



Developing Ontario's Green Energy and Green Economy Act to its Full Potential

RESULTS of a PRACTICAL WORKSHOP – June 19, 2009

Workshop report prepared by:
Marion Fraser, Fraser & Company

Based on

***Ontario's Road Map to Prosperity:
Developing Renewable Energy
to its Full Potential***

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Final Workshop Report Submitted to Toronto and Region Conservation Authority

1. Introduction	1
2. Background: Barriers To Sustainable Energy	3
3. Overview of the workshop.....	5
Status of the <i>Green Energy And Green Economy Act</i> and feed-in tariffs.....	5
Municipal perspectives on the <i>Green Energy And Green Economy Act</i>	7
“Learning by doing” — municipal experience with renewable energy	9
Overview of Ontario’s renewable energy <i>road map</i>	10
4. Gap analysis – from the renewable energy road map to the <i>Green Energy And Economy Act</i> and beyond	11
Outstanding <i>road map</i> barriers.....	11
Outstanding <i>road map</i> recommendations	14
Actions to encourage international cooperation.....	16
5. Workshop discussion.....	17
Proposed set back regulations for renewable energy	17
Feed in tariff program	18
Access to funding.....	19
Role of municipalities	19
Training and education	20
Economic and political.....	20
Codes, standards and by-laws	21
Low income.....	21
Conservation	22
6. Next steps: “the devil is in the details”	23
7. Thirty years of renewable achievements in Germany’s leading solar city	25
8. Workshop participants.....	27



SECTION

1

Introduction

The *Green Energy and Green Economy Act* came from the recognition that Ontario's energy sector needs a new paradigm if the full economic and environmental benefits of a green future are to be achieved. With the *Act*, Ontario has created opportunities to do just that. This comprehensive and innovative legislation will vastly improve Ontario's position in the global renewable energy market, but only if the *Act* is implemented fully, supported by regulations that deliver on the promise of transformation and complemented with cultural change in energy institutions as well as in all levels of government.

In February 2009, Toronto and Region Conservation Authority (TRCA¹), in conjunction with York University's Faculty of Environmental Studies, issued a report entitled: *Ontario's Road Map to Prosperity: Developing Renewable Energy to its Full Potential*, which analyzes barriers to renewable energy and lays out a series of recommendations. This workshop gathered key players in the renewable energy field to analyze these barriers and recommendations in light of the *Act*, and derive practical ideas to address local issues and opportunities to achieve its goals.

The input from the workshop participants will help inform government and its agencies on priority areas to deliver on the promise of the *Green Energy and Green Economy Act*: a cleaner environment, a green economy, green jobs, opportunities for First Nations and low income Ontarians as well as a safe, secure, reliable and efficient energy system.

¹ Toronto and Region Conservation Authority (TRCA) believes that the future of healthy cities depends on immediate action to find creative ways of developing more environmentally friendly urban spaces. The shift toward a more sustainable way of life works best when we have a shared vision of a greener tomorrow. Designed to be implemented in communities across Canada, TRCA's community transformation programs involve businesses, municipalities, hospitals, school boards and homeowners; promote sustainable technology and strong environmental practices; find the most efficient use of resources; provide solutions for the training, operations and maintenance necessary.

WORKSHOP AGENDA

- 1) *Welcome, Introductions, Workshop Overview and Goals*
Bernie McIntyre, Manager Community Transformation, TRCA
- 2) *Status of the Green Energy and Green Economy Act and Ontario's New Feed-in Tariff System*
Jonathan Norman, Director Transmission and Distribution Policy
- 3) *Municipal Perspectives on the Green Energy and Green Economy Act*
Erin Shapiro, Councillor, City of Markham (covered by Dr. Jose Etcheverry)
- 4) *Learning by doing the Municipal Experience with Renewable Energy*
Rob McMonagle, Senior Energy Consultant, City of Toronto
- 5) *Overview of Ontario's Renewable Energy Road Map*
Dr. Jose Etcheverry, York University
- 6) *Thirty Years of Renewable Achievements in Germany's Leading Solar City*
Dr. Dieter Salomon, Lord Mayor of the City of Freiburg, Germany



SECTION

2

Background: Barriers to Sustainable Energy

Ontario's energy system developed and evolved over the last century into a system based on large central generating plants mostly remote from large populations with miles and miles of transmission lines and postage stamp transmission prices for the whole province. The fundamental construct of the centralized approach, its attendant pricing and the traditional regulatory and institutional frameworks and mindsets, combine to create barriers to a more distributed and more renewable energy system and a predisposition to convert energy into electricity. These barriers make distributed and renewable energy **appear** more expensive, less reliable and highly vulnerable to intermittency.

What is clear is that unless we change the fundamentals of our energy system and create a new paradigm, barriers to renewable energy and conservation will make these traditional views self-fulfilling prophecies. The benefits of sustainable energy outweigh any deficiencies which can be overcome by taking a system approach: using storage, complementary systems, smart technologies and above all conserving as much energy as possible.

Some of the barriers to sustainable energy are unintended consequences of policies, legislation, regulation and practices that have little to do with an increasingly wider array of options for renewable energy and conservation. Recently, the City of Toronto passed an overarching bylaw that superseded elements in 17 different bylaws that prevented homeowners and businesses from installing solar panels on their rooftops.

Additional barriers result from the rules, regulations and practices in the energy sector itself. While no one questioned that the new transmission lines from Bruce to Milton would be included in Hydro One's rate base and recovered from all electricity customers, there was no symmetrical expectation for sustainable energy projects: anaerobic digesters on farms, solar panels on homes or wind farms.

Other barriers result from asymmetry as well. Huge investments in central generating plants or pipelines are recovered through regulation or power purchase agreements over the life of the assets, and financed accordingly. And while the Renewable Standard Offer Program (RESOP) went some way to creating symmetry for wind and solar projects, geo exchange systems, solar thermal, district energy, combined heat and power are constrained by the short-term payback expectations of decision-makers for these systems as well as by their investors having no similar regulatory or contractual protection.

Any sustainable energy developer in Ontario can describe a litany of roadblocks, barriers and “catch 22s” encountered on a road to a project. Perhaps the most problematic is the “traditional mindset” — the “status quo” — the “way we have always done it.” As we transform the electricity sector from a system based on large, remote central generating plants connected with miles and miles of transmission lines to a more decentralized system, with net zero homes, buildings, subdivisions, communities, linked by a web of pipes and wires, we will have to develop new ways to empower people, developers, municipalities and distribution utilities to do things differently. The potential for finding these new ways is the beauty and the challenge of the *Green Energy and Green Economy Act*.



SECTION

3

Overview of the Workshop

Status of the *Green Energy and Green Economy Act* and Feed-in Tariffs

Jonathan Norman, Director Transmission and Distribution Policy, Ministry of Energy and Infrastructure (MEI) provided an update on the *Green Energy and Green Economy Act* and the Feed-In Tariff Program (FITs). He summarized how the *Act* intends to address barriers for both conservation and renewable energy. This report focuses on renewable energy, but recognizes that overcoming barriers to conservation is equally important.

Financial Barriers

- Feed-in tariff program provides returns to address cost of technologies and a reasonable profit.
- Social objectives are also recognized – e.g. adders for community and aboriginal projects.
- Community power will be supported through grants for “soft costs.”
- Ontario government will provide resources for municipalities to cover costs associated with local renewable projects.
- Incentives and low interest loans will address upfront investment for homeowners for small-scale projects.

Infrastructure Barriers

- Act recognizes current infrastructure deficit.
- There will be an “as of right” access for renewable energy but limits are being worked on by the Ontario Energy Board.

- Some costs borne currently by generators will be shifted to the electricity rate base.
- Local Distribution Companies (LDCs) will be able to recover costs from ratepayers.
- Grid Expansion — New rules such as deferral accounts, advance funding and clear guidelines will encourage infrastructure investment by transmission and distribution companies.
- Implementing a smart grid, switching from “archaic system” to one where power goes back and forth, is a high priority. With Ontario’s *Smart Grid Road Map*, investments of \$50 million are planned for next five years².
- Elements of the smart grid will allow for greater customer control - building on the smart metre platform, with customer load control.

Institutional Barriers

- Streamlined approvals for renewable energy projects will result in briefer process for approval to support development and provide certainty to investors.
- Transmission Approval reform work is also underway, but will continue to be handled under *Environmental Assessment Act*.
- A Renewable Energy Facilitation Office will be housed within MEI to deal with issues as they arise.

Social Barriers

- Domestic content and coordinated LDC procurement are planned to give boost to the economy.
- New authorities for Aboriginal Engagement are made explicit in the *Act*.
- The *Act* includes provisions to protect low income Ontarians.

² Ontario’s *Smart Grid Forum* released its report *Enabling Tomorrow’s Electricity System*, in February, 2009 calling for a coordinated effort to increase reliability, develop economic opportunities and promote environmental sustainability through smart grid technologies. The Forum was launched by the Independent Electricity System Operator (IESO) in collaboration with representatives from local distribution companies bringing together leaders from across the sector.

Priority Actions

The *Act* received royal assent in May. Regulations and programs are to be launched over the summer. High priority action items are:

1. Feed-in Tariff program launch
2. Transmission grid expansion for renewables
3. Conservation targets and micro generation programs
4. Cost allocation – reduced burden for generators
5. Rules for distribution system expansion accommodating renewables and smart grid
6. Renewable Energy Approvals and Transmission approvals

Municipal Perspectives on the Green Energy and Green Economy Act

As Markham Councillor Erin Shapiro was unable to join the workshop, Jose Etcheverry provided an introduction to the report *Global Status Report on Local Renewable Energy Policies* which was released as a working draft on 12, June 2009³. He also reminded us that Stephane Dion's motion that Canada should join the International Renewable Energy Association (IRENA)⁴ was passed in the House of Commons on June 18, 2009. The key findings of the report are:

- City and local governments can play a key role in encouraging renewable energy at the local level. The multiple roles of these local governments, as decision-makers, planning authorities, managers of municipal infrastructure, and role models for citizens and businesses, are crucial to the global transition to renewable energy now underway. It is their political mandate that makes local governments ideal drivers of change — to govern and guide their communities, provide services, and manage municipal assets.
- Most significantly, local governments have legislative and purchasing power that they can use to implement change in their own operations and in the wider community. With such capacity, local governments can become beacons for change in their region or country, demonstrating the effectiveness of policies and local action. And as early leaders among local governments take initiative, others can follow and improve upon the early efforts, replicating and scaling-up good practice and successful examples.

³ Renewable Energy Policy Network for the 21st Century, Institute for Sustainable Energy Policies (ISEP), ICLEI—Local Governments for Sustainability: *Global Status Report: Local Renewable Energy Policies*, Draft June 2009

⁴ www.irena.org

- Local governments can also play a key role as facilitators of change, particularly in terms of raising awareness and facilitating community and business actions by a range of stakeholders. Often the participation of many different local, regional, and even national stakeholders is important to achieving planned outcomes. For example, “model cities” in India and Brazil have been designed to involve local craftspeople, schools, scientists, and regional and national agencies.
- While cities are beginning to include renewable energy in urban planning, there are still relatively few explicit local renewable energy policies. Rather, renewable energy is often addressed indirectly, within other themes such as sustainability, climate change, clean transportation, and “green” or “eco” programs. Often, energy savings and energy efficiency are the main priorities, which make sense due to the enormous opportunities for reducing demand. Reduced demand also enables renewables to meet a larger share of the remaining demand. However, it is also true that the potential for renewable energy is often overlooked, short-changed, or needlessly postponed within these broader themes and programs.
- The “energy system of tomorrow,” a system that could enable the realization of a 100 per cent renewable future, will consist of a partially distributed, decentralized energy system with embedded energy storage, demand side management, and modern communications technologies. It also will likely include a large role for electric vehicles charged from local renewable energy sources. The role of local governments in shepherding and managing these transitions is highly significant. The future will likely reveal an interesting and multi-faceted interplay between local policies and these future energy transitions.
- Local renewable energy targets and policies across the globe vary extensively. One common theme for many communities, whether metropolitan regions, cities, towns, villages, or counties, is the importance of renewable energy in local climate action plans — from both mitigation and adaptation perspectives. This is particularly true for many developed countries, where the importance of climate action at the local level is translating more and more into action to promote renewable energy. In developing countries, access to energy, energy security, and industrial development can be key motivators for renewable energy policy and action. In all communities, a focus on local job creation often shapes policies.
- More and more cities and local governments are addressing renewable energy in some way, and are also becoming more ambitious in their targets and in policies designed to meet these targets. Local leaders increasingly look to renewable energy to produce energy locally; to secure the local energy supply and improve community resilience; to save energy and money; to create local jobs; to involve local stakeholders; to contribute to climate protection; to support national and

international CO₂ reduction goals, and to promote sustainable urban development. Among many local leaders, there is broad agreement on these benefits and the promise of renewable energy.

“Learning by Doing” — Municipal Experience with Renewable Energy

Rob McMonagle, Senior Energy Consultant at the City of Toronto and former Executive Director of the Canadian Solar Industry Association (CanSia) provided a personal view of the barriers to renewable energy. Toronto’s challenges relate primarily to natural gas use. Seventy per cent of Toronto’s stationary energy use is natural gas and it continues to grow. with the primary uses being: heating and more and more for producing electricity. Yet natural gas is sold at discounted rate [sic] compared to electricity with almost all of the revenues going outside of Toronto and outside of local economy. Yet as natural gas prices go up, Toronto can expect to see increased use of electricity.

McMonagle noted that energy is a complex issue: For example, the challenges of air conditioning versus climate change. We know that temperatures will increase with climate change, necessitating more air conditioning, which in turn, contributes to more climate change. Ontario is air conditioning capital of Canada and as a result electrical peaks will continue to increase. Even at 10-15 degrees a poorly oriented condo will need air conditioning.

With respect to renewable energy, the City of Toronto has some experience, both good and bad. There are challenges in all cases with both installation and in operations.

- Armour Heights has the oldest operational solar hot water system in Canada.
- Toronto created a solar utility program in which the city buys solar energy from companies.
- Solar heating in public pools was abandoned as facility managers lacked training in operating and maintaining the systems.
- Increased emphasis on photovoltaics.
- Focus next year on innovative, high profile projects to let people know they are taking leadership.
- With multiple buildings can learn from each building.

In some countries, solar obligations are part of the building code. McMonagle suggests that Ontario needs to build in solar obligations in building codes and establish solar access laws such as in the District of Saanich.

McMonagle also noted that role of municipalities is crucial in a district energy world to keep generation close to where it's used, but he also lamented that the recent draft standard rules for setbacks from property lines, waterfront, and roads means that Toronto cannot put up wind turbines within its boundaries.

Overview of Ontario's Renewable Energy Road Map

Dr. Jose Etcheverry reviewed Ontario's *Renewable Energy Road Map*, which was developed by the Faculty of Environmental Studies under the auspices of Toronto and Region Conservation Authority. It was derived through interviews with experts as well as an analysis of the most recent literature from leading renewable energy jurisdictions. The *Road Map* provides a number of practical strategies aimed at propelling the renewable energy agenda forward.

Some of the barriers identified in the *Road Map* and some of its recommendations have already been acted upon or are under consideration such as:

- Implement a strong *Green Energy and Green Economy Act* to ensure that renewable energy development is prioritized throughout the province and to send a clear international market signal to attract investors.
- Ensure a thorough and rapid completion of the ongoing revision of RESOP so that this crucial program becomes as attractive to local and international investors as the German and Spanish renewable energy programs.
- Ensure that the Ontario Power Authority's Integrated Power System Plan (IPSP) revision of the potential for renewable energy and conservation in Ontario is informed by: the latest advances in technology (for example, storage, renewable energy grid integration, smart grids); by the empirical market response shown by Ontario's RESOP; and by the program results of Germany and Spain.



SECTION

4

Gap Analysis – From the Renewable Energy Road Map to the *Green Energy and Economy Act and Beyond*

Outstanding Road Map Barriers

Other barriers identified in the *Road Map* remain, and it is still unclear how they will be addressed. These include the following:

Financial Barriers

- **High up-front costs and lack of adequate financing mechanisms:** The up-front costs represent more than just the cost of the system, but include additional incidental costs, such as renovations, permits, audits, and applications. Zero-interest loans, such as those provided by the Powerhouse Program and rebates such as the Toronto Solar Hot Water Neighbourhoods Initiative exist but are not available throughout all of Ontario or available for other technologies.
- **Lack of full cost comparison of supply options:** The consumer prices of electricity and heating have remained low in Ontario because externalized health, social, and ecological costs of fossil fuel and nuclear generation continue to be absorbed by present and future taxpayers, as well as by the environment. The lack of environmental and economic lifecycle evaluations has resulted in the cost-effectiveness of conventional sources being markedly overestimated, and as a consequence, renewables appear more expensive.
- **Unstable policy environment:** A stable regulatory environment is necessary to attract renewable energy investors by ensuring a fair return on their investment. The lack of a stable investment environment also discourages the establishment of a domestic manufacturing industry for renewable energy in Ontario. A clear illustration of this detrimental situation is the “boom and bust” cycles that are periodically created by the federal renewable energy tax credits used in the United States.

Social Barriers

- **Techno-Institutional Lock-In or Path Dependency:** Techno-institutional lock-in refers to a pervasive situation when established technologies create systemic market and policy barriers affecting the development and implementation of new technological alternatives. In Ontario, this reality manifests itself most clearly in the inability and/or unwillingness of some planners and decision-makers to think beyond the boundaries of a power system currently dominated by a small number of large generating plants.
- **Lack of knowledge of and experience with renewable energy and distributed generation:** Ontario has limited recent experience with distributed generation, and consequently some system planners are resistant to the adoption of a new yet superior system. Even when renewable energies are considered, there is a skewed focus on certain technologies. Compared with photovoltaics (PV), solar thermal systems offer faster paybacks and significant energy savings. In addition, there is limited understanding about the multiple benefits that renewable energy can provide (for example, employment creation) and how such systems can be used in novel and complimentary configurations (for example, combined heat and power (CHP), hybrid systems).
- **Opposition to Renewable Energy:** Opposition to renewable energy is often fuelled by competing interests and limited knowledge of renewable energy technologies and also by a variety of widespread misconceptions such as the weak reliability of solar and wind technologies in Ontario, or anecdotic concerns about excessive noise and wildlife impacts.

Institutional/Jurisdictional Barriers

- **Limited opportunities for new energy delivery systems such as community power cooperatives:** Community power projects currently face a number of challenges, in particular related to lack of financing opportunities and policies to enable communities to participate in energy production.
- **Limited training opportunities:** Training in the installation, operation, and maintenance of renewable technologies is still fairly limited across Canada and receives marginal government support. This reality still persists even though the existence of a skilled labour force is widely recognized as an essential component to propel renewable energy into the mainstream. While innovative programs at the college level are developing across Ontario, these programs are struggling to find the necessary funding to provide comprehensive.

- **Conflicting mandates of utilities and local distribution companies:** LDCs were left out of key decisions and programs that directly impact their service areas. These issues have made it difficult for them to address and fulfill customer needs and requests for the connection of renewable energy systems to the grid.

Political Barriers

- **Building code limitations:** The *Ontario Building Code* remains poorly suited to accommodate renewable energy. While the existing Code mandates certain minimum levels of energy efficiency in house construction it does not set standards for increasing the contribution of solar or the incorporation of other renewable energy options (for example, biomass, geothermal) and conservation measures (like passive solar design). Furthermore, the code does not mandate on-site energy generation using PV nor the use of solar thermal applications (as it is done in Spain and Israel).
- **Outdated municipal zoning laws:** Zoning laws reflected a bias against small renewable energy projects in terms of permissible uses, height regulations and the lack of right to “sunlight” or solar access.
- **Property tax penalties:** Many renewable energy systems can change the property tax categories increase property tax assessment taxes.
- **Complex and expensive permitting requirements:** The permitting process for renewable energy was lengthy and onerous due to a lack of experience with these systems on behalf of municipal officials and LDCs.
- **Canadian Standards Association requirements:** Not all renewable energy equipment is CSA approved. Approvals can take three years or more.

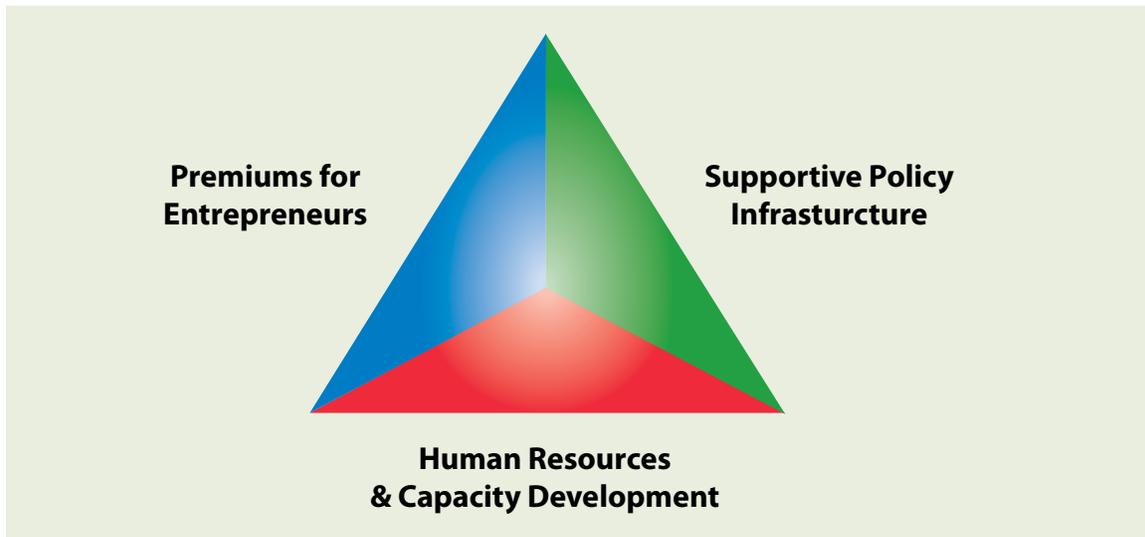
Infrastructural Barriers

- **Outdated grid forecasting capabilities:** Currently, Ontario’s grid operators are limited by the lack of technologies that enable new strategies for network operation such as: accurate forecasting of renewable energy and on-line dynamic security assessments that can be provided by wide-area monitoring and protection systems.
- **Ontario has not yet transitioned to a Smart Grid:** The current focus on the centralized generation and transmission of electricity results in barriers for smaller, distributed generation sources. Currently, Hydro One Networks has a maximum capacity on its transformer stations of 60 per cent. This 60 per cent cap stems from the outdated procedures and a focus on uni-directional flow in the distribution

networks. Addressing these matters would allow the addition of more renewable sources onto the grid and help prevent the need for expensive upgrades.

- **Lack of innovative storage solutions and hydro integration:** Storage technologies would allow more renewable sources. There are no mechanisms in place in Ontario that would enable storage options to be rapidly expanded to support large deployments of wind and solar power.

Outstanding Road Map Recommendations



With respect to most of the *Road Map's* recommendations, it remains to be seen what action will be forthcoming even though the *Act* enables the recommendations to be addressed:

- Provide new funding (for example, loan guarantees) to facilitate access to zero interest loans for financing renewable energy systems in residences and small businesses throughout Ontario.
- Re-focus existing budget commitments to develop new renewable energy training initiatives in colleges and universities and to fund professional secondments (essential to develop local capacity and meet growing renewable energy market needs).
- Provide new funding to create municipal funds (similar to the Toronto Atmospheric Fund) that allow municipalities and local distribution companies (LDCs) to provide revolving loans for renewable energy systems in schools and other municipal buildings.

- Replenish Ontario's Community Power Fund so it can be expanded.
- Start a province-wide renewable energy promotion program that builds on the Every Kilowatt Counts program to promote Ontario's renewable energy programs and to increase awareness about the multiple benefits of renewable energy.
- Create a highly visible province-wide network of education and demonstration centres and projects (fixed-site and mobile) to ensure that Ontarians can see and experience renewable energy and other environmental technologies in action. Existing model examples of these initiatives include Toronto and Region Conservation Authority's Living City Campus at Kortright and the Evergreen's Brickworks Site.
- The Province and relevant authorities, in cooperation with municipalities and Local Distribution Companies, should begin the transition to Smart Grid infrastructure.
- Storage should become a priority for expanding and firming up renewable sources.
- The Province should implement groundbreaking strategies to develop a strong local manufacturing industry for renewable technologies.
- The Provincial Sales Tax exemption for renewable energy developers should be renewed.
- New Educational and Training initiatives should be implemented to develop local capacity and to establish effective international partnerships with leading jurisdictions.
- Develop a new Ontario-based effort to collaborate actively with leading international renewable energy agencies (for example, International Feed-in Cooperation, International Renewable Energy Agency) so local capacity can be developed in a sustained manner and to position Ontario as a leading international 'know-how' jurisdiction.

Actions to Encourage International Cooperation

Dr. Jose Etcheverry also outlined recent efforts that York's Faculty of Environmental Studies is spearheading to assist in the development of local capacity in Ontario. Specifically:

- Organizing fact finding missions that will allow policy-makers from Ontario to understand how European jurisdictions have developed its renewable energy industries and positive market conditions.
- Collaborating in the creation of a new exchange programs to provide renewable energy training opportunities for educators and students from Ontario.
- Developing a new transatlantic symposium series focused on a “train the trainers approach” to the exchange of best practice in renewable energy and efficiency strategies.
- Implementing a program that enables short-term professional secondments to gain experience in renewable energy and efficiency strategies.
- Selection of best practice projects with focus on renewable energy in both countries as a base for expert exchange including long-term monitoring programs and remote access for system optimization.



SECTION

5

Workshop Discussion

Facilitated discussion followed each speaker. This report combines the various discussions to present the views of the workshop participants on specific issues, no matter when they were raised. Much of the discussion focused on the progress under the *Green Energy and Green Economy Act*, with recognition that some of the new proposals are problematic despite the good intent of the legislation.

- Comments addressed renewable energy and conservation and identified continuing barriers and possible solutions.
- Questions seeking clarification and rationale were also addressed by the speakers and are included below.

Proposed Set Back Regulations for Renewable Energy

- Ministry of Natural Resources and Ministry of Environment public consultations on setbacks have been hijacked by anti-wind interests and have not been productive.
- The proposed setback from residential homes of 550 metres is a major barrier to constructive development. A Canadian Wind Energy Association (CanWEA) study indicates that a safe distance is 250 metres to take into account the icfall - topple factor⁵. There is also a need to look at operational considerations. It also remains unclear if the proposed setbacks also apply to micro scale projects.
- There is a need to develop innovative approaches to setbacks rather than using a one size fits all approach.
- Despite the change in the legislation, some participants still contend that municipalities should be able to determine their own setbacks. Rural municipalities may want setbacks larger setbacks while urban municipalities may want smaller setbacks.

⁵ Canadian Wind Energy Association: Position on Setbacks for Large-Scale Wind Turbines in Rural Areas (MOE Class 3) in Ontario, September 27, 2007, <http://www.canwea.ca/images/uploads/File/FINAL-CanWEAPositionOnSetbacks-2007-09-28.pdf>

- Setbacks should adhere to logic and it is essential to look at international⁶ and Ontario-based studies⁷.
- Consent agreements should be used to allow people to sell down their setbacks.
- Maximum setbacks and minimum setbacks are required. It is possible for the provincial government to establish these and allow municipalities the freedom to operate within those boundaries.
- Farmland preservation is critical. Turbines sites can positively sterilize against future piecemeal severances, which have taken up significant amounts of farmland in Ontario.
- An Ontario-based study of health impacts is needed now. Industry can't wait for the proposed Research Chair to be established.

Feed in Tariff Program

- *Question:* How were different prices different energy types for the feed-in tariffs (FITs) set? *Answer:* To make sure different renewables were incented equally because of differing capital costs plus a reasonable rate of return. There is no preference for one over the other.
- Ontario also needs FITs for energy storage and green heat such as solar thermal or geothermal. With energy storage, the intermittency of solar and wind generation can be better addressed; with green heat, efficiencies can be achieved by using green heat directly for thermal loads rather than losing energy through its conversion to electricity. It is not clear that FITs for storage or green heat will work without support of additional programming and incentives given that the experience with technologies is limited and the issues related to hosting both are just emerging.
- *Question:* How will Toronto's Solar Neighbourhood Program be adapted under the FIT Program? *Answer:* Toronto is awaiting the publication of the Micro FIT rules.
- *Comment:* Need to move quickly on Micro FIT program? *Response:* Currently, Ontario Power Authority is talking with LDCs. Industry representatives indicated that external groups should be consulted as well.

⁶ University of Groningen: Visual and acoustic impact of wind turbine farms on residents

⁷ <http://www.prowind.ca/downloads/Chatham-Kent-Health-Impacts-Report-June-2008.pdf>

Access to Funding

- Community projects need interim financing as they cannot go to financial institutions without credit history.
- Proposed caps on assistance are unrealistic and need to be higher.
- While the FIT program provides a predictable income stream, there is still a need for zero or low-interest financing geared towards homeowners.
- Province needs to work with municipalities to understand financing barriers.

Role of Municipalities

- There appears to be a conflict between empowered municipalities/LDCs and the Province's intent to have standardization across the province. The *Green Energy and Green Economy Act* enables municipalities and LDCs to develop renewable energy, combined heat and power as well as district energy, but it is unclear what financial and technical support will be available and what regulatory framework will apply, particularly to the LDCs.
- International experience shows that development of renewable energy is more effective when municipalities are fully involved. Yet, participants indicated that it is unclear, what the province expects: municipalities as partners with equal responsibilities or followers? For example, Mississauga intends to only use renewable energy by 2040. Province should recognize and support such leadership.
- Additional clarity is required on what upfront cost municipalities are to be reimbursed for by the Province and whether development funding will be available.
- One participant acknowledged that some municipalities don't have a full knowledge base about renewable energy and need help from other levels of government, other municipalities or associations, agencies and training institutions who have already advanced the renewable energy agenda to. The same participant indicated that it appeared that mandate and capacity were sometimes missing at municipal level. Some of the municipal councils are not behind renewable energy and no budgets are allocated to fill the gap.
- Municipalities are faced with issues handling municipal solid waste. A paradigm shift to turn waste into energy is required. The Ontario government has signalled that it is interested in helping move this agenda forward, but barriers for deploying and siting for energy from waste facilities remain.

- *Energy Conservation Leadership Act* required Energy Conservation Plan for municipalities but requirements were never issued. Mississauga already has a plan it needs to know what it has to add or change. *Questions:* When will the requirements be issued under the *Green Energy and Green Economy Act*? What is different this time? *Answer:* No timing has been decided by the Province. The difference is: “This time it will happen.”

Training and Education

- The *Green Energy and Green Economy Act* does not address education and training, but the gap in terms of skilled resources is significant.
- Sustainable technology programs are offered at Humber College and other community colleges. Toronto and Region Conservation Authority’s Kortright Centre works with Humber, Seneca and York University to provide hands-on training for PV; a program which could be extended to other technologies and other institutions. Colleges have found that there is lots of interest from students, but there is not enough knowledge within their existing faculties to deliver.
- There is no overall provincial strategy for developing sustainable energy technology programs⁸. And there is a need for a network of Ontario and Canadian based centres for sustainable technology training.
- With respect to the development of a Research Chair, there is need for transparency in its development and appointment as well as a strategy to apply the results of research broadly.

Economic and Political

- The Province has focused on electricity, because that’s where it has more influence.
- Provincial content rules are a barrier given the current level of uncertainty. There should be a planned phase-in of requirements to enable the industry to move forward in the short term and manufacturing to develop over a longer period.
- The *National Occupational Code* needs to be updated. Currently, green economy jobs are not included in the NOC – until they are, training will not be fully funded, then they will be funded.

⁸ Canadian Association of Colleges is writing curriculum for renewable energy technologies and Colleges Ontario is working on a provincial strategy for deployment.

- We need to put renewable energy projects where people can see them to increase acceptance. Don't hide them away in industrial lands.
- Fear is an obstacle. It is important to separate facts from fears. Ontario is currently facing a battle of hearts and minds. Participants indicated that it was “good to see the ‘soft issues’ are being addressed.”

Codes, Standards and By-Laws

- In Toronto, in an area with mature trees, trees cannot be cut down to gain solar access – net carbon impact from trees is better than residential solar generation. In general, tree shade in the summer and solar gain in the winter are preferred passive strategies.
- The *Ontario Building Code* needs to reflect renewable energy including pre-wiring and pre-piping for solar and solar thermal and access to solar.

Low Income

- Needs of low income Ontarians have to be addressed.
- Rebate programs don't help as low income have no money for investments up front.
- Ontario Energy Board is working on its Low Income Assistance Plan (LEAP) - but is only dealing with natural gas. Low income programs must cover all energy uses (not just electricity).
- With respect to rental properties with landlords, there is a need to consider minimum energy performance standards and to protect tenants from landlords to fail to pay their utility bills.
- Sub metering of properties has slowed down, because it's a thorny issue. The provincial government must be sure tenants are protected before any switch to sub metering.

Conservation

- *Question:* Are the energy plans referred to in the legislation for municipalities or municipal facilities? *Answer* – the latter.
- *Question:* Is there coordination between the planned expenditure of \$74 million in social housing retrofit linked with renewable energy or the *Green Energy and Green Economy Act*? *Answer:* Coordination remains to be seen. Ontario has contracted with agencies other than the Social Housing Services Corporation who are playing a role in the infrastructure retrofits.
- Toronto Community Housing has implemented solar hot water for larger buildings and smaller. (Get in touch with Keir Brownstone of GLOBE Inc. for more information.)
- It is important to consider how we use renewable energy. It must be conserved too! Look at economic impacts of renewable energy and conservation together for a better average payback.



SECTION

6

Next Steps: “The Devil is in the Details”

The input gathered from the workshop participants constitutes a practical contribution to inform the government and its energy agencies on priority areas of focus to deliver on the promises of the *Green Energy and Green Economy Act*:

- ✓ a cleaner environment
- ✓ a green economy and green jobs
- ✓ opportunities for First Nations and low income Ontarians
- ✓ a safe, secure, reliable and efficient energy system

As the Ontario government and its energy agencies move forward with the implementation of the *Green Energy and Economy Act*, there is great potential to create unintended consequences and lessen the positive impacts of the legislation. This report is intended to assist in avoiding any unintended consequences that limit the potential of the Act and its economic and environmental benefits.

- The presentations from the workshop and this report will be provided to the participants and invitees who could not make it to the workshop as well as posted to the TRCA website.
- This report will be provided to the Ontario provincial government’s relevant ministries and its energy agencies.
- This report will be provided to the industry and trade associations with an interest in renewable energy.
- Address outstanding barriers and recommendations from the Road Map document as well as the additional problems created by proposed regulations, for example, draft setbacks.

- Address skills training for renewable energy, distributed energy, smart grid and conservation in community colleges beginning with an inventory of current offerings.
- Toronto and Region Conservation Authority will continue to work with universities, government, NGO's and the private sector to develop practical solutions that address the issues and recommendations identified above.
- York University's Faculty of Environmental Studies will continue to work on international cooperation efforts with a broad array of partners.



SECTION

7

Thirty Years of Renewable Achievements in Germany's Leading Solar City

"I give my compliments to the Government of Ontario for its Green Energy and Green Economy Act! It is an important step; a paradigm shift. Minister George Smitherman came to Freiburg and one year later, Ontario passed the GEA: this is a short time in the development of legislation."

Dr. Dieter Solomon, Lord Mayor, City of Freiburg



Dr. Dieter Salomon, Lord Mayor of the City of Freiburg, Germany capped off the afternoon's session with a presentation on why and how his city has addressed renewable energy. Freiburg's approach does not fit everyone, but it is important to develop common objectives and to take local action waiting for actions from above. He noted Ontario's progress in passing the *Green Energy and Green Economy Act*:

- We can learn from each other – cities and countries. One of the jobs of a city is policy and discourse to get the support of citizens; Cities need to be a good example so they don't lose credibility. Cities need to show that it works. Sustainability is the main directive for Freiburg's urban policies.
- The concept, "Green City" is not just a marketing ploy. Actions are being taken — Freiburg is one of few cities that have reduced CO₂ — 14 per cent reduction since 1994, equivalent to a 20 per cent reduction per capita.

- Opposition to nuclear power helped to organize environmental initiatives in Freiburg.
- Local Energy Supply Concept Aims: 1. Energy Conservation: 2. Efficient power generation; 3. Quadrupled renewables in last 3 years including: Wind power; Biomass; Geothermal; Solar - power is oldest and most immediate. Solar power is a trademark.
- Energy municipal supply company supports investments in PV (for example, PV on roof of soccer stadium).
- Every household is supplied by CHP and sustainable sources.

Freiburg is an important research centre, starting 25 years ago; it now has an institute with more than 800 scientists.

- Their trade fair doubled in size every year. Now the fair is in Munich but it is run by Freiburg. There is a private and public partnership.

Dr. Solomon also noted that there are difficulties in Germany but the key is to empower the citizens, particularly in a democracy. “Every house owner needs to decide. You need to take the people with you.” Every political system is different, but it’s harder to implement things top down in a democracy.

“Younger brothers don’t have the problems of the older brothers.” When we started with renewable energy, many people said it was crazy. Remember this is normal! You need to fight against strong enemies. We are advanced only because we started earlier. In the pioneer years, you make a lot of mistakes. Technology is much better now, so benefit from it and move forward! The price of solar is coming down, because of scale, we estimate that in four or five years, solar will have “grid parity” with conventional energy sources. In the long run, alternative energy will get cheaper and fossil fuel energy will get more expensive.

You have to have a long breath for the right policy.



SECTION

8

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