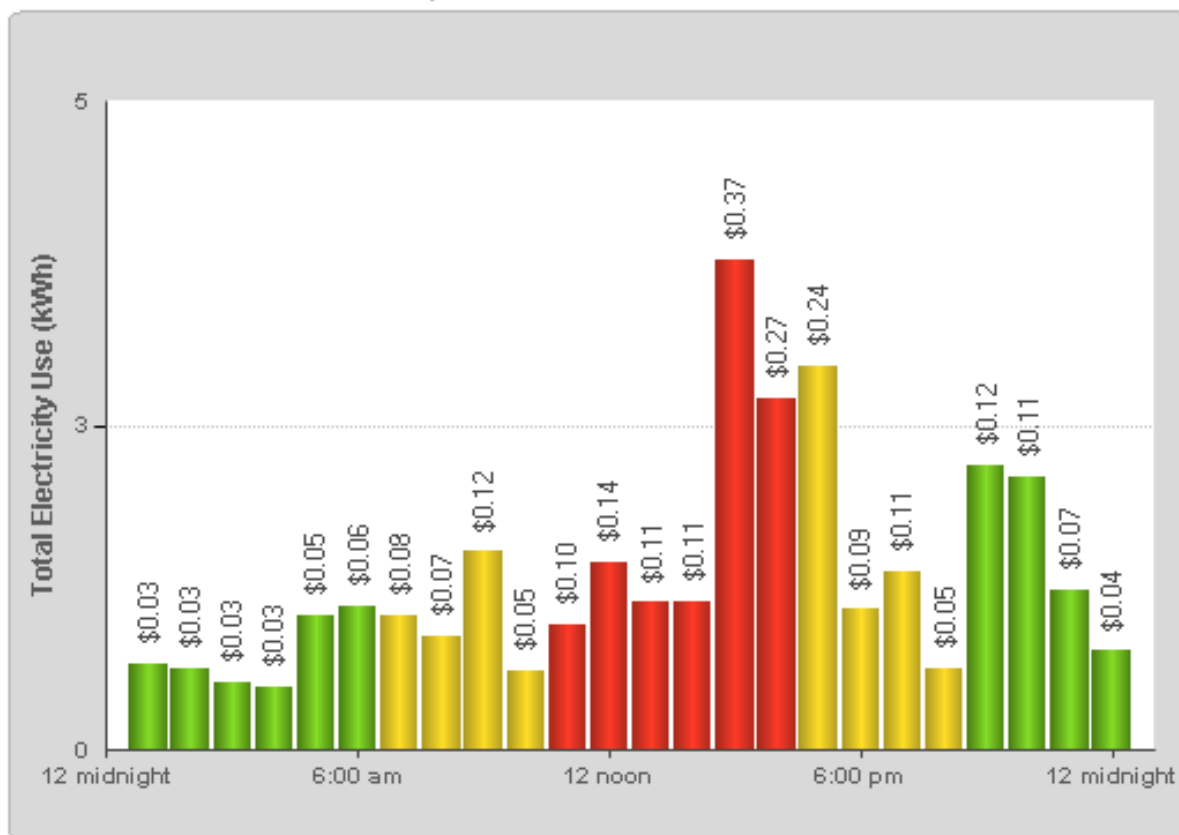
Monthly

Billing Period

About TOU

MY ELECTRICITY USE: HOURLY

WEDNESDAY OCTOBER 20, 2010



« Previous Day



Change Date

Next Day »



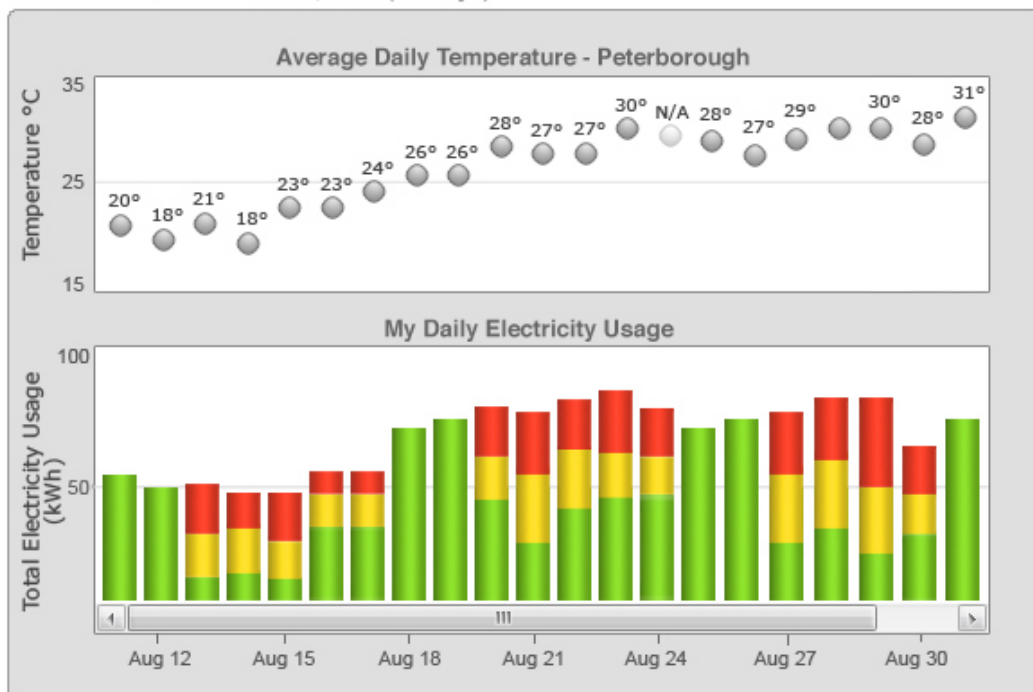
My Account Daily View with Temperature

Name: John Smith Account: 12312312345678 Select a meter: 789789

TOU Home Hourly **Daily** Monthly Billing Period About TOU

MY ELECTRICITY USE: DAILY

AUGUST 7 - SEPTEMBER 7, 2008 (30 Days)



« Previous 30 days

Change Dates

Next 30 days »

Summary:

Total Usage: 15,492 kWh

Total Cost: \$1,003.73



Did you know?

On very hot or cold days the amount of electricity you use may be higher than normal.

Using a programmable thermostat can help you manage your costs by automatically reducing your heating or air conditioning when you're not at home.

Popular Links

[Energy conservation tips](#)

[TOU Appliance Calculator](#)

[Learn more about TOU Rates](#)

CHART OPTIONS

- Show Average daily Temperature
- Show Cost

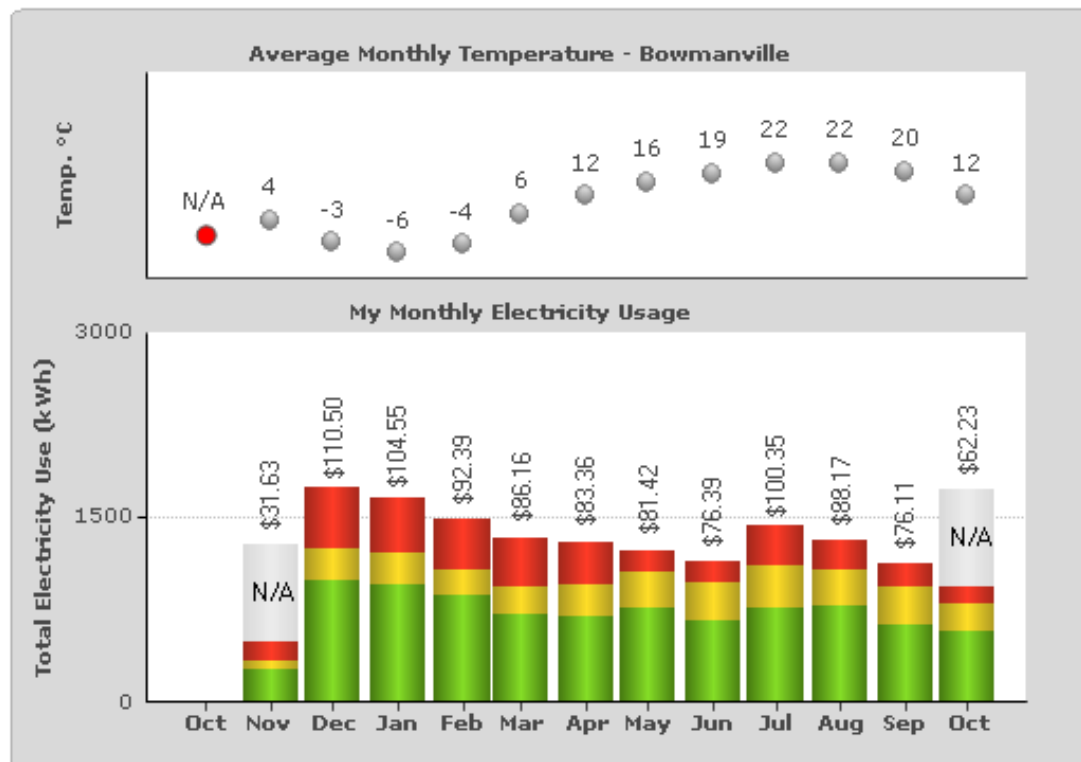


My Account Monthly View with Temperature

TOU Home Hourly Daily **Monthly** Billing Period About TOU

MY ELECTRICITY USE: MONTHLY

OCTOBER 2009 - OCTOBER 2010



« Previous Year

Change Date

Next Year »



Did You Know?

On very hot or cold days, the amount of electricity you use may be higher than normal.

Using a programmable thermostat can help you manage your costs by automatically reducing your heat or air conditioning when you are not at home.

Popular Links

[Energy conservation tips](#)

["10 Smart Meter Lane" TOU appliance calculator](#)

[Learn more about TOU prices](#)

CHART OPTIONS

Show average monthly temperature

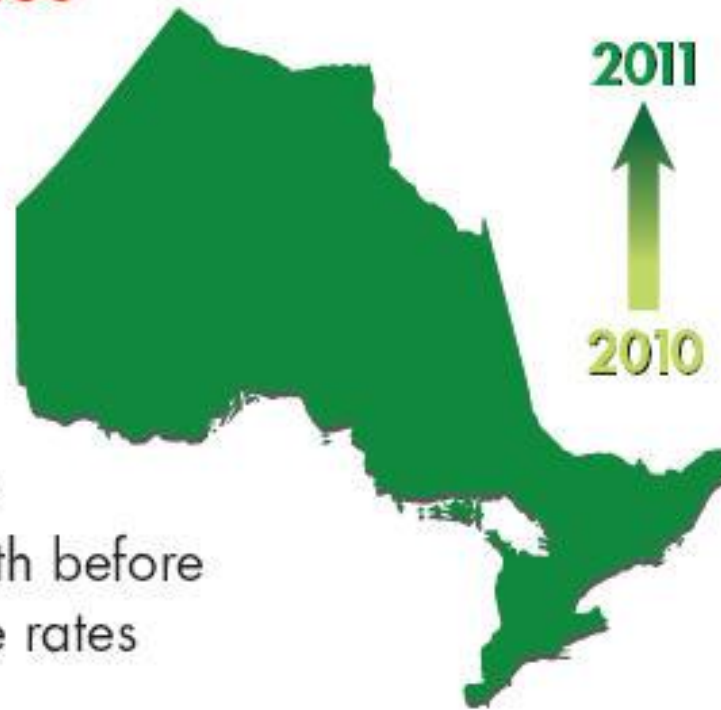
Show Cost

Switching Customers to Time-of-Use Prices



Hydro One's plan to switch customers to Time-of-Use rates

- Beginning in 2010 through 2011.
- Customers will be notified in the mail with an education kit 1 month before switching to Time-of-Use rates



Conclusion



- Smart meters and Time-of-Use electricity prices are part of the provincial government's plan to promote a culture of energy conservation in the province
- Smart meters and time-of-use (TOU) prices are a new way for customers to:
 - Manage electricity use (and costs)
 - Reduce strain on the electricity system
 - Help the environment
- Smart metering enables a number of important consumer benefits and tools and modernizing distribution system infrastructure
- Hydro One has begun migrating customers to Time-of-Use pricing and will continue through 2011
- Customers will be notified directly in the mail 30 days in advance of being charge TOU prices with a helpful information kit

Thank-You



- Thank-you for your time
- Questions?

