

**AN EVALUATION OF ONTARIO'S
GREEN ENERGY AND GREEN ECONOMY ACT OF 2009:
Exploring the Role of Indicators in Community Energy Planning**

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**Indicators in
Community
Energy
Planning:**

An Evaluation of Ontario's
Green Energy and Green
Economy Act of 2009



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"If I have seen further it is only by standing on the shoulders of giants".

Sir Isaac Newton

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EXECUTIVE SUMMARY

With increasing public concern over environmental degradation and Climate Change, community energy planning is now emerging as a new task for planners. Community energy planning are practices that foster energy sustainability, protect or restore the natural environment, avoid harm in relation to social and health indicators, result in a more equitable distribution of benefits, are economic to maintain over the long-term, and do not impede the emergence of other sustainable approaches at the local level (FCM, 2009; Neves and Leal, 2010). More specifically, planning how a community generates, receives, utilizes and conserves energy can greatly contribute to the goal of stabilizing green house gas (GHG) emissions, reducing air pollution, diversifying energy resources and fostering a secure, accessible and stable energy supply that supports the local municipal economy.

As the role of energy planning is closely tied with supportive provincial Legislation, this research study aimed at analyzing the effectiveness of Ontario's *Green Energy and Green Economy Act* (GEGEA) to local municipal planners. The overall goal of this Legislation is to foster the growth of renewable energy projects, promote energy conservation and energy efficiency while strengthening Ontario's economy. This Act also has significant implications for municipalities across the Province, as it amends the *Planning Act* and removes barriers to the development of renewable energy undertakings in the overall planning process. Therefore, this research aims at answering the following question:

❖ **To what extent are the instruments currently used by energy planners encouraged by the Green Energy and Green Economy Act?**

In order to answer this research question, this study employed a qualitative, multi-method approach, consisting of two parts:

(1) Developing a comprehensive set of indicators that represents the instruments used in energy planning practices in Ontario and Canada. This method was previously developed and published by researchers Neves and Leal, 2010; and

(2) Using these indicators to evaluate Ontario's GEGEA. This evaluation method was previously used by Streimikiene and Sivickas, 2008, and adapted for this report.

Based on the methodology described above, five indicators were developed and used to evaluate the GEGEA. The indicators are found under Table 1 below. The analysis shows that although the instruments provided in the Act are mostly representative of the tools used by planners when developing community energy plans, they are limited in scope and not promoted to their full potential. Table 1 summarizes the key considerations made by the GEGEA in regards to each indicator.

Table 1: Summary of the assessment of Ontario’s GEGEA, evaluating the extent to which this Act utilizes the instruments currently used to develop Community Energy Plans. Source: report author.

INDICATOR	ABSENCE IN GEGEA	PRESENCE IN GEGEA	POINTS ALLOCATED	SUMMARY OF REMARKS
1. Public Consultation and Engagement in Energy-Related Projects		✓	2	- Required public consultation (including First Nations and community groups) prior to any planning, development or procurement of electricity supply, capacity, transmission and distribution.
2. Locally Available Financial Instruments		✓	1	- OPA to develop and manage the FIT, encouraging the participation of Aboriginal, local communities and other groups in generating renewable energy.
3. Community Energy Mapping, Reporting and Labeling		✓	1	- Mandatory disclosure of household and institutional energy intensity, via detailed mapping and reporting. - No energy labeling of the built-environment required.
4. Supportive Energy Policies and Strategies at the Local Level	✓		0	- Public agencies are required to develop Energy Demand and Management Plans, but not local municipalities. - Local policy and/or by-laws must not result in barriers to the development of renewable energy undertakings.
5. Public Transit Ridership	✓		0	- No mention throughout the Act.

Legend:

0 – The indicator is not present nor cannot be inferred from the text of the GEGEA.

1 – The indicator is somewhat present or it can be inferred from the text of the GEGEA.

2 – The indicator is present and the GEGEA provides further information on it.

Five key recommendations are made based on the results from the analysis of the GEGEA. Each one is intended to strengthen the ability of the Act to become more effective at the local planning level.

- 1. CONTINUE TO PROMOTE ENERGY MAPPING AND REPORTING, AND EXTEND ENERGY LABELING REQUIREMENTS TO THE BUILT-ENVIRONMENT**

Despite extensively discussing energy mapping and reporting of household and institutional facilities, the GEGEA should encourage labeling practices beyond its narrow scope. Performance label schemes represent one of the best practices in community energy planning (CEA, 2010) and are extremely helpful in displaying reliable and standard energy information that can inform decision-making.
- 2. UTILIZE PUBLIC TRANSIT RIDERSHIP AS AN INSTRUMENT TO ENCOURAGE ENERGY CONSERVATION AND EFFICIENCY**

Public transit ridership is an important indicator because it helps to assess the physical state of the local energy system (Neves and Leal, 2010). In other words, this indicator reflects the need to develop urban patterns that support compact, mixed use developments, optimizing efficient use of energy.
- 3. CONTINUE TO ENCOURAGE PUBLIC CONSULTATION AND ENGAGEMENT IN ENERGY-RELATED PROJECTS**

One of the Act's main objectives is to foster the growth of renewable energy projects, while ensuring that communities, local groups and aboriginal peoples have an opportunity to express their concerns and participate in the decision-making process. The GEGEA clearly states the government's vision for an inclusive and transparent energy consultation process.
- 4. EXTEND THE REQUIREMENTS TO DEVELOP ENERGY PLANS, OR MAKE ENERGY CONSIDERATIONS, TO THE LOCAL MUNICIPAL LEVEL**

As the development of a dedicated energy plan attests to a community's leadership in energy sustainability and willingness to look at opportunities to include greener and cleaner energy generation technologies (FCM, 2009), the GEGEA should extend the provincial requirements to develop energy plans to municipalities. Furthermore, the promotion of supportive energy policies can provide important and foundational elements to encourage the development of energy conservation and efficiency in a community (CEA, 2010).
- 5. USE FIT COLLABORATIVELY WITH OTHER LOCALLY AVAILABLE FINANCIAL MECHANISMS**

Locally available financial incentives, administered by municipal employees, should be encouraged by the Act and implemented collaboratively with Feed-In-Tariffs (FIT) in order to achieve significant energy conservation and encourage the development of renewable-energy undertakings.

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CHAPTER 1 :: INTRODUCTION

1.1. REPORT INTRODUCTION

Energy planning is now emerging as a new task for planners, despite the lack of a solid documentation base to inform professional planners about this topic. As the role of energy planning is closely tied with supportive provincial Legislation, this research study aims at shedding light on the implications of Ontario's *Green Energy and Green Economy Act* to local municipal planners. This becomes of paramount importance as, in Ontario, local governments are considered creatures of the Province, meaning all planning and administrative actions are enabled by provincial Legislation.

On February 23, 2009, Ontario's Minister of Energy and Infrastructure George Smitherman introduced into provincial parliament Bill 150, today known as the *Green Energy and Green Economy Act* (GEGEA). This Legislation's overall goal is to foster the growth of renewable energy projects, promote energy conservation and energy efficiency while strengthening Ontario's economy.

The GEGEA has significant implications for municipalities across the Province. Most importantly, it amends the Ontario *Planning Act* and removes barriers to the development and implementation of renewable energy projects in the overall planning process. In addition, with the passing of the GEGEA, Ontario's Minister of Energy is now given authority over policy and decision-making in regards to community planning and development across the Province. In other words, the Ministry of Energy is allowed to "advise and make recommendations on growth planning and developing and implementing growth plans in support of strong communities" (GEGEA, Schedule C, pp.24, 6. (1) (c)). Moreover, the Minister is authorized to make recommendations regarding priorities for, and stimulating planning and development of, infrastructure of significance within Ontario (GEGEA, Schedule C, pp.24, 6. (1) (g) (h) (vii)).

In this context, the GEGEA aims at streamlining the implementation of energy initiatives, enabling planners to prioritize energy planning against all other conflicting priorities. It also provides a list of policy instruments that allow municipalities to achieve their energy objectives and, potentially, their carbon neutrality goals.

1.2. RESEARCH QUESTIONS & OVERVIEW OF METHODOLOGY

This research study aims at analyzing the effectiveness of Ontario's GEGEA at the municipal planning level. It intends to provide planners with an understanding of the tools that are the most encouraged by this Act when promoting the development of community energy plans. Therefore, my research question is:

- ❖ **To what extent are the instruments currently used by energy planners encouraged by the GEGEA?**

This question is important because local energy initiatives, to a great extent, are enabled by provincial Legislation. As the Legislation lays out the operational framework for municipal planners, identifying and utilizing the specific instruments that are employed by energy planners can significantly help the GEGEA achieve its goals.

In order to answer this research question, this study employs a qualitative, multi-method approach to evaluate the Legislation. The overall research approach consists of two parts:

1. Developing a comprehensive set of indicators that represents the instruments used in energy planning practices in Ontario and Canada. This method was previously developed and published by researchers Neves and Leal, 2010; and
2. Using these indicators to evaluate Ontario's GEGEA. This evaluation method was previously used by Streimikiene and Sivickas, 2008, and adapted for this report.

The researcher's hypothesis is that the instruments provided in the GEGEA are limited in scope and are not representative of the instruments used by local planners when developing community energy plans. More details on the methodology employed are provided in Chapter Two of this report.

1.3. ROLE OF INDICATORS IN POLICY ANALYSIS

Initial interest in developing indicators to measure the progress of sustainable development initiatives and policies occurred in late 1992, following the publication of Agenda 21 by the United Nations (Pintér, Swanson and Barr, 2004). Energy indicators are defined as criteria to measure and evaluate the current and future effects of policy, extending beyond basic quantifiable targets. They incorporate the three pillars of sustainability – social, environmental and economic – and provide policymakers with a deeper understanding of the relationship between energy use and human activity (IAEA, 2005, pp.2).

The interest in utilizing indicators to assess sustainable development and related policy has increased since 1992. Today, indicators can be used as assessment criteria as well as planning-tools. In the energy planning process, indicators can accomplish a variety of purposes, such as: diagnosing the present situation, benchmarking current practices against other communities, monitoring performance targets and helping with decision-making. In other words, indicators can be employed to provide policymakers with a holistic overview of the behavior of the local community and its impacts on the energy system (Neves and Leal, 2010).

In this report, a set of indicators is selected from the literature on energy planning and strengthened by a gap analysis relevant to the context in Ontario and Canada. Although these indicators are primarily used as assessment criteria to diagnose the presence or absence of key energy-planning instruments in Ontario's GEGEA, they also have the potential to provide insight into the conventional process of policy making. This set of energy indicators could be further employed to help Provincial decision-makers choose the most effective instruments for their policies.

1.4. BACKGROUND

In order to discuss community energy planning in Ontario, this report will first provide the overall context that surrounds this topic. It first discusses the relationship between Climate Change and the energy sector, then provides an overview of the most relevant international energy policy frameworks, to finally explain the concept of community energy planning.

A CHANGING CLIMATE AND ENERGY PLANNING

The United Nations has asserted that Climate Change is an inevitable and urgent global challenge with long-term implications for the sustainable development of all countries.¹ Climate Change has been defined as the change in modern climate caused by a variety of natural and human-related activities. However, the concentration of green house gases (GHG) in the planet's atmosphere caused by human behavior² is considered to be the most significant contributor to a changing and warming climate (IPCC, 2007). GHG are gases that absorb and emit radiation within the thermal infrared range. They include water vapor, ozone, methane, nitrous oxide, and most importantly carbon dioxide. Carbon dioxide, or CO₂, is mostly associated with the combustion of fossil fuels, which is today heavily utilized in the production of energy.

Without a change in human behavior, to significantly reduce the emission of GHG, the earth's surface temperature will continue to increase (IPCC, 2007). A warming climactic system is expected to impact the availability of basic necessities like freshwater, food production and energy security, while efforts to redress climate change – both through adaptation and mitigation – will similarly inform and shape the global development agenda.

¹ United Nations Department of Economic and Social Affairs, Division for Sustainable Development. http://www.un.org/esa/dsd/dsd_aofw_cc/cc_index.shtml. Retrieved on July 15, 2010.

² Scientific evidence shows that human behavior is driving rapid and unprecedented global climate change. Sources include, but are not limited to: IPCC, 2007; NRCan, 2007; Department of Economic and Scientific Policy, European Union, 2006; Science, Vol. 306, 2004; National Academy of Sciences, 2001.

While climate change and GHG emissions know no boundaries, poor and developing communities will be among those most adversely affected and least able to cope with the anticipated shocks to their social, economic and natural systems. In a global scale, the Intergovernmental Panel on Climate Change (IPCC) projects that, by 2080, millions of people will be displaced due to sea-level rise, with densely populated and low-lying countries facing the greatest threat from storm surges and rising seas. Sea-level rise of just one meter will affect the world in a devastating way: based on today's situation, approximately 150 million people in Asia alone and \$1 trillion of economic assets would be threatened (Stern, 2009). Canada, as a vast country and home to numerous fragile and unique ecosystems, will inevitably have to deal with population displacement, health impacts caused by a warmer climate, and increasing influx of climate refugees, just to mention few consequences.

REVIEW OF CLIMATE CHANGE AND ENERGY FRAMEWORKS

The International Energy Agency (IEA) has estimated that current electricity generation methods are responsible for approximately 40% of global CO₂ emissions (IEA, 2006). Furthermore, the relationship between climate change and energy planning has been considered at an international level since the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992. At this conference, Agenda 21 emerged as a roadmap towards sustainable development, addressing climate change and recognizing that:

Activities (...) should be coordinated with social and economic development in an integrated manner, with a view to avoiding adverse impacts on the latter, taking into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty (Agenda 21, Section II, Ch. 9, 9.3).³

It is interesting to note that numerous energy-related issues are discussed in detail throughout Agenda 21, as well as the fact that then-current levels of energy consumption and production were deemed not sustainable, especially in view of the forecasted increased demand. Agenda 21 also stressed the importance of using energy resources in a way that is consistent with the aims of protecting human health, the atmosphere, and the natural environment.⁴

³ Agenda 21 is also referred to as the Rio Declaration on Environment and Development. It was adopted by more than 178 governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, June 1992 (Agenda 21, Section II, Chapter 9 (Protection of the atmosphere], Item 9.3).

⁴ United Nations Department of Economic and Social Affairs: Division for Sustainable Development. http://www.un.org/esa/dsd/dsd_aofw_ene/ene_index.shtml. Retrieved on July 15, 2010.

Later on, the Johannesburg Plan of Implementation (JPOI), adopted at the World Summit on Sustainable Development in 2002, addressed energy as a key element of sustainable development. Among numerous points, the JPOI called for action to improve access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services.⁵

The Kyoto Protocol, which entered into force in February 2005, set binding emission reduction targets for industrialized countries for the first commitment period 2008-2012. It highlights the crucial role that production of energy has in the context of climate change and sets additional rules in regards to energy. It strongly emphasizes the importance of research and higher use of new and renewable forms of energy.⁶

More recently, the 2009 United Nations Climate Change Conference, commonly known as the Copenhagen Summit, was held with the intention to produce a framework for climate change mitigation beyond 2012. This framework, or “Copenhagen Accord”, was ‘taken note of’, but not officially ‘adopted’, in a debate of all the participating countries and was not passed unanimously.

The Accord recognized that climate change is one of the greatest challenges of the present day and adaptation to its adverse impacts is a challenge faced by all countries. It was also agreed that actions should be taken to keep any temperature increases below 2°C. The document does not mention the important question of energy security, nor contain any legally binding commitments for reducing CO₂ and GHG emissions (BBC News, 2009).

In summary, although various international frameworks were initially successful in bringing attention to the energy industry and providing targets for the reduction of GHGs, they have since failed to achieve international collaboration and consensus on future targets (Neves and Leal, 2010). As a result of this lack of concrete direction at an international level, Provinces and municipalities in Canada have been developing their own policies and action plans that effectively deal with climate change and address the challenges brought in by the energy industry.

⁵ Johannesburg Plan of Implementation, paragraphs 9(a), 20(c), 20(d), 20(e), 20(i), 20 (p). Other points include: the diversification of technologies with the aim of giving a greater share of the energy mix to renewable energy; the combination of a range of energy technologies, including advanced and cleaner fossil fuel technologies, to meet the growing need for energy services; the acceleration of the development, dissemination and deployment of affordable and cleaner energy efficiency and energy conservation technologies; and to phase out, subsidies in this area that inhibit sustainable development.

⁶ Kyoto Protocol, Article 2, 1(i), (iv) and (viii). Additional points are: enhancement of energy efficiency in relevant sectors of the national economy; research into carbon dioxide sequestration technologies; research into other advanced and innovative environmentally sound technologies to limit and/or reduce methane emissions through recovery and use in waste management; and reduced emissions in the production, transport and distribution of energy.

CLIMATE CHANGE, ENERGY AND MUNICIPAL PLANNING

As Climate Change and GHG emissions are becoming an increasing public concern, local authorities have a key role to play in climate action. In fact, the *global* problem of Climate Change has its roots in the intensive use of energy, which in turn is used *locally* to sustain local activities (Neves and Leal, 2010, pp.2724). During the United Nations first World Congress on Cities and Adaptation to Climate Change, Yvo de Boer, then Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), clearly identified urban centres and their political leaders as being at the forefront of turning Climate Change concern into action. He highlighted that cities offer the opportunity to develop adaptation and mitigation win-win initiatives, especially in an era where the absence of any decisive global action on climate change is staggering. According to de Boer:

The political intent to constrain emissions and adapt to climate change needs to be translated into action on the city level. Ultimately, it is cities that will directly face and directly deal with climate change impacts (de Boer, 2010, pp.2).

Cities have rapidly grown in the age of cheap oil. Today, global cities consume approximately 75% of the world's energy and emit 80% of the world's GHGs. Cities are presently growing globally at 2% per year (over 3% in less developed regions and 0.7% in more developed regions), and, for the first time, half of humanity lives in cities. It is estimated that by 2030 the number of city dwellers will reach approximately 60% of the world's population (Newman, Beatley and Boyer, 2009).

In this context, municipal governments have an important contribution to make to climate protection. In Canada, it has been estimated that up to half of the country's GHG emissions are under the control or influence of municipal governments (FCM, 2011). Moving forward, municipalities that are prepared with mitigation and adaption strategies to climate change will be in a better position to deal with potential environmental, economic and social damage. Considering that the energy industry is one of the leading contributors to climate change (IEA, 2006), municipalities that tackle energy planning will be in a better position to curb their overall GHG emissions and will capture numerous other benefits and efficiencies.

Community energy planning are practices that foster energy sustainability, protect or restore the natural environment, avoid harm in relation to social and health indicators, result in a more equitable distribution of benefits, are economic to maintain over the long-term, and do not impede the emergence of other sustainable approaches (FCM, 2009; Neves and Leal, 2010). More specifically, planning how a community generates, receives, utilizes and conserves energy can greatly contribute to the goal of stabilizing GHG emissions, reducing air pollution, diversifying energy resources and fostering a secure, accessible and stable energy supply that supports the local municipal economy.

Energy planning in Canada had its beginnings in the late 70s and early 80s, when municipalities started to introduce energy conservation methods. In 1978, the first Canadian by-law protecting solar access was passed in Millet, Alberta. In 1979, Brampton, Ontario, introduced a by-law requiring that building and street orientation favor passive solar collection for a proposed housing subdivision project (Nicol, 1987). Despite its early origins, it has only been over the last ten years that energy planning has been fully embraced by planners. This is a direct professional response to depleting global oil resources, increasing health diseases caused by the externalities of fossil fuel use, environmental degradation, community concern over climate change and the critical need for national energy infrastructure upgrades.⁷

Today, energy planning initiatives go beyond by-law implementation, and include a wide array of instruments that help local planners tackle energy production, distribution and conservation in an efficient and effective way. Approaches to energy planning in Canada include, but are not limited to: implementing urban design and development strategies that support intensification and facilitate more efficient and affordable energy infrastructure options; encouraging land uses that allow the implementation of diverse, flexible and scaled energy infrastructure using locally-available, non-depletable energy sources; mapping the energy needs and energy consumption of a community; developing energy retrofit programs to improve the energy intake of buildings; and articulating community values and carbon-neutrality goals in Official Plans, Secondary Plans and Energy Master Plans.

⁷ Report from the World Alliance for Decentralized Energy (WADE) Canada, September 7, 2009. WADE Canada is a not-for-profit industry association supporting the growth and development of Canada's decentralized energy industry. In addition, it has been estimated that the infrastructure deficit of Canadian municipalities has reached Cd \$123 billion dollars and Canada has used up to 79% of the service life of its overall public infrastructure. This data can be found at the following source: Mizra, S. *Danger Abroad: The Coming Collapse of Canada's Municipal Infrastructure*, prepared for the Federation of Canadian Municipalities, 2007.

An example of a city that has addressed energy concerns via planning practices is Guelph, Ontario. Guelph's community energy plan is based on a vision that has aggressive targets, a broad scope, encourages strong partnership arrangements and political support (FCM, 2009). Its vision is to "(...) create a healthy, reliable and sustainable energy future by continually increasing the effectiveness of how we use and manage our energy and water resources." Furthermore, the city's plan addresses energy use not only in municipal buildings, but also extends its energy conservation program and restrictions city-wide. In addition, incentives to promote energy efficiency growth in Guelph are offered using the city's established development approval process.

In Sudbury, Ontario, a community energy plan was put in place with the goal of reducing municipal and community costs for energy, GHG emissions and environmental impacts. The energy plan includes a building-retrofit program, the development of a Community Energy Efficiency Strategy as well as the implementation of an Energy Supply Strategy. The city also put in place a community-wide energy efficiency program called *EarthCare Sudbury*, targeting to achieve significant energy efficiency and savings of approximately \$5 million annually (FCM, 2009).

Energy planning in Markham, Ontario, took the innovative form of a Performance Measures Document. The town of Markham formed the Markham Centre Advisory Group which, supported by the community, developed and prioritized key energy objectives for greenlands, transportation, built-form, green infrastructure and public spaces. This paper, called the Performance Measures Document, also identifies energy performance measures for each objective and includes development checklists. These checklists are then employed by the town's planning staff when conducting initial evaluations of the energy consumption of proposed new developments.

In summary, local authorities are enthusiastic about addressing climate and energy concerns (Neves and Leal, 2010). However, as in Ontario local governments are considered creatures of the Province, all planning and administrative action still needs to be enabled by Provincial Legislation. Although planning is a key foundation for change, even the best energy plan will have little impact without supportive policy and tools to execute it. Ontario's GEGEA is a Provincial attempt to promote the production and distribution of renewable energy generation while stressing the importance of energy conservation and energy efficiency. It is this report's goal to examine the extent to which this Act prescribes the well established instruments that are currently employed by community energy planners. In this context, fitting Provincial policy becomes a precondition to building resilient communities.

1.5. REPORT OUTLINE

This report consists of four chapters that cover different sections of this research study:

1. The introductory Chapter One presented Ontario's *Green Energy and Green Economy Act* and provided an overview of community energy planning. It also introduced the research question and briefly outlined the methodology to be employed by this report.
2. Chapter Two provides an in-depth description of the research method and evaluation approach chosen to conduct this research. This chapter also discusses the scope of the research study and its limitations.
3. Chapter Three focuses on providing a critical analysis of the instruments found in the GEGEA, highlighting the specific policy instruments that are encouraged by the Provincial government.
4. Based upon the analysis in Chapter Three, Chapter Four provides a conclusion that includes five key recommendations that will help to promote and implement community energy plans in Ontario.

C H A P T E R 2 : : M E T H O D O L O G Y

2.1 INTRODUCTION

This research study was conducted using a qualitative, multi-method approach. One of the key benefits of employing a qualitative approach to this research is that it allowed the researcher to look into energy Legislation from a local perspective, looking for the specific instruments that are effective in the development of community energy plans (Gaber and Gaber, 2005).

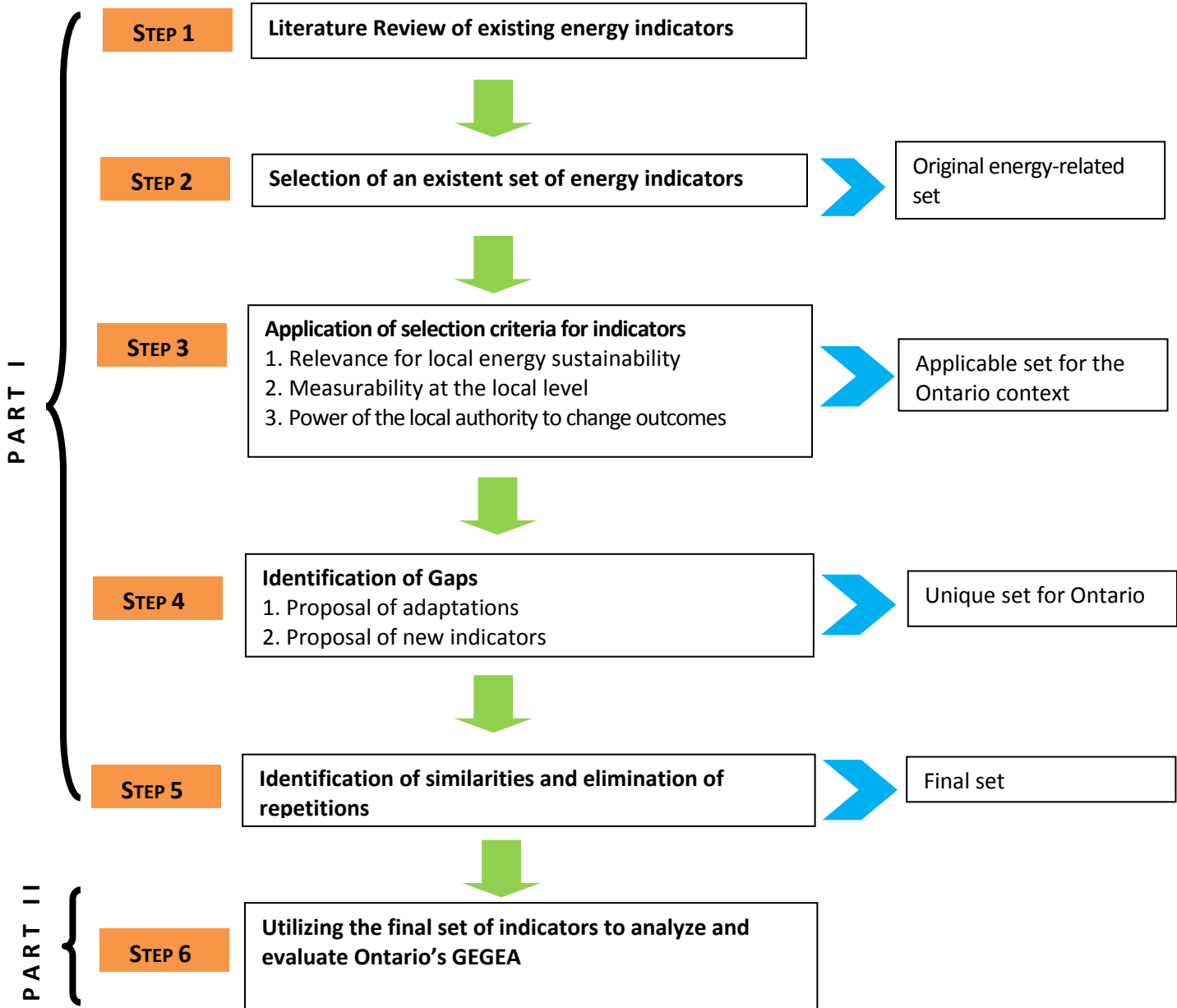
The method used to conduct research consisted of two parts: (1) development of indicators relevant to community energy planning and (2) policy evaluation.

(1) The comprehensive method to develop indicators was previously published by Neves and Leal, 2010. It consisted of five steps: a literature review, selection of an existing set of indicators, application of selection criteria to ensure the applicability of the indicators to the local context, identification of gaps, and identification of similarities and repetitions. This step-by-step process removed the potential for researcher bias and personal preference when choosing energy indicators. It also provided an operational model that can easily be replicated by other researchers interested in conducting similar studies (Yin, 2008).

(2) The method to evaluate the Legislation was previously developed and published by Streimikiene and Sivickas, 2008. This method helped to eliminate the potential for errors and bias in policy evaluation. It offered a simple and operational system for assessing policy instruments by allocating a certain number of points to an indicator. The main intent in using this evaluation method was to achieve reliable results.

Figure 2.1 illustrates the overall methodology approach taken. The details about the development of indicators and policy evaluation are provided in sections 2.2 and 2.3, respectively.

Figure 2.1: Methodological steps taken to develop indicators and to evaluate Ontario’s GEGEA. Based on original work from Neves and Leal, 2010, and Streimikiene and Sivickas, 2008.



Source: report author, adapted from original figure developed by Neves and Leal, 2010.

2.2 PART I: DEVELOPMENT OF INDICATORS

The **first step** (Figure 2.1) included an extensive literature review of articles discussing energy planning, energy policy and the use of indicators. Energy policy analysis is a topic well documented in the European literature (Enzensberger, Wietschel and Rentz , 2002; Streimikiene and Sivickas, 2008; Oikonomou, Flamos and Grafakos, 2010; Neves and Leal, 2010). The literature focuses on the relationship between climate change, energy, policy and the importance of employing policy instruments that are relevant, implementable and measurable at the local level. Furthermore, the promotion of indicators on energy efficiency and renewable energy generation are amongst priorities in the European literature as they have positive impact on both promoting and measuring energy and climate change policies (Streimikiene and Sivickas, 2008).

In the **second step** (Figure 2.1), the comprehensive set of energy indicators developed by Neves and Leal, 2010, was selected and became the base set of indicators used in this report. These indicators were created in an effort to develop tools to assist energy planning at the local level, helping local municipalities assess energy sustainability and energy policies (Neves and Leal, 2010, pp. 2724). Additionally, this particular set of indicators is unique and relevant to this research study as it was specifically developed to address energy sustainability at the local level. The indicators are found in Table 2.1 located in the following page.

Step three (Figure 2.1) validated all indicators against three criteria in order to certify their applicability and relevance to community energy planning in Ontario. The three criteria, as outlined in Neves and Leal, 2010, are: relevance of the indicator for local energy sustainability, measurability at the local level, and power of the local authority to change the outcomes measured by the indicator. The third criterion also excludes indicators that are specifically controlled by Provincial agencies, leaving local authority with little or no power to change outcomes.

The indicators that fulfilled all criteria were retained. Table 2.1 provides a list of all indicators and their evaluation based on the three criteria.

Table 2.1: Selection of community energy indicators, followed by their assessment based on three criteria as outlined in Neves and Leal, 2010.

STEP 2				STEP 3		
INDICATOR	DESCRIPTION	SOURCE	RELEVANCE FOR LOCAL ENERGY SUSTAINABILITY	POTENTIAL MESURABILITY AT LOCAL LEVEL	POWER OF LOCAL AUTHORITIES TO CHANGE OUTCOMES	
1	Final energy use per sector	The total amount of energy spent in a designated sector of a community.	Neves and Leal, 2010	✓	✓	✓
2	Ratio of local renewables production to local consumption of energy and electricity	The proportion of local renewable energy produced that is consumed locally.	Neves and Leal, 2010	✓	No. Currently, the Independent Electricity System Operator (IESO) is mandated to measure and report on the renewable energy that is locally generated.	No. Renewable-energy that is locally generated feeds into the electricity grid, which is managed by the Ontario Power Authority (OPA).
3	Industrial energy intensity	The amount of energy required by the manufacturing sector.	Neves and Leal, 2010	✓	✓	✓
4	Agricultural energy intensity	The amount of energy required by the agriculture sector.	Neves and Leal, 2010	✓	✓	✓
5	Service/commercial energy intensity	The amount of energy required by the service and retail sectors.	Neves and Leal, 2010	✓	✓	✓
6	Household energy intensity	The amount of energy required by individual households.	Neves and Leal, 2010	✓	✓	✓

STEP 2			STEP 3			
INDICATOR	DESCRIPTION	SOURCE	RELEVANCE FOR LOCAL ENERGY SUSTAINABILITY	POTENTIAL MESURABILITY AT LOCAL LEVEL	POWER OF LOCAL AUTHORITIES TO CHANGE OUTCOMES	
7	Transport energy intensity	The amount of energy required by the transportation sector (not-including public-transit).	Neves and Leal, 2010	✓	✓	✓
8	Public transit ridership	Access to and utilization of local and regional public transit.	Neves and Leal, 2010	✓	✓	✓
9	Emissions of air pollutants from road transport activities	The total amount of emissions generated by road freight transportation.	Neves and Leal, 2010	✓	No. As air pollutants are dispersed into the atmosphere, air quality measurement is done at a regional scale.	No. A regional approach is required in order to measure air quality and implement programs to address it.
10	Renewable energy share in energy and electricity	The proportion of energy generated by renewable sources within the total energy mix.	Neves and Leal, 2010	✓	No. Although the information is available to municipalities, it is the IESO's responsibility to measure and report on the renewable energy that is locally generated.	✓
11	Share of household income spent on fuel and electricity	Household income before taxes and other important monthly payments, i.e. mortgage payments.	Neves and Leal, 2010	✓	✓	✓

STEP 2			STEP 3			
INDICATOR	DESCRIPTION	SOURCE	RELEVANCE FOR LOCAL ENERGY SUSTAINABILITY	POTENTIAL MESURABILITY AT LOCAL LEVEL	POWER OF LOCAL AUTHORITIES TO CHANGE OUTCOMES	
12	Ratio of green energy jobs to population	Proportion of employment derived from the implementation of green energy initiatives.	Neves and Leal, 2010	✓	No. This indicator is specifically controlled by the Ministry of Energy and Infrastructure.	No. The strategies to encourage and provide incentives to 'green' jobs are created at the Provincial government level.
13	Responses to public consultations of energy-related projects	Government provides follow-up to public concerns and questions raised in energy consultation projects.	Neves and Leal, 2010	✓	✓	✓
14	Locally available finance schemes for energy efficiency and renewable energy	Introduction of finance schemes (i.e.: energy performance bonuses and feed-in-tariffs).	Neves and Leal, 2010	✓	✓	✓
15	Awareness raising campaigns on energy issues	Development of a communications strategy to sensitize local community about energy.	Neves and Leal, 2010	✓	✓	✓
16	Public participation in energy-related policy-making	Includes active participation, consultation and information to the community on energy-related projects.	Neves and Leal, 2010	✓	✓	✓

STEP 2			STEP 3		
INDICATOR	DESCRIPTION	SOURCE	RELEVANCE FOR LOCAL ENERGY SUSTAINABILITY	POTENTIAL MESURABILITY AT LOCAL LEVEL	POWER OF LOCAL AUTHORITIES TO CHANGE OUTCOMES
17	Local authority advice and assistance to the citizens on energy issues	Local capacity to answer questions and propose energy solutions.	Neves and Leal, 2010	✓	✓
18	GHG emissions from energy issue, per capita and per unit of GDP, and by sector	The amount of greenhouse gases emitted as a result of the total consumption of energy, by different groups of individuals.	Neves and Leal, 2010	✓	No. This indicator is currently measured at the Provincial scale.*
19	Primary energy use per capita	Refers to the total use of energy before transformation to other end-use fuels per capita.	Neves and Leal, 2010	✓	No. This indicator can only be correctly measured at the Provincial scale. No. In Canada, this indicator has regional/Provincial scale.

Source: report author.

Notes:

1. The Independent Electricity System Operator (IESO) is responsible for balancing the supply of and demand for electricity in Ontario, directing its flow across the province's transmission lines. The IESO monitors the electricity system, identifying and reporting on what is required to maintain reliability. Source: www.ieso.ca

2. The Ontario Power Authority (OPA) is responsible for ensuring a reliable, sustainable supply of electricity for Ontario. Its key areas of focus are planning the power system for the long term, leading and coordinating conservation initiatives across the province, and ensuring development of needed generation resources. Source: www.powerauthority.on.ca

* At the time this research was conducted (September 2010-April 2011), not all municipalities in Ontario had the capacity to take on this task upon themselves. Therefore, as this indicator cannot be applied systematically across all municipalities in Ontario, it is not included.

The **fourth step** (Figure 2.1) consisted of a critical analysis of the 13 remaining indicators with the intent of identifying possible gaps, as outlined by Neves and Leal, 2010. A literature review of the best-practice cases in energy planning in Canada was conducted and aimed at identifying potential gaps in the European literature, and therefore ensuring the applicability of such indicators in the Canadian and Ontario context. Two main reports were selected based on their credibility, recent publication date and understanding of the key instruments needed to implement community energy plans.

The first report, published by the Federation of Canadian Municipalities (FCM)⁸ in 2009, provides an extensive review of the energy sector and discusses issues and trends related to sustainable energy planning across Canada. This report highlights the importance of sustainable energy systems and the role of municipalities and urban planners in this context. For instance, by implementing urban design and development approaches that support intensification, planners facilitate the feasibility of alternative energy infrastructure options. This report also provides an extensive list of best practice cases in energy planning, such as the development of energy master plans, sustainability checklists and energy-awareness campaigns.

The second report was published in 2010 by the Community Energy Association⁹ (CEA) of Canada in partnership with Natural Resources Canada, a leading Federal agency and scientific research body. This report intends to support local governments to develop climate change mitigation strategies by implementing high-impact policies and by-laws that encourage the creation of energy planning initiatives. This report differs from the study conducted by FCM as it focuses on the most innovative energy planning initiatives specifically designed to improve the energy performance of the built form of cities. For instance, it advocates for the utilization of energy labeling, energy performance bonuses and building-retrofit incentives by community planners.

The completion of the third step led to the identification of eight additional indicators (Table 2.2 below). The new indicators addressed gaps related to local planning processes and local financial mechanisms currently employed in municipalities in Ontario. For instance, the European literature did not address the development of energy master plans and development-cost charges as policy instruments, which has been strongly encouraged by the Canadian literature (FCM, 2009 and CEA, 2010).

⁸ Research Report: Energy Sector. Prepared for the Federation of Canadian Municipalities by Marbek Resource Consultants Ltd. July 2008, Revised March 2009.

⁹ Modelling High-Impact Local Government Measures to Reduce Energy Use and GHG Emissions for New and Existing Buildings in BC's Lower Mainland. Community Energy Association. July, 2010.

Table 2.2: List of additional indicators derived from the Canadian literature review (FCM, 2009 and CEA, 2010).

	INDICATOR	DESCRIPTION	SOURCE	REMARKS
20	Supportive energy policies within the Official Plan	Official Plans should include provisions related to energy conservation and/or energy generation in a sustainable manner.	FCM, 2009	Applicable
21	Development of Energy Master Plans	An Energy Master Plan reflects a community's vision and goals for energy consumption and conservation. It can also address carbon neutrality targets.	FCM, 2009	Applicable
22	Development of Secondary Plans and Municipal Energy Strategies	Secondary Plans explore the fine details in regards to energy planning, i.e. design guidelines and development approaches to intensification.	FCM, 2009	Applicable
23	Zoning By-Laws fostering energy conservation	Zoning by-laws, as a tool for land-use control, can promote high-density and mixed-used neighborhoods, establishing the necessary conditions for alternative energy/heating supply utilities.	CEA, 2010	Applicable
24	Use of locally available financial incentives to foster energy conservation	Include Local Improvement Charges, Development Cost Charges, Tax Exemptions and Building-Retrofit Incentives.	CEA,2010	Applicable
25	Local Service Area By-law to establish requirements for energy services	It can require buildings, within the service area, to connect to a specific energy source (i.e.: hydro or renewables as fuel source in district-heating plants).	CEA, 2010	Applicable
26	Community energy mapping	Measures and reports on a community's GHG emission profile. Can include emissions from on-road transportation, buildings, solid waste and land-use changes (i.e.: deforestation)	CEA, 2010	Applicable
27	Performance label schemes	Energy labels give an overview of the energy-intensity of a particular building or house. It functions as an informative label when a building/house is sold or rented.	CEA, 2010	Applicable

Source: report author.

In the final **fifth step**, indicators that were repeated were eliminated and the indicators that were very similar in nature were grouped together. This step was important in keeping the final number of indicators limited, as recommended by the Bellagio Principles, the United Nations Commission on Sustainable Development and the International Institute for Sustainable Development (Neves and Leal, 2010, pp. 2725). These organizations emphasize that a limited number of indicators is far more effective in providing policy makers with a clearer signal of progress, facilitating national policymaking and streamlining monitoring processes. In addition, a large set of indicators can become unmanageable and difficult to use effectively (IAEA, 2005). Table 2.3 summarizes this process.

Table 2.3: Grouping and elimination of indicators that are repetitive or very similar in nature, as recommended by Neves and Leal, 2010.

1. ALL APPLICABLE INDICATORS	2. GROUPED INDICATORS	3. FINAL LIST OF INDICATORS
<ul style="list-style-type: none"> Final energy use per sector Industrial energy intensity Agricultural energy intensity Service/commercial energy intensity Household energy intensity Transport energy intensity Public transit ridership 	<ul style="list-style-type: none"> Responses to public consultations of energy-related projects Awareness raising campaigns on energy issues Public participation in energy-related policy-making Local authority advice and assistance to the citizens on energy issues 	<p>Public Consultation and Engagement in Energy Projects</p>
<ul style="list-style-type: none"> Responses to public consultations of energy-related projects Locally available finance schemes for energy efficiency and renewable energy Awareness raising campaigns on energy issues Public participation in energy-related policy-making Local authority advice and assistance to the citizens on energy issues 	<ul style="list-style-type: none"> Use of financial incentives to foster energy efficiency, conservation and renewable energy Locally available finance schemes for energy efficiency and renewable energy 	<p>Locally Available Financial Instruments</p>
<ul style="list-style-type: none"> Supportive energy policies within the Official Plan Development of Energy Master Plans Development of Secondary Plans and Municipal Energy Strategies Zoning By-Laws fostering energy conservation Use of financial incentives to foster energy efficiency, conservation and renewable energy 	<ul style="list-style-type: none"> Final energy use per sector Industrial energy intensity Agricultural energy intensity Service/commercial energy intensity Household energy intensity Transport energy intensity Community energy mapping Performance Label Schemes Share of household income spent on fuel and electricity 	<p>Community Energy Mapping, Reporting and Labelling</p>
<ul style="list-style-type: none"> Local Service Area By-law to establish requirements for energy services Community energy mapping Performance label schemes Share of household income spent on fuel and electricity 	<ul style="list-style-type: none"> Public transit ridership 	<p>Public Transit Ridership</p>
<ul style="list-style-type: none"> Supportive energy policies within the Official Plan Development of Energy Master Plans Development of Secondary Plans and Municipal Energy Strategies Zoning By-Laws fostering energy conservation Local Service Area By-law to establish requirements for energy services 	<ul style="list-style-type: none"> Supportive energy policies within the Official Plan Development of Energy Master Plans Development of Secondary Plans and Municipal Energy Strategies Zoning By-Laws fostering energy conservation Local Service Area By-law to establish requirements for energy services 	<p>Supportive Energy Policies and Strategies at the Local Level</p>

In eliminating repetitions and grouping similar indicators, five final indicators emerged: Public Consultation and Engagement in Energy Projects, Locally Available Financial Instruments, Community Energy Mapping, Reporting and Labeling, Public Transit Ridership, and Supportive Energy Policies and Strategies at the Local Level. Table 2.4 explains the final indicators.

Table 2.4: Final Indicators for Community Energy Planning. Source: report author.

FINAL INDICATORS FOR COMMUNITY ENERGY PLANNING	
1. PUBLIC CONSULTATION AND ENGAGEMENT IN ENERGY PROJECTS	Comprises the activities undertaken in the process of community participation. This indicator represents public consultation in energy-related projects, public participation in energy policy-making, the development of public awareness campaigns on energy issues, and local authority advice and assistance to citizens on energy sustainability.
2. LOCALLY AVAILABLE FINANCIAL INSTRUMENTS	Availability of local finance tools, incentives or mechanisms to foster energy sustainability and that can be administered by local planning departments. These mechanisms include energy performance bonuses, local improvement charges, development cost charges and building-retrofit incentives.
3. COMMUNITY ENERGY MAPPING, REPORTING AND LABELING	<p>Represents all the activities related to mapping, inventorying and labeling of a community's energy intensity. It includes documenting the energy consumption of key sectors, such as residential, commercial, industrial, institutional, transportation and agricultural sectors.</p> <p>This indicator also includes energy performance labeling, which provides a visual representation of the energy mapping exercise. Labels can include information related to the energy consumption, GHGs and other air pollutants emitted by road-transportation activities, households, civic buildings and other built-structures.</p>
4. PUBLIC TRANSIT RIDERSHIP	Reflects the accessibility to and utilization of public transit systems.
5. SUPPORTIVE ENERGY POLICIES AND STRATEGIES AT THE LOCAL LEVEL	<p>This indicator groups an umbrella of activities that are related to developing supportive energy policies at the local level, including Official Plans, Secondary Plans (e.g. the development of Energy Master Plans that reflects a community's vision on energy sustainability), Zoning by-laws and Local Service Area by-laws that enforce urban standards to contribute to energy conservation and promote energy efficiency.</p> <p>The indicator pertaining to "share household income spent on fuel and electricity" has been included in this group, as it is directly related to, and a by-product of, zoning by-laws that promote high-density, compact development and mixed-used neighborhoods.</p>

2.3 PART II: POLICY EVALUATION

The evaluation method developed by Streimikiene and Sivickas, 2008, is employed in order to evaluate the GEGEA against the indicators developed in the previous section. This method was originally developed with the aim of highlighting the most utilized policy instruments of specific European energy policies.

Streimikiene and Sivickas' method offers a simple and operational point system for ranking policy instruments, detailing the procedure for allocating a certain number of points to each indicator. Its main purpose is to attribute a numerical measure to identify the absence or presence of specific policy instruments. As shown in Table 2.5 below, each indicator (which represents instruments in the GEGEA) receives from zero (0) to two (2) points, with zero representing the absence of a policy instrument and two the presence and detailed description of an instrument in the GEGEA.

Table 2.5: Point system used to evaluate Ontario's GEGEA.

EVALUATION SYSTEM	
POINTS ALLOCATED	EXPLANATION
0	The indicator is absent and cannot be inferred from the text of the GEGEA.
1	The indicator is somewhat present or it can be inferred from the text of the GEGEA.
2	The indicator is present and the GEGEA provides further information on it.

Source: report author, adapted from Streimikiene and Sivickas, 2008.

In this system, all indicators are individually assessed and are equally weighted as they represent equally important policy instruments. This implies that the ideal state is that each instrument is considered to be present and described in details by the Act, receiving two points. Any deviation from this state shows the lack of or under-utilization of a policy instrument. As all indicators are equally important in this process, a score of zero or one point indicates an area for policy review and improvement.

Later, once points are attributed to each indicator, the researcher is able to rank all instruments. This process can provide the researcher with objective information on the prioritization of the energy planning instruments of the GEGEA. As per the original research by Streimikiene and Sivickas, 2008, the points allocated are not going to be added at the end, as this evaluation system is not meant to provide a scorecard.

2.4 SCOPE & LIMITATIONS

The research study focuses on evaluating the extent to which the instruments used to develop community energy plans are facilitated by Ontario's GEGEA. The debates in preparation of this Act were not analyzed, nor were the Regulations. Although the four Regulations prepared were reviewed, they do not contain information relevant to the objectives of this report. The report does not address concerns over the potential removal of municipal powers by the GEGEA.

This report offers a case study of Legislation applicable to Ontario only, as it evaluates a particular Provincial policy. In addition, the research does not compare Ontario's GEGEA against other Provincial energy policies. In this context, the conclusions and recommendations developed in this report will be applicable to the specific legislation analyzed herewith and will not be generalized to other Provinces. Having stated that, I am hoping that the unique set of indicators developed can be applicable to assess other energy-related policy in Canada.

Finally, this report only draws from secondary data, such as professional reports and peer-reviewed journal articles. Although the documentation base was extensive, it did not cover personal views on the process of energy planning. Due to time constraints, interviews with local planners in Ontario were not conducted.

CHAPTER 3 :: ANALYSIS

3.1 INTRODUCTION

This chapter provides an analysis and evaluation of the *Green Energy and Green Economy Act* using the thorough methodology established in the previous chapter. It will first introduce the objectives and structure of the GEGEA. It will then analyze the Act using the indicators developed in the previous chapter, establishing whether each indicator is absent, somewhat present or present in details in the legislation. Finally, all indicators will be evaluated and ranked in order of importance as discussed in the Act.

3.2 GREEN ENERGY AND GREEN ECONOMY ACT

On May 14, 2009, the Government of Ontario passed the *Green Energy and Green Economy Act* (GEGEA). The GEGEA enacts the *Green Energy Act* (GEA) and amends over 16 other Acts (Manning and Vince, 2009), including Ontario's *Electricity Act*, *Clean Water Act*, *Environmental Protection Act*, *Watershed Resources Act* and the *Planning Act*. It also offers a series of guidelines intended to reduce the Province's environmental and climate impacts, while enhancing economic activity in Ontario.

Figure 3.1. Ontario Environment Minister John Gerretsen, Premier Dalton McGuinty and Energy Minister George Smitherman promoting the Province's *Green Energy Act*.



Source: CBC, September 2009.

More specifically, the Act's main goals are:

1. To foster the growth of renewable energy projects, using environmental-friendly sources of energy, while removing barriers and promoting opportunities for renewable energy projects;
2. To commit the Government of Ontario to ensuring that its government-funded institutions and broader public-sector conserve energy and use energy efficiently; and
3. To promote and expand energy conservation by all Ontarians and encourage all Ontarians to use energy efficiently.

In terms of its structure, the Act contains three brief introductory chapters and 12 schedules. The GEA, or Schedule A of the GEGEA, is the largest portion. It is divided into five parts, each prescribing specific instruments to achieve the goals of the Legislation. Part I, "Interpretation and General Application", provides an introductory overview of definitions, interpretation and administration of the Act. Its main contribution to energy planning is related to community consultation and the introduction of mandatory home efficiency disclosure. Part II, "Designated Goods, Services and Technologies and Renewable Energy Projects and Conservation in the Public Sector", sets out the guiding principles for the Government when constructing, acquiring, operating and managing facilities. These principles include reporting on energy use and GHG emissions, ensuring energy efficiency in the planning and design of government facilities, and using renewable energy sources to provide energy for government facilities (GEGEA, 2009, pp.i). Part III of the Act, entitled "Energy Efficiency and Efficient Use of Water", deals mostly with issues related to energy-consumption of regulated appliances and products, introducing the concept of energy labeling. The last two parts of the GEA focus on administrative and regulative concepts: Part IV, "Regulations", provides Ontario's Lieutenant Governor in Council with regulation-making authority and Part V, "Repeals, Commencement and Short Title", lists final details related to the GEGEA.

Although most of the indicators related to community energy planning are found in Schedule A, this report analyzed all 12 Schedules of the legislation. The information provided in the Regulations of this Act did not relate to this research and therefore is not included in this study.

3.3 ANALYSIS OF INDICATORS

3.3.1. PUBLIC CONSULTATION AND ENGAGEMENT IN ENERGY-RELATED PROJECTS

Public and aboriginal participation in energy-related policy making is fully encouraged by the GEGEA from its very beginning. Part I of the GEA, sub-heading “Interpretation”, states that it is the Government’s duty to consult aboriginal peoples in any energy-related projects (GEGEA, 2009, Schedule A, pp. 5, 1. (2)). Furthermore, the next sub-section - “Administration, community consultation” - also articulates the Government’s commitment to consulting with communities prior to implementing any renewable energy projects (GEGEA, 2009, Schedule A, pp. 5, 2).

In order to facilitate public engagement and education on energy-related matters, the Act establishes the creation of a “Renewable Energy Facilitation Office” with the goal of providing renewable energy proponents with information in respect to interactions with local communities (GEGEA, 2009, Schedule A, pp. 10, 11. (2)). As indicated by the literature, the availability of assistance and advice to communities can help streamline the approval process for renewable energy undertakings (Neves and Leal, 2010).

Furthermore, public consultation is also prescribed in various sub-sections under Schedule B - amendments to the *Electricity Act*. This is highlighted in “Directions re consultation”, “Direction re programs for aboriginal participation” and “Direction re programs for participation of groups” (GEGEA, 2009, Schedule B, pp. 16-17, 5. (2), (4.4) (4.5) and (4.6)). These three sub-sections clearly establish aboriginal and community consultation as a requirement prior to any planning, development or procurement of electricity supply, capacity, transmission and distribution. This section also details that consultations shall occur in a manner, method and timing as directed by the Minister.

Public Consultation is further stressed under Schedule G, or amendments to the *Environmental Protection Act*. Section 176 of this Act now indicates that any applications to alter the terms and/or conditions of energy projects must be preceded by public consultation of the groups, including local community organizations, concerned with these same projects (GEGEA, 2009, Schedule G, 20.(2)(4.1) (b)).

Overall, and not differently from the literature, the GEGEA prescribes public consultation and engagement during all phases of the energy planning process. The Act also strongly encourages aboriginal and community participation in energy policy-making and establishes that the Government is ready to provide further assistance to citizens via the new Renewable Energy Facilitation Office.

Based on this analysis, this indicator is considered to be present and mentioned in detail throughout the GEGEA, deserving two points. Table 3.1 below provides the evaluation report and a summary of the indicator’s key objectives.

Table 3.1: Analysis of the Public Consultation and Engagement indicator.

INDICATOR	PRESENCE IN GEGEA	POINTS ALLOCATED	HOW GEGEA PROMOTES THE INDICATOR
<p align="center">Public Consultation and Engagement in Energy-Related Projects</p>	<p align="center">✓</p>	<p align="center">2</p>	<ul style="list-style-type: none"> - Government’s duty to consult aboriginal peoples; - Community participation and engagement is facilitated via the establishment of the Renewable Energy Facilitation Office; - Aboriginal and community consultation is required prior to any planning, development or procurement of electricity supply, capacity, transmission and distribution; - Consultations shall occur in a manner, method and timing as directed by the Minister; - Changes to established energy projects must follow public consultation.

Source: report author.

3.3.2. LOCALLY AVAILABLE FINANCIAL INSTRUMENTS

The only concrete financial mechanism discussed by the GEGEA is the Feed-In-Tariff (FIT). First, the GEGEA lays out the foundations for the FIT in Schedule B, stating that the Ontario Power Authority (OPA) is now mandated by the Ministry to develop and make accessible financial funding for renewable energy projects developed with the participation of aboriginal peoples, community groups and organizations, including but not limited to municipalities (GEGEA, Schedule B, pp.17, 5. (2) (4.5) (4.6)). This amendment has a tremendous impact on community energy planning, as it is now indicated that seed funding is to be made available to community organizations and municipalities willing to start local, renewable energy undertakings.

This section leads to the most significant amendment made under Schedule B, introducing the FIT instrument (GEGEA, Schedule B, pp.18, 7. 25.35). The FIT is a financial program for renewable energy procurement, providing standard and reliable pricing for operators. The pricing is differentiated by the energy source and fuel type, generation capacity and the manner by which the generation facility is used, installed and located (GEGEA, Schedule B, pp.18, 7. 25.35 (4)). Aboriginal peoples and local communities organizations or municipalities are encouraged to develop renewable energy generation facilities and become operators, eligible to benefit from FIT funding (GEGEA, Schedule B, pp.18, 7. 25.35 (2)).

The GEGEA also addresses the concern over the instability of pricing in the energy industry by amending the *Ontario Energy Board Act* and ensuring local energy generators that they are entitled to be compensated for lost revenue resulting from potential rate reductions (GEGEA, 2009, Schedule D, 79.1 (2)). This is noteworthy as it assures local operators and organizations to implement their renewable energy generation facilities with a guaranteed return on their investment and energy rates. Furthermore, the GEGEA also indicates that the OPA may develop other financial programs “designed to reimburse the direct costs incurred by a municipality in order to facilitate the development of renewable energy generation projects” (GEGEA, Schedule B, pp.17, 5. (2) (4.7)).

The last and vague mention of financial scheme occurs under Schedule C, or amendments to the *Ministry of Energy Act*. This section hints at “grants” and “loans” as potential financial schemes to be developed by the Minister of Energy in order to encourage energy planning (GEGEA, Schedule C, pp.25, 1. 2 (f)(g)).

Overall, the Legislation utilizes the Feed-In-Tariff as the key financial incentive to propel the development of renewable energy undertakings. This is not surprising, especially as the European literature strongly advocates for the utilization of FITs as a proven financial mechanism (Streimikiene and Sivickas, 2008). This also means that the Government, via the OPA, is only providing financial incentives and direction in support of sustainable energy solutions to the various constituencies of which a municipality is comprised.

However, it is particularly surprising to note the lack of a holistic approach towards the promotion of all possible financial instruments available to encourage energy-conservation and renewable energy generation. The GEGEA fails to promote the utilization of key locally available financial mechanisms, such as energy performance and density bonuses, retrofit incentives, and development cost charges. These instruments can effectively steer municipal attention towards financing energy-related projects (FCM, 2009). Therefore, as the legislation mentions the availability of FIT, but does not provide details about other locally available instruments, this indicator receives one point. Table 3.2 below summarizes the indicator’s key objectives as highlighted in the GEGEA.

Table 3.2: Analysis of Locally Available Financial Instruments indicator.

INDICATOR	PRESENCE IN GEGEA	POINTS ALLOCATED	HOW GEGEA PROMOTES THE INDICATOR
<p style="text-align: center;">Locally Available Financial Instruments</p>	✓	<div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div>	<ul style="list-style-type: none"> - OPA to develop financial funding for renewable development projects developed with the participation of aboriginal peoples, community groups and organizations; - FIT introduction; - Local energy generators are entitled to be compensated for lost revenue resulting from potential rate reductions; - OPA may develop other financial programs to reimburse direct costs incurred in the development of renewable energy generation projects; - Ministry to develop grants and loans as needed.

Source: report author.

3.3.3. COMMUNITY ENERGY MAPPING, REPORTING AND LABELING

The concept of Energy Mapping and Reporting is found across various sections of the GEGEA. It is first introduced under the sub-section “Mandatory home efficiency disclosure” (Schedule A), with the purpose of establishing mandatory household energy mapping. This sub-section is very thorough and details six clauses that address the procedures related to energy reporting. For instance, the Act clearly expands that a person making an offer to purchase a real estate property has the right to ask and receive information, reports or ratings related to the energy consumption and efficiency of that real estate asset (GEGEA, 2009, Schedule A, pp.5, 3. (1), (2)). Furthermore, the person selling the property, or his/her real estate representative, is mandated to provide the potential buyer with the information, reports or energy ratings requested (GEGEA, 2009, Schedule A, pp.5, 3. (4) (6)).

The requirements for energy reporting are then expanded to institutional buildings and their operations. The sub-section “Contents, public agencies” (Schedule A) states that energy conservation and demand management plans should be proposed for Government buildings and must include detailed information on mapping the energy intensity of that structure and its operations. Other details include: a summary report of the agency’s current and forecasted annual energy consumption, and a summary describing the progress and achievements in mapping the agency’s energy intensity, including buildings and operations (GEGEA, 2009, Schedule A, pp.7, 5. (1) (2) (3)). Additionally, the sub-section “Government Facilities, guiding principles” indicates that the Government intends to map and report in a clear and transparent manner its energy use and amount of GHGs emitted when constructing, acquiring, operating and managing facilities (GEGEA, 2009, Schedule A, pp.8, 10. (1)). Furthermore, the next sub-section, “Directives”, states that the Ministry of Energy and Infrastructure has the right to require all other public agencies to report their energy consumption and GHG emissions.

In order to expand energy mapping and reporting outside of the residential and institutional scopes, the Act makes an amendment to the Building Code and establishes the creation of a “Building Code Energy Advisory Council” (GEGEA, 2009, Schedule J, pp.60, 34.1 (1)). The mandate of this group is very briefly outlined, hinting that the Council is to make recommendations on energy intensity and reporting standards for all sectors of society.

However, contrary to the long discussion on energy mapping and reporting, the promotion of energy labeling is unfortunately restricted to appliances and certain consumer products. The GEGEA does not make any recommendations or promote the concept of energy labeling for buildings or any other built-structures.

Overall, it is not surprising to find such detailed discussion on household and institutional energy mapping and reporting in this Act. This is aligned with the recommendations from the literature on the importance of mapping and reporting a community’s energy intensity in order to inform policy (Neves and Leal, 2010). Additionally, although a new concept for Ontarians, inventorying energy consumption can provide important feedback to the Provincial and local governments as they seek to create a picture of the community’s overall energy intensity (CEA, 2010). On the other hand, it is unfortunate that the discussion on energy labeling schemes is restricted to appliances and certain products. Especially as energy labels can provide reliable information to advise potential buyers of the energy intake and consumption of a real-estate asset on sale (CEA, 2010).

Therefore, as the GEGEA does consider energy mapping and reporting for the residential and institutional sectors, but vaguely discusses energy mapping and reporting for all other sectors, and does not include recommendations for energy labeling, this indicator is considered to be present and receives one point. Table 3.3 below provides a summary of the GEGEA objectives outlined for this indicator.

Table 3.3: Analysis of the Community Energy Mapping, Reporting and Labeling indicator.

INDICATOR	PRESENCE IN GEGEA	POINTS ALLOCATED	HOW GEGEA PROMOTES THE INDICATOR
<p align="center">Community Energy Mapping, Reporting and Labeling</p>	<p align="center">✓</p>	<p align="center">1</p>	<ul style="list-style-type: none"> - Mandatory disclosure of household energy-efficiency; - Government buildings and facilities must map and report their current and forecasted energy-consumption; - Establishment of the Building Code Energy Advisory Council; - Labeling schemes apply to appliances and consumer products only.

Source: report author.

3.3.4. PUBLIC TRANSIT RIDERSHIP

This indicator is not mentioned in the GEGEA (see Table 3.4). As the transportation sector has significant impacts on a community’s energy intensity (FCM, 2009), it is very surprising that this Act does not include public transit ridership as a tool to promote energy conservation. In addition, the literature reviewed establishes that the energy and carbon intensity of communities can vary significantly depending on transportation infrastructure and public transit accessibility (FCM, 2009). This indicator deserves zero points, as summarized by Table 3.4 found below.

Table 3.4: Analysis of the Public Transit Ridership indicator.

INDICATOR	ABSENCE IN GEGEA	POINTS ALLOCATED	HOW GEGEA PROMOTES THE INDICATOR
Public Transit Ridership	✓	0	- No mention throughout the Act.

Source: report author.

3.3.5. SUPPORTIVE ENERGY POLICIES AND STRATEGIES AT THE LOCAL LEVEL

The development of energy plans and strategies is encouraged and even mandated by the Ministry throughout various sub-sections and Schedules of the GEGEA. It is interesting to note that the Act encourages the development of energy plans with two very distinct aims. Whereas public agencies and the Government are encouraged to develop Energy Conservation Plans, local communities and their Councils are no longer allowed to develop policies that create barriers to the development of renewable energy generation projects. This is applicable to all zoning by-laws, secondary plans and Official Plans.

First, the sub-section “Energy conservation and demand management plans” is dedicated entirely to promoting the development of energy policies within the public sector in Ontario. It establishes that public agencies, such as planning departments, might be requested to “prepare energy conservation and demand management plans” by the Lieutenant Governor (GEGEA, 2009, Schedule A, pp.7, 6. (1) (2)). It also establishes that energy plans, as developed by public agencies, be required to cover specific time periods and be officially filed with the Ministry of Energy and Infrastructure for monitoring purposes (GEGEA, 2009, Schedule A, pp.7, 6. (3)). Moreover, these energy plans may include GHG reduction targets that meet specific energy and environmental standards, including standards for energy conservation and demand management (GEGEA, 2009, Schedule A, pp.7, 6. (4)).

The Act also provides detailed information about the contents of such energy conservation plans to be developed by the public sector, as listed under “Contents, public agencies”. These plans must map and report the annual energy consumption of a public agency’s operations (GEGEA, 2009, Schedule A, pp.7, 6. (5, 1)); must provide current and forecasted energy consumption as a result of the agency’s operations (GEGEA, 2009, Schedule A, pp.7, 6. (5, 2)); and provide a summary of the progress and achievements in energy conservation (GEGEA, 2009, Schedule A, pp.7, 6. (5, 3)). In this same topic, the Act specifies that energy plans developed by public agencies be made public and implemented to their full extent (GEGEA, 2009, Schedule A, pp.8, 6. (7) (8)). Furthermore, the Legislation allows that two or more public agencies jointly prepare energy plans, and implement them collaboratively as the plan may lead to more aggressive results (GEGEA, 2009, Schedule A, pp.8, 7. (1)).

Whereas public agencies are mandated to prepare Energy Conservation Plans, the GEGEA revokes the privilege of developing policies that are non-supportive of renewable energy undertakings by local communities and their elected officials. This is possible due to an amendment made under Schedule C stating that Minister of Energy is to “advise and make recommendations on growth planning and developing and implementing growth plans in support of strong communities” (GEGEA, Schedule C, pp.24, 6. (1)(c)). Moreover, the Minister is also authorized to make recommendations regarding priorities for, and stimulating planning and development of, infrastructure of significance within Ontario (GEGEA, Schedule C, pp.24, 6. (1)(g)(h)(vii)).

In this context, the GEGEA does not encourage municipalities in Ontario to develop and implement energy-related policy, but rather dictates what should not be included in such policies, zoning by-laws and official plans. For instance, under Part II of the GEA, sub-section “Effect of designation”, the Government clearly states that municipal by-laws, condominium by-laws or any sort of municipal agreement that prevent a person from developing and implementing renewable energy projects are no longer applicable (GEGEA, 2009, GEA, pp.6, 5. (2)). Furthermore, any policy or by-law – that may result in barriers to the development or implementation of renewable energy projects – must be reported to the Speaker of the Assembly (GEGEA, 2009, Schedule F, pp. 40, 58.1 (c) (ii) (iii)).

Additionally, the GEGEA also amends the *Planning Act* (Schedule K) and states that policy statements, official plans and zoning by-laws must not affect the development of a renewable energy undertaking (GEGEA, Schedule K, pp. 61, 62.0.2 (1)). The Act also specifies that official plans shall not affect the passing of by-laws that facilitate development of renewable energy undertakings (GEGEA, Schedule K, pp. 61, 62.0.2 (3) (c)). Last, development permit systems, that local municipalities may adopt by by-law to control land use development, no longer apply for renewable energy undertaking (GEGEA, Schedule K, pp. 61, 62.0.2 (8)).

Overall, the GEGEA requires and fully supports public agencies and the Provincial Government to prepare Energy Conservation and Demand Management plans, to file these plans publicly and to include specific energy-efficiency and conservation targets. On the other hand, the Act mostly amends the *Planning Act*, limiting the ability of planners and elected officials to block the renewable energy undertakings. Although the literature highly recommends the application of zoning, by-laws and other land-use designation tools as “carrot” levers that effectively foster energy sustainability in projects (FCM, 2009, pp. 50), the GEGEA fails to do the same.

Therefore, as the GEGEA provides a discussion on Supportive Energy Policies directed specifically towards the Government, but does not extend these guidelines to municipalities and local planners, this indicator receives zero points. This is summarized in Table 3.5, located in the next page. This table highlights the key goals provided by the GEGEA in regards to this indicator.

Table 3.5: Analysis of the Supportive Energy Policies and Strategies at the Local Level indicator.

INDICATOR	ABSENCE IN GEGEA	POINTS ALLOCATED	HOW GEGEA PROMOTES THE INDICATOR
<p>Supportive Energy Policies and Strategies at the Local Level</p>	<p>✓</p>	<p>0</p>	<ul style="list-style-type: none"> - Public agencies may be required to develop energy conservation and demand management plans; - Energy Plans must include GHG reduction targets, meet standards for energy conservation, report on current and forecasted energy consumption and provide a summary of key accomplishments in energy reduction; - Two or more public agencies are encouraged to prepare joint energy plans that lead to more aggressive results; - Minister of Energy can “advise and make recommendations on growth planning and developing and implementing growth plans in support of strong communities”; - Municipal policy or by-law – that may result in barriers to the development or implementation of renewable energy projects – no longer applies and must be reported to the Speaker of the Assembly; - Official Plans, zoning by-laws and/or develop permit systems shall not affect the development of renewable energy undertakings.

Source: report author.

3.4. RANKING OF INDICATORS

Based on the analysis, all five indicators were ranked according to their number of points (Table 3.6). With this objective evaluation system (Streimikiene and Sivickas, 2008), it becomes clear that the Government promotes Public Consultation and Public Engagement over the other instruments. This is not surprising, as the literature indicates that ideal community energy practices include meaningful participation of stakeholders from early in the planning phase, and that ongoing attention to public engagement is key to the successful implementation of long-term energy strategies (FCM, 2009).

On the other hand, Public Transit Ridership is not utilized as an instrument in the GEGEA, representing an area for policy improvement. As the literature indicates, public transit ridership is an important indicator because it “helps to assess the physical state of the local energy system” (Neves and Leal, 2010, pp. 2730). In other words, this indicator reflects the need to develop urban patterns that support compact, mixed use developments, optimizing efficient use of energy and its conservation.

The three remaining indicators are present in the Act, but not employed to their full potential. Although the Legislation supports community energy mapping and reporting, energy labeling is not required for the built-structure of a community. This contradicts the fact that labeling schemes are considered a best-practice in community energy planning (CEA, 2010), and are helpful in displaying reliable and standard energy information to inform decision-making.

In regards to encouraging the utilization of locally available financial instruments, the GEGEA only promotes the Feed-In-Tariff (FIT). This also represents an area for policy improvement, as municipalities have a range of fiscal levers and incentives that can be used to foster innovation and favor energy conservation and efficiency (FCM, 2009). The promotion of these local tools, in conjunction with the FIT instrument, can certainly help the GEGEA achieve its goals.

Finally, the GEGEA does not promote the development of supportive energy policies at the local level. Although it strongly advocates for the development of energy plans by provincial agencies, the Act remains silent on the subject of encouraging local planners to develop supportive energy policies. The development of supportive energy policies within the local level can provide important and foundational elements to encourage the development of energy conservation and efficiency in a community, as well as raise awareness about the role for local energy planners in promoting these policies (CEA, 2010). Therefore, this is considered to be another opportunity for improvement in the Legislation.

In summary, although the instruments provided in the GEGEA are mostly representative of the tools used by planners when developing community energy plans, they are limited in scope and not promoted to their full potential. Table 3.6 below summarizes the key considerations made by this Act in regards to each indicator.

Table 3.6: Summary of the assessment of Ontario’s GEGEA, evaluating the extent to which this Act utilizes the instruments currently used to develop Community Energy Plans.

INDICATOR	ABSENCE IN GEGEA	PRESENCE IN GEGEA	POINTS ALLOCATED	SUMMARY OF REMARKS
1. Public Consultation and Engagement in Energy-Related Projects		✓	2	- Required public consultation (including First Nations and community groups) prior to any planning, development or procurement of electricity supply, capacity, transmission and distribution.
2. Locally Available Financial Instruments		✓	1	- OPA to develop and manage the FIT, encouraging the participation of Aboriginal, local communities and other groups in generating renewable energy.
3. Community Energy Mapping, Reporting and Labeling		✓	1	- Mandatory disclosure of household and institutional energy intensity, via detailed mapping and reporting. - No energy labeling of the built-environment required.
4. Supportive Energy Policies and Strategies at the Local Level	✓		0	- Public agencies are required to develop Energy Demand and Management Plans, but not local municipalities. - Local policy and/or by-laws must not result in barriers to the development of renewable energy undertakings.
5. Public Transit Ridership	✓		0	- No mention throughout the Act.
Legend: 0 – The indicator is not present nor cannot be inferred from the text of the GEGEA. 1 – The indicator is somewhat present or it can be inferred from the text of the GEGEA. 2 – The indicator is present and the GEGEA provides further information on it.				

Source: report author.

CHAPTER 4 :: CONCLUSION

4.1. INTRODUCTION

As energy planning gains momentum in Ontario, considering municipal planning needs is wise for the Provincial government and its ministries. Ontario's GEGEA, despite its large step forward in promoting energy conservation, efficiency and development of renewable-energy undertakings, is weakened by three main issues. First, its narrow-focus approach to energy labeling undermines the potential of labeling the built environment and displaying reliable and standard energy labels to inform decision-making. Second, the GEGEA's silence over the promotion of public transportation goes against the best-practices in energy planning. Third, the Act lacks a coordinated approach towards the promotion of supportive policies and financial tools that are available at the local level.

4.2. RECOMMENDATIONS

The five recommendations provided below can strengthen the ability of the GEGEA to become more effective at the community planning level. They also help address the gaps that emerged between the goals established in the policy and their potential implementation at the community level.

RECOMMENDATION 4.2.1: CONTINUE TO PROMOTE ENERGY MAPPING AND REPORTING, AND EXTEND ENERGY LABELING REQUIREMENTS TO THE BUILT-ENVIRONMENT

The starting point for any community energy plan is to map and report the energy intensity of a community (FCM, 2009). The GEGEA not only promotes energy mapping and reporting, but also provides extensive guidelines for public agencies to develop comprehensive energy plans. It is also clear that the Government intends to set an example by committing its buildings, facilities and operations to rigorous energy mapping and reporting procedures. This approach can equip local community planners with proven methods for energy mapping and reporting, especially when considering that household energy inspections are now mandatory.

However, despite extensively discussing energy mapping and reporting of household and institutional facilities, the GEGEA should encourage labeling practices beyond its narrow scope. The stringent guidelines for labeling of appliances and consumer products could be expanded and applicable to public and private buildings, facilities and other built-structures. Performance label schemes represent one of the best practices in community energy planning (CEA, 2010) and are extremely helpful in displaying reliable and standard energy information that can inform decision-making.

RECOMMENDATION 4.2.2: UTILIZE PUBLIC TRANSIT RIDERSHIP AS AN INSTRUMENT TO ENCOURAGE ENERGY CONSERVATION AND ENERGY EFFICIENCY

It is recommended for the Ministry of Energy and Infrastructure to consider employing Public Transit Ridership as a policy measure to encourage energy sustainability in Ontario. This is highlighted in the literature reviewed, which emphasizes that public transit reflects the goals for energy sustainability at the local level, helping to assess the physical state of the local energy system (Neves and Leal, 2010). In order to achieve successful public transit ridership, municipalities have to first consider the development, or adaptation of, urban patterns that support compact, mixed use developments, optimizing efficient use of energy (FCM, 2009). It is important to highlight that all of the conditions to implement public transportation also become conditions to achieve energy conservation and efficiency at the local level.

RECOMMENDATION 4.2.3: CONTINUE TO ENCOURAGE PUBLIC CONSULTATION AND ENGAGEMENT IN ENERGY-RELATED PROJECTS

The GEGEA translates the government's vision for an inclusive and transparent energy consultation process. As one of the GEGEA's main objectives is to foster the growth of renewable energy projects, local community groups and aboriginal peoples are at the forefront of provincial concern. Therefore, municipal planners are strongly encouraged to start the public consultation process early on in order to accommodate the needs and schedules of all stakeholders. Of particular importance towards community engagement is the establishment of a Renewable Energy Facilitation Office, mandated to facilitate the discussion and implementation of energy projects. Local planners should familiarize themselves with the information offered at this Office and develop a collaborative approach towards public engagement.

RECOMMENDATION 4.2.4: EXTEND THE REQUIREMENTS TO DEVELOP ENERGY PLANS, OR MAKE ENERGY CONSIDERATIONS, TO THE LOCAL MUNICIPAL LEVEL

Whereas the GEGEA fully encourages and supports public agencies and the Provincial Government to develop Energy Plans, it mostly constraints the ability of local planners and elected officials to develop supportive energy policy. The GEGEA does so by focusing its efforts in limiting the ability of municipalities to control land use, while not encouraging planners to engage with their communities/elected officials to discuss potential energy policy. The development of a dedicated energy plan can attest to a community's leadership in energy sustainability and its willingness to look at opportunities to include greener and cleaner energy generation technologies (FCM, 2009). Furthermore, the promotion of supportive energy policies can provide important and foundational elements to encourage the development of energy conservation and efficiency in a community (CEA, 2010).

In order to address this gap, the Act should extend the requirements to develop Energy Plans, or make energy considerations in policies and strategies, to the local municipal level. In addition, the extensive and detailed information prescribed by the GEGEA to public agencies can serve as guidelines to municipalities willing to kick-start the development of community energy plans.

RECOMMENDATION 4.2.5: USE FIT COLLABORATIVELY WITH OTHER LOCALLY AVAILABLE FINANCIAL MECHANISMS

Although the GEGEA targets the constituencies by introducing the Feed-In-Tariff, it fails to harness the financial power that locally available tools have to promote energy-related projects. Locally available financial incentives, administered by municipal employees, can be implemented collaboratively with FITs in order to achieve significant energy conservation and encourage the development of renewable-energy undertakings. For instance, energy-performance bonuses and building-retrofit incentives can be locally administered in order to encourage energy conservation and efficiency. Development cost charges, or the exemption of, can be utilized in conjunction with FITs in order to encourage the development of renewable energy projects. Local-area improvement charges can be collected in order to fund community energy projects, or can be exempted in order to promote energy-related improvements to neighborhoods. Therefore, the smart and collaborative application of all financial tools can help municipalities to foster local innovation to developing sustainable communities (FCM, 2009).

4.3. CONCLUSION

By thoroughly analyzing the GEGEA, this report highlighted that the instruments provided in the Legislation are limited in scope and not promoted to their full potential. It is recommended that the Government of Ontario reflect on the instruments that are underutilized or missing from this Act, potentially adopting all five recommendations.

These recommendations are meant to strengthen the ability of the Act to become more effective at the community planning level. This is important as there is strong evidence that local municipal action is far more effective in tackling Climate Change and lowering GHG emissions than national, or international, agreements (de Boer, 2010). The inclusion, or better utilization, of such policy measures in Ontario's GEGEA could lead to a significant increase in the success rate of achieving the Act's main goals and objectives.

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