



***Southwestern Ontario
Marketing Alliance –
Renewable Energy and
Energy Conservation
Marketing Strategy***

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1. Introduction

Ontario is challenged like never before on what has historically been one of its most strategic competitive advantages – economical, flexible and reliable access to energy - Ontario risks losing this advantage unless steps are taken to engage business, government and communities in finding short and long term solutions.

Economic development has historically been driven by two things – reliable energy and advantageous transportation routes. And, in many regards, advantageous transportation routes are really a proxy for avoided energy. Access to a highway does not ensure success, as the mode of transportation and its fuel also has to be affordable. This is why the grist mill located along a river, as it was a source of energy that was typically found next to a transportation route. The nexus of energy supply and transportation access is a prerequisite for economic development.

In order to cope with job losses and attract new business, municipalities, provincial and federal governments have recently increased efforts to attract and retain investments in the renewable energy sector, and to a lesser extent, in the energy conservation sector. Their goal is not only to attract new investment and create jobs, but to also lay the foundation for a low-carbon energy future, where reliable and affordable energy from renewable sources is produced close to where it is used.

The economic opportunities for the Southern Ontario Marketing Alliance (SOMA) region are extensive: community investments, job creation, improved air quality and energy security. The opportunities created through the renewable energy and energy conservation sectors are broad: manufacturing opportunities from the production and assembly of renewable energy and energy conservation products; reduced energy costs for local companies that implement energy conservation measures; new revenues and business opportunities from local renewable energy installations; and energy security as a result of locally sourced and affordable power that can insulate a community from global energy shocks.

An economic development strategy that looks to attract renewable energy and energy conservation investments needs to consider all of these economic opportunities and bundle them together in order to ensure SOMA's strategic long-term competitive advantage in a carbon constrained economy.

2. Background

The SOMA region is comprised of the communities of Alymer, Ingersoll, St. Marys, St. Thomas, Stratford, Tillsonburg and Woodstock. The group aims to attract business to the region includes amongst its targets:

- Automotive – focusing on automotive, truck and aerospace assembly and parts industries.
- Machining and Tooling – referring to equipment manufactured for use by other industries in the making of parts and products, or provision of services.
- Plastics – focusing on raw materials, products and the tools used in the production process.
- Food Processing – from the initial growing of products through the value chain of production and sale.

The purpose of SOMA is to develop effective and efficient investment attraction efforts for the partners and to respond to the competing forces in order to win new investment for the area. The region trumpets a number of its advantages, including:

- Location in automotive cluster with focus on recent Japanese investments
- Proximity to major transportation routes
- Proven and productive workforce
- Supplier and customer proximity
- Business opportunity ‘atmosphere’ created by cluster of industrial firms
- Comprehensive education and training system
- Good infrastructure and municipal services

The SOMA region has also become the preferred destination for Asian auto companies seeking to invest and has become the third largest automotive cluster in Canada. The regional economy is heavily dependent on the automotive sector and its exports to the United States heavily reflect this reality.

Broadly, the exports of the entire Province of Ontario to the United States focus on four major markets, including: Michigan (29 per cent); New York (7.9 per cent); Ohio (5.6 per cent); and, California (11 per cent)¹. Interestingly, for the entire south-western Ontario economy, 71 per cent of the trade takes place within the region and the GTA.

Key Deliverables & Methodology

SOMA seeks the development of the Renewable Energy and Energy Conservation Marketing Strategy to help it realize the following deliverables:

- Identify key advantages, with supporting data, for establishing renewable and energy conservation business in Canada, Ontario and the SOMA region;
- Identify strategies that SOMA should consider in order to market the region as a location for this sector, including marketing activities, policy directions and, business retention and expansion initiatives; and,

¹ Industry Canada: Trade Database Online (TDO) <http://www.ic.gc.ca/epic/site/tdo-dcd.nsf/en/Home>

- Document existing renewable and energy conservation businesses in the SOMA region.

To complete these deliverables, this study has undertaken a number of activities, including:

- Engaged renewable energy and energy conservation leaders;
- Engaged local and provincial governments;
- Reviewed relevant legislation and policies;
- Reviewed the SOMA region's economic development strategies and business directory; and,
- Reviewed the marketing strategies of other economic development regions.

The findings of this study provide a foundation for the SOMA region to increase market differentiation in its marketing efforts to retain and attract investments in the renewable energy and energy conservation sectors, with the overall goal of ensuring the region's long-term economic viability.

3. Renewable Energy and Energy Conservation Drivers

The Integrated Marketing Strategy Review completed for SOMA in 2006 highlighted a number of challenges for the manufacturing sector that could potentially serve as a barrier for investment attraction efforts, including:

- Rise in oil prices could slow growth internationally;
- Highly indebted households, especially in the United States (US) could reduce consumer spending;
- The US current account deficit could depreciate the American dollar; and,
- Manufacturing could continue to decline from its 15 per cent composition of the North American economy.

In all of these cases, these challenges have come to bear and, in most cases, have been more severe than many expected because of the fact they occurred simultaneously, compounding the negative impact. This has created a new reality for the SOMA region, the province and the North American economy as a whole, necessitating a push to attract and retain investments in new green economy technologies that can help the region build a diverse and resilient economy for years to come. Beyond these general drivers, there are a number of other key leverage points that are pushing investment in renewable energy and energy conservation, including:

- Province of Ontario's *Green Energy and Economy Act*;
- North American Climate Change regulations;
- Higher oil and energy costs; and a
- Growing green building movement.

The elephant in the room for all of these elements is energy costs. While oil and energy costs have recently seen a dip in prices due to the recession, prices are on an upward trend. Electricity prices for residential consumers in Canada increased by 48 per cent between 1990 and 2005 according to the National Energy Board of Canada, and are expected to continue to grow by another 50 per cent between 2005 and 2025 as the demand for electricity in Canada grows by 36 per cent. Over the same period, 15 per cent of the current energy generating capacity is slated for retirement². This rise in energy costs will also be impacted by new climate change regulations that increase the costs of carbon emitting energy sources. The green building movement and the move towards renewable energy and energy conservation initiatives are in direct response to these higher energy costs. .

However, higher energy costs provide an interesting opportunity. Former Chief Economist with CIBC, Jeff Rubin, has estimated that at \$150 per barrel of oil, Asian economies lose their competitive advantage in wages due to increased transportation costs. Mr. Rubin foresees a re-regionalization of economies due to energy costs³. Those regions that respond quickly by embracing energy security and developing the infrastructure to produce and assemble low-carbon energy products, will be best placed to succeed in a high-cost, carbon constrained energy future.

² <http://www.neb-one.gc.ca/clf-nsj/rnrgynfmrn/nrgyrprt/spplydmnd/spplynddmndt20251999/spplydmnd1999-eng.pdf>

³ Jeff Rubin, *Your World is About to get a Whole Lot Smaller* (2009)

While the short-term cost of deploying renewable energy may be higher in some cases, the benefit of having a mix of renewable energy generation in a given region is the stabilizing effect on long-term electricity prices, because once a renewable source is in operation, the cost of generating power remains unchanged over the life of the project. Thus, regions with a great deal of renewable generation can use this as a hedge against future energy costs, insulating their communities and industries from higher energy costs in the future.

From a manufacturer's perspective, the opportunity to develop renewable energy from inputs and by-products presents a cost of production advantage. This insight is made clear when a "mass balance" approach to manufacturing inputs and outputs is undertaken. A typical manufacturer uses only a portion of inputs the rest is wasted as heat, wastewater, emissions and various forms of solid waste. Primary industries like mining, forestry, agriculture and food processing all have very high ratios of inputs to waste generation. Many of these current wastes are also building blocks for renewable energy chains. Interestingly, the capture of these wastes may also provide these same industries a significant cost advantage for their primary products. Simply put, a cement manufacturer that can use its stack emissions as a feedstock for algae production could also transfer 50 per cent of the value of their raw input (limestone is calcium carbonate and about 50 per cent carbon) to the input cost of algae, and cut the raw material cost of limestone in half. This cost savings of about \$50/tonne represents a significant cost of production advantage that offshore cement manufacturers cannot compete against. Further benefits to the same manufacturer include a 100 per cent reduction in smokestack emissions and the establishment of further value-added products like bio-diesel and high protein feeds worth as much as eight times the value of the input.

For a detailed review of the elements driving new economic development opportunities view *Appendix 1 – Drivers for Investment in the Renewable Energy and Energy Conservation Sectors*.

Risks to Development

There are many drivers for the development of a renewable energy and energy conservation industry in the Province of Ontario; however, there are a number of risks that must be highlighted that could threaten or stunt the industry, including:

- Energy Market Uncertainty – while there is no doubt there is support within the current government for the *Green Energy Act*, the Province of Ontario has a track record of shifting its regulatory regime in response to political pressures. Starting with the shift to and away from a market-based energy system in the late-1990s to the abandonment of the Renewable Energy Standard Offer Program in pursuit of the feed-in-tariff as part of the *Green Energy Act*. This is a track record that leaves investors hesitant, especially given the long-term investment horizon of the energy sector.
- Ontario-based Content Requirements – the requirements for 60 per cent Ontario-based content provides a number of hurdles for the market to overcome, given that there is limited module manufacturing of investment grade that can meet the 2010. Other provinces and larger neighbouring states may develop the same requirements, thereby limiting the development of the entire renewable energy industry. These content requirements also create a number of concerns, especially around the development of photovoltaic.
- Ontario transmission capacity – currently the SOMA region is within an area that is a net-energy exporter to the Greater Toronto Area and faces limited transmission capacity. The limited

transmission capacity and the lead times required to upgrade capacity, mean that the market could be absorbed quickly.

These risks are not insurmountable, but SOMA partners should be aware of these issues in their marketing efforts.

4. Jurisdictional Competition

Coping with job loss and encouraging and seeking to attract new businesses, municipalities, provincial and state, as well as federal governments have recently increased incentives to attract and retain investments in the renewable energy sector, and to a lesser extent, in the energy conservation sector.

United States of America

A recent analysis of state programs revealed 19 states that had a total of 26 programs specific to attracting renewable energy companies. Tax credits against corporate income and property levies are the most popular programs, but there are tax exemptions, abatements, and reductions as well. Several states offer grants and loans (including loan guarantees), and the state of Kansas is offering bond financing for solar or wind manufacturing projects. The following are some examples of programs being offered by neighbouring states:

Michigan — three programs through the Michigan Economic Development Corporation specifically targeted to renewable companies:

- Non-refundable Business Activity Tax Credit program for manufacturing and research and development certified activities;
- Refundable Payroll Tax Credit program for manufacturing and research and development certified activities with portion of the credit exceeding liability refunded; and,
- Renewable Energy Renaissance Zones — tax abatement of many levels of Michigan state and local taxes for R&D and manufacturing when locating in one of the 15 designated zones.

Pennsylvania — three programs through the Department of Community and Economic Development:

- Alternative and Clean Energy Program offers grants, loans and loan guarantees for facilities that manufacture alternative energy products and components;
- Solar Energy Incentives Program offers grants, loans, and loan guarantees for facilities that manufacture or assemble solar panels, equipment, and technology; and,
- Wind and Geothermal Incentives Program offers grants, loans, and loan guarantees for facilities that manufacture wind turbines and components.

New York — two programs through New York State Energy Research and Development Authority:

- Renewable, Clean Energy, and Energy Efficient Product Manufacturing Incentive Program provides grants for manufacturers to develop or expand facilities producing eligible products. Programs run through 2011; and,
- Clean Energy Business Growth and Development has grants for expanding or relocating businesses with operations meeting state's clean energy definition. Five rounds are offered through 2010.

Not all states have specific programs targeted toward renewable companies, but they may lever existing programs that can benefit the renewable industry. California is one example. The state's policy target of reducing greenhouse gas emissions by 30 per cent by year 2020 is one of the first in the US and will

help them attract renewable energy firms. The aim is to implement a cap-and-trade system in the region as part of the Western Climate Initiative, which includes several other western states and four Canadian provinces, including Ontario. In addition to these general policy goals, the state also has specific supports to build the industry, including incentives, system installation and user rebates, feed-in tariffs, and property tax abatements. In addition, many local California governments and utilities have subsidy programs for their areas and customers.

These initiatives are also boosted by billions of dollars in federal stimulus dollars provided by the federal government in the US targeted at both renewable energy and energy conservation investments. President Obama's stimulus dollars for green energy total \$112 billion (or \$369 per capita) compared to Canada's \$2.6 billion (or \$78 per capita). These measures will no doubt receive further increases in funding as the United States adopts a climate change legislation aimed at reducing greenhouse gas emissions and promoting energy security. While these investments may look like insurmountable competition to the SOMA region when trying to attract new business opportunities, these investments are also an opportunity for businesses within the SOMA region to export their knowledge and product offerings to a growing market.

Canada

A number of provinces in Canada have programs to attract and retain investments in renewable energy and energy conservation industries, including:

British Columbia – provided through the province's utility, BC Hydro, the province is developing:

- Renewable energy standard contract offer that will provide a price premium and long-term contract for renewable energy projects of up to 10 MW.
- Energy efficiency requirements for new buildings and a target of 50 per cent of the province's new electricity requirements to be realized through conservation.
- Clean Energy Fund to provide incentives for renewable energy commercialization and installation.

Quebec – provided through the province's utility, Hydro Quebec, the province features the following tools:

- Local content requirement – a requirement for 60 per cent of all costs to be spent within the province for wind projects, with an overall target of 4,000 MW of production, 2,000 MW of which will come online between 2011 and 2015.

Prince Edward Island – at its time of creation in 2008, the province's plan was seen as the best in Canada, and includes:

- Requirement of 10 per cent of all electricity to be comprised of renewable energy by 2010, which forces the PEI Energy Corporation to lead the development and purchase of renewable energy.
- 20-year contracts and guaranteed prices for wind energy projects installed by the private sector.

Within Canada, the Province of Ontario has the most progressive and all-encompassing renewable energy strategies as a result of the *Green Energy Act*. Not only do the price guarantees offer an

incentive for installation, but the breadth of the technologies is much larger, specifically when compared to the Provinces of Quebec and Prince Edward Island, which have a major focus on wind. This diversity and price point make Ontario an ideal location for investments in renewable energy installations.

Provincial Overview

Within the Province of Ontario many municipal jurisdictions are competing to attract investments in renewable energy and energy conservation. The following is a summary of a number of those activities.

City of Toronto

The City of Toronto has developed a Green Economic Sector Development Strategy with a vision to become a globally recognized green industry hub. The strategy provides a number of priority actions, including⁴:

- Stimulating green market demand;
- Marketing the Toronto-advantage in key economic clusters, including environment and renewable energy; and,
- Supporting existing businesses.

The Strategy is still early in its implementation and the city has recently hired staff dedicated to drive the initiative. Given the City of Toronto's resources, brand and its focus as a regional economic hub, it has a lot of potential to attract investment in these sectors. In fact, the city is already home to a number of renewable energy and energy conservation firms, such as Morgan Solar, Helios Energy, and others.

However, given the city's high land-costs and industrial property taxes, it is likely that while the City of Toronto can carry the banner for attracting investments in renewable energy to Ontario, communities like those in the SOMA region may benefit from GTA-based marketing efforts to draw attention to the SOMA region and its lower operating costs. Given that the supply-chain for the south-western Ontario region feeds towards the GTA for other manufacturing industries, it is likely to be the same with renewable energy and energy conservation.

Region of Peel

In partnership with the City of Brampton, City of Mississauga and City of Toronto, the Region of Peel is working with the Toronto and Region Conservation Authority and Greater Toronto Airports Authority to develop North America's largest eco-business zone. The project focuses on assisting existing businesses in improving their financial and environmental performance by offering assistance in training, identification of resource efficiencies, green and bulk procurement, and networking of success stories.

The initiative does not take a business attraction approach, but is a business retention and expansion strategy that aims to help local businesses improve their operations and continue to invest in the region. Overall, though, the municipal partners utilize this focus on green business improvements as a leverage point for attracting new investment to the region.

Currently the region features a number of rooftop solar installations, a district energy system and over 250 green businesses in a business park of over 12,500 companies that employ over 350,000 people. While there is not an overt focus on business attraction, the area does provide a number of leverage

⁴ http://www.toronto.ca/business_publications/pdf/green_economic_development_22may2007.pdf

points for attraction, including diverse supply chain options for renewable energy and energy conservation businesses, a local market and a network of businesses to deploy new commercial technologies.

City of London

As part of the City of London's 2009 Economic Development Summit – "Advantage: London, Creating the Action Plan for the Next Economy" – the municipality set out a number of initiatives to build the green economy, which included⁵:

- Green Technology Incubator Study – to develop a business plan to create a showpiece business incubator park to demonstrate the community's leadership in green technology, with a specific focus on bio-mass, bio-gas and recycling technologies.
- Advanced Manufacturing and Green Technology Park – development of a business park that integrates advanced and green manufacturing with research facilities.
- Green Technology Validation Centre – building on the base of green technologies in the community, the centre would validate and demonstrate the performance of new technologies in preparation for broader market application.

These are recent initiatives and are still in their early stages, but the City of London does have a number of leverage points, including applied research and development assistance from Fanshawe College and their new Centre for Sustainable Energy and Environments (CSEE). The CSEE is planned to be the umbrella for a series of environmental projects aimed at optimization, adoption, integration and commercialization of renewable energy and recycling technologies⁶. In addition, the University of Western Ontario also has a research grant to study solar technologies and a large focus on green building.

The City of London also has a champion in London Hydro's CEO Vinjay Sharma, who wants to see 500 solar panel installations in the community generating five megawatts of electricity, 10 rooftop wind turbines generating one megawatt of electricity and bio-fuel plants producing at least one megawatt, providing the city with 20 per cent of its energy⁷. Currently the community has eight buildings with rooftop solar installations, a new bio-gas facility constructed by StormFisher, and a number of renewable projects taking place within the vicinity, including those within the SOMA region.

City of Kingston

The City of Kingston is moving aggressively to build an alternative energy base for the community. Utilizing public-private partnerships, the community highlights its ability to connect companies to local research and training programs, supply chain support and access to markets.

The community has a number of interesting initiatives to support the development of green businesses, including:

- A green business incubator called the Sustainability Centre that provides support and allows people with ideas to get their businesses started, while networking with other green businesses.

⁵ http://www.ledc.com/images/homepage/Economic_Summit_2009.pdf

⁶ <http://www.ledc.com/newsevents/news/news.php?news=1020>

⁷ <http://www.lfpress.com/news/london/2009/11/28/11960876-sun.html>

- A number of research centers focused on bio-economy, renewable energy, energy conservation and water systems.
- A research park associated with Queen’s University called the Innovation Park which works to cultivate ideas, identify and transform technological discoveries, and commercialize to the sustainability marketplace.

Going beyond just economic development marketing, the community walks-the-talk, with a city government that supports and implements green standards for the community, such as the requirement for LEED certified buildings for both new and retrofitted facilities, and the adoption of Canada’s first municipal sustainability focused procurement policy.

These efforts have already gained the community a number of renewable energy businesses, including two photovoltaic manufacturing facilities (Everbrite Solar and G.R. Inc.). The City of Kingston really highlights the importance of emphasizing existing successes, research/training opportunities, and how innovative public-private partnerships can drive business retention and attraction.

Durham Region

Durham Region has developed the Durham Strategic Energy Alliance (DSEA) which is a non-profit organization comprised of business, government and educational institutions working together to advance energy initiatives. The goal of the DSEA is to promote the region as “Ontario’s Energy Capital”.

The region is home to a foundation of energy businesses, most notably the Darlington and Pickering nuclear facilities that produce more than 30 per cent of the province’s electricity supply. This foundation has allowed the region to attract a host of goods and service suppliers essential to their operation and built an energy expertise in the region. This expertise ranges from electrical equipment manufacturing and high voltage power transmission, to consulting and energy efficiency and generation design.

Utilizing the training and education foundation of Durham College and the University Of Ontario Institute Of Technology, the region promotes itself as not only a source of research and skill development, but also as having the transmission capacity, skilled labour and knowledge base, to provide a renewable energy and energy conservation cluster.

Durham Region has many of the same attributes that the SOMA region prides itself on – a skilled-workforce based in the automotive sector, proximity to markets and transportation routes, as well as a proven work force. However, what Durham Region has that SOMA does not is the DSEA which has brought international attention to the region and its energy assets.

Waterloo Region

The Region of Waterloo is already home to a number of players in the solar sector, including:

- Canadian Solar – located in Kitchener and produces solar modules; however, currently their manufacturing is located outside of Canada. They also provide full service turnkey solar solutions.
- Arise Technologies – located in Waterloo, Arise has a photovoltaic manufacturing facility in Germany, but also focuses on developing improved silicon refining and delivering turnkey solar solutions.

- ATS (Photowatt Ontario) – located in Cambridge, Photowatt is planning to manufacture modules and provide turnkey solar solutions. ATS is looking to lever its location and market position to develop a green-wing and is encouraging other companies interested in the supply-chain to co-locate in the area.

This concentration of knowledge and business activity provides Waterloo a head start in the photovoltaic manufacturing industry in Ontario. This is augmented by a regional economic development approach through Canada’s Technology Triangle, which has a focus on clean-tech and energy. Their website highlights the region’s educational assets, existing green businesses and local activities to support green business.

Conclusion

This scan illustrates SOMA’s competition in attracting green business to the region. This serves to highlight some great ideas for initiatives that the SOMA municipalities may wish to emulate. However, more importantly, it also underscores the need for the SOMA region to distinguish itself from the competition in new and interesting ways that draw upon its strengths as a region.

5. Overview of SOMA Advantage

The sectors that currently play a strong role in the SOMA economy and are the focus of its attraction efforts also present opportunities for the renewable energy and energy conservation industries. For instance, SOMA's focus on automotive, machining/tooling and plastics means they have many of the pre-cursors and requirements to serve the renewable energy and energy conservation sectors. At the same time, the region's strong agricultural base and food processing industry provide value add renewable energy opportunities by utilizing organic waste for bio-fuels and bio-gas production.

Building on the challenges and drivers that the SOMA faces, the region can utilize a similar strategy that was highlighted through the 2006 Integrated Marketing Strategy – namely “effectively” and “efficiently”. The effectiveness argument builds from the area's recent successes and efficiency being realized through working together to market the region together, as opposed to as individual municipalities.

SOMA needs to take the advice of its 2006 Integrated Marketing Strategy and apply a number of those recommendations to the renewable energy and energy conservation industries – namely the need to compete on value, as opposed to cost. Many other jurisdictions that have faced manufacturing losses are using the idea that they have available low-cost industrial space to attract renewable energy and energy conservation industries. However, there are drawbacks to this approach, in that it:

- Increases the amount of competition for investment – economic development departments across the globe are competing for investments in renewable energy and energy conservation industries and competing on cost alone given the region's challenges means less success in investment attraction.
- Lacks insight into community value – a community is much more than costs, as it provides social and business connections that can greatly increase the value and productivity of a company, and in the case of cluster development, provides a value that is often greater than the sum of its parts.
- Stigmatizes the community – a number of renewable energy component manufacturers interviewed for this study identified that the main take-away they have had from pitches from Ontario economic development departments is that the province is full of empty factories. This does nothing to promote economic development, as it provides an image of a region in decline, something the SOMA region is not.

The strategy proposed through the 2006 Integrated Marketing Strategy argues that using the jurisdictional cost factors of the region, but more importantly the existing cluster of similar firms, is proof that firms can thrive in the area. Leveraging these successes beats the message of empty factories and highlights the SOMA region as an economic force on the upswing.

The question then becomes - what advantage does SOMA have when it comes to the renewable energy and energy conservation sectors? The answer is complex and based both on the region itself, the broader province and country, and the region's key markets of Michigan, New York and Ohio. When we look at the context created by the drivers mentioned earlier, there are a number of opportunities related to the renewable energy and energy conservation markets, that the SOMA region can take

advantage of to create a competitive advantage. Locally, the SOMA region has a number of advantages, starting first with its traditional leverage points, including:

- Location in automotive cluster with focus on recent Japanese investments
- Proximity to major transportation routes
- Proven and productive workforce
- Supplier and customer proximity
- Business opportunity ‘atmosphere’ created by cluster of industrial firms
- Comprehensive education and training system
- Good infrastructure and municipal services

Much like SOMA utilizes its supply chain as a value-competition marketing strategy, it can also capitalize on its base of companies that can meet the renewable energy and energy conservation markets to lever investments – from both a retention and attraction standpoint – in these emerging sectors.

SOMA can utilize the arrival of Toyota and its spin-off investments to inform other companies considering investing in the region that there are not only others willing to make investments, but that there are innovative public agencies and neighbouring businesses that can support their operations.

Overview of Existing SOMA Member Initiatives

The following is an inventory of the number of renewable energy and energy conservation initiatives that are taking place within each of the partner municipalities. This information is important as it provides the foundation of a marketing narrative for the region, for use with companies looking to invest in SOMA communities. A full inventory of these projects can be found in *Appendix 2 – Renewable Energy Projects in the Vicinity of SOMA Members*.

Aylmer

The Town of Aylmer is home to a number of interesting renewable energy initiatives that highlight the entrepreneurial nature of the community. The Integrated Grain Processors Co-operative is owned by a co-operative of farmers from the area and produces 150 million litres of ethanol and 130 million tonnes of distillers grains a year. The plant employs 42 full-time employees and illustrates how it is possible to extract further value from local agricultural processes, something that is lacking in the SOMA region.

While not within the corporate boundaries of the Town of Aylmer, there are also a number of renewable energy projects in the surrounding county, including: the Erie Shores Wind Farm (99 MW); and two proposed solar farms - Silver Creek Solar Park (10 MW) and First Solar Development Canada (20 MW). The two solar projects are still in the development phase and are ground-mounted solar farm solutions.

Elgin County, of which Aylmer is surrounded, also has a focus on renewable energy economic development, including attracting wind and solar installations, as well as a specific focus on bio-fuels and products that can extract further value from the region’s agricultural community.

Ingersoll

Through the development of the Town of Ingersoll’s Business Retention and Expansion Survey 2008 and Community Strategy Plan 2009 to 2014, the need to secure post-secondary education opportunities for the community was identified by the business/industry community. To meet this need, Ingersoll was successful in developing a partnership with Conestoga College to build the ‘Power Centre – Ingersoll’ a

new 12,000 sq. ft. facility. This facility will offer the Powerline Technician course and other power industry related curricula while also delivering renewable and alternative energy curricula as well as the development of a research and development department. In addition, future programming may revolve around advanced manufacturing technologies and skilled trades programming. The Power Centre – Ingersoll will be the first of its kind in Ontario.

The Powerline Technician program will provide the skill-set required for working with power authorities, electrical utilities and a career opportunity that is set to see 50 per cent of its current workers in Ontario retire over the next 5 years. The program which is only now offered at Cambrian College in Sudbury has over 300 applicants for 48 spots per year. In partnership with the Town of Ingersoll, business and industry, Conestoga College is also offering seven three hour workshop seminars for the community on green energy, building and manufacturing, to assist people in learning more about the opportunities in these fields. These workshops will be held January 30 to March 16, 2010 in Ingersoll.

The Town of Ingersoll, through their economic development, building and planning department has been proactive move forward opportunities to take advantage of the Green Energy and Economy Act 2009, establishing a steering committee consisting of local business/industry, EARTH Corporation and Conestoga College to work towards a number of goals ranging from attracting renewable energy manufacturers and installations to the area and developing educational opportunities, to identifying expansion and diversification opportunities for local companies.

In addition to these activities, both the Town of Ingersoll and Town of Aylmer are shareholders in EARTH Corporation, which was formed from the amalgamation of seven local distribution companies serving 11 communities in 2000. The company has a number of businesses – ranging from traditional electric and water utility services, to energy production, construction and billing/metering services. The vision of the organization is to provide information and infrastructure services to maximize the efficient generation, delivery and end-use of electricity and water. Much like St. Thomas Energy Services, this partnership provides the community partners insight into the renewable energy and energy conservation sectors that can be utilized by the local economic development departments to lever investments in business expansion and attraction.

The Town of Ingersoll's economic development department is also working with a number of potential agriculture/solar farms that would be located on neighbouring agricultural lands. These projects are still within the planning phases, but illustrate how the community works with its upper-tier partner Oxford County to establish renewable energy installations within its vicinity.

[St. Marys](#)

Within the Town of St. Marys there are a number of initiatives being undertaken by both the private and public sectors to increase the amount of renewable energy-use. The municipality is currently exploring opportunities for rooftop solar.

One of the community's oldest employers, St. Marys Cement, has also been investigating substitute alternative fuels to power their facility, such as using post-composting residual plastic film from a composting plant. They are early in the test stages of the project, but have identified this as an opportunity to replace a portion of their fossil fuel use. In addition to this project, St. Marys Cement is also investigating the use of algae to produce bio-fuel to power their facility. The Town of St. Marys has included the use of urban wind as option with its Official Plan.

St. Thomas

The City of St. Thomas has suffered a number of economic set-backs with the challenges recently experienced in the automotive sector. Despite these trials, St. Thomas has built itself an enviable position to encourage business expansion and attraction in the renewable energy and energy conservation sectors.

Two of their local Magna-owned manufacturing firms – Presstran and Formet – are looking at opportunities to utilize their workforces' skill-set, developed serving the automotive sector, to produce components for the renewable energy industry.

One of St. Thomas' most interesting leverage points comes from St. Thomas Energy Services. As the local electricity distribution company, St. Thomas Energy Services has a customer base of around 18,000 customers. In order to realize growth opportunities, the company purchased a number of private businesses that serve energy markets, including the renewable sector.

The initiative, which is wholly-owned by the municipality held St. Thomas Holdings, is called Partners for Power and leverages the knowledge of the three companies to position itself to assist in the construction and maintenance of renewable energy projects throughout the country. The three companies are:

- Tiltran – located in Tillsonburg this company is a high-voltage electrical engineering, construction and maintenance of renewable energy installations. They currently are involved in over 100 projects in Ontario, including a 10 MW wind farm in Chatham-Kent (installation and project management of the operation's electrical collector systems), and Canada's largest wind turbine installation at Wolfe Island.
- Lizco Sales – located in Tillsonburg this company provides power equipment, such as transformers. They also have the largest privately-owned new transformer inventory in Canada.
- Tal Trees Construction – located in Belleville this organization specializes in site engineering and construction and maintenance of high voltage sub-stations, transformers and overhead lines.

The partnership focuses on three different roles in renewable energy projects: 1) project development and maintenance of renewable energy installations; 2) contractor of specific elements for renewable energy projects; and, 3) ownership of their own renewable energy installations. The partnership is looking at contractor opportunities in Europe. But, more importantly for St. Thomas, the partnership is also playing an integral role in investment attraction for the community given their knowledge and familiarity of the renewable energy sector.

St. Thomas Energy Services is unique, as through their activities they take an active role in investment attraction and business development for the sector. The Partners for Power partnership therefore highlights not only the benefits of working with a community's local distribution company on economic development; but, more importantly for St. Thomas, highlights the progressive public-private entrepreneurial nature of the community.

Stratford

The City of Stratford has been working on a number of initiatives to promote investment in renewable energy projects in the community. In partnership with the local distribution company, the city is actively

pursuing the development of photovoltaic installations on city-owned property, both ground and roof mounted, as a way to realize new revenues to augment the city's tax-base.

The city is also working with a number of Community Futures Development Corporations from the region on the Midwestern Ontario Regional Green Jobs Strategy. This multi-stakeholder process is identifying labour market issues that arise when trying to meet the demands of the deployment of renewable energy, energy conservation and climate change solutions. Through the identification of these labour market barriers, the partnership will then develop solutions to help meet the labour demand required to deploy green economy solutions.

The City of Stratford has also completed a Greenhouse Gas Inventory and Community Energy Plan. This plan provides strategies for the community to reduce its greenhouse gas emissions in both municipal operations and the broader community. The plan provides a reduction of six per cent and 20 per cent for community and corporate emissions respectively from 2003 within a ten-year period. To reach these targets, the plan provides detailed opportunities in the community's building stock, transportation fleet, and utilizing landfill gas to generate renewable energy. The plan also provides an outline of how the community should develop a green economic development strategy to attract new business, and assist existing businesses in reducing their resource costs.

Tillsonburg

The Town of Tillsonburg is actively pursuing the development of solar opportunities for their community, with a focus on potentially utilizing non-prime industrial lands, as well as other municipally owned lands, for ground mounted solar installations. In addition to these options, the community is also researching rooftop solar for installation on municipal buildings.

Building on these solar projects, there are also two proposed wind projects in the vicinity of the community by Prowind Canada Inc. – the Innerkip Wind Farm (19 MW) and Gunns Mill Wind Farm (25 MW). Tillsonburg Hydro, which is owned by the Town of Tillsonburg, is also exploring opportunities for micro-hydro generation in the community as a revenue generator.

The town is home to Tiltran and Lizco Sales, which are owned by St. Thomas Hydro Services, electrical contractors who service the renewable energy sector with project management, construction and material.

Woodstock

The City of Woodstock has featured a number of large investments from the auto industry, specifically from Toyota in recent years, helping propel the SOMA region into a destination of choice for Japanese automotive investments. These investments in the automotive sector have made not only Woodstock, but also the remaining SOMA partners, ideal locations for renewable energy and energy conservation manufacturers looking to lever the knowledge base and skilled workforce of the region for production opportunities.

Although the community does not feature any renewable energy installations, there are installations, such as a solar demonstration site and proposed solar farms in the surrounding Oxford County. The municipality does not have land for large installations, but sees the community as an ideal place for manufacturing, while utilizing neighbouring low-quality agricultural land as an opportunity for the installation of solar and wind projects. The economic development department has worked with Oxford

County to identify potential sites for renewable energy installations, specifically looking at solar farms adjacent to well-head protection areas that under Source Water Protection legislation must be kept free of development, but could be well suited for renewable installations.

One option that has arisen recently in the neighbouring county has been a company's interest in utilizing landfill gas from the municipal landfill to generate electricity. This opportunity, in combination with looking at generating bio-gas from the municipality's sewage treatment sludge, provides two interesting opportunities to turn current regulatory risks into revenue generators for the City of Woodstock and Oxford County.

SOMA - Renewable Energy and Energy Conservation Supply-Chain

The SOMA membership has a diverse number of impressive initiatives going on within their respective communities. However, while it is important to highlight the support of the municipalities and their partnerships to assist new businesses, it is also important to highlight the potential support new investments can receive from the region's business community.

SOMA – Renewable Energy Supply-Chain

To better understand the potential supply-chain within the SOMA region, this report includes an analysis of the major component requirements of four renewable energy technologies to identify the number of companies within the region who could meet this market, they include:

- Wind
- Photovoltaic
- Geo-thermal
- Bio-mass

The analysis defined a “major component” as a part that would likely be sold by a manufacturer as a single unit, and not the parts that went into that unit further up the supply-chain. For example, a gearbox in a wind turbine is considered a component, but not the bolts that went into making the gearbox.

Through this analysis it was identified that there were 66 firms in the SOMA region that could meet the component requirements of the four renewable energy technologies identified. The full details of the study can be found in *Appendix 3 – SOMA's Renewable Energy and Energy Conservation Supply-Chain* and a list of the companies in *Appendix 4 – SOMA Renewable Energy Supply-Chain Company List*.

It is important to be aware of the potential broadness of companies included in this analysis, and that not all of these companies may be serving the renewable market industry. An important finding of this analysis is that these companies have the potential to serve a new market for renewable energy technologies as their existing production materials are similar enough that they could be utilized in renewable installations. After all, a company that has experience building electrical equipment will have a significant advantage over another starting from scratch, as they have the basic knowledge and capabilities for making electrical equipment.

SOMA – Energy Conservation Supply Chain

To further understand the supply chain opportunities in the SOMA region, this study also looked at the energy conservation sector to better understand the region's potential to meet the energy conservation

market. This is often an overlooked aspect of energy markets, but given the push for greenhouse gas emission reductions and improved building/process efficiencies, this sector has much more potential than the limited renewable energy supply capacity.

This analysis looked at two aspects of energy conservation – green building and industrial efficiency. The green building analysis includes a number of companies ranging from construction firms and heating/cooling companies, to manufacturers of HVAC systems and insulation. The industrial efficiency element includes companies that service the sector with electrical needs (i.e. electrical supplies wholesalers) to automation needs. The findings of this review can be found in Table 5-1, and highlighted the companies servicing this market that can be levered to encourage new investment by existing and new companies.

To complement this foundation, Table 5-1 also includes a quantification of environmental consulting firms found in the SOMA region. This includes architects and engineers within the region that could service either the renewable energy or energy conservation markets through green building and industrial efficiency projects.

Table 5-1 - Summary of Energy Conservation Supply Chain

Sector	Description	# of firms
Environmental Consulting	Environmental consulting, engineers and architects.	24
Green Building	Manufacturers, construction firms and suppliers for green building.	99
Industrial Efficiency	Manufacturers and service providers for industrial efficiency opportunities.	35

However, it should be noted, that the number of businesses that could form the supply chain is reliant on the accuracy of the SOMA business database provided.

SOMA - Education Assets

The ability to connect to research, commercialization and training opportunities for the renewable energy and energy conservation sectors is an important pillar. While the educational resources for these sectors within each of the SOMA municipalities are limited, with only Ingersoll featuring a planned post-secondary program relating to energy, the region has a number of education facilities within close proximity. The following highlights a number of post-secondary facilities in the area and their respective foci in the renewable energy and energy conservation sectors:

- **Fanshawe College** – Centre for Sustainable Energy & Environments – works towards the optimization, adoption, integration and commercialization of renewable energy and recycling technologies.
- **University of Western Ontario** – Centre for Environment and Sustainability – which provides inter-disciplinary research and support for a variety of renewable energies, including wind, solar and bio-fuels. The University of Western Ontario also has a focus on green buildings with a lab dedicated to testing new energy efficiency building ideas.
- **Conestoga College** – new school of Engineering and Information Technology will have a focus on renewable energy and energy conservation.
- **University of Waterloo** – Waterloo Institute for Sustainable Energy brings together inter-disciplinary research teams to foster the development of innovative technologies and

alternatives to existing energy production and delivery systems, including solar, wind, bio-energy, energy conservation, distributed generation and battery storage.

The utilization and connection to these post-secondary institutions will be important as the SOMA region attempts to build renewable energy and energy conservation opportunities.

6. Determinants of Location Decisions

The SOMA region provides a number of key advantages in relation to location decisions for the renewable energy industry. A number of these are the typical elements highlighted in SOMA's existing marketing strategy. The information provided here is the result of discussions with renewable energy component manufacturers and generators and should be used to help SOMA members target their marketing messaging to potential investors.

Renewable Energy Manufacturing

In interviews with renewable energy manufacturers the following elements were highlighted as important to location decisions:

- Proximity to customers (only if wind related)
- Quality of local supply chain
- Transportation modes
- Border access
- Cost of real estate (looking for lower costs)
- Cost of municipal taxes (looking for lower taxes)
- Municipalities focus on sustainability
- Economic development support
- Availability of pre-owned manufacturing sites

Two interesting results were revealed through this analysis: the availability of pre-owned manufacturing sites, and a municipality's focus on sustainability. The former can be both a curse and a blessing, while highlighting the importance of SOMA as a hub of regional economic opportunity with abundant opportunity to grow.

The latter element of a municipality's focus on sustainability is an important highlight that was included in the recent request for proposals by Canadian Solar in their search for a manufacturing facility. While this decision may not have the greatest weight, it does provide an indicator on how the municipality encourages renewable energies and their willingness to push innovation in this sector. After all, a municipality that is against local wind turbines, for instance, may find it hard to attract investment from this sector.

Beyond the importance of walking the talk, a municipality's focus on sustainability also presents a marketing edge against its competitors when vying for attraction opportunities, as it can leverage its existing successes to highlight its business-friendly and innovative foundation. Just as importantly, it provides a positive narrative for the community to share, which is always important when trying to sell a community.

The development of the local supply-chain was important; however, a number of issues were identified, including:

- Identifying potential suppliers
- Costs of re-tooling versus production quantity

In order to identify potential suppliers, many current manufacturers are either utilizing pre-established personal and business connections or business databases. Helping enhance the connection to the local supply-chain opportunities will provide an important value-add for attraction efforts.

One of the biggest issues facing renewable energy manufacturers is securing suppliers that can provide limited runs without large re-tooling costs. Given the market immaturity in the province, manufacturers may be reluctant to re-tool until there is market certainty. However, the province's base of automotive parts suppliers are seen as ideal supply-chain partners because they not only have the skill-sets required, but are accustomed to working on slim margins.

Renewable Energy Installations

The location decisions of renewable energy installations really come down to two basic elements – access to feedstock (i.e. wind, solar or bio-mass) and access to grid capacity. Additional issues like the cost of real estate and municipal taxes, economic development support and a municipality's focus on sustainability, are important, but without the first two elements being satisfied are non-starters.

Grid capacity is a limiting factor in southwestern Ontario of renewable energy installations and growth will be reliant on future upgrades to the system. With over 8,000 MW of applications for renewable energy under the feed-in-tariff, the current capacity of the electricity grid is 2,500 MW, unless the location is within the Greater Toronto Area which is a net-importer of energy.

Once feedstock and grid capacity has been identified, the other elements need to fall in line. Again a municipality's focus on sustainability may not be the top of the list for project developers; it does indicate that the community is open for business and should be leveraged to attract generation investment.

7. Proposed SOMA Focus Areas

The overview of SOMA’s existing initiatives and review of its supply chain assets highlight a number of opportunities in the renewable energy and energy conservation sectors. The following is an overview of the opportunities SOMA partners should focus their energies upon.

Focus Area 1: Renewable Energy

The opportunities for the SOMA region from renewable energy are many, but it will require SOMA members to be selective in the technologies they wish to pursue in order to ensure they stick with their strengths and the region’s assets.

Manufacturing

The Ontario *Green Energy Act* requires Ontario-based content for all wind projects over 10kW and all solar projects. The requirements are detailed in *Table 7-1– Ontario-Based Content Requirements* – and provide an opportunity for SOMA members to attract and retain investments in renewable energy manufacturing.

Table 7-1– Ontario-Based Content Requirements

Wind Projects over 10 kW		Solar Projects		
		Over 10 kW	Under 10 kW	Year of Operation
Minimum Content	Year of Operation	Minimum Content	Minimum Content	
24 per cent	2009 to 2011	50 per cent	40 per cent	2009 to 2010
50 per cent	2012 and later	60 per cent	60 per cent	2011 and later

To meet these requirements, applicants to the feed-in-tariff are required to show how they have satisfied the Ontario-based content rules, and receive a percentage score based on designated activities ranging from the manufacturing of various components and their assembly, to the construction and engineering requirements for installation (*See Appendix 5 – Ontario-Based Content Requirements*).

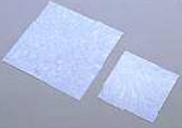
Meeting these Ontario-based content rules provides an opportunity for the SOMA region to provide the right mix of businesses that can help renewable energy manufacturers and installation companies meet the FIT requirements.

Solar – Photovoltaic Manufacturing

The Ontario-based content requirements are intended to help build an Ontario-based solar industry. There are already a number of players in the local market, including Enerworks (manufacturer of solar-thermal panels in Dorchester), as well as a number module and silicon developers, including Canadian Solar (Kitchener), Arise (Waterloo), Solgate (Woodbridge), ATS (Photowatt Ontario in Cambridge) and 6N (Vaughan).

In order to meet the Ontario-based content requirement, there are a number of elements of the photovoltaic panel and its installation that must be met. *Table 7-2– Photovoltaic Supply-Chain Requirements* lays out the photovoltaic supply-chain and what each element receives as a percentage towards to the Ontario-content requirements.

Table 7-2– Photovoltaic Supply-Chain Requirements

Supply Chain Requirement		Ontario-Content Requirement
	Polysilicon: A silicon raw material which is melted and re-casted to remove impurities.	10%
	Ingot: The cast silicon, which is stabilized in its polycrystalline form. These casts are called ingots and are cut into blocks.	10%
	Wafer: The ingots are sliced into wafers. P-type and n-type silicon wafers are produced depending on the sliced silicon.	
	Solar cell: Also known as PV (photovoltaic) cell. Electrodes are attached to the wafers to conduct electricity.	10%
	Solar module: Used to increase the power output. Many solar cells are connected together to form modules, which are further assembled into larger units called arrays. This modular nature of PV enables designers to build PV systems with various power outputs for different types of applications.	13%
	System and installation: An installation involves components apart from the basic module. Components include electrical connections, mounting hardware, power-conditioning equipment and construction and consulting associated with the installation.	55%

In order to meet the Ontario-based content requirements of 50 per cent through the end of 2010, the percentage requirements are reached through the system and installation, requiring the following elements:

- All on-and-off site labour and services (27 per cent)
- Wiring and electrical hardware that is not part of the module itself (10 per cent)
- Mounting systems (nine per cent)
- Inverter with final assembly done in Ontario (nine per cent)

One of the most attractive elements about photovoltaic is that it creates local jobs across a wide geographic area. A Barclay Capital Study indicated that up to 75 per cent of all solar jobs result from

installation. For instance, in Germany, of 41,260 solar jobs, 20,000 were craftspeople, within an aggressive market for manufacturing, but with no content requirements⁸. Focusing on these elements represents an opportunity for businesses in the SOMA region and would lever an existing knowledge base.

Opportunity – as a business development and retention strategy SOMA partners should work with existing manufacturers and trades to meet mounting, wiring, installation and maintenance requirements for photovoltaic installations.

There are a number of Ontario-based inverter manufacturers that can help satisfy this market; however, there are a number of new market entries looking to enter the market (*Appendix 6 – Renewable Energy Company Leads*). Given that the inverter needs to be assembled in Ontario, it provides an easy opportunity for business relocation with technical skill that is abundant in the province.

Opportunity – SOMA partners to identify and work with potential inverter manufacturer(s) to locate in the SOMA Region (*See Appendix 6 – Renewable Energy Company Leads*).

In addition to the installation and inverter elements listed above, in 2011 companies will be required to source 60 per cent of their content from Ontario, requiring photovoltaic module elements that are assembled in the province. This will require a module manufacturer to be located in the province that completes at least one of the following elements:

- Silicon refined in Ontario (10 per cent)
- Silicon ingots cast and wafers cut in Ontario (12 per cent)
- Silicon where the active photovoltaic layers are formed in Ontario (10 per cent)
- Solar photovoltaic modules where the electrical connections between the solar cells are made in Ontario (13 per cent)

Manufacturers who meet any of these requirements are potential targets for the SOMA partners. There are a number of firms that are either already operating in the province or planning operations that can meet these requirements, including Solgate (Woodbridge) and the planned operations of Canadian Solar (TBD), Arise (Waterloo), Photowatt (Cambridge) and Samsung (TBD).

Currently in Ontario there is only enough capacity to produce between five and 10 MW of solar modules within the near-term, which is hardly enough to meet the current market (a typical ground-mounted photovoltaic installation is 10 MW). Given the lag in time between site selection and becoming operational to manufacture photovoltaic modules, it could be 2012 before there is enough manufacturing capacity to meet the requirements of the market.

It is also important to note that given the size of the Ontario-market for photovoltaic, a large established module firm to manufacture may demand larger incentives for locating in the province. This was illustrated by the recent agreement with Samsung to provide a four per cent premium over the FIT price

⁸ <http://www.cansia.ca/Content/Documents/Document.ashx?DocId=58275>

and a 500 MW installation guarantee in exchange for four manufacturing facilities in Ontario⁹. Given that many believe the Ontario Power Authority will reach its potential solar amount at current FIT prices for the provincial grid prior to 2011, there is a large disincentive to making such a large investment in a market that may mature quickly.

Opportunity – SOMA partners may wish to pursue potential photovoltaic module manufacturers, but this strategy has a high-investment and low-potential for success given the uncertainty in the Ontario-market and the global competition (See Appendix 6 – Renewable Energy Company Leads).

Also of note is that one of the attractions of a company establishing a presence in the Ontario market is the province’s easy access to some very important US states with attractive renewable energy programs. However, the Ontario-content requirements of 60 per cent may be perceived as a barrier and cause other US states to respond in like fashion, eliminating Ontario’s perceived advantage. This has been the case in other states like Illinois, Virginia and Washington, which required domestic-content to spur investments, but failed to produce positive and sustainable market results.

Overall, the opportunities for photovoltaic panels in the Province of Ontario are still unknown given: the limited market; the response of other neighbouring markets; questions about the stability of the provincial policy; and questions about the willingness of the private sector to pony up investments. This does not mean SOMA partners should not continue to investigate manufacturing opportunities. However, they should be cognizant of the market barriers and look for other opportunities to lever local investments, such as building the ability of local trades and manufacturers to meet the installation requirements of photovoltaic systems, while encouraging local installations.

Wind Turbine Manufacturing

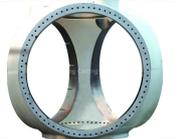
The Ontario-based content requirements are intended to help build an Ontario-based wind turbine industry. While there are a number of wind turbine installations across the province, manufacturing of components is limited and economic spin-offs are more limited to installation, maintenance and land leases.

In order to meet the Ontario-based content requirement, there are a number of elements of a wind turbine must meet. *Table 7-3– Wind Turbine Supply-Chain Requirements* lays out the wind turbine supply-chain and what each element receives as a percentage towards to the Ontario-based content requirements.

Table 7-3– Wind Turbine Supply-Chain Requirements

Supply Chain Requirement		Ontario-Content Requirement
	Wind turbine blades – These are the actual blades of the wind turbine that drive the system.	16%

⁹ <http://www.thestar.com/business/cleanbreak/article/755239--hamilton-samsung-deal-keeps-jobs-from-going-south?bn=1>

	Pitch and yaw systems – The pitch system controls the angle of the blades while the yaw system turns the turbine to face the wind.	10%
	Hub and hub casting – This is the system that connects all of the wind turbine blades together and allows it to drive the system.	2%
	Gearbox and power converter – With a gearbox you convert between slowly rotating, high torque power which you get from the wind turbine rotor - and high speed, low torque power, which you use for the generator.	21%
	Wind turbine tower – This is the wind turbine tower that holds the system. If the steel is formed and shaped from Ontario steel plates and all steel is processed in Ontario, the system will achieve 13 per cent requirement	13%
	Control panel and electronics – these are the system for connecting and controlling the electronics within the system.	2%
	Nacelle shell – the nacelle shell is the housing unit that holds the turbine equipment at the top of the wind turbine tower.	4%
	System and installation: An installation involves components apart from the turbine unit, including electrical connections, mounting, power-conditioning equipment and associated construction and consulting services.	32%

In order to meet the Ontario-based content requirements of 24 per cent through the end of 2011, the percentage requirements are reached through the system and installation, requiring the following elements:

- All on-and-off site labour and services (20 per cent)
- Grid connection and pad mount (12 per cent)

Unlike photovoltaic, the greatest economic opportunity from wind turbine installations is manufacturing, with approximately 70 per cent of the total cost of a turbine coming from three main components: the turbine blades, the turbine tower, gearbox, and the pitch and yaw control systems. However, with the total cost of a large scale wind farm ranging from \$2.2 million to \$2.8 million US per installed MW of generating capacity, installation costs still represent a significant economic opportunity.

**Opportunity – as a business development and retention strategy
SOMA partners should work with existing manufacturers and trades to**

meet mounting, wiring, installation and maintenance requirements for wind turbine installations.

Unlike the photovoltaic industry that can build upwards from the lower-tiers of the supply-chain, the wind turbine industry is driven from the top of the supply-chain downward, as Tier one suppliers set up operations to supply the large sized components, opportunities for sub-component and sub-assembly supply will spur the development of the sub-tier levels. In order for wind turbine installations to meet the 50 per cent Ontario-based content requirements by 2012, one opportunity involves focusing on securing Tier one suppliers that are interested in manufacturing the large components that are expensive to transport over long distances, such as:

- Tower sections (13 per cent)
- Rotor blades (16 per cent)
- Nacelle assemblies and covers (four per cent)
- Hub and hub casting (two per cent)

The high-cost to transport these components due to their large-size and often irregular shape provides some incentive for manufacturing facilities to be relatively close to wind farm developments and to have access to good quality transportation routes that can accommodate the products. More importantly, there must be several wind farm developments over the long-term that are within reasonable access to the large component supply-chain, so that it can remain competitive in the marketplace once the initial wind farm development is complete.

The most complex section of the wind turbine is the nacelle assembly. It contains the major mechanical and electrical components including, the nacelle frame, yaw drives, pitch control mechanisms, rotor shaft and drive train, power generator and gearbox (if applicable), braking systems, oil circulation and cooling system, controls system and insulation. However, while the nacelle assembly contains a number of complicated systems that may not be manufactured in Ontario, the assembly of all of these elements into the nacelle presents an opportunity for local automobile manufacturers who have assembly experience.

Opportunity – SOMA partners should target Tier one suppliers with a focus components with costly transportation costs, namely tower sections, rotor blades, rotor hub and nacelle assemblies *(See Appendix 6 – Renewable Energy Company Leads).*

Once nacelle assemblers are established, there is added opportunity for the lower-tier levels of the supply-chain to develop due to the variety and quantity of sub-components required to complete their assembly, such as control systems, and “pitch and yaw” systems.

Opportunity – as a business development and retention strategy SOMA partners should work with existing manufacturers to meet control systems and electronics to meet the wind turbine supply-chain.

Other elements of consideration are gears and generators that offer a good supply opportunity for Canadian manufacturers. The technology and manufacturing standards can be easily transferred from

experience in applications other than wind turbines. Components that have the longest lead time in the wind turbine assembly are the gear boxes, castings for rotor hubs and main frames, forgings for main shafts, and large bearings, due to limited global capacity. The gear boxes and bearings in particular, are tied together because of the long lead time. These components offer an opportunity to a limited group of manufacturers because they are considered critical components in the wind turbine and have very high quality standards that must be adhered to. Generally, the wind turbine manufacturers are unwilling to make substitutions and rely on a very small group of suppliers to provide these components.

Overall, the opportunities for wind turbine manufacturing in Ontario are large, especially given the potential for the resource in SOMA's neighbouring agricultural communities. However, optimism should be tempered given questions about the stability of the provincial policy, the response of neighbouring markets with just as abundant opportunity, and the limited Ontario transmission capacity in the near-term. This does not mean SOMA partners should not continue to investigate manufacturing opportunities, but they should be cognizant of the market barriers and focus on areas that have the greatest opportunity for success, such as building the ability of local trades and manufacturers to meet the installation requirements of wind turbine systems, and targeting elements of the supply-chain with the greatest potential for success.

Renewable Energy Generation Opportunities

The foundation of the renewable energy supply chain is generation. The Province of Ontario has provided a target of 15,700 MW of renewable energy supply by 2025 to meet 34 per cent of the province's energy requirements.

With over 8,000 MW currently supplying the province, the Ontario Power Authority has had over 8,000 MW of new renewable energy projects apply for feed-in-tariff projects, which would help the province exceed its target 15 years early. However, with over 24,000 MW of generating capacity needed to be replaced over the next 20 years, it would seem the potential for renewable will still be present and will exceed the government's targets moving forward.

In order to build local demand and walk-the-talk, SOMA partners must identify ways to encourage local renewable energy installations, especially given the accompanying job creation from installation, construction and potential to supply parts. This is also an important element for the long-term economic development success for the region, as building a foundation of local clean energy will provide the region with energy security and sources of clean and inexpensive energy as oil and natural gas prices rise in a carbon constrained future. The following provides an overview of the various technologies on which the SOMA region should focus.

Solar – Photovoltaic

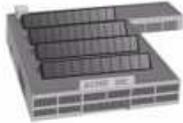
The development of local photovoltaic resources should be a focus of SOMA partners with a concentration on both rooftop and ground-mounted installations. The benefits of developing local photovoltaic resources include:

- Job creation from the installation and assembly of photovoltaic installations;
- Source of local clean energy generation;
- Wealth generation for the community through revenues gained through fit-in-tariff contracts; and,
- Potential spin-off supply chain investments.

Opportunity – as a business development and retention strategy SOMA partners should work with residents and businesses to encourage rooftop and ground-mounted photovoltaic installations.

All SOMA partners have indicated an interest in promoting photovoltaic installations in their communities, whether by encouraging ground-mounted installations on vacant industrial properties or surrounding agricultural lands, and the utilization of municipal, industrial and residential rooftops. The following *Table 7-4– Rooftop Photovoltaic Installation Locations and Sizes* provides an overview of the potential locations and sizes for rooftop installations.

Table 7-4– Rooftop Photovoltaic Installation Locations and Sizes

	TYPE	SIZE	DESCRIPTION	SPACE (SQ. FEET)
	Residential	3 kW	houses	220
	Small retail	5 kW	corner store	360
	Small commercial	50 kW	schools, apartments, condos, municipal building	3,650
	Large commercial	300 kW	big box stores or strip mall	22,000
	Large industrial	750 kW	industrial warehouse	55,000

The development of rooftop solar projects can take a number of different forms, including:

1. Owner-Operated – owner of the property contracts the installation of a system and secures a feed-in-tariff contract.
2. Shared-Equity – the owner of the property partners with a renewable energy company to share the installation costs and financial returns from a feed-in-tariff contract.
3. Rooftop Lease (per sq. ft.) – the owner of the property leases their roof to a renewable energy company who then secures a feed-in-tariff contract. Market rates for rooftop leases are ranging from 30 cents to 80 cents per square foot.
4. Rooftop Lease (shared revenue) – the owner of the property leases their roof to a renewable energy company who then secures a feed-in-tariff contract and shares the revenues with the property owner.

The ground-mounted installation market is slightly different and the price for land can vary from location to location. The market for ground mounted photovoltaic installations has matured rapidly, with property owners having Class four soil or industrial property and being close to transmission capacity, realizing they can get a higher dollar for their property – whether it be through a long-term lease or outright sale. Agricultural properties with Class one or two soils are limited to 100 KW ground-mounted installations, which effectively kills the economics of these projects, as most projects are looking to do the maximum 10 MW installation.

Often overlooked is solar thermal for heating of water. This technology is one of the most cost-effective solutions for hot water heating and represents a large opportunity to offset the use of electric and natural gas water heaters. Unlike photovoltaic panels, there is a major manufacturer of solar thermal panels located in Ontario in Dorchester. Government incentives for solar thermal can often cover over 50 per cent of the installation cost for a technology that provides a good payback for the owner. Plus, much like solar, the installation elements of solar thermal is where a lot of the costs are located, thus meaning jobs for local construction firms.

**Opportunity – as a business development and retention strategy
SOMA partners should work with residents and businesses to encourage the installation of solar thermal solutions.**

Wind

The Province of Ontario currently has about 1,200 MW of installed wind power and, under the feed-in-tariff, another 6,300 MW of wind power has been proposed. While SOMA partners in most cases will not be the home of commercial wind turbines, they can play a role in encouraging their installation in surrounding rural communities. The benefits of developing local wind turbine resources include:

- Job creation from the installation and assembly of wind turbine installations;
- Source of local clean energy generation;
- Wealth generation for the community through revenues gained through fit-in-tariff contracts; and,
- Potential spin-off supply chain investments.

**Opportunity – as a business development and retention strategy
SOMA partners should work with their rural municipal partners to encourage the installation of wind turbines.**

Urban wind for residential and commercial facilities is also an opportunity that should be explored. While not of commercial-scale, urban wind installations provide an opportunity for municipal and commercial facilities to utilize their properties to generate electricity, and help demystify the technology.

**Opportunity – as a business development and retention strategy
SOMA partners should encourage the development of urban wind within their municipal boundaries.**

Bio-Mass and Bio-Gas

The opportunities for bio-gas (including landfill gas) and bio-mass are large within the SOMA region given its rural interface and easy availability of bio inputs. The benefits of pursuing these renewable energy technologies include:

- New products and markets for the region's bio products and wastes;
- Opportunity to capture larger share of the agri-food value chain;
- Job creation from the construction and operation of bio-based facilities;
- Wealth generation for the community through revenues gained through fit-in-tariff contracts; and,
- Potential spin-off supply chain investments.

A study completed by the Ontario Ministry of Agriculture, Food and Rural Affairs, found that there is between 1.2 and 9.8 million wet tonnes per year of food-based waste and that 50 per cent of this could be utilized for bio-gas systems, generating a potential of 80 MW of electricity. In addition to this, the study identified that manure could produce another 54 MW of electric power¹⁰.

Opportunity – as an attraction strategy, SOMA partners should pursue the development bio-gas facilities to capture local waste organics (See Appendix 6 – Renewable Energy Company Leads).

Opportunity – as a business retention and expansion strategy, SOMA partners should work with their rural municipal partners and the agricultural community to promote the use of on-farm bio-gas operations.

In addition to bio-gas, the region also features a number of landfills that could be utilized to generate gas for electricity generation. The Province of Ontario already requires landfills collecting over 1.5 million cubic metres to have methane collection systems in place. The collection and burning of methane can reduce methane's climate change potential by 95 per cent, but results in precious energy being lost. Collecting this gas and utilizing it to generate electricity is a much more effective way to deal with methane, while realizing new revenue opportunities.

Opportunity – as an attraction strategy, SOMA partners should pursue the development landfill gas electricity generation.

The SOMA region is already home to a facility generating fuel from bio-mass. The Integrated Grain Processors Co-Operative in Aylmer produces ethanol from the region's farmers, highlighting how local producers can extract further value from their products locally. The options for bio-mass development could take the form of a range of options, including:

- Bio-Fuel Development – focusing on developing bio-fuel either from traditional crop inputs, utilizing waste organics, or municipal waste management and wastewater treatment facilities.
- Waste/Organic Pellets – developing waste organic pellets that can be utilized for energy generation.

¹⁰ http://www.omafra.gov.on.ca/english/engineer/facts/food_input.htm

The region is well suited to develop further markets from bio-mass that will present benefits for both the urban SOMA members and their rural neighbours, as SOMA municipalities can take advantage of developing production facilities, while their rural neighbours can help their residents identify new markets and generate new revenues.

Opportunity – SOMA partners should work with their rural municipal partners to identify bio-mass development opportunities.

Geo-Thermal

The primary advantage of geo-thermal energy compared to other energy sources is its base-load performance – geo-thermal is independent from daytime and seasonal availability, always being available for heating and cooling. It is also the most cost-effective and affordable renewable energy to install¹¹.

The number and interest in geo-thermal heating and cooling in the Province of Ontario has grown recent years, with the technology becoming a popular and cost-effective source for heating and cooling in rural areas. Canada’s growth rates in the sector are higher than the US¹² and the sector presents an often overlooked opportunity for energy security, community re-investment and skilled trade development. The benefits of pursuing these renewable energy technologies include:

- Job creation from the construction of geo-thermal installations;
- Retention of wealth in the community; and,
- Potential spin-off supply chain investments.

Opportunity – as a business retention and expansion strategy, SOMA partners should promote the installation of geo-thermal heating and cooling systems for municipal, commercial/industrial and residential new construction and retrofits.

The construction of geo-thermal systems represents a large portion of the installed cost, which means jobs for local trades. Many of the required elements for geo-thermal systems are also found locally within Ontario, including the manufacturing of heat pumps and piping. This is a renewable energy that is often overlooked for more glamorous and visible technologies, but has the greatest payback for owners and local content.

By-Product and Co-Product Extensions

The ability of manufacturers to eliminate waste streams at source is an important step in understanding a mass balance approach. This is consistent with the principles of “Reduce, Reuse and Recycle” and with a “cradle-to-cradle” concept that is in practice in the European Union. When manufacturers are able to generate biogas and salable nutrients from waste streams; or algae, biodiesel and high protein feeds from stack emissions, the retention security and growth of those employers is assured for the life of those assets. The key to encouraging these kinds of investments is fast track permitting and zoning support. The benefits of these types of technologies include:

¹¹ <http://www.trca.on.ca/learn/programs-of-the-living-city/the-renewable-energy-program/the-business-case-for-alternative-energy.dot>

¹² http://www1.eere.energy.gov/geothermal/pdfs/ornl_ghp_study.pdf

- Job creation from the construction of by-product production facilities;
- Elimination of waste streams;
- Landfill diversion and land spreading elimination;
- Significant climate change emissions reductions; and,
- Supply chain investments and fossil-derived fuel and nutrient product replacements.

Opportunity – as a business retention and expansion strategy, SOMA partners should accommodate zoning and fast track approvals for green energy and by-product processing at for municipal, commercial and industrial sites.

The construction of by-product production facilities represents the majority of the installed cost, which means jobs for local trades. Many of the required elements for by-product production systems are also found locally within Ontario, including the manufacturing of building materials and steel fabrication. This is a new sector that is still in an early development stage. These types of investments have not made a significant impact on the economy. It is the greatest payback is for industrial growth and retention with a positive environmental impact.

Focus Area 2: Energy Conservation

The energy conservation market is the most overlooked aspect of the *Green and Economy Energy Act*, but represents one of the biggest opportunities for investment. Given that buildings represent over 40 per cent of greenhouse gas emissions and that energy conservation is the cheapest form of power, identifying and implementing efficiency opportunities represents not only a great way to improve the financial performance of local companies, but address local environmental concerns.

As part of the *Green and Economy Energy Act*, local distribution companies will be required to meet annual energy conservation goals in order to retain their operating license. The combined regulatory approach of this and greenhouse gas legislation, plus the market demand for more efficient homes and buildings, offers an opportunity to improve the local building stock, but also build a manufacturing and skilled-trade base to meet existing and future market opportunities.

Manufacturing

The SOMA region features a number of manufacturers that can currently, or have the potential to, meet the energy conservation market, including businesses in the following sectors:

- Metal fabrication
- Woodworking
- Signs
- Electrical components
- Doors
- Architectural products

Responding to the emerging green market requires that manufacturers be flexible, willing and able to change. Fortunately, many of these manufacturers are smaller and have the ability to adapt to new market opportunities if presented with the opportunity.

Working with existing companies that currently produce traditional building materials to adapt their existing products would allow them to capitalize on their experience and reputations for quality products and provide an opportunity to grow their local businesses, while meeting overlooked market opportunities.

Often local manufacturers are already producing energy efficient products but just are not marketing them as such. For example, a local heat pump manufacturer had been selling their product for over a decade, until they began marketing it as green once they found out their unit was more efficient than their competitors. On the other hand, a local garage door manufacturer could upgrade the insulation of their existing product, adding additional value and realizing new market opportunities. These are simple, yet effective examples of how new opportunities can be realized with existing manufacturing operations.

Opportunity – as a business retention and expansion strategy, SOMA partners should identify and work with existing manufacturers to meet the market opportunities of the green building and energy conservation markets.

The green building market's growth and the incentives it provides to source materials locally, presents an opportunity for local manufacturers and contractors. For instance, the Leadership in Energy and Environmental Design (LEED) Building Rating System offers up to 69 points in five areas, including:

- Sustainable Site (14 points, 20 per cent)
- Water Efficiency (5 points, 7 per cent)
- Energy and Atmosphere (17 points, 25 per cent)
- Materials and Resources (13 points, 19 per cent)
- Environmental Quality (15 points, 22 per cent)
- Innovation and Design Process (5 points, 7 per cent)

When most people think of LEED they think of energy reductions, but overlook the materials and resources that go into the building. So while improved lighting, HVAC, insulation, etc., will help acquire LEED points for energy, additional points can be gained for sourcing these and other building materials locally, or through recycled materials. While LEED is only one of many building rating systems, it is becoming the market choice in the Greater Toronto Area, as well as neighbouring states like New York. This opportunity, combined with the local drive for energy efficiency, present an opportunity for local manufacturers to grow their business.

Improved Building Performance

The logical opportunity of energy conservation is to retrofit and assist local property and business owners in improving the efficiency of their operations. Doing so not only helps save them money, but given that the majority of energy is produced somewhere else, means more money stays within the local economy.

All of the local utilities serving the SOMA partners feature energy conservation programming. Depending on the municipality, the ties to the economic development department must be strengthened for promoting and encouraging the uptake of such programming with local businesses.

Enhancing this partnership not only presents cost savings opportunities, but improved relationships with existing businesses.

Opportunity – as a business retention and expansion strategy, SOMA partners should develop a comprehensive approach to energy efficiency for their industrial, commercial, institutional and residential clients.

Much like commercial and industrial retrofits, residential retrofits are also an opportunity to not only reduce costs, but also generate skilled trade jobs in the deployment of energy efficiency programming. Whether they be electricians, carpenters, engineers or plumbers, retrofits in any portion of a communities building stock provides construction and installation jobs that helps provide skill development and employment.

Opportunity – as a business retention and expansion strategy, SOMA partners should work with their trades and construction industries to build the knowledge around the economic benefits of energy conservation.

Summary of Focus Areas

The opportunities presented in the renewable energy and energy conservation sectors are large, ranging from attracting and retaining existing manufacturing capacity, to retaining community wealth through energy security and developing new skill sets for community members. Yet, while these opportunities are many, there are also other communities chasing these same opportunities.

In order for SOMA to be successful, it must focus on the opportunities that lever the areas existing assets at the most reasonable cost, while providing long-term dividends for the community. While securing a new solar module manufacturer may provide some good initial press, it may not provide the long-term dividends the community could realize from more practical opportunities with longer local market opportunities, such as energy generation and conservation, or new supply chain management.

8. Marketing Strategies

The SOMA region has a number of assets that can well position it to take advantage of new opportunities from the renewable energy and energy conservation sectors. To realize the opportunities identified, the SOMA Renewable Energy and Energy Conservation Marketing Strategy needs to embrace an approach that utilizes a hierarchical method that first builds and communicates a foundation that can be utilized by the strategy to market the region. *Figure 8-1 – Hierarchy of Approach* illustrates the hierarchy that should be utilized.



Building the Foundation

The foundation of the marketing strategy is the community's assets and value proposition that can be utilized to attract and retain investments in the renewable energy and energy conservation sectors. This comprises three elements – supply-chain development, municipal policies and local renewable energy production.

Supply-Chain Development

The SOMA partners understand the value of utilizing the supply-chain to lever investments through their successful approaches in securing and developing the automotive industry. They should apply this same approach when trying to attract and retain investments in the renewable energy and energy conservation sectors.

To better promote these opportunities, SOMA partners should complete the following:

- 1. Develop a Supply-Chain Manufacturer Database** – this database would be utilized to provide potential investors and local businesses with connections to local firms who can help them meet their supply-chain requirements. The database will focus on the following renewable energy manufacturing opportunities – wind turbines, photovoltaic, bio-mass/bio-gas and geo-thermal.

The database must only include verified leads that can meet the demands of these sectors, thus reducing the costs of due diligence for potential investors. Partnering with neighbouring municipalities outside of the SOMA partnership should also be considered in order to expand the value-proposition of the region.

2. **Supply-Chain Connections** – work with local manufacturers, trades and professional services to build awareness of the supply-chain opportunities in the renewable energy and energy conservation sectors. This may include:
 - **Channel Partner Engagements** – work with partners, such as Canadian Manufacturers and Exporters, renewable energy sector associations, and the local distribution companies, to present the supply-chain opportunities to local manufacturers, trades and professional services. Also cross link with each other to realize new opportunities.
 - **Business Development** – work with local architects and designers, along with local manufacturers, to connect them together to assist each in understanding the ability to source and manufacture locally materials to improve the energy efficiency of buildings and industrial processes.

Municipal Policies and Partnerships

As indicated by interviews with a number of renewable energy companies, a community’s sustainability initiatives play a role in a company’s investment decisions. It is important for a community to not only show its innovation and openness to renewable energy and energy conservation projects, but also have policies that encourage their adoption.

In order to differentiate the SOMA municipalities from others, the following policies should be pursued:

1. **Green Building Incentives** – in order to promote green building and the use of green technologies, SOMA municipalities should implement a development charge rebate program that provides financial incentives for the construction of green buildings with a certified building rating system, such LEED. This is a low-cost, incentive-based solution that can be utilized to quickly highlight the community’s commitment to sustainability and green energy¹³.
2. **Green Community Improvement Plan** – in order to promote green building retrofits, SOMA municipalities should incorporate green elements into Community Improvement Plans for their downtowns and/or business areas. These plans could include tax-increment financing options for companies that improve the energy and water efficiency of their operations, or install renewable energy projects. This is a low-cost, incentive-based solution that can be utilized to highlight the community’s leadership, but also develop local markets for renewable energy and energy conservation products¹⁴.
3. **Municipal Green Building Requirement** – to show leadership, SOMA municipal partners should make a commitment to build all new municipal facilities to a certified building rating system, such as LEED, while committing to upgrade their existing facilities to meet LEED Existing Building requirements in future years as retrofits are required.

¹³ See Town of Caledon, Ontario – [website](#).

¹⁴ See Town of Caledon, Ontario – [website](#).

4. **Green Business Land-Use Policies** – in order to ensure innovative renewable energy projects can take place within their communities, SOMA municipalities should review their land-use policies to ensure there are no barriers to renewable energy or green business projects that could benefit the community. As an example, while most renewable energy installations are covered by the *Green Energy Act*, a bio-gas facility still may not be permitted under the zoning of a municipality.
5. **Residential Green Building Standards** – in order to promote energy efficiency and green building, SOMA partners should require all new residential development to achieve an Energy Star rating. This will not only promote more energy efficient housing, which keeps wealth in the community, but will build local capacity to promote green building¹⁵.
6. **Municipal Local Distribution Company Partnerships** – SOMA municipalities should develop formal relationships with their local distribution companies to promote energy efficiency to local businesses.

These are all low-cost, multiple benefit opportunities that can help each of the SOMA municipalities illustrate their leadership and support for green business. And, more importantly, help build a local market for renewable energy and energy conservation products, while providing the short-term (energy savings) and long-term (resilient local economies) benefits to the broader community.

Renewable Energy Generation

The benefits of local renewable energy generation are numerous, these include illustrating the leadership of the community, long-term energy security, new revenue sources and developing local markets. This will encourage economic development opportunities in the installation, maintenance and manufacturing of renewable energy installations.

In order to differentiate the SOMA municipalities from others, the following policies should be pursued to promote renewable energy installations:

1. **Municipal Renewable Energy Installations** – SOMA municipalities should pursue the development of renewable energy installations for their properties, including:
 - *New Construction* – develop a policy of pursuing renewable generation opportunities, such as geo-thermal, solar thermal, urban wind and photovoltaic, for all new municipal facilities.
 - *Existing Facilities and Properties* – investigate and implement renewable energy installations for existing facilities and properties, such as geo-thermal, solar thermal, urban wind and photovoltaic.
2. **Green Energy Friendly Development Process** – utilizing the development process, encourage the installation of solar thermal, geo-thermal, urban wind and photovoltaic technologies on new construction. This could include strategies such as:

¹⁵ See East Gwillimbury, Ontario for example – [website](#).

- *Low-Interest Loans* – working with the local distribution companies and Union Gas to develop a low-interest loan program for residential and commercial/industrial projects.
 - *Development Charge Rebates* – providing development charge rebates for the utilization of green energy technologies.
 - *Green Economy Development Process* – developing a green economy fast-track approval process for green energy projects.
- 3. Identify Potential Sites** – complete an inventory of potential sites for renewable energy installations within the SOMA municipalities and surrounding areas, identifying issues such as transmission capacity and land classifications, to identify ideal sites for installations. This information can then be used to direct generators to potential high-value installation locations.
- 4. Bio-Mass and Bio-Gas Development** – the development of bio-mass and bio-gas resources should be a priority for SOMA partners, with the following actions taking place:
- *Bio-Gas* – to promote the development of bio-gas facilities, SOMA partners can:
 - i. *Municipal Organic Waste Programs* – develop and implement an organic waste program that can generate the feedstock required for a bio-gas facility. Municipalities can look to partner with or contract their waste treatment to a bio-gas operator.
 - ii. *Identify Organic Waste Sources* – work with local organic waste generators (i.e. food processors) and local farmers to secure waste for a bio-gas facility.
 - *Landfill Gas* – identify local landfills and the economic feasibility of capturing landfill gas for energy generation.
 - *Bio-Mass* – work with rural municipal partners and the Ontario Ministry of Agriculture, Food and Rural Affairs to identify potential focus areas and opportunities for the SOMA region.

A number of these elements may take time to develop and implement properly; however, it is important for the SOMA partners to look at these foundational items as opportunities to not only attract and retain investments, but to build a long-term resilient local economy that can compete in the future. It is recommended that the SOMA partners work towards these elements, while at the same time beginning to lever their existing successes in marketing the region.

Marketing Strategies

The development of a marketing strategy that leverages the foundational opportunities of the SOMA region in order to attract and retain investments in the renewable energy and energy conservation can take the form of both traditional and social marketing campaigns.

The strategy should start by differentiating the product that SOMA is offering. That product is the support required to realize opportunities from the renewable energy and energy conservation sectors –

whether that be by establishing new manufacturing facilities, connecting existing manufacturers to new markets, or establishing renewable energy generation projects within the region.

The SOMA region has a number of advantages, starting first with its traditional leverage points, including:

- Location in automotive cluster with focus on recent Japanese investments
- Proximity to major transportation routes
- Proven and productive workforce
- Supplier and customer proximity
- Business opportunity ‘atmosphere’ created by cluster of industrial firms
- Access to major US and GTA markets
- Comprehensive education and training system
- Good infrastructure and municipal services

In addition to these elements SOMA should also highlight:

- Business Service – on-going support to help businesses integrate and grow within SOMA communities.
- Innovative Leadership – illustrate examples of public-private partnerships such as EARTH and St. Thomas Hydro.
- Renewable Energy – foundation of existing renewable energy projects and programs throughout the region.
- Education Resources – connection to local post-secondary institutions and their renewable energy and energy conservation programming.

Given the highly competitive reality within the renewable energy and energy conservation markets, it will be important to give emphasis to the area’s leadership within these sectors and lever existing success stories and the implementation of the foundational elements described earlier. This is especially important since SOMA does not have control over the costs of doing business within the region, this means the most cost-effective approach is to market the region with customer intimacy in mind. This means developing a narrative that is effective and keeps the SOMA region top-of-mind when businesses are looking to make investments in renewable energy and energy conservation endeavors.

SOMA Branding

The SOMA region needs to work towards a branding piece that includes the green economy – this has to be more than a sales pitch, but has to show how the region lives and breathes green. This means that the messaging needs to create a public perception for the region. When it comes to developing green into the SOMA brand, the following should be considered:

- Make a Promise – SOMA needs to make a promise to as what a company can expect to experience when they invest time or money into the region. This should include:
 - The emotional and logical assets of the community – highlight what makes the community unique and its offerings.
 - Everything about the community is part of its marketing vehicle – all elements of the community need to be included in the message, this is where walking the talk is important.

- Achieve the promise – when SOMA makes the promise to provide results, the results need to be delivered time and time again.
- Targeted Audience – understand who SOMA is trying to speak to with its green marketing, the following audiences should be ranked and messaging utilized accordingly. There are a number of audiences, but they all have to speak from the same page in their own language in order for the brand to be realized. These audiences may include:
 - Existing businesses
 - Residents
 - External investors
- Messaging Impact – all of those involved must believe in the message that is being shared, this means that those selling it – both economic development officials and local businesses – need to point to tangible results that highlight the brand of the region as a leader in the green economy.

In order to build green into the SOMA brand, the messaging should speak as a region, as opposed to individual parts. There is a great foundation and message already embedded with the area; however, this is an area where the sum is greater than its parts. SOMA needs to speak as a broader green community – one that is working together not only to realize new economic development opportunities, but to make the world a better place. This is a much more powerful message and has greater impact if it's spoken as a group, as opposed to individual municipalities.

Traditional Marketing Materials

SOMA may wish to develop traditional marketing materials, such as brochures and fact sheets that highlight the region, if they do so the following information should be included:

- Industry Support – provide information on the supply-chain connections for the region.
- Green Energy – highlight existing green energy installations and energy conservation initiatives.
- Municipal Sustainability – emphasize local municipal sustainability initiatives.
- Research and Training – provide an overview of the connections to post-secondary research and development opportunities.
- Ongoing Business Support – impart information on the support systems available within SOMA.

Building on these elements, SOMA will build a stronger narrative of the region and develop an information booklet on the region that highlights its successes in the renewable energy and energy conservation sectors. This booklet could include a directory of existing installations, community sustainability profiles, and profiles of local companies working with the targeted sectors.

Trade Shows

There are many trade shows that provide access to decision-makers and provide leads in the industry, but it is important to follow some key guidelines, including:

- Attend more shows as a visitor than as an exhibitor.
- Have a story to tell and the information to back it up.
- Stay focused on the supply-chain opportunities identified for the specific technology you are pursuing.

The following are some trade shows that may be considered for attendance:

- Solar
 - Intersolar – focuses on connecting businesses within the solar industry internationally, with shows in Europe, Asia and North America - www.intersolar.de.
 - CanSIA Solar Conference – a conference of the Canadian Solar Industries Association - www.cansia.ca.
- Wind
 - CanWEA Wind Conference – a conference of the Canadian Wind Energy Association - www.canwea.ca.
 - American Wind Energy Association – annual wind power conference that has over 23,000 attendees and 1,200 exhibitors - www.awea.org.
- Bio-fuels
 - World Bio-Fuels Markets – annual conference bringing together suppliers and customers alongside new bio-fuel technologies - www.worldbiofuelsmarkets.com.
- Environmental
 - Globe – one of the largest and longest running events dedicated to the business of the environment, ideal for networking and connecting with all things renewable, building and clean-tech - www.globe2010.com.

Website Development

The SOMA organization should give priority to the renewable energy and energy conservation sectors on its website. The website's development should utilize a lot of the same content that has been identified above as integral to any traditional marketing materials, including:

- Promoting businesses already operating within the renewable energy and energy conservation markets.
- Highlight key supports available to the renewable energy and energy conservation sectors.
- Highlight key municipal policies and partnerships that promote the sector.
- Integrate the proposed Supply-Chain Manufacturer Database.
- Develop a Google-Map database inventory of renewable energy installations to highlight the concentration of projects in the region.

Channel Partners

One of the most cost-effective ways to promote the region is through earned media stories about local renewable energy projects and energy conservation initiatives which are posted on other websites, thereby increasing search engine ratings.

As SOMA develops content for its website and learns of more specific initiatives in the region it should publish news stories online and through other green business sites, such as www.greenbiz.com, www.climatebiz.com, www.green-business.ca and www.bioenergymagazine.ca, which are followed by people within the industry and can raise the profile of the region.

Industry and Trade Associations

Working with the various industry associations and trade organizations presents a good opportunity to showcase your community and provides direct access to potential investment opportunities. Developing relationships with various industry associations may help keep the SOMA region top-of-mind when companies are looking to make investment decisions. The following are a number of strategies that could be utilized to start the dialogue with industry associations:

- Training – working with renewable energy industry associations to conduct training and information sessions for local manufacturers, trades and professionals. These organizations should include: CanSIA, CanWEA and the Canadian Geo-exchange Coalition.
- Supply-Chain Development – actively contact renewable energy associations to see how SOMA can work with them to identify and develop supply-chain requirements for their respective members. These should include: CanSIA, CanWEA, Canadian Renewable Fuels Association and the Canadian Geo-exchange Coalition.

Social Marketing

Utilizing and leveraging social marketing opportunities to help change behaviors locally can help drive awareness locally, which can then increase the profile of community abroad. The following are different types of social marketing that could be utilized locally to promote renewable energy and energy conservation:

- Renewable Energy
 - Project Profiles – highlight local projects in community news forums and the SOMA website in order to provide information that helps demystify renewable energy.
 - Information Sessions – partner with local distribution companies to educate residents and businesses on the renewable energy installations the options available.
 - Community Challenge – develop a community challenge to promote certain renewable energy installations, such as photovoltaic or solar thermal. This could be done in partnership with local distribution companies.
- Energy Conservation
 - Project Profiles – highlight local projects in community news forums and the SOMA website in order to provide information that helps demystify energy conservation.
 - Community Challenge – develop community challenges around energy conservation. The annual black-out challenge is a perfect example of this – it has raised the profile of Woodstock beyond its borders, while highlighting local leadership. This could be expanded to the corporate and residential communities that would set targets and report reductions annually from the community.
 - Community Engagement – developing hands on interventions that help residents and businesses understand the opportunity for energy conservation and savings in their operations, such as free audits and installation of select technologies.

These are all tools that can help build local markets for renewable energy and energy conservation, while allowing SOMA partners to highlight what they are doing locally to promote green economy opportunities. It is recommended that these types of activities be developed in partnership with the local distribution companies in order to realize maximum effect.

Investment Opportunities

There are number of areas for the SOMA partners to focus on within the renewable energy and energy conservation sectors, including business retention and expansion investments, and attraction opportunities. Given SOMA's role as an investment attraction vehicle, the attraction elements should be left to the SOMA partnership, while the business retention and expansion strategies should be pursued by each of the municipal partners.

It should be noted that while SOMA partners may want to only pursue elements of each value-chain, it is important to pursue all the opportunities as a whole, as this helps not only to establish a narrative that differentiates the SOMA region, but also to help the region extract maximum value from the renewable energy and energy conservation sectors. The relevant investment opportunities and their associated strategies are provided in *Table 8-1– SOMA Investment Opportunities*.

Table 8-1– SOMA Investment Opportunities

Sector	Type	Opportunity	Strategy
Photovoltaic - Manufacturing	Retention/Expansion	Opportunity – as a business development and retention strategy SOMA partners should work with existing manufacturers and trades to meet mounting, wiring, installation and maintenance requirements for photovoltaic installations.	<ul style="list-style-type: none"> • Develop a Supply-Chain Manufacturer Database • Supply-Chain Connections
	Attraction	Opportunity – SOMA partners to identify and work with potential inverter manufacturer(s) to locate in the SOMA Region.	<ul style="list-style-type: none"> • See lead list
		Opportunity – SOMA partners may wish to pursue potential photovoltaic module manufacturers, but this strategy has a high-investment and low-potential for success given the uncertainty in the Ontario-market and the global competition.	<ul style="list-style-type: none"> • See lead list
Wind – Manufacturing	Retention/Expansion	Opportunity – as a business development and retention strategy SOMA partners should work with existing manufacturers and trades to meet mounting, wiring, installation and maintenance requirements for wind turbine installations.	<ul style="list-style-type: none"> • Develop a Supply-Chain Manufacturer Database • Supply-Chain Connections
		Opportunity – as a business development and retention strategy SOMA partners should work with existing manufacturers to meet control systems and electronics to meet the wind turbine supply-chain.	<ul style="list-style-type: none"> • Develop a Supply-Chain Manufacturer Database • Supply-Chain Connections
	Attraction	Opportunity – SOMA partners should target Tier one suppliers with a focus components with costly transportation costs, namely tower sections, rotor blades, rotor hub and nacelle assemblies.	<ul style="list-style-type: none"> • See lead list
Generation – Photovoltaic	Retention/Expansion	Opportunity – as a business development and retention strategy SOMA partners should work with residents and businesses to encourage rooftop and ground-mounted photovoltaic installations.	<ul style="list-style-type: none"> • Green Community Improvement Plan • Green Business Land-Use Policies • Municipal Renewable Energy Installations • Green Energy Friendly Development Process • Identify Potential Sites
Generation – Solar Thermal		Opportunity – as a business development and retention strategy SOMA partners should work with residents and businesses to encourage the installation of solar thermal solutions.	<ul style="list-style-type: none"> • Green Community Improvement Plan • Green Business Land-Use Policies • Municipal Renewable Energy Installations

			<ul style="list-style-type: none"> Green Energy Friendly Development Process
Generation – Wind		Opportunity – as a business development and retention strategy SOMA partners should work with their rural municipal partners to encourage the installation of wind turbines.	<ul style="list-style-type: none"> Green Business Land-Use Policies Municipal Renewable Energy Installations Green Energy Friendly Development Process Identify Potential Sites
		Opportunity – as a business development and retention strategy SOMA partners should encourage the development of urban wind within their municipal boundaries.	<ul style="list-style-type: none"> Green Community Improvement Plan Green Business Land-Use Policies Municipal Renewable Energy Installations Green Energy Friendly Development Process
Generation – Bio-Gas	Attraction	Opportunity – as an attraction strategy, SOMA partners should pursue the development bio-gas facilities to capture local waste organics.	<ul style="list-style-type: none"> Green Business Land-Use Policies Municipal Renewable Energy Installations
Generation – Bio-Gas	Retention/Expansion	Opportunity – as a business retention and expansion strategy, SOMA partners should work with their rural municipal partners and the agricultural community to promote the use of on-farm bio-gas operations.	<ul style="list-style-type: none"> Green Energy Friendly Development Process
Generation – Landfill Gas	Attraction	Opportunity – as an attraction strategy, SOMA partners should pursue the development landfill gas electricity generation.	<ul style="list-style-type: none"> Municipal Renewable Energy Installations
Generation – Bio-Mass	Attraction	Opportunity – SOMA partners should work with their rural municipal partners to identify bio-mass development opportunities.	<ul style="list-style-type: none"> Municipal Renewable Energy Installations Green Energy Friendly Development Process
Generation – By-Product Processing	Retention/Expansion	Opportunity – as a business retention and expansion strategy, SOMA partners should accommodate zoning and fast track approvals for green energy and by-product processing at for municipal, commercial and industrial sites.	<ul style="list-style-type: none"> Green Energy Friendly Development Process
Generation – Geo-Thermal	Retention/Expansion	Opportunity – as a business retention and expansion strategy, SOMA partners should promote the installation of geo-thermal heating and cooling systems for municipal, commercial/industrial and residential new construction and retrofits.	<ul style="list-style-type: none"> Green Community Improvement Plan Green Business Land-Use Policies Residential Green Building Standards Municipal

			Renewable Energy Installations
Manufacturing – Energy Conservation	Retention/Expansion	Opportunity – as a business retention and expansion strategy, SOMA partners should identify and work with existing manufacturers to meet the market opportunities of the green building and energy conservation markets.	<ul style="list-style-type: none"> • Supply-Chain Connections • Green Building Incentives • Green Community Improvement Plan • Municipal Green Building Requirement • Residential Green Building Standards • Municipal Local Distribution Company Partnerships
Generation – Energy Conservation		Opportunity - as a business retention and expansion strategy, SOMA partners should develop a comprehensive approach to energy efficiency for their industrial, commercial, institutional and residential clients.	<ul style="list-style-type: none"> • Green Building Incentives • Municipal Green Building Requirement • Residential Green Building Standards • Municipal Local Distribution Company Partnerships
		Opportunity – as a business retention and expansion strategy, SOMA partners should work with their trades and construction industries to build the knowledge around the economic benefits of energy conservation.	<ul style="list-style-type: none"> • Supply-Chain Connections • Green Building Incentives • Green Community Improvement Plan • Municipal Green Building Requirement • Residential Green Building Standards • Municipal Local Distribution Company Partnerships

9. Implementation Plan

The following provides a framework for SOMA partners to move forward with the implementation of the recommendations of the Renewable Energy and Energy Conservation Marketing Strategy.

Leadership Team

In order to implement the SOMA Renewable Energy and Energy Conservation Marketing Strategy, SOMA partners should leverage the knowledge base of their communities and develop a cross-municipal public-private sector leadership team. The benefits of such an approach include:

- Provides a framework for the implementation of the strategy that leverages the knowledge base of local players in the renewable energy and energy conservation sectors;
- Ensures cross-municipal coordination that can maximize the SOMA brand when it comes to renewable energy and energy conservation; and,
- Creates a source of knowledge that can leverage new investment opportunities.

This leadership team should include representation from the following:

- Local distribution companies
- Union Gas
- Municipalities
- Municipally owned companies (i.e. EARTH Corporation and St. Thomas Hydro Holding Company)
Private sector companies

The purpose of the leadership team will be to not only drive the implementation of this strategy; but, more importantly, highlight the SOMA region's commitment to realizing the benefits from renewable energy and energy conservation investments in their communities.

Implementation Timelines

This strategy provides a wide-range of strategic activities that can help drive investments in renewable energy and energy conservation for the SOMA region. Some of these activities can be done quickly, while others will have longer timelines. The following provides a recommended approach for moving forward:

- 1. Short-Term Focus (1 to 3 months)**
 - Traditional Marketing Tools
 - Print Collateral
 - Website
 - Trade Show Strategy
 - Municipal Renewable Installations
 - Social Marketing Stories
- 2. Medium-Term Focus (3 to 12 months)**
 - Supply-Chain Manufacturer Database
 - Supply-Chain Connections
 - Industry Association Partnerships

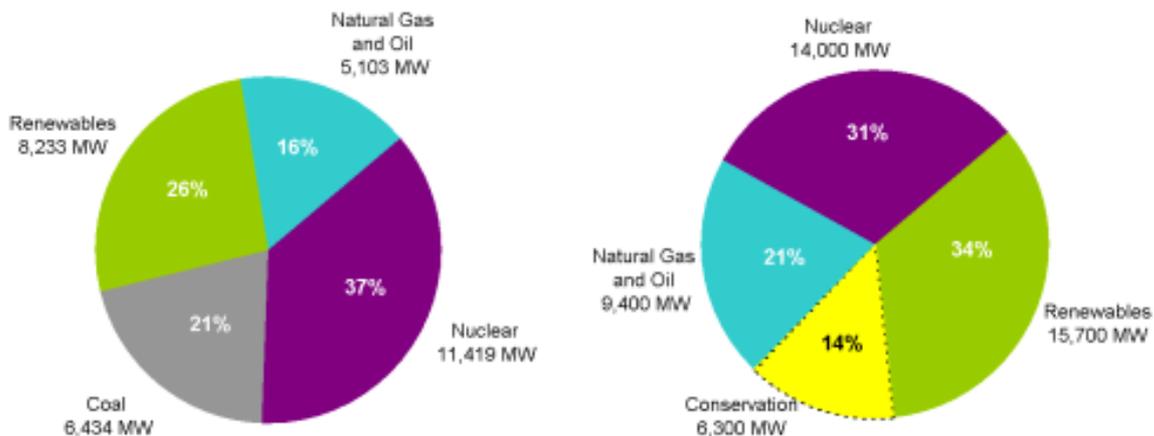
- Renewable Energy Site Identification
- 3. Long-Term Focus (6 to 18 months)**
- Municipal Policies and Development Incentives

Appendix 1 – Drivers for Investment in the Renewable Energy and Energy Conservation Sectors

Province of Ontario

The Province of Ontario has a number of initiatives that are encouraging increased investment in the renewable energy and energy conservation sectors that can be leveraged for economic development activities. These range from overt regulatory requirements to financial incentives to encourage green energy technologies. This is part of the province's overall goal to replace coal-fired electricity generation by 2014, while increasing the amount of generation from renewable sources to 15,700 MW by 2025, and realizing another 6,300 MW of avoided energy generation from conservation measures. The following figure provides an overview of the current electricity mix and the mix targeted for 2025.

Ontario Electricity Mix – 2006 Versus 2025



Green Energy and Economy Act

The purpose of the Province of Ontario's *Green Energy and Economy Act* is to serve the needs of the province's electricity requirements and greenhouse gas reduction targets, and, just as importantly, realize new economic development opportunities through the manufacturing and installation of green energy technologies. The *Green Energy and Economy Act* provides a mix of regulatory requirements and financial incentives to encourage renewable energy and energy conservation measures, including:

- Renewable Energy
 - A feed-in-tariff that guarantees 20-year contract prices for renewable energy.
 - Ontario-based content requirements for solar and wind technologies.
 - One-window service for renewable energy installations that guarantee connections and land-use compatibility.
 - Ability for local distribution companies to operate their own renewable energy installations.

- Energy Conservation
 - Requirement for public agencies to develop energy conservation and demand management plans.
 - Requirement for public agencies to consider energy conservation when acquiring goods and services for capital investments.
 - Requirement for local distribution companies to set and meet energy conservation targets.
 - Requirement for local distribution companies to implement smart grid technologies to ensure renewable energy and energy conservation measures are utilized to their fullest potential.
 - Regular review of the Ontario Building Code to establish standards for energy conservation.

Through these measures, the Province of Ontario plans to realize over 50,000 green collar jobs, while generating billions of dollars of economic growth in communities across Ontario.

Climate Change Legislation

The Province of Ontario passed the *Environmental Protection Amendment Act* in December of 2009 to provide the legal foundation for a cap-and-trade greenhouse gas emission system in the province. A cap-and-trade system uses market forces to help industry reduce greenhouse gas emissions by providing a set-level of emission credits that the company can either utilize itself or sell to other companies that require additional emission credits. This system is being implemented to help the province reach its target of reducing greenhouse gas emissions by six per cent below 1990 levels by 2014 and by 15 per cent by 2020.

Organizations that release 25,000 tonnes of greenhouse gas emissions per year will be required to report, while smaller organizations with 10,000 tonnes of emissions or more will be encouraged to voluntarily report. This will capture many of Ontario's medium to large manufacturing facilities. And, while fuel suppliers are not covered by the legislation at this time, it is anticipated that coverage will be expanded in the future, resulting in higher energy costs and greater incentives to increase energy efficiency.

Energy Efficiency and Renewable Energy Incentives

Through the Province of Ontario there are a number of financial incentives to encourage the adoption of other renewable energy and energy conservation technologies. These include at a high-level:

- Ontario Power Authority – is responsible for ensuring an adequate, long-term supply of electricity for the Province of Ontario. The authority not only administers the feed-in-tariff program, but also provides a number of energy conservation programs to local distribution companies for their communities.
- Renewable Energy Financial Incentives – beyond the feed-in-tariff there are a number of other financial incentives offered by the Province of Ontario for the installation of renewable energy projects, including incentives for solar thermal¹⁶ and bio-mass¹⁷.

¹⁶ <http://www.rev.gov.on.ca/en/refund/sesr/index.html>

¹⁷ <http://www.omafra.gov.on.ca/english/engineer/biogas/index.html>

Government of Canada

The Government of Canada has a number of regulatory and financial incentives to encourage the adoption of renewable energy and energy conservation technologies.

Energy Efficiency and Renewable Energy Incentives

Through various ministries the Government of Canada has financial incentives for the following renewable energy and energy conservation technologies¹⁸:

- Bio-fuels – incentives to encouraging the production of bio-fuels¹⁹.
- Renewable energy – a one cent per kWh for renewable energy technologies for public and private sector installations²⁰.
- Solar thermal – funding to complement the Province of Ontario’s solar thermal incentives²¹.
- Energy conservation – there are a number of financial incentives that complement the Ontario Power Authority’s energy efficiency programs, including incentives for residents²² and commercial/industrial²³.

Climate Change Legislation

The Government of Canada’s approach to regulating greenhouse gas emissions is still unresolved, but is likely to be heavily influenced by legislation developed in the United States. The government plans to set mandatory reduction targets for all major industries with a reduction target of 20 per cent by 2020 per unit of production.

Additional Drivers

Beyond the regulatory and financial incentive drivers, there are a number of other issues that are helping drive the push towards energy conservation and renewable energy.

Climate Change Legislation

The United States is currently developing a number of climate change legislation options, including the “*American Clean Energy and Security Act of 2009*”, better known as the Waxman-Markey Bill, which will change regulations regarding greenhouse gas emissions and develop a cap-and-trade system. This legislation has passed the House of Representatives and is currently in Senate Committee. If it is passed, it is highly likely Canada’s climate change legislation will be very similar.

Even if the Waxman-Markey Bill does not pass, the United States Environmental Protection Agency has ruled that greenhouse gas emissions are a public health risk, which gives the Obama administration the power to regulate smokestack and tailpipe emissions with or without the support of Congress. This means that regardless of whether there is the political will in Congress to pass legislation, the President will have the ability to act on his own. Given the campaign promises of President Obama and his efforts

¹⁸ <http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/index-eng.cfm>

¹⁹ <http://oee.nrcan.gc.ca/transportation/ecoenergy-biofuels/index.cfm>

²⁰ <http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/power-electricite/index-eng.cfm>

²¹ <http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm>

²² <http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/retrofithomes-renovationmaisons-eng.cfm>

²³ <http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/retrofitsmo-renovationpmo-eng.cfm>

to reach a climate change agreement in Copenhagen, it is highly expected that there will be action to implement climate change legislation.

Green Building Movement

Residential and commercial/industrial building stock results in 40 per cent of all greenhouse gas emissions in Canada²⁴, meaning not only are the places that people live and work an easy source for emission reductions, but also cost savings. To respond to this opportunity, the green building market has grown in the last number of years, with standards like Leadership in Energy and Environmental Design (LEED), Energy Star, BOMA BEST and Green Globes, being utilized for residential and/or industrial/commercial buildings and developments.

In the Greater Toronto Area, LEED has become the standard for office construction, and the market demands LEED certification for new buildings; while many existing buildings are adopting LEED for existing buildings to ensure their space is leased. The market for LEED buildings is also starting to move into industrial and warehouse space, as retailers like Wal-Mart push to green their supply chains.

Both Energy Star and LEED also provide a residential neighbourhood development model that are being utilized across North America, with a number of pilot developments being undertaken in Ontario, including in Vaughan and Pickering; while some municipalities, such as Ontario's East Gwillimbury, require Energy Star ratings for all new residential developments.

The demand for green buildings and products for their construction and retrofit is growing at rapid rate despite the recent downturn in the real estate market. In the United States, the number of green buildings grew by over 40 per cent in 2009, resulting in over seven billion square feet since the standard was launched in 2000. Internationally, the demand for LEED buildings is estimated to grow by 30 per cent in 2009, as countries like China, India and Europe, continue to embrace green building through the LEED standard²⁵.

Beyond new building construction, the retrofitting of buildings offers one of the largest opportunities to reduce greenhouse gas emissions and operational costs for businesses. The Real Property Association of Canada has worked with its members to develop a target called "20 by 15" that aims to achieve the equivalent of 20 kWh of total energy reduction per square foot of rentable area per year in office buildings by the year 2015²⁶. Achieving the target would lower median energy use for office and government buildings by 40 per cent and 31 per cent respectively. The association's membership has over 1.9 billion square feet of office space, which means action on this front will not only result in greenhouse gas emissions, but major economic spin-offs from investments in energy efficiency.

Green building and energy conservation not only represents an opportunity for local businesses to reduce their input costs; but, more importantly, provides an opportunity for local manufacturers and service providers to meet new markets. This is especially true with a number of the green building standards, such as LEED, which provide certification points for sourcing materials locally (within 500 miles). Given Ontario's location adjacent to the large states such as Michigan, Ohio and New York, the green building movement represents a large opportunity to export technology and know-how.

²⁴ 2015- Achieving the Office Building Target, RealPac 2009.

²⁵ Green Building Market and Impact Report 2009.

²⁶ 2015- Achieving the Office Building Target, RealPac 2009.

Appendix 2 – Renewable Energy Projects in the Vicinity of SOMA Members

Project Name	Type	Status	MW	Municipality	SOMA
Innerkip Wind Farm	Wind	Proposed	19	Township of East-Zorra	No
Gunn's Mill Wind Farm	Wind	Proposed	25	Township of Norwich	No
Tillsonburg Special Events Centre	Solar (roof)	Proposed	TBD	Town of Tillsonburg	Yes
Tillsonburg Industrial Park	Solar (ground)	Proposed	TBD	Town of Tillsonburg	Yes
Tillsonburg Industrial Park	Solar (ground)	Proposed	TBD	Town of Tillsonburg	Yes
Integrated Grain Processors Co-operative	Bio-Fuels	Operating		Town of Alymer	Yes
Erie Shores Wind Farm	Wind	Operating	99	Port Burwell	No
Silver Creek Solar Park	Solar (ground)	Proposed	10	Township of Malahide	No
Belmont Solar Farm	Solar (ground)	Proposed	20	Belmont	No
Sarnia Solar Park	Solar (ground)	Operating	80	Sarnia	No
Amherstburg Solar Park	Solar (ground)	Proposed	20	Amherstburg	No
Tilbury Solar Park	Solar (ground)	Proposed	20	Tilbury	No
Walpole Nanticoke	Solar (ground)	Proposed	20	Walpole	No
Oxford County Landfill	Bio-Fuels	Proposed		Southwest Oxford	Yes
	Solar (ground)	Proposed	20	Howard Township	No
StormFisher Bio-Gas	Bio-Fuels	Construction	3.5	London	No

Appendix 3 – SOMA’s Renewable Energy and Energy Conservation Supply-Chain

To better understand the potential supply-chain within the SOMA region, this overview provides an analysis of the major component requirements of four renewable energy technologies to identify the number of companies within the region who could meet this market, they included:

- Wind
- Solar
- Geo-thermal
- Bio-mass

The analysis defined a “major component” as a part that would likely be sold by a manufacturer as a single unit, and not the parts that went into that unit further up the supply-chain. For example, a gearbox in a wind turbine is considered a component, but not the bolts that went into making the gearbox.

Wind Components

For wind technology this report identifies utility scale modern turbines – three-bladed, upwind, horizontal axis machines, larger than 1 MW capacity. Almost all wind turbines currently being installed for power generation for electric utilities are of this kind.

Solar Components

For photovoltaic systems, this report considers crystalline silicon modules, as these are by far the most common type of PV modules being deployed. Although not considered in this report, amorphous silicon and other “thin-film” modules are also produced in small amounts. However, with the exception of the glass top plate and the framing structure, the components for both systems are practically the same and so much of what is written in this report will also apply to “thin-film” modules.

Geo-Thermal Components

This report considers two technologies which represent almost all of the current and planned geo-thermal installations – flash steam and binary cycle. Flash steam plants operate by expanding the hot geo-thermal fluid to make steam, which is then passed through a steam-turbine set to make electricity. In a binary system, a fluid with a low boiling point is circulated in a closed loop, receiving heat from the geo-thermal fluid through a heat-exchanger, vaporizing, being expanded through a generator. In addition to these two technologies, geo-thermal heating and cooling is also considered. A number of these components are shared – such as pumps, heat exchangers and piping. The SOMA region is more likely to utilize heating and cooling options than geo-thermal electricity technologies.

Bio-Mass Components

For the bio-mass analysis, this report looks at dedicated bio-mass plants that burn bio-mass in a boiler to generate steam. The steam is then passed through a generator to produce electricity. Other

technologies, such as anaerobic digestion and gasification, also share many common components. All three technologies offer opportunities for the SOMA region.

Identifying by NAICS Codes

Utilizing the North American Industry Classification System (NAICS) it is possible to tabulate the companies involved in similar to the manufacturing of renewable energy components identified above. For this analysis, this report started with the 10-digit code to ensure the highest level of detail and then went back up the hierarchy to the 5-digit code to interface with the SOMA business directory. Through this analysis it was identified that there were 61 firms in the SOMA region that could meet the component requirements of the four renewable energy technologies identified. A summary of the results of this analysis can be found in *Table 0-1 – Summary of Component Supply-Chain*.

It is important to be aware of the potential broadness of companies included and that not all of these companies may be serving the renewable market industry. What makes this analysis important is that these companies have the potential to serve this market as their existing production materials are similar enough that they could be utilized in renewable installations. After all, a company that has experience building electrical equipment will have a significant advantage over another starting from scratch, as they have the basic knowledge and capabilities for making electrical equipment.

Table 0-1 – Summary of Component Supply-Chain

NAICS	NAICS Description	# of firms
Wind		
32619	Other Plastics Product Manufacturing	3
33151	Ferrous Metal Foundries	0
33231	Plate Work and Fabricated Structural Product Manufacturing	7
33299	All Other Fabricated Metal Product Manufacturing	8
33341	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2
33361	Engine, Turbine, and Power Transmission Equipment Manufacturing	4
33441	Semiconductor and Other Electronic Component Manufacturing	1
33451	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4
33531	Electrical Equipment Manufacturing	4
33599	All Other Electrical Equipment and Component Manufacturing	0
	Current Potential to Meet Market	33
Solar		
32521	Resin and Synthetic Rubber Manufacturing	3
32611	Plastics Packaging Materials and Unlaminated Film and Sheet Manufacturing	0
33232	Ornamental and Architectural Metal Products Manufacturing	3
33441	Semiconductor and Other Electronic Component Manufacturing	1
33451	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5
33531	Electrical Equipment Manufacturing	4
33591	Battery Manufacturing	0
33593	Wiring Device Manufacturing	0
33599	All Other Electrical Equipment and Component Manufacturing	0
	Current Potential to Meet Market	16
Geo-Thermal		
33121	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	1
33241	Power Boiler and Heat Exchanger Manufacturing	1

33242	Metal Tank (Heavy Gauge) Manufacturing	4
33341	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2
33391	Pump and Compressor Manufacturing	1
33392	Material Handling Equipment Manufacturing	5
	Current Potential to Meet Market	14
Bio-Mass		
33121	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	1
33241	Power Boiler and Heat Exchanger Manufacturing	1
33242	Metal Tank (Heavy Gauge) Manufacturing	4
33291	Metal Valve Manufacturing	5
33312	Construction Machinery Manufacturing	3
33341	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2
33391	Pump and Compressor Manufacturing	1
33392	Material Handling Equipment Manufacturing	4
33399	All Other General Purpose Machinery Manufacturing	5
33451	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4
33531	Electrical Equipment Manufacturing	4
33599	All Other Electrical Equipment and Component Manufacturing	0
	Current Potential to Meet Market	34

Appendix 4 – SOMA Renewable Energy Supply-Chain Company List

ID	Company	Region	NAICS	Sector	Sector	Sector
53220	Cooper Standard Automotive (Canada) Ltd.	Stratford	325210	Solar		
54645	Greenline Resins Inc.	Woodstock	325210	Solar		
53341	Spartech Color	Stratford	325210	Solar		
53221	Cooper Standard Automotive Stratford Sealing	Stratford	326193	Wind		
	Freudenberg-NOK Inc.	Tillsonburg	326193	Wind		
54473	Calco Metal Manufacturing Limited	St. Thomas	331210	Geo-Thermal	Bio-Mass	
53272	Integrated Mechanical Services Inc.	Stratford	332311	Wind		
224	Steelway Building Systems	Aylmer	332311	Wind		
53371	Vicwest	Stratford	332311	Wind		
54615	Brant Form Teck Ltd.	Woodstock	332319	Wind		
54646	Haas Enterprises Inc.	Woodstock	332319	Wind		
54659	Jwh Fabricating	Woodstock	332319	Wind		
54664	Langdon Metal Products	Woodstock	332319	Wind		
54632	Dual Temp Aluminum (1997) Ltd.	Woodstock	332321	Solar		
	Tripp-Vogt-Trottier Ltd.	Tillsonburg	332321	Solar		
54626	Cornell Welding & Fabricating Ltd.	Woodstock	332329	Solar		
53174	A.o. Smith Enterprises Ltd.	Stratford	332410	Geo-Thermal	Bio-Mass	
53196	Bowers Process Equipment Division Of Clemmer Steelcraft Technologies Inc.	Stratford	332420	Geo-Thermal	Bio-Mass	
53211	Cleaver-brooks Of Canada Ltd.	Stratford	332420	Geo-Thermal	Bio-Mass	
53212	Clemmer Steelcraft Technologies Inc.	Stratford	332420	Geo-Thermal	Bio-Mass	
53250	Festival City Fabricators Division Of Clemmer Steelcraft Technologies Inc.	Stratford	332420	Geo-Thermal	Bio-Mass	
54617	Bryan Donkin Rmg (canada) Limited	Woodstock	332910	Bio-Mass		
54471	Masco Canada Limited, Brass-craft Division	St. Thomas	332910	Bio-Mass		
53274	Island Automation Inc	Stratford	332910	Bio-Mass		
54670	M & S Thermal Cleaning And Rebuilding	Woodstock	332910	Bio-Mass		
54703	Saf - Holland Canada Limited	Woodstock	332910	Bio-Mass		
54475	Timken Canada LP	St. Thomas	332991	Wind		
54472	Brazed Parts Limited	St. Thomas	332999	Wind		
54383	BUWW Coverings Corp. Canada	St. Thomas	332999	Wind		
54620	Canada Stampings Ltd.	Woodstock	332999	Wind		
54640	Forestdale Metal Products Inc.	Woodstock	332999	Wind		
54676	Mto Metal Products Ltd.	Woodstock	332999	Wind		
54686	Oxford Rollform Inc.	Woodstock	332999	Wind		
54717	Tigercat Industries Inc.	Woodstock	332999	Wind		
54526	Arva Industries Inc.	St. Thomas	333120	Bio-Mass		

54702	Rwf Industries	Woodstock	333120	Bio-Mass		
54718	Timberland Equipment Ltd.	Woodstock	333120	Bio-Mass		
54680	Newmac Mfg. Inc.	Woodstock	333416	Wind	Geo-Thermal	Bio-Mass
53363	Tamas Corporation	Stratford	333416	Wind	Geo-Thermal	Bio-Mass
54627	Cue Engineering Inc.	Woodstock	333619	Wind		
53243	Fag (schaeffler Canada Inc.)	Stratford	333619	Wind		
54649	Harvan Engineering Ltd.	Woodstock	333619	Wind		
53325	Qure Corporation	Stratford	333619	Wind		
54482	Gorman Rupp Of Canada Ltd.	St. Thomas	333910	Geo-Thermal	Bio-Mass	
54666	Leeson (t.f.) & Sons (1991) Ltd.	Woodstock	333920	Geo-Thermal	Bio-Mass	
54669	Lift Systems Inc.	Woodstock	333920	Geo-Thermal	Bio-Mass	
54400	Muma Manufacturing Inc.	St. Thomas	333920	Geo-Thermal	Bio-Mass	
54692	Pneueveyor Systems International, Ltd.	Woodstock	333920	Geo-Thermal	Bio-Mass	
	Wellmaster Carts	Tillsonburg	333920	Geo-thermal	Bio-Mass	
54607	Armor Automation Inc.	Woodstock	333990	Bio-Mass		
54589	dmac Automation Ltd.	St. Thomas	333990	Bio-Mass		
54672	Maple Automotive Corporation	Woodstock	333990	Bio-Mass		
54681	North Shore Industrial Wheel Mfg.	Woodstock	333990	Bio-Mass		
54685	Oxford Engine Services Ltd.	Woodstock	333990	Bio-Mass		
54634	Duracap International Inc.	Woodstock	334410	Wind	Solar	
53228	D & D Automation	Stratford	334512	Wind	Solar	Bio-Mass
53309	Novatronics Division Curtiss Wright Controls	Stratford	334512	Wind	Solar	Bio-Mass
53319	Powerhouse Controls Limited	Stratford	334512	Wind	Solar	Bio-Mass
	MCM Industrial Inc.	Tillsonburg	334512	Wind	Solar	Bio-Mass
54674	Moble Source Industries Inc.	Woodstock	335310	Wind	Solar	Bio-Mass
53331	Rockwell Automation Canada Inc.	Stratford	335312	Wind	Solar	Bio-Mass
54477	E.C.M. Controls Inc.	St. Thomas	335315	Wind	Solar	Bio-Mass
54661	Kierwood Distributing Ltd.	Woodstock	335315	Wind	Solar	Bio-Mass
	Electrical Components International	Tillsonburg	336320	Wind	Solar	Bio-Mass
	Canadian Pipe Supply Ltd.	Tillsonburg	416210	Geo-thermal		

Appendix 5 – Ontario-Based Content Requirements

Domestic Content Grid – Solar (PV) Power Projects	
Some variation depending on technology	
Designated Activity	Qualifying Percentage
1. Silicon that has been used as input to solar photovoltaic cells manufactured in an Ontario refinery.	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.	12%
3. The crystalline silicon solar photovoltaic cells, where their active photovoltaic layer(s) have been formed in Ontario.	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.	13%
5. Inverter, where the assembly, final wiring and testing has been done in Ontario.	9%
6. Mounting systems.	9%
7. Wiring and electrical hardware that is not part of other Designated Activities (i.e., items 1, 2, 3, and 5 of this table), sourced from an Ontario Supplier.	10%
8. All on- and off- site labour and services. For greater certainty, this Designated Activity shall apply in respect of all Contract Facilities.	27%

Domestic Content Grid – Wind Power Projects	
Designated Activity	Qualifying Percentage
1. Wind turbine blades	16%
2. Pitch system	3%
3. Yaw system	7%
4. Hub and hub casting	2%
5. Gearbox	11%
6. Generator and brake	3%
7. Heat exchanger has been assembled and tested in Ontario	1%
8. Drive shaft	1%
9. Power converter	5%
10. Tower physically formed and shaped from steel plants in Ontario	4%
11. All steel in towers processed in Ontario	9%
12. Control panel and electronics	2%
13. Nacelle frame manufactured in Ontario	2%
14. Nacelle shell	2%
15. Pad mount or equivalent transformers	2%
16. Grid connection, transformers wound and tested in Ontario	10%
17. Construction costs and on-site labour, where no more than 5% of the total person-hours of all labour is performed by individuals that are not Residents in Ontario.	15%
18. Consulting services, where no more than 5% of the total person-hours of all services is performed by individuals that are not Residents in Ontario.	5%

Appendix 6 – Renewable Energy Company Leads

Photovoltaic			
Inverter Manufacturer - Attraction Opportunities			
Sustainable Energy Technologies Ltd	Calgary, Alberta	www.SustainableEnergy.com	Looking for options in Ontario.
Xantrex Technology Inc.	Burnaby, British Columbia	www.xantrex.com	Looking for options in Ontario.
SMA	Rocklin, California	www.sma-america.com	Looking for options in Ontario.
Samlex America, Inc.	Coquitlam, British Columbia	www.samlexamerica.com/	
Inverter Manufacturer - Existing Ontario-Based			
Hybridyne Power Electronics	Richmond Hill, Ontario	www.hybridynepowerelectronics.com	
Satcon	Burlington, Ontario	www.satcon.com/	
StatPower		www.statpower.com/	
Photovoltaic - Module Attraction Opportunities			
Solgate	Woodbridge, Ontario	www.solgate.ca	Looking for expansion options in Ontario.
Canadian Solar	Kitchener, Ontario	www.canadian-solar.com	Looking for expansion options in Ontario.
Arise	Waterloo, Ontario	www.arisetech.com	Looking for expansion options in Ontario.
Photowatt	Cambridge, Ontario	www.photowattontario.com	Already establishing in Cambridge.
6N	Vaughan, Ontario	www.6nsilicon.com	Already established in Vaughan.
Morgan Solar	Toronto, Ontario	www.morgansolar.com	Looking for expansion options in Ontario.
Samsung	South Korea	www.samsung.com/ca	Planned Ontario facilities.
Wind Turbine			
Wind Turbine - OEM Attraction Opportunities			
AAER	Bromont, Quebec	www.aaer.ca/	Quebec-based technology with outsourced supply-chain

			feeding the US market.
General Electric	Atlanta, Georgia	www.gepower.com	Quebec-based manufacturing facilities.
Enercon	Aurich, Germany	www.enercon.de	Quebec-based manufacturing facilities.
REpower Systems	Hamburg, Germany	www.repower.de	
Vestas	Denmark	www.vestas.com	Toronto-based sales office.
Gamesa	Spain	www.gamesacorp.com	North American offices in Fairless Hills, Pennsylvania.
Siemens Wind	Germany	www.energy.siemens.com/hg/en/power-generation/renewables/wind-power/	
Suzlon	India	www.suzlon.com	
Nordex	Denmark	www.nordex-online.com	
Samsung	South Korea	www.samsung.com/ca	Planned Ontario facilities.
Wind Turbine - Ontario-Based			
Wind-Pro	Port Hope, Ontario	steve@pro-fabinternational.com	Ontario start-up working with Linamar to deliver nacelle.
WindTronics	Windsor, Ontario	http://www.earthtronics.com/honeywell.aspx	Michigan-based company starting production in Windsor, Ontario.
Bio-Gas			
Bio-Gas Facility Developers			
StormFisher	Toronto, Ontario	www.stormfisher.com	Looking for options in Ontario.
Yield Energy	Toronto, Ontario	www.yieldenergy.com	Looking for options in Ontario.