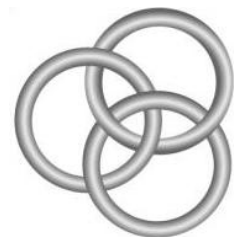

Implementing Bill 150: Reflections from the field

Prepared for the
Midwestern Ontario
Regional Green Jobs
Strategy

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Midwestern Ontario Regional
Green Jobs
Strategy



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I. List of Acronyms

BR&E	Business Retention and Expansion
CIELAP	Canadian Institute for Environmental Law and Policy
FIT	Feed-In Tariff
GEA	Green Energy and Economy Act
GHGe	Greenhouse Gas Emissions
LDC	Local Distribution Company
LTEP	Long Term Energy Plan
MEI	Ministry of Energy and Infrastructure
MOE	Ministry of Environment
OCAAR	Ontario Clean Air Alliance Research
OPA	Ontario Power Authority
OPPI	Ontario Professional Planners Institute
OSEA	Ontario Sustainable Energy Association
PV	Photovoltaic
REA	Renewable Energy Approval
REFO	Renewable Energy Facilitation Office
RESOP	Renewable Energy Standard Offer Program
WTO	World Trade Organisation

II. Introduction

It is commonly acknowledged that policy implementation is where most of the challenges of policy analysis lie, and that this stage is always full of surprises. Policy implementation research is a constructive type of enquiry whose outlook is on functionality (how to make the policy work better) rather than evaluation (how well does the policy currently work).

Bill 150, the *Green Energy and Green Economy Act, 2009 (GEA)* and the Feed-In Tariff (FIT) program, which is administered by the Ontario Power Authority (OPA), an agency of the Ministry of Energy and Infrastructure (MEI), are controversial pieces of policy and will both be up for review in 2011. It is difficult to find unbiased sources of information on the implementation of the *GEA* from the point of view of renewable energy businesses and municipalities undertaking renewable energy projects.

The great uptake of renewable energy projects can be placed in the broader context of a high degree of initial support for the *GEA*. An Ontario-wide survey undertaken at the time of *GEA* ascent showed that 87% of Ontarians were in support of the *GEA*, including 62% who were strongly in support (Pollara, 2009). It is important to remember these figures, especially in light of the current volatile situation. In fact, there has been a high media presence on organized opposition to wind turbines, and extensive coverage of announcements made in early 2011 regarding the moratorium on offshore wind and the freeze on solar hook-ups, coinciding with the late February 2011 announcement of the approval of 40 new large-scale renewable power projects that will create 7000 jobs and generate enough electricity for more than 200,000 homes. This is a confusing field for the general public to navigate, and it would be counterproductive to attribute blame, because of how hard it is to draw cause-effect relationships.

It is no easy task to dissociate threats from opportunities, and find opportunities in response to weaknesses of the *GEA*. Fraser (2009: 4) sums that dilemma up eloquently by saying:

as we transform the electricity sector from a system based on large, remote central generating plants connected with miles and miles of transmission lines to a more decentralized system, with net zero homes, buildings, subdivisions, communities, linked by a web of pipes and wires, we will have to develop new ways to empower people, developers, municipalities and distribution utilities to do things differently. The potential for finding these new ways is the beauty and the challenge of the *Green Energy and Green Economy Act*.

To this, Fraser (2009:4) adds that, while “any sustainable energy developer in Ontario can describe a litany of roadblocks, barriers and catch 22s [...] perhaps the most problematic is the “traditional mindset” – the “status quo” – the “way we have always done it””. Complex

systems and issues such as those presented in this paper call for innovative responses and out of the box thinking.

As such, this paper will be especially relevant to decision makers at the Ministry of Energy and Infrastructure (MEI), because it will contribute to highlighting what the issues are in the field and provide insight in how to solve them. In fact, this paper seeks to explore the strengths, weaknesses and lessons learnt about the *GEA* implementation (with a focus on the FIT and microFIT programs) from the perspective of renewable energy companies and Ontario municipalities. It is not meant as an authority piece nor a White paper, and it is not a reflection of the legislation itself and its components; rather, it focuses on how the *GEA* is playing out on the ground, in a context in which there is a degree of urgency and a need for action, because the consequences of inaction could in fact result in the most progressive renewable energy promotion policy in North-America being reversed without the voices of key stakeholders being heard.

This research used a mixed-methods qualitative basket based on document and media review, as well as twelve key informant interviews in Mid western Ontario (including four renewable energy business owners, five staff or council members of municipalities having adopted a renewable energy project, one representative of an anti-wind group and two staff members of non-government organisations working in solar water heating and energy efficiency programs). The interviews will help add context and feed information to stimulate discussion moving into the policy review stage for the *GEA* and the FIT and microFIT programs.

This paper will first present strengths, weaknesses, opportunities and threats of the *GEA* implementation as represented in the literature and in the media, followed by insights from interviewees on what is working and not working in the field, and how the *GEA* implementation could be improved. These findings will be utilised to formulate recommendations for moving forwards.

III. Background on the Implementation of the *Green Energy Act*

The *GEA* was created with a three-pronged mandate of making Ontario a renewable energy leader, encouraging investment and creating jobs (50,000 jobs in the first three years) and fostering a culture of conservation. The most prominent aspects of the implementation of the *GEA* include the FIT and microFIT programs (OPA, 2010a; 2010b), which provide standard rules, contracts and pricing to renewable energy producers entering in a business relationship with the OPA, the implementing agency. More information on the process of applying for the FIT program is depicted graphically in Appendix B. Also worth mentioning are the creation of the Renewable Energy Facilitation Office (REFO) as a one-window access point for information to assist RE project proponents, the legislation of minimum set-backs for wind turbines, the right to connect to the grid, a guaranteed 20 year price and a six-month service guarantee for renewable energy approvals. Aspects of the *GEA* implementation which are forecasted include regulations on conservation and demand management for public agencies, as well as the

eventual review of the Building Code to make energy efficiency a priority and the implementation of a smart power grid¹ (Swail, 2010).

This section will explore the strengths, weaknesses, opportunities and strengths of the *GEA* implementation identified in the document and media review.

Strengths and Opportunities

In their first year of existence, the FIT and microFIT programs have seen faster and greater uptake for renewable energy in Ontario compared to other European leaders such as France and Spain (Environmental Defence, 2010). The high number of applications to these programs demonstrates that renewable energy production is now more accessible, because the *GEA* “lowers barriers for participation in a market typically dominated by large, deep-pocketed corporations” (Hamilton, 2011b). In fact, the Ontario Professional Planners Institute notes that Ontario has brought in more than 1400 MW of renewable energy online since 2003, which is enough to power more than 400,000 homes. Sarnia, Ontario is also the home of the largest operational solar PV farm in the world, and the *GEA* has allowed municipalities to generate up to 10 MW of electricity, which they were prohibited from doing before Bill 150 was enacted, and even get reimbursed for some of their costs through the Municipal Renewable Energy Program (OPPI, 2010). This is significant because

municipalities are the second largest electricity consuming sector in Ontario, second only to the pulp and paper sector. In total, municipalities consume 6.6 billion kWh of electricity per year. This results in a large monetary expenditure of over \$680 million on electricity each year. Self-generating electricity can reduce this monetary expenditure and free up much needed funds for use elsewhere in the municipality’s budget (Manning & Vince, 2010).

According to Mazza’s analysis of policy prospects in the US context (2008), FIT Programs are the most effective type of policy to encourage renewable energy. Having a “right to connect” embedded into a FIT Program allows for more projects to be accepted if compared with a model such as the one used by Hydro Québec, in which a power authority periodically issues a Request for Proposals.

The *GEA* has contributed to making renewable energy projects approval smoother. According to George Smitherman, Energy and Infrastructure Minister at the time of the *GEA* ascent, “the proposed *GEA* [would] create a provincial standard for wind turbine sites and a “one-window, one permit” approach to approvals” (Hamilton, 2009). This streamlined process has been made possible due to exemptions from the *Planning Act*; renewable energy projects are indeed exempt from Official Plans, zoning, demolition and development permit bylaws. Municipalities are informed on projects by proponents through a Municipal Consultation Form. Agency of

¹ A smart grid is an intelligent information exchanges systems and equipment that will provide greater control over energy supply and demand. Ontario’s *Smart Grid Road Map* suggests that investments of \$50 million are planned until 2014 (Fraser, 2009).

municipalities in relation to renewable energy projects remains in the area of public works (Road User Agreement and building permits), while the Ministry of Environment (MOE) is in charge of the newly created Renewable Energy Approval (REA) process. The REA replaces former mechanisms such as land-use planning tools, environmental assessments, and environmental approvals and permits, and was created with a guaranteed approval cycle of six months in mind².

Another strength of the *GEA* is the price add-on for community and aboriginal projects, meant to incentivize projects managed by community and First Nations groups, by helping them cover the soft costs of project development and providing job training. Two programs have been developed in that spirit: the Aboriginal Energy Partnership Program and the Community Energy Partnership Program. As a result, 16 Aboriginal contracts were awarded in the first year of the *GEA*, and over 100 First Nations workers were trained to work in the solar industry (Environmental Defence, 2010). Furthermore, Ontario is home to most community-owned renewable energy projects in North America³.

The green jobs creation mandate of the *GEA* has been noted as both a strength and an area of critique of the legislation. An important policy instrument currently used to implement that aspect of the mandate is the domestic content requirements, which stipulate that a portion of the installed renewable energy infrastructure has to be made in Ontario. The OPA uses a matrix (please see Appendix A) in which designated activity criteria, such as labour and manufacturing of different pieces of equipment, are associated with a certain number of points to determine the amount of domestic (Ontario) content in any given project. The domestic content requirements have increased to 60% on January 1, 2011 for solar projects, and the requirement for wind turbines will increase from 25% to 50% on January 1, 2012.

There are future business opportunities with these increased provisions for domestic content requirements. ClearSky Advisors (2011) have found that renewable energy businesses are aware of this prospect; in fact, according to a recent survey of 50 Ontario-based installers, “solar equipment manufacturers in Ontario will face rich market opportunities as installers are expecting to adopt a significant number of new brands in 2011”. In addition, of the 2680 MW worth of solar contracts awarded, around 2460 MW remains to be built, which presents important business opportunities. However, if contracts continue to be awarded at the current rate, the province would exceed the Long Term Energy Plan (LTEP, Government of Ontario,

² Exemptions to the REA process include microFIT solar PV and farm-based biogas operations regulated under the *Nutrient Management Act* Waterpower Facilities. There are additional requirements from the Ministry of Natural Resources, the Ministry of Tourism and Culture and Conservation Authorities.

³ The definition of “community power” varies depending on the source. For example, while the Ontario Sustainable Energy Association (OSEA, 2010) has nine criteria of “community power”, including projects being democratically controlled by members, the OPA includes projects owned by individuals under its definition.

2010) targets long before 2018, which means there may be changes in the market or share of solar energy in future energy mix. The Pembina Institute recommends that, because of the lack of urgency to develop nuclear due to a steady or declining demand for electricity, influenced by the economic downturn, it would a perfect opportunity to swap 10% of projected nuclear generation to renewable energy sources (Lilley, 2011).

The main critique of the domestic content requirements relates to supply chain issues. Some have observed that manufacturing plants are promised frequently but, in reality, few companies have shovel in ground, and that some green jobs created are akin to “maquiladoras” due to their nature as low skill jobs assembling components made overseas (Lorinc, 2011). On the other hand, some foreign companies such as Silfab, a module maker based in Italy, are considering making Ontario their North American base because of domestic content requirements (Lorinc, 2011). Canadian Solar has also just opened its first manufacturing plant on Canadian soil, employing some 500 people in Guelph (Brooks, 2011). Indeed, the government estimates that 13,000 jobs have been created in Ontario so far due to the *GEA* (New Clean Power, 2011). This is not only due to the domestic content requirements; there are also jobs created to update the electrical grid. The OPA (2011) explains the extent of this infrastructure program as follows:

Ontario is undertaking an ambitious program of expansion and renewal of the province's transmission facilities. Twenty transmission projects as well as investments into the distribution network were announced last September to ensure there is enough capability for renewable generation resulting from the FIT and the Green Energy Act. The projects represent an investment of about \$2.3 billion over the next three years, and are expected to result in about 20,000 jobs. They include core lines, which form the backbone of the transmission system, and enabler lines. Hydro One Networks is leading these transmission expansion initiatives.

It is also important to note that the third prong of the *GEA* mandate, relating to energy conservation and efficiency, is also job creating. More opportunities definitely exist in that area. As purported by Environmental Defence (2010: 9), “saving energy is a crucial ingredient in a more reliable energy grid, and saving Ontario families money”. Yet, at the time of writing, that aspect of the *GEA* has not been fully implemented, and regulations on energy conservation and demand management plans forecasted in the *GEA* legislation have not been issued yet. These will likely require public agencies to collect and publish information such as demand summaries of annual energy consumption, forecasts of expected results of current and proposed energy conservation activities and summaries of progress and achievements (Gowlings, 2009). Coupled with the Building Code review, meant to integrate energy efficiency as a key purpose for future construction, and the establishment of a Building Code Energy Advisory Council, these upcoming aspects of the *GEA* implementation hold potential for a reduction in greenhouse gas emissions (GHGe) and for job creation. There are also opportunities to strengthen that aspect of the legislation and make energy conservation standards stricter and include incentives for net zero and carbon positive buildings which generate electricity and sequester carbon.

Other opportunities exist in developing renewable energy forms other than wind and solar PV. While there has been high uptake of the FIT and microFIT programs, some critique the exclusion of some forms of renewable energy from the programs. Heating forms of renewable energy such as geothermal, co-generation and District Heating Systems are the most often discussed, because of their sustainability-enhancing and green jobs creation potential. While some incentives programs do exist for these technologies, some analysts say that further public dollars should be invested to address the skills shortage in sustainable heating in Canada (Hamilton, 2010) and others suggest that geothermal, for instance, should be incorporated in the FIT program (Gipe, 2007). Others say that the rates for small scale hydro (please refer to Appendix C for a full schedule of FIT and microFIT rates) are too low and do not adequately represent the benefits of small scale hydro in creating a distributed grid systems and allowing energy storage. There are also opportunities for more biogas, because it is “dispatchable”, which means it can be used to meet peak demand (OPPI, 2010b), and turns waste products into energy, thus contributing to closing the loop of its lifecycle and reducing the need for landfills⁴.

These opportunities occur at a time of renewed interest in the planning profession for more resilient systems, as exemplified by topics of discussion in recent planning conferences⁵ and in the planning profession at large (Lapierre-Fortin, 2011). This apparent paradigm shift is a great opportunity to challenge the status quo of a highly centralized electricity generation system reliant on an expensive and decaying array of long-distance high-voltage transmission lines and overcome the current issue of path dependency in the electrical system. It appears as though

many other jurisdictions are moving away from such inflexible and inefficient systems toward what are called “distributed” energy systems. In distributed systems, the emphasis is on meeting electricity needs in the most efficient and lowest cost manner possible. Many smaller generation sources located near centres of electricity demand are used instead of a handful of large power stations. The result is a system that wastes much less energy during generation, transmission and use, and that thereby reduces costs and polluting emissions (Gibbons, 2008: 1).

Weaknesses and Threats

One oft-cited internal weakness of the *GEA* relates to the fact that the high start-up costs of renewable energy projects are not fully addresses by existing programs. These costs include equipment and installation, inspection by Electrical Safety Authority, permits and approvals, connection costs with the Local Distribution Company (LDC), account charges and metering fees, as well as legal, insurance, tax and accounting fees (OPA, 2010b). The Ministry of Energy

⁴ There are opportunities for consumers to support natural gas from landfills through signing up for the new Green Natural Gas product from Bullfrog Power, a company which pioneered solutions in renewable energy in Canada.

⁵ The 2010 Canadian Institute of Planners Conference was called *Planning for Climate Change*, the 2011 Ontario Professional Planners Institute Conference was on local food, and the 2011 Canadian Association of Planning Students was named *Resilience: Planning for a Changing Future*.

and Infrastructure (MEI, 2011) assures Ontarians that the *GEA* will set the stage for “creating new financing tools to help consumers manage the up-front costs of small-scale renewable energy projects”. This promise has, however, not been fulfilled to date; there is limited awareness of programs such as the Accelerated Capital Cost Allowance for Clean Energy Generation program, and related provincial and federal programs such as the Ontario Solar Thermal Heating Incentive and the ecoENERGY Retrofit programs are being discontinued. This context is not facilitating technological uptake and is limiting the accessibility of the FIT and microFIT programs.

Another financial weakness relates to the widespread public perception that the *GEA* contributes to rising electricity prices. In fact, the Ontario LTEP predicts a 46% increase in the fixed price of energy over the next five years, with 56% of that increase attributable to investment in renewable energy (Ministry of Finance, 2010). Other reasons for the increase include deregulation, building and upgrading of the grid and existing facilities and the Harmonized Sales Tax, amongst others. There are indeed compounding factors explaining the rising costs, yet the public seems to draw a cause and effect relationship between the implementation of the *GEA* and rising electricity prices. This is linked to the common critique of the *GEA* that states that renewable energy is too expensive, and that the incentives provided by the FIT and microFIT programs are onerous and not justified. To illustrate that, one calculation estimates that, if one looks at the number of homes powered by renewable energy and the costs of getting these electrons onto the grid, one concludes that the bill is equivalent to a \$15,000 capital investment per home (Corcoran, 2011).

As mentioned above, the question Corcoran (2011) raises on the cost-effectiveness of renewable energy is a main area of contention with regards to the *GEA*. Some argue that renewable energy is too expensive, and some argue for full cost pricing of electricity as the best way to save money through the promotion of energy efficiency and conservation. While not seeking to draw a conclusion or pick a side of the debate, it would be important to remind readers at this stage that all energy forms are subsidized, especially at the beginning before technological change drives costs (and thus prices) down. Historically, it is not uncommon that electricity projects’ costs are passed on to tax and rate payers; for example, the Darlington Nuclear Station was \$10.3 billion over budget, and “building or refurbishing nuclear units is one of the highest cost – and riskiest – options available for meeting our electricity needs” (Gibbons, 2008). Comparatively though, it remains that when externalities and risks associated with nuclear energy (of which Ontarians are currently reminded when observing the post-tsunami crisis unfolding in Japan, with remediation costs of upwards of 400 billion dollars) are not included, nuclear power costs 4 cents a kilowatt hour, which is a lot lower than the FIT rates paid to renewable energy generators⁶. To address this critique and the added financial

⁶ One should be reminded that nuclear power is an older technology, and that new technologies are generally more expensive when they come to the market and have to compete with systems that have benefited from years of research and development and government support.

burden born by low income families, the Liberal Government has launched the Clean Energy Benefit program, which is a 10 percent hydro rate discount applied directly to electricity bills and launched by Premier McGuinty on January 1st 2011. This rebate program should save an average of \$150 per household this year, and is forecasted to cost the government more than \$1 billion a year (Benzie, 2011). Some would contend that further investment in Research and Development would be another effective way to drive the costs of technology down in the long run. All in all, at the time of writing, there remains a largely-held opinion that Ontarians cannot afford the *GEA*, at the same time of the notion that the cost of providing electricity needs to be transparent from beginning to end, and reflect its true cost.

At a broader policy level, there is a perception by some environmental groups that *GEA* is covering up contentious issues in Ontario's Long Term Energy Plan (LTEP), namely by addressing pollution concerns with coal but also expanding reliance on nuclear energy, which is vehemently critiqued by organisations such as the Ontario Clean Air Alliance Research Inc (OCAAR) and Greenpeace. Phasing out coal through decommissioning coal plants, a complicated process which has been pushed back from 2007 to 2010, and then to 2014 (Lorinc, 2011), remains a high priority in the LTEP as well as one major strategy to reach the climate change targets introduced by the province in the 2007 Climate Change Action Plan. However, Peter Tabuns, energy critic for the New Democratic Party of Ontario, says that "the Liberals' renewable energy policies are a "sideshow" for an energy policy that relies heavily on nuclear power (the LTEP shows Ontario will get about 13 per cent of its energy in 2030 from wind, solar and biomass, and 46 per cent from nuclear)" (Spears, 2011). Nuclear power, while GHGe free, remains a hard sell environmentally, socially and economically.

Other hot issues relating to the *GEA* are related to uncertainty and policy reversals. In fact, ClearSky Advisors (2011) have released a report stating that the three foremost concerns held by Ontario solar photovoltaic (PV) businesses are "continual changes and delays in Ontario's FIT program, a FIT program review scheduled for 2011 and a provincial election slated for the fall of 2011".

This points to different types of uncertainty on the politics and economics side; to these are added uncertainty related to taxation (the Municipal Property Assessment Corporation and the Ministry of Finance have yet to cement rules on taxation for renewable energy projects, which results in uncertainty for transactions related to farm succession, amongst others) and insurance (there is considerable questioning around how insurance companies should handle liability for renewable energy projects located on public land, for example (White, pers. comm., 19/11/10)). This is compounded by the World Trade Organisation (WTO) challenge posed to Canada by Japan, which argues that Liberals have erected trade barriers through their domestic content requirements (Lorinc, 2011). If successful, this challenge could pose serious threats to the future of the *GEA* and to renewable energy more broadly. As such, Ontario ought to consider alternative ways to promote renewable energy and green jobs without relying on

domestic content requirements; for example, Germany entices equipment industry with substantial grants in high-unemployment areas (Lorinc, 2011)⁷.

A lack of knowledge and experience with renewable energy within the OPA has been identified by many as a weakness of the *GEA* implementation in Ontario. As a new policy, the *GEA* is not always supported with the kinds of structures that were developed throughout the years in Denmark and Germany. Lipp (pers. comm., 15/12/10) confirms this impression from the ground, and justifies the need for capacity building at the OPA level:

every week or couple weeks there's something that comes up that hasn't been thought through by the implementation agencies we're dealing with and that impedes our efforts. We [at TREC Toronto Renewable Energy Cooperative] spend a lot of time, as do other developers, grappling with the rules, rule changes and bottlenecks in the system. This has a huge impact on our resources, which are limited and very modest to begin with.

As a result, ClearSky Advisors (2011) suggest that “all of this uncertainty has combined to make Ontario a challenging market in which to operate”, that “long-term planning is “exceedingly difficult” for any business participating in Ontario’s FIT program” and that “a number of manufacturers have delayed investment in the province either by entering the market cautiously and waiting for more stability before expanding or by avoiding the market altogether”. They remind us that “uncertainty means risk, [and this] has made project financing more expensive and harder to come by”. John Keating, chairman of Alberta-based startup BluEarth Renewables Inc, comments on the political context by stating that “anything can shake investor confidence, and there is really nothing worse than a government policy reversal” (ClearSky Advisors, 2011).

In addition to negatively impacting investment, policy reversals such as the lowering of the FIT rate for solar projects and the unexpected moratorium placed on offshore wind, which will be delaying projects and modifying contracts, contribute to fuelling a perception of unfairness amongst renewable energy businesses. On the offshore wind question, the moratorium is explained by the lack of scientific data on the effects of offshore turbines on fresh water (Hendry, 2011). However, some say it’s a political move (Hamilton, 2011a), similar to the move of rebranding and changing the word choice from “Green” to “Clean” in the Clean Energy Benefit Program. In response to the Offshore Exclusion Zone, a previous proposal by the government to control offshore wind, the Green Energy Act Alliance⁸ (2010) had written to the Ministry of Environment to suggest that an offshore wind exclusion zone was not an

⁷ On the topic of policy, it is important to be mindful that, in the context of an international high growth market characterized intense competition; other jurisdictions are now rivalling Ontario within North-America in encouraging renewable energy.

⁸ Founding members of the GEA Alliance include the OSEA, the Community Power Fund, the David Suzuki foundation, Environmental Defence, the First Nations Energy Alliance, the Ivey Foundation, the Ontario Federation of Agriculture and the Pembina Institute.

appropriate policy because of its “one-size fits all” approach, which prevents viable and safe projects from being built while not addressing important environmental and social concerns. The same critique can be drawn to the moratorium on offshore wind.

Another new development in the *GEA* implementation that has resulted in a high level of frustration is with regards to grid capacity for small-scale solar projects. The OPA issued a change to the rule and process of applying for a microFIT project in February 2010. Prior to the change, one would apply to the microFIT program, then discuss with their LDC about grid capacity and then, if it was found lacking, an Economic Connection Test would assess the viability of grid expansion. Now, one needs to obtain an Offer to Connect from the LDC before the OPA issues a microFIT Conditional Offer of Contract, which in effect creates a new zone with transmission constraints, not dissimilar to the “Orange Zone” for wind projects⁹. It is not so much the change in process that is contentious, it is the fact that 1000 out of 20,000 farmers were told, after having been granted a contract that their projects could not connect to the grid. For these 1000 farmers, “that meant being stuck with an essentially inoperable solar system that the government encouraged them to set up at a cost of as much as \$95,000 [and being] unable to get any return on an investment that was supposed to generate between \$10,000 and \$14,000 a year” (McCabe, 2011). This change and the recent surge of refusals have caught many people by surprise, and there are concerns that the issue of grid capacity for solar PV did not come up earlier in the implementation process. Some analysts explain the situation by suggesting that OPA employees got overwhelmed and were themselves surprised by the extent of the interest and uptake of the FIT and microFIT program. The OPA (2011) illustrates the enthusiasm for the FIT program with the following numbers: “the OPA has estimated that there is approximately 2,500 MW of available transmission connection capacity. As of December 1, 2009 the Ontario Power Authority received 1,022 FIT applications with about 8,000 MW of potential electricity generation”.

Other interesting numbers relate to the intensifying rural/urban divide on the question of the *GEA*. While some say that the microFIT program has resulted in rural rejuvenation because 48% of microFIT applicants are rural (Environmental Defence, 2010), others may contend that the policy is Toronto-centric and the jobs are going to the city. To illustrate this divide, one will notice that there are 53 chapters of Wind Concerns Ontario, a coalition of anti-wind advocates, in areas with a population under 400,000, compared to 4 in areas over 400,000 (Wind Concerns Ontario, 2011). Another aspect of that geographical debate is a Northern/Southern Ontario divide. It appears as though rising electricity prices could be a deal breaker for mining companies considering investing in the mineral-rich Ring of Fire region of Northern Ontario (Solomon, 2011). This could result in the policy being more beneficial to Southern Ontario.

⁹ An Orange Zone is a zone in which only micro projects (≤ 10 kW) and farm-based bio-energy generation (≤ 250 kW) are accepted (OPA, 2008). Approximately 1200-1500 MW of additional transmission capacity should be delivered by 2013 though the Bruce-Milton transmission project (OPPI, 2010: 22).

These two types of geographical divide contribute to what may be the biggest threat to the implementation of the *GEA*, which is political by nature. Tim Hudak, Ontario Progressive Conservative leader, has made it very clear that he would make significant changes to the FIT program if he was elected, which may jeopardize the embedded character of the *GEA* within the LTEP. Furthermore, by design, the *GEA* has broadened Ministerial decision-making powers, which will further expose decisions to political pressures” (Canadian Institute for Environmental Law and Policy (CIELAP), 2009: 3). In a political context characterised by a recent economic downturn and the absence of policies on climate change and rising oil prices at the federal level, it is reasonable to expect more changes to come to the *GEA* following the October 2011 election.

IV. Interview Findings

This section seeks to represent findings from key informant interviews and highlight the strengths and weaknesses identified by interviewees, as well as some suggestions they phrased for improving the implementation of the *GEA*.

Strengths

Interviewees thought the FIT rate was very encouraging for solar, it has generated a lot of enthusiasm and enabled participation. The *GEA* itself was a good public relations move for the Ontario government, and created thousands of new jobs in Ontario due to domestic content requirements. There was consensus that the *GEA* gave a needed push to renewable energy; a farmer who had a net metering turbine and solar panels on her farm added that it represented an improvement over the Renewable Energy Standard Offer Program (RESOP) in terms of process, it diminished barriers to entry and made renewable energy production more accessible. When asked about adding biogas on her farm, she said that the extent of the capital and time investment for such a project acted as a disincentive.

Municipalities saw benefits from having choices between entering the field of renewable energy production through ownership, lease or a joint venture with a private partner. One municipal treasurer said that the *GEA* had increased their awareness of energy conservation and technology, and that working with the OPA on ownership of solar panels was smooth. He added that the economics are attractive for renewable energy and conservation. One utility manager from a municipality that has applied to the Ontario Small WaterWorks Assistance Program to retrofit its waste treatment plant with a biogas facility agreed and said that such municipal biodigesters projects would not be feasible without the FIT program.

Weaknesses

Interviewees frequently mentioned the onerous paperwork and bureaucracy associated with the FIT program as a barrier to their work. One solar installer pointed to delays of upwards of

3-6 months in getting projects connected, and to clashes and fights between the OPA and Hydro One on capacity issues.

Two interviewees pointed to the volatility of the *GEA*, exemplified by rules change and threats of review, as a public relations problem. They added that communications around rising electricity prices have not been clear enough; one person questioned whether people were ready to foot that bill. Solar installers were upset when the price for solar went down in July 2010. On the other hand, a small wind turbines manufacturing company owner thought the policy had a pro-solar bias and pointed to the high rate of failure in renewable energy businesses, and added that at the moment one would be losing money on a 20 year contract for small wind.

The issues of grid capacity came up when discussing weaknesses of the *GEA* implementation. One farmer described a high level of frustration amongst his neighbours in the face of the recent stall on small-scale solar hook-ups. These created important and sometimes devastating cash flow issues. This anger was compounded by perceptions that larger projects, of which 44 were announced in late February, took over grid capacity. The Samsung agreement was mentioned not only as monopolizing grid capacity, but as making less government financing available for everyone else. Government financing such as matching grant programs for municipalities has been mentioned as helpful by the mayor of a municipality that just implemented a biogas project.

On the topic of domestic content requirements, there were some concerns that there was not enough manufacturing capacity in place to meet the new requirements for solar. Local businesses are not as price-competitive as foreign companies on some technologies, which poses financial problems to solar installers.

A representative from an anti-wind group pointed to the Toronto-centric nature of the *GEA*, which he accused of eroding democracy through being exempted from the *Planning Act*. He added that wind turbines were not environmentally benign (they are backed up by natural gas), and that a study in Spain has found that for each job created, 2.2 jobs are lost because of rising electricity prices¹⁰.

To expand on the controversy around wind turbines, it was found that the reciprocal set-back of 500 meters was contested. One county planner explained that most people did not understand where that figure came from, and that there was a lack of transparency and no consultation of planners in coming up with that figure. The issue of set-backs is closely linked

¹⁰ The study in question is Alvarez (2009). Another study from Scotland stipulates that four jobs are lost for every renewable energy job created (Marsh and Miers, 2011). There are critiques to both these studies and how these numbers were calculated. A Canadian study finds that Canada's governments could create more jobs by implementing strong climate policies (Demerse, 2011).

with the hot debate on the health effects of wind turbines¹¹. Another area of controversy over wind turbines is related to the lack of regulation of agreements between farmers and wind companies. There are non-disclosure agreements around leases, and one farmers said it's pitting neighbour against neighbour.

There are other concerns related to process. One net-metering turbine owner mentioned that transitioning to the FIT program would cost upwards of \$11,000, which is not worth it. Also, one local politician noted that the province did not consult with municipalities regarding the *GEA* and this would have been helpful. This points to the issue of public participation and voice. In a report based on key informant interviews with fifteen stakeholders of a wind project development near Kincardine, Eckert, Heintzman, Joose, Kovach, Lapierre-Fortin and Medeiros (2010) discovered public participation to be a major issue fuelling opposition to wind turbines often around concerns of health, noise and aesthetics. People have limited power to appeal decisions, which rests with Environmental Review Tribunal. Parties have 15 days from the date of a decision to file an appeal, and they must prove that the project will be devastating to human health or the environment. The exemption from the *Planning Act* was also a concern for one municipality, who felt their power was taken away.

Other weaknesses that were mentioned include a lack of community ownership of projects, the fact that farmers can't get carbon credits anymore for biogas and uncertainty over land taxes for farms.

Lessons learnt and suggestions for improvement

Interviewees made a number of suggestions concerning how the *GEA* implementation could be improved. They included:

- Increase the number of staff working on electrical connections
- Make long-term low interest loans available to renewable energy companies
- Make the goal of distributed energy production a priority
- Identify zones where grid capacity needs to be enhanced earlier on in the implementation process
- Give people financial incentives to get off grid, which would address some inefficiencies in transmitting electricity over long distances
- Set aside grid capacity for small and large projects
- Fix expectations issue; have a lottery system or set a cap on the number of MW allowed but avoid changing the rules too frequently
- Learn more about managing electricity demand
- Incorporate more discussion and planning with stakeholders
- Increase the rate for small wind to 42-60 cent/kWh
- Allow businesses to participate in projects 10 kW or less

¹¹ Anti-turbines groups demanding Third Party Health study; although Ontario's Chief Medical Officer of Health, Dr. Arlene King, states that there are no direct pathological effects from wind farms (Gee, 2011)

- Encourage manufacturing more systematically, in a similar way to the *Auto Pact*; distributed renewable energy technologies such as small wind can create a lot of manufacturing jobs
- Provide incentives for businesses who are pioneers/early adopters of new renewable technologies
- Look at the total cost of electricity and technologies; higher electricity rates are needed to keep the demand lower and encourage conservation
- Making home energy evaluations and labelling common practice to improve on the energy conservation front

V. Recommendations

In summary, this research suggests there is widespread agreement between the media and key informants on the main strengths, weaknesses, opportunities and threats of the *GEA* implementation. However, data from the field is useful in pinpointing implementation details that may not have otherwise made it to the attention of policymakers. This paper will now close with a few recommendations for the future. Please note that these represent the views of the author, not those of the Midwestern Ontario Regional Green Jobs Strategy, the University of Guelph or MITACS.

This paper highlighted the need for a heightened sense of ownership in relation to the *GEA*. This should include an increased focus on facilitating community-owned renewable energy projects. In a literature review exploring the impacts and benefits of community energy, Amyot and Lapierre-Fortin (2011) established that community power has a greater economic multiplier and job creation potential, that is was helpful in promoting democratic participation, overcoming NIMBY-ism (Not in my back yard), increasing acceptance and energy security and decreasing the need for new transmission capacity. As a result, the *GEA* should encourage them more actively.

Different and innovative models should be considered in thinking of community ownership. It is reasonable to consider compensating farmers and residents based on proximity to a wind turbine, for instance, or developing a more context-specific approach to setbacks. Models of inter-municipal cooperation such as the Régie Intermunicipale de l'Énergie de la Gaspésie et des Îles-de-la-Madeleine and other models for sharing benefits between municipalities are worth considering to spread benefits from community renewable energy more widely.

With regards to public participation, the author echoes recommendations from the Ontario Federation of Agriculture that future programs undergo rigorous feasibility studies and effective consultation processes to avoid unintended consequences and road blocks (McCabe, 2011). This is also in line with the thinking of Robert Hornung, president of the Canadian Wind Energy Association, who says “there are three things we need to do. The first is more effectively engage communities, more effectively engage municipal leaders, and working toward making sure discussions at the community level are full, frank and well informed” (Spears, 2011).

In addition to a need for more community ownership and public participation, there is a need for capacity building at all levels of the provincial and municipal governments as well as at the level of renewable energy companies to ensure the three-pronged mandate of the *GEA* is enacted in practice. A Business Retention and Expansion (BR&E) exercise focusing on green jobs is in order, and so is employing a technical person as an "extension agent" to act as an information broker for municipalities and renewable energy companies.

There is also a need for the establishment of a neutral conflict resolution body to facilitate dialog between renewable energy stakeholders. This is no easy task, yet it is necessary to avoid the political hurdles currently at play.

Several areas for further research emerge from this research. There is a need for more thorough policy analysis to be undertaken. It ought to involve stakeholders more broadly in the policy problem definition stage, especially around the more controversial aspects of the *GEA*. Policy analysis should be undertaken by a neutral third party and include a detailed logic flow chart of *GEA* with control points to identify where the problems lay, and include an exhaustive design of alternatives addressing weaknesses in *GEA* implementation and using scenario development, if appropriate, to better understand the consequences of policy options. Neither of these pieces of analysis was available at the time of writing.

A discussion paper looking at comparative experience of other jurisdictions with a focus on policy implementation of FIT programs would be most helpful to enhance the renewable energy implementation research literature. Lipp (2008) reckons that countries like Germany have complex policies and implementation strategies to support renewable energy development, and that Canada could well learn from them. For example, Germany has established a low-interest loan fund to ensure accessibility of renewable energy production (Gipe, 2007), and has integrated a built-in annual tariff reduction to encourage innovation and research and development to lower the costs of renewable energy. Such a discussion paper should incorporate perspectives from all electricity stakeholders, including the OPA and the REFO, LDCs, electricity transmitters, etc.

Finally, a third party, independent policy evaluation should be conducted looking at cost-benefit, cost-effectiveness, broader effectiveness, efficiency, equity, legality, functionality, acceptability, robustness, flexibility and clarity. Other criteria specific to renewable energy programs, such as those suggested by Sawin (2006), Gipe (2007) and Lipp (2008) are listed in Appendix D.

In closing, it is imperative that Ontario continues to enact an energy transition management process and, in so doing, avoids the pitfalls of incrementalism. A lot more could be done to reduce GHGe and create green jobs, and to increase community resilience to climate change and rising oil prices. One should not be afraid to dream big. In fact, according to Eric Shapiro, Markham Councillor, the "energy system of tomorrow" is a "system that could enable the realization of a 100 per cent renewable future, will consist of a partially distributed,

decentralized energy system with embedded energy storage, demand side management, and modern communications technologies” (Fraser, 2009). He adds that “the benefits of sustainable energy outweigh any deficiencies which can be overcome by taking a system approach: using storage, complementary systems, smart technologies and above all conserving as much energy as possible” (Fraser, 2009). Such a focus on smaller, decentralized and distributed systems will be necessary moving forwards.

There are substantial opportunities to expand the scope of the *GEA*, for example by including co-generation and geothermal and further encouraging microhydro and small wind. This ought to be coupled with increased efforts in establishing a smart grid system, strengthening the energy conservation mandate and investing in innovative storage solutions. Municipalities and communities, however, should not wait for initiatives to come from the provincial government; they can channel their leadership in developing their own community energy plans and providing their own incentives for renewable energy development.

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VII. Appendices

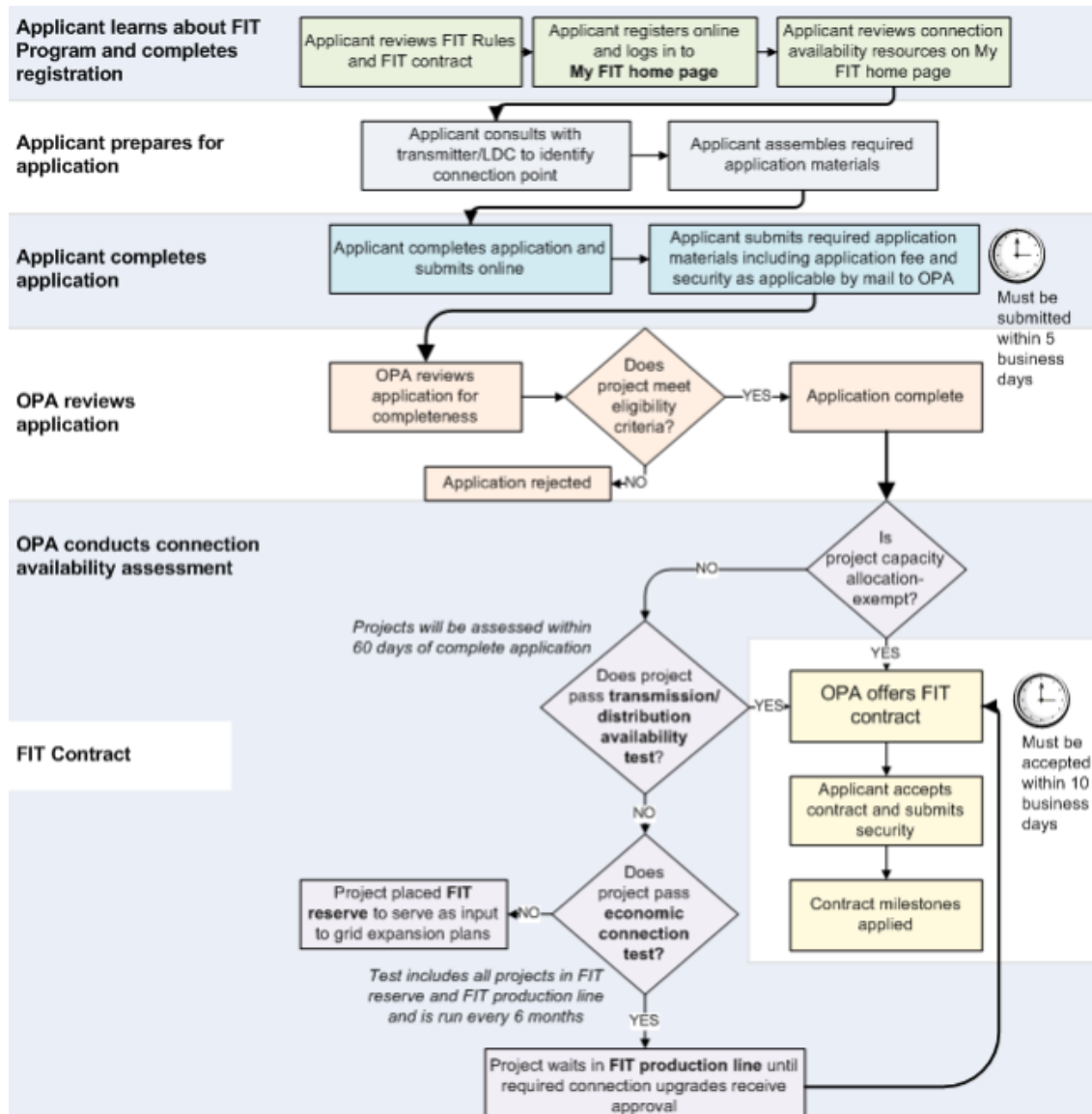
Appendix A: Matrix of Domestic Content Requirements

The table below outlines the components or “designated activities” that will contribute to meeting the domestic content requirements.

Designated Activity	Does your project meet the criteria?	Qualifying Percentage
1. Silicon that has been used as input to solar photovoltaic cells manufactured in an Ontario refinery.	<input type="checkbox"/>	10
2. Silicon ingots and wafer, where silicon ingots have been cast in Ontario and wafers have been cut from the casting by a saw in Ontario.	<input type="checkbox"/>	12
3. The crystalline silicon solar photovoltaic cells, where their active photovoltaic layer(s) have been formed in Ontario.	<input type="checkbox"/>	10
4. Solar photovoltaic modules (i.e., panels), where the electrical connections between the solar cells have been made in Ontario, and the solar photovoltaic module materials have been encapsulated in Ontario	<input type="checkbox"/>	13
5. Inverter, where the assembly, final wiring and testing has been done in Ontario.	<input type="checkbox"/>	9
6. Mounting systems, where the structural components of the fixed or moving mounting systems, have been entirely machined or formed or cast in Ontario. The metal for the structural components may not have been pre-machined outside Ontario other than peeling/roughing of the part for quality control purposes when it left the smelter or forge. The machining and assembly of the mounting system must entirely take place in Ontario (i.e. bending, welding, piercing, and bolting).	<input type="checkbox"/>	9
7. Wiring and electrical hardware that is not part of other designated activities (i.e., items 1 to 6 and 8 of this table), sourced from an Ontario supplier.	<input type="checkbox"/>	10
8. All on- and off- site labour and services. For greater certainty, this designated activity shall apply for all contract facilities.	<input type="checkbox"/>	27
Total		100

Source: OPA (2010b)

Appendix B: FIT Program Flow Chart



Source: OPA (2011b)

Appendix C: FIT and microFIT rates

Feed-In Tariff Prices for Renewable Energy Projects in Ontario August 13, 2010			
Renewable Fuel	Size tranches	Contract Price ¢/kWh	Escalation Percentage ⁵
Biomass^{1,2}			
	≤ 10 MW	13.8	20%
	> 10 MW	13.0	20%
Biogas^{1,2}			
On-Farm	≤ 100 kW	19.5	20%
On-Farm	> 100 kW ≤ 250 kW	18.5	20%
Biogas	≤ 500 kW	16.0	20%
Biogas	>500 kW ≤ 10 MW	14.7	20%
Biogas	> 10 MW	10.4	20%
Waterpower^{1,2,3}			
	≤ 10 MW	13.1	20%
	> 10 MW ≤ 50 MW	12.2	20%
Landfill gas^{1,2}			
	≤ 10MW	11.1	20%
	> 10 MW	10.3	20%
Solar PV			
Rooftop	≤10 kW	80.2	0%
Rooftop	> 10 ≤ 250 kW	71.3	0%
Rooftop	> 250 ≤ 500 kW	63.5	0%
Rooftop	> 500 kW	53.9	0%
Ground Mounted	≤ 10 kW	64.2	0%
Ground Mounted ^{2,4}	> 10 kW ≤ 10 MW	44.3	0%
Wind²			
Onshore	Any size	13.5	20%
Offshore	Any size	19.0	20%

Source: OPA (2011a).

Appendix D: Criteria to Consider in Policy Evaluation

Sawin (2006)

Worldwatch Institute’s Janet Sawin, an authority on national policy instruments for developing renewable energy, advises that any support mechanism must be:

- Predictable, long-term, and consistent, with clear government intent. These characteristics are critical to providing certainty in the market, to drawing investors into the industry, and to providing enough lead-time to allow industries and markets to adjust to change.
- Appropriate. The right types of support are needed—policies must match objectives and might vary by resource potentials, location, technology type, and timing. It is also important that the level of support not be too high or too low.
- Flexible. It is essential to design policies such that adjustments (fine-tuning, but not wholesale changes or elimination of policies) can be made on a regular, pre-determined time

schedule if circumstances change. Governments must be able to address existing barriers as they become apparent and new barriers as they arise. Policies also must be designed to allow developers/generators flexibility for meeting government mandates.

- Credible and enforceable. If policies are not credible, or are not enforceable (or enforced), there will be little incentive to abide by them.
- Clear and Simple. Policies must be easy to implement, understand, and comply with. Procedures of permission and administration, where necessary, must be as clear and simple as possible.
- Transparent. Transparency is important for suppliers and consumers of energy and is necessary to avoid abuse. It facilitates enforcement, maximises confidence in policies, and helps ensure that mechanisms are open and fair.

Gipe (2007a)

In a review of Ontario's RESOP, Gipe (2007a) notes the following criteria that successful Advanced Renewable Tariff programs share:

- Be simple, comprehensible, and transparent,
- Provide simplified interconnection,
- Provide sufficient price per kilowatt-hour to drive development,
- Provide contract length sufficient to reward investment, and
- Provide tariffs differentiated by technology, size, and resource intensity.

Lipp, 2008

In her PhD dissertation, which examines jurisdictional constraints in renewable energy policy in Canada while drawing lessons from Denmark, Germany and the United Kingdom, Lipp (2008) makes a number of recommendations worth pondering in relation to the *GEA* moving forwards:

To provide direction for Canada as a whole, the thesis concludes with nine overarching principles to help guide renewable electricity policy (and renewable energy more broadly) in this country. These principles should form the basis of a comprehensive renewable energy policy framework developed at the provincial and national levels. These include: clear goals and targets, the prioritisation of renewable energy; a holistic approach to energy planning across all applications; joined-up governance to facilitate and encourage cross-sectoral synergies; diversity in source, scale, and siting of renewable energy applications; diversity in participation; acknowledging and accounting for the full costs and benefits of all energy options in decision-making; reflecting full costs in energy prices; and fostering innovation and human resource development.