

**As part of the Smart Grid Working Group, the Ontario Energy Board (OEB) staff asked BOMA Toronto to check with the commercial office sector and find out:**

- “Why is RTM not universally used by the commercial office Sector?”***

***A ‘survey monkey’ was sent out to 500 people and this presentation summarizes the results***

# Executive Summary



**With only 14 response from a possible 500 requests, indicated the low priority that energy management has in general – which has been our experience as well.**

**The classic dilemma with the commercial sector is that utility costs are a ‘pass through’ cost to the tenants. Thus, investing in energy management (including real time monitoring) bears a risk that the investment is not a ‘recoverable’ cost**

***THERE IS A REAL NEED FOR BETTER EDUCATION AND COMMUNICATION – EXACTLY THE SAME AS THE RESIDENTIAL SECTOR, BUT WITH GREATER POTENTIAL***

# Introduction



- The Ontario Energy Board's (OEB) Smart Grid Working Group (SGWG) asked BOMA Toronto to provide an answer to the following questions:
  - Why isn't real time monitoring universally used by the commercial office Sector?
  - What do customers want from their data?
  - What do customer's think the barriers are?
- BOMA Toronto sent out a presentation and a survey to approximately 500 BOMA members for a response to these questions
- The presentation is available in Appendix A  
Survey questions are available in Appendix B

# BACKGROUND

# Background



- Real Time Monitoring as a tool to monitor and measure energy use, demand, price and cost is so important for the commercial office sector due to Ontario's complex deregulated electricity market
  - but NOT typically used
- The Commercial Sector is expected to deliver 50% of the Long Term Energy Plan's (LTEP) conservation target
  - response from the commercial sector to CDM has been slow

Bottom line: "We can't manage what we do not measure"

However,

The commercial sector has very few Real Time Monitoring systems in place, despite electricity costs exceeding \$'000,000's

# Exceptions - LEADERS



Refer to: [http://www.ieso.ca/imoweb/pubs/bi/em\\_bottomLine.pdf](http://www.ieso.ca/imoweb/pubs/bi/em_bottomLine.pdf)

- Steve Hall, PEEL Region's buildings
- Fred Leonenko, Confederation Freezers
- Bill Braun, Bell Trinity Square (HydroOne building)
- Doug Dittburner, Cadbury and later at Campbell

## Other Examples

Cadillac Fairview – Toronto Dominion Centre

GWL Realty Advisors

– Commerce Court plus Downtown Portfolio (10 buildings)

# Response



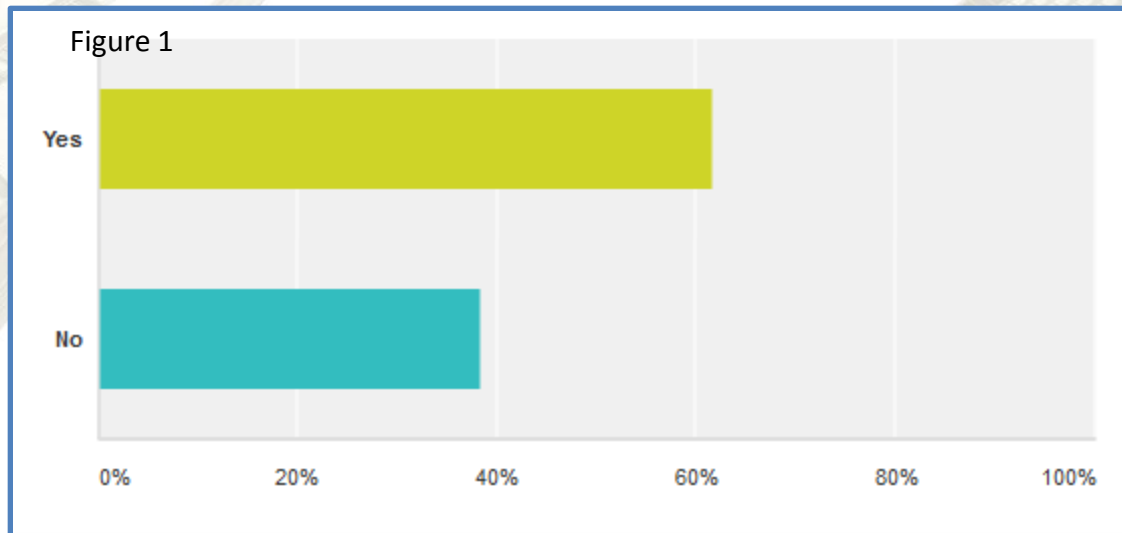
- BOMA constructed an on-line electronic survey using 'Survey Monkey'
- The survey was sent out to approximately 500 BOMA building managers and operators over a 2 week period
- A presentation describing Real Time Monitoring was included with the survey to assist in understanding real time monitoring, see appendix A
- BOMA received only 14 anonymous responses (2.8%)

# RESULTS



# Summary

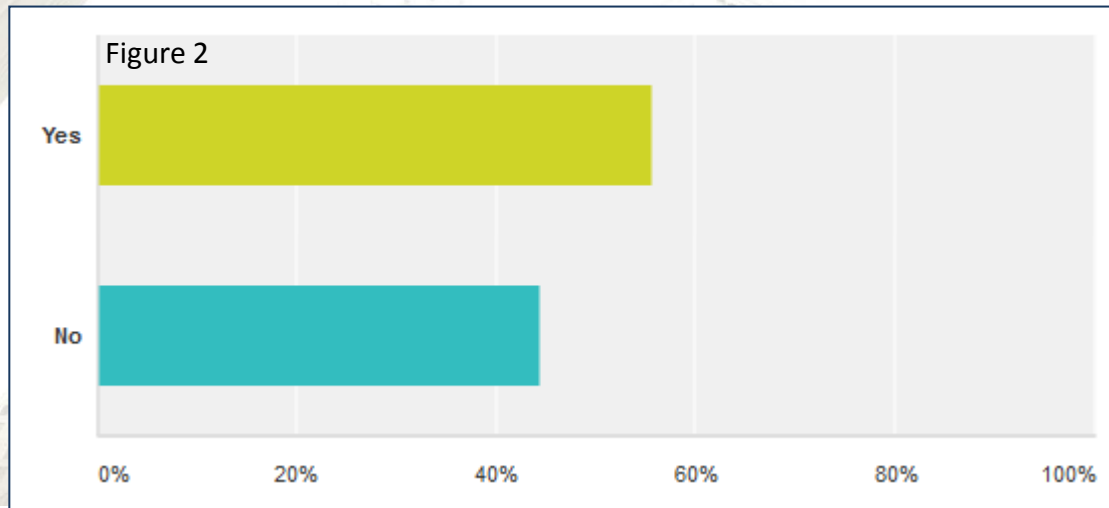
- 8/14 participants currently have Real Time Monitoring on their electric meter (Figure 1)



- Those who use Real Time Monitoring, monitor a building rather than a portfolio

# Those that DO NOT have Real Time Monitoring

- The majority of participants who do not currently have Real Time Monitoring on their electric meter are familiar with and have some experience using it (figure 2)



# Benefits



According to the 8 that use Real Time Monitoring, the main benefits are:

- **Accessing** Real Time Monitoring data (consumption)
- **Understanding** energy profile for future corrective actions
- **Monitoring** energy consumption
- **Verifying** utility bills through Real Time Monitoring virtual bills
- **Comparing** usage (month-by-month, year-over-year)
- **Viewing** weather information with electricity use

# Barriers



According to the 6 that do not have Real Time Monitoring, the 3 main barriers are:

1. Costs / funding (typically there is no energy management budget)
2. Lack of awareness of Real Time Monitoring availability
3. Knowledge and Training
  - Unable to analyse Real Time Monitoring data
  - Don't know how to make use of it

# LESSONS LEARNED

# Takeaways



- From the responses, there appears to be several misunderstanding and myths that exist about Real Time Monitoring,  
i.e. costs, accessibility, compatibility  
e.g. “our BAS is outdated”  
<has nothing to do with real time monitoring>
- There also appeared a lack of awareness about the benefits and uses of Real Time Monitoring
  - ➔ Many consider electricity costs confusing and something that they have no control over

# Next Steps



1. Suggest we have a follow up 'one on one' discussions to better understand the challenges
2. Customers need more relevant information about Real Time Monitoring specifications and benefits to clear up the myths
3. The 'near or Real Time' working group brought up similar opportunities/barriers that mimic the challenges in the commercial sector and stress the importance of greater education and transparency

# INDUSTRY ANALYTICS

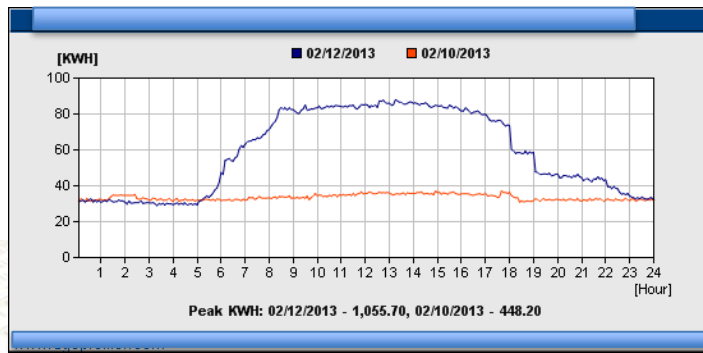


- **“Data analytics” – Not readily available**
- **Interval meter customers will be very interested in data analytics w/r/t:**
  - **the kind of data**
  - **development of the smart grid,**
  - **tools from a customer perspective**
- **Smart Grid data analytics will NOT start with the utilities and flow to the customers!**
  - **refer to SMART GRID PILOT Failures,**  
**presentation to follow**





**APPENDIX A**  
***BOMA REAL TIME MONITORING PRESENTATION***  
**<THIS WAS PROVIDED IN SUPPORT OF THE QUESTIONS  
ASKED, SEE APPENDIX B FOR THE QUESTIONS ASKED>**



## REAL TIME MONITORING (RTM)

IF IT'S SO IMPORTANT AND USEFUL FOR ENERGY MANAGEMENT, THE  
OEB IS ASKING:

**“Why is RTM not universally used  
by the commercial office sector?”**

# BACKGROUND



As part of the Smart Grid Working Group, the Ontario Energy Board (OEB) has asked BOMA Toronto for the commercial office sector perspective including:

- *“Why is RTM not universally used by the commercial office Sector?”*
- *“What customers want from their data and what customer’s think the barriers are”*

BOMA Toronto appreciates your feedback on the value of RTM and the main implementation barriers.

# RTM BENEFITS: INTRODUCTION



## “We Can’t Manage What We Don’t Measure”

- RTM is an invaluable tool for Measurement and Verification (M&V) of energy efficiency measures, demand control and for preparing building simulations.
- RTM allows consumption to be seen in real-time, as defined as 5 minute intervals to match the Hourly Ontario Energy Price (HOEP), but can also be seen in: 5, 15, 30 and 60 minute intervals for energy management.

# QUOTES IN SUPPORT OF RTM



***“RTM should be the first step of your sustainability program!”***

**Bala Gnanam, Director, Sustainability and Building Technologies, BOMA Toronto**

***“It’s easier not to do this! That’s the problem”***

**Tim Finnigan, Operations Manager Technical Services, GWL Realty Advisors, Commerce Court commenting on energy management**

***“The typical utility MANAGEMENT investment is the cost of a stamp to avoid late payment charges”***

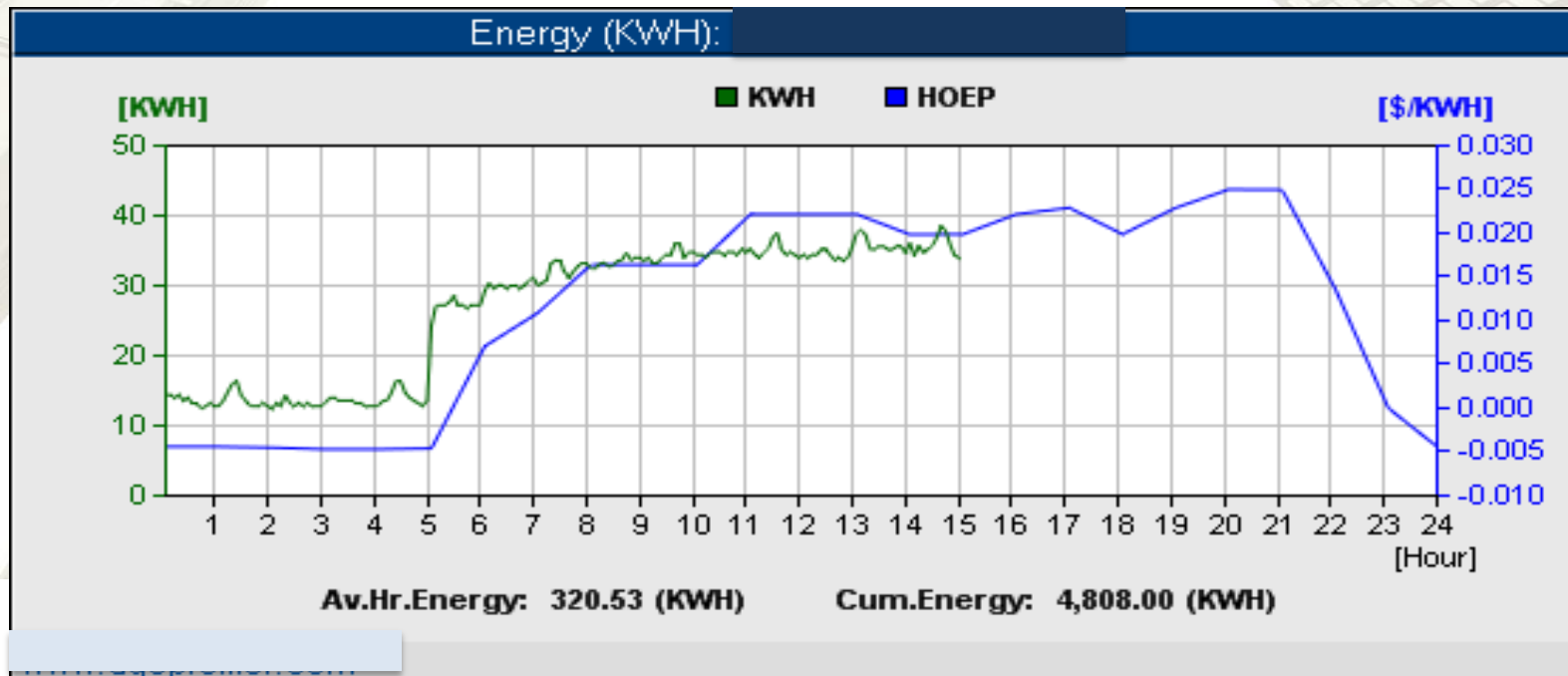
**Doug Dittburner, Manager, Power Service, Campbell’s**

# RTM BENEFITS: Consumption & Price

## Determine COST!

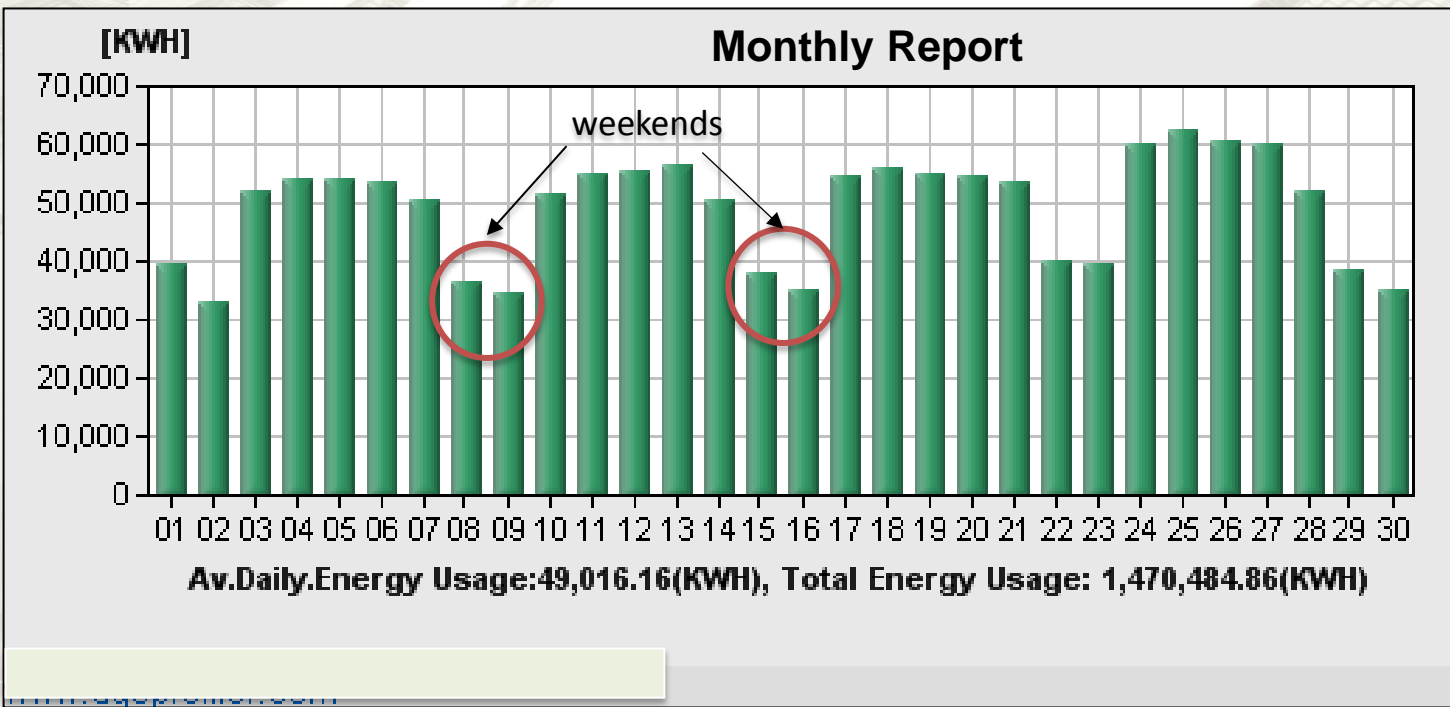


- Monitoring daily electricity consumption in real-time, in relation to the Hourly Ontario Energy Price (HOEP) allows customers to see the impact of consumption (kWh) and price (\$/kWh) to determine their real electricity cost \$\$
- RTM also allows customers to set up automatic alarms for both price and use, so operating teams can take action in response to price or consumption.



# RTM BENEFITS:

## Consumption Reports allow to compare weekend and weekdays and spot opportunities



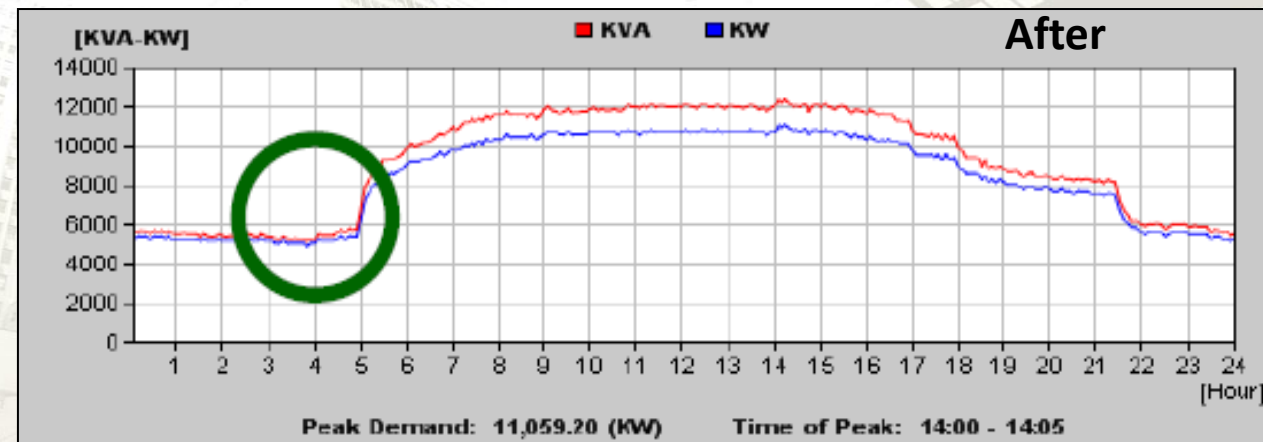
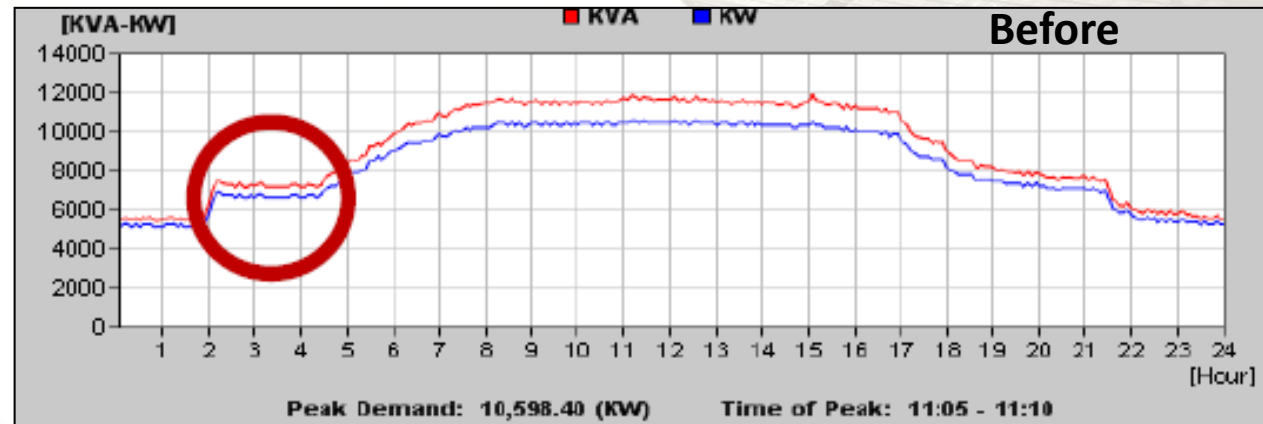
Energy consumption is less during weekends, but why so high?

Why do weekend and weekday energy use vary?

# CASE STUDY: Example of Operational Adjustment leading to \$80K saving



- ▶ RTM helped to identify an early equipment start-up
- ▶ Building manager modified operating schedules to optimize start-up.
- ▶ Resulted in daily energy savings that was equal to approximately **\$80,000** in annual electricity savings!





# Suggested reasons why RTM is not Implemented. Same old excuses: The 5 A's



- **ATTENTION:** 'Don't have time or incentive to change'
- **AFFORDABILITY:** 'Don't have the money to change and besides, electricity is free'
- **AWARENESS:** 'Don't know what energy efficiency options are available or where the opportunities lie'
- **ATTITUDE:** 'Don't think it is part of my business'
- **ACCOUNTABILITY:** 'Don't get billed for energy use and energy efficiency is not measured'

# IS COST REALLY A BARRIER?

## - CONSIDER THE NUMBERS



Typical electricity cost for a large commercial building of 300,000 Sq Ft is approximately \$150,000/month:

Thus, a first year investment of 1.5% to install Real Time Monitoring of electricity use can be recovered in the first year!

(A 5% savings is a realistic target that can be achieved through awareness and a better understanding of how electricity is used)

# SO WHY IS RTM NOT UNIVERSALLY USED?



- **What are your thoughts?**

**Answers to our survey questions will help us work with the Ontario Energy Board through the Smart Grid Working Group to develop better solutions for the commercial sector**

**Thanks in advance for your consideration**

A low-angle, upward-looking photograph of several tall skyscrapers in a city, rendered in a light, semi-transparent style. The buildings are arranged in a way that creates a sense of depth and height, with the sky visible at the top.

**APPENDIX B**  
***REAL TIME MONITORING SURVEY QUESTIONS***

# SURVEY QUESTIONS



1. Do you have RTM on your electric meter?
2. If YES to Question #1, What does it monitor? (Please select all that apply)
3. If answer to Question #1 is NO, then Are you familiar with Real Time Monitoring
4. If answer to Question #1 is NO, then Have you had experience in working with Real Time Monitoring
5. Do you have Real Time Monitoring on your gas meter?
6. If answer to Question #5 is YES, then What does it monitor?
7. If answer to Question #5 is YES, then According to your experience, what are the 3 top benefits by having Real Time Monitoring?
8. If answer to Question #5 is NO, then what is the main reason for not using Real Time Monitoring on your gas meter?
9. If answer to Question #5 is NO, then What is preventing you from installing Real Time Monitoring (the barriers)?
10. How do you use electric consumption data collected through Real Time Monitoring?