



# COMMUNITY ENERGY PLANNING IN ONTARIO

## A COMPETITIVE ADVANTAGE FOR MUNICIPALITIES

Primer  
May 2016

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This report was supported through funding from the Ontario Ministry of Energy.

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# SUMMARY OF KEY INSIGHTS

## **Advancing Economic Competitiveness in Your Community with Community Energy Plans**

Community energy planning is a best practice that can keep millions of dollars in a local economy, contribute to addressing energy and greenhouse gas (GHGs) emissions objectives, all while lowering energy costs, enhancing reliability, and providing greater economic benefits for consumers, businesses and local governments.

## **Putting a Community Energy Plan to Work in Your Community**

A Community Energy Plan (CEP) is a tool that helps define community priorities around energy with a view to improving efficiency, cutting emissions, and driving economic development. Through the implementation of a CEP, a municipality can expect to:

- Address local climate change/weather patterns, including supporting municipal energy emission reduction projects;
- Keep energy dollars local, allowing funds to recirculate within the local economy;
- Support local businesses to reduce energy costs and encourage new investment as well as business retention in a community;
- Contribute to local job creation and energy savings which offers both direct, indirect and induced economic benefits for a community; and,
- Establish a healthier community through reduced healthcare costs and more affordable housing.

## **Community Energy Plans Can Mitigate Risks Associated with Energy Costs in Your Community**

Energy is an increasing cost for communities and presents an ideal starting point for local governments to begin actively responding to GHG reduction commitments, while also realizing substantial economic savings, job creation opportunities, and strengthened local economics.

- On average, community per capita spending ranges from \$2,500 to \$4,000.
- Energy costs can represent about 8 percent of a household budget.
- 86 percent of executives in Canada have identified energy costs as a moderate to high concern for their business, especially for small businesses.

## **Community Energy Plan Return on Investment for Your Community**

When implemented, CEPs lead to community savings, solid returns on investment, and stimulate local job creation.

Economic benefits can include:

- Reduced energy spending for every percentage reduction in energy use;
- Millions of dollars recirculated within the local economy due to reduced energy spending;
- Anywhere from 15-79 person-years of employment being generated per million dollars invested; with an overall average of 36 jobs created per million dollars invested; and
- Avoided healthcare costs due to improved air quality and access to transit and active transportation.

By implementing a CEP and generating more energy locally and using energy more efficiently, a community can keep more money in the local economy, generate opportunities for local energy savings and jobs, and help respond to increasing energy prices and future climate mitigation policies.

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# INTRODUCTION

Municipalities are faced with many challenges: competing in the global economy; accommodating changing demographics; addressing mounting infrastructure replacement costs as well as higher operating costs; and, increasing pressures on constrained budgets.

Many are seeking ways to capitalize on their advantages, maintain their quality of life, and strengthen their communities in a rapidly changing economic environment.

A common area where municipalities in Ontario of any size and location can enhance their economic advantage is through the reduction of current and future energy costs with the development and implementation of a Community Energy Plan (CEP).<sup>1</sup>

**This primer, designed for small and mid-sized municipalities, describes the cost of energy in Ontario's communities, outlines some of the approaches available to keep energy dollars local, and identifies helpful resources to support the implementation of a CEP.**

## ADVANCING ECONOMIC COMPETITIVENESS IN YOUR MUNICIPALITY WITH A COMMUNITY ENERGY PLAN

Community energy planning is a recognized best practice that can keep millions of dollars in a local economy, contribute to addressing energy and greenhouse gas (GHGs) emissions objectives, all while lowering energy costs, enhancing reliability, and providing greater economic benefits for consumers, businesses and local governments.

Across Canada, there are over 180 Community Energy Plans (CEPs), representing more than 50 percent of Canada's population, that are directed at achieving impressive community savings, solid returns on investment and are stimulating local economies among other benefits (see Table 1 for a listing of the general benefits of CEPs).

**Table 1 – The Benefits of Community Energy Planning**

Economic benefits	Environmental benefits	Health benefits	Resilience and Energy Security benefits
<ul style="list-style-type: none"> <li>– Reduce energy spending for residents, businesses and local government (resulting from energy efficiency and conservation projects, local distributed energy resources, reduced fuel usage, reduced waste, etc.)</li> <li>– Recirculate energy spending within the local economy</li> <li>– Create high quality local jobs</li> <li>– Increase property values</li> </ul>	<ul style="list-style-type: none"> <li>– Reduce greenhouse gas emissions</li> <li>– Foster healthy ecosystems</li> <li>– Use land and natural resources more efficiently</li> <li>– Set a common vision around energy in the community</li> </ul>	<ul style="list-style-type: none"> <li>– Improve indoor and outdoor air quality</li> <li>– Reduce obesity and diseases associated with sedentary lifestyles</li> <li>– Improve mental health</li> </ul>	<ul style="list-style-type: none"> <li>– Improve access to reliable sources of energy</li> <li>– Reduce exposure to energy price volatility</li> <li>– Assess and provide solutions for areas facing energy poverty</li> <li>– Assess and provide solutions for at-risk areas</li> <li>– Ensure local energy priorities are considered in supply planning</li> </ul>

Source: Community Energy Planning – Getting to Implementation in Canada! FAQ section. Accessed March 31, 2016. Retrieved from: <http://gettingtoimplementation.ca/category/faqs/>

### Engaging Local Stakeholders in Building a Strong Local Economy

*“It was important for us to ensure we had the right people at the table to build the foundation for a successful Community Energy Plan. Early on in the process, we created a Community Stakeholder Advisory Committee to help create and implement the Plan. This network of stakeholders, which includes the Burlington Economic Development Corporation, the energy utilities, community groups and several others, now work together to combine their limited resources to help local businesses improve their energy efficiency. It has been an effective process to break down silos between agencies while benefiting local businesses by helping them avoid energy costs.”*

–  
**Lynn Robichaud**  
 Senior Sustainability Coordinator,  
 City of Burlington

A Community Energy Plan (CEP) is a tool that helps define community priorities around energy with a view to improving efficiency, cutting emissions, and driving economic development. Through the implementation of a CEP, a local government can expect to:

- Address local climate change/weather patterns, including supporting municipal energy emission reduction projects;
- Keep energy dollars local allowing funds to recirculate within the local economy;
- Support local businesses to reduce energy costs and encourage new investment as well as business retention in a community;
- Contribute to local job creation and energy cost savings which offers both direct, indirect and induced economic benefits for a community; and,
- Establish a healthier community through reduced healthcare costs and more affordable housing.

<sup>1</sup> The term “local government” refers to a specific level of government. The term “community” or “communities” refers to all infrastructure and residential, commercial, industrial, institutional, transportation, utility, and agriculture activities within a given geographic (or municipal) boundary.

## PUTTING A COMMUNITY ENERGY PLAN TO WORK IN YOUR COMMUNITY

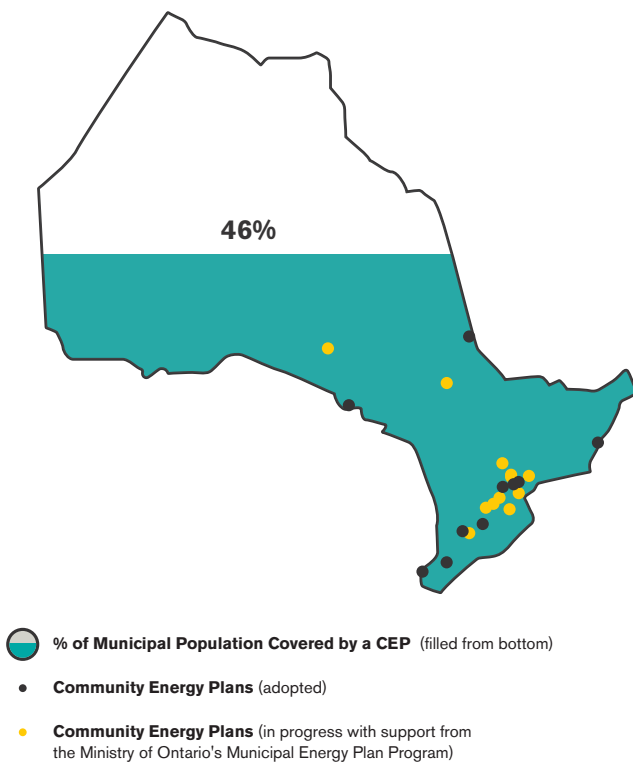
Increasingly, local governments are incorporating the implications of energy into their corporate priorities and community objectives as part of an overall approach for enhancing community competitiveness and long-term sustainable economic growth, as well as to contribute to meeting provincial, federal and global climate change objectives.

In Ontario, 21 municipalities, representing approximately 46 percent of the population in Ontario, have or are putting in place a CEP (see Figure 1).

Local governments in Ontario that have a CEP have benefited from reductions in energy use and GHGs compared to local governments without a CEP.

Local governments with a CEP have reported community-wide average GHG reductions of up to eight percent from pre-plan baseline inventories to their most recently updated inventories, while, overall, Ontario communities have experienced about a two percent increase in GHGs during the same period.<sup>2</sup>

**Figure 1 – Ontario Municipalities with a Community Energy Plan<sup>3</sup>**



## Community Energy Plan Return on Investment for Your Community

CEPs, when implemented, lead to community savings, solid returns on investment, and stimulate local job creation. Economic benefits can include:

- Reduced energy spending for every percentage reduction in energy use (see page 13);
- Millions of dollars recirculated within the local economy due to reduced energy spending (see page 14);
- Anywhere from 15-79 person-years of employment being generated per million dollars invested (see page 16); and
- Avoided healthcare costs due to improved air quality and access to transit and active transportation (see page 21).

By implementing a CEP, a community will keep more money in the local economy, generate opportunities for local energy savings and jobs, and help to manage risks from increasing energy prices and future climate policy by generating more energy locally and using energy more efficiently.

<sup>2</sup> Post-CEP emissions data was compared with baseline year emissions for all local governments where data was publicly available in Ontario. Additionally, for each of these local governments, Ontario-wide community emissions data for the same baseline and post-CEP years from Natural Resources Canada's Comprehensive Energy Use Database were compared. This included sectors within the influence of a community such as residential and commercial buildings, passenger transportation, and non-primary resource industries. Data from local governments was used to determine the average change from baseline to post-CEP emissions, and Ontario-wide data was used to determine the corresponding average change in Ontario-wide community emissions.

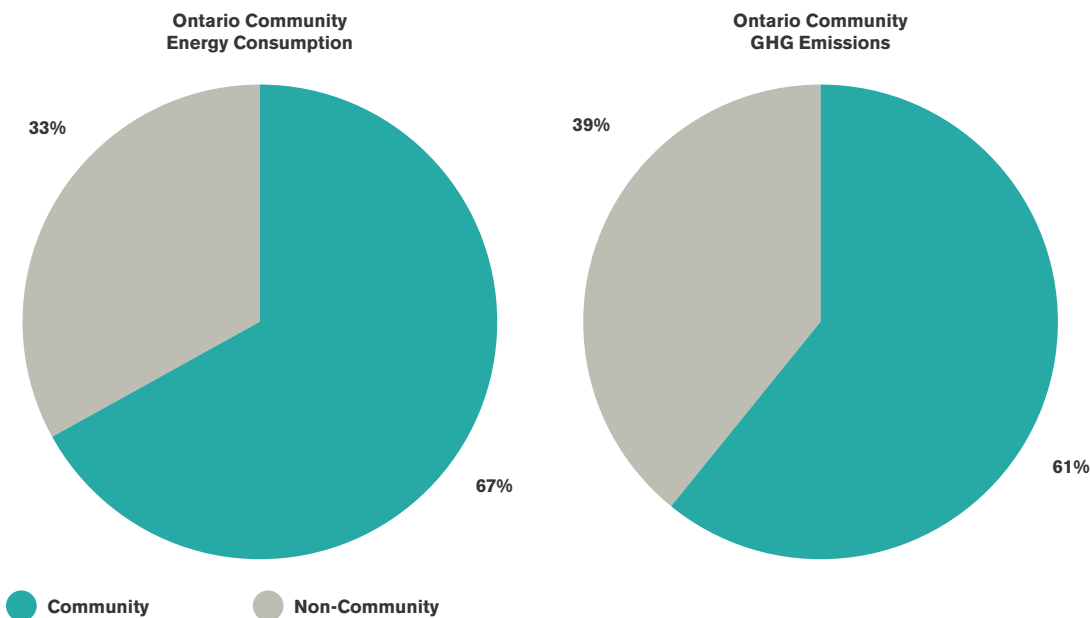
<sup>3</sup> To view communities with a Community Energy Plan in Ontario visit: <http://www.questcanada.org/thesolution/atlas>

# 1.0 YOUR MUNICIPALITY'S INFLUENCE ON ENERGY-USE AND GREENHOUSE GAS EMISSIONS

Communities have an important role to play in managing Ontario's energy use and GHGs.

For instance, 67 percent of GHGs and 61 percent of Ontario's energy use (approximately 75 megatonnes of CO<sub>2</sub> equivalent emissions; see Figure 2) occur in communities.

**Figure 2 - Ontario Community and Non-Community Energy and GHG Emissions<sup>4</sup>**



Source: Ontario Energy Use: Comprehensive Energy Use Database. Natural Resources Canada. February 25, 2016.

<sup>4</sup> "Non community" energy and GHG emissions refer to primary industries such as forestry, mining and heavy manufacturing; the transportation sector including freight, rail, passenger air and heavy duty vehicles; and, the agricultural sector.

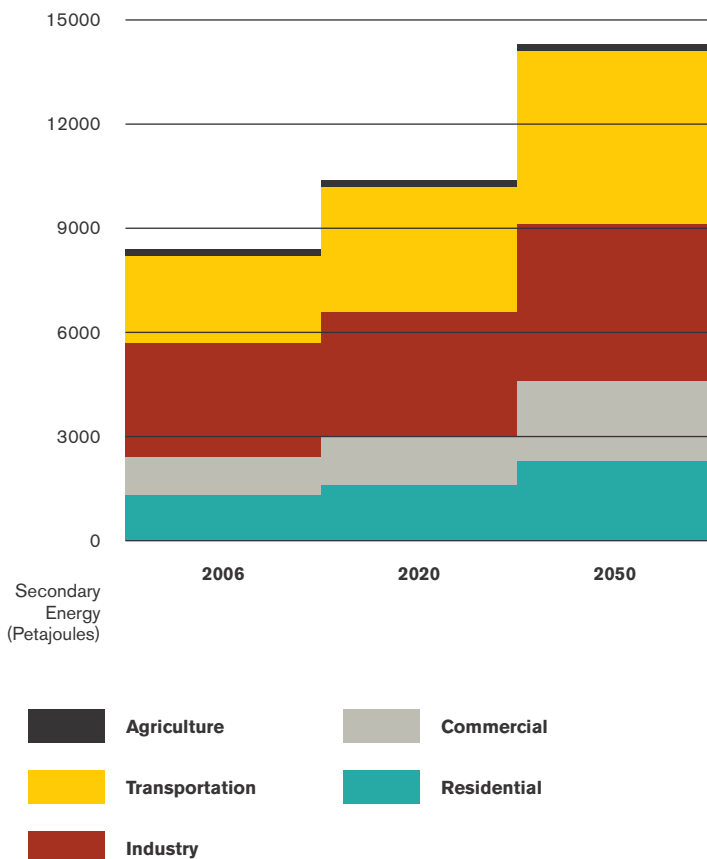


A business-as-usual scenario indicates that community energy use, which includes residential, commercial, industrial, transportation, and agriculture sectors, could increase by 75 percent from 2006 levels by 2050, according to the Canadian Council of Energy Ministers (see Figure 3).<sup>5</sup>

In Ontario, the residential and commercial sectors followed by the transportation sector remain the fastest growing areas with regards to GHGs (see Figure 4). Also, the industrial sector continues to represent the largest share of energy consumption at 37 percent, followed by residential, commercial and institutional sectors at 34 percent, and finally transportation at 27 percent (see Figure 4).

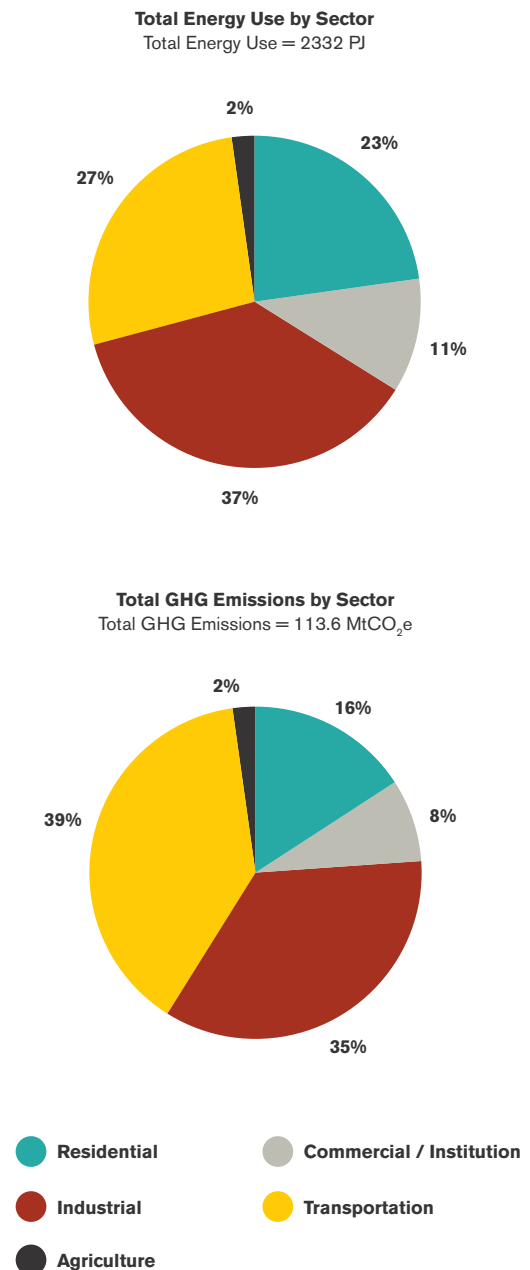
Local governments are well placed to respond to and actively reduce current and future energy costs for a community. Local governments have direct influence over the major areas of energy use, especially density and land use patterns, which determine the size and type of buildings, commuting distances, transportation modes, and energy distribution systems, including distributed energy sources (see Figure 5).<sup>6</sup>

**Figure 3 – Potential Growth of Energy Use in Communities across Canada**



Source: Integrated Community Energy Solutions : A Roadmap for Action. September, 2009.

**Figure 4 – Ontario Energy Use and GHG Emissions by Sector**

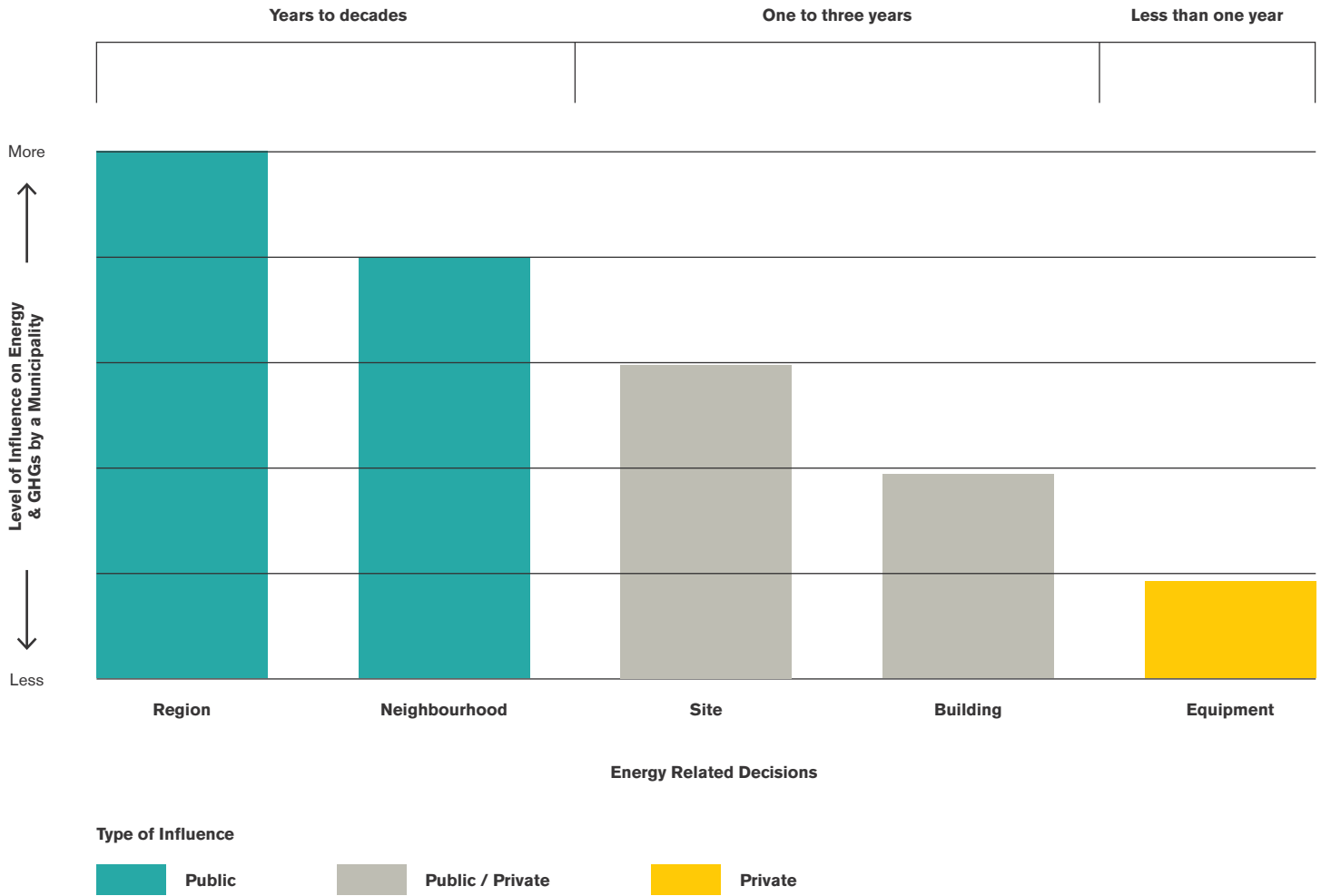


Source: Ontario Energy Use: Comprehensive Energy Use Database and Natural Resources Canada. February 25, 2016

<sup>5</sup> Council of Energy Ministers. Integrated Community Energy Solutions: A Roadmap for Action. September, 2009. Retrieved from: [https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/oeepdf/publications/cem-cme/ices\\_e.pdf](https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/oeepdf/publications/cem-cme/ices_e.pdf)

<sup>6</sup> Energy distribution systems refers to energy delivery and storage systems such as pipelines (natural gas), district energy networks (thermal / hot water), power lines, transportation (truck, marine, and rail) and delivery infrastructure. Distributed energy sources (or systems) refers to all forms of renewable energy (biogas, biomass, wind, solar, hydrogen, geothermal etc.), waste heat capture, and combined heat and power (CHP).

**Figure 5 - Municipality Influence on Energy-Use and GHGs**



Source: Paper No. 2 - Fuels & Technology for Integrated Community Energy Solutions. September, 2012. Modified with permission.

# 2.0 THE COST OF ENERGY IN MUNICIPALITIES

Energy is a significant cost for communities and presents an ideal starting point for local governments to begin actively responding to commitments for GHG reductions, while also realizing substantial economic savings, job creation opportunities, strengthened local economics and healthier communities.

On average, community per capita spending ranges from \$2,500 to \$4,000. Table 2 outlines how these costs add up for small, mid-sized and large communities.

**Table 2 – Typical Energy Spending in Small, Mid-Sized and Large Communities**

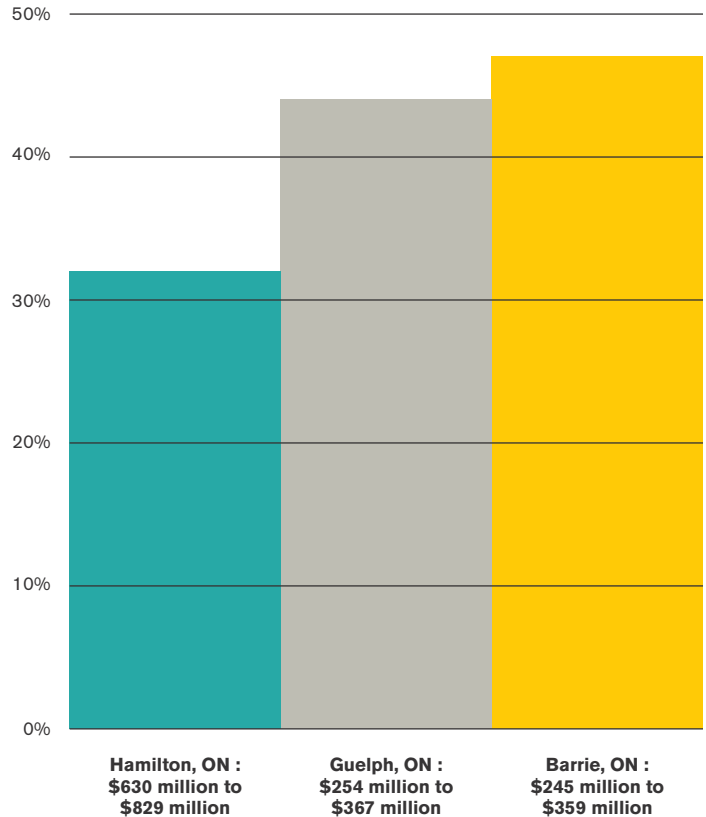
Municipality Size	Average Community-Wide Spending on Energy
Small Communities (less than 20,000 people)	Up to \$80 million
Mid-sized Communities (20,000 to 100,000 people)	\$60 million to \$400 million
Large Communities (100,000 people to 2.5 million people)	\$200 million to \$10 billion

Source: National Report on Policies Supporting Community Energy Plan Implementation. July, 2015.

It is anticipated that the total cost of energy to local governments and to the businesses, industry and consumers in a community will rise over time following a business-as-usual approach, as illustrated in Figure 6 for three Ontario communities.

Similar or higher increases in energy costs are anticipated for small, rural and remote communities in Ontario, where the costs associated with delivering energy are often greater. For example, residents served by Hydro One, Atikokan Hydro Inc. and Algoma Power Inc. have the highest costs of electricity in the province, paying over 30 percent more than the cheapest service areas for equivalent amounts of consumption.<sup>7</sup>

**Figure 6 – Projected Percent Energy Cost Increase for Three Ontario Municipalities 2008 to 2031**



Source: QUEST – Quality Urban Energy Systems of Tomorrow. *Community Energy Planning: The Value Proposition*. February, 2016. Projected increases in energy costs account for population growth and changing fuel prices, but not the impact of carbon pricing being applied in Ontario.

For businesses and consumers, the cost of energy has become an important factor when evaluating the investment potential or liveability of a community. In terms of households, the first-ever national survey for market preference of homebuyers identified that three of the top four must have features, when buying a new home, included energy efficient options.<sup>8</sup>

CEPs can assist municipalities to sustainably reduce energy spending by applying an integrated planning approach that can lead to energy savings, solid returns on investment, and local job creation.

<sup>7</sup> Municipality of Wawa. Wawa Energy Plan. 2016 Retrieved from: <http://www.wawa.cc/wp-content/uploads/2016/01/Wawa-Energy-Plan-Final.pdf>  
<sup>8</sup> Canadian Home Builders Association Buyer Preference Survey. 2015. Retrieved from: [www.chba.ca/nze](http://www.chba.ca/nze)

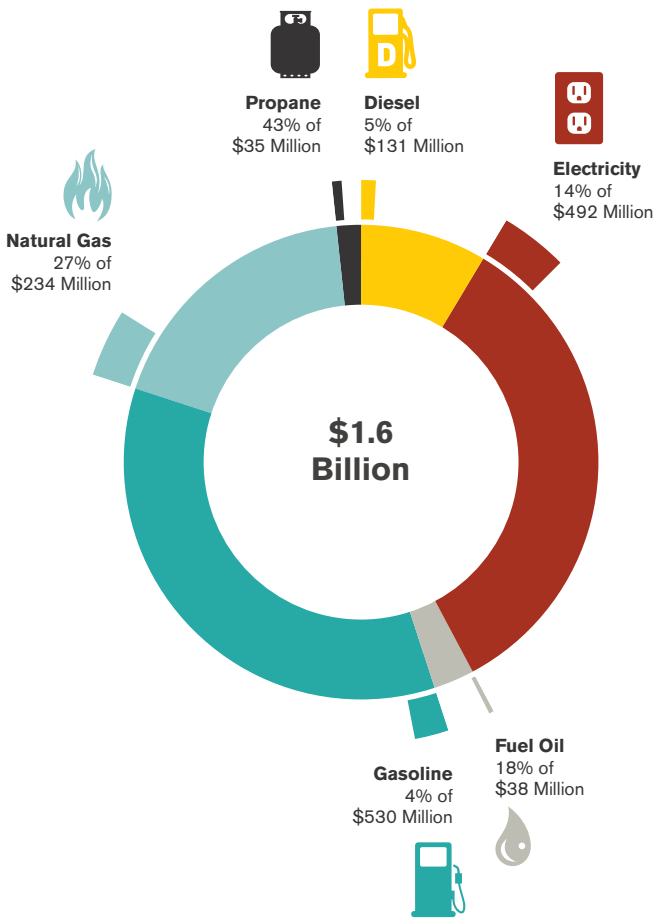
# 3.0 KEEPING ENERGY DOLLARS LOCAL

By addressing energy costs, there is a significant opportunity to keep millions of energy dollars in a community, leading to many direct and indirect economic benefits including:

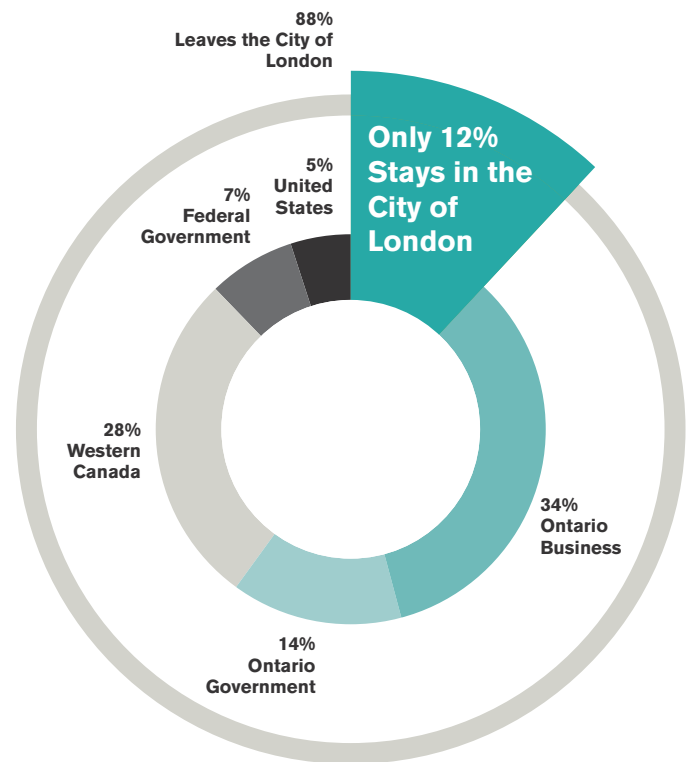
- Job creation;
- Business retention and attraction;
- Housing affordability; and,
- Healthy communities.

In London Ontario, for example, as shown in Figures 7 and 8, of the \$1.6 billion spent on energy in 2014, only 12 percent stayed in the local economy, and 59 percent stayed in the province.

**Figure 7 - Energy Dollars Spent in London Ontario and Proportion of Dollars Staying in Local Economy by Fuel Mix**



**Figure 8 - Destination of London Ontario Energy Expenditures as Percentage of \$1.6 Billion Total**



## Keeping Energy Dollars in your Community

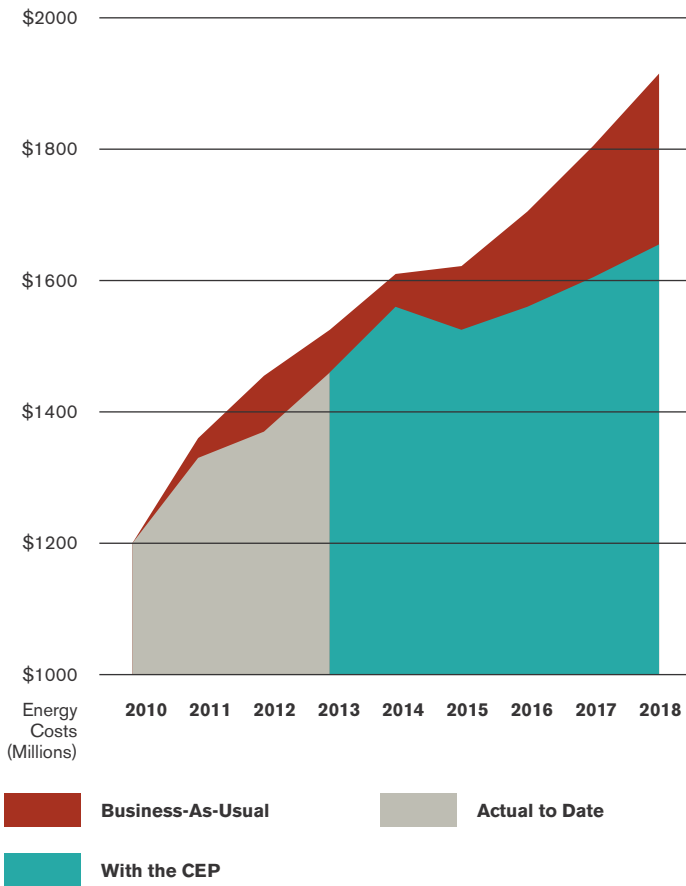
*"Community Energy Plans build upon existing climate change plans and commitments by introducing the important fact that energy use also has a financial impact on communities. In London's case, we estimate that the community spends over \$1.6 billion per year on energy products such as electricity, gasoline, natural gas, diesel. Most of this money - about 90 percent - leaves London. Investing in energy efficiency, conservation, and local energy products keeps more energy-related dollars in London by reducing our future energy costs AND increases the demand for local energy-related product and service providers."*

- **Jamie Skimming**

Air Quality,  
City of London

Source: Personal Communication,  
Jamie Skimming, City of London,  
February 3, 2016

**Figure 9 – Anticipated Forecasted Annual Energy Costs in the Community of London, Ontario with and without a Community Energy Plan**



Source: Skimming, Jamie (2014). The Use of Economic Data in London's New Community Energy Action Plan. <http://gettingtoimplementation.ca/wp-content/uploads/2015/03/CEAP-FCM-SCC-Feb-2015.pdf>

However, the opportunity to keep more energy dollars local and circulating within the local economy can be enhanced through the implementation of a CEP as illustrated in Figure 9.

For the City of London, the implementation of their Community Energy Action Plan is anticipated to avoid energy costs of around \$250 million per year by 2018.<sup>9</sup>

Using London, Ontario as an example again, it is estimated that for every one percent reduction in energy use by London residents and businesses, about \$14 million dollars will be saved.<sup>10</sup>

In terms of distributed energy sources, such as district energy, these sources can contribute to not only improved energy resiliency for a community, but can also contribute to lowering the operating costs for local businesses.

Some estimates reveal that the businesses and owners of buildings connected to district energy can achieve savings of nearly \$3 per square foot a year on utility costs (see Figure 10). This is often due to lower operating costs for businesses as a result of not having to install expensive capital infrastructure, as well as lower operating and maintenance costs.

**Figure 10 – Utility Expenses New Building vs. Existing Office Tower (\$/PSF)**



Source: The New District Energy: Building Blocks for Sustainable Community Development. January, 2008.

<sup>9</sup> City of London (2014). City of London Community Energy Action Plan 2014-2018. <http://www.london.ca/residents/Environment/Energy/Documents/Community%20Energy%20Plan.pdf>

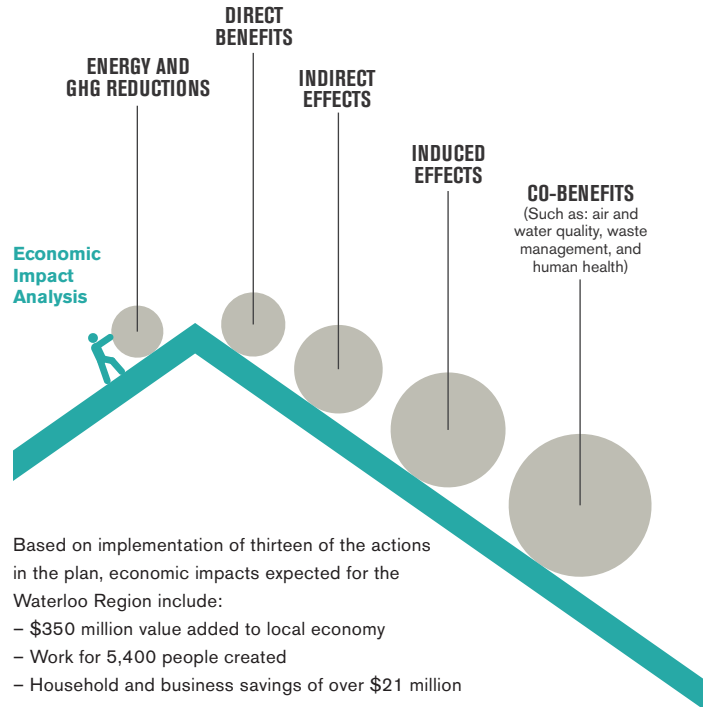
<sup>10</sup> City of London. 2015.

# RANGE OF ECONOMIC BENEFITS FROM A COMMUNITY ENERGY PLAN

In addition to keeping more energy dollars circulating within the local economy, there are other direct and indirect economic benefits to a community from implementing a CEP:<sup>11</sup>

- Direct economic benefits are gained when businesses or households directly implement a particular investment (technology or solution) to reduce energy costs, through changes in savings or spending, new income to businesses, and new jobs. Industry retention is another direct economic benefit that can positively impact the community.
- Indirect benefits arise in economic sectors that supply the inputs for that investment, such as equipment or technical services. The more a community can provide the goods and services needed for a CEP, the greater the share of indirect benefits that will remain in the community.
- Induced benefits result from a trickledown effect which arises when dollars generated from energy savings or from new local energy-related jobs are re-circulated in the local economy.
- Co-benefits are bonus benefits additional to those directly targeted by the CEP. These are often significant, but harder to quantify: for example, reduced congestion, improved air quality, improved community health, and increased community interactions as a result of an active transportation initiative would be indirectly supported by the implementation of a CEP.

**Figure 11 – Range of Economic Benefits for the Region of Waterloo for Energy Projects<sup>12</sup>**



Source: A Climate Action Plan for Waterloo Region: Living Smarter in 2020, November 2013. Modified with permission from the Region of Waterloo.

<sup>11</sup> The breakdown and application of direct and indirect benefits of Community Energy Plans was initially developed and documented by the *Community Energy Planning: Getting to Implementation in Canada!* initiative led by the Community Energy Association, QUEST – Quality Urban Energy Systems of Tomorrow and Sustainable Prosperity. The results of the work were reported in *Community Energy Planning: The Value Proposition* February, 2016 and were republished with permission.

<sup>12</sup> In the Region of Waterloo, thirteen actions were evaluated that reduced energy use and GHGs, including direct, indirect, induced and co-benefits.

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# 4.0 SUPPORTING JOBS, ECONOMIC DEVELOPMENT, AFFORDABILITY AND HEALTH WITH A COMMUNITY ENERGY PLAN

Investing in CEP development and implementation can lead to a variety of economic benefits beyond energy cost savings, including: job creation, business retention and attraction, housing affordability and healthy communities.

## 4.1 LOCAL JOB CREATION AND ENERGY SAVINGS

Energy is one of the few variable costs that directly impacts consumers, industry and local governments and is also a significant long-term cost.

For instance, the City of Hamilton evaluated that while facilities typically provide services over a 30 to 40 year period, the construction costs represent eight percent of a building's cost, while the operating costs, including maintenance, repairs, replacements, and energy purchases, represent about 92 percent of the costs over the lifetime of a building.<sup>13</sup>

When examined from a community wide perspective, energy cost savings can have a significant impact. For example, the communities of Barrie and Hamilton evaluated the long-term effects of energy costs (over a period of 2008-2031) by applying a variety of energy efficiency measures and alternative technologies, and found considerable energy cost savings could be achieved, well beyond the time period evaluated for the study.<sup>14</sup>

Numerous studies conducted have also shown that more jobs are created through energy-efficiency measures than in other energy-related sectors of the economy.<sup>15</sup> For instance, an evaluation conducted by Barrie and Hamilton in Ontario found that per million invested in building energy efficiency retrofits, over nine person years of permanent employment would be created within the province.<sup>16</sup>

A national survey of over 30 such studies and research reports found that the jobs created per million dollars invested in energy efficiency and conservation ranged from approximately 15 to 79 person years of employment, with an overall average of 36 jobs created per million dollars invested. Similar levels of employment were also documented for alternative and renewable energy systems.<sup>17</sup>

The key benefit from energy cost savings and job creation is that energy dollars can be kept local and further both direct and induced benefits for the entire community.



Copyright Queen's Printer for Ontario, photo source: Ontario Growth Secretariat, Ministry of Municipal Affairs and Housing

<sup>13</sup> ICLEI Energy Services. *The Business Case for Cutting Greenhouse Gas Emissions from Municipal Operations*. June, 2003. Retrieved from: [https://www.fcm.ca/Documents/reports/PCP/The\\_Business\\_Case\\_for\\_Cutting\\_Greenhouse\\_Gas\\_Emissions\\_from\\_Municipal\\_Operations\\_EN.pdf](https://www.fcm.ca/Documents/reports/PCP/The_Business_Case_for_Cutting_Greenhouse_Gas_Emissions_from_Municipal_Operations_EN.pdf)

<sup>14</sup> QUEST – Quality Urban Energy Systems of Tomorrow (QUEST). *Community Energy Planning: The Value Proposition*. February, 2016. Retrieved from: <http://gettingtoimplementation.ca/research/>

<sup>15</sup> McKinsey Global Energy and Materials Retrieved. *Unlocking Energy Efficiency in the U.S. Economy*. July, 2009. Retrieved from: [www.mckinsey.com/Client\\_Service/Electric\\_Power\\_and\\_Natural\\_Gas/Latest\\_thinking/Unlocking\\_energy\\_efficiency\\_in\\_the\\_US\\_economy](http://www.mckinsey.com/Client_Service/Electric_Power_and_Natural_Gas/Latest_thinking/Unlocking_energy_efficiency_in_the_US_economy).

<sup>16</sup> QUEST – Quality Urban Energy Systems of Tomorrow (QUEST). 2016.

<sup>17</sup> ICLEI Energy Services. 2013.

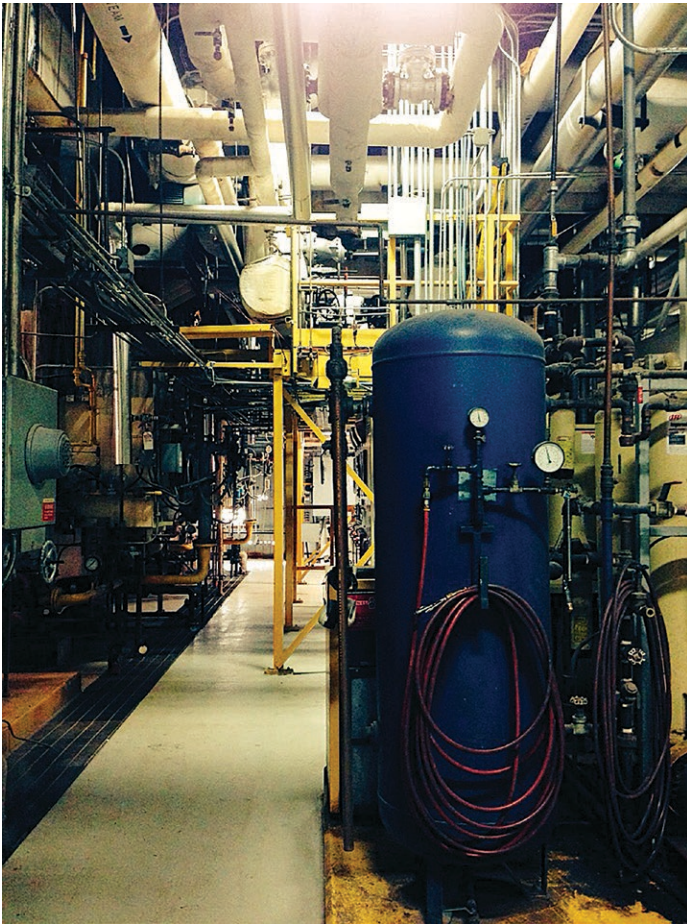


Image: London District Energy in Ontario

### Supporting the Local Economy Through Community Energy Planning

*"A Community Energy Plan is a means to mitigate significant negative impacts to business and economic prosperity from rising energy prices. Additionally, collaborative energy planning at a community scale can help better position businesses to take advantage of the global movement towards a low carbon economy. Local governments active in energy planning and management can directly lower the cost of doing business within their community while enabling them to invest more directly in their core areas of business development. Further, it is being demonstrated across Canada that engagement in energy planning is a more inclusive, timely and forward thinking method of fulfilling multiple local government roles with regard to land use, transportation and infrastructure planning. This strategic integration of energy investments and infrastructure planning can assist in jump starting local economic development particularly with regards to the rapidly growing global clean tech sector."*

–

**David Roewade**

Sustainability Planning,  
Region of Waterloo



## 4.2 INCREASED COMMUNITY INVESTMENT AND BUSINESS RETENTION

Energy impacts the costs of operation for local businesses and industry.

In a national survey of Canadian executives, 86 percent cited energy costs as a high or moderately high concern to their business. The highest rates of concern were expressed by small businesses in the retail, accommodation, food, and arts sectors.<sup>18</sup>

CEPs can support local businesses and industry to find ways to use less energy, or find lower cost energy services. Distributed energy sources, often identified within a CEP, can change the economics of production for the better, and influence a firms' decision to remain in a community.

For instance, in Cambridge Ontario, a significant employer, Toyota Motor Manufacturing Canada (TMMC) Inc., identified rising energy costs as a potential concern for the operation of its facilities. Working in collaboration with the local utility, the Regional Municipality of Waterloo and the Independent Electricity System Operator, installed a 10 megawatt combined heat and power (CHP) system. This new system provided substantial cost savings due to increased efficiency – annual energy savings equivalent to over 7,400 homes – and improved reliability of their energy supply not only for the company, but also for the community.<sup>19</sup>

Community energy planning can create a platform for partnerships such as these to take place on an ongoing basis across the community.

Municipalities also have the capacity to stimulate energy cost savings for businesses through innovative programs and policies. Successful programs that have helped businesses and industry remain competitive include, the City of Toronto's Better Building Partnership Program (BBP). The program has assisted with the retrofit of 2000 private buildings in Toronto leading to \$59 million per year in energy cost savings.<sup>20</sup>

CEPs can also help communities attract new industries as well as retain existing ones. For instance, the City of Guelph was successful in attracting a major solar developer, Canadian Solar, as well as new consulting companies, such as Ramboll, which led to the establishment of over 500 local jobs.<sup>21</sup> These firms attribute the CEP to creating an environment more conducive to investment.

Another example includes the City of Markham, Ontario District Energy system which has supported local economic development by providing customers with energy security. The reliability of energy supply provided by the district energy system influenced IBM to locate its world headquarters for software development in Markham, employing approximately 8,000 people.<sup>22</sup>

Similarly, Sault Ste. Marie has attracted significant renewable energy industry and jobs, such as 180 construction jobs with about 30 percent of those jobs related to the Batchewana First Nation Bow Lake Wind Farm.<sup>23</sup>

<sup>18</sup> The Gandalf Group. View from the Top: The C-Suite's View of Energy and the Environment. Presentation at Green Economy Ontario Conference. November 5, 2015.

<sup>19</sup> Toyota Motor Manufacturing Canada Inc. Toyota Motor Manufacturing Canada Announced \$27M Combined Heat and Power Initiative in Cambridge. May 14, 2015. Retrieved from: <http://www.wredc.ca/en/Modules/News/index.aspx?newsId=8d5e339b-1d09-4ea7-b8c7-6239175e2283>

<sup>20</sup> City of Toronto, Better Building Partnership. Accessed February 25, 2016. Retrieved from: <http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=6bb5136696f85410VgnVCM10000071d60f89RCRD>.

<sup>21</sup> Farbridge, K. Building a Carbon Smart Community. March 22, 2016. Presentation at Climate Action Speaker Series, Kingston ON.

<sup>22</sup> International District Energy Association. Markham District Energy: Putting the Urban in Suburban. May 29, 2007. Retrieved from: <http://www.districtenergy.org/case-studies-4/>

<sup>23</sup> Helwig, D. Bow Lake Wind Farm: It begins. SooToday. November 6, 2014. Retrieved from: <https://www.sootoday.com/local-news/bow-lake-wind-farm-it-begins-176871>

# ENERGY COST IMPACT FOR EMPLOYMENT SECTORS IN ONTARIO

Energy is important to every sector of the economy in Ontario, especially for manufacturing and services, and communities have a direct role in reducing current and future energy costs for consumers, local businesses and industry.

## Manufacturing

The manufacturing and goods production sector is among the largest employers in Ontario and is reliant on stable energy sources and costs, especially for transportation and food production.

### Transportation

The transportation sector continues to represent the largest proportion of manufacturing jobs in Ontario, with substantial energy needs.<sup>24</sup> Many are looking to smaller-scale energy solutions, such as combined heat and power (CHP), to help reduce energy costs and improve reliability. For instance, GO Transit installed a \$1.8 million, 1.2 megawatt CHP unit at its bus maintenance facility in Mississauga, saving in excess of \$120,000 annually.<sup>25</sup>

### Food Processors

The food products industry represents another significant portion of manufacturing in Ontario. It is estimated that over \$500 million was spent in 2004 on energy costs by Ontario food processors.<sup>26</sup> As a result, companies are focusing on ways to reduce energy use. For instance, Weston Foods Inc. introduced a \$60,000 lighting retrofit in its Concord plant saving 266,000 kWh annually, while Loblaw Companies Limited has reduced energy use in all of its stores by about 3.1 percent per square foot through lighting upgrades, reduced refrigerant leaks and other renewable energy initiatives.<sup>27</sup>

## Services

Energy costs represent a substantial portion of costs to the education and healthcare sectors in Ontario, which are significant employers.<sup>28</sup>

### Education

On average, colleges and universities spend an estimated \$235 million per year on energy, while school boards spend \$300 million per year. Institutions that have taken action to manage their energy costs by implementing building energy efficiency retrofits have seen significant cost savings.<sup>29</sup> For example, the Simcoe County district school board cut energy use by 16 percent and saved \$500,000 per year by replacing windows, boilers, and upgrading the heating and cooling system in just one third of its schools.<sup>30</sup>

### Healthcare

Medical facilities have the highest energy intensity of any publicly funded facility. In Ontario, hospitals use 50 percent more energy per square foot than a typical commercial/institutional building and about three to four percent of a hospital's operating budget is directed to energy.<sup>31</sup> Medical facilities present excellent opportunities for advancing energy cost savings. For example, in collaboration with Thunder Bay Hydro and Johnson Controls, the Thunder Bay Regional Health Sciences Centre implemented a \$8.3 million CHP project in 2015 which is expected to save the hospital about \$500,000 annually in energy costs.<sup>32</sup>

<sup>24</sup> Government of Ontario. Which industry employ the most people? 2016. Retrieved from: <http://www.tcu.gov.on.ca/eng/labourmarket/ojf/industrySector.html>

<sup>25</sup> Baker, D. A Case for Accelerating the Rollout of Small-scale, Combined Heat and Power (CHP) Projects Through a CHP Case Study: The Go Transit, Streetsville, Bus Maintenance Facility. December, 2011. Ontario Clean Air Alliance. Retrieved from: <http://www.cleanairalliance.org/wp-content/uploads/chpcasestudy.pdf>

<sup>26</sup> Natural Resources Canada. Improving Industrial Efficiency in the Food Industry. April, 2007. Retrieved from: <http://www.gtmconference.ca/site/downloads/presentations/3C1%20-%20Jessica%20Norup.pdf>

<sup>27</sup> Natural Resources Canada. Weston Foods goes energy-efficient across the country. Heads Up CIPEC. 19(11). Retrieved from: [www.nrcan.gc.ca/energy/efficiency/industry/technical-info/library/newsletter/18008](http://www.nrcan.gc.ca/energy/efficiency/industry/technical-info/library/newsletter/18008) Loblaw Companies Limited. Corporate Social Responsibility Report – Refrigeration and Energy Efficiency. 2012. Retrieved from: <http://www.loblaw-reports.ca/responsibility/2012/respect-the-environment/refrigeration-and-energy-efficiency/>

<sup>28</sup> Government of Ontario. 2016

<sup>29</sup> Environmental Commissioner of Ontario. Annual Energy Conservation Progress Report, 2010 (Volume Two): Managing a Complex Energy System - Results. Retrieved from: <http://eco.on.ca/>.

<sup>30</sup> Leslie, K. Data on energy use by Ontario schools to be made public after call by watchdog. The Globe and Mail. January 8, 2013. Retrieved from: <http://www.theglobeandmail.com/news/national/data-on-energy-use-by-ontario-schools-to-made-public-after-call-by-watchdog/article7037675/>

<sup>31</sup> Jefferson, J. Energy Efficiency Opportunities in Ontario Hospitals. February, 2006. Produced for the Ontario Hospital Association. Retrieved from: <http://www.oha.com/CurrentIssues/keyinitiatives/eHealth/Documents/EnergyEfficiencyOpportunitiesfeb28.pdf>

<sup>32</sup> Bernardo, M. Powering the Future of Healthcare: Thunder Bay Regional Health Sciences Centre Unveils Completed Energy-Saving Power Plant. January 22, 2016. Retrieved from: <http://www.tbrhsc.net/thunder-bay-regional-health-sciences-centre-celebrates-new-energy-savings-addition-to-central-plant/>

### 4.3 HOUSING AFFORDABILITY

Energy costs are a major component of the operating expenses for a household, up to eight percent, and can impose a significant burden on low-income households and housing authorities.<sup>33</sup>

Energy efficiency, often the primary cornerstone of a CEP, can contribute to housing affordability by helping to direct resources and municipal priorities to improve the use of energy in buildings.

For example, The Lanark County Housing Corporation (LCHC) identified the immediate need and energy cost saving opportunity of replacing aging hot water and air conditioning systems in four of its buildings; with some small buildings exceeding \$100,000 a year in energy costs. LCHC commenced a trial project in one building to replace window air-conditioning units and antiquated hot-water boilers with a micro-combined heat and power initiative as well as other energy efficiency improvements. After a year of operation, energy cost savings ranged from \$1,700 to \$2,100 per month or about \$25,000 per year.<sup>34</sup>

Similarly, the Regional Municipality of Waterloo commenced with energy upgrades to Sunnyside Home – an 11-acre campus of facilities that provide health and wellness services to seniors as well as housing units with different levels of supportive care. Within the Sunnyside Campus, the region has undertaken a variety of energy efficiency improvements, including the installation of a waste-heat recovery system on a long-term care facility. The result, nearly \$84,000 in energy cost savings and 450 tonnes of GHG emissions reduced yearly from an initial investment of \$700,000.<sup>35</sup>



© User:booleadozer / Flickr / CC BY-SA-2.0

<sup>33</sup> Low-Income Energy Network. Fact Sheet: Low-income consumers and electricity service. 2008. Retrieved from: <http://www.lowincomeenergy.ca/assets/sitedocs/2008/12/energypovertyfactsheetjune2008.pdf>. In 2006, the median annual utility costs for low-income households was \$1,000, which represented 7.7% of pre-tax income. For all other households, the annual utility cost was only 3.2% of pre-tax income.

<sup>34</sup> The Lanark County Housing Corporation (LCHC) submission to the 2014 Ontario Power Authority Community Conservation Awards. Referenced with permission from the Independent Electricity System Operator. February, 2016.

<sup>35</sup> Regional Municipality submission to the 2014 Ontario Power Authority Community Conservation Awards. Referenced with permission from the Independent Electricity System Operator. February, 2016.

## 4.4 HEALTHY COMMUNITIES

Priority is being placed on establishing healthy communities across Canada, including a requirement by the Province of Ontario for local governments to build strong, healthy communities through efficient land use and development patterns.<sup>36</sup> In a recent survey of communities that had completed a CEP in Canada, about 59 percent identified that health benefits were among the top reasons for developing a CEP.<sup>37</sup>

The health impacts associated with transportation are estimated to be between \$4 and \$7 billion for Canada.<sup>38</sup> Communities have significant influence over land use development (see Figure 5) and as a result the sources of air pollution related to land use, transportation and other energy production.

Transportation system fuel switching and land use changes that encourage compact development (mixed-use/ complete communities) and active transportation are credited with reducing health care costs related to obesity and cardiovascular issues associated with air quality, including ozone and PM2.5 (very fine particulate matter).<sup>39</sup>

A report by the Medical Officers of Health in the Greater Toronto and Hamilton Areas (GTHA) estimated that modest improvements in public transit use and active transportation (walking and biking) could prevent 338 premature deaths, with an associated economic benefit of \$2.2 billion through improvements in physical activity, and preventions of death due to traffic-related emissions and health complications such as diabetes.<sup>40</sup>

A similar study for the Regional Municipality of Waterloo found that a rapid transit project could lead to air quality improvements that could prevent up to 61 hospital admissions and reduce costs of health care by up to \$16 million over a 30-year period.<sup>41</sup>

### Creating Alignment Through Community Energy Planning

*"Although the larger economic benefits of the Wawa Energy plan are long-term, the short-term benefits are that all local stakeholders played a role in providing input into the plan, making it more likely to be implemented. The Wawa Energy Plan got the conversation going and will act as a catalyst for future projects by identifying the need and want for energy reduction and alternatives. Engaging all local stakeholders, from residents to industry with a comprehensive "boots on the ground" approach ensured that all ideas were captured and incorporated in the plan. In every community, all voices matter and every step, with regards to energy change, small or big is a step in the right direction."*

–  
**Emily Cormier**

Energy Project Manager,  
Economic Development Corporation of Wawa



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<sup>36</sup> Government of Ontario. 2014 Provincial Policy Statement.

<sup>37</sup> QUEST – Quality Urban Energy Systems of Tomorrow (QUEST). National Report on Policies Supporting Community Energy Plan Implementation. 2015. Retrieved from: <http://gettingtoimplementation.ca/research/>

<sup>38</sup> Sawyer, D., Stiebert, S. & Welburn C. Evaluation of total cost of air pollution due to transportation in Canada. 2007. Retrieved from: [http://publications.gc.ca/collections/collection\\_2008/tc/T22-148-2007E.pdf](http://publications.gc.ca/collections/collection_2008/tc/T22-148-2007E.pdf)

<sup>39</sup> Ontario Professional Planners Institute. Health Communities. Sustainable Communities – The 21st Century Planning Challenge. 2007. Retrieved from: <http://ontarioplanners.ca/PDF/Healthy-Communities/2007/Healthy-Sustainable-Communities-2007.aspx>

<sup>40</sup> Medical Officers of Health in the Greater Toronto and Hamilton Area. Improving Health by Design in the Greater Toronto-Hamilton Area, Second Edition. May 2014. Retrieved from: <https://www.peelregion.ca/health/resources/healthbydesign/pdf/moh-report.pdf>

<sup>41</sup> QUEST – Quality Urban Energy Systems of Tomorrow (QUEST). 2016.

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# RESOURCES TO SUPPORT COMMUNITY ENERGY PLANNING IN MUNICIPALITIES

## R.1 MUNICIPAL ENERGY PLAN PROGRAM

Launched in 2013, the Municipal Energy Plan (MEP) program, delivered by the Ministry of Energy, is available to all Ontario local governments and applications are accepted on an ongoing basis.

There are two streams of funding available through the program.

- Stream 1 provides successful applicants with support of up to 50 percent of eligible costs, up to a maximum of \$90,000 to develop energy plans, including community energy plans and climate action plans.
- Stream 2 provides successful applicants with 50 percent of eligible costs, up to a maximum of \$25,000 to update or enhance an existing energy plan.

The MEP program is available to both upper tier governments (regions, counties) and their lower-tier governments. In cases where both upper-tier and related lower-tier governments are applying to the MEP program, applications need to demonstrate that:

- There will not be duplication of MEP-funded activities between an upper-tier MEP and a lower tier MEP;
- Lower-tier government energy plans will be consistent and reflect regional planning decisions; and,
- Upper and lower-tier governments will maintain communication throughout the project.

More information about the MEP program as well as a list of local governments that have received support can be found at: <http://www.energy.gov.on.ca/en/municipal-energy/> or by emailing [MEP@ontario.ca](mailto:MEP@ontario.ca).

In addition to the financial support provided by the Ontario Ministry of Energy's Municipal Energy Plan Program, municipalities can access financial support for the development of energy and climate action plans as well as for the implementation of actions by applying to the Green Municipal Fund and the New Building Canada Plan. Table 3 identifies sources of funding for the development and implementation of a CEP.

**Table 3 – Funding Sources to Develop and Implement a Community Energy Plan**

Type of Program	Relevance	Eligibility	Link
Municipal Energy Plan (MEP) Program	Supports the development of new, and enhancement of existing, community energy plans.	Local governments	<a href="http://www.energy.gov.on.ca/en/municipal-energy/">http://www.energy.gov.on.ca/en/municipal-energy/</a>
Federal Gas Tax Funds	Supports investment in sustainable infrastructure, such as public transit, drinking water, wastewater infrastructure, green energy, solid waste management, and local roads and bridges.	Local governments	<a href="http://www.infrastructure.gc.ca/plan/gtf-fte-eng.html">http://www.infrastructure.gc.ca/plan/gtf-fte-eng.html</a>  <a href="http://www.amo.on.ca/AMO-Content/Gas-Tax/Canada-s-Gas-Tax-Fund.aspx">http://www.amo.on.ca/AMO-Content/Gas-Tax/Canada-s-Gas-Tax-Fund.aspx</a>
Building Canada Fund – Small Communities Fund for projects in municipalities with fewer than 100,000 residents	Some of the eligible projects include: – Public transit – Water and Wastewater – Solid waste management – Green energy – Innovation – Brownfield redevelopment	Local governments with fewer than 100,000 residents	<a href="http://www.infrastructure.gc.ca/plan/sc-cp-eng.html">http://www.infrastructure.gc.ca/plan/sc-cp-eng.html</a>
Federation of Canadian Municipalities' Green Municipal Fund (GMF)	GMF supports initiatives that improve, air, water and soil quality, and mitigate the impacts of climate change. Funding is available for local government plans that support sustainable community development, including energy and GHGs.  *Programs may change – consult the FCM website for the latest information.	Local governments	<a href="http://www.fcm.ca/home/programs/green-municipal-fund.htm">http://www.fcm.ca/home/programs/green-municipal-fund.htm</a>
Other Government of Canada Funding, Grants and Incentive programs	– Current Funding Programs	Various	<a href="http://www.nrcan.gc.ca/energy/science/programs-funding/2362">http://www.nrcan.gc.ca/energy/science/programs-funding/2362</a>
	– ecoENERGY for Renewable Power	Various	<a href="http://www.nrcan.gc.ca/ecoaction/14145">http://www.nrcan.gc.ca/ecoaction/14145</a>
	– Grants and Financial Incentives	Various	<a href="http://www.nrcan.gc.ca/energy/funding/efficiency/4947">http://www.nrcan.gc.ca/energy/funding/efficiency/4947</a>
	– Other Federal Sources	Various	<a href="http://www.nrcan.gc.ca/energy/science/programs-funding/2368">http://www.nrcan.gc.ca/energy/science/programs-funding/2368</a>
	*Programs may change – consult the Federal government website for the latest information.		

Source: Community Energy Association

## **R.2 THE BROADER PUBLIC SECTOR REPORTING REGULATION 397/11**

### **Reporting Regulation**

The Ministry of Energy developed Ontario Regulation 397/11 Energy Conservation and Demand Management Plans to help public agencies (including local governments, municipal service boards, colleges, universities, hospital and school boards) better understand how and where they use energy as it related to corporate activities and facilities and to develop conservation plans to facilitate energy savings, and demonstrate leadership in the public sector.

Under the Regulation public agencies are required to:

- Report annually to the Ministry of Energy on their energy use and GHGs and publish the reports on their websites, starting July 1, 2013. Public agencies must update this consumption information on an annual basis; and,
- Develop and publish on their websites a conservation and demand management plan every five years, starting July 1, 2014.

The Ministry of Energy posts the annual reports submitted by public agencies on the government's Open Data website, which allows the public easy access to all reports.

## R.3 RESOURCES AVAILABLE TO DEVELOP AND IMPLEMENT A COMMUNITY ENERGY PLAN

The following are a selection of resources to support community energy planning.

### **Advancing Integrated Community Energy Planning in Ontario – A Primer**

This primer, developed with support from the Ontario Power Authority (now the Independent Electricity System Operator) and the Ontario Ministry of Energy, provides a comprehensive overview of why local governments have a key role in energy planning in Ontario, how local governments can get started planning an integrated energy future and how to engage local partners. It provides an overview of current energy processes in Ontario and identifies opportunities for local governments to better provide input to and have regard for electricity and natural gas planning processes. It also outlines how local governments can apply an energy lens to land use and growth planning processes.

Access this resource and others at: [www.questcanada.org](http://www.questcanada.org).

### **City of London Community Energy Strategy Workshop**

As part of the Integrated Energy Mapping for Ontario Communities (IEMOC) initiative, the City of London held a Community Energy Strategy Workshop to engage key stakeholders in knowledge exchange and collaborative discussions around opportunities to reduce the City's energy use and GHGs. This report summarizes key themes that emerged from those conversations and demonstrates how an energy map can act as an engagement tool within a diverse stakeholder group.

Available at: QUEST  
<http://www.questcanada.org/files/download/9a7c06f8ac13295>

### **Community Energy Planning: Getting to Implementation in Canada! (GTI)**

GTI is a collaborative initiative spearheaded by the Community Energy Association, QUEST – Quality Urban Energy Systems of Tomorrow, and Sustainable Prosperity to support communities with implementing their CEPs. GTI is developing practical tools that have been tested and refined by communities implementing a CEP.

Access these tools and other resources at: [www.gettingtoimplementation.ca](http://www.gettingtoimplementation.ca)

### **Integrated Energy Mapping for Ontario Communities: Lessons Learned**

This study profiles the experiences of four municipalities, City of Barrie, City of London, City of Hamilton and City of Guelph, who participated in the Integrated Energy Mapping for Ontario Communities Initiative (IEMOC) exercise to identify opportunities to reduce energy use and GHGs, as well as support other location-specific objectives related to energy planning and management. The report documents challenges and lessons learned from the energy mapping process.

Available at: Canadian Urban Institute  
<http://www.canurb.org/waterenergy/>

### **Ontario Energy Community of Practice Training Modules**

These resources, developed in collaboration with the Clean Air Partnership (CAP) with support from the Independent Electricity System Operator (IESO) and the Ontario Ministry of Energy, include training modules and video presentations to support the needs of local governments as they develop and implement CEPs. The modules include information on the benefits of community energy planning, approaches for developing an implementable CEP, and how community energy planning fits within the broader provincial framework, including the IESO's regional planning process.

Access this resource and others at: [www.questcanada.org/ECOP](http://www.questcanada.org/ECOP)

### **Partners for Climate Protection (PCP) Milestone Tool**

The PCP Milestone program was designed to assist local governments with reducing GHGs through a 5-step framework. Milestone one (1) of the program requires local governments to develop a baseline energy and emissions inventory, preferably using the latest available data. To support these efforts, there are several resources and tools available on the Federation of Canadian Municipalities (FCM) website to support local governments that engage in the program.

Available at: Federation of Canadian Municipalities  
[www.fcm.ca/home/programs/partners-for-climate-protection/program-resources/milestone-toolkit.htm](http://www.fcm.ca/home/programs/partners-for-climate-protection/program-resources/milestone-toolkit.htm)



## R.4 ALTERNATIVE FINANCIAL TOOLS TO IMPLEMENT COMMUNITY ENERGY PLANS

There are a variety of alternative financial tools that can support the implementation of CEPs, which are permitted under the Municipal Act, the Planning Act or the Development Charges Act. Among the key financial tools that are available to local governments are grants or loans, tax increment equivalent grants or loans, fee exceptions, refunds, waivers and reductions, as well as public private partnerships. Table 4 provides a sample of the financial tools available to local governments.

**Table 4 – Alternative Financial Tools to Implement Community Energy Plans**

Financial Tools	Example
<p><b>Development Charges</b> The council of a local government may by by-law impose development charges against land to pay for increased capital costs required because of increased needs for services arising from development of the area to which the by-law applies. Development charges can be designed in such a way to encourage greater intensification and to achieve improved integration between land use and transportation.</p>	<p>The Niagara Region Development Charges Reduction Program offers development charge exemptions ranging from 50-75 percent for developments located within central areas, or on brownfield sites within central areas and for Leadership in Energy and Environmental Design (LEED) projects.<sup>42</sup></p>
<p><b>Local Improvement Charges (LIC)</b> LICs are used when a local government wants to provide a new service to one or more private properties. The local government pays for the improvements and arranges for the work to be carried out. An LIC is assessed for the cost of the work and assigned to each property that benefits from the improvement. A set portion of the LIC is paid through an additional charge on top of the local government tax over a set number of years by the owner of the property.</p>	<p>Changes came into effect in 2012 allowing local governments in Ontario to fund energy initiatives including, renewable energy, energy efficiency and water conservation capital works initiatives on private property using an LIC. Local governments can offer an LIC financing program to local property owners (such as for single family homes, condominiums, and private owned multi-unit residential buildings) to support energy efficiency upgrades and other work.</p>
<p><b>Community Improvement Plan</b> The Planning Act allows municipalities to prepare community improvement policies as part of a Community Improvement Plan (CIP). Amendments have been made to change the definition of “community improvement” in the Planning Act to include the improvement of energy efficiency.</p>	<p>Local governments are now able to utilize CIPs for a range of projects, including energy related improvements to structures and for energy programs within new developments.</p>
<p><b>Public Private Partnerships</b> P3s are financing arrangements that increase the involvement of the private sector in public service delivery, and transfer some risk and reward to the private sector. P3s for infrastructure financing range from minimal involvement (e.g., providing garbage collection services), to more comprehensive involvement (e.g., building and operating a facility).</p>	<p>Toromont Energy, a private sector energy firm, acquired the rights to the waste gas for the Region of Waterloo landfill site in 1999. Toromont designed, constructed and operates a power plant operating on landfill gas (methane). The electricity generated is exported into the Ontario grid system. The region installed gas collection wells and a large flare to collect the gas, while Toromont operates the plant. Under a 21-year agreement with Toromont, the region can renew the lease or assume responsibility of the plant after 20 years. All risk associated with power generation is assumed by Toromont, as well as issues of liability, gas level requirements, technology and staffing. Royalties to the region are estimated at about \$100,000/year.</p>

<sup>42</sup> Niagara Region (n.d.). Development Charges Reduction Program. Retrieved from: <https://www.niagararegion.ca/business/property/reductions.aspx>.

## R.5 POLICY TOOLS SUPPORTING COMMUNITY ENERGY PLAN IMPLEMENTATION

Municipalities can implement policies and programs to create the conditions for community stakeholders, such as real estate developers, utilities and other community organizations, to implement the actions identified in a CEP. Table 5 lists some of the policy tools available to municipalities and identifies examples of how they are being applied.

**Table 5 – Policies Supporting Community Energy Plan Implementation**

Implementation Tool	Example
<p><b>Strategic Plans</b> A Strategic Plan is a council-led plan that identifies a local government direction over four years. It can also include a 20-40 year vision. Strategic Plans can be used to embed or apply an energy lens on decision-making. Making the environment or energy security a priority at the community level allows a local government to make strategic investments in studies and plans like CEPs, environmental master plans, or targeted plans and policies related to energy. It also allows funds to be allocated to these types of studies.</p>	<p>Burlington, Ontario's strategic plan, Burlington Our Future, includes actions to improve energy management within the community as a way to achieve economic prosperity. Actions within the Strategic Plan include:</p> <ul style="list-style-type: none"> <li>– Promoting and encouraging lower community energy consumption</li> <li>– Expanding renewable energy initiatives</li> <li>– Developing a Community Energy Plan</li> </ul> <p>The City of Burlington successfully developed and adopted a Community Energy Plan in 2014.</p>
<p><b>Official Plans</b> Municipal official plans are documents that outline growth objectives and guide the future land use planning of a community. Policies for GHG reductions, energy efficiency, distributed energy sources, and requirements for community energy planning can be included in an official plan in order to incorporate energy planning into the community's future growth. Local governments can also identify future sites for energy infrastructure to meet anticipated growth in official plans by allocating corridors for future distribution lines or zoning land for future electricity generation, district energy, etc.</p>	<p>Through its Official Plan, the Regional Municipality of York, Ontario sets out that Council work with local governments to leverage CEPs as a tool to promote economic development. It encourages all local governments within its jurisdiction to develop a CEP. It also requires lower-tier local governments to develop CEPs for Regional Centres, which are primary focal areas for intensive development. Further, it identifies that all local governments shall prepare CEPs for each new community area to reduce community energy demands, optimize passive solar gains through design, maximize active transportation and transit, and make use of renewable, on-site generation and district energy options including but not limited to solar, wind, water, biomass, and geothermal energy.</p>
<p><b>Zoning By-laws</b> Zoning by-laws state how land will be used in a community and outlines specific requirements for building use, density, height, size, and location. Zoning bylaws and amendments could be used to promote intensification, mixed-use communities, walkability, distributed energy sources, and support for public transportation.</p>	<p>Hamilton, Ontario amended its Zoning Bylaw for a transit-oriented multi-residential building, reducing parking space requirements from one space per unit in a multi-unit residential dwellings to 0.47 parking spaces per unit due to the building being located in a transit-oriented neighbourhood.</p>
<p><b>Plan of Subdivision</b> A plan of subdivision is used when dividing land into two or more lots intended for separate ownership and outlines all the details and conditions required for development. A local government could integrate an energy lens into the approval process by including considerations regarding walkability, the creation of compact neighbourhoods, energy conservation through street and lot layout to optimize passive solar gains and conditions for use of photovoltaics, and the construction of energy efficient homes.</p>	<p>Through the City of Toronto, Ontario secondary plan process, the City Planning Division can require developers to submit an Energy Plan as part of a Plan of Subdivision. In cases with no Plan of Subdivision, developers can be encouraged to submit the Energy Plan as part of a Site Plan Control application. The energy plan could identify how the development will incorporate opportunities identified in the area or neighbourhood CEP, including but not limited to, efficient buildings, building scale energy solutions, block/precinct scale energy solutions, and smart energy grid integration.</p>
<p><b>Site Plan Control</b> Site plan control is a tool that local governments can use to ensure that certain requirements are met before a site is developed. By including design considerations in site plans, local government can promote energy and GHG reduction activities, including energy efficiency requirements such as those used in outdoor lighting.</p>	<p>The Toronto Green Standard (TGS) uses site plan approvals to require new private and public development to meet green building requirements. As of January 31, 2010, the City of Toronto uses this two-tiered set of performance measures for new development, organized by three building types. It requires planning applications, including zoning by-law amendments, site plan approval and draft plan of subdivision to meet Tier 1 requirements. Tier 1 requirements are mandatory and Tier 2, a higher level of performance, is voluntary. These performance measures were instituted to address a number of issues, consistent with the Official Plan's broad policies, including air and water quality, greenhouse gas emissions, energy efficiency, solid waste and the natural environment.</p>

## R.6 THE TYPICAL COST FOR DEVELOPING A COMMUNITY ENERGY PLAN AND FUNDING SOURCES

The cost of developing a CEP will vary depending on the size of a community, the level of rigour desired, extent of public consultation and engagement, complexity of the energy inventory and mapping activities, and the costs associated with hiring any external consultants. Municipalities can expect to spend anywhere between \$10,000–\$250,000+ on developing a CEP. Table 6 identifies the range of costs for developing a CEP relative to community size and CEP needs.

**Table 6 – Typical Cost for Developing a Community Energy Plan**

<b>CEP Approach</b>	<b>Description</b>	<b>Optimal Community Size</b>	<b>Cost</b>
Project Specific Plan	Focusing on a specific project, initiative or opportunity can often be done expediently and economically and can help garner the support needed to develop a plan.	10,000 or less*	Project cost
Energy & Emissions Inventory Plan	Communities with energy and emissions inventories can develop projections and a year-by-year implementation plan. This approach may include frequent involvement of elected officials, staff, and stakeholders. These plans can be renewed frequently (e.g. every 3-5 years).	50,000 or less	\$5,000–\$10,000+**
Standard Plan	Larger communities can develop more comprehensive and long-term plans. This typically includes more stakeholder consultations and detailed projections. These plans can be renewed every 5-7 years.	100,000 or more	\$50,000–\$150,000+
Comprehensive Plan	Communities with greater resources can include more comprehensive analyses when developing their CEP, including a broader range of energy end uses (e.g. food production).	250,000 or more	\$100,000–\$250,000+

\*Any size community can undertake a project specific plan. \*\*Assumes a pre-developed energy inventory exists.

Source: Community Energy Association

