



COMMUNITY  
ENERGY PLANNING  
**GETTING TO  
IMPLEMENTATION**  
IN CANADA

COMMUNITY ENERGY PLANNING:  
**The Value Proposition**  
Environmental, Health and  
Economic Benefits

EXECUTIVE SUMMARY  
FEBRUARY 2016

[www.gettingtoimplementation.ca](http://www.gettingtoimplementation.ca)



# Acknowledgments

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# Community Energy Planning: The Value Proposition

## Executive Summary

**Canadian communities have untapped opportunities to strengthen local economies, reduce current and future energy costs and greenhouse gas (GHG) emissions, and create jobs by investing in smarter and more integrated approaches to energy use at the local level.** Communities that have analyzed these opportunities have consistently identified a strong value proposition for these approaches, with solid economic returns on investments, environmental gains, health benefits, and improved quality of life for local residents.

**Energy is a significant cost in Canadian communities. Each year millions, and in some cases billions, of dollars are spent on energy, much of which leaves the local economy.** This cost, illustrated in Table 1, plays a significant role in the financial well-being of Canadian communities, and to the businesses and households in these communities. It is expected to grow over time if no alternative actions are taken.

**Table 1 – Energy Spending in Small, Mid-sized and Large Communities**

<b>Community Size</b>	<b>Average Spending on Energy in the Community</b>
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: QUEST, 2015b

**Decisions made within communities regarding land use and urban form, buildings, transportation, waste, and distributed energy resources<sup>1</sup> can reduce these energy costs and present an opportunity to recirculate dollars back into the local economy.** The initiatives of communities to reduce energy costs will also reduce operating costs for businesses, making a community attractive to investors. These decisions can also make communities more futureproof to the risks of rising energy costs from potential carbon emissions pricing and regulation, and to disruptions in energy supply or changes in energy costs.

Canadian communities play a particularly important role in national and global efforts to address climate change as they have direct or indirect control of 60 percent of Canada's total GHG emissions.<sup>2</sup> Community-level decisions can consequently drive significant emissions reductions and are critical to nation-wide efforts to address climate change.

Equally, these decisions can support social priorities at the community level. Energy efficient buildings, complete and compact neighbourhoods, and access to convenient public transportation lower household expenses for heating and mobility, and are key elements of tackling energy poverty. There are also direct health benefits from reducing energy related to transportation and land use: improved air quality, and improved public health through more active, healthy lifestyles. Land use and urban form can be designed to reduce the urban heat island effect, reducing energy costs and negative health impacts.

<sup>1</sup> Distributed energy resources include renewable energy, district energy and combined heat and power, and storage.

<sup>2</sup> (M. K. Jaccard and Associates, 2010)  
(New Climate Economy, 2015)  
(Natural Resources Canada, 2012)

**Community Energy Plans (CEPs) provide the pathway for communities to realize these many opportunities, by becoming Smart Energy Communities and introducing smarter approaches to energy use at the local level.<sup>3</sup>**

A CEP is a tool that drives community priorities around energy with a view to increasing efficiency, reducing emissions and driving economic development.<sup>4</sup> More than 180 communities across Canada, representing over 50 percent of the population, have a CEP, as illustrated in Figure 1.

Based on a sample of 50 CEPs, roughly half have examined the cost-effectiveness of their proposed programs, with only some analyzing the direct economic impacts of CEP implementation to their communities.<sup>5</sup>

This report draws primarily on the findings of six comprehensive economic analyses of CEP actions and programs, along with case studies, to illustrate the potential value proposition to communities from the implementation of CEPs, as identified in Figure 2.

In addition to retaining money spent on energy within the local economy, there are other direct and indirect economic benefits to the broader community from implementing a CEP:

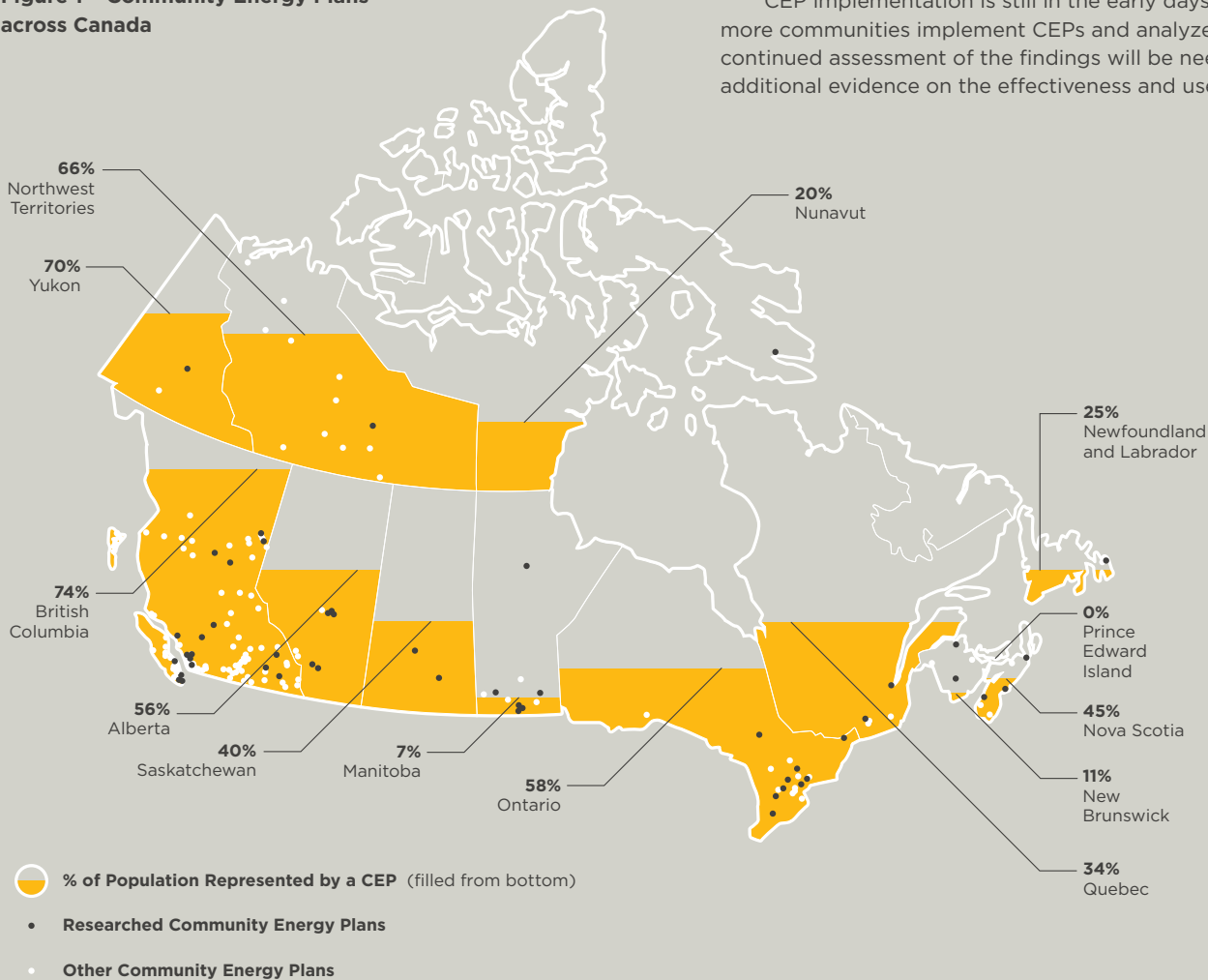
- **Direct economic benefits** are gained to the businesses or households directly implementing a particular investment to reduce energy costs, through changes in savings or spending, new income to businesses, and new jobs.
- **Indirect benefits** arise in economic sectors that supply the inputs for that investment, such as equipment or technical services. The more a community can provide the goods and services needed for the 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.

The report aims to inform, motivate, and build the political, staff, and stakeholder support needed for CEP implementation.

Communities are balancing a growing emphasis on meeting environmental concerns alongside constrained budgets. The ability to demonstrate the value proposition of CEPs, as outlined in this report, will prove critical to securing the required investment and the political, staff, and stakeholder support to implement CEPs, and to achieving their economic, environmental, and social promise.

CEP implementation is still in the early days. As more and more communities implement CEPs and analyze their results, continued assessment of the findings will be needed to provide additional evidence on the effectiveness and usefulness of a CEP.

**Figure 1 – Community Energy Plans across Canada**



**Figure 2 - Economic Benefits of Community Energy Planning Using the Example of a District Energy System**

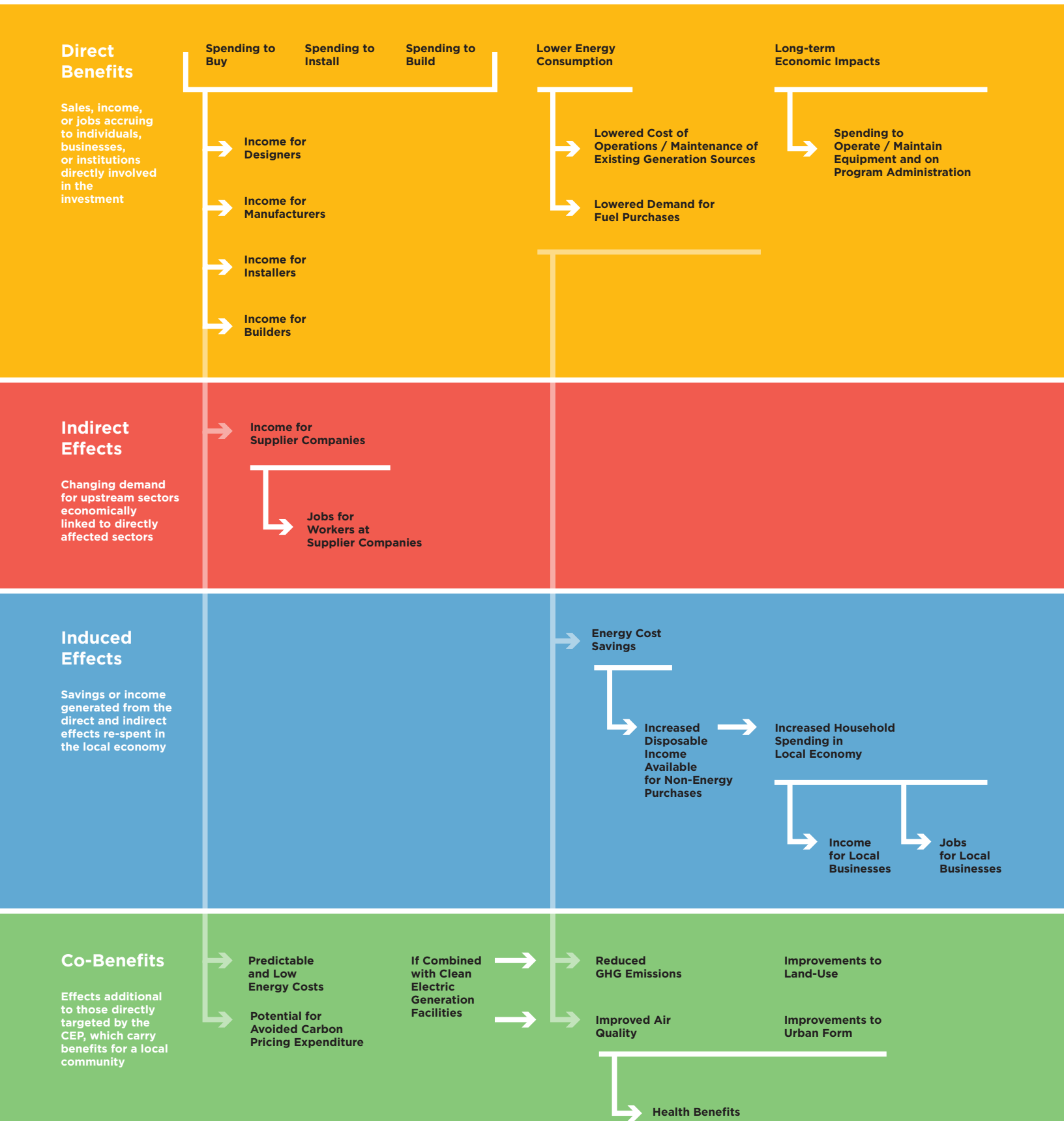


Table 2

Community Energy Planning: The Value Proposition	Report Section
<b>CEPs help achieve both environmental and community health goals, as well as economic ones</b>	<b>1</b>
Example: An evaluation of various scenarios for expanding light rail and bus rapid transit in the Region of Waterloo, Ontario, found that the project could lead to air quality improvements that could prevent from 31-61 hospital admissions and reduce costs of health care by \$8.7 million - \$16.6 million over 30 years.	
<b>CEPs help recirculate money spent on energy within a community and its region</b>	<b>3</b>
Example: In London, Ontario, of the \$1.6 billion spent on energy in 2014, only 12 percent stayed in London's economy, and 59 percent total stayed in the province. When energy use is reduced by 1 percent annually, an additional \$14 million is kept within the local London economy. <sup>6</sup>	
<b>CEPs contribute to achieving local economic development goals</b>	<b>4</b>
Example: Analysis of Edmonton, Alberta's recently released CEP examines the economic effects of a total investment of \$237 million in low carbon projects such as renewable energy, energy efficiency, and electric transport initiatives over the 2018-2021 period. It found a potential net present value from energy savings of \$3.4 billion by 2035 if a social cost for carbon of \$51/tonne carbon were included. These estimates do not include associated benefits, such as a diversifying labour market with an increase in renewable-related jobs.	
<b>CEPs create opportunities for local energy cost savings and job creation</b>	<b>4</b>
Example: The cities of Barrie and Hamilton, Ontario evaluated the long-term effects (over a period from 2008-2031) of maximizing cost-effective building energy efficiency retrofits and technologies and found that for every \$1 million invested in building energy efficiency retrofits, over 9 person-years of permanent employment would be created within the province of Ontario.	
<b>CEPs help to mitigate financial risks from future carbon pricing and energy price volatility</b>	<b>5</b>
Example: Dawson Creek, British Columbia, imposed a \$100 per tonne levy on its own municipal GHG emissions in 2011. The levy rises at a rate of \$5 per year and is currently \$115 per tonne. This levy is transferred into the Dawson Creek Carbon Fund, which the city uses to fund corporate and community green initiatives. These initiatives have reduced the city's liability in terms of reaching BC's legislated carbon-neutral goal for municipal corporate operations. <sup>7</sup>	
<b>CEPs contribute to strong and resilient local economies</b>	<b>All Sections</b>
CEPs can help to keep more money in a local economy, generate opportunities for local savings and jobs, and help to manage risk from volatile energy prices and future climate policy by using energy more efficiently and producing more energy locally. In addition to this, there is a wide range of broader—and often harder to quantify—economic impacts that smart community energy planning can bring about.	
<b>These impacts are described throughout the report.</b>	
<ul style="list-style-type: none"> <li>· Improving Residents' Health</li> <li>· Retaining Local Business</li> <li>· Energy Affordability and Resilience in Remote and Off-Grid Communities</li> <li>· Attracting New, High Tech Investment</li> <li>· Market Differentiation</li> <li>· Employee Productivity</li> <li>· Smart Urban Renewal</li> <li>· Housing Affordability</li> </ul>	

<sup>3</sup> Successful implementation can enable communities to become Smart Energy Communities: communities with improved energy efficiency, enhanced energy reliability, lower energy costs, and reduced greenhouse gas emissions. Such communities will often integrate conventional energy networks (electricity, natural gas, district energy, and transportation fuel) to better match energy needs with the most efficient energy source; integrate land use; and harness local energy opportunities. Such communities can be characterized by 6 technical principles and 6 policy principles. Read the principles at <http://questcanada.org/thesolution/principles-smart-energy-communities>

<sup>4</sup> CEP elements are described in more detail in the National Report on Community Energy Plan Implementation available at [www.gettingtoimplementation.ca](http://www.gettingtoimplementation.ca).

<sup>5</sup> Ibid.

<sup>6</sup> See an overview of how communities can replicate London's approach to accounting for the destination of energy spending at the following link: <https://vimeo.com/120112918>

<sup>7</sup> (BC Climate Action Toolkit, 2015)

Communities have a key role to play in energy. While many communities in Canada are advancing plans to define priorities around energy, all communities need help getting from plans and ideas to implementation.

*Community Energy Planning: Getting to Implementation in Canada* is a collaborative initiative spearheaded by the Community Energy Association, QUEST – Quality Urban Energy Systems of Tomorrow, and Sustainable Prosperity.

The initiative aims to help communities implement their Community Energy Plans (CEP) in order to improve efficiency, cut emissions, and drive economic development.

## Objectives of this Initiative

- Identify barriers for integrated approaches to community energy planning
- Define business models for local governments, provincial and federal governments, utilities, the real estate sector and other stakeholders
- Develop tools for an integrated approach to community energy planning
- Increase awareness of integrated approaches to community energy planning across Canada
- Enhance the capacity of CEP practitioners to implement CEPs

## Key Outcomes

- The National Report on Community Energy Plan Implementation
- The National Report on Policies Supporting Community Energy Plan Implementation
- Community Energy Planning: The Value Proposition
- A series of national workshops and an Innovation Symposium
- A Community Energy Implementation Framework
- The pilot application of the Framework to three test communities
- Training modules to support the delivery of the Framework



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