

# THES 'Smart Meter'

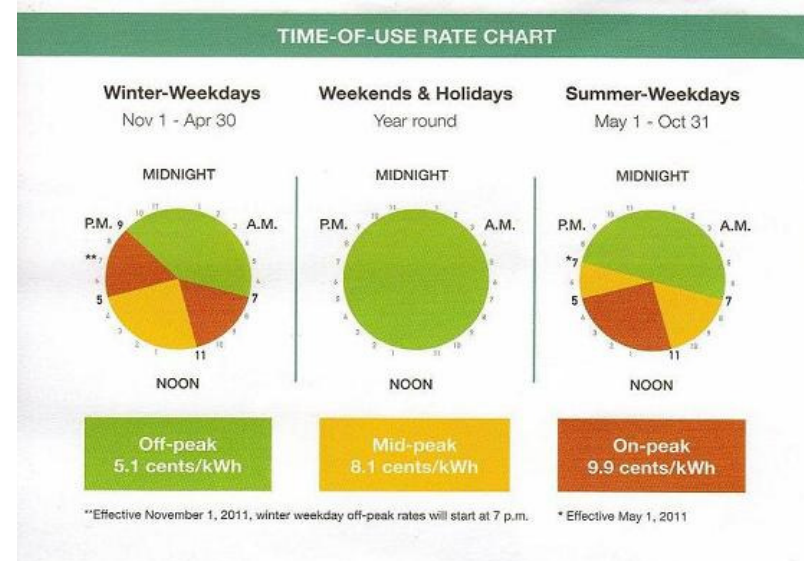
**Ontario Energy Board (OEB)  
Smart Grid Working Group  
May 10, 2011**



# THES 'Smart Meter'

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- Toronto Hydro Electrical System's (THES) "Smart Meter" tracks consumption on an hourly basis and makes this data available via a THES web-portal- 1 day delayed



# Visuals

- Smart Meter allows customers to see their electricity usage. The belief is that hopefully they will reduce energy, especially during peak times by shifting use to off peak times.

## TIME-OF-USE (TOU) RATES

### About Time-of-Use Pricing (TOU)\*

To prepare for smart metering, the Ontario Energy Board has developed the daily and seasonal time-of-use periods shown in the charts below.

There are three TOU periods

- Highest price (On-Peak)
- Mid price (Mid-Peak)
- Lowest price (Off-Peak)

### Summer Rates (May 1 - October 31)

In the summer, we traditionally have just one peak period in the middle of the day between 11 a.m. and 5 p.m. This is mainly due to air conditioning use during the hottest hours of the day.



### Winter Rates (November 1 - April 30)

The winter gives us two peak periods. This is because our days are shorter and in the morning when most people get up, lights and appliances are turned on and heating systems are turned up. The pattern repeats later in the day around the dinner hour.



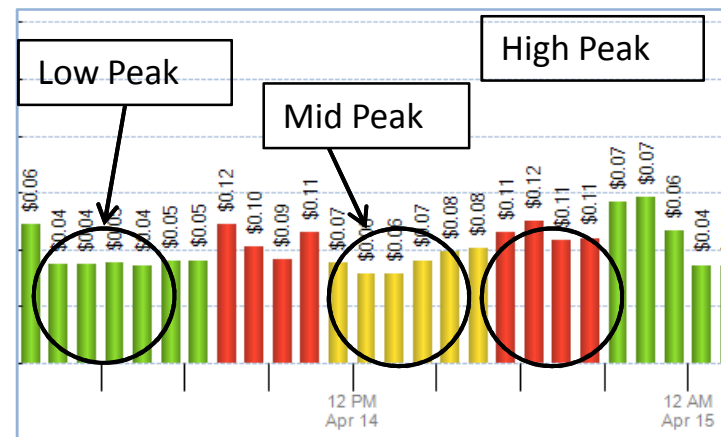
### Weekends and Holidays (All year)

Demand, and electricity prices are lower on weekends and holidays - as well as overnight.



2011 Holiday Schedule

Ideally: the majority of energy use will occur at low-peak times



- Smart Meters are enabling public participation in the electricity market.  
**<? But How Exactly ?>**
- The smart meters help the utilities by directly connecting residences to the utility which in turn will benefit the customer.
- If the utility companies can detect problems, the crew can be on the scene before customers realize there's a problem.

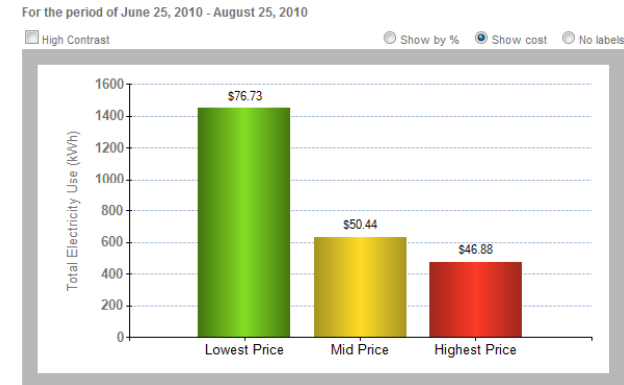
# Customer: 'Comments'

- “What?”
- “I run my dishwasher when I go to bed, so, what else can I do?”
- “I tried to use it, but the password expired and THES office was closed”
- “How is this supposed to help me?”
- “Interesting, but could not remember what happened last week.”

# Smart Meter Reports

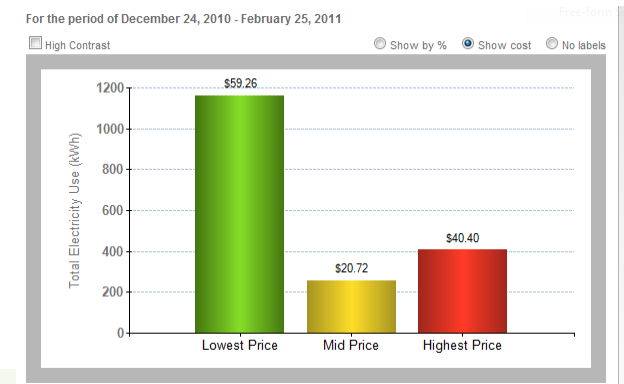
- Customers are able to access their energy use online and compare usage between hours, days, and months. If customers stay proactive and keep track of energy use, they will be better able to manage it

Summary of monthly energy use during summer months



**BUT** unable to compare with others since data is locked

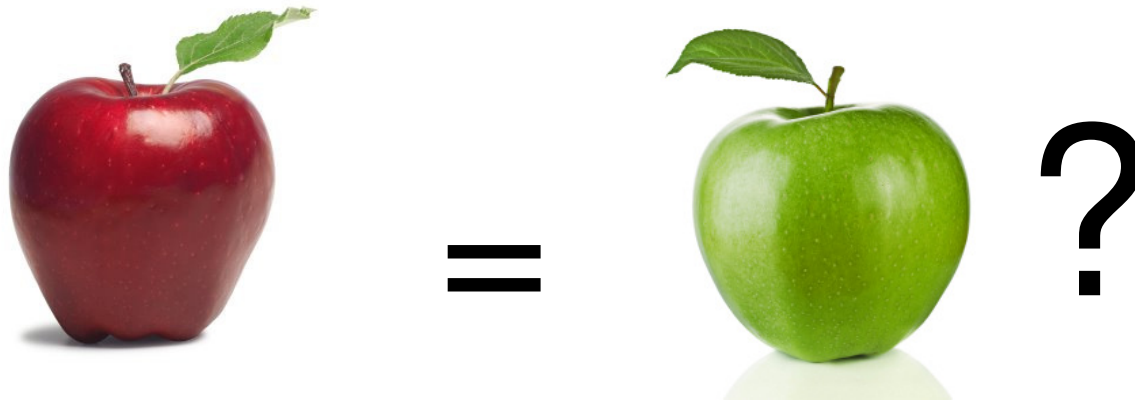
Summary of monthly energy use during winter months



# Home-Owners Cannot Make Comparisons

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- Smart Meters allow the home owner to compare only **their** energy use by viewing month-to-month data, but are unable to see how their energy use compares to other similar home's energy use.

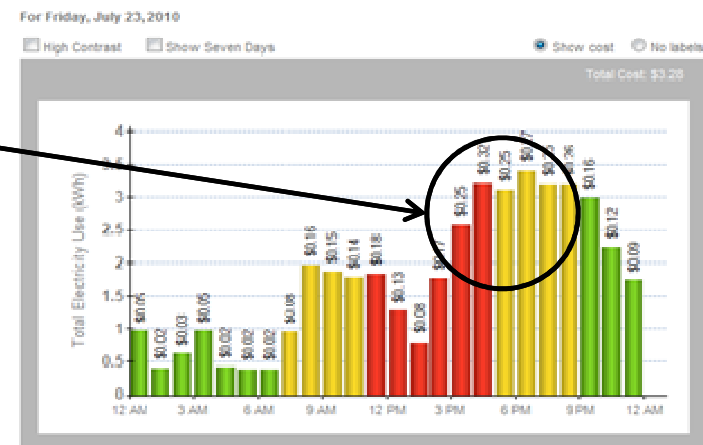


# Smart Meter

Smart Meters track your homes energy use on an hourly basis, NOT in Real time. The data is not available on-line until the following day.

- **Benefits:** Clearly shown when energy is being used during low, mid and high peak times to better allow you to manage your energy use.
- **Limitations:** Not shown in real-time. Can be difficult to remember the following day what was used that caused higher energy use.

Smart Meters do not indicate why energy use here is high or what caused it. It is up to the consumer to remember what was being used between 5-7 p.m.





# Smart Meter Website Extras

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- View current costs
- View your high price use
- Savings Calculator
  
- View Summary by Billing period
- Compare Rate Plans
- Predict Future Bills

Set up e-mail alerts that will notify you when you have passed your target savings \$\$e.g.:

Set Up Electricity Cost Alert

Target Value: \$50

Email Address:

Save

**Note:** When trying to use these features, it indicates 'application is unavailable'

Work well and are helpful to the home-owner

# Real Time Monitoring (RTM)

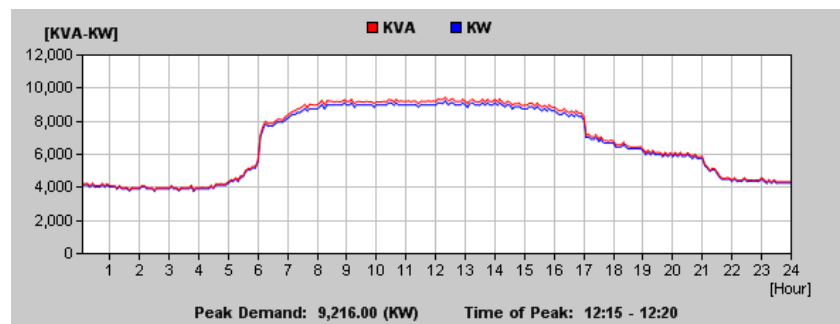
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**Real Time Monitoring tracks energy use in real time and provides an on-line description in graph format of a building's usage.**

## Capabilities:

- View Daily, Monthly, and Annual Energy Reports
- View Electricity Prices
- View Monthly Bills
- Performance results including budget assistance and monthly cost input
- Price and Utility alarm information

*KW used in a 24-hour period at 5-minute intervals*



# Real Time

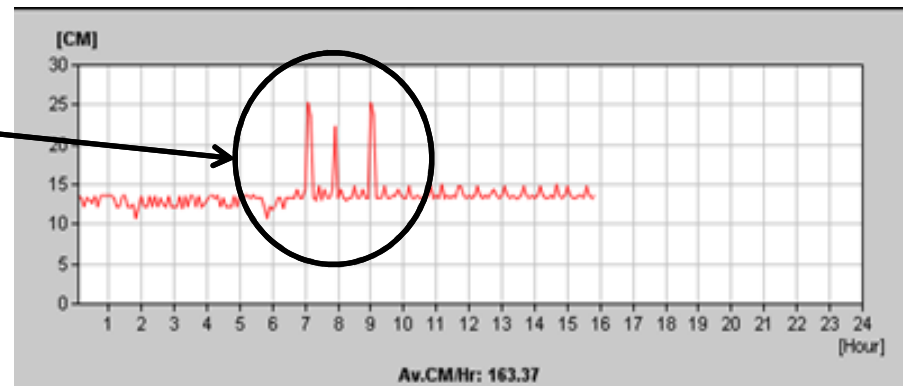
Real Time Monitoring allows energy use to be tracked in *Real Time* and displayed online through a password protected website as it is happening. Real time monitoring can be used in large commercial buildings and has many benefits to the customer.

## Benefits:

- Notice changes as they happen
- Immediate Response to issues

Able to detect a malfunction as it is happening.

**Finding new solutions**



# Example: Bill Verification

## RTM

- Recognition of billing errors
- Allows month-to-month comparison
- Notice differences and obscurities effectively which can be helpful in benchmarking

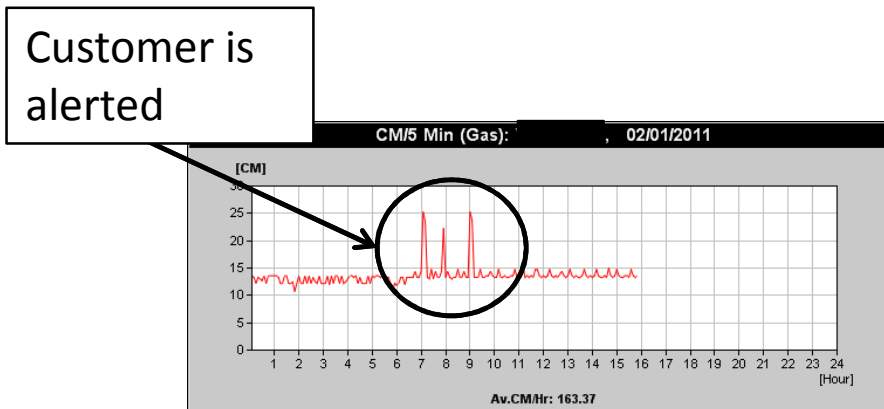
## Smart Meters

No capability

# Example: Visual

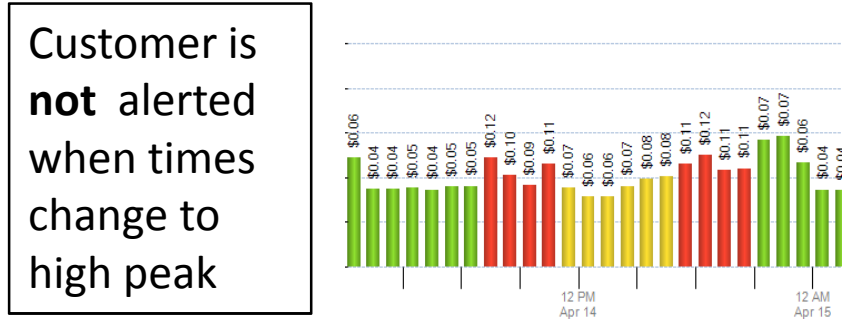
## RTM

- The customer is able to set up parameters and receive alerts when there are abnormalities. Easy to detect unexpected changes.



## Smart Meters

Do not notify the customer when energy is being used at high peak times.



# Comments

- Knowledge is the key factor in reducing energy consumption
  - Smart meters are not intuitive or instructive
- Smart Meters only report what electricity was used
  - Electricity reduction requires customer's action
- Smart Meters cannot automatically reduce electricity usage
  - In order to notice changes in your energy use, you will require a log of what appliances were used and when in order to identify future savings opportunities

# Suggestions

- **The THES website can be more user-friendly**
  - Automatic email for password Vs. 'snail mail'
- **Better ways to communicate**
  - When energy is being used
  - High-peak time alerts or alarm
- **Provide *real-time***
  - In-home displays
- **Share information**
  - Benchmarking and comparisons with similar residences



***Thank you!***

*Please don't hesitate to contact **Energy@Work Inc.** with any additional inquiries...*

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