

Public Consultations

Following is the confirmed schedule of the Community Energy Consultations to be held this month throughout the Province.

Tuesday, June 10, 2003

Heritage Inn - Tignish

Time - 7:00pm

Wednesday, June 11, 2003

Summerside Fire Hall (3rd Floor) - Summerside

Time - 7:00pm

Thursday, June 12, 2003

Englewood School - Crapaud

Time - 7:00pm

Monday, June 16, 2003

Community Center - Murray River

Time - 7:00pm

Tuesday, June 17, 2003

Cotton Center (Senior's Room) - Stratford

Time - 7:00pm

Wednesday, June 18, 2003

Circle Club - St. Peter's

Time - 7:00pm

Thursday, June 26, 2003

Eastern Kings Community Center - Munn's Road

Time - 7:00pm

Prince Edward Island
Renewable Energy Strategy

Public Discussion Document



PEI Energy Corporation
June, 2003

Executive Summary

A time of change is approaching in the ways that we produce and use energy. This change is seen as an opportunity for Prince Edward Island, but it also brings with it many challenges. Of these, two stand out: to position the Island for maximum benefit when the change occurs, and to effectively manage the period of transition between today's and tomorrow's technologies.

Prince Edward Island's six energy goals are to:

- ◆ Ensure security of supply;
- ◆ Improve price equity for citizens and businesses;
- ◆ Encourage diversity of supply;
- ◆ Achieve minimal environmental impact;
- ◆ Promote efficient energy usage; and
- ◆ Support for economic development.

To achieve these goals, the PEI Energy Corporation is following two parallel paths. It is attempting to secure supplies of natural gas to ensure the cheapest and cleanest energy supply possible to meet Islanders' overall needs, and to develop and blend into the mix energy from renewable sources.

Eight percent of Prince Edward Island's energy needs now come from renewable energy sources, such as wood and solar panels used for heating. The Charlottetown District Heating system, and wood chips systems in provincial institutions, are examples of a positive approach to the use of renewable energy. But wind power appears to hold the greatest opportunity to generate electricity from renewable sources. And ethanol, produced from Island-grown grains and used in a 10% ratio with gasoline and diesel, may be of real value in reducing dependence on fossil fuels.

The time is not yet here when electricity generated from wind is competitively priced with energy from "mainstream" sources, such as gas-fired (combined cycle) turbine systems or nuclear power, although that time appears to be approaching. As well, wind has the disadvantage of being intermittent and, therefore, somewhat undependable. Currently 2% of PEI's electricity requirements are met by wind; this document suggests that amount be increased to 10% by 2010. The wind target is the core element of a Renewable Energy Portfolio for electricity, and could be increased at a later date as technologies develop. To set a higher figure now could result in an under-production of electricity from less expensive and more dependable sources.

There appears to be no reason to exclude private companies, cooperatives and individuals from participating in the production of electricity. This document proposes ways in which these new relationships would be managed, including allowing small providers to pay for the net electricity purchased, after electricity supplied to the grid is deducted.

Renewable energy holds great promise for Prince Edward Island. The PEI Energy Corporation encourages public comments to help identify the best possible outcomes, and the wisest course.

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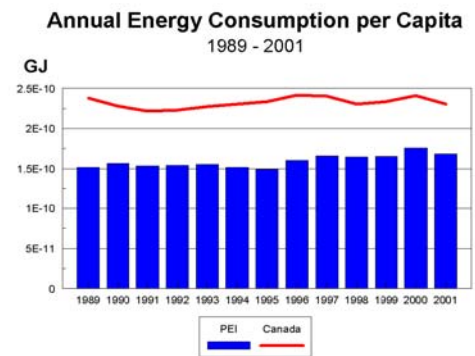
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Prince Edward Island's Energy Challenge

Prince Edward Island is the only province in Canada without substantial sources of hydroelectric, petroleum or nuclear energy. Because PEI has had to import oil products and electricity, or generate electricity from expensive petroleum products, the Province has traditionally had the highest electricity costs among the Canadian provinces.

High energy costs were an obstacle to the development of the Province's full economic potential in the last century. On the other hand, high energy bills have encouraged Islanders to be among the most energy-efficient people in Canada, and have helped the Province to maintain its pastoral beauty.

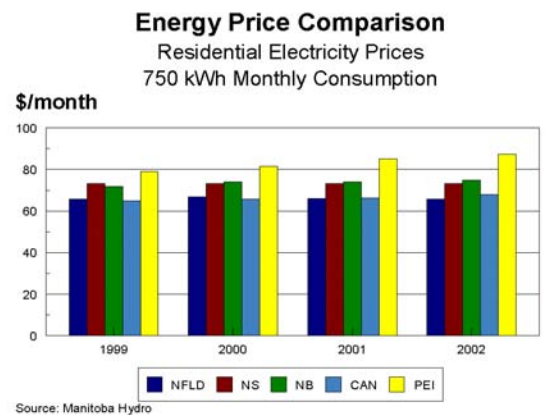
Prince Edward Island's energy challenge is to accelerate the process which leads toward greater levels of energy self-sufficiency, security and competitiveness, while protecting the environment. Advancements in renewable energy technology, in response to increasing global demand for renewable energy, makes it likely that renewable energy will play a valuable role in meeting this challenge.



Growing Global Demand for Renewable Energy

There is growing demand in the developed world for energy from renewable sources. This change is driven by concerns with climate change (an example of which is the Kyoto Protocol), energy insecurity and price, particularly as a result of the emergence of competitive energy markets.

Climate change is now recognized to result from increased greenhouse gases in the atmosphere produced when we consume fossil fuels. Over the next century, climate change appears likely to impact the safety and food supply of the world's human and animal populations. Recognizing the need for change, governments, businesses and citizens around the world are seeking ways to reduce greenhouse gases. For example, PEI established the North Cape Wind Farm (see page 6) and developed the Climate Change Business Plan.



The Kyoto Protocol is a global response to climate change. The Protocol commits countries in the industrialized world to reduce greenhouse gas emissions to 6% below the 1990 level, on average, in the years 2008 to 2012. In Canada, each year since 1990 emissions have continued to grow, so the actual reduction will have to be as much as 30% below what would have been emitted in 2012 if no action were taken. The costs of Kyoto are not yet fully known, but the impact may be significant. Increasing the use of renewable sources of energy is an excellent way to reduce this cost.

Another driver for the move to renewable energy sources is the need to find secure energy sources. The availability and price of oil products is closely tied to events in producing nations. Western countries are dependent upon large amounts of energy which are currently available primarily from oil products. As long as these circumstances continue to be true, energy prices are not likely to stabilize. On the other hand, renewable energy tends to be local energy, therefore, prices are less likely to be impacted by unforeseen events.

Canada has vast energy reserves, and as a result has traditionally enjoyed relatively inexpensive energy prices which have made renewable energy resources non-competitive. In Europe, where there are no similar reserves, energy prices have been higher and, consequently, renewable energies have been more competitive. In recent years in the United States, energy prices have been ranging towards European levels.

Generation Source	Cost (c/kWh)
Pt. Lepreau	5.01
Gas Turbine Combined Cycle	6.75
Wind Generation	7.33
Hydrogen Fuel Cells	20.52

* NB Power, Pt. Lepreau Evaluation Integrated Resource Plan

Recently, some Provinces and States have moved to a competitive energy model. Traditionally in Canada and the United States, electricity has been generated and distributed by large, often government-owned corporations. Energy prices have generally been tied to cost of production. In the competitive model, energy is traded as a commodity and prices are set on the basis of supply and demand. As a result, alternative markets have been created in Canada and the United States, creating energy marketing opportunities, but drawing away surplus electricity which previously would have been available at lower cost. In the end, high costs for traditional energies represent an opportunity for renewable sources - and those who develop them.

Prince Edward Island's Energy Goals

Since the underwater electric supply cable was installed in 1977, Prince Edward Island has relied on off-Island utilities for electricity. In 1997, one of the two submarine cables serving the Island was out of service for a month after being severed by a ship's anchor, putting the electricity supply at risk. The Island has also experienced the loss of lower-priced surplus energy from off-Island occasionally when the energy was needed elsewhere. In both these cases, Maritime Electric was able to generate replacement electricity from its oil-fired power plant, but it's clear that there is need for a more competitively priced, made-in-PEI solution to our electricity requirements.

Sourcing competitively-priced, energy is important to support a quality of life comparable to neighbouring provinces, and for the development of the Island economy. The development of the Island's natural gas potential and access to other sources of East Coast natural gas is considered essential if our industries are to remain competitive and if we are able to attract new industry.

Diversity of supply encourages price equity and helps ensure supply security. A "basket" of energy sources will help shelter Islanders from changes in any particular energy stream. Diversity of supply is encouraged by developing renewable energy resources, such as wind energy. Renewable energy sources and cleaner fossil fuels, such as natural gas, will protect our environment for future generations.

Islanders have always been careful users of electricity; as we increasingly use renewable sources of energy the need for energy efficiency will increase. Energy efficiency, regardless of energy source or renewability, remains an important energy goal.

In time, if energy prices continue to increase, renewable energy may help to stabilize, if not reduce, energy prices. Renewable energy is a developing field, with many efficiencies and new approaches yet to be discovered. Developing Island solutions may also lead to the development of new products and services.

Prince Edward Island's Energy Goals:

1. Ensure Security of Supply
2. Improve Price Equity for Citizens and Businesses
3. Encourage Diversity of Supply
4. Achieve Minimal Environmental Impact
5. Promote Efficient Energy Usage
6. Support Economic Development

The Role of Renewable Energy

Currently, the Province is working on two fronts: attempting to secure supplies of natural gas to ensure the cheapest and cleanest energy supplies to meet overall needs, and to blend in renewable energy to the extent that its current capability allows. Energy security and competitiveness are key goals best realized at this time by natural gas. However, development of renewable energy is important for several reasons:

- Renewable fuels can be grown or produced on PEI to reduce off-Island dependence;
- Renewable fuels are less damaging to the environment;
- Pursuing renewables is consistent with the Island's orientation toward sustainability;
- Developing technologies and local experience provide opportunities for Island business;
- Environmental credits may provide local firms competitive advantage;
- Renewables offer potential price stability due to diversity of supply.

In the long term, renewable energy provides a unique opportunity to increase our energy self-sufficiency, to break the link between Prince Edward Island energy costs and world oil prices. Renewable energy cuts the tie between energy prices and world events, and makes us more the drivers of our own destiny. However, the time when renewable energy offers competitive or advantageous prices and stability of supply has not yet arrived. For the foreseeable future, the role of renewable energy will be to supplement primary, non-renewable sources.

An Update on The Natural Gas Development Plan

In 2000, the PEI Energy Corporation developed the PEI Natural Gas Development Plan. The goals are to eventually provide:

- On-Island electrical generation fueled by natural gas.
- Access to natural gas by our large industries.
- Access to natural gas for Island businesses and homeowners through a local distribution network.

A term sheet has been signed for the supply of natural gas from the Scotian Offshore reserves. Included in the plan is an electrical generation project which includes three 50MW gas-fired generating units coupled with one 40 to 50MW steam turbine for a total of 190-200 MW of electrical generation.

Strategies:

1. To ensure security of supply and price competitiveness, particularly in the near term, the province will continue to rely mainly on conventional energy sources.
2. For a better environment and to prepare for the future, the province will pursue an energy mix that includes renewable energy sources.

Sources of Renewable Energy

Renewable energy is defined as any energy resource that is derived from natural sources and is naturally regenerated over a relatively short time scale. Sources of renewable energy include wind, solar energy, hydro power and biofuels. Biofuels are derived from organic plant matter and are categorized as biomass, or solids such as wood and straw, and derivative biofuels, liquids such as ethanol and biodiesel.

This document makes reference to two other materials, hydrogen and municipal waste, which are not in themselves sources of renewable energy. Hydrogen is included because it holds the potential to extend the use of renewable energy sources. And, although municipal waste should not be considered renewable, the Energy from Waste Plant in Charlottetown, which also burns light fuel oil and wood waste, is a useful part of the Island's energy strategy.

Generally, energy is used in three ways: in the form of electricity, as thermal fuels to produce heat and for transportation. Within the limits of today's technologies, the different renewable energy sources generally meet different energy needs.

Nonrenewable sources of energy are used to produce electricity, heat and for transportation. This is also true of renewable energy sources. On Prince Edward Island, wind power can be used to generate electricity; biomass and solar power can be utilized to produce heat; and, derivative biofuels can be used in transportation applications.

Application	Source
Electricity	Wind Solar Biomass Hydrogen
Thermal	Biomass Biofuels Hydrogen
Transportation	Biofuels Hydrogen

The Atlantic Wind Test Site and The North Cape Wind Farm

The Island is the home of Canada's only wind energy testing facility, the Atlantic Wind Test Site (AWTS), established in 1980 at North Cape and funded by Natural Resources Canada and the PEI Energy Corporation. AWTS, which serves as a primary source of technical information for the public and private sectors, has conducted extensive research on wind turbines. The site has also developed innovative wind and wind-diesel control system technologies.

In November 2001, the PEI Energy Corporation commissioned the North Cape Wind Farm on property adjacent to AWTS. Currently the Corporation owns and operates eight wind turbines, capable of delivering a combined 5.28 megawatts of power. Each of these Vestas V-47 units has a blade diameter of forty-seven metres and sits on a foundation consisting of over one million pounds of concrete.

In 2003, the Energy Corporation has plans to double the size of the wind farm to 10.56 megawatts. An additional 3 megawatts will be provided with the installation of an experimental unit, the Vestas V-90 prototype. The V-90, which has a ninety-metre rotor diameter supported on an eighty-metre high tower, will be one of two Vestas-sponsored demonstration units in North America.

As a result of these improvements, by the end of 2003, the capacity of the North Cape Wind Farm will have increased to a total of 13.3 megawatts.



Wind Energy

Wind energy is the fastest growing source of electrical energy worldwide. Commercially available systems today are reliable, efficient and produce high quality electricity. The cost of producing electricity from wind is closer to that of other energy sources than ever before, although it is not yet competitive. Besides cost, the primary challenge associated with the production of electricity from wind is its intermittency: no electricity is generated if the wind speed is too great or too little. This problem limits the participation of the wind resource in the energy mix.

The North Cape Wind Farm currently provides about 2% of the province's electricity, and this will increase to approximately 5% in 2003. This can be increased, but not to the level that will reduce production or increase cost of more dependable energy supplies. At this time it is estimated that wind energy may supply as much as 10% of the Island's electricity needs by 2010.

It is reasonable to expect that the 10% threshold will be surpassed in time. The PEI Energy Corporation will continue to research and monitor advances in wind and related technologies and will recommend increasing wind's energy contribution when appropriate.

Wind Generation: Facts and Myths

Myth: The electricity from wind generation is free.

Fact: Wind turbines and transmission lines are costly. Currently the cost of generating electricity from wind is greater than that of other traditional sources.

Myth: Wind energy is an unlimited source.

Fact: There are places on the Island which do not have sufficient wind to make electricity generation economical. The limitation is not to the wind itself but to the number of sites suitable as wind farms.

Myth: There should be a windmill on every farm and in every community.

Fact: To be effective, wind turbines must be sited where there is sufficient wind resource to justify the cost of installation.

Strategies:

3. The PEI Energy Corporation will continue to evaluate economical opportunities to expand wind development on PEI over the long term.
4. The contribution of wind energy to the energy mix is not planned to exceed 10% by the year 2010 due to limitations of price and intermittency.

Biofuels: Biomass and Derivative Biofuels

Biomass is naturally grown, organic material, such as cordwood, wood chips, and straw, when used in the production of energy. Biomass fuels currently account for 8% of PEI's energy needs - primarily for home heating. Derivative biofuels are produced from the fermentation by anaerobic digestion of biomass materials. Biofuel sources include grains for the production of ethanol and sewage and organic waste to produce methane.

While straw has been used for limited heating applications, wood has traditionally been the primary source of biomass energy. The energy option for Canada's pioneers, cordwood continues to be used to heat homes throughout the province. Wood chips have also been used extensively to heat schools and health institutions. For example, Charlottetown's district heating system was served by wood chip systems installed in the 1980s at Prince Edward Home and the University of Prince Edward Island.

Wood biomass does not appear to hold as much potential as wind for electricity generation. Often the value of the wood as an energy source is less than the value of the same wood as a manufactured product. Moreover, the wood must be cut, chipped, loaded, trucked and stored at the combustion site which adds significantly to its cost as a fuel.

The PEI Energy Corporation is currently considering the feasibility of establishing an ethanol plant on Prince Edward Island. The ethanol, produced from Island grains, would be blended with gasoline and diesel in a ratio of 10% ethanol. When fully available, it is expected that all transportation fuel products will include ethanol.

There is greater benefit to ethanol production than simple replacement of fossil fuels because combustion is more complete with a gasoline-ethanol mix. Tests have shown that a 10% ethanol blend may result in a 25% to 30% reduction in carbon monoxide emissions. Ethanol also enhances engine performance, raising octane rating for fuels by 25%.

Strategies:

5. Although biomass will continue to be used in home heating, because electricity generated from biomass is not expected to be competitively priced with wind, the PEI Energy Corporation will not develop projects for production of electricity from biomass.
6. The PEI Energy Corporation will continue to explore the feasibility of installing an ethanol facility on PEI and mandating the use of ethanol-gasoline and ethanol-diesel for transportation fuels.

Solar Energy

Solar energy panels for home heating are not an uncommon sight on Prince Edward Island, although use is relatively minimal, and most systems were installed during periods of high energy cost years ago. With rising energy prices, and concerns for climate change, it is reasonable to expect that solar energy will again become popular for space heating and domestic hot water requirements.

Solar energy is converted to electricity through photovoltaic cells. Currently, electricity from photovoltaic cells is more expensive than electricity from other sources. With advances in technology it is reasonable to expect that photovoltaic cells will eventually make an important contribution to electricity production. Whether this will equal the contribution of wind on Prince Edward Island will depend on developments in the technology. Until such a change occurs, developing the wind resource is the better choice.

Photovoltaic Cells

The photovoltaic solar cell system (PV cell) is a technology for converting the sun's energy into electricity. Photovoltaic cells produce no pollution, and require surprisingly little space to operate. Recent innovations have seen PV cells incorporated into building materials, such as roofing shingles, walls and windows, as well as installed separately.

Strategy:

7. Solar energy will continue to be an excellent choice to reduce home heating and domestic hot water costs, and photovoltaic cells hold promise. However, the PEI Energy Corporation will not develop solar energy projects. This could change if, through improved technologies, the short term benefits of solar energy on Prince Edward Island some day equal those of wind.

Hydrogen

Enthusiasm in the press and trade journals is growing for a potential "hydrogen economy" - a time when hydrogen will provide for all energy requirements. Hydrogen is the most plentiful element in the universe but does not exist on the planet in pure form and must, therefore, be extracted from sources such as water or petroleum.

Currently, hydrogen is produced in commercial quantities from petroleum, but the refinement process releases carbon compounds into the atmosphere. When produced from water no

emissions are released. When consumed, the byproducts are electricity and, again, water. Recent technological advances are very encouraging, however, best estimates suggest that commercial use of hydrogen is as much as a generation away, and an economy based almost entirely on hydrogen even farther in the future.

Hydrogen produced through electrolysis of water could provide a clean and efficient storage system for the wind energy; in effect, intermittent wind energy would be converted to a continuous energy stream. The long term implication is that hydrogen generated from wind energy could replace at least a portion of the Island's thermal energy requirement, which Islanders consume at four times the rate of electricity.

There is much research to be carried out before the hydrogen economy is possible; for all its potential benefits, hydrogen is still expensive to produce, as well as difficult to store and transfer. The first commercialization of hydrogen fuel cells may be years in the future, but the province has begun to formulate its possible role in advancing, demonstrating and deploying this technology on PEI. The Atlantic Wind Test Site provides an excellent laboratory for the testing and demonstration of hydrogen technologies, a possibility which will be actively pursued.

The Hydrogen Challenge

It's easy to become excited about the potential of hydrogen. When produced from water, through the application of electricity generated from wind or solar energy, hydrogen energy is virtually pollution free. The byproduct released when hydrogen is turned into electricity in a fuel cell is drinkable water.

Before this day comes, however, there are many challenges to overcome. We will need cheap, surplus electricity from renewable sources, much less expensive technologies to convert hydrogen to electricity and a distribution network. Hydrogen is highly flammable and difficult to handle and contain.

Until these issues are overcome, hydrogen will remain the technology of the future.

Strategy:

8. The PEI Energy Corporation will explore opportunities for wind/hydrogen including research and development and demonstration projects.

Renewable Portfolio Standards - Introduction

The development of renewable energy sources is limited by cost, but costs will come down only when use increases. Renewable Portfolio Standards, or RPS, which have been adopted in Europe and the United States (but not yet in Canada) are intended to help resolve this problem. An RPS seeks to encourage development of renewable energy technologies by committing that energy from renewable sources will make up a certain percentage of a jurisdiction's energy mix.

The Renewable Portfolio Standard needs to identify the best mix of energy sources to balance sustainability, cost and energy security. Unnecessary pollutants will be produced if the standard is too low. If it is too high, not enough dependable energy may be produced or purchased to maintain security and price. This balance will evolve as technologies for production of renewable energy become more efficient and cost-effective. Therefore, the RPS should be allowed to change over time.

In the United States of America, Renewable Portfolio Standards are applied only to the production of electricity. This document is consistent with that approach. Ethanol for transportation fuel appears to hold significant promise as a source of renewable energy, however, production of ethanol requires logistical developments that are not yet in place. Changes in technologies or opportunities may result in the production of an RPS in thermal or transportation energy at some future date.

On page 7, it was proposed that 10% of electricity used by Islanders will come from renewable sources, notably wind, by 2010. On the next few pages we discuss public vs.. private ownership and net metering, concepts which are central to the achievement of this goal. The proposed Prince Edward Island Renewable Portfolio Standard is presented on page 15.

Strategies:

9. To develop a Renewable Portfolio Standard for electricity at this time.
10. The RPS will establish that electricity from renewable energy sources will contribute 10% of Prince Edward Island's electricity requirements by 2010.

Public vs. Privately Owned Wind Developments

The Government of Prince Edward Island, through the PEI Energy Corporation, has an important role to play in the development of future renewable energy projects. However, achieving the Renewable Portfolio Standard is not necessarily the task of government or existing utilities. There is no clear reason not to permit the establishment of private facilities, which permit individuals, communities and companies an alternative way to manage electricity costs and contribute to the overall energy goals.

A “distributed approach” is found today in Europe and certain US states. In the distributed energy model, sources of energy generation are distributed among numerous generation points, rather than being the responsibility of a single utility. The distributed approach permits or encourages private participation in projects of various sizes, from large-scale to community cooperatives and small, privately owned facilities. Cooperative and small, private systems would be limited in the number of turbines permitted and the capacity of each turbine.

Although the PEI Energy Corporation will lead development of new wind facilities, proposals for private developments will be considered, whether for large installations for export or community or single-turbine models. It is proposed that such facilities be allowed, subject to a permit and approval process, to contribute a portion of the RPS.

The PEI Energy Corporation was responsible for the construction and operation of the Energy from Waste Plant in 1982 and the two hot water district heating systems in Charlottetown. In recent years it has gained expertise in wind: the Corporation participated in the establishment of the Atlantic Wind Test Site and owns and operates the North Cape Wind Farm. This experience, optimal financing and the ability to reinvest for the good of the Province, make the PEI Energy Corporation the appropriate body to lead development. It should be the primary developer of additional wind capacity.

Strategies:

11. The Energy Corporation will be the primary developer of wind farms to achieve the RPS.
12. Private participation in wind farm development will be permitted to meet a portion of RPS.
13. Approval on an individual basis may be given for private wind farms, including:
 - large-facility wind farms for export;
 - community or cooperative wind farms of one to three turbines; and
 - Stand-alone turbines for individual use.

Net Metering

Net metering is a way of encouraging the private generation of electricity. The standard kilowatt-hour meter used for most residential and small commercial customers accurately registers the flow of electricity in either direction, whether the user is receiving electricity from, or adding to the power grid. The netting process happens automatically - the meter spins forward when the customer needs more electricity than is being produced, and spins backwards when the customer is producing more electricity than is needed.

Utilities benefit by reducing administrative and accounting costs. Although there is an overall loss of revenue to the utility, in most cases, the loss is approximately comparable to the impact of energy efficiency measures, such as energy efficient heating and cooling equipment. However, net metering does not take into consideration utility infrastructure costs.

Community and Cooperative Wind Farms

Cooperative generation facilities would, by definition, be of limited size and capacity, perhaps no more than three turbines. Net metering would not apply to community and cooperative facilities due to the lack of a single meter. Cooperative Wind Farms would be billed only for electricity consumed in excess of that which they produced. If surplus is produced, the cooperative would be credited at 75% to 85% of the retail energy rate, the difference being to compensate the utility for transmission and administrative costs. Such cooperative facilities are popular in Europe: (wind cooperatives provide almost 50% of Denmark's total wind capacity.)

It is fair that a user should be able to generate their own electrical needs but not for the user to generate additional electricity and be compensated at a rate higher than the retail energy rate. Consideration is usually given to limiting the amount of power the net-metered facility may generate. Net metering clients will not be entitled to payments from the utility for excess energy provided to the electricity grid but will be permitted to bank surplus energy production to a level yet to be decided.

Strategies:

14. Net-metering will be introduced to facilitate stand-alone wind and photovoltaic installations .
15. Net-meter users' generation capacity will be limited to 150% of the user's estimated peak demand.
16. Community cooperatives will receive a credit of approximately 75% to 85% of the retail rate for the energy they produce.

Wind Farm Permitting

Government has responsibility to ensure that wind farm developments meet the province's energy, environmental and economic development goals. Whether publically or privately financed, wind farm developments must undergo proper screening and evaluation prior to being approved.

Wind energy remains Prince Edward Island's sole indigenous energy resource. Islanders are entitled to benefit from the exploitation of this resource. Because it believes Islanders deserve compensation from those wind farms that are built to serve the export markets, government proposes the application of wind royalties and benefits to the province from environmental credits.

The PEI Energy Corporation proposes:

- thorough scrutinizing of wind permit applications;
- thorough environmental review;
- adequate parameter safety zoning;
- extensive community consultation;
- the application of Provincial wind royalties on wind energy destined for the export market; and
- first opportunity for Island businesses to purchase "green credits" generated from wind farms built for the export market.

Wind Farm Siting Criteria

In siting wind farms, consideration must be given to possible citizen concerns regarding turbine noise, effects on birds, visual impact and possible human injury from ice. These are important issues. Fortunately, there is a substantial body of research on these issues to which we can refer. Setback regulations are the primary instrument for issue mitigation and have been identified in other jurisdictions. A full review of each turbine application is recommended. Setbacks of one to three times the combined height of tower and blade are recommended for specific situations.

Strategies:

17. Privately owned wind farm developments will be permitted to supply local and export markets.
18. Export energy sold from these facilities will be subject to a wind energy royalty.
19. Privately owned wind farms will be required to provide Island firms with the right of first refusal in the purchasing of a portion of "green credits" earned from the generation of wind energy destined for the export market.
20. Wind farm developers will be required to meet the setback regulations from buildings, roadways and property boundaries ranging from one to three times the height of the combined tower and blade.

Summary of Renewable Portfolio Standard

By 2010 the Energy Corporation proposes that 10% of electricity used by Islanders will come from renewable energy through a mix of government and private facilities. Given the Island's excellent wind resource and recent improvements in technology, it is expected that wind power may supply all of this RPS. Wind energy currently generates approximately 2% of electrical energy used.

If wind supplies all of the RPS requirement, 35 to 40 Megawatts of wind generation would be required by 2010. Currently, PEI's peak requirement is approximately 200 Megawatts.

The table below outlines the sources of electricity which would be used to achieve the RPS target. Also identified are certain size limitations, and the contribution of the source in terms of percent of RPS, percent of total electricity supply and total electrical capacity.

Prince Edward Island Renewable Portfolio Standard, Electricity

Source	Target Date	Size Limitation	Percent of RPS	Wind as a % of Total Electricity Supply	Electrical Capacity (Megawatt)
Home or business owner facilities	2010	150% user demand to 25 kilowatt max.	1.2%	0.1%	0.50
Cooperative or community facilities	2010	150% user demand to 75 kilowatt max.	1.8%	0.2%	0.75
Private Wind Farm	2010		25.0%	2.5%	10.00
PEI Energy Corporation Wind Farm	2010		72.0%	7.2%	28.75
Total RPS for Electricity	2010		100.0%	10.0%	40.00

Conclusion

The signs are increasingly encouraging that, one day, a significant amount of Prince Edward Island's electricity needs could be met through competitively priced, renewable resources, produced on our own shores. The possibility seems almost utopian. For the first time since the invention of steam power Prince Edward Island would enjoy a much higher degree of energy self-sufficiency and a level playing field for energy pricing. It's important to know that this possibility exists, and that it is an equal opportunity for jurisdictions around the world so that we can position ourselves accordingly.

However, in 2003 it would be a fair guess that this ideal vision may still be fifty years away. There are many, many significant technical challenges to be overcome before it can happen. Therefore, it is now most important to work within the technological realities of the day, while keeping an eye on developments that lead in new directions.

Currently, the PEI Energy Corporation is working on two fronts: to secure access to natural gas to ensure the cheapest and cleanest energy supplies to meet overall needs, and to blend in renewable energy to the extent that current capacity permits. Today, 2% of PEI's electrical energy requirements come from renewable sources. The Renewable Portfolio Standard laid out in this document proposes that this will increase from 2% to 10% by 2010. Growth will occur through the development of wind-electric generation capacity.

The Prince Edward Island Energy Corporation has proposed in this document a number of strategies to encourage achievement of these targets. They are possible and they are important. Our goal continues to be to maintain security of supply and competitive pricing, but we will expand locally produced, environmentally sound energy as technologies allow.

Summary of Conclusions

1. To ensure security of supply and price competitiveness, particularly in the near term, the province will continue to rely mainly on conventional energy sources.
2. For a better environment and to prepare for the future, the province will pursue an energy mix that includes renewable energy sources.
3. The PEI Energy Corporation will continue to evaluate economical opportunities to expand wind development on PEI over the long term.
4. The contribution of wind energy to the energy mix is not planned to exceed 10% due to limitations of price and intermittency.
5. Although biomass will continue to be used in home heating, the PEI Energy Corporation will not develop projects for production of electricity from biomass.
6. The PEI Energy Corporation will continue to explore the feasibility of installing an ethanol facility on PEI and mandating the use of ethanol-gasoline and ethanol-diesel for transportation fuels.
7. Solar energy will continue to be an excellent choice to reduce home heating and domestic hot water costs, and photovoltaic cells hold promise. However, the PEI Energy Corporation will not develop solar energy projects. This could change if, through improved technologies, the short term benefits of solar energy on Prince Edward Island some day equal those of wind.
8. The PEI Energy Corporation will explore opportunities for wind/hydrogen including research and development and demonstration projects.
9. To develop a Renewable Portfolio Standard for electricity at this time.
10. The RPS will establish that electricity from renewable energy sources will contribute 10% of Prince Edward Island's electricity requirements by 2010.
11. The Energy Corporation will be the primary developer of wind farms to achieve the RPS.
12. Private participation in wind farm development will be permitted to meet a portion of RPS.
13. Approval on an individual basis may be given for private wind farms, including:
 - large-facility wind farms for export;
 - community or cooperative wind farms of one to three turbines; and
 - stand-alone turbines for individual use.
14. Net-metering will be introduced to facilitate stand-alone wind and photovoltaic installations .
15. Net-meter users' generation capacity will be limited to 150% of the user's estimated peak demand.
16. Community cooperatives will receive a credit of approximately 75% to 85% of the retail rate for the energy they produce.
17. Privately owned wind farm developments will be permitted to supply local and export markets.
18. Export energy sold from these facilities will be subject to a wind energy royalty.
19. Privately owned wind farms will be required to provide Island firms with the right of first refusal in the purchasing of a portion of "green credits" earned from the generation of wind energy destined for the export market.
20. Wind farm developers will be required to meet the setback regulations from buildings, roadways and property boundaries ranging from one to three times the height of the combined tower and blade.