

Prince Edward Island Energy Strategy

Creating a Sustainable Future for Prince Edward Island

Submission by the Environmental Coalition of Prince Edward Island



Submitted to the Department of Environment, Energy and Forestry

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Opening Message

The Environmental Coalition of Prince Edward Island (ECO-PEI) is a community-based environmental organization formed in 1988. ECO-PEI's goal is to work in partnership with others and the land itself in order to understand and improve the Island environment. ECO-PEI's work centers on education, advocacy, and action. Members have a concern for their own health, the health of their families and the health of Island ecosystems. ECO-PEI is working on a variety of issues including environmental education, land conservation, and sustainable energy.

The Environmental Coalition appreciates the opportunity to provide written comment on the Province's Energy Strategy through this submission. The following comments and recommendations on various aspects of the Energy Strategy Discussion Document are provided by ECO-PEI to help Prince Edward Island create an aggressive strategy that positions the Province on a path towards a more sustainable and renewable energy future.

We offer our suggestions and recommendations in a spirit of collaboration. Thus, we would be very pleased to engage with the Government of Prince Edward Island and the citizens of Prince Edward Island in ongoing discussions on specific policy implementation.

The aggressive pursuit of energy security, environmental sustainability, and economic development through policy implementation must align with the pursuit of greenhouse gas emissions reductions as committed to under the New England Governors and Eastern Canadian Premiers conference. We urge that the development of the new provincial Energy Strategy be the first step towards the aggressive implementation of legislation, regulations and provincial investments to achieve these goals and look forward to working with you in the future.

Yours Sincerely,

Kate McDonald
Energy Coordinator
ECO-PEI Energy Project

Introduction

Over the past few years the areas of energy and climate change have received a groundswell of interest and concern within regional, national and international circles. Over the past year, environmental concern has grown significantly in Canada to become the top issue in public opinion polls, with Atlantic Canada leading the way in English Canada (Harris/Decima Poll, Aug 15-21). Atlantic Canadians are now found to be the Canadian populace most concerned about global warming with 72% believing it to be the single largest threat to humankind (TNS Canadian Facts Survey: March 24-28, 2008).

In combination with growing concern over climate change we are experiencing record prices for energy and the wide belief is that this inclining trend is unlikely to turn around anytime soon. Prince Edward Island (PEI) is an area of Canada particularly vulnerable to both external energy prices and the impacts of climate change. PEI has no indigenous fossil fuel sources to speak of and currently imports all liquid petroleum supply and the majority of its electricity, exporting a substantial sum of money in the process. Climate change threatens to significantly affect key sectors such as fisheries, agriculture, and tourism along with the Island's forests, wildlife and coastlines. The threats of climate change and a heavy reliance on off-Island fossil fuel based energy sources pose significant challenges to Prince Edward Island and the response from the Province must be aggressive, committed, and appropriate.

Under the New England Governors and Eastern Canadian Premiers each member province and state has committed to the following greenhouse gas (GHG) emissions reduction targets:

- Reduce GHGs to 1990 levels by 2010
- Reduce GHGs to 10% below 1990 levels by 2020
- Reduce GHGs to 75-85% below 2001 levels by 2050

Prince Edward Island has not yet released a climate change action plan. As one of the areas most vulnerable to the impacts of climate change, PEI requires a comprehensive strategy with concrete actions to reduce greenhouse gas emissions by at least 10% below 1990 by 2020. Currently, PEI's GHG emissions are approximately 10% above 1990 levels.

Heavily reliant on imported conventional energy sources and committed to meeting GHG emissions reduction targets provides impetus for the PEI Government to demonstrate leadership in reducing GHG emissions and increasing energy security through improved energy efficiency and green, renewable energy.

Our current situation has created a new opportunity to propose concrete and specific policy solutions at the provincial and community levels. Important opportunities exist to enhance the adoption of specific policies to reduce GHG emissions and improve the sustainability of the energy system in the province, including housing and car standards, cogeneration, energy storage, and multi-fuel energy efficiency initiatives. Our political leaders have recognized that our environment and economy are closely integrated, and that economic opportunities exist in sustainable energy development. Now these visions and commitments need to be backed up by concrete policy action. The new Energy Strategy must shore up a provincial vision for a low-carbon future that will increase energy security and price stability, encourage the green-tech sector, and deliver economic benefits to all Island communities.

The provincial government must lead Prince Edward Island into a sustainable energy future which is appropriate in today's context. When energy prices are expected to remain high and the international consensus is that climate change necessitates immediate action, the government of Prince Edward Island

must demonstrate an innovative vision for the future of energy use and generation on PEI. They must lead with a strategy that sees the Island benefit from increased self-sufficiency, price stability and a healthier environment. As the inevitable model of the future economy is a low-carbon economy PEI must prepare now to be competitive in such a system. This invariably means the government must develop models for economic development that are orientated around this low-carbon economy and surpass outdated models predicated on a heavy dependence of fossil fuels.

RECOMMENDATIONS

► **Vision for Prince Edward Island's Energy System:** *A sustainable, low-carbon energy system that provides the greatest environmental, social and economic benefits to Prince Edward Island residents, communities and the Island itself.*

► **Pathway to Achievement:** *Government, community and individual leadership in accelerating this transition through the adoption of renewable, green energy and improved energy efficiency that is rooted in sound community economic development and supported by community oriented policy models.*

Energy Efficiency

“The vision for energy efficiency should be one where accessing energy efficiency services is as easy as accessing energy supply options. This will require developing an infrastructure for energy efficiency that is as well developed as energy supply infrastructure is today. Effective efficiency resource acquisition requires a great deal of ongoing planning and sophistication.”¹

Energy efficiency must be prioritized as a fundamental policy in creating a sustainable future for Prince Edward Island. It offers the provincial government an immediate and effective way of reducing GHG emissions from PEI, improving the security of our energy system and stimulating community economic development. Energy efficiency is the most environmentally-friendly and cost-effective energy resource available. It is abundant, locally available and can be procured cheaper than producing or purchasing energy. The current *Renewable Energy Act* does not reference energy efficiency and therefore the provincial government must introduce legislation to promote efficiency and conservation in the new Provincial Energy Strategy.

In every community across Prince Edward Island there are extensive opportunities to develop our energy efficiency resources. PEI must begin to fully exploit these opportunities to achieve a more sustainable, cleaner and cost-effective energy system. Energy efficiency can be captured through the introduction of best in class energy codes for all new construction and renovations, efficiency standards for appliances, equipment, lighting and machinery, vehicle efficiency standards, retrofit requirements, and utility resource planning which requires energy efficiency investment as first choice.

The recently released Energy Efficiency Potential Study for Prince Edward Island explicitly illustrates that there is tremendous efficiency potential in the residential and commercial & institutional sectors. The study exposes that all of the projected energy growth to year 2017 in Prince Edward Island’s Residential, Commercial and Institutional (C&I), and Transportation sectors can be offset by investing in cost-effective energy efficiency initiatives². Proposed initiatives for the residential and C&I sectors would result in cumulative net benefits of \$151 million over ten years and a reduction of 148 000 tonnes of GHG emissions.³ This portfolio of initiatives has a benefit-cost ratio of 2.8, meaning there is an overall net societal benefit. All of these numbers include estimated GHG credits.

A strong commitment to prioritizing energy efficiency as a fundamental policy is crucial to achieving deep reductions in greenhouse gas emissions and economic development goals. The maximum development of PEI’s energy efficiency resources must be the foundation of a provincial vision for a sustainable, clean energy future with increased self-sufficiency. The benefits being offered to Prince Edward Island by this investment are immense.

- Energy efficiency resources are cost-effective, locally available and abundant
- It is cheaper to capture energy efficiency than to purchase or produce additional supply

¹ Quote Brendan Haley Energy Strategy Coordinator, Ecology Action Centre

² *Energy Efficiency Initiative Designs and Achievable Potential for Prince Edward Island Final Report* prepared by Vermont Energy Investment Corporation, Optimal Energy, Cambridge Systematics: April 22, 2008

³ Ibid

- Energy efficiency is an on-Island resource and thus investment in its procurement means money stays in Prince Edward Island rather than flowing out of the Province to purchase traditional energy supply from off-Island
- Improving the energy efficiency of lighting, buildings, equipment and appliances can significantly reduce the energy consumption of households, businesses and sectors while maintaining a comparable level of comfort
- Using less energy reduces the environmental footprint of our communities and Province
- Using less energy reduces greenhouse gas emissions associated with fossil fuel based energy sources
- Improving energy efficiency across the region will raise our competitiveness in a future carbon-constrained economy
- Energy efficiency standards for buildings, appliances, equipment, lighting, machinery etc. stimulates local spending on upgrades
- Energy efficiency is an effective way to cut energy costs for low and fixed income residents
- Energy efficiency also provides important economic development benefits. Because efficiency strategies are implemented across all regions, job creation is distributed and assists with the revitalization of rural communities. A report prepared for Environment Canada estimated that energy efficiency created 37 full time equivalent jobs for every \$1 million invested. That is more than any other form of energy production and five times more than conventional energy production.⁴

ELECTRIC ENERGY EFFICIENCY

The Prince Edward Island *Renewable Energy Act* requires that electric utilities reduce the intensity of peak demand by 5% of 2004 levels through Demand Side Management (DSM) by the year 2010. This was interpreted as a 9 MW reduction in peak demand through the Island Regulatory and Appeals Commission (IRAC) Order UE06-06⁵. Focusing solely on peak demand could result in the undesirable situation on PEI where we see peak demand reduced but overall electricity consumption and associated GHG emissions increase over the year. This approach to demand side management neglects the larger benefits accruing to more far-reaching and comprehensive energy efficiency initiatives.

There is significantly more experience in North American circles with electric energy efficiency than other energy efficiency resources. Several jurisdictions have utilized *System Benefit Charges* (SBC) to provide dedicated funding for electric energy efficiency investment. System Benefit Charges is a mechanism whereby electric ratepayers fund (and benefit from) electric energy efficiency programming. The reasoning behind

⁴ Campbell et al. 1997 "Comparative Analysis of Employment From Air Emission Reduction Measures" Report by *The Pembina Institute* for Environment Canada – Global Air Issues Branch.

⁵ Island Regulatory and Appeals Commission Order UE06-06, October 16, 2006. Available on-line at: <http://www.ircac.pe.ca/Orders/>

ratepayer funded efficiency is that if efficiency is the least-cost resource than it is in the interest of all ratepayers to fund it.

Experience with SBC funding has shown that it effectively places a cap on electric energy efficiency investment and can prevent all cost-effective efficiency resources from being procured. In consideration of this experience ECO-PEI recommends that the Island Regulatory and Appeals Commission be legislated to mandate that electric utilities must procure all cost-effective energy efficiency that is at or below the cost of conventional supply or capacity. ECO-PEI recommends that cost-effectiveness be defined through the societal cost test which roughly accounts for environmental and social externalities (For example it can be designed to include GHG emissions and low income impacts).

Investing in energy efficiency programs develops markets for efficiency services and products, and captures energy, cost and GHG reduction opportunities. The experience in jurisdictions with well run efficiency programs has been that a \$1 investment in improved efficiency has returned a value of \$2. This return value has been in the higher range of \$3-\$6 for the most successful programs.⁶ These rates of return on investment provide further impetus to invest in energy efficiency services and programs as a solid policy decision.

Regardless of whether an independent energy efficiency utility or another entity is chosen to administer electric energy efficiency programs, a rigorous accountability framework which includes performance indicators and independent evaluation and verification must be developed to ensure effectiveness and best practice. It is important to acknowledge that the procurement of energy efficiency resources is an ongoing and continuous process. Regular re-evaluations are needed to determine if ramping up and down of specific programs is necessary. Frequent reassessments are also crucial to ensure that as energy efficiency initiatives become cost-effective they are exposed as such.

RECOMMENDATIONS

► *ECO-PEI recommends that a planning process is established which prioritizes energy efficiency and requires utilities to procure all cost-effective energy efficiency when it is at or below the cost of conventional energy supply or capacity resources.*

► *The Provincial Government should amend the demand side management provisions under Section 6 of the Renewable Energy Act and replace them with a directive to invest in all cost-effective energy efficiency that is at or below the cost of supply. Energy efficiency investment should not be restricted to peak demand savings in lieu of year round savings which the Potential Study has evaluated to be \$151 million for Islanders over the next ten years accruing from residential and commercial and institutional initiatives.*

MULTI-FUEL ENERGY EFFICIENCY

If the greatest social, economic, and environmental benefits afforded to Prince Edward Island from energy efficiency are to be realized, energy efficiency must be applied beyond electricity across all sectors and for all fuel types. Energy efficiency strategies and programs must be developed for home heating fuel, biomass, co-generation and transportation fuels.

⁶ Environment Northeast. 2006. *Climate Change Roadmap for New England and Eastern Canada Summary Recommendations* Principal Authors: Michael D. Stoddard and Derek K. Murrow

In the previous section electric energy efficiency was shown to be funded by ratepayers. In order to finance these other fuel efficiency initiatives a mechanism is needed to provide funding over the long-term. A carbon tax or levy applied to liquid petroleum products (gasoline, diesel, light fuel oil, heavy fuel oil) like that introduced by Quebec could accomplish this for PEI. The Quebec levy is approximately \$3.40/tonne of carbon dioxide and will not significantly change consumption behaviour but can generate revenue for climate change mitigation initiatives such as multi-fuel energy efficiency programs, public transportation services, and renewable energy projects.

To ensure that the revenue generated from the carbon levy is spent on climate change action initiatives the funds must be protected from entering a department's general revenues. We recommend that the funds be placed in a Climate Change Trust Fund and it be legislated that the monies first finance all cost-effective and achievable non-electric energy efficiency. (This recommendation would be revised to include all cost-effective electric energy efficiency should ratepayer collected funds be placed in the Trust Fund for electric energy efficiency initiatives.)

Combined Heat and Power

Co-generation or combined heat and power (CHP) technologies have been found to greatly increase the efficiency of an energy system. CHP systems produce electricity from a fuel source while simultaneously capturing thermal energy from this process for a useful purpose such as space heating. Co-generation units can be fuelled by a variety of sources including natural gas, landfill biogas, sewage plants, livestock waste, and biomass. CHP systems have numerous application possibilities including industrial, sawmills, commercial greenhouses, schools, hospitals, malls, universities and other commercial buildings. Work is also taking place on Micro-CHP at the scale of residential application.⁷ In addition to individual applications CHP technologies can be particularly compatible within a district heating system whereby the energy needs of multiple facilities are met by production through cogeneration.

By efficiently generating both heat and power, CHP technologies displace a portion of the fuel that would have otherwise been used to produce the electricity or thermal energy. Cogeneration is a proven and cost-effective solution to reducing greenhouse gas emissions. In creating energy strategies for low-carbon, highly-efficient and lower cost energy systems, policy makers should be fully exploring this technology.

CHP has the potential to benefit Prince Edward Island's energy system in many ways:

- Reduce GHG emissions from new generation
- Reduce transmission and distribution network investment
- Displace higher-cost generation plants
- Improve the efficiency of renewable energy sources⁸

The widespread and rapid deployment of cogeneration in PEI requires particular conditions to ensure success, including access to technical expertise, recognition of the significance and reliability of the equipment, simple and transparent access to the electricity grid and the ability to sell any excess power generated at rates that support uptake (ECO-PEI recommends a feed-in tariff to accomplish this).

⁷ Carbon Trust "Micro-CHP Accelerator" Interim Report, November 2007.

⁸ International Energy Agency. 2008. *Combined Heat and Power Evaluating the Benefits of Greater Global Investment*

RECOMMENDATIONS

- ▶ *Prince Edward Island should introduce a carbon levy on liquid petroleum products to fund climate change action programs and projects which result in greenhouse gas emissions reductions such as multi-fuel energy efficiency, renewable energy projects, and public transportation.*
- ▶ *To ensure the revenue generated from the carbon levy is spent on climate change action initiatives the funds must be protected from entering a department's general revenues. It is recommended that the funds be placed in a Climate Change Trust Fund.*
- ▶ *It is further recommended that legislation is established which requires the Trust Fund to first finance all cost-effective and achievable non-electric energy efficiency. This recommendation would be revised to include all cost-effective electric energy efficiency should ratepayer collected funds be placed in the Trust Fund for electric energy efficiency initiatives.*
- ▶ *Prince Edward Island should allow the carbon levy to be revisited in the future and increased as appropriate*

Combined Heat and Power (CHP)

- *Conduct a study to determine potential energy, greenhouse gas emissions, and financial savings from CHP and future opportunities on Prince Edward Island*
- *Establish supportive and transparent interconnection policy for CHP*
- *Develop an encouraging CHP feed-in tariff as part of a broader renewable energy feed-in tariff policy for Prince Edward Island (This broader policy is addressed later in the Renewable Energy section)*
- *Consider CHP as an energy efficiency improvement to be included within a comprehensive energy efficiency strategy*
- *Develop demonstration CHP projects, particularly to support emerging residential cogeneration technologies*

EFFICIENCY STANDARDS

Establishing clear and aggressive energy efficiency standards through policy is tremendously important and urgent to avoid lost opportunities. To ensure that Prince Edward Island continually adopts best in class energy efficiency standards over time as subsequent improvements occur, these should be revisited and evaluated every three years.

Building Energy Standards

A region's building stock accounts for a tremendous amount of energy consumption and greenhouse gas (GHG) emissions and Prince Edward Island is no exception. Energy efficiency is widely recognized as the most abundantly available and cost-effective solution to climate change and it has been estimated that the building sector's potential is the largest by far. A large percentage of PEI's current building stock is old and inefficient, resulting in a significant energy appetite. Improving the energy efficiency of these existing buildings will require long term commitment and substantial expenditure on the part of government and homeowners. PEI has the potential to avoid the occurrence of lost opportunities to reduce energy demand and GHG emissions by immediately creating clear and aggressive energy efficiency standards.

Building to a high standard of energy efficiency during initial construction is less expensive than renovating later. The immediate adoption of a Provincial Building Energy Code will help ensure that year over year we are not adding to the number of inefficient buildings that make up PEI's building stock. High efficiency buildings also experience reduced operating costs, meaning lower energy bills for its owners over the life of

the building. Ensuring a high level of energy efficiency in PEI's building stock now will save the government money in the future by avoiding additional retrofit projects.

Why Make Energy Efficient Buildings a Priority?

- ❖ Reduces energy consumption and GHG emissions attributed to PEI's building stock (an EnerGuide80 home produces 6 tonnes fewer GHG annually than a comparable conventional home⁹)
- ❖ Reduces homeowners monthly energy bill over the life of the home (these homeowners are less vulnerable to future energy price increases and are likely to have a higher resale value for their home as energy efficiency continues to be a high priority for buyers)
- ❖ A large number of old and inefficient buildings make up PEI's existing building stock. Adopting a provincial building energy code soon is key to avoid adding to the inventory that needs to be retrofitted and the associated higher costs to do so in the future.
- ❖ Builds capacity in PEI's trades sector and stimulates local economic development.

We are currently experiencing record high energy prices and so it becomes in the self-interest of home owners to build a highly energy efficient home. In this case the same person who is investing in the capital costs of the building will also be paying the energy bills, thus there is inherent interest to take measures to reduce energy requirements at the time of construction. In many other cases however the contractor who wins the building contract and completes construction is not the person who will be paying the operating costs of the building. In these cases there is a disconnect between capital costs and operating costs of the building and therefore no incentive to invest in energy efficiency measures at the point of construction. Implementing a provincial energy code for residential, commercial and institutional buildings would be a step towards overcoming this disconnect.

In talking about energy codes the discourse often includes reference to adopting a provincial building code. Currently only Charlottetown and Summerside have adopted a building code in PEI, both being a version of the National Research Council's Model National Building Code. It is vital to recognize at this point that there is no reference to energy efficiency in the Model National Building Code at this time and adopting it in no way establishes an energy efficiency standard for buildings. Adopting a province-wide Building Code would place the entire region on a level playing field so to speak and provide for certain structural and safety requirements. It is to ensure structural integrity in our buildings and render the province on equal footing that ECO-PEI recommends the province adopt a suitable provincial building code. However to ensure buildings achieve a high level of energy efficiency performance a separate and specific province-wide Energy Code is required. Neglecting this addition to a Provincial Building Code is wholly inappropriate and unacceptable.

Prince Edward Island has a tremendous opportunity to reduce energy consumption and GHG emissions associated with its residential and commercial buildings through the implementation of aggressive energy codes. Again it is crucial to recognize that not all energy codes are equal and it is important that PEI adopt an aggressive energy code which is considered appropriate by the wider political and social community. In light of the fact that the adoption of a provincial energy code for buildings will require a rigorous and extensive effort to educate the public, the building community, appropriate municipal and provincial

⁹ Efficiency New Brunswick online at <http://www.energycnb.ca/Promo/NewHomes80orR-2000-e.asp>

divisions, train and hire inspectors, as well as to implement supporting administration and policing, the Province should expend resources on a code that is both aggressive and appropriate.

The National Research Council of Canada currently has two energy codes published, the Model National Energy Code for Buildings (MNECB)¹⁰ and the Model National Energy Code for Homes (MNECH)¹¹. Both of these codes were developed in the early 1990s and published in 1997. An updated version of the MNECB is expected out in 2012 but there are no plans to update the MNECH at this time. These codes are founded on cost-benefit analyses that reflect fuel, material, and construction costs from the early 1990s.

Both of these energy codes have been criticized for being out of date and weak, and other provinces are opting to introduce stronger energy efficiency standards for buildings. Prince Edward Island should be among those provinces adopting more aggressive energy codes than what is offered by the MNECB and MNECH.

The Consumers Council of Canada reported in 2007 in *Energy Efficiency in Building Codes* that both the Model National Energy Code for Buildings and the Model National Energy Code for Houses, published in 1997, are badly out of date.

Environment Northeast also criticized Canada's Model National Energy Codes saying that both the MNECB and the MNECH are out of date and in general more lenient than energy codes adopted across States.¹²

The following are provincial examples of stronger energy codes adoption:

- | | |
|-------------------|--|
| British Columbia: | All new houses EnerGuide80 by 2010
New multi-unit residential buildings 25% better than MNECB by 2010
All new industrial, commercial and institutional buildings 25% better than MNECB by 2010 |
| Ontario: | All new homes to meet or exceed EnerGuide80 by 2012 |
| Nova Scotia: | All new houses EnerGuide80 by 2011 |
| New Brunswick: | Adopt energy performance standard above MNECB and MNECH for residential and commercial new construction beginning 2009 |

The Consumers Council of Canada recently reported that 86% of those surveyed support mandatory levels of energy efficiency for homes and responded that energy efficiency is an important factor in their decision to purchase a new home.¹³ In light of these current findings it is timely that Prince Edward Island work to adopt energy efficient building codes through policy, by building a public constituency for building code

¹⁰ National Research Council of Canada. Model National Energy Code for Buildings online http://www.nationalcodes.ca/mnecb/index_e.shtml

¹¹ National Research Council of Canada. Model National Energy Code for Houses online http://www.nationalcodes.ca/mnech/index_e.shtml

¹² Environment Northeast. 2006. *Climate Change Roadmap for New England and Eastern Canada Summary Recommendations* Principal Authors: Michael D. Stoddard and Derek K. Murrow

¹³ Consumers Council of Canada. 2007. *Energy Efficiency in Building Codes*

improvements, enhancing the capacity of the building efficiency industry, and promoting building code polices with tough efficiency targets.

The Prince Edward Island government should be demonstrating leadership in this area by being among the short list of provincial governments at the forefront striving for the highest level of energy efficiency performance for publicly funded buildings in the province. Manitoba has adopted the LEED (Leadership in Energy and Environmental Design) Silver as their minimum standard for publicly funded buildings and British Columbia has adopted the LEED Gold standard.

RECOMMENDATIONS

- ▶ *Require that all new facilities or major renovations receiving public funds starting in 2010 are certifiable to at least Leadership in Energy and Environmental Design (LEED) Silver standards established by the Canada Green Building Council and will adopt subsequent versions as they become available.*
- ▶ *Adopt EnerGuide80 as the required minimum energy efficiency standard for new construction and major renovations in the residential sector by 2010. This adoption should be accompanied by the implementation of an up-to-date province-wide building code.*
- ▶ *Increase residential energy efficiency performance standard to EnerGuide90 by 2012.*
- ▶ *Improve the energy efficiency performance of the existing building stock to a higher standard by 2025. Investing in all cost-effective energy efficiency opportunities would allow the Province to accomplish all cost-effective efficiency improvements of existing buildings.*
- ▶ *Require that all new construction and major renovations in the commercial sector achieve a level of energy efficiency at least 25% above the Model National Energy Code for Buildings by 2010. This adoption should be accompanied by the implementation of an up-to-date province-wide building code.*
- ▶ *Require all new commercial construction to achieve Leadership in Energy and Environmental Design (LEED) Silver by 2016.*

Appliance, Equipment, and Lighting Standards

RECOMMENDATIONS

- ▶ *We recommend that the Province adopt legislation that establishes a minimum energy efficiency standard for lighting, appliances and equipment by 2012. Further, that all in-efficient lighting be phased out by 2013 utilizing an energy per lumen, technology non-specific measure.*
- ▶ *By 2012, mandate the energy consumption labelling of all products, houses and buildings with special recognition of best practice and best-in-class (e.g. Energy Star®).*

Labour Market Strategy

Energy efficiency is the most powerful job creator compared to any other form of energy investment. Job creation as a result of energy efficiency investment is also important to PEI because it stimulates economic development across all regions, including rural areas of the Island where job creation may be particularly needed. This is an important benefit for Prince Edward Island but requires an appropriate labour market strategy when new efficiency standards are introduced.

The adoption of a Provincial Energy Building Code and appliance, lighting and equipment efficiency standards in PEI will necessitate the immediate development of a comprehensive labour market strategy. The strategy should include the training, retention and attraction of full time energy efficiency staff as well as training at all levels including vocational programs, unions, community colleges and universities. We highlight that the success of a Provincial Building Energy Code will require training and skills development programs for contractors and trades people for the advancement of energy efficiency in renovations and new builds. Success is also very much dependent on a well developed and effective policing system. In addition, developing energy efficiency capacity in our building and trades sector creates the opportunity to export this expertise.

Transportation

The transportation sector accounts for the greatest percentage of carbon emissions on Prince Edward Island at roughly 40% and results in 36% of our total energy consumption. While at this time there is little we can do about the number of heavy trucks on the road besides ensuring that they burn fuel cleanly and efficiently, PEI's heavy reliance on personal vehicle use is another story. There are many factors that contribute to this use, including a large rural population, lack of access to public transportation and lack of incorporation of "smart growth" and "active transportation" philosophies in community land use planning.

A comprehensive three pillar approach to transportation is needed including:

- Investments in sustainable transportation options
- Incentives for energy efficient land use planning
- Requirements for fuel efficiency

Fuel prices are experiencing record highs and expectations are that this trend will sustain over the long-term with prices reaching even higher levels. Providing relief to Island residents through fuel tax reductions and other fuel cost lowering mechanisms are temporary fixes at best and cannot be relied upon over the long-term. Focusing on investment in sustainable options and their accessibility is a more appropriate response from Government. This response also has the added benefit of reducing greenhouse gas emissions.

Sustainable transportation is intricately linked to land-use planning and community development. Its incorporation is heavily dependent on energy efficient land-use planning. When communities are developed to be compact and mixed-use, sustainable means of transportation (biking, walking, rollerblading) become more attractive and viable.

Smart growth is a model of urban and transportation planning that focuses on growth in the city centre to avoid urban sprawl. This model advocates compact, transit-oriented, walkable, bicycle-friendly land use which includes the additional principles:

- Create Range of Housing Opportunities and Choices
- Create Walkable Neighborhoods
- Encourage Community and Stakeholder Collaboration
- Foster Distinctive, Attractive Communities with a Strong Sense of Place
- Make Development Decisions predictable, Fair and Cost Effective
- Mix Land Uses
- Preserve Open Space, Farmland, Natural Beauty and Critical Environmental Areas
- Provide a Variety of Transportation Choices
- Strengthen and Direct Development Towards Existing Communities
- Take Advantage of Compact Building Design¹⁴

The adoption of these principles as core to community development can result in communities which have lower environmental footprints, meet the diverse needs of existing and future residents, and are places where people want to live and work.

¹⁴ Smart Growth Online. 2007. *About Smart Growth*. <http://www.smartgrowth.org/about/default.asp>

RECOMMENDATIONS

- ▶ *The Provincial Government must show leadership in promoting and developing sustainable transportation options in communities across Prince Edward Island including transit, carpooling, carsharing, vanpooling, van shuttles, walking, cycling, intercity bus and rail.*
 - ▶ *Prince Edward Island should work to support the realization of a convenient and accessible province wide public transportation system. The City of Charlottetown offers public transportation services along the designated bus routes, providing mobility at a lower environmental cost to its customers. While this is a welcomed first initiative, a sustainable Island wide public transit system would further reduce greenhouse gas (GHG) emissions from personal vehicles, promote economic development and address issues of social equity and isolation.*
 - ▶ *Prince Edward Island should work with the provinces of the region, including Quebec, to adopt at least California vehicle emissions standards and require all cars sold in the region to meet minimum fuel economy standards.*
 - ▶ *Prince Edward Island should institute an incentive for the purchase of vehicles which exhibit the highest emissions and fuel economy standards.*
 - ▶ *Prince Edward Island should explore options to work with the insurance sector to offer Pay-As-You-Drive insurance to Island residents. Pay-As-You-Drive (PAYD) Vehicle Insurance (also called Distance-Based Vehicle Insurance, Mileage-Based Insurance, Per-Mile Premiums and Insurance Variabilization) means that a vehicle's insurance premiums are based directly on how much it is driven during the policy term. Fixed cost insurance such as we currently have provides drivers with an incentive to drive more because each additional trip lowers the per kilometer fixed cost. Under a PAYD mechanism the more you drive the more you pay and the less you drive the more you save. This can be done by changing how premiums are calculated, from the vehicle-year to the vehicle-mile, vehicle-kilometer or vehicle-minute. Such systems have been used in Europe and in some States to change the incentive structure individual drivers' face by connecting the amount you drive with the amount you pay for insurance. Oregon passed legislation in 2003 to encourage insurers, through a \$100 tax credit, to offer PAYD insurance to customers. Since mid-2004 General Motors has offered mileage-based discounts to OnStar customers in certain states. Under this system the odometer reading at the beginning and end of the policy term is automatically reported. Motorists then receive insurance premium discounts on a sliding scale up to 40% based on miles driven.*
 - ▶ *Prince Edward Island should incorporate transportation efficiency and smart growth policies (pedestrian-oriented, transit accessible, designed with active transportation in mind) in municipal land-use planning. Land use decisions and design can significantly impact GHG emissions and promote the transportation practices that become incorporated within the end development.*
 - ▶ *Prince Edward Island should explore funding mechanisms such as a portion of a carbon tax or the provincial gas tax for public transportation, including active transportation, car-pooling, on-line schedules and information.*
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Renewable Energy

Prince Edward Island imports almost 90% of its energy mix at a cost of over \$450 million annually, positioning PEI to be extremely vulnerable to outside price and supply conditions. After improved energy efficiency and conservation, renewable energy offers Prince Edward Island a subsequent pathway to increased energy security, sustainable energy options, and community economic development. The effective promotion of on-Island renewable energy development can also help Prince Edward Island address climate change through reduced greenhouse gas emissions.

Prince Edward Island is recognized for its wind development and for meeting its Renewable Portfolio Standard (RPS) for electricity (15%) three years ahead of schedule in 2007. The province must now look to diversify its renewable energy development as electricity accounts for only a small portion of PEI's energy use. The Province should explore policies and programs to promote diverse, distributed, and scale appropriate renewable energy generation that yields the greatest benefits to local communities and the Island economy, and provides actual environmental benefits as well.

In addition to the continuation of wind technology development, solar electric, solar thermal, biogas, geothermal, combined heat and power (CHP) and biomass must be considered as potential opportunities to develop indigenous renewable resources. When determining the amount and type of renewable energy development to encourage, the province must establish renewable energy policy instruments which:

- Reflect the needs of Prince Edward Island
- Are able to respond to available resources and technologies
- Deliver the greatest benefits to local individuals, communities, the Island economy and the Island environment
- Have the ability to respond to future economic and social circumstances
- Are able to offer solutions on a number of fronts (for example: small-scale wood heating systems that actually assist in the restoration of our forests, or perhaps a biodiesel system produced from a mix of sustainable sources)

The role of the Province should be to support the widespread development and deployment of renewable energy technologies in Prince Edward Island in such a way as to ensure the benefits of doing so are realized by Islanders. Information has proven insufficient to achieve this goal alone. Supportive legislation and programs have been needed in conjunction with public education to see success occur in the rapid development and adoption of renewable energy across a jurisdiction. It is the role of the Provincial Government to develop the expertise, standards, policies, regulations and incentive programs which will support the widespread development and uptake of renewable energy technologies in PEI.

The Environmental Coalition recommends that the Province, in a concerted effort to achieve this goal, promote the uptake of on-site renewable energy as an efficiency improvement in its energy efficiency strategy. For example along with switching to high-efficiency boilers for water heating, solar water heaters could be installed at the facility to pre-heat the water, rendering the whole system more efficient. A holistic approach to energy efficiency would include the deployment of distributed on-site renewable energy generation including:

- Solar water and air heating systems
- Passive solar design
- Solar electricity

- Biomass (including waste) generated heat and/or electricity
- Biogas generated heat and/or electricity

ECO-PEI also recommends that the Province recognize renewable energy generated electricity as its preferred option, following a model of on-Island, decentralized renewable energy development. This electricity pathway supports a vision for sustainable, low-carbon energy that is rooted in sound community economic development. A community renewable power model will require that PEI's current electric system adjust to complement the incorporation of renewable power. Expertise in renewable energy balancing, energy storage, and strategic upgrades to grid infrastructure in line with a decentralized pathway may be required. Approaching these needs within the sphere of regional collaboration and coordination may prove particularly fruitful and should be thoroughly explored by the PEI Government. Not only must transmission and distribution systems on PEI support community power for the Province to see this energy strategy grow to its full potential but well-designed policy which encourages this model is imperative. The next section addresses this topic.

COMMUNITY POWER

In order to meet energy security, environmental and economic development goals Prince Edward Island must look at new ways to accelerate renewable energy development across Island communities. Renewable energy tariffs enable homeowners, farmers, rural communities, cooperatives and First Nations to participate in renewable energy development alongside large commercial developers. Thus far feed-in tariffs have been extremely successful for driving the rapid expansion of community-owned renewable energy development and deployment across several European nations.¹⁵ Feed-in tariffs (FITs) are currently the world's most widely adopted renewable energy policy and as of 2007 FITs had been enacted by 18 European Union countries, Brazil, Indonesia, Israel, Korea, Nicaragua, Norway, Sri Lanka, Switzerland and Turkey.¹⁶ In 2006 Ontario was the first jurisdiction in North America to adopt a policy similar to European-style FITs called Standard Offer Contracts.

The evidenced benefits of feed-in tariffs are vast and support Prince Edward Island adopting an Island tailored feed-in policy.

FIT Benefits

- ❖ The most effectual renewable energy policy in Europe in terms of installed capacity (from this it has been concluded that FITs are more effective than other policies in reducing GHG emissions through renewable energy development and deployment)
- ❖ Creates a stable investment environment
- ❖ Provides for a financial return by which to cover capital costs
- ❖ Inherently allows for more opportunities for small generators through community ownership models (cooperatives) which increases resident buy-in, diffuses market power and creates a more distributed and democratic energy system
- ❖ Community members through direct involvement in energy projects share in the financial and non-financial benefits of the project

¹⁵ Rickerson, Wilson and Grace, Robert C.. 2007. *The Debate over Fixed Price Incentives for Renewable Electricity in Europe and the United States: Fallout and Future Directions* Prepared for the Heinrich Boll Foundation

¹⁶Ibid

- ❖ Socially progressive and participatory
- ❖ By providing incentives for multiple renewable energy sources communities can develop the technology that is most appropriate for their community
- ❖ Stimulates community economic development
- ❖ Stabilizes electricity rates

Advanced renewable tariffs (ARTs) are considered the modern version of feed-in tariffs as they differ from simpler FITs in a number of important ways. Under ARTs a fixed and fair price is paid per kilowatt-hour of renewable energy generated and sold to the electric-utility network. This rate is fixed for a guaranteed period of time, usually 20 years. Under ARTs the amount paid for renewable energy generation is differentiated by technology (For example, a different price is specified for wind energy, solar energy, biomass energy etc.). Tariffs within each technology can also be differentiated by project size, geographic location, fuel source and for wind by the productivity of the resource.

Although feed-in tariffs have many names (Advanced Renewable Tariffs, Feed Laws, Renewable Energy Tariffs, Standard Offer Contracts) and policy designs can vary widely a recent study of best practices concluded that successful FITs have:

- Long-term guaranteed payments that adequately reflect generation costs and reasonable profit
- Provide for transparent interconnection with the electrical grid
- The program is simple, inclusive, and transparent
- Incentive levels that decrease overtime ie. “tariff degression”
- Incentive levels that are specific to certain renewable energy technologies (photovoltaic, wind, biomass etc.)
- Incentive levels that are tailored to achieve specific policy goals, for example development in different wind regimes, use of certain conversion technologies (Stirling engine or fuel cells for biomass and biogas), employment of co-generation¹⁷

In developing a feed-in tariff policy for Prince Edward Island it should seek to aggressively advance the development of on-Island renewable energy in communities across the Island. The policy should allow for a diversity of energy ownership models (cooperatives, municipal, individual, commercial) and not restrict program and project size so as to render the policy ineffective. (This is true in the case of other renewable energy policies such as net-metering and net-billing as well.)

Many jurisdictions have found that initial caps established for both project size and program size were limiting. It is recommended that the program size cap, should one be established (some jurisdictions choose not to set such a cap) be sufficiently large in order to reduce uncertainty to possible participants. Under an inappropriately low program cap there is a higher risk that interested parties will invest in their project and work for one or two years to fully establish it, only to discover that they no longer fit within the cap and therefore cannot participate.

It is also recommended that the project size be limited to the technical capacity of the grid lines energy projects will be feeding into (utility engineers are able to provide this information). In New Brunswick it was recommended project size be limited to the technical capacity of distribution lines which can physically handle an input of about 10 megawatts (this can vary across the province and thus there may be different project size caps depending on location). Setting project caps of this size allows for increased efficiencies of

¹⁷ Ibid

scale and places a technical rather than political limit on project size. For the FIT program to be successful and as efficient as possible the people of PEI need to know the grid which requires the utility to be transparent. Residents need to know where the grid is strong enough to build their energy project.

Feed-in tariffs could provide significant economic development opportunities for Prince Edward Island's rural communities. Farmers, cooperatives and communities could earn extra income by producing clean, renewable power while also improving the air quality, reducing greenhouse gas emissions and reducing our reliance on imported fuel. Evidence suggests it would be the most effective policy for fully developing PEI's renewable energy resources across Island communities.

Government must lead the adoption of a feed-in tariff policy in Prince Edward Island. Utilities will never initiate this discussion because why would they want to purchase renewable energy at higher prices than the wholesale price of fossil-fuel generated electricity from New Brunswick? They do not want to be seen as responsible for increased rates and their interests are not in line with the benefits a FIT mechanism can offer such as job creation, rural economic opportunities, and manufacturing/business attractiveness. That is why a feed-in tariff system, where adopted, is always a government initiated policy. The government decides they want this for their citizens and that the benefits far outweigh any associated costs.

In Prince Edward Island residential electricity rates are currently \$0.139/kWh for the first 1600 kWh and \$0.166/kWh up to 5000 kWh for General Service I customers.¹⁸ Wind can be produced here for less than \$0.11/kWh and in general biomass and biogas can be produced for a slightly higher price. Under the Ontario Standard Offer Program biomass generated electricity is offered a market-based tariff of \$0.11/kWh and is also eligible for an additional 3.52 cents per kWh awarded to electricity that is actually delivered during On-Peak Hours (11 am to 7 pm EST).¹⁹ When considering PEI's current situation along with forecasted fossil-fuel price increases and the high probability of near future carbon pricing, the Province has the opportunity to demonstrate innovation and foresight by seriously considering a feed-in tariff scheme in the new Energy Strategy. Feed-in tariffs foster electricity price stability and in PEI actually have the potential to lower rates. This would render our businesses more competitive and save government money on electricity bills for public buildings.

Throughout the public consultations on the Energy Strategy Discussion Document net-billing was raised as a possible policy mechanism to move beyond PEI's current net-metering policy. Net-billing would allow the offsetting of multiple meters under one bill. This policy may not achieve the rapid expansion of community renewable energy generation that would be facilitated under a feed-in tariff policy in Prince Edward Island. A net-billing scheme may provide the means for energy projects to be implemented which currently face barriers under the Province's net-metering scheme. For example an Island farm with multiple meters can only offset the electricity consumption with on-site renewable generation from behind one meter under the current system. Under net-billing all meters would be able to be offset under the same bill. However the goal of net-billing would be to offer people the opportunity to produce their own power not to develop the full potential of a region's renewable energy resources and the associated co-benefits. Policy must engage the imagination of residents, businesses, and communities which cannot occur in the presence of limited opportunity. In absence of long-term guaranteed payments for the generated renewable energy the levels of community investment will not occur as enjoyed under a feed-in tariff policy.

¹⁸ Maritime Electric Company Limited. May 2008. *Schedule of Adjusted Rates*
<http://www.maritimeelectric.com/schofadjustedrates/index.pdf>

¹⁹ Ontario's Standard Offer Program. 2008. *Program Rules*.
http://www.powersauthority.on.ca/sop/Page.asp?PageID=122&ContentID=4107&SiteNodeID=162&BL_ExpandID=161

RECOMMENDATIONS

- ▶ *Take an integrated approach to multi-fuel energy efficiency by including the deployment of distributed on-site renewable energy generation as an efficiency improvement in PEI's energy efficiency strategy.*
 - ▶ *Recognize renewable energy generated electricity as PEI's preferred option, following a model of on-Island, decentralized renewable energy development.*
 - ▶ *Prioritize research, experimentation and development consistent with a community (decentralized) energy pathway to enhance innovation, avoid risk and increase autonomy and security, while also exploring carbon capture and Hydro Quebec storage opportunities.*
 - ▶ *Develop an advanced renewable tariff policy for Prince Edward Island that facilitates the development and deployment of diverse, community power generation and yields the greatest social, economic and environmental benefits to Island communities.*
 - ▶ *Fund research and development and deployment of renewable energy technologies, services and policy mechanisms (for example, inter-provincial storage and coordination, on-Island energy storage, feed-in tariffs, renewable portfolio standards, utilizing wind energy for electric space and hot water heating and electric cars).*
 - *Commission a study to identify potential areas for pumped hydro renewable energy storage (for example: hydro-wind systems), compressed air storage and other energy storage options.*
 - *Commission a study to identify transmission and distribution needs in order to achieve more renewable energy on the grid (include regional perspective).*
 - *Fund research to examine the adoption of technology specific feed-in tariffs for the promotion of community energy development.*
 - ▶ *Upgrade transmission and distribution infrastructure in a planned and coordinated fashion, in order to build a grid for a decentralized energy future.*
 - ▶ *Develop standard renewable energy siting rules, policies, and planning guidelines and provide equal scrutiny to the effects of fossil fuel generation as renewable energy generation.*
 - ▶ *Prince Edward Island should identify where and when key decisions are made regarding energy technologies (for example, during equipment replacements, building design, new construction, renovations). The province should then intervene at these critical times to promote alternative energy technologies with the goal of making them the norm (for example, educating builders, contractors, retailers, businesses owners and homeowners on energy alternatives such as geo-thermal space heating, passive solar, solar hot water heating systems, etc.). Financial incentive programs for homeowners and businesses should be made available to achieve greater uptake of these energy systems.*
 - ▶ *To dramatically increase the amount of renewable energy generation in Prince Edward Island a greater amount of ingenuity may be required. This is an opportunity for PEI to build capacity and grow local knowledge in the area of renewable energy technologies and appropriate policy. By linking our local educational institutions with local communities to experiment and develop knowledge, PEI can become a leader in the development of community renewable energy systems. The opportunity for building expertise in this area requires that appropriate, applicable programs are offered by the Island's educational institutions. (For example, energy efficiency and renewable energy technologies courses as part of the construction program at Holland College, new and innovative storage technology experimentation supported by the engineering department at UPEI, renewable energy policy mechanisms research, etc.).*
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Agriculture

Agriculture has long been a pivotal factor in the identity and economic activity of Prince Edward Island. It has also had significant impacts on the Island environment and although it consumes only 6% of the Island's energy requirement, it is responsible for 22% of its greenhouse gas emissions. A concerted effort must be made to achieve reductions in energy consumption and GHG emissions in the farming community if PEI is to develop a sustainable, low-carbon energy system.

Increasing energy efficiency in the agriculture sector can improve the financial situation of farms, have a significant impact on easing the burden on the electrical grid and reduce pollution and dependence on foreign energy supply. Among the steps farmers can take are low-energy farming practices and improved energy efficiency of equipment and ventilation. Combined with the purchase of more efficient machinery and lighting, farmers can save significant energy costs while reducing their future exposure to volatile energy prices.

Areas of Energy and Carbon Emissions Savings

RECOMMENDATIONS

- ▶ **Increase energy efficiency standards:** *motor systems, drying practices, storage practices, water heating, lighting, onsite transportation and machinery, heating, cooling and ventilation*
- ▶ **Switch to lower-carbon energy sources** *(wind, solar pumps, solar drying, on-farm bio-fuels, and biogas)*
- ▶ **Adopt farming practices that reduce energy requirements and inputs and energy and non-energy emissions** *(use conservation tillage systems, reduce input of chemical fertilizers)*

- *Soil Conservation: The carbon plants take from the air and utilize for photosynthesis and growth is incorporated into the soil as organic matter when the plant dies. As organic matter decays, carbon is slowly released back into the atmosphere over months, years, or centuries depending on the situation. Thus, soils act as a temporary carbon sink and its condition and management dictate how much carbon is stored at any one time. Soil conservation practices such as reducing summer fallow, decreasing tillage, direct seeding, and including forages in crop rotations can stabilize or increase organic matter (mostly carbon) stored in soils.*

Nutrient management systems also play a significant role in soil health and its carbon content. With proper storage, management, and application, manure can enhance soil organic matter (and carbon) content. However the excessive application of fertilizers can have a detrimental effect on carbon in the soil. To ensure agriculture practices foster soil health and increased carbon content, nutrient management systems that promote appropriate application of fertilizers, including timing, should be in place on all Island farms.

- *Grow Forests to Store Carbon: Trees planted on agricultural lands sequester, or capture, atmospheric carbon, thereby reducing greenhouse gas levels. Healthy forests can act as windbreaks, enhance biodiversity and habitat for wildlife, reduce soil erosion and moisture loss, and protect water quality, while improving soil carbon content. Financial incentives could be provided for farmers to grow forests on marginal agricultural land as a recognition of the services they are providing to the broader community.*

- *Support Local Farms: It is important to not only reduce the energy requirements and greenhouse gas emissions associated with the production of food but also those related to the transport of our food. Enormous amounts of fossil fuels are required to deliver food from around the world to our Island stores by truck, plane, ship and rail. By buying local agriculture you support local farmers, rural Island communities and consume food that has a much lower greenhouse gas emission and fossil fuel bill tied to it.*

Energy programs that directly benefit farmers by providing access to financial assistance for on farm energy audits, as well as start-up and operating capital for clean energy technologies (wind, manure digesters, energy efficiency, biomass, solar, bio-diesel) have been very successful elsewhere in both Europe and the States.

Subsidies to energy and other agriculture inputs based on fossil fuels limit the interest in both efficiency and clean energy alternatives. Their removal, along with additional incentives such as advanced renewable tariffs (feed-in tariffs) will encourage efficient use of inputs and increased application of renewable technologies. Prince Edward Island should thoroughly examine both of these mechanisms.

Biofuels

Biofuel can be broadly defined as solid, liquid, or gas fuel consisting of, or derived from biomass (living and recently dead biological material). This includes wood and manure (biogas) for energy use. Commonly, the term bio-fuel refers to liquid transportation fuels made from plants and animal fats.

In the global and local context of rising fuel prices, an ever shrinking supply of fossil fuel, an increased concern regarding climate change and the proliferation of economies heavily dependent on high transportation demand, biofuel is currently being presented as an attractive answer. It is important to thoroughly understand this complex issue before proceeding with the promotion of biofuels to determine if this will lead to the achievement of a sustainable energy future for Prince Edward Island.

The idea of bio-fuels is quite attractive, especially since we have no locally-produced fossil fuels to power our vehicles. Many Islanders recognize the problems associated with transportation fuels, but other than a small number of hybrid vehicles and a few that run on waste oil, limited options are available. The concept of on-farm operations producing diesel to run tractors and heat homes, as well as producing feedstock for animals might make sense. Biofuels may also have a role to play in a district heating system for large institutions such as the University or a hospital.

Unfortunately concerns over biofuels have been raised around the world. These concerns should provide the framework for the social, environmental and economic assessment of each type of bio-fuel operation and indeed each proposed operating plant. Such a robust framework must be developed before policies are enacted which create artificial markets for bio-fuels and promote their use.

- 1) *Have mechanisms to reduce driving and fuel demand been exhausted?*
- 2) *Is the biofuel planned for local use or export?*
- 3) *Are we actually gaining energy from the biofuel or did it take more energy to produce?*
- 4) *What is the scale of production?* (What is being promoted? small-scale, on-farm, Island wide, 10 hectares vs. 2000 hectares)
- 5) *What are the methods of crop production for biofuel use?* (industrial, heavy-inputs, organic, low-intensity farming)
- 6) *What source for fuel is being used?* (corn, switchgrass, GM crops, forest, waste oil, methane from landfills/manure)
- 7) *Who owns production operation?* (farmer cooperatives, communities, government, large industrials, foreign industry)
- 8) *Who on the Island is benefiting/adversely affected?*
- 9) *What are the lifecycle costs and benefits?* (environmental, social, economic)
- 10) *What are the land use implications?* (conversion of arable land from food to fuel, marginal land, net carbon release considerations)
- 11) *What are the water use implications?* (for crop production and biofuel production)
- 12) *Are there other implications for air quality, wildlife habitat, biodiversity etc.?*

RECOMMENDATIONS

While recognizing the complexity of the issue, we feel the investigation into biofuels should have two priorities that will help lead us to a sustainable energy future.

► *Priority 1-- Government should invest in reducing driving and fuel demand.*

Before looking to biofuels to replace petroleum-based transportation fuels, all mechanisms which facilitate reductions in driving and fuel demand must be pursued (for example, fuel efficiency standards, vehicle emissions standards, alternative transportation opportunities, smart growth planning, consideration of Pay-As-You-Drive insurance, public transportation, carpooling incentives etc.)

► *Priority 2-- Thorough research and full-cost accounting*

Before Prince Edward Island proceeds with the promotion of biofuels, comprehensive research must be undertaken to examine what this will mean for PEI economically, environmentally and socially. Biofuels incorporate a broad range of issues and thus require a rigorous, multi-faceted framework to allow for appropriate assessment before a decision is made on their future in Prince Edward Island. Appropriate assessment would utilize the most rigorous full lifecycle evaluation methods for the economical, environmental and greenhouse gas emission impacts of biofuels. Robust lifecycle evaluation models and standards must be fully developed before policies are enacted which create artificial markets for biofuels and promote their use.

The crisis in Prince Edward Island's agricultural and forestry sectors was explicitly sited throughout the Energy Strategy public consultations and within the Energy Strategy Discussion Paper. In particular biofuels and biomass have been pointed to as possible providers of much needed support and opportunity for both of these sectors. If the Province is going to support these industries through the Energy Strategy then discussion must take place between these Provincial Divisions. The Province must ensure that aggressive policy and regulations (environmental, social and economic) exist in these sectors so that the Energy Strategy does not prop up unsustainable and undesirable agricultural and forestry practices.

Conclusion

Climate change is an increasingly urgent concern and energy prices are forecasted to remain high. These conditions place Prince Edward Island residents, businesses, government, primary sectors and ecosystems in an extremely vulnerable situation. The future that PEI strives to achieve must inevitably provide for a sustainable energy economy which fosters energy security, environmental stewardship and price stability. The next step forward calls for innovation, courage and leadership on the part of the provincial government when envisioning models of economic development and the Island's future energy system. No longer is it appropriate or responsible to continue with policy models predicated on fossil fuel production and use. Today's situation requires a new approach that recognizes our economic well-being is deeply dependent on our efforts to safeguard our natural advantages and to ensure a stable climate. Prince Edward Island needs a roadmap which steers the province toward an energy system which encourages small and medium, local ownership energy generation alongside larger development options by creating supportive policies which promote this type of community development.

The new provincial Energy Strategy must entrench within its pages the strategic means to achieve a sustainable and prosperous energy future for Prince Edward Island. Improved energy efficiency, clean renewable energy and community development opportunities must be the pillars of this Strategy. It is with this next Strategy that the province must not only practice good politics but needs to provide good policies. Critical to the success of the Energy Strategy lies in its ability to be comprehensive, robust and revolutionary to meet the needs of Islanders and the Island environment today and for the future. Not only must it read as such but for it to be truly successful the government and all Islanders must make it a priority to turn the Energy Strategy into action. To move forward in an appropriate response to the current social context and place the Province on a path towards an energy future which offers improved energy security, environmental integrity, and economic prosperity, political will must engage today.

List of Recommendations

VISION

- ▶ **Vision for Prince Edward Island's Energy System:** *A sustainable, low-carbon energy system that provides the greatest environmental, social and economic benefits to Prince Edward Island residents, communities and the Island itself.*
- ▶ **Pathway to Achievement:** *Government, community and individual leadership in accelerating this transition through the adoption of renewable, green energy and improved energy efficiency that is rooted in sound community economic development and supported by community oriented policy models.*

ENERGY EFFICIENCY

ELECTRIC ENERGY EFFICIENCY

- ▶ *ECO-PEI recommends that a planning process is established which prioritizes energy efficiency and requires utilities to procure all cost-effective energy efficiency when it is at or below the cost of conventional energy supply or capacity resources.*
- ▶ *The Provincial Government should amend the demand side management provisions under Section 6 of the Renewable Energy Act and replace them with a directive to invest in all cost-effective energy efficiency that is at or below the cost of supply. Energy efficiency investment should not be restricted to peak demand savings in lieu of year round savings which the Potential Study has evaluated to be \$151 million for Islanders over the next ten years accruing from residential and commercial and institutional initiatives.*

MULTI-FUEL ENERGY EFFICIENCY

- ▶ *Prince Edward Island should introduce a carbon levy on liquid petroleum products to fund climate change action programs and projects which result in greenhouse gas emissions reductions such as multi-fuel energy efficiency, renewable energy projects, and public transportation.*
- ▶ *To ensure the revenue generated from the carbon levy is spent on climate change action initiatives the funds must be protected from entering a department's general revenues. It is recommended that the funds be placed in a Climate Change Trust Fund.*
- ▶ *It is further recommended that legislation is established which requires the Trust Fund to first finance all cost-effective and achievable non-electric energy efficiency. This recommendation would be revised to include all cost-effective electric energy efficiency should ratepayer collected funds be placed in the Trust Fund for electric energy efficiency initiatives.*
- ▶ *Prince Edward Island should allow the carbon levy to be revisited in the future and increased as appropriate*

Combined Heat and Power (CHP)

- *Conduct a study to determine potential energy, greenhouse gas emissions, and financial savings from CHP and future opportunities on Prince Edward Island*
- *Establish supportive and transparent interconnection policy for CHP*
- *Develop an encouraging CHP feed-in tariff as part of a broader renewable energy feed-in tariff policy for Prince Edward Island (This broader policy is addressed later in the Renewable Energy section)*

- *Consider CHP as an energy efficiency improvement to be included within a comprehensive energy efficiency strategy*
- *Develop demonstration CHP projects, particularly to support emerging residential cogeneration technologies*

EFFICIENCY STANDARDS

Building Energy Standards

- ▶ *Require that all new facilities or major renovations receiving public funds starting in 2010 are certifiable to at least Leadership in Energy and Environmental Design (LEED) Silver standards established by the Canada Green Building Council and will adopt subsequent versions as they become available.*
- ▶ *Adopt EnerGuide80 as the required minimum energy efficiency standard for new construction and major renovations in the residential sector by 2010. This adoption should be accompanied by the implementation of an up-to-date province-wide building code.*
- ▶ *Increase residential energy efficiency performance standard to EnerGuide90 by 2012.*
- ▶ *Improve the energy efficiency performance of the existing building stock to a higher standard by 2025. Investing in all cost-effective energy efficiency opportunities would allow the Province to accomplish all cost-effective efficiency improvements of existing buildings.*
- ▶ *Require that all new construction and major renovations in the commercial sector achieve a level of energy efficiency at least 25% above the Model National Energy Code for Buildings by 2010. This adoption should be accompanied by the implementation of an up-to-date province-wide building code.*
- ▶ *Require all new commercial construction to achieve Leadership in Energy and Environmental Design (LEED) Silver by 2016.*

Appliance, Equipment, and Lighting Standards

- ▶ *We recommend that the Province adopt legislation that establishes a minimum energy efficiency standard for lighting, appliances and equipment by 2012. Further, that all in-efficient lighting be phased out by 2013 utilizing an energy per lumen, technology non-specific measure.*
- ▶ *By 2012, mandate the energy consumption labelling of all products, houses and buildings with special recognition of best practice and best-in-class (e.g. Energy Star®).*

TRANSPORTATION

- ▶ *The Provincial Government must show leadership in promoting and developing sustainable transportation options in communities across Prince Edward Island including transit, carpooling, carsharing, vanpooling, van shuttles, walking, cycling, intercity bus and rail.*
- ▶ *Prince Edward Island should work to support the realization of a convenient and accessible province wide public transportation system. The City of Charlottetown offers public transportation services along the designated bus routes, providing mobility at a lower environmental cost to its customers. While this is a welcomed first initiative, a sustainable Island wide public*

transit system would further reduce greenhouse gas (GHG) emissions from personal vehicles, promote economic development and address issues of social equity and isolation.

- ▶ *Prince Edward Island should work with the provinces of the region, including Quebec, to adopt at least California vehicle emissions standards and require all cars sold in the region to meet minimum fuel economy standards.*
- ▶ *Prince Edward Island should institute an incentive for the purchase of vehicles which exhibit the highest emissions and fuel economy standards.*
- ▶ *Prince Edward Island should explore options to work with the insurance sector to offer Pay-As-You-Drive insurance to Island residents. Pay-As-You-Drive (PAYD) Vehicle Insurance (also called Distance-Based Vehicle Insurance, Mileage-Based Insurance, Per-Mile Premiums and Insurance Variabilization) means that a vehicle's insurance premiums are based directly on how much it is driven during the policy term. Fixed cost insurance such as we currently have provides drivers with an incentive to drive more because each additional trip lowers the per kilometer fixed cost. Under a PAYD mechanism the more you drive the more you pay and the less you drive the more you save. This can be done by changing how premiums are calculated, from the vehicle-year to the vehicle-mile, vehicle-kilometer or vehicle-minute. Such systems have been used in Europe and in some States to change the incentive structure individual drivers' face by connecting the amount you drive with the amount you pay for insurance. Oregon passed legislation in 2003 to encourage insurers, through a \$100 tax credit, to offer PAYD insurance to customers. Since mid-2004 General Motors has offered mileage-based discounts to OnStar customers in certain states. Under this system the odometer reading at the beginning and end of the policy term is automatically reported. Motorists then receive insurance premium discounts on a sliding scale up to 40% based on miles driven.*
- ▶ *Prince Edward Island should incorporate transportation efficiency and smart growth policies (pedestrian-oriented, transit accessible, designed with active transportation in mind) in municipal land-use planning. Land use decisions and design can significantly impact GHG emissions and promote the transportation practices that become incorporated within the end development.*
- ▶ *Prince Edward Island should explore funding mechanisms such as a portion of a carbon tax or the provincial gas tax for public transportation, including active transportation, car-pooling, on-line schedules and information.*

RENEWABLE ENERGY

- ▶ *Prince Edward Island should take an integrated approach to multi-fuel energy efficiency by including the deployment of distributed on-site renewable energy generation as an efficiency improvement in PEI's energy efficiency strategy.*
- ▶ *Recognize renewable energy generated electricity as PEI's preferred option, following a model of on-Island, decentralized renewable energy development.*
- ▶ *Prioritize research, experimentation and development consistent with a community (decentralized) energy pathway to enhance innovation, avoid risk and increase autonomy and security, while also exploring carbon capture and Hydro Quebec storage opportunities.*
- ▶ *Develop an advanced renewable tariff policy for Prince Edward Island that facilitates the development and deployment of diverse, community power generation and yields the greatest social, economic and environmental benefits to Island communities.*
- ▶ *Fund research and development and deployment of renewable energy technologies, services and policy mechanisms (for example, inter-provincial storage and coordination, on-Island energy storage, feed-in tariffs, renewable portfolio standards, utilizing wind energy for electric space and hot water heating and electric cars).*

- *Commission a study to identify potential areas for pumped hydro renewable energy storage (for example: hydro-wind systems), compressed air storage and other energy storage options.*
 - *Commission a study to identify transmission and distribution needs in order to achieve more renewable energy on the grid (include regional perspective).*
 - *Fund research to examine the adoption of technology specific feed-in tariffs for the promotion of community energy development.*
- ▶ *Upgrade transmission and distribution infrastructure in a planned and coordinated fashion, in order to build a grid for a decentralized energy future.*
 - ▶ *Develop standard renewable energy siting rules, policies, and planning guidelines and provide equal scrutiny to the effects of fossil fuel generation as renewable energy generation.*
 - ▶ *Prince Edward Island should identify where and when key decisions are made regarding energy technologies (for example, during equipment replacements, building design, new construction, renovations). The province should then intervene at these critical times to promote alternative energy technologies with the goal of making them the norm (for example, educating builders, contractors, retailers, businesses owners and homeowners on energy alternatives such as geo-thermal space heating, passive solar, solar hot water heating systems, etc.). Financial incentive programs for homeowners and businesses should be made available to achieve greater uptake of these energy systems.*
 - ▶ *To dramatically increase the amount of renewable energy generation in Prince Edward Island a greater amount of ingenuity may be required. This is an opportunity for PEI to build capacity and grow local knowledge in the area of renewable energy technologies and appropriate policy. By linking our local educational institutions with local communities to experiment and develop knowledge, PEI can become a leader in the development of community renewable energy systems. The opportunity for building expertise in this area requires that appropriate, applicable programs are offered by the Island's educational institutions. (For example, energy efficiency and renewable energy technologies courses as part of the construction program at Holland College, new and innovative storage technology experimentation supported by the engineering department at UPEI, renewable energy policy mechanisms research, etc.).*

AGRICULTURE

- ▶ ***Increase energy efficiency standards:*** *motor systems, drying practices, storage practices, water heating, lighting, onsite transportation and machinery, heating, cooling and ventilation*
- ▶ ***Switch to lower-carbon energy sources*** *(wind, solar pumps, solar drying, on-farm bio-fuels, and biogas)*
- ▶ ***Adopt farming practices that reduce energy requirements and inputs and energy and non-energy emissions*** *(use conservation tillage systems, reduce input of chemical fertilizers)*
 - *Soil Conservation: The carbon plants take from the air and utilize for photosynthesis and growth is incorporated into the soil as organic matter when the plant dies. As organic matter decays, carbon is slowly released back into the atmosphere over months, years, or centuries depending on the situation. Thus, soils act as a temporary carbon sink and its condition and management dictate how much carbon is stored at any one time. Soil conservation practices such as reducing summer fallow, decreasing tillage, direct seeding, and including forages in crop rotations can stabilize or increase organic matter (mostly carbon) stored in soils.*

Nutrient management systems also play a significant role in soil health and its carbon content. With proper storage, management, and application, manure can enhance soil organic matter (and carbon) content. However the excessive application of fertilizers can have a detrimental effect on carbon in the soil. To ensure agriculture practices foster soil health and increased carbon content, nutrient management systems that promote appropriate application of fertilizers, including timing, should be in place on all Island farms.

- *Grow Forests to Store Carbon: Trees planted on agricultural lands sequester, or capture, atmospheric carbon, thereby reducing greenhouse gas levels. Healthy forests can act as windbreaks, enhance biodiversity and habitat for wildlife, reduce soil erosion and moisture loss, and protect water quality, while improving soil carbon content. Financial incentives could be provided for farmers to grow forests on marginal agricultural land as a recognition of the services they are providing to the broader community.*
- *Support Local Farms: It is important to not only reduce the energy requirements and greenhouse gas emissions associated with the production of food but also those related to the transport of our food. Enormous amounts of fossil fuels are required to deliver food from around the world to our Island stores by truck, plane, ship and rail. By buying local agriculture you support local farmers, rural Island communities and consume food that has a much lower greenhouse gas emission and fossil fuel bill tied to it.*

BIOFUELS

- ▶ **Priority 1-- Government should invest in reducing driving and fuel demand.**
Before looking to biofuels to replace petroleum-based transportation fuels, all mechanisms which facilitate reductions in driving and fuel demand must be pursued (for example, fuel efficiency standards, vehicle emissions standards, alternative transportation opportunities, smart growth planning, consideration of Pay-As-You-Drive insurance, public transportation, carpooling incentives etc.)
- ▶ **Priority 2-- Thorough research and full-cost accounting**
Before Prince Edward Island proceeds with the promotion of biofuels, comprehensive research must be undertaken to examine what this will mean for PEI economically, environmentally and socially. Biofuels incorporate a broad range of issues and thus require a rigorous, multi-faceted framework to allow for appropriate assessment before a decision is made on their future in Prince Edward Island. Appropriate assessment would utilize the most rigorous full lifecycle evaluation methods for the economical, environmental and greenhouse gas emission impacts of biofuels. Robust lifecycle evaluation models and standards must be fully developed before policies are enacted which create artificial markets for biofuels and promote their use.