

**Corporate Energy Efficiency Community of Practice**

**May 5th, 2017**

**Workshop Meeting Notes**

**Guelph, Ontario**

1. Action Items
2. A municipally themed RETScreen workshop will be taking place On September 23th and 13th at Vaughan City Hall. To register for that workshop contact Gaby at gkalapos@cleanairpartnership.org. Costs will be about $1,500 with 50% IESO incentive and free 1 year license (valued at $800). For more information on the IESO program contact Vicki Gagnon from the IESO (Vicki.Gagnon@ieso.ca).
3. Peel Region has extensive experience managing their bill validation process. Gaby will reach out to Peel Region to get more information and see if they are able to share their techniques and processes.
4. Energy Managers are trying to connect their EMS (Energy Management System) or BAS (Building Automation System) with their finance and asset management systems and processes**. Action Item: There is still more work needed to best figure how to do that.**
5. **Action Item:** Burlington will provide a synopsis of their Pilot program using the above-mentioned methodology (Bluetooth Software called Panoramic Power). Future webinar presentation.
6. **Action Item:** There is an interest in sharing RFP’s between energy managers (responses are confidential). The benefits to seeing several RFP’s would be to bring awareness to other people’s requests that could have been overlooked at your end—**Action Item: A location will be made available to provide this information sharing opportunity.**
7. **Action Items: There is an interest in municipalities building capacity on financial models to fund energy efficient projects. More work on how to set up Revolving Funds. What role can Recoverable Debt play? How many municipalities are using revenues from solar installations?**
8. Corporate Municipal Energy Efficiency Community of Practice Google Group

There is a Google group for the Municipal Energy Efficiency Community of Practice that is used to ask each other questions and share information across the network.

If you are not yet registered into the Google Group, click [here](https://groups.google.com/group/municipal-energy-managers-community-of-practice) and click the “Request” button. If you don’t already have a Google profile, you’ll need to create one [here](https://accounts.google.com/SignUp?hl=en). (This is not the same as creating a Gmail account.)

You will also want to decide how to be notified when other members post content in the group as follows:

1. Click the “My settings” button in the top right corner
2. Click “Membership and email settings”
3. Next to “Email used for your membership”, select your preferred email address. (If the email address you want to use is not listed, it is not in to your Google profile. For instructions on how to add it, click [here](https://support.google.com/accounts/answer/6316959?hl=en) and click the “Alternate emails” heading.)
4. Next to “Email delivery preference”, select your desired option. So far it’s been unusual to have more than one or two posts per day, so leaving the default (“Notify me for every new message”) won’t make much of an impact on your inbox.

If you have more questions about the Google group just contact Alex Chapman from the City of Guelph at Alex.Chapman@guelph.ca.

1. **Background behind CEEWS Group and Board:**
* The group should be a safe place to discuss potential ideas and potential partnerships but should not be used for marketing organizations/technologies found in the private sector. Private sector entities are encouraged to participate when a municipality worked with them to achieve successful results.
* There is a role/relationship established between each member of the group which facilitates information sharing on lessons learned and spreading awareness about new projects.
* The focus is on connecting with people with energy management responsibilities within Ontario’s municipalities - non-profit organizations such as Clean Air Partnership (CAP), QUEST-Quality Urban Energy Systems of Tomorrow, and The Mayors Megawatt Challenge that support energy actions within municipalities can participate in the Community of Practice.
1. **Workshop Topics for Discussion at todays Workshop:**
* Summary of Energy Management Software Survey Results
* Community Centre Challenges Experiences and Best Practices
* Monitoring and Reporting/Setting of reduction targets.
* The organization of energy responsibilities within municipalities (Energy office and other departments); discuss how communications and collaboration between departments occurs.
* Discussion of Future Topics- 2019 Reporting Deadline and how to work with the MOE, what is being considered for inclusion in the future Plans?
* Financing opportunities/models for retrofit projects (short-term vs. long-term energy savings/ prioritization factors).
* The benefits of recommissioning within municipalities
1. **RETScreen Expert Software Opportunity & Municipal Electricity Profile Analysis**

IESO has an opportunity to provide municipalities with RetScreen Expert Software for a free one-year license. A two day training is a requirement to get the free one-year subscription to the program in order to ensure that there is the capacity and knowledge on how to use the software. As long as one person is fully trained, the license can be distributed to up to four members in your department.

UPDATE: A municipally themed RETScreen workshop will be taking place On September 23th and 13th at Vaughan City Hall. To register for that workshop contact Gaby at gkalapos@cleanairpartnership.org. Costs will be about $1,500 with 50% IESO incentive and free 1 year license (valued at $800). For more information on the IESO program contact Vicki Gagnon from the IESO (Vicki.Gagnon@ieso.ca).

IESO is also working on undertaking an update to the decades old Municipal Electricity Profile Analysis, which sheds light on the amount of energy consumption/use for each municipality. The previous Municipal Electricity Profile Analysis was undertaken in 2010 but was based on data prior to that date.

* Municipalities will be contacted shortly by ICF to review energy data from your municipality as reported to the MOE as per Regulation 397/11 and to assess accuracy and data challenges. The goals is to better understand energy use in the municipal sector and identify actions that have taken place and the emerging energy efficiency opportunities. Also hoping to gather information on what your municipal corporate energy plans and actions have prioritized for the coming 5 years.
* The first draft of the report is to be showcased in August at AMO’s AGM to address the changes/progress that has been made over the past 8 years. The more qualitative results of past actions and what the future holds will follow in early 2018.
* Based on the information gathered, the report will slice and highlight comparisons between similar municipalities and aim to identify what opportunities have been undertaken and what future opportunities are being advanced.
1. **Summary of the Energy Management Software (EMS) Survey Results**

The goal of this survey was to update the results from an EMS survey that was undertaken by the Environmental Managers and Coordinators network a number of years ago and to collect and share experiences associated with the value and costs of EMS software options.

We were also interested in understanding how EMS are being used. Were they used to track overall energy use; to compare pre and post measure for energy efficiency; or were they used on a project basis and/or other ways EMS are being used by municipalities. Has there been efforts to identify overall energy conservation potential between buildings of similar types in order to be able to compare similar buildings and gain an understanding or where the greatest conservation potential lies. An example of the latter approach speaks to the efforts of the Mayor Megawatt Challenge’s Strategy to tackle issues relating to deciding what makes for an efficient building and where the greatest opportunity for reduction potential exists.

* **23 surveys were completed**

EMS in municipalities:

* 16/23 have EMS in place (70%)
* 5/23 did not have an EMS in place (26%)
* 1/23 were unsure (4%)

Energy Management Software:

* 1 jurisdiction is using excel to track bills and perform analysis
* Some have specific facilities using Energy Management Software, but it isn’t being used in all facilities
* Some are recent users to the Energy Management Software
* One of the participants that responded “no” to an EMS is working on a RFP

Types of EMS Software (Strengths and Weaknesses): **Please refer to EMS survey Results PowerPoint Presentation for detailed information on the strengths and weaknesses of various types of Energy Management Software.**

* When considering which type of EMS to use it is important to know if your would like real-time metering or not.
* Some municipalities have indicated that they have been struggling with the new mandate of validating bills before getting the bills paid because utilities only provide a 30-day payment window. Many jurisdictions have dealt with this by undertaking their bill payments after the bills are paid as there is a window of at least a years time period in which to address billing errors. So there isn’t the need to hold off on payment in order to track and address billing errors.
* **Action Item:** Peel Region has extensive experience managing their bill validation process. Gaby will reach out to Peel Region to get more information and see if they are able to share their techniques and processes.
* Energy Managers are trying to connect their EMS (Energy Management System) or BAS (Building Automation System) with their finance and asset management systems and processes**. Action Item: There is still more work needed to best figure how to do that.**
* Real time tracking is more costly, however it does provide the benefit of identifying when and where an issue is taking place and provides a highly visible way to monitor, identify and address anomalies in energy use and see where technological and/or operations issues are impacting energy use. For tracking energy overall real time is not required but provides a much better understanding of when things are not working. Waiting to get the utility bill to see an energy spike on an unspecified location does not help identify technological and/or operations issues as they are occurring.
* **Action Item:** Burlington will provide a synopsis of their Pilot program using the above-mentioned methodology (Bluetooth Software called Panoramic Power).
* Has cap and trade increased natural gas costs? Cap and Trade accounts for $0.03/m3 on natural gas costs, while that is a marginal increase its impact hasn’t been considered significant.
* **Action Item:** There is an interest in sharing RFP’s between energy managers (responses are confidential). The benefits to seeing several RFP’s would be to bring awareness to other people’s requests that could have been overlooked at your end—**Action Item: A location will be made available to provide this information sharing opportunity.**
1. **Energy Storage**

There is an interest in storage, especially for the update of Corporate Energy Plans and for renewable energy implementation.

* Batteries can be very effective at driving down peak hour demand; the negative side to using batteries in this way is that it is based on rate structures and rate structures are unstable.
* Batteries do not create the incentive to decrease the consumer’s overall energy use, but storage is able to make use of cheap electricity generated during the nighttime (low ghg emissions) to offset the heavy energy loads in the morning or during other peak times (more ghg emissions). Batteries are also essential for non grid connected renewable resources, therefore should be a viable resource to keep in mind.
* Should batteries be considered as a form of resiliency (i.e. Power outage)? The technology is not as advanced as would be needed for that purpose for extended periods of time just as of yet. But, as new storage option come on the market that is likely to change the resilience options. At present most lithium ion batteries are only able to provide power for up to two hours. There is also the potential for incorporating batteries into Co-generation energy projects. Industries that are interested in batteries right now possess very sensitive equipment (Labs, airports, hospitals etc.).
* Examples of Energy Storage: The University of Guelph installed a big tank of water (thermal energy storage) that is chilled overnight. The chilled water is used during the day for cooling. This strategy is used to offset global adjustment for Class A. Windsor also has a similar project.
* If a battery is used as a backup generator, there is an additional premium cost for the automatic transfer transcription—a cost increase of 20%.
* Alectra Utility is undertaking a battery, micro grid pilot project. This will be presented at the May 31st Clean Air Council meeting.
1. **Budget Consideration**
* The finance department uses data from the previous year (consumption vs. rate) for budgeting purposes. They do not take into account the variability of the weather, which accounts for confusion in their accruals.
* An opportunity for energy departments is to provide accruals to the finance department that would provide averages that would bring in weather considerations. This could be achieved by providing the finance department with 5 years worth of data that illustrate the various weather and energy variances for each season. **This methodology has been used for energy tracking purposes in municipal energy plans.**
* The EMS consulting company used by Guelph found that Guelph was entitled to transformer allowances. They are compensated for their bill verification by taking half the revenue of savings for a three-year period. After the three years, the revenue is provided 100% to the municipality. The City of Guelph has started a new program that implements capacitors as *power factor correction measures*—municipalities might not be using this feature but it is available to them through EEMS.
* Municipalities may want to consider switching facilities from time-of-use to tiered Ontario Electricity Prices. If you are interested and want to know if your municipality surpasses the threshold of making this a feasible cost saving strategy, send your whole list of sites, rates of consumptions, and your bills to LAS and they will provide you with the results.
1. **Community Centre Challenge Advancement-Understanding what is of Value**
* What training programs have been used for building operators to implement energy conservation measures?
* What are the type of conservation measures that are targeted in the program?
* What were the overall barriers? How was the program presented to get buy-in and recognition for the work that has been done?
* How was the momentum maintained over the longer term?

**Case Study from the City of Oshawa**

* Enbridge came in to do a two-day workshop for the operators (which Enbridge paid for), the municipality was responsible for providing food. Enbridge took it upon themselves to follow-up after their presentation with site visits to each of the participating municipal facilities/community centres. Enbridge has a “Run it Right” program that identifies several low-cost measures the municipality could incorporate relating to gas and electrical energy use—all facility operators and supervisors received this information.
* The commissioners then developed a Plan of Expectations highlighting all the necessary background information regarding who, what, when, where and why the Community Centre Challenge was needed. The facilities department and operations department were involved in designing how the Community Centre Challenge would run and provided examples of where opportunities for improvements lay.
* The strategy: the municipality did NOT “police” the facility operators/supervisors; it is about developing a stronger relationship where information sharing can take place. The facility operators/supervisors are the most knowledgeable on which practices work best and which do not. The municipality just provides information on best practices and lets the competitive foundation of the program be the motivation between facilities to meet their conservation goals. Both municipal and facility representatives would meet monthly to report on their progress. The PUC provided hourly data to the energy manager, this information was reported back to the facility operators in a monthly report.
* Out of the four months, only the best three months of data collection and analysis were used to counteract anomalies (for example: normalization for gas information is difficult due to climatic differences between this participating year and the year prior).
* The City of Oshawa hired electricians and mechanics for four months that came on site and installed occupant sensors and undertook other tasks as well. The municipal utility (Oshawa PUC) decided to sponsor the celebration event and provided a champion cup for the facility that resulted in the highest conservation measures (by overall percentage). Smaller awards were handed out to all the participants because at the end of the day they were all winners. In total, there were six facilities and all of Oshawa’s community centres participated.
* After this challenge, the facility operators/supervisors became more interested in energy conservation practices and started providing more feedback for potential future projects. There is an interest in having competitions every year, alternating between a 4-mouth summer or winter competition period. The data collected for 2015 will serve as the baseline for any future competitions. The Champion’s Cup provided by the PUC has several plaques on its bottom board, which also inspires participants to compete and win the next round.
* The more problems the energy manager knows about in each facility, the better chance for the energy manager to gather funds and plan projects to fix the problems—win-win situations all around.
1. **Energy Plans**
* The City of Toronto has adopted a Corporate Energy Policy that supports all energy efficiency actions that have a pay back over their lifetime but has prioritized energy actions accounting for an eight-year payback period over the technology’s lifespan.
* Most of the Energy Plans are action-based rather than conservation potential based (i.e. benchmarking).
* The City of Hamilton has a 5-year policy that has a specific target outlined. The target is reviewed every 5 years and a new one adopted for the upcoming Plan target.
* The City Of Guelph is having a conversation about targets within their Community Energy Initiative. There were existing energy targets from the 2006 plan; 50% reduction in per capita energy consumption over 2006 by 2031 and 60% greenhouse gas reductions per capita over the same time period. Guelph is looking into updating their Community Plan, which did not have provincial and federal plans included into their scope. Now, the initial 2006 targets are being compared to the provincial and federal targets and the community has been asked whether they would like to lead, lag or just stick to the status quo. These results will influence corporate-level discussions as to how ambitious the energy targets should be.
* The most significant contributor to progress comes from the elimination of the coal fire electricity plants. A council member is pre-amatively creating a path towards Net-Zero standards at the corporate level.
* Target setting strategies: IPCC Target: many municipalities use the IPCC greenhouse gas reduction targets and translates them to their own community context by quantifying and highlighting the contribution their actions will play in achieving these targets; while recognizing that local actions are a part of a collective movement to achieve those targets. The other strategy that is sometimes used is the municipality sets the target based on the quantified reductions in their Plan for a certain near date target. New targets are developed for the next phase of the Action Plan that is reported on and updated on a ongoing and shortened time-frame. When the Action Plan is renewed/revisited, more funds are allocated towards the mentioned actions.
* The first option (IPCC) is more common within municipalities; it all depends on what is able to pass through Council.
* Factors that influence the uptake of energy efficiency actions are low natural gas prices. The incentive to bring down electricity usage has the business case attached to it but natural gas reductions have the ghg rationale. These two efforts need to be combined in order to strengthen the business case and achieve the ghg reduction potentials.
1. **Energy Conservation Budgeting**
* There is a lack of understanding on where municipalities sit on a progression of energy efficiency spending/budgeting. Does my municipality underinvest in energy efficiency project in comparison to other similar municipalities?
* In order to deal with upfront capital costs associated with energy projects there is hesitation to go the ESCO route due to the negative experiences of municipalities in the past related to inaccurate energy reductions models that they were provided with
* Someone in the meeting used to work with ESCO for ten years, ESCO has been in charge of helping pay off the initial capital costs of major retrofit projects; the value of the projects was worth approximately 60 million dollars (Projects included UBC and York University). Projects undertaken by ESCOs often provide a “savings guarantee” based on the ESCO’s own analysis; if there were not any savings achieved by their standards, then in those situations, applicants would have to pay back ESCO for the deficiency.
* The City of London is a good case scenario, but they used a hybrid partnership to achieve energy conservation measures.
* ESCO contracts are not considered a debt, municipalities usually have a debt cap that they cannot surpass making it difficult to accept major retrofit projects. But exceptions have been made to this for projects that have savings attached to the, For example exceptions were made by the Ministry of Finance, for retrofitting streetlights where municipalities were able to surpass their borrowing debt limit if the projected lifecycle savings offset the capital investment costs.
1. **Energy Efficiency Financing**:

How are energy efficiency projects paid for? Operating? Capital? Reserves?

* The City of Guelph: The reserve acted as a revolving fund. A year after the project’s commission, the results were measured for the next 12 months and served as the basis for repayment back to the reserve until the original investment was paid fully.
* Unfortunately, the council used the return on investment from the streetlight project to fund another project that was not relevant to energy conservation. Consequently, the city of Guelph has to develop a different model; they are looking into using the wastewater reserve as the next revolving fund.
* The City of Hamilton set up a revolving fund. More information on how their revolving fund and budget works is available here: <https://vimeo.com/144171647>
* Caledon has also set up a revolving fund.
* Additional questions that municipal reps have identified include: How much is your municipal total energy costs for electricity, natural gas etc.? Differentiated between rate-supported (water and wastewater) and tax-supported (property tax money)? How much energy efficiency spending is occurring per annum? Whats the amount of funds required to achieve the potential energy efficiency identified? What kind of energy policies do municipalities have in place that support energy efficiency opportunities?
* There are two different paradigms into getting an energy efficiency project implemented.
* Rip-and-Replace: The usable lifecycle of the asset is not considered-- when the number of usable years is not accounted for.
* Life-cycle renewal: a budget for the base-model is known and the proposed project would finance of the difference between the base model and the energy efficient version.
* The difference between private and public sector is that in the private sector they consider depreciation in their accounting. The annual cost of depreciation of the asset needs to be considered to convey the importance/validity of the second paradigm—a conversation that is not happening in the public sector’s financial departments.
* **Action Items: There is an interest in municipalities building capacity on financial models to fund energy efficient projects. More work on how to set up Revolving Funds. What role can Recoverable Debt play? How many municipalities are using revenues from solar installations? (Markham)**