

# Eastern Kings – Phase 2 Discussion on Moving Forward



Eastern Kings Community Public Meeting  
PEI Energy Corporation  
June 15, 2017

# Outline

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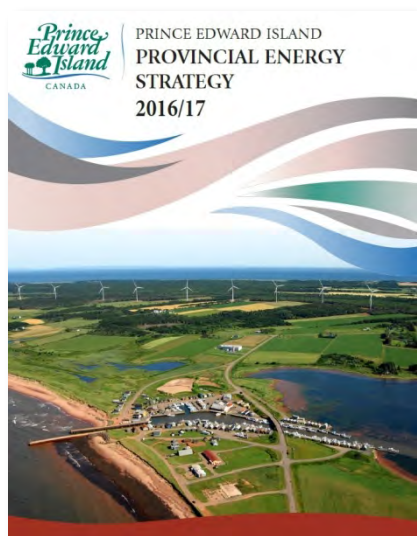
- PEI Energy Corporation
  - Structure and activities
- Wind Energy in PEI
- 2019 Wind – Project Options
- Understanding Project Sequence
- Public Concerns
- Project Constraints
- Discussion - Where to from here?

# The PEI Energy Corporation

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- Provincial Crown Corporation since 1978
- Current Activities:
  - Oversight of Province's Electricity & Energy Programs and Initiatives
  - Project Management of Undersea Cable Project
  - Public Vehicle for Development and Operation of Province's Wind Energy Facilities
    - North Cape
    - Eastern Kings
    - Hermanville
  - Pending Projects (recent Provincial Energy Strategy)
    - 2019 – 30 MW Wind Expansion
    - 2025 – 40 MW Wind Expansion

# PEI Energy Objectives



## Three Guiding Principles:

- Lowering greenhouse gas emissions
- Actions and decisions should be cost effective
  - Favour options that lead to lower overall costs in the long term
- Local economic opportunities
  - Employ local people, companies and resources
  - Reduce the energy we need to import

# Our Responsibilities

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- We make significant public investment on behalf of government and take our responsibility to taxpayers seriously
- We have demonstrated to Government that we are the most cost effective wind development group for public projects, but respect the fact that private developers remain interested in developing projects within the province.
- **We have a responsibility not to create an uncompetitive business environment that may disadvantage private developers.**

# PEI Wind Capacity

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- PEI Energy Corp – 73.6 MW
  - Hermanville - 30 MW
  - East Point - 30 MW
  - North Cape - 10.6 MW
  - Aeolus - 3 MW
- Summerside – 12 MW
- WEICan – 10 MW
- Private – 108 MW
  - Norway - 9 MW
  - West Cape - 9 MW Domestic
  - West Cape - Merchant - 90 MW
- Total Wind Capacity – 203.6 MW
  - 104 Utility size wind turbines

PEIEC owns and operates about 35% of the wind capacity on PEI

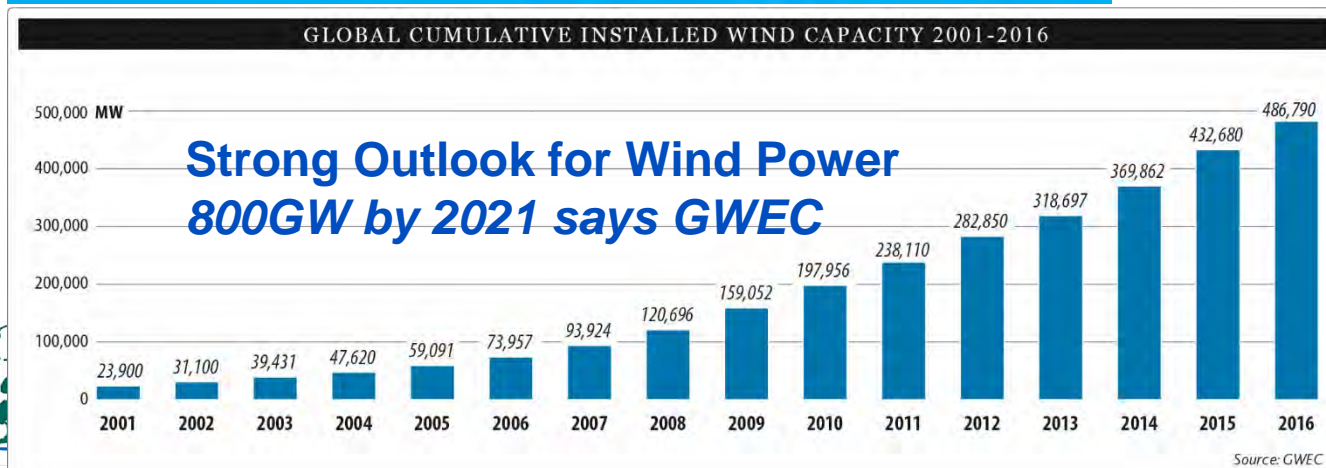
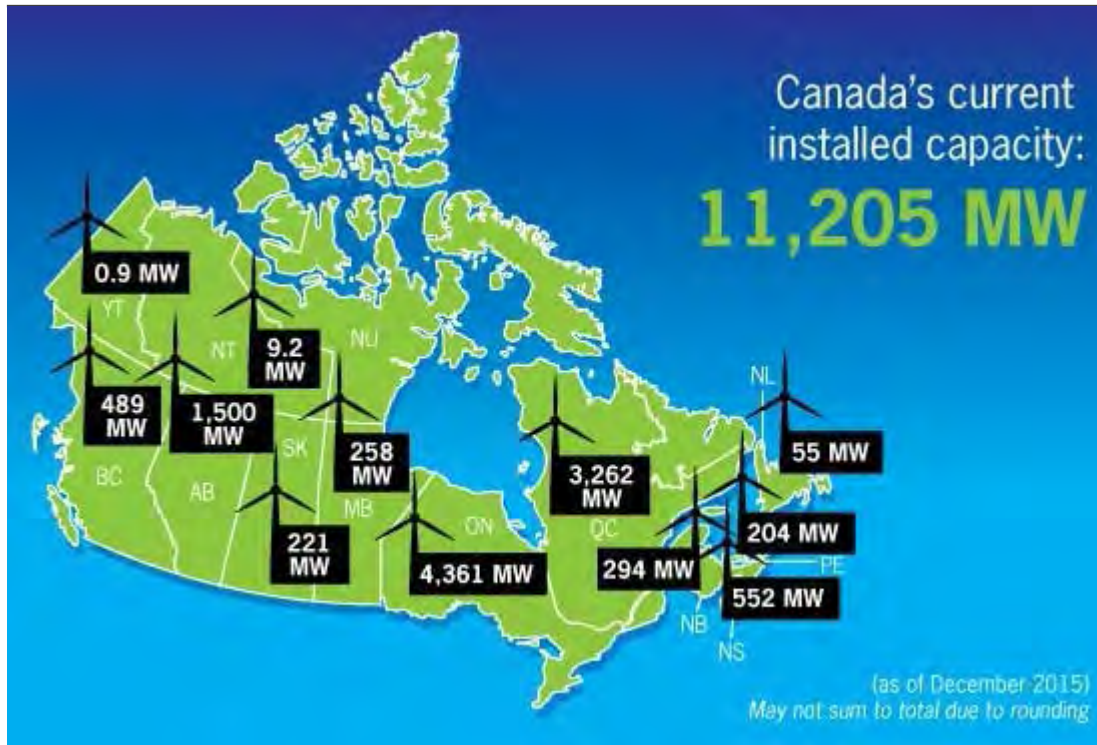
# PEI Electrical Supply - 2015

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|                                       |         |           |
|---------------------------------------|---------|-----------|
| ■ Wind generation:                    |         |           |
| • North Cape wind farms               | 112 GWh |           |
| • Eastern Kings wind farm             | 93 GWh  |           |
| • Hermanville wind farm               | 111 GWh | 316 GWh   |
| ■ On-Island oil-fired generation      |         | 9 GWh     |
| ■ Point Lepreau nuclear participation |         | 191 GWh   |
| ■ System energy purchases             |         | 763 GWh   |
| Total supply                          |         | 1,279 GWh |

Wind energy presently provides 25% of MECL's electricity

# Everyone is Installing Wind





## North Cape Wind Plant

Phase 1 – 2001

Atlantic Canada's first utility grade wind plant

5.28 MW - 8 Vestas V-47, 660 kW.

Phase 2 -2003

5.28 MW; 8 Vestas V-47, 660 kW.

Total construction cost - \$16.4 million



Eastern Kings Wind Plant - 30 MW 2006  
10 Vestas V-90, 3000 kW turbines. Canada's first  
3 MW wind project.  
Construction cost of \$47 million



Hermanville Wind Plant - 30 MW 2013  
10 Acciona AW116, 3000 kW turbines.  
Largest turbines in Canada  
Construction cost - \$58 million

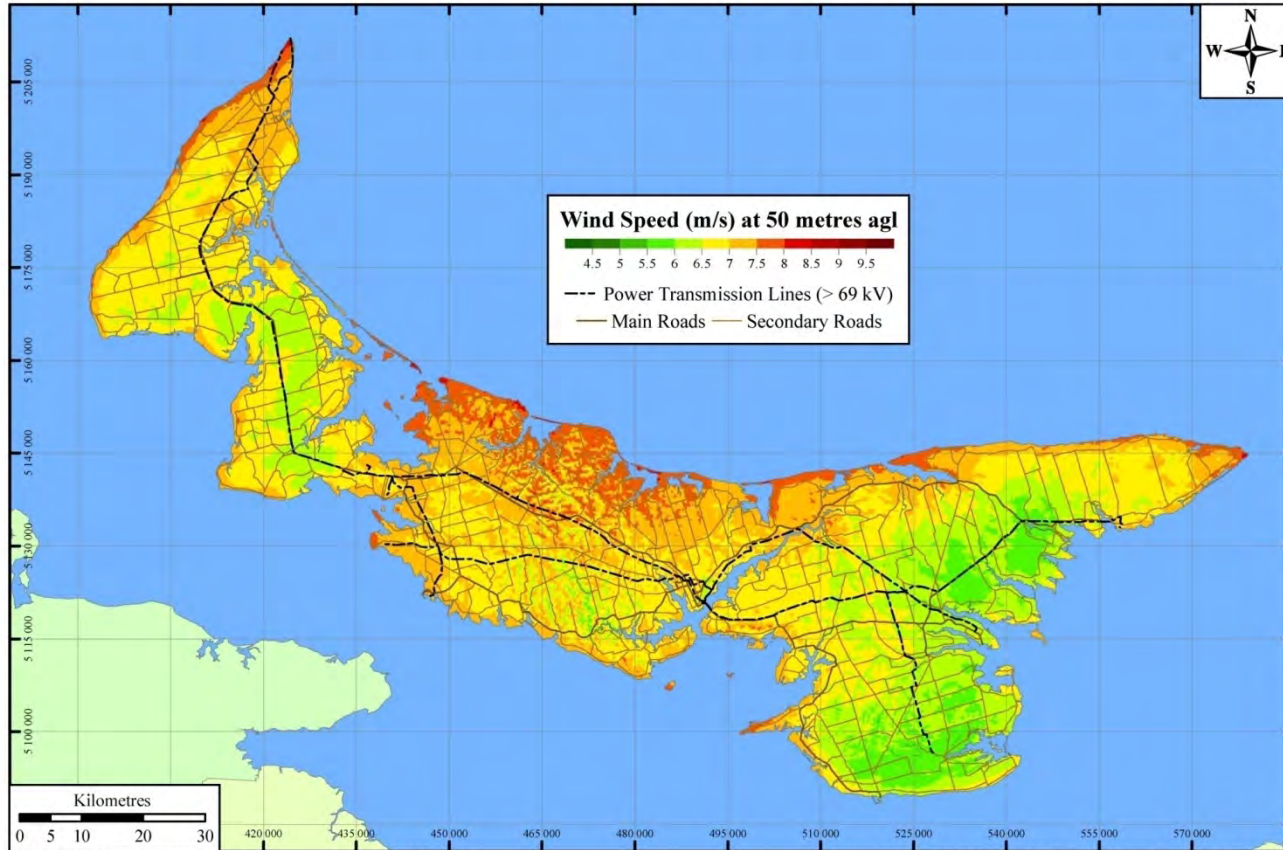
# Wind Energy is an important asset to PEI

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- Excellent wind resource makes wind economic;
- Other energy, including electricity, is expensive
  - Wind is PEI's best natural energy resource
  - Wind is an economic source of energy
    - stabilizes electricity rates over 20-25 years;
    - reduces future financial risks
- 25% of our electricity is from wind; PEI is a world leader and Islanders are proud of that!!
- Public development model is unique in Canada
- There is strong political and public support for increased wind development and the benefits it brings
- But wind's intermittent nature bring challenges
  - As wind % increases integration cost increases

# Wind Resource Map of Prince Edward Island

<http://www.peiwindatlas.ca>



**Prince Edward Island has exceptional wind resource.**

**105 utility scale wind turbines on PEI; 103 are within 2 km of shore**

**Wind resource decreases by 10% per km from shore**

**Energy yield 2 km from shore to 60-70% of shore yield**

# Options for 2019 Wind Project

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- Eastern Kings
- Hermanville North Shore
- Malpeque
- West Prince

# Eastern Kings



- Pros
  - Existing infrastructure - substation, ops building
  - Adjacent land base
  - Known environmental attributes
  - Excellent wind resource
  - Appears to be financially viable
- Cons
  - Uncertain community support
  - Setbacks may spoil financials

# Eastern Kings Advantages

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- Site has been widely studied
- Wind Resource is known
  - New development area can be quantified more quickly than other areas
  - Existing facilities enhance further development

# We feel Project is Win/Win/Win

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- Community
  - Investment ~\$60 million project supports local business during construction and operation
  - Operations ~3-6 skilled jobs in community
  - Revenue ~\$100,000 annual community economic development
- Landowners
  - Revenue ~\$200,000 annually to landowners
  - Improved access to properties
- Province
  - Profitable project for PEI Energy Corporation
  - Prior experience in area reduces risk

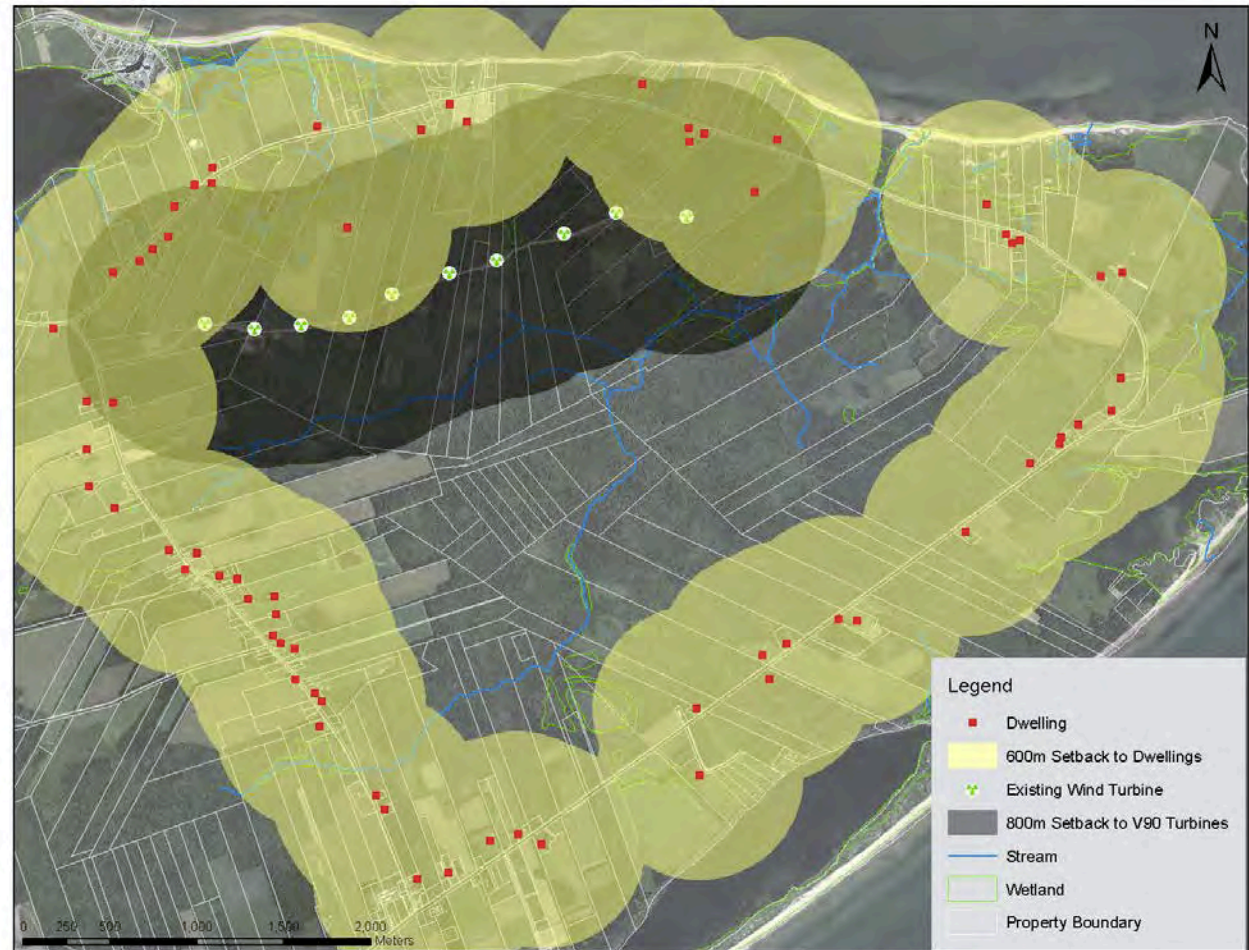
# BUT...Issues Exist

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- Need to move quickly to capture advantages
  - PEI Energy Corporation has been directed to install project by 2019 and time is already tight
  - Economically attractive development area has been identified that reduces wind monitoring period.
- Community Setback Presents Challenges
  - Project Economics Disrupted
  - Suggest consideration of provincial regulation
- Everyone needs to mend fences and move forward
- May be some residual community concerns over impacts of wind development

# Development area needs to be defined

Preferred  
Development  
Area



# 2000 meter Setback to Shoreline

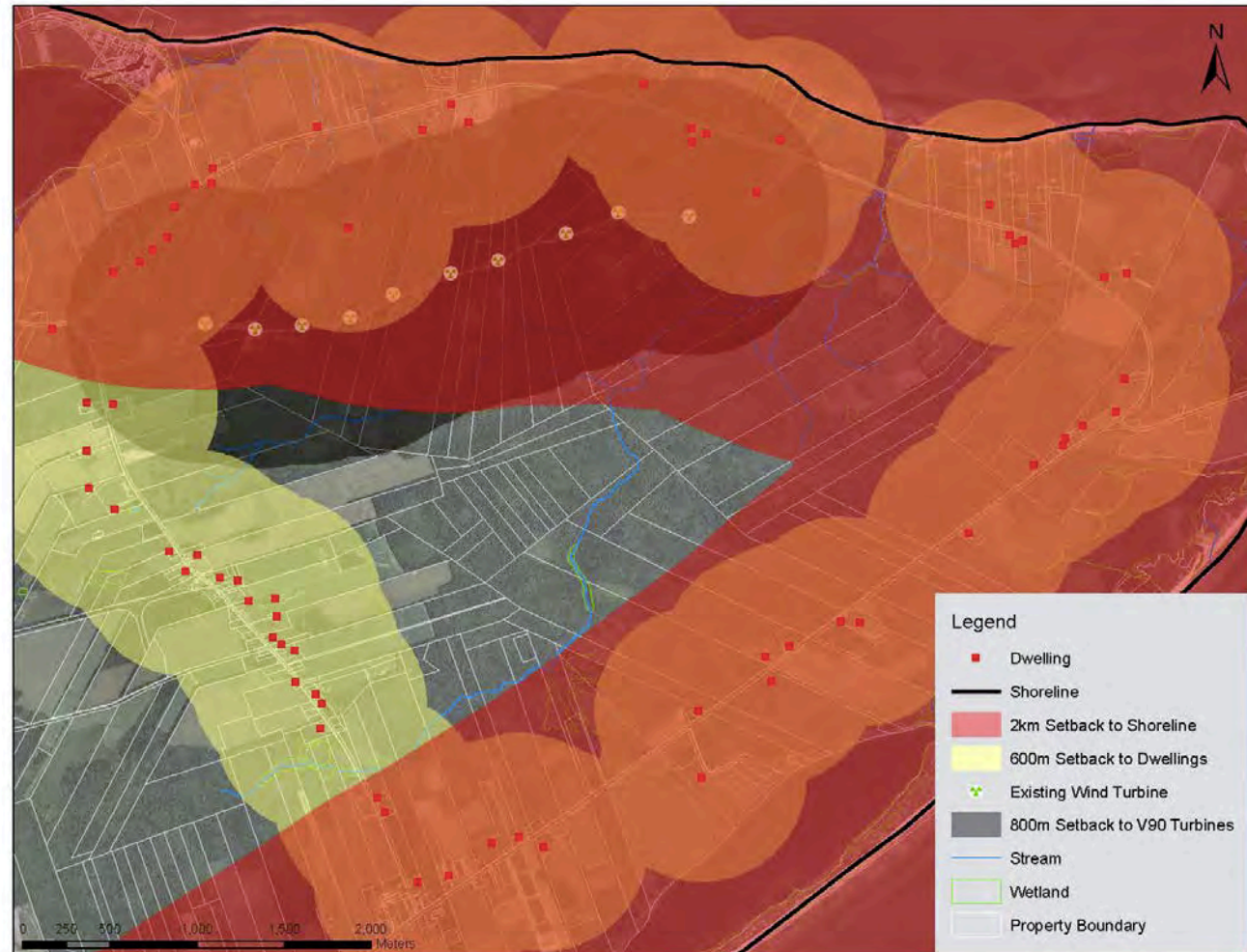
Development Area  
Preferred - 470 Ha

With 2,000 m setback  
- 270 Ha

Reduces revenues to  
project and landowners

Constrains development  
options

We request Council to re-  
consider



# Probable Technology

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- 2006 – EKWP Vestas V90 - 3,000 kW
  - 90 meter rotor, 80 meter tower
- 2013 - Hermanville – Acciona AW3000
  - 116 meter rotor, 92 meter tower – Rotor 166% x V90
- 2019 Selection Not Completed
  - Technology continues to evolve but growth not as profound
  - Economics will probably utilize 2 MW - 3 MW technology
  - Rotor diameters in the 100 -130 meter range
  - Towers in the 80 - 100 meter range

# Typical Wind Project Sequence – 2-3 years

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- Identify Land Base of interest (Done)
- Measure Wind Resource (1+ year - Largely Completed at EP)
- Sign up landowners
- Engage turbine suppliers and select turbine
- Conduct Utility Studies / Negotiate PPA
- Complete Financial analysis / Procure financing
- Detailed design; order turbines
- Environmental & development Permits
  - Environmental Assessment Process
  - Community Engagement
  - Development Permit - Minister's prerogative
  - Building Permit - after conforming to regulations
- Build and Operate Project

# Option Agreement

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- Landowners within the Development Area will be presented with an Option Agreement for their consideration. Included in this Agreement are:
  - Schedule A: Easement Lands – which describes the landowner's property
  - Schedule B: Easement Agreement – which describes the terms and conditions of the agreement between the PEI Energy Corporation and the landowner in the event the project proceeds and the option is executed.
  - Schedule C: Easement Compensation – which describes the compensation that the landowner will receive.

# Option for Easement

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- This document is signed if a landowner wishes to offer their land for easement.
- The option fee paid to the landowner is non-refundable regardless as to whether the project proceeds.
- No obligation to sign
  - Landowners sign if they wish to join the project and agree to make land available in exchange for compensation
  - If landowner declines, the project must respect regulations regarding setbacks to property
- But, if they sign, they are obligated to make their land available to the project

# Schedule B – Easement Agreement

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- This Easement Agreement is executed by the PEI Energy Corporation if the project proceeds and these lands are required.
- The landowner continues to own, have access to their property and continue with activities (farming, forestry, etc.) provided that it does not interfere with the operation of the project.
- As stated in the Easement Agreement, any increases in property tax as a result of the project will be borne by the PEI Energy Corporation.

# Schedule C – Easement Compensation (sample)

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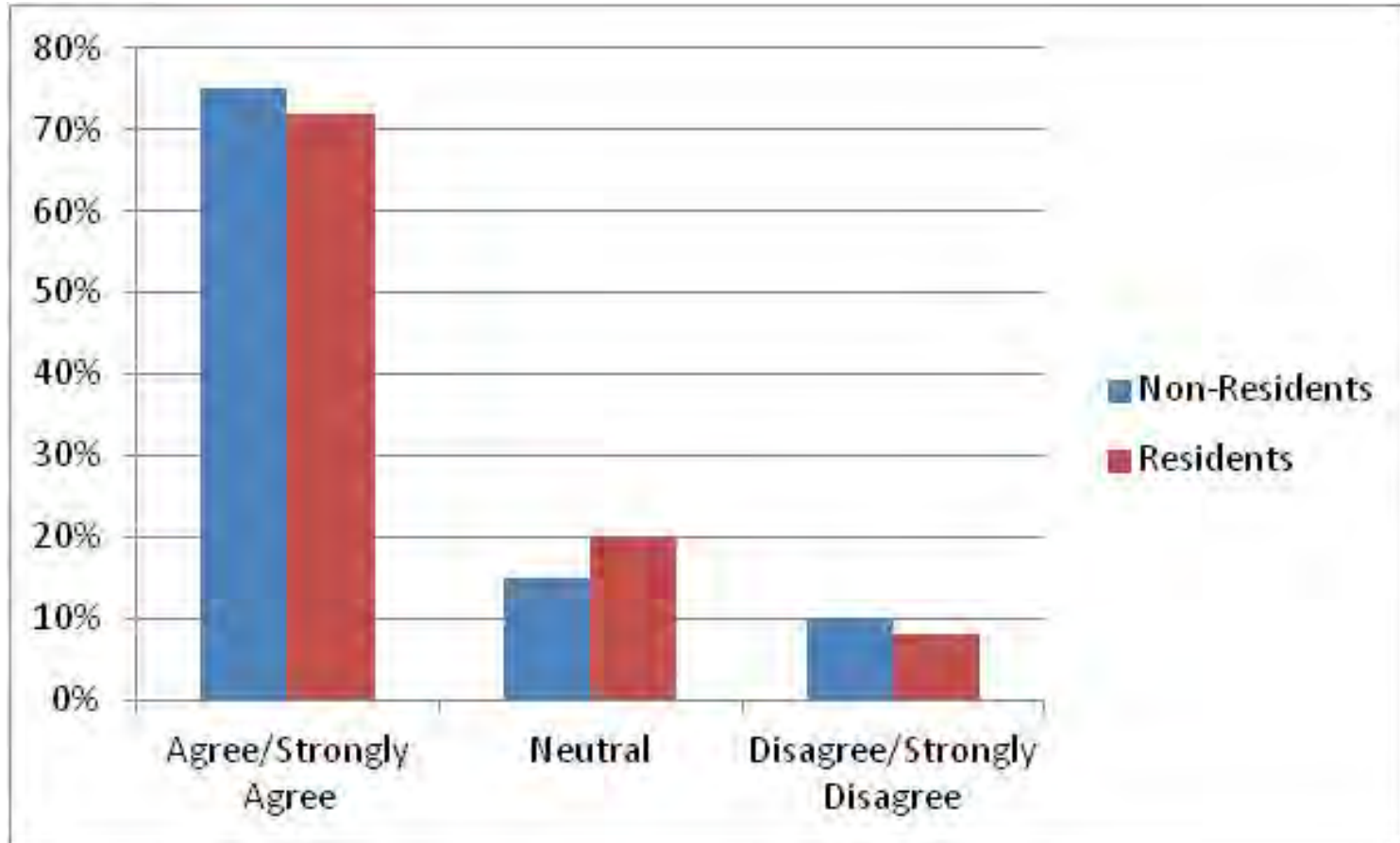
- Compensation is
  - Accruable by PID
  - Defined by final project layout
- Turbine Compensation Pool
  - Applies if a turbine is on your land
- Secondary Compensation Pool
  - If your land is within a defined distance to turbine
- Tertiary Compensation Pool
  - If your land is within a defined longer distance to turbine
  - Typical Easements for Infrastructure
    - \$500/ha for agriculture lands
    - \$250/ha for non agriculture lands
    - \$500/year minimum

# Public Concerns Previously Expressed

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- Concerns persist about impact of wind turbines to some people
- Generally, levels of concerns are declining, as evidence accumulates to support the benign nature of wind technology. Still some people still express concerns over:
  - Health impact of turbines
  - Noise levels from wind turbines
  - Health impact of high voltage lines
  - Impacts on birds & bats
- Open for additional community input.

# There is strong public support for further wind development on PEI



*Should PEI Government Encourage More Wind Farms?* PEI Tourism Research Centre

# What we commit to do

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- Assemble land base in responsible and fair manner
- Respect rights of non-participating landowners
- Conduct environmental assessment in full conformance with federal and provincial requirements
- Conform to provincial development regulations
- Develop wind resource maps of development area and optimize layout of wind plant using computer models to treat landowners fairly
- Proceed with development ensuring community is fully informed throughout the development process

# Pros & Cons of Eastern Kings Phase 2

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## Pros

- Project brings a number of benefits
  - Brings critical investment to rural PEI
  - Creates construction jobs
  - Creates long term O&M jobs
  - Provides significant revenues to landowners
  - Provides substantial revenues to Province & Community
  - Helps to stabilize long term electrical rates within Province

## Cons

- Electricity generation is not magical
  - Turbines are big; and visible
  - They are not silent; they are only quiet
  - Not everyone likes them
  - Not everyone gets a cheque

# Project Constraints - Immediate Objectives

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- Timing is critical
  - Eastern Kings is preferred location but we need agreement quickly or we will lose time for alternate development.
- Met with Council on June 5 in advance of this informational public meeting
- Target agreement (MoU?) with EKCC in July to start field work in August.
- Identify alternate location, if required, by August 31

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**Discussion continues.... We have requested, received and appreciate your input. We're still reading Facebook comments.**