



**Improving the Odds for Achieving Successful Social Housing
Energy Efficiency Retrofits Workshop**

Thursday October 6th

Gabriella Kalapos, Clean Air Partnership – Welcomes and Workshop Goals ([pdf of presentation](#))

Clean Air Partnership (CAP) is a charitable environmental organization launched in June, 2000. CAP's mission is to help municipalities become sustainable, resilient, vibrant communities where resources are used efficiently, the air is clean to breathe and greenhouse gas emissions are minimized. CAP achieves this mission through research, knowledge transfer, and by fostering collaboration among all orders of government, academia, NGOs and a range of additional stakeholders.

CAP serves as the secretariat for the Clean Air Council a network of 27 municipal and public health unit members that work collaboratively on clean air and climate change actions across the Greater Toronto, Hamilton and Southwestern Ontario region. CAP works actively on a number of issues including corporate and community energy, climate change action plans, green development standards, green procurement, climate change adaptation and resilience, urban heat island mitigation, active transportation and urban forestry. When assessing a new sustainability initiative, decision makers rightly ask, 'who else is doing this, how much does it cost, and what does it achieve?' Participation in the Clean Air Council enables staff to answer these questions through a collaborative expert network that shares their actions and lessons learned so that each member can build on other's experience and advance and build on the work of others.

Social housing energy efficiency retrofits is a key component of achieving many of the goals identified in municipal climate action and energy plans. The goal of this workshop is to bring together various audiences (Social Housing Facility Energy Staff; Social Housing Service Managers; Municipal Energy Staff; Utility Energy Efficiency Social Housing Support Staff; Social Housing Network Organizations) that share a common goal (improving energy efficiency, reducing energy costs, and increasing occupant comfort) in the social housing sector and understand where we are now on the energy efficiency opportunity, where we would like to advance the opportunities within this sector and what we would need to do to move in the direction of that goal.

Ralph Torrie, Torrie Smith Associates – Setting the Context: Global Climate Change and Social Housing: What’s the Connection? What’s the Opportunity? ([pdf of presentation](#)) (video of presentation)

Canada’s energy use has grown exponentially over the past hundred years. Since World War 2 population growth has been steady but the increase in energy demand has been astronomic. GDP has also been growing at a rapid rate, similar to energy consumption since the 1940s, however since the early 1970s GDP and energy, population, and ghgs decoupled from GDP growth which is a good sign and indicated that growth can occur without increasing energy use and increasing emissions. However the challenge ahead of us is a daunting one in order to meet our climate commitments under the Paris Agreement, we would have to reduce consumption at a level similar to the energy use increases of the past 60 years.

Canadian residential energy use is primarily from natural gas and electricity, with a little biofuel. The overall efficiency of our energy use is poor, with far less than half of our energy use being converted to useful energy.

Coal and natural gas fired electricity are the most carbon intensive electricity. That is why moving away from coal has been so necessary. Never mind the public health care costs from coal fired electricity. In Ontario, there is very little embedded carbon in our electricity supply. Canada has very low fuel and electricity prices compared to the rest of the world: Ontario prices are comparable to the US, but considerably lower than most European countries. The residential sector spends about \$30bn a year on energy in Canada. Most of this is wasted due to inefficiency. Efficiency gains are very possible and absolutely necessary.

5 key things must happen for a low carbon future.

1. Efficiency must increase dramatically across the board
2. Electricity’s role expands into transportation and heat
3. Electricity supply must be decarbonized
4. Must have sustainable production of biofuels (not popular given historic experiences)
5. Innovation to reduce fuel and electricity in the provision of human needs and amenities

There are many complications in achieving this

- Climate change will get worse regardless of any of this given greenhouse gas emissions already embedded in the climate system
- The time frame is short when compared to the inertia in the current energy system
- The pre-tax price of fossil fuels will be permanently depressed in a low carbon future
- Carbon pricing at the price being used is not going to be sufficient to change the energy system without additional policy efforts. What we pay for electricity today, when converted to implied carbon price (\$/tonne CO₂eq), is about \$200-500

Opportunities

- The technology is out there and is proven
- Co-benefits of low carbon solutions that can be worth more to stakeholders than climate mitigation
- To do this requires a skilled workforce, meaning more higher paying jobs in Ontario that can't be outsourced
- Infrastructure renewal is required. Considering our underinvestment in infrastructure over the last number of decades this presents an historic opportunity to implement resilient low carbon solutions

Other considerations

- Other far reaching transitions are happening at the same time, such as information technology advances
- It is capital intensive, which is challenging for policy makers – however it is important to keep in mind that capital intensive does not mean expensive.
- Innovation in financing and business strategies are necessary to advance the value proposition
- Education and climate literacy will help speed the transition
- Low carbon solutions vary according to the local circumstance – local agency and capacity is essential
- Human and institutional capacity development is the major constraint here, not technology

In order to truly advance the needed policies and technologies that will further our energy efficiency goals we need to embed the low carbon strategies into building affordable housing that people love to live in. Embedding energy efficiency better within the overall package of what we need to do to build better communities and better social housing is likely to be the best way to move this agenda forward.

Jennifer Cittadini & Cam Black: Enbridge Social Housing Energy Efficiency Programs ([pdf of presentation](#))

Home Winterproofing Program – free program for social housing providers. Single family homes, detached, row, and semi are eligible. A free pre and post energy audit is provided. Measures to improve energy efficiency are identified including insulation, air sealing and draft proofing. Low flow aerators and CO detectors are also provided.

There is an additional affordable housing multi residential program offered that includes a building assessment, enhanced financial incentive for capital upgrades and replacements, direct install for in-suite measures (aerators and heat reflector panels), energy audit subsidy and residential engagement strategy. OBC Part 3 owners and property managers are the target

customer, including social and assisted housing, non profits and coops, shelters and supportive housing and income qualified buildings in priority neighbourhoods.

A new program has also been developed, Affordable Housing New Construction. This provides affordable housing builders and developers with incentives and services to encourage the construction, renovation and rehabilitation of high performing, energy efficient affordable housing buildings.

Mike Mulqueen, Toronto Hydro: IESO and LDC Social Housing Energy Efficiency Programs ([pdf of presentation](#))

Toronto Hydro (and other LDCs) provides incentives of up to 50% of costs for energy efficient upgrades. Two tracks are available, one for lighting and the other for non lighting measures. Audit funding support is also available, at \$0.10/sq foot up to \$25,000. LDCs will also often do a free walkthrough to show housing providers how to save energy. The solutions are out there, the primary barrier is telling the story to get people to make the change. Toronto Hydro and other LDCs also have a Home Assistance Program for low income customers that can provide free appliances, insulation, air sealing etc.

Tim Stoate, Toronto Atmospheric Fund (TAF): Energy Performance Agreement and Services ([pdf of presentation](#))

TAF will conduct a full investment grade audit to identify savings. TAF then guarantees those savings so housing providers do not have to pay the loan back until the savings are realized. Currently involved in 24 buildings, all of which are achieving their projected savings. On the water side, savings are greater than expected. All of this is 100% financed by TAF and is provided as a non debt instrument. TAF can now provide services for social housing providers in such a way that they do not have to seek out multiple quotes in the procurement process. This accelerates the time required to get the process moving by at least a month. TAF Energy Service Performance Agreements are available across the GTHA (and beyond) region and are not limited to the City of Toronto. This is a completely turn-key approach whereby all capital costs and incentives are applied for by the ESPA.

Erich Freiler, Ontario Ministry of Housing: Social Housing Apartment Retrofit Program (SHARP)

SHARP is a social housing apartment retrofit program unveiled by the province as part of the Green Investment Fund. This program has a primary focus on natural gas reduction. Information isn't yet available on the outcomes of the program now (but will be available within 2 months). Its target is high rise buildings with more than 150 units, most of which average over 40 years old. The program focuses on boilers, insulation and high efficiency windows. Because of the high rise stock this program focuses on, not all housing providers are covered under the program which is a bit unusual for us but it aims to achieve the most natural gas reductions and the lowest cost. Very short turn around for this program, the funds for this program are provided to the municipal service manager who then issues an RFP to social housing providers that meet the criteria.

Gil Amdurski, TRCA - Sustainable Technologies Evaluation Program (STEP)

The TRCA's STEP program is undertaking an evaluation of the Renewable Energy Initiative (REI) program which ran from 2009 to 2012 it was an addendum to the SHARP that allowed eligible providers to invest in several forms of renewable energy technologies (solar, solar air, geothermal, etc). 425 projects were delivered by about 160 providers. TRCA is now conducting a multi-faceted review of the program from a technical, environmental and socioeconomic perspective. The Review will take about 1 year and we are about half way through. Undertaking a quantitative (energy saved, ghg emissions reduced) as well as a qualitative evaluation to understand the process and stories and engagement, social and indirect outcomes). TRCA is seeking to improve future delivery of the program and is conducting rigorous analysis of it at the moment. Seeking social housing providers who have been involved with the REI program to take part in an interview to gather their feedback on experience, suggestions, etc.. Contact Gil Amdurski at gamdurski@trca.on.ca

Aderonke Akande, City of Toronto: Tower Renewal Program ([pdf of presentation](#))

Tower Renewal is charged with improving the energy efficiency in Toronto's 1200 older apartment buildings, housing 20% of Toronto's population and half of the rental stock. Many of these buildings are energy inefficient, lacking services (due to zoning), have underused space (due to location design) but are generally valuable assets and are in relatively good shape and well built as they were built in an era when most buildings were overbuilt, however they are need of improvements in order to maintain that investment.

These buildings present considerable market potential for energy, water, waste diversion savings, for skilled jobs and training and to improve the community as a better place to live.

Tower renewal is site focussed, and uses the STEP program to benchmark the building, assess it, and develop an action plan (for water, energy, operations and maintenance, and tenant and staff engagement) to improve it. Undertake an site visit and undertake an assessment and provide a possible action plan for the facility to consider and then we follow up with them over time. Toronto provides these services for free. They also focus on the quality of place, improving more than just the building, but the community and quality of life as a whole. Toronto has also changed its zoning to allow for Residential Apartment Commercial (RAC) zoning, which can bring in retail opportunities for tenants in the area.

Toronto also offers the Hi-RIS financing option, an LIC based model that allows for low fixed interest rates over longer payment terms to implement energy efficiency measures. Buildings must be 5 stories or greater, in good standing with the City and can cover mechanical, lighting, building envelope and water conservation improvements.

Social Housing Energy Retrofit Programs Gaps and Suggested Improvements

- Bringing natural gas and electricity together: there is a trend to bring them together but many of these programs don't look at natural gas and electricity comprehensively. Also key to bring in the water efficiency measures not only from a water heating perspective but also from a water pumping perspective as energy costs for water pumping are very significant for the municipality. More bundling of programs and measures so it's not so piece meal would be of benefit.
- How to do a better job at creating retrofits people love
- Telling stories of success from the field. How while its capital intensive it is still a really great investment. We don't tell that story enough.
- Communicating the co-benefits of EE upgrades needs to be improved, too often that story doesn't make it into the value proposition
- Ongoing measurement and evaluation is lacking and not funded or incentivized. Ongoing monitoring would also reduce the need for return audits.
- Incentivizing no-catch building energy audits
- Specifications in procurement processes make energy efficiency harder to select based on the lowest up-front costs being selected over consideration of lifecycle costing
- Resident engagement is lacking from most programs and is critical to results
- Need to improve access to financing and capacity to understand financing strategies
- Testing of new technologies, and funding for this
- Merging and streamlining application processes for electricity and gas incentives. Accessing and navigating across many program streams is difficult/patchwork. Need more support from the LDC and utility program staff to enable housing providers to go through the processes associated with the programs.

- Incompatibility with timeframes is a problem; once money is received it must be spent quickly. This often doesn't lead to the best retrofits and timeframes for decision making, approval and procurement processes. On new builds applications must go in years before a building is complete.
- For Toronto Hydro ESL incentive programs, financing is eligible, but interest costs are not.
- Regarding the Enbridge HAP, it is difficult to manage the program when you have a large number of scattered units across an area. This program is unchanged since 2010, once a provider does everything available through the program, where do they go next? Would Enbridge consider adding new retrofit measures to the existing program?
- Need more analysis of how efficient a housing unit can be as this is often beyond the ability of many social housing providers so would need to be a service provided by some other party for social housing providers. Benchmarking and measurement is essential. Energy labelling at point of listing would help here. Similar to what the EU has mandated for all member states.
- So far there has been a huge focus on physical measures, but a lot less on building management and resident education. Putting in all the physical measures will not bring the maximal returns without these systems being in place. One of the reasons for this might be because there is no incentive available. Incentives tend to cover physical measures only. There may also be cultural aspects at play here and institutional inertia.
- Operator/supervisor training is essential. Understanding what the systems are, the relationship between the operator and the occupants is critical. More training and capacity building level is required.
- Split incentive problem. There is a concern that if you create an efficiency and cost saving, your budget will be clawed back, thus creating a reluctance to demonstrate cost savings. Perhaps some sharing of savings is possible or other incentive approach may be needed.
- Maintenance component is rarely mentioned in programming. For example, in LED lighting, there is a great maintenance saving in not replacing bulbs, but this is rarely mentioned in cost benefit analyses around energy efficiency.
- Conversely, the cost of parts and maintenance on energy efficient equipment can be considerably higher than in less efficient equipment. This can be potentially mitigated on the specification and procurement process.
- The Provincial Housing Strategy needs to raise the energy efficiency case within their Strategy in order to increase awareness of the opportunity for energy efficiency. There is an opportunity to improve this language and articulate a vision to gain support for efficiency.
- Social Housing Rating Systems and/or Benchmarking would help drive the market.

Roundtable on Partnership & Collaboration Efforts and Outcomes

Durham Region – Finance department is involved in working with social housing on managing budget, and the energy department for the Region monitors energy for all departments using an energy dashboard and then provides us with the information and their support re: energy expertise. Durham Region has become much more active in the energy field over the last number of years and has developed an energy from waste facility and has one of only two digester gas treatment plants in Canada. Social Housing is always looking for ways to reduce energy use and costs. Upfront costs are the biggest barrier. There are extreme capital needs for social housing facilities and many of them do not have an energy efficiency component. Some of the energy measures that have been put in place include: LED lighting but had to go with the equipment where the lightbulb can't be changed, whole unit must be replaced every 20 years as cost of changeable equipment was prohibitive. Looking into solar walls and insulation, working with finance to examine potential savings as a result. Capital funds for energy measures (and other needed measures) is definitely the biggest barrier in Durham. Retrofit costs often have come from operating budgets due to shortfalls in capital budgets.

PEEL –Peel Region provides an energy audit for the complete portfolio of regional building and has provided that as a service to social housing providers. Peel manages all capital projects on their behalf, identifies available incentives, provides education. Provides a lessons learned opportunity for all housing providers to connect with others on successes or failures. Have their own internal energy dashboard to monitor all buildings. Works with corporate energy to provide advice for housing providers. Peel funds all audits for all housing buildings, whether they are Peel owned/operated or not. External financing is needed for capital projects. Capital costs can come from the Region if there is a commitment on the part of the social housing providers to keep providing social housing for about a decade more.

TORONTO – TCHC is examining a range of finance options for social housing. There are many buildings in dire need. Utility bill for TCHC is around \$150m annually and based on audits and experience it is likely that 30% savings can be achieved here. If they had been realized over the last 10 years, energy expenses would be lower however capital for the retrofits has been a challenge. Federal funds for social housing retrofits have been promised by the federal government but the program details are not yet available. Other financing options include: remortgaging buildings as their mortgages come to maturity, recoverable debt in partnership with the City of Toronto. There are many programs out there all saying we need to look at energy efficiency savings over a long period of time and not just as individual measures. One of the challenges TCHC is likely to experience is that many of the low hanging fruit measures have already been undertaken so now the business case has to be developed without the advantage of those low hanging quick payback measures. TCHC have been asked to be more aggressive with infill projects that can help free up some of the valuable land and generate revenue to support retrofit and other facility upgrade projects. If federal infrastructure money were available for housing, this would go a long way to help solving the up-front capital problem.

Group Discussion on Interest In & Suggested Future Regional Partnership & Collaboration Opportunities

- Increase the sharing of case studies and success stories and lesson learned
- Case studies are inaccessible for many smaller providers. Clear steps to be taken, easy tools and infographics are what is necessary. Once you start talking energy speak, it can be confusing for people. Language and process must be accessible.
- Compilations of outreach and tenant engagement materials in one place
- Advisory Committees on Energy Efficiency for Social Housing Buildings would be useful. Having the right people on these committees would be really important. Using Enbridge/IESO on these could be useful. You could have one at a regional level, where dozens of building reps could be there.
- Should include all social housing providers, not just municipal non profits.
- Would be good to have performance standards that help illustrate what a building can and should do. Benchmarking would be valuable.
- Important for social housing providers to undertake building condition assessments, engage with facilities, work with utilities, get quotes, get pricing solutions etc. Toronto Environment and Energy and Social Housing has been working to advance support for social housing providers.
- Ontario MOH now measures GHG reductions through their grant programs. This is progress from how they ran things only 5 years ago.
- More information on how service managers and other municipal departments reach out to providers to promote energy efficiency opportunities
- New technology and expertise sharing
- Sharing of procurement strategies
- More sharing of financial investment strategies
- Important not to look just at what is existing but also to look at the renewable energy piece. Technology is changing fast. It is hard to process it all. Expertise to streamline some of this information is needed.
- Dealing with new technology is risky, contractors are new; they can often be inexperienced too. Again, specification on the procurement side can circumvent these issues. Sharing is needed on the procurement side.
- Look for opportunities to allow providers to connect in a forum like today's. This allows for sharing and formation of networks that can be really useful for all. Using webinars first, followed by in-person has been found to be successful. Regional meetings have worked also. These can be helpful for smaller providers.
- Part of the reality of the sector is that there are many housing providers. Not just TCHC in Toronto etc. Many frontline staff are not comfortable with social media, webinars etc. TCHC found most effective model was a roadshow. Meet with staff, tell them how it will work. Bring case studies, tell them how to do things, how not to do things.

Group Discussion on What would your ideal Social Housing Energy Efficiency Retrofit Program look like?

- It is broader than energy. Also includes infrastructure repair, state of good repair. How do you help people address these issues so you benefit energy efficiency, but not **only** energy efficiency. Looks at the overall needs of the facility and energy is a key component of that but not the only component of that. It needs to be integrated at overall building improvements to truly get the buy in we need. Integrated right into a State of Good Repair Program.
- How TAF does this is good. Examining this model and bringing it in-house would be very useful. Front end stimulus is needed. Buildings have many elements. They all need consideration.
- Efficiency may be top of mind for those who work in the area, but not for most people generally. Before anything is procured, people need to ask many questions regarding efficiency and also see what is out there in terms of incentives.
- For small housing providers, cheapest will always win out. Getting around this is key to improving the situation.
- That the investments in social housing are considered in the same way such as other infrastructure investments like roads or bridges.
- Many housing providers are property management companies. They are not paid to manage capital projects or efficiency works. This is not their bailiwick. Major outreach is needed here. They are more interested in light and fire safety etc. They are regulated to do this.
- Is part of a Social Housing Rating System, Benchmarking and Performance based program and is tied to funding.
- Moves from social housing to mixed use housing to providing community along with housing.