

# Island Wind Energy

Securing our Future: The 10 Point Plan



ONE ISLAND COMMUNITY

ONE ISLAND FUTURE

Securing our Future; PEI Environment and Energy Policy Series

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- Volume 1: Island Wind Energy
- Volume 2: PEI Energy Strategy
- Volume 3: PEI Climate Change Action Plan

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Printed on Recycled Paper



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## Foreword from Premier Robert Ghiz

Prince Edward Island's wind energy resource is one of our province's strongest and most valuable natural assets. Government has set an ambitious goal of increasing the amount of wind energy generated in the province seven fold over the next five years. By 2013, our goal is to produce 500 megawatts of wind energy. Given the strength of the resource and the level of interest expressed by developers, we are confident we can achieve this goal. How we achieve it is what will make the difference.

This 10 Point Plan to Securing Our Future will ensure that Prince Edward Island develops its wind energy resource in a careful, thoughtful and focused manner. At the heart of the plan are two measures: benefit to our one Island community and opportunity for developers. The 10 points in the plan balance those measures. Together, they will ensure Prince Edward Island strengthens its competitive position in the marketplace—and they will maximize the benefits Islanders receive from our wind energy resource.

To the greatest extent possible, wind energy will be used to provide a secure source of electricity that will help stabilize prices for Islanders and contribute to a cleaner environment. And wind energy produced for the export market will be developed in a manner that will provide the greatest benefits to landowners, businesses and our Island community as a whole.

This is a unique opportunity for Prince Edward Island, but it is not without its development challenges. Increasing wind generation capacity to 500 megawatts represents the single largest development opportunity since the construction of the Confederation Bridge. It is a \$1 billion development project with ongoing economic benefits estimated at \$40 million annually.

Producing 500 megawatts of wind energy will also advance Prince Edward Island's reputation as Canada's "green" province. Wind energy is one of the cleanest energy sources. This plan will make our province a global leader in the percentage of electricity generated from wind.

For developers, the 10 Point Plan will establish clear ground rules. It will ensure a fair, open and transparent evaluation process and a streamlined approach. I am confident you will find that the plan provides even more reason for you to do business in our province.

Our Government is committed to building a secure, sustainable and prosperous energy future. This plan will put us on a clear path to that future.



Premier Robert Ghiz

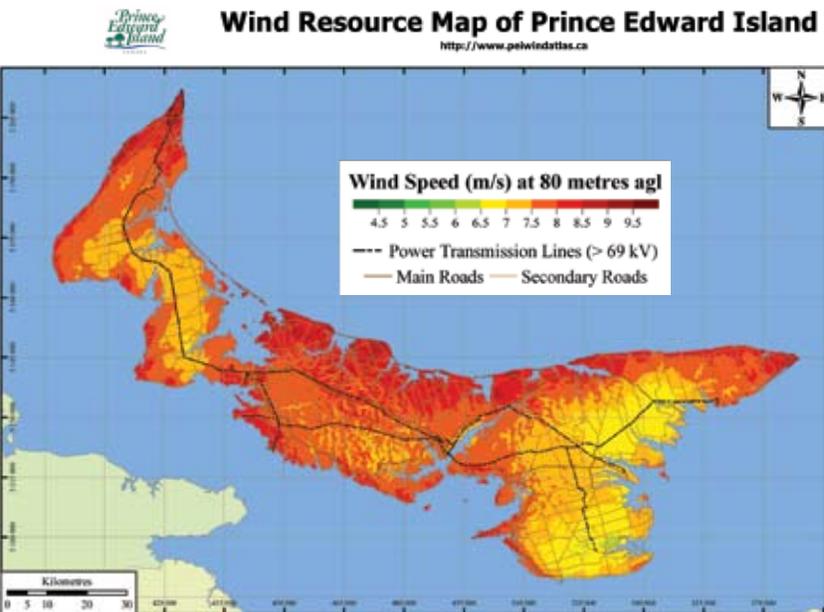


# Background

## The Elements of Success

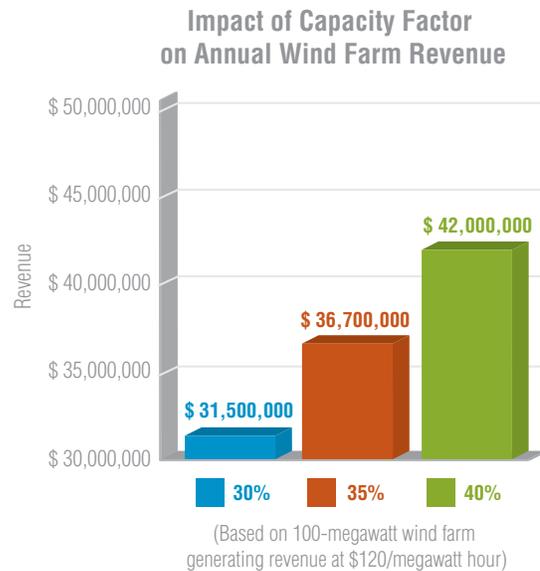
### A Strong Wind Regime

Prince Edward Island has a world-class wind regime. At the northwest tip of the province where wind speeds have been measured for three decades, the average wind speed is 8.0 metres per second at 50 metres height. At the eastern tip of Prince Edward Island, the winds are proving to be almost as strong. In fact, a glance at the colour-coded Wind Atlas of Prince Edward Island shows that many areas of the province boast a wind regime that is unparalleled in much of North America.



Because of our strong wind regime and our experience in wind energy, Prince Edward Island has a proven track record in the critically important industry standard known as capacity factor. Capacity factor compares the actual amount of energy generated by a wind farm with the amount of power that would have been produced if the turbines had run at full capacity 100% of the time.

The wind farms owned and operated by the PEI Energy Corporation have a capacity factor in the 40% range. In many other jurisdictions, capacity factors are in the 30% range. To put this in perspective, the following table shows how a 10% difference in capacity factor can result in significantly higher annual revenues.



### A Solid Foundation as a Leader in Research and Development

Long before wind energy became the world's fastest-growing energy resource, Prince Edward Island was testing wind technologies at the Atlantic Wind Test Site at North Cape. Officially opened in 1980, the site helped manufacturers evaluate and improve their technologies. As a result, North Cape has played an important role in the development of the wind energy industry. In recent years, the Atlantic Wind Test Site has evolved into the Wind Energy Institute of Canada, the country's official wind research and development facility.

### ***A Commitment to Maximize Wind Energy***

Building on its well-earned reputation in research and development, Prince Edward Island has positioned itself as a leader in the wind energy sector. The Prince Edward Island Energy Corporation built Atlantic Canada's first commercial wind farm at North Cape in 2001. The North Cape site has since expanded and today supplies 10.56 megawatts of wind energy to Maritime Electric Company Limited, the province's main utility. Another three megawatts of wind energy comes from the Vestas V-90 turbine—North America's first V-90 prototype installed in 2003 just south of the North Cape Wind Farm.

18% of the electricity sold in Prince Edward Island. Other places may have larger wind developments, but no other jurisdiction in North America is getting such a high percentage of its electricity from wind.

61.56 megawatts of wind energy is produced for the Prince Edward Island market. This is enough energy to power 26,000 homes and displaces 100,000 tonnes of greenhouse gas emissions - equivalent to taking 21,000 cars off the road.

In addition to this domestic use of wind energy, Suez Energy has begun exporting wind from Prince Edward Island. By the end of 2008, Suez Energy will be exporting 90 megawatts of wind energy. At that time, Prince Edward Island will have over 150 megawatts of installed wind capacity and will need a further 350 megawatts to meet its goal of generating 500 megawatts of wind power by 2013.



Wind Energy Institute of Canada.

Expanding its horizons to the eastern end of the province, the Energy Corporation developed the Eastern Kings Wind Farm which produces 30 megawatts of wind energy. With private developer Suez Energy supplying nine megawatts to Maritime Electric from its wind farm in Norway and nine megawatts from its West Cape wind farm to the Summerside Electric Utility, wind energy is now supplying approximately



## A Climate for Change

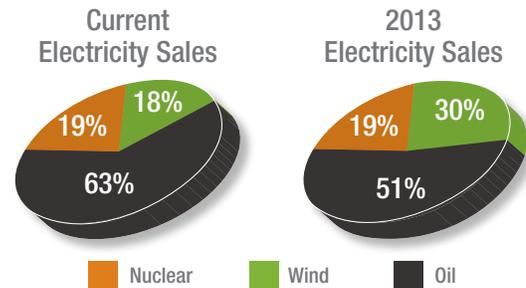
### **The Economics**

When Prince Edward Island first became a centre of wind energy research and development in the 1980s, wind was recognized for its environmental benefits and its potential to supply power to remote areas not connected to the grid. It was too expensive to compete with traditional energy sources. That situation has changed drastically in recent years.

Research and development work over the past 30 years has resulted in wind energy technologies becoming more efficient and cost effective. At the same time, the price of traditional energy sources has increased dramatically. Not that long ago, the idea of a \$100-barrel of oil seemed unthinkable. But 2008 has seen the price of crude oil hit record highs—again and again—peaking at \$147 a barrel in July. Industry analysts indicate that volatility in oil prices will be the norm into the future.

The factors influencing price rest well beyond Prince Edward Island's borders and well beyond our control—from the increasing demand for fossil fuels in growing economies such as China, to diminishing supplies of conventional oil reserves and political unrest in oil-producing regions.

With 63% of Prince Edward Island's electricity supply coming from fossil fuels in 2007, mostly from oil, Island residents and business owners have felt the harsh effects of the volatility in the world oil market. As the price of oil has increased seven fold since the start of the decade, average residential electricity prices in Prince Edward Island have gone up 60% and are expected to continue to rise.

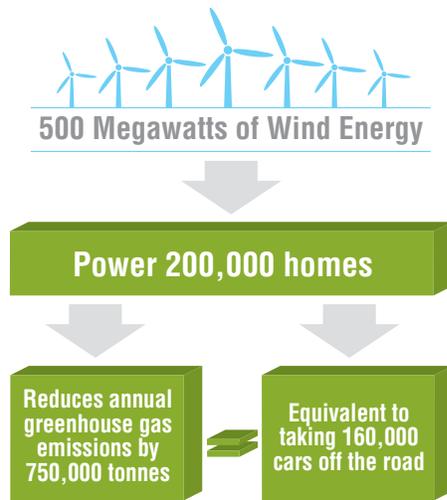


### **The Environment**

Economics is only one reason that wind energy has become the world's fastest-growing energy resource. The other compelling reason is the need to protect our environment. Burning fossil fuels pollutes our air and creates greenhouse gas emissions that contribute to climate change. Nearly 12% of Canada's smog and 18% of the country's greenhouse gas emissions are created by burning fossil fuels to generate electricity.

Today, climate change is recognized as the greatest environmental challenge the world faces. Turning from fossil fuels to renewable energy sources is one way that countries, provinces and states are taking action to address climate

change. Wind energy produces no emissions and no pollution. Replacing fossil fuels with 500 megawatts of wind energy will produce enough electricity to power 200,000 homes and reduce annual greenhouse gas emissions by 750,000 tonnes. This has the same positive impact as taking 160,000 cars off the road or planting one million trees.



Prince Edward Island is particularly vulnerable to the impacts of climate change, including rising sea levels, storm surges and coastal erosion. With the exception of the North, we are seeing the effects more than any other area of the country. Our province has not only a vested interest, but a responsibility to promote clean energy resources.

For these reasons, the Government of Prince Edward Island will significantly increase the renewable portfolio standard (RPS) for electricity. A renewable portfolio standard requires a certain percentage of electricity to come from renewable sources. Prince Edward Island's current RPS for electricity is 15% by 2010. Government will double the renewable portfolio standard to 30% by the year 2013.

## The Opportunity

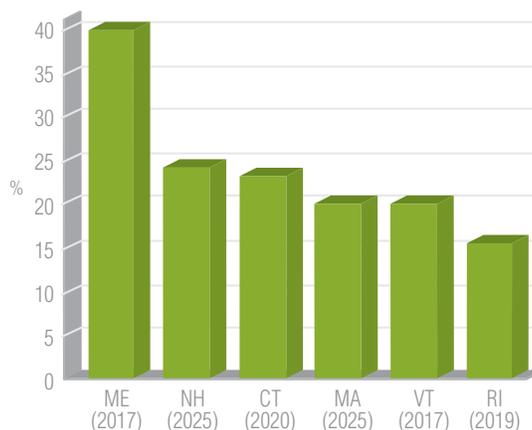
Prince Edward Island is well positioned to take advantage of the opportunities presented by the rising cost of oil and increasing demand for clean energy.

Today, wind energy has become competitive with other energy sources. And it is expected to be even more cost effective in the future as the price of oil-based and nuclear energy is projected to increase. The more wind energy Prince Edward Island is able to integrate in the provincial electricity mix, the less vulnerable ratepayers will be to the volatility in the world oil market and rising costs of other fuel sources.

With an average demand for electricity of 160 megawatts, there is only so much wind energy that can be used in Prince Edward Island. However, there is a strong export market for wind energy, particularly in the New England states.

Construction and transmission costs are relatively low in Prince Edward Island and the province is close to the New England market where there is a growing demand for clean energy resources. Many states have announced

New England States  
Renewable Energy Requirements



renewable portfolio standards—requiring a percentage of their electricity to come from renewable resources—as part of commitments to address climate change. By 2025, the New England states will require an additional 9,000 megawatts of renewable energy.

Developers are looking to Prince Edward Island to supply some of that wind energy to meet the growing demand for renewables. Currently, there is private sector interest in developing upwards of 2,000 megawatts of wind energy in Prince Edward Island—a true testament to the strength and value of this resource.

## **A Balanced Approach**

Prince Edward Island is a leader in wind energy. But other jurisdictions are moving to meet the market demand for renewables.

We must act quickly to take advantage of the opportunities presented. But we must also act in a careful and focused manner.

We must maintain our competitive advantage in the marketplace. But we must also ensure we protect Islanders' interests.

We must have a long-term vision for wind development. But we must also recognize that the renewable energy market is relatively new, volatile, and rapidly changing.

We must establish a fair, open and transparent process to aid in decision making—because given the high level of private sector interest, not all development proposals will be successful.

We must take a balanced approach in securing our energy future.

## **The Goal: Growing Wind Energy to 500 MW by 2013**

In its inaugural 2008 Speech from the Throne, Government called for the establishment of 500 megawatts of wind energy over the next five years as part of its environmental and economic strategic priorities. At that time, Prince Edward Island had approximately 70 megawatts of wind energy. With Suez Energy adding another 80 megawatts of production by the end of 2008, PEI will have 150 megawatts of installed wind capacity. A further 350 megawatts of new production is needed to meet the 500-megawatt goal. This 10 Point Plan for Securing Our Future provides the framework Government will use in striving to meet this goal.

The 500 megawatt goal is not necessarily an end, but rather a logical next step forward in growing this wind energy sector. This 10 Point Plan will describe the opportunities associated with this goal, the challenges, and the expectations Islanders have in developing this renewable energy sector.

New opportunities may emerge as the process unfolds, and these can and will be considered as we go forward, however it is important to grow this sector in a manageable way. The next 350 megawatts is our focus.

In any plan, adjustments are more often the rule rather than the exception. The energy sector is volatile, but maintaining a balanced approach while responding to changing conditions will serve Islanders well as we move forward.

## **A Clear Path Forward: The Road Ahead**

This 10 Point Plan to Securing Our Energy Future is guided by two measures: benefit to our one Island community and opportunity for developers. The plan sets out a framework for wind energy development. Prospective developers will know the ground rules so that a fair and open process can ensue.

This will allow Prince Edward Island to ensure that wind energy development occurs in a well-planned and focused manner. But it will also create an environment where developers will have the incentive to develop projects in a way that offers the greatest benefits to landowners, businesses and our Island community as a whole. To be successful, they will have to give careful consideration to how their development can benefit the Island community. They will be encouraged to become true partners in Prince Edward Island's economic prosperity.



# The 10 Point Plan

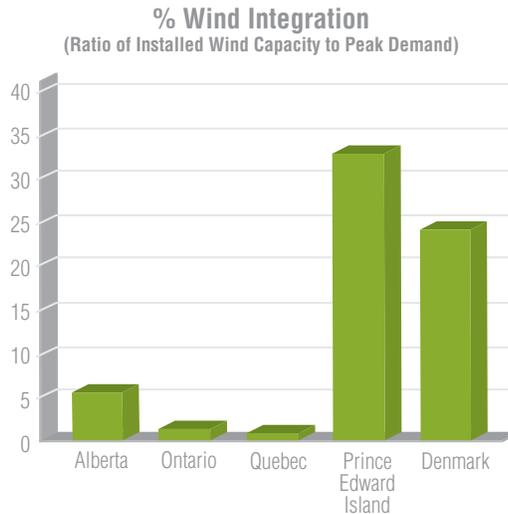


## 1. Maximizing Energy Security, Independence and Price Stability for Islanders.

Because wind is an intermittent energy source—the wind does not always blow—there is a limit to the amount of wind energy that can be integrated into our electrical grid. In Prince Edward Island, the peak demand for electricity is 220 megawatts and the optimal amount of wind energy that can be integrated into the grid for domestic use is estimated to be 100 megawatts. Islanders have been adversely affected by the volatility and spiking costs of oil produced electricity. This volatility will continue unless we reduce our reliance on oil. Wind power generated on PEI offers the best opportunity to affect greater energy independence, however, wind has its own limitations as an energy source given its intermittent nature (the winds do not always blow) and the inability to store wind power as a base load energy supply.

In the past decade, our use of locally produced wind grew from nominal amounts to 18% of total electricity sales. Under this strategy, we will double the supply of wind energy used for domestic purposes from our current domestic capacity of 50 megawatts to 100 megawatts. This will result in PEI's energy sales from wind increasing to 30% displacing a significant amount of energy currently derived from imported fossil fuels. This will build on our goal of achieving greater energy independence.

By growing to 30%, PEI will truly become a world leader in the percentage of electricity generated from wind. And as we move forward, we will explore other opportunities to rely more on locally produced renewable energy sources.



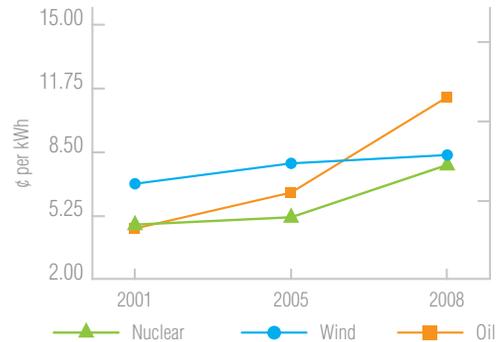
Wind as an energy source can also provide price stability for Islanders. Through the use of long term power purchase agreements, utilities can draw on a predictable, stable energy source which will help moderate major shifts in the price of electricity to Islanders. While wind at one time was an expensive source of energy, today it compares favorably with nuclear energy (which comes from Lepreau) and is actually cheaper than oil, which is currently our major energy source.

The amount of our energy we draw from nuclear is fixed (approximately 20%), the more we use wind; the less we rely on oil. While the price of oil has been subject to recent fluctuations and its future prices cannot be fully ascertained, many experts suggest that price volatility will become the norm over the longer term.

The PEI Energy Corporation will assume responsibility for developing and securing this new additional capacity of wind power for domestic purposes. This could be achieved by the Energy Corp. adding to its capacity and selling power to Island utilities at an economical rate; and/or partnering with private sector developers who agree to the terms of this 10 Point Plan and follow the provisions of the feed-in tariff rate for wind power which is in the 8 cent a kwh range.

Selling energy to Island utilities at an economical rate will help stabilize electricity prices for Islanders. The more wind energy we use to meet our electricity needs in the province, the less reliant we are on more expensive imported oil.

Energy Source



## Carl Brothers Frontier Energy Systems

When it comes to wind power on Prince Edward Island, few have more experience than Carl Brothers. For twenty years Brothers managed the Atlantic Wind Test Site at North Cape. During that time he amassed a wealth of knowledge about wind power, how to best apply it on the Island, and how to best use it in small communities. Over the last five years Brothers has ventured into the more commercial aspects of wind energy, with his company Frontier Power Systems.

*“Islanders have truly come to embrace the benefits of green power, especially wind power, over the last twenty five years,”* says Brothers. *“It started with The Ark, and the Atlantic Wind Test Site 30 years ago, and now Islanders truly want to use green power in their everyday lives.”*

Brothers sees almost limitless possibilities for the use of wind power on Prince Edward Island and beyond. He sees the Island continuing to be among the world leaders in the integration of wind power to displace conventional energy sources. In his own business, he focuses on expanded uses for wind power including village electrification, which can take small communities off the grid through a combination of wind and diesel power, and hydrogen generation for transportation and electricity generation.

*“These kinds of innovations will continue to pay dividends for the Island moving into the next decade,”* says Brothers. *“Commercial facilities will provide economic development opportunities, and continuing investment into research and development facilities will enable specialized companies, such as mine, to export advanced wind technology to the rest of the world.”*



## 2. Generating Revenue from Green Energy Exports.

There are two compelling reasons to pursue the development of Prince Edward Island's wind energy sector. First, Islanders have an opportunity—and a responsibility—to help address the challenges of global warming in a meaningful way. And secondly, as one Island community, Islanders should rightly share in the benefits that arise from our own resources.

While Prince Edward Island will increase its domestic wind energy supply, the majority of wind energy generated in the province will be exported.

Selling renewable energy into markets such as New England can be a high risk, high reward proposition. It is reasonable, in fact necessary, that Islanders share in these potential rewards.

In exchange for access to government owned Cables, access to our rights of way, and access to our environmental attributes, developers will enter into a new revenue sharing model the terms of which will be prescribed in the upcoming Request For Proposal (RFP).

The planned model is that a base amount will be prescribed and developers will bid on the amount they are prepared to pay above this base amount. This bid will be a central, key factor in determining which development proposals will be successful.

Depending on the competitive nature of this process, development fees should be in the \$8-10 million range annually.

### Leslie Malone Canadian Policy Associate with Environment Northeast (ENE)

Leslie Malone is the Canadian Policy Associate with Environment Northeast (ENE), a nonprofit organization that uses policy analysis, collaborative problem solving, and advocacy to advance the environmental and economic sustainability of the northeastern United States and eastern Canada. She holds a Master of Science in Environmental Economics from the University of London and a Bachelor of Science from Mount Allison University. Malone is a native of Prince Edward Island and prior to working at ENE directed the Energy Project for the Environmental Coalition of PEI.

*"Prince Edward Island is vulnerable to energy supply and price disruptions because it is dependent on imported fossil fuels," says Malone. "The current energy mix used on the Island, 80 percent fossil-fuel based, is unsustainable. It is too expensive, it fouls our air, and the price will only go up as greenhouse gas regulations begin to put a price on carbon."*

However, Malone says PEI has significant local, clean, energy resources that can be used to displace fossil fuels. The two most important of these alternative resources are energy efficiency and wind energy. She says that if integrated with regional systems, all of the province's electricity and a substantial portion of its heating and transportation needs could, in the future, be provided by wind. *"I am looking forward to a future in which all transit buses and passenger cars on the Island operate on energy generated from our wind."* She goes on to say that capitalizing on this resource will be essential if PEI is to meet its commitment to reducing greenhouse gas emissions by 75-80 percent below 2001 levels by 2050.

Malone believes that by prioritizing renewable energy development alongside energy efficiency, the province can be rewarded with lower, stable energy prices, a more competitive economy, and a much cleaner environment.

*"PEI can continue to be a leader in innovative clean energy solutions and an exporter of knowledge and capabilities," says Malone. "A natural bi-product is that this path will attract progressive companies, academics, and experts."*



### 3. Demonstrating Community Support.

Islanders will have a voice when wind energy developments are proposed in their communities. Government recognizes that while wind is a shared resource across our Island community, wind farms can have a disproportionate impact on the local area. The turbines themselves and the transmission infrastructure needed to move the energy from the wind farm to the electrical grid change the landscape. The onus will be on prospective developers to engage the community in discussion and secure support for their proposal.

Government also recognizes that local communities must share in the benefits from wind energy.

Proceeds from wind farms will be invested in a **Community Trust Fund** for use by community groups in the region where wind farms are located. This Trust will support local community groups in areas such as youth, senior recreation, arts & culture. Through the **Community Trust Fund**, wind energy development will help make our local communities more vibrant. Further details will be outlined in the RFP.

#### David Taylor Director of Sustainability and Energy Efficiency, UPEI

Hailing from Cape Breton Island, David Taylor is well suited to the new position of Director of Sustainability and Energy Efficiency at UPEI. He began his latest career move in August of 2007. Previous to that, the mechanical engineering graduate worked in various positions relating to energy efficiency at Nova Scotia Power, with the Federal Government's Energuide Program, and most recently, as an instructor at Nova Scotia Community College specializing in energy efficient and sustainable building practices.

*"I took the position at UPEI because the school had a vision to become a leader in energy efficiency and sustainability," says Taylor. "I wanted to be part of that vision." Taylor sees Prince Edward Island as a North American leader in wind power, and in sustainable energy. "PEI was really the first North American jurisdiction to highlight wind as a viable source of green energy," says Taylor. "People are really starting to recognize how cost effective and efficient wind energy can be, and UPEI really wants to take advantage of that."*

Taylor believes PEI has set a wonderful example for the rest of North America. He says Islanders are starting to see that successful careers can be built, and jobs can be created, in the field of sustainable energy rather than in traditional industries like agriculture and the fishery. But more than that, Taylor believes Islanders are buying into the idea that green power from wind is the best option moving forward on Prince Edward Island.

*"UPEI has undertaken a number of renewable energy and conservation initiatives that have been beneficial economically and environmentally," says Taylor. "We are actively looking for innovative approaches and economic models that will reap the benefits this very windy province has to offer."*



#### 4. Building a Collaborative Partnership Approach to Cable and Transmission Planning.

Cable and transmission planning are critical to the success of this plan. Prince Edward Island currently has two 100-megawatt cables across the Northumberland Strait which are owned by the Province and managed by Maritime Electric Company Limited. While the cables are in good shape, they do not have the capacity to export the 400 megawatts of wind energy planned for in this plan. Approximately half of the export capacity is projected to be used by the existing wind farm in West Cape. The balance—approximately 100 megawatts—will be awarded as part of the process outlined in this plan.

The need for a new cable goes beyond export and development. With the projected increase in electricity demand, Prince Edward Island will need another cable to import energy for domestic use within seven years. Maintaining public interest in the cable is essential to ensure security of energy supply.

With the foresight provided in the planning of the Confederation Bridge, Islanders have available to them a utility corridor within the bridge that can provide a safe and secure environment for expanded cable capacity under the best of business terms. Prince Edward Island proposes to look to a public private partnership or P3 between the Province, the federal government, Maritime Electric and private developers, to expand new cable capacity by up to 400 megawatts. This plan will enable Prince Edward Island to meet its 500 megawatt goal and plan for possible future expansion of our green energy cluster.

The costs of land-based infrastructure in the province—upgrading transmission lines to carry energy from wind farm developments to the cable—will be borne by developers and carried out in collaboration with Maritime Electric. Developers will be asked, where possible, to use existing or planned power corridors to minimize the impacts of transmission lines within our small province.

This approach to cable and transmission planning will ensure orderly planning and development of this new and emerging sector. Maritime Electric will receive up to \$4 million annually in transmission tariffs which will translate into savings for Island ratepayers. And, subject to a successful P3 agreement, our one Island community would benefit from having in place new cable infrastructure. This would not only save Islanders millions of dollars in avoided capital costs, but also provide energy security well into the future.

The complexity associated with cable and transmission planning cannot be overstated. Moving energy from Prince Edward Island through New Brunswick and into New England is challenging and requires a concentrated, collaborative effort on the part of many. The Government is committed to be an active partner with the approved developers, in getting this valuable renewable energy to market.

## 5. Maximizing Economic Benefits.

Increasing wind generation capacity to 500 megawatts creates an opportunity to further Prince Edward Island's leadership role in innovation through wind energy research and development. This will, in turn, foster a green technology cluster in the province; one of the four strategic pillars as outlined in government's recent economic blueprint, ***Island Prosperity - A Focus for Change***. The evaluation criteria will give favourable consideration to developers who advance this opportunity by supporting work at the Wind Energy Institute of Canada and collaborating with Holland College and the University of Prince Edward Island.

Wind farm developments have the potential to create other significant economic activity in the province. While the major components of wind farms are manufactured off-Island, local businesses can supply a wide variety of goods and services from road construction and concrete foundations, to design, engineering, environmental and legal services, to project administration and accommodations. Evaluation criteria will favour development proposals that maximize economic benefits to Prince Edward Island—through both construction and ongoing operations.

### Malcolm Lodge Entegrity

Malcolm Lodge started looking into wind energy in response to record fuel prices, but not during the recent soar at the pumps.

It was during the energy crisis of the 1970s, when people were panicking about a limited supply of fossil fuels, that Lodge first became curious about other options. *"At that time, no one had ever imagined that we could run out of it (fuel), so it was a real wake-up call,"* Lodge remembers. The then Holland College instructor began actively exploring solar and wind power with his electronics students and he's never looked back.

*"My upbringing was certainly minimalist, we didn't waste anything,"* Lodge says. *"Coming from that, it was obvious to me that if there are kilowatt hours in wind, we should use them."*

Lodge is widely regarded as a pioneer of wind energy in this country. He founded the Atlantic Wind Test Site at North Cape in 1980. That site is now known as the Wind Energy Institute of Canada, and is the national home to cutting edge research and testing of wind energy systems.

*"Prince Edward Island is very much in the forefront for installing wind energy,"* he says. *"We're pretty matter-of-fact about it here on the Island but, for such a small place, our contribution is significant."*

Today Lodge serves as President of Entegrity Wind Systems, an Island-based company that manufactures, installs and maintains wind turbines. These days his staff is busy trying to keep up with demand for the product. Sales are projected to double in the coming months and there are daily calls from around the world looking for more information on the company's wind turbines.

Lodge says he is satisfied that after a lifetime devoted to renewable energy, that he has helped to raise awareness about alternative energy sources. *"When using natural resources, it's all about leaving behind small footprints,"* he says.



## 6. Promoting Sound Land-Use Planning.

Regulations under the Renewable Energy Act designate certain areas where wind development projects may occur. The regulations also allow for development outside the designated areas if the wind regime is strong and other requirements are met. In addition to meeting the requirements of the Acts, prospective developers will be encouraged to minimize the impact of development on the landscape. Evaluation criteria will favour larger-scale concentrated developments over smaller scattered projects. This concentrated approach will minimize the number of wind farms required to produce 500 megawatts of wind energy—and therefore minimize the impact of wind farm development on our Island landscape. Consideration will also be given to the appropriate use of buffer zones in the development of wind farms.



Designated Areas  
for Wind Development

### Kent Sheen Holland College

The math was pretty simple for Kent Sheen. With wind turbines springing up across the province and only a limited number of people trained to deal specifically with the technology, he knew Prince Edward Island needed a training program to solve a shortage of skilled wind technicians.

The Program Manager of Industrial Technology and Trades at Holland College didn't have far to look. Holland College already had some strong programming that was closely related to wind energy. In fact, many graduates from the electrical program were already working on servicing wind turbines.

Sheen, however, saw a real opportunity to expand the training capacity at Holland College and worked on developing the Wind Technician Program.

*"We approached industry to find out exactly what their needs were," says Sheen. "They were not only keen to give us feedback, they wanted to know how soon we could be providing graduates of the program."*

It looks like that will be sooner rather than later. With over a hundred applicants for the 12-15 seats in the first class, there is no shortage of interest. Prospective students are eager to develop skills in an emerging industry and Prince Edward Island is the perfect place for that. *"I see us being really well-suited regionally to address this market,"* Sheen says. *"We have a number of wind farms very close to the College and access to a variety of wind machines. Add that to our proximity to the Wind Energy Institute of Canada site and you have the ideal set-up for this program."*

The Holland College program will be one of the first BZEE certified in Canada, which is an internationally known certification for wind turbine training. Students of the nine-month program will have six weeks of on-the-job-training. Upon graduation, they'll be wind technicians, able to install and maintain wind turbines or manage wind sites. Sheen anticipates the program will grow in response to industry demand. *"Once they see our graduates, they'll want more,"* he says.



## 7. Assuring Compliance with Environmental Review Processes.

Wind is one of the cleanest and most environmentally-friendly energy resources. However, it is essential that development projects undergo the proper assessments to identify and address any potential impacts on the environment. Proposed

projects will be subject to the provincial environmental impact assessment process that will include assessment of changes to local habitat and impacts on wildlife, particularly plant and animal species at risk.

## 8. Promoting Fair and Equitable Land Leases.

Fairness in local land leases and creative models for revenue sharing will be a consideration in the evaluation of proposed wind developments. Developers will be encouraged to work with local partners to develop payment systems that benefit not just the landowners on whose property wind turbines are located, but others nearby who may be affected by the project itself.

The total land lease revenues associated with increasing wind capacity to 500 megawatts is projected to be approximately \$3.3 million a year. Much of these financial benefits will go to the Island farming community. Wind energy is compatible with agriculture and creates alternate revenues for farmers who lease their land.

### Terry Murphy, Chief Administrative Officer City of Summerside

In the city of Summerside, wind power equals opportunity - a chance to generate clean, local power, a chance to create jobs in the community and a chance to earn revenues for the community owned Summerside Power.

The city's utility has just completed a deal that will see it get nine megawatts of power from a private wind farm in West Cape, now it's in the late stages of environmental assessment for a plan to have the utility build 12 megawatts of its own wind generation on a former landfill site in St. Eleanors.

*"Summerside is pursuing this for two reasons number one is we have our own electric utility and the opportunity to have renewable energy as part of our portfolio, that will create a greener community,"* says Terry Murphy, chief administrative officer of the City of Summerside.

*"The second part is it makes economic sense. Wind provides rates that are lower than fossil fuel but it also provides a way to keep the energy dollars in the community."*

Murphy says a more profitable utility will mean more money for city projects like Summerside's recently completed Credit Union Place wellness centre.

*"We're using this as an opportunity to reinvest savings from the electric utility into infrastructure,"* he says.

The wind investment is also an investment in a new sustainable identity for the city of Summerside. With a peak electricity demand of about 21 megawatts and a steady demand of around 11 megawatts, Summerside could soon be in a position where it can claim to be a city that runs on wind. Murphy said that hope could be a reality in as little as a year from now, when the city hopes to see its new wind farm up and turning.

*"We hope to be able to market our city as running on 100 per cent green energy at least 40 per cent of the time."*



## 9. Advancing a Consistent Taxation and Business Support Environment.

Prospective wind energy developers are keen to locate their projects in Prince Edward Island. While government investment is envisioned in securing a new cable transmission infrastructure, overall financial incentives are not required to foster development of the wind energy industry. Therefore, provincial sales tax exemptions will not be offered on wind energy equipment other than the generator itself. During the construction phase, the total one-time provincial

sales tax revenue associated with increasing wind capacity to 500 megawatts is an estimated \$6 million, while construction-related income tax revenue is estimated at \$10.5 million. In addition to the projected revenue sharing fees, the ongoing benefits include annual provincial property tax, personal income tax and corporate income tax revenues of approximately \$4.5 million.

## 10. Partnering with Proven Developers.

The development of a wind farm from concept to operation is a complex process that requires both sound financial footing and extensive development experience.

In North America, close to 25% of approved wind projects have not come to fruition. Finding proven private sector partners is key to a successful plan. The capacity and ability of developers to get the product to market is critical. This is sometimes complicated by periods of market uncertainty.

It is essential that Prince Edward Island attract business investment from partners with proven track records. Evaluation criteria will favour development proposals that demonstrate a proponent's financial strength as well as previous proven wind generation development and operational experience. Evaluation criteria will also favour partnerships with local groups.

### Fred O'Brien President Maritime Electric

For the past three years Maritime Electric has increased its wind power purchases from 3% to 18% annually and is ahead of the 2010 target in the Renewable Energy Act. Initially, the development of wind power was cautiously reviewed with regard to system integration and wind energy's ability to provide a reliable and cost effective power supply to Islanders. *"We have a responsibility to provide safe, reliable and dependable power to our customers around the clock, and we take this responsibility very seriously."*, says O'Brien.

Maritime Electric is committed to the development of the Island's wind resource with the objective to diversify the energy supply mix and reduce future dependence on fossil fuels. *"We have increased our understanding regarding the integration of wind energy into the Island's energy supply mix,"* says O'Brien, *"and we believe that while wind is an intermittent power supply, there is an opportunity to integrate more into the PEI system to maximize benefits for our customers."* Together with the Province, we are working to secure more on Island wind generation for customers benefit.

Export wind development will benefit PEI electricity customers as additional revenue will be collected from developers who use the Island's transmission system thereby reducing the amount required from PEI customers. As well, new transmission development strengthens the reliability of the Island's power infrastructure. *"We see our responsibility expanding to include support for an emerging wind generations sector here on Prince Edward,"* says O'Brien, *"and we are supportive of energy supply projects that benefit our customers"*.



# The Path Forward



The Government of Prince Edward Island is committed to a fair, open and transparent process for wind energy development and an integrated approach for developers. We will move forward in a well-planned, accountable and timely manner to secure our energy future.

The Province, in cooperation with Maritime Electric Company Limited, will issue a request for proposals (RFP) for development of wind energy for export in the fall of 2008 and the evaluation process will be concluded by mid-2009.

***Development will occur in two stages:***

- Stage 1 – Approximately 100 megawatts of wind energy for export will be approved and designated for the existing cable capacity.
- Stage 2 – A minimum of a further 200 megawatts of wind energy for export will be “approved in principle”, subject to successful negotiation of a P3 development agreement for a new cable and upgrades to the transmission infrastructure feeding the cable on both sides of the bridge.

The 10 Point Plan will be guided by an open RFP process. The planned time lines are as follows:

- The target date for government issuing the RFP is mid-November 2008.
- The closing date for responding to the RFP will be 90 days from the date of issue.
- The target date for making final decisions is Spring 2009.
- The target date for commissioning the stage 1 (100 megawatts) wind farms is 2011.
- The target date for commissioning the stage 2 approved projects is 2013.

Developers will be invited to provide feedback on the process before the RFP is issued.



Developers will respond to an RFP process that has two envelopes.

### **Envelope A**

All proposals will first be assessed by Maritime Electric to ensure they meet the technical aspects associated with a successful plan. This phase of the RFP process will assess elements such as:

- 1) Compliance with the Open Access Transmission Tariff (OATT) process approved by Island Regulatory & Appeals Commission.
- 2) Technical and operational elements of the proposal to determine that the project is able to achieve its intended goals including matters associated with transmission planning and environmental planning preparedness.
- 3) The marketing aspect of proposals as it relates to the developer's ability to get the product to market.
- 4) Financial and managerial strength and capacity of the development team.

Maritime Electric will not rank proposals; it assess proposals and grade them on a pass/fail basis.

### **Envelope B**

Through the PEI Energy Corporation (which will be supported by an independent Fairness Auditor), the Province will only rank and assess proposals that have been 'passed' through the Envelope A process. This phase of the RFP process will assess elements including:

- 1) Revenue payments.
- 2) Demonstrated solid community support.
- 3) Secondary and tertiary economic benefits.
- 4) Land use planning.
- 5) Fairness with respect to local land leases.

Developers will be ranked on the quality of their bid to ensure that benefits to Islanders and local communities are maximized to the fullest extent possible. These elements will be major determining factors in the final decision making process.

Government will enact regulations which give authority to the policy principles prescribed in this plan; and during this process, Government will be actively planning and pursuing with its key partners, further details associated with the cable and the land based transmission capacity which are prerequisites to meeting the goals of this plan.

As well, government will continue to finalize its plans to add 50 megawatts of wind energy for domestic use, working closely with Maritime Electric (MECL) and Summerside Electric Utility.

## Adding Up the Benefits

With 500 megawatts of integrated wind energy by 2013, Prince Edward Island can and will be a net exporter of green energy and a global leader in integrating wind energy in the province's electrical energy mix. This presents a unique opportunity for our Island community—an opportunity to strengthen our economy—and advance Prince Edward Island's reputation as Canada's "green" province.

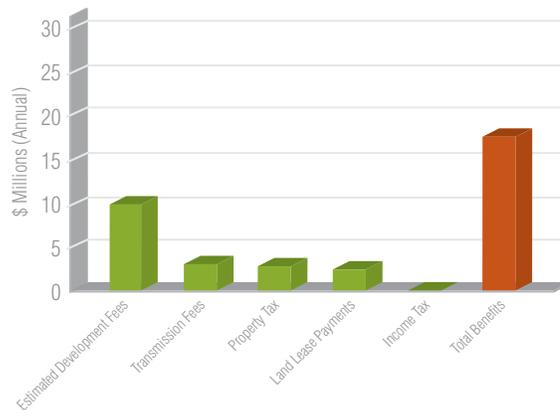
### Our Economy

Based on an estimated cost of \$95 million for cable transmission infrastructure and wind farm development costs of \$2.3 million per megawatt, the capital cost of increasing wind generation capacity to 500 megawatts is over \$1 billion. That will have a significant impact on our Island economy:

- **850 construction jobs**
- **\$218 million in local construction spending**
- **\$16.5 million in tax revenues from construction phase**

In addition, this development plan holds considerable ongoing economic benefits—a \$40 million annual impact on the Gross Provincial Product for an additional \$800 million in economic activity over 20 years. This includes the economic benefits from operating and maintenance costs, royalty and lease payments and tax revenues. Increasing wind generation capacity to 500 megawatts will result in direct revenues to the province of approximately \$15 - \$20 million annually.

Estimated Annual Benefits  
 from 500 MW of Wind



### **Our Environment**

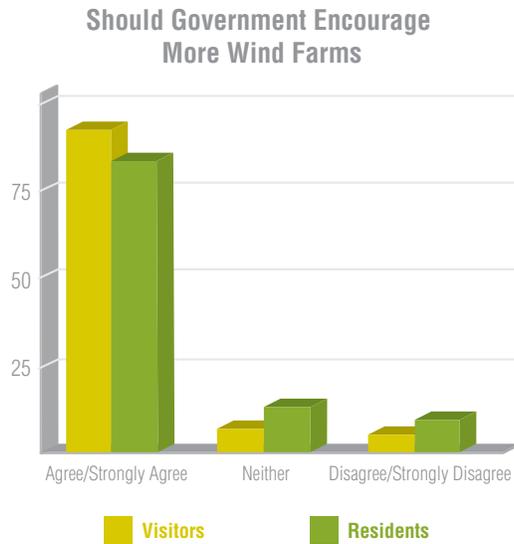
Advancing environmental stewardship is one of Government’s strategic priorities and renewable energy is an important part of that. Increasing wind energy capacity to 500 megawatts will reduce air pollution and displace 750,000 tonnes of greenhouse gas emissions annually — equivalent of taking 160,000 cars off the road.

### **Our Brand-Canada’s Green Province**

The 10 Point Plan will build on Prince Edward Island’s reputation as a “green” province. Approximately 18% of electricity sold in Prince Edward Island comes from wind. This puts the province in the same league as countries such as Denmark that have a long history of wind energy development. By 2013, wind will supply approximately 30% of Island electricity, making the province a clear global leader in this clean, renewable energy resource.

The Tourism Research Centre recently surveyed residents and visitors on their views regarding wind energy on Prince Edward Island. The results were strong and clear - wind energy has the support of residents and visitors alike. This is perhaps not surprising given the pride Islanders have shown in past wind developments or, from a tourism perspective, that North Cape has been the #1 tourism destination in western Prince Edward Island for quite some time.

Among the key findings, the survey showed that 72% of Islanders and 75% visitors agreed or strongly agreed that government should encourage more wind farms.



### ***Securing Our Future***

Government has invited Islanders to embrace the vision of one Island community with one Island future. The 10 Point Plan was developed with that vision in mind.

Wind is one of our province's strongest and most valuable natural assets. This plan will help ensure that it is developed in the best interests of our one Island community—and that all Islanders share in the benefits from our wind energy resource. The 10 Point Plan will put Prince Edward Island on a clear path to building a secure, sustainable and prosperous energy future.



# Notes

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# Notes

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