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# **Clean Air Council Municipal Corporate Energy Managers Community of Practice Workshop**

Date: April 19th 2018

Time: 10 am – 3 pm

Location: Mississauga Valley Community Centre, Program Room 1 (on lower level)

1275 Mississauga Valley Blvd., Mississauga, ON L5A 3R8

# **Meeting Proceedings**

* [Gabriella Kalapos, Clean Air Partnership Municipal Corporate Energy Managers Community of Practice Past Activities](http://cleanairpartnership.org/cac/wp-content/uploads/2018/04/CEM-COP-April-19.pptx)
* [Tom Pedlar , City of Burlington – Real-Time Energy Monitoring](http://cleanairpartnership.org/cac/wp-content/uploads/2018/04/2018-Sub-Metering-Presentation.pdf)
* [Greenhouse Gas Co-efficients](http://cleanairpartnership.org/cac/wp-content/uploads/2018/04/Energy-conversion-and-ghg-emissions.docx)
* [Arena Operators Manual from Manitoba Hydro](http://cleanairpartnership.org/cac/wp-content/uploads/2018/04/energy_efficiency_guide_recreation.pdf)
* [Municipal Energy Profile](http://cleanairpartnership.org/cac/wp-admin/upload.php?item=3590)

# **Meeting Summary Notes**

## **About the Corporate Energy Managers Community of Practice**

A Community of Practice for municipal corporate energy managers (EMs) has existed for approximately 2 years and has been set up to create a professional network and knowledge sharing platform.

The Community of Practice aims to eliminate the isolation that can be experienced by EMs working across different municipalities and to share experiences and resources across the network in order to build capacity across the municipal energy manager network.

# **Energy Budgeting**

***Discussion related to how municipalities set up their utility budgets, estimation and assumptions used, challenges faced by EMs, opportunities to address challenges.***

#### **How do municipalities create their utility budgets?**

* There is a considerable range of approaches employed by different EMs
* Different municipalities divide labour between EMs and financing departments differently
  + 8 = Finance department responsible for energy budgeting
  + 4-5 = Energy department responsible for energy budgeting
* Municipalities use different reporting intervals: 4 (quarterly reporting), 3 (monthly reporting), 6-7 (annual reporting)
* Identifying “big consumers”, and, within that, identifying what factors influence energy use at these locations (e.g. public events, weather etc.) can be beneficial for creating utility budgets

#### **What are the challenges faced by energy managers?**

* Departmental silos exist whereby limited dialogue occurs between departments. EMs tend to operate as the “information gatherers” – collecting meter readings and producing energy forecasts – to then supply to finance departments for forthcoming energy budget calculation.
* The current lack of communication causes a number of issues, such as:
  + difficulties acquiring comprehensive facilities datasets (e.g. data on occupancy, AC settings, operating hours and so on)
  + operational issues causing excessive energy use (e.g. pool heating, outdoor lighting, space heating)
  + a misinterpretation of building regulations by facilities managers (FMs)
* EMs also highlighted the dominance of H&S regulations, over energy management concerns, in guiding FMs’ operations

#### **What are the opportunities to address these challenges?**

* There is a need for more effective communication between EMs and other departments (especially FMs)
* Shorter reporting intervals can provide EMs with regular opportunities to communicate with other departments (e.g. FMs, finance etc.). This can help:
  + break up departmental silos
  + facilitate assessments of seasonality
  + support adaptive real-time energy use monitoring
  + improve energy literacy

**ACTION ITEM:**

* **To share the ways EMs have attempted to engage Facility Mangers and increase identification of operational efficiencies.**

# **Operational Training**

* Hydro Manitoba –uses an Arena Operations Manual to provide FMs with a refined checklist of job tasks to carry out with a focus on energy efficiency designed to simplify job responsibilities into specific tasks.
* The Town of Oakville and City of Markham – these municipalities are currently using operations manuals and a “train the trainer” model to increase buy-in from FMs and avoid sub-optimal energy use practices that have been grandfathered from FM to FM.
* **ACTION ITEM: Focus on customizing operational manuals and peer-to-peer learning/training for Facility Managers and to identify opportunities for FMs that have gained experience on operational efficiency opportunities to share their stories with their peers in other municipalities.**

# **Sub-Metering**

##### **Challenges:**

* Energy savings from retrofits can be difficult to measure without sub-metering, yet, simultaneously, the need for sub-metering can negatively impact the business case for retrofits in the first instance.
* Increasing the extent of sub-metering can exacerbate data management issues for EMs
* At the municipal scale, it can become time-consuming to base energy budgets on sub-meters

##### **The value of sub-metering:**

* Sub-metering works effectively with well-trained FMs, with buy-in to energy conservation, who can read sub-meters and remove additional workload from EMs
* Setting up automated threshold systems across a sub-meter network can be a useful way to “notify” EMs when a facility has a significant spike in energy use
  + This removes the need for time-consuming monitoring by EMs
  + This enables anomalies to be quickly identified
* The value of sub-metering relates to the identification of anomalies in energy use rather than their ability to inform municipal-scale energy budgeting
* Training (both for EMs and FMs) on the correct operation of sub-meters and on the effective use of their data would be beneficial

**ACTION ITEM:**

* **To share energy budgeting case studies.**
* **To strategize how to manage data when no sub-metering exists.**

### **Real-time Monitoring**

*Discussion related to the costs and benefits of real-time energy monitoring, how real-time energy monitoring is being used to generate energy savings and inform budgeting. Real-time monitoring case study presentations from the City of Mississauga and City of Burlington.*

#### **Case study 1 | City of Mississauga | buildingOS.com**

Function: breaks down energy usage data into different loads and into yearly, monthly, daily and hourly time intervals to be displayed in a variety of formats.

#### **Case study 2 | City of Burlington | Panoramic Power System**

Function: uses a network of wirelessly connected meters and sub-meters, and a cloud-based analytics platform, to collect and display energy usage data on different loads, locations and various time intervals.

##### **Opportunities:**

* Enables a clear identification of “low hanging fruit” (e.g. base loads, areas of high/low use)
* Improves energy literacy of FMs
* Allows FMs to have greater ownership of their energy usage
* Increases accountability of FMs towards energy management responsibilities.
* Increases transparency

##### **Challenges:**

* FMs can and sometime do override BASs
* Uptake of real-time monitoring systems by FMs hinges on their energy literacy, which can be lacking
* Enables a micro-managing advantage, however this hinges on intensive input from EMs (e.g. data management, analysis, FM training etc.)
* Currently, there is no requirement for energy management in FM job descriptions and challenges of including it include: training, certification, etc. which often has cost implications.

##### **Lessons learned:**

* Opportunities to internalise energy management responsibilities and tasks into FM role should be explored (i.e. standard operating procedures)
  + City of Mississauga is currently looking at using investigative work orders for FMs to motivate energy management
  + City of Hamilton is looking at refining Service Level Agreements to ensure FMs have a formal energy management responsibility
  + Competitions across facilities (with appropriate reward) can also incentivise action
* Producing energy saving targets at the facility level could motivate better energy management from FMs
* **ACTION ITEM: To share case study examples of successful real-time monitoring that showcases the identification of an anomaly and the proposal and implementation of an action.**

### **IESO Energy Manager Support Hub**

* Function: acts a central hub for IESO funded EMs (across sectors industrial/hospital/municipal/etc.. to share knowledge.
* Content: newsletters, case studies, best practices, forums and discussion boards, training event postings and other resources.
* **ACTION ITEMS: Update: The Support Hub IESO site will be going under constructions for improvements over the summer. As an alternate to do Vicki will work with IESO funded municipal energy managers to identify the resources on the site that they have found useful and then a document repository system will be created to get those resources shared across the Municipal Energy Managers COP.**

### **2019 Energy Conservation Plans**

*Group discussion on the lessons learned from the 2014 Plan (how it built support for energy conservation actions and where it fell short), how the 2019 Plan can advance energy conservation actions (buy-in, resources etc.), what should be included in the 2019 Plan, and how the Community of Practice can collaborate to increase the value of the 2019 Plan.*

#### **Weaknesses of 2014 Plan:**

* Lack of behavioural strategies
* Lack of benchmarking
* Lack of measuring and monitoring

#### **How can the 2019 Plan help advance energy conservation actions:**

* The 2019 Plan should focus on progress towards the strategic vision and overarching goals for energy conservation
* The 2019 Plan should not solely be a report on technical post-delivery energy savings analysis
* The 2019 Plan should link to Community Energy Plans and Climate Action Plans and explain how they support their various targets

##### **Specifics to include in 2019 Plans:**

* Number of projects to date
* Results of projects to date
* List of what municipalities have done to date
* Evaluate existing projects with focus on how they can inform future overall goals and specific actions
* No regulatory requirement for a 2019 baseline therefore use a baseline that is appropriate from a municipal perspective
* Benchmark data and results from 2014 Plan
* GHG emission factors can be found in the National Inventory Report
  + ACTION: [BPS subset of GHG emission factors to be sent out from MOE to network](http://cleanairpartnership.org/cac/wp-content/uploads/2018/04/Energy-conversion-and-ghg-emissions.docx)
  + Use table of historical values to ensure all municipalities are working with the same values
* Benchmarking
* Plan analysis
* Municipal fleet reporting NOT currently required

#### **Opportunities for the 2019 Plan:**

* Create and share a writing template across the EMs network to foster commonality across municipalities
* Utilize summary tables and executive summaries to foster effective communication.
* Correctly validate consultants when considering them for Energy Conservation Plan development.
* **ACTION ITEM: EMs to share their highlights on what they are thinking of for the 2019 Plans to set up some initial benchmarking**

### Financing Models

*What financing models have been used to fund energy conservation actions (e.g. Operational Funds, Capital Funds, Operational Funds reimbursing Capital Funds, Revolving Funds, Recoverable Debt, ESCO and/or other financing models)?*

*\*Due to time constraints financing models were unable to be discussed and will be carried forward to the next meeting\**

**ACTION ITEM:**

* **To share projects’ different financing models (e.g. operational funds, capital finds (bringing together operational and capital funds, gas tax funds, 3rd party financing etc.).**

**ADMINISTRATIVE ACTION ITEMS:**

* **To confirm date for the next meeting (mid- to late-fall (TBC)).**
* **To send an email request for next meeting’s priority discussion topics.**
* **To invite EMs to send in case studies for presentation at the upcoming webinar.**