ENVIRONMENTAL ASSESSMENT REGISTRATION

BURNT RIDGE, ELLISTON, BONAVISTA PENINSULA WIND FARM

EA File No. 200.20.1196
Crown Lands File No. 103006

<u>Prepared for</u>:
Department of Environment
Environmental Assessment Division
P.O. Box 8700
St. John's NL
A1B 4J6

<u>Prepared by:</u>

WindProject Inc.

99 Mill Street
Milton, Ontario
L9T 1R8

November 2003

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1.0 NAME OF THE UNDERTAKING

Burnt Ridge, Elliston, Bonavista Peninsula Wind Farm

2.0 PROPONENT

2.1 Name of Corporate Body

Wind Project Incorporated

2.2 Address

99 Mill Street
Milton, Ontario
L9T 1R8

2.3 Chief Executive Officer

Name:	Frank Weber, Dipl. Ing.
Title:	President
Telephone #:	(519) 438-7095
Fax: #:	(519) 434-1473
Email:	fweber@sympatico.ca

2.4 Principal Contact Person for Purposes of Environmental Registration

Name:	Helge Wittholz, Dipl. Ing.
Title:	Partner in Wind Project Inc.
Address:	99 Mill Street Milton, Ontario L9T 1R8
Telephone #:	(905) 876-2245
Fax #:	(905) 875-2944
Email:	hwittholz@sympatico.ca

2.5 Corporate Information

The Proponents

Wind Project Incorporated (WPI)
The company was incorporated under the laws of Ontario, Canada, in May 2001 and is owned by its two principles
Frank Weber and
Helge Wittholz

Frank Weber holds a degree in Mechanical Engineering from the University of Rostock, Germany, and has been involved in all technical aspects of wind turbine design for the last 11 years. His research experience includes work for the University of Utah / NREL and for the DLR (German Aerospace Research Establishment). His position as Senior Engineer for one of the leading wind turbine manufacturers in Germany ended in 2000, when Frank decided to immigrate to Canada and start his own business.
Frank Weber has the following experience that is directly related to the project:

Wind Resource Assessment, Micro Siting, Power Production Estimation
- Argentia, Newfoundland (10 MW)
- Bonavista, Newfoundland (20 MW)
- Stephenville, Newfoundland (5-10 MW)
- Six Nation Indian Reserve, Brantford, Ont.

Wind Turbine Design
- Nordex N80/90 (2500/2300 kW) design load calculation. Measurement campaign for the N80 prototype installation at Wilhelmshaven, Germany. Analysis of loading, modal behaviour, supervisory control, feedback system and power output related to environmental impact (wind speeds, wind directions, transients, manual controls).
- Design of Nordex N50 (800 kW), component design
- Re-Design of Nordex N43 / MK2 (600 kW), component design
- Design of Nordex N60/62 (1300 kW), component design, load calculations

Helge Wittholz has a career that spanned more than three decades in the aerospace industry. For the last 8 years Helge has been working in the Canadian Wind Energy industry, from setting up and operating the only blade manufacturing company, to the planning and installation of a wind turbine in the 600 kW class.

After obtaining his degree in Automotive and Aerospace Engineering in Germany, Helge worked as a Structural Designer, Program Manager, and Business Manager.

Helge Wittholz has the following experience directly related to the project:

- **Aviation safety requirements** (obstacle lighting)
  Researched US supplier base and FAA standards for Germany Wind Turbine Service Company (W.T.S.) in 2001.
- **Project Management**
  Planned the installation of 600 kW Turbines for cold weather application in Tiverton, Ontario and Green Bay, Wisconsin.
  This work included:
  Site selection
  Wind measurement
  Equipment selection
  Tender preparation and contracting
  Installation

Commissioning and Maintenance

The 600 kW Turbine in Tiverton was installed in 1995 and the two 600 kW Turbines in Green Bay were installed in 1997. The maintenance was provided for a period of 5 years.

3.0 THE UNDERTAKING

3.1 Nature of the Undertaking

It is proposed to construct and operate a wind farm consisting of eight (8) to fourteen (14) single wind turbine generators (WTG) with a total capacity of approximately 20 MW at Burnt Ridge in the municipal boundaries of the Towns of Elliston and Bonavista, NF. The proposed WTG's feature a conical tubular steel tower with a maximum hub height of 67 meters and a three bladed rotor with a maximum diameter of 80 meters. The proposed electrical power generation from a single turbine will be between 600 and 1800 kilowatts (kW). The proposed power generation will be connected to the grid to supplement the existing power generation from thermal generating plants and hydro. The power will be sold to Newfoundland Power or Newfoundland and Labrador Hydro for distribution and resale to customers.

Construction of the project will include

- 4.5 meter wide access roads (gravel)
- Trenches for underground 690V power transmission and telephone lines from the WTG to the on-site transformer station
- Transformer station, on site
- Above ground high voltage power line from transformer station to interconnecting point (substation in Bonavista)
- Foundation for each WTG and pad (gravel) for crane.

3.2 Purpose, Rational and Need for the Undertaking

3.2.1 Global Trends

Global wind electricity is the fastest growing energy source with installed capacity growing at an annual rate in excess of 30%. During 2002, more than 7,000 MW of new capacity equivalent to US $7.0 billion investment were installed. On the basis of recent trends, it is feasible that wind power can be expected to grow at an average annual rate of 25% supplying 12% of the world's electricity demand by the year 2020. This would bring the global wind power capacity to 1.2 million MW with an output of 3,000 TWh creating 1.79 million jobs and an annual capital investment to US $75.2 billion by 2020.

The cost per unit of wind electricity has already been reduced dramatically as manufacturing and other costs have fallen. Further reductions are expected as the size and quantity of turbines continue to grow, thus making wind energy increasingly attractive when compared with other energy sources. Unlike electricity from fossil fuels, prices for wind electricity are stable since the cost of dwindling fossil fuels will increase further.

Environmental benefits, such as a reduction of carbon dioxide being emitted into the world's atmosphere, are an important benefit from wind electricity. If the costs of environmental damage by burning fossil fuels for electricity were considered, then wind electricity would further benefit.

3.2.2 Newfoundland Opportunities

While Newfoundland has one of the best wind resources in Canada if not in the world, no large scale installations of WTG have occurred so far. The combination of substantial Hydro Power on the island, providing storage capacity, and Wind Power, intermittent, makes it possible to provide up to 30% of the Provinces total power supply from wind power.

A growing supply of wind power could gradually reduce the pollution caused by the oil burning generators at Holyrood. Contrary to fluctuating oil prices, the cost of wind electricity does not change significantly over the 20-year life span of a wind farm. Therefore, by adding wind electricity to the energy mix of Newfoundland electricity generation costs will be stablized.

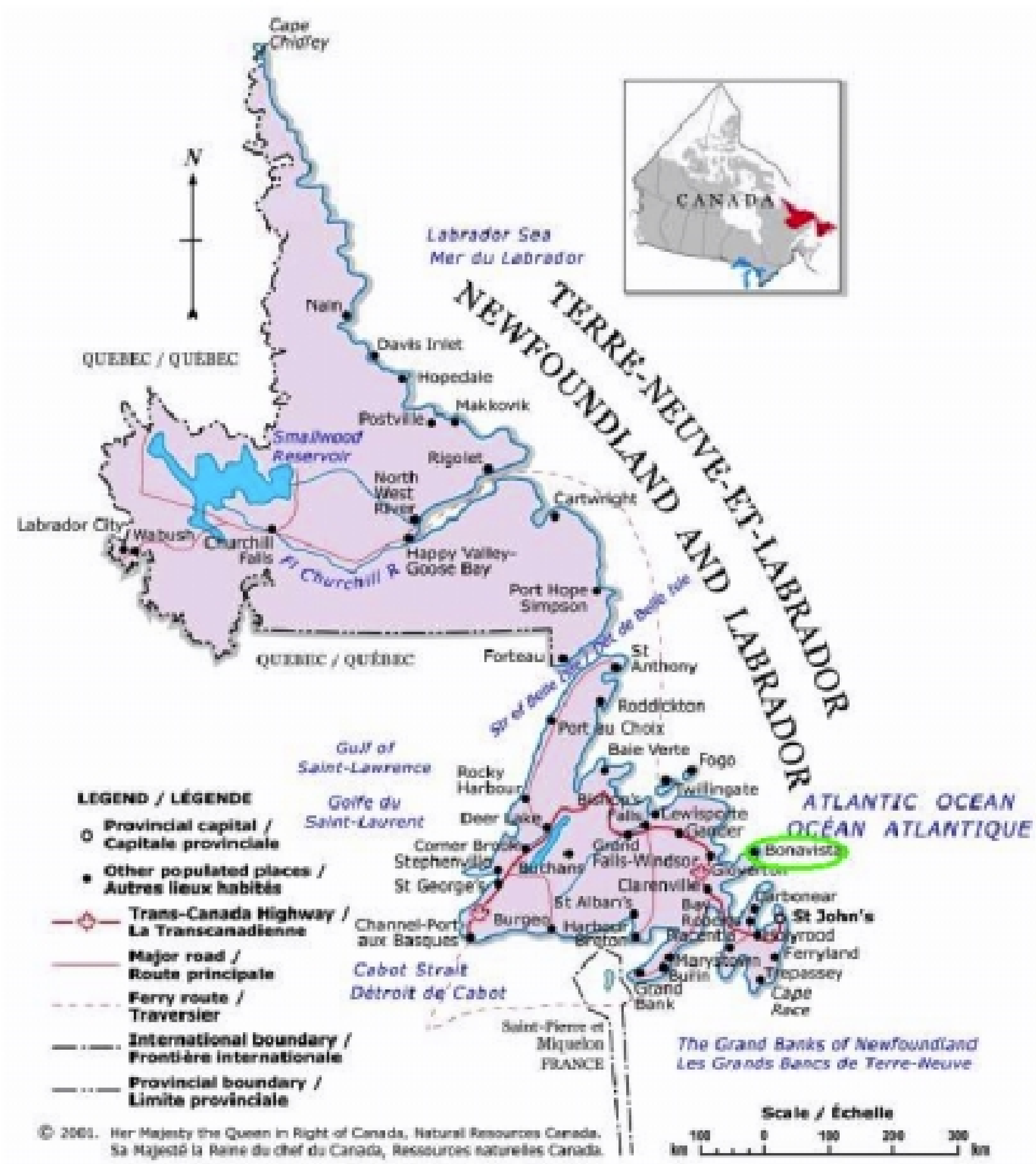
It is further interesting to note the involvement of large oil companies such as Shell, Suncor and Transalta in the wind electricity generation business. These companies have realized that carbon fossil fuels are a dwindling resource and need to be replaced by renewable energy sources in the future. Currently wind electricity generation is being recognized as the renewable source with the lowest cost readily available. Since the Newfoundland wind resource is enormous, the Province can take a lead to provide low costs, pollution free renewable electricity to its residents.

4.0 DESCRIPTION OF THE UNDERTAKING

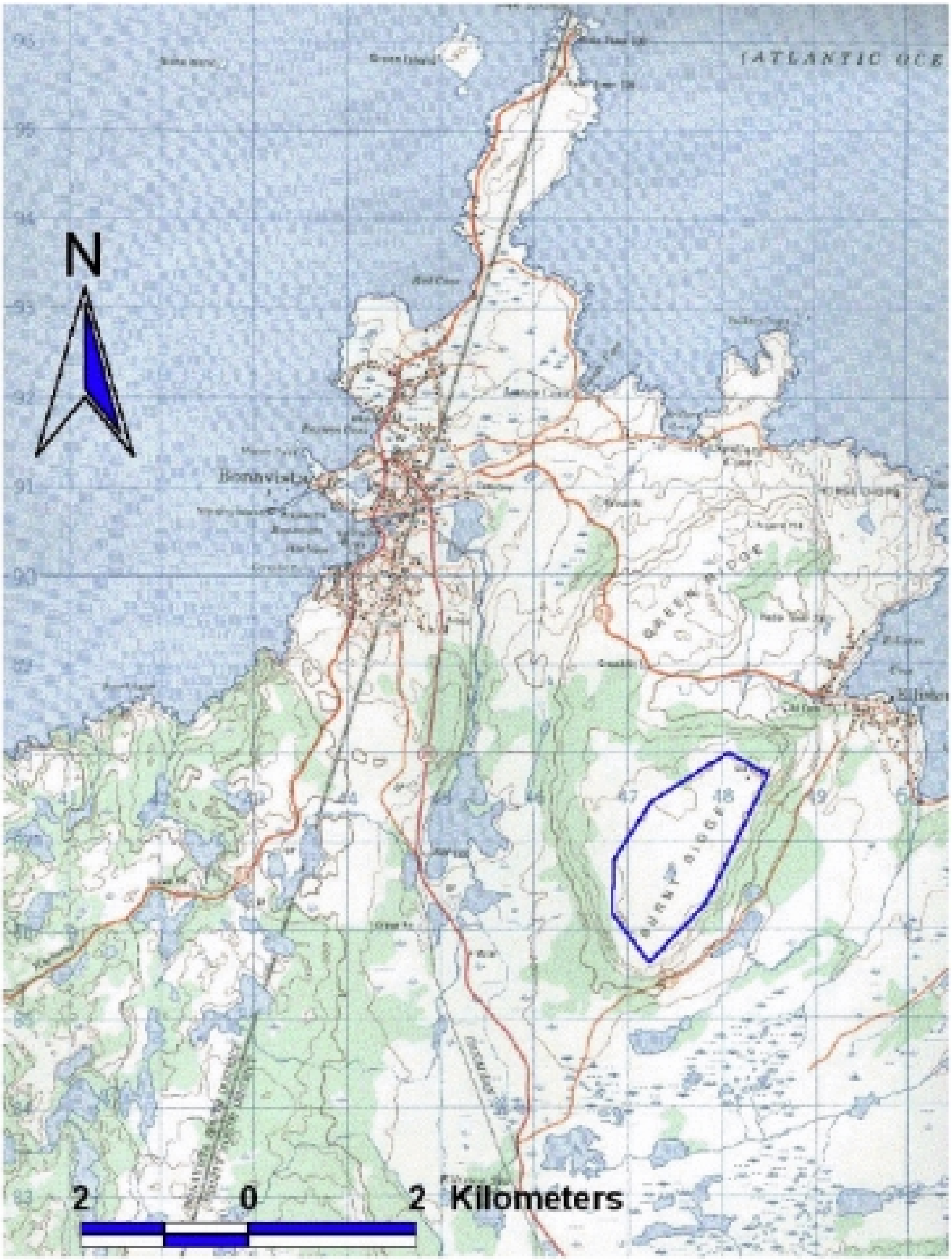
4.1 Geographic Location

The site for the proposed 20MW Wind Farm is located at Burnt Ridge, near the town of Bonavista, Newfoundland.

Map 1 Location of wind farm near the Town of Bonavista (circled green) in the Province of Newfoundland and Labrador, Canada



Map 2 Area of site (circled blue) located about 3.5 km from the outskirts of the Town of Bonavista. The wind farm is located on a peninsula and experiences sea surface inflow from all directions except south-west (see Map 1). The prevailing winds are westerly (see Chapter 4).



The selected site is on Crown Land. WPI has applied for a lease of approximately 1.6 million m² (receipt no. 1722185 dated 2002 – 04 – 17). The application was endorsed by the municipalities of Bonavista and Elliston. In 1995, Tacke Windpower Inc. applied for the very same land and did not face any objections (see

Environmental Assessment Bulletin February 28, 1997). This application, however, has expired.

4.2 Physical Features

4.2.1 Major physical features of the Wind Farm

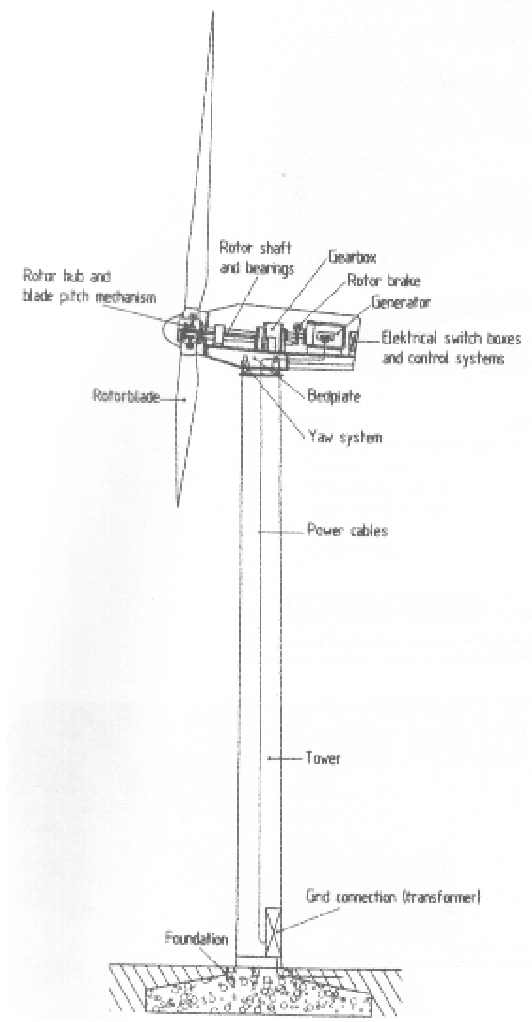
4.2.1.1 Type of Wind Turbine Generator (WTG)

WTG's under consideration for the project vary in capacity between 600 kW and 1,800 kW, in hub height between 45m and 67m and in rotor diameter between 46m and 80m.

The final selection of a suitable WTG depends on the life cycle cost of the proposed wind farm and the suitability for the location. Issues such as availability, large cranes, effect of the turbine type on the grid and operating history in similar high wind regimes will be considered.

4.2.1.2 Technical Description of a Wind Turbine Generator

The selected WTG type is a Horizontal Axis Wind Turbine.



The main components are the foundation, tower and nacelle including the rotor.

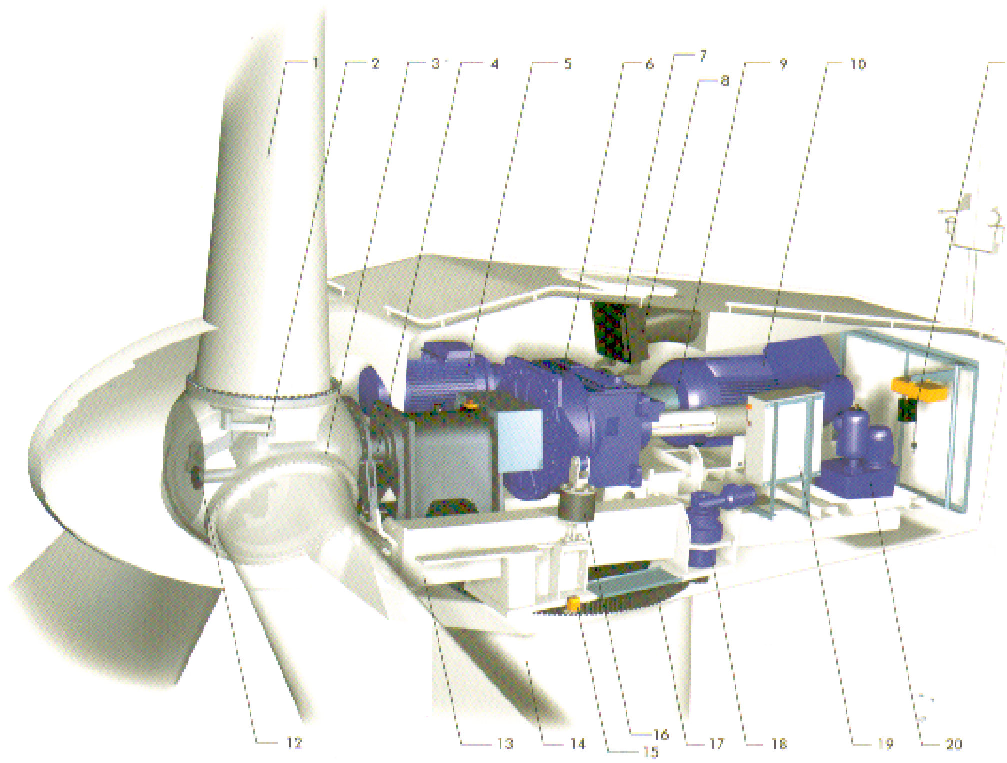
The foundation design is dependent on soil tests to be performed at the site. A standard gravity foundation made of concrete reinforced steel will be used.

The diameter will be approximately 13m and the depth 2.5m depending on the WTG selected.

The conical steel tower will be made in 3 sections for ease of transportation.

A typical nacelle contains the following key components of the WTG:

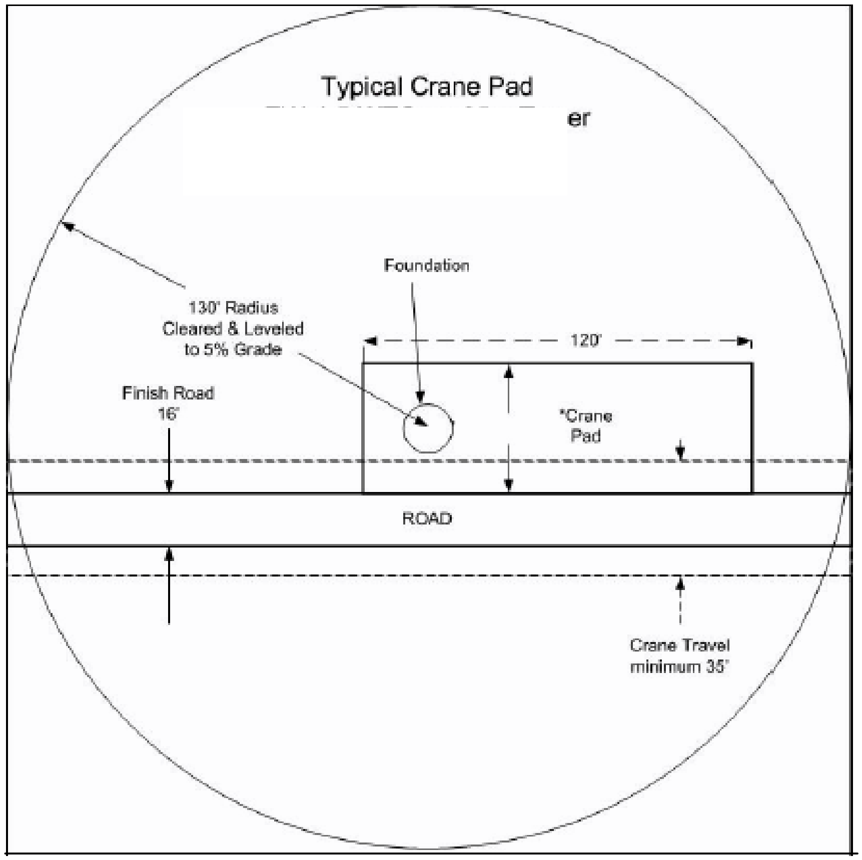
1. *Blade*
2. *Rotor hub (including blade pitching mechanism), connecting the rotor blades to the Main Rotor shaft*
3. *Blade bearing*
4. *Main rotor shaft connecting the rotor with the gearbox*
5. *Secondary generator*
6. *Gearbox, increasing the rotor speed from 16 – 28 rpm to a generator speed of 1200 – 1800 rpm.*
7. *Disc break*
8. *Oil cooler for cooling the gearbox oil*
9. *Cardan shaft*
10. *Primary generator, converting the mechanical energy into electrical energy*
11. *Service crane*
12. *Pitch cylinder*
13. *Main frame, being the base for all nacelle components*
14. *Tower*
15. *Yaw Drive, turning the rotor into the wind*
16. *Gear tie rod*
17. *Yaw ring*
18. *Yaw gears*
19. *Top control unit*
20. *Hydraulic System for braking the rotor*



4.2.2 Area affected by the Wind Farm

The area selected for the wind farm is located at Burnt Ridge, near the Town of Bonavista, Newfoundland, within the Municipalities of Bonavista and Elliston. WPI has applied for a lease of approximately 1.6-Million m² of crown land. The application was endorsed by the Municipalities of Bonavista and Elliston.

The Wind Farm is comprised of the individual WTG, adjacent levelled space for cranes, access roads and a transformer station. The power cables and communication lines from each WTG to the transformer station are buried in a trench underground, while the feeder line between the transformer station and the interconnection point at Bonavista will be above ground.



By selecting a site away from the historic shoreline of Bonavista, the proponents took into account the sensitivity of that area. Furthermore, the distance from housings is such, that no adverse effect from noise and shadow impact can be expected. Certifications of modern WTG restrict the noise level around 45 dB(A) at a distance of about 220m.

It is further interesting to note that the noise level increases with the wind speed, however at wind speeds exceeding 10m/s, the noise of a wind turbine will be masked by the ambient noise.
Noise sources of TWG are composed of aerodynamic noises and mechanical noises in particular those generated by the main gearbox. Optimized rotor blade tip design and sound proofing the nacelle cover have drastically reduced the noise levels of modern WTG.

<u>The visual impact</u> of a modern 3 blades WTG using a conical tower is quite pleasing. The WTG is painted in an off white colour that blends in with the landscape. The slow rpm of the rotor (16 – 28 rpm) provide a restful impression and the WTG's should fit very nicely into the landscape.

Impact on <u>radio transmitters</u> has been taken into consideration and the WTG will be installed at a sufficient distance from the transmitter station on Burnt Ridge to avoid any adverse effect. Aviation Safety requirement (obstacle lighting) will be met as and if required by the Department of Transport.

4.2.3 Physical and Biological Environments within the Area

Vegetation

North Shore Burnt Ridge (called Elliston Ridge locally) is located in the North Shore Ecoregion. This ecoregion forms a narrow coastal zone (20 - 25 km wide) from Cape Bonavista to the Baie Verte Peninsula (www.gov.nf.ca/forestry/maps/eco_nf.stm). The North Shore ecoregion contains no sub regions.

Burnt Ridge contains a variety of habitat types including Empetrum heath and Kalmia heath. There are some small stands of trees along the slopes of the ridge and on the western and northern ridge top. These stands are typical of the north shore ecoregion consisting primarily of Black Spruce (*Picea mariana*) and Balsam Fir (*Abies balsamea*) with small numbers of Tamarack (*Larix laricina*) and birch (*Betula* spp.). Shrubs such as alder (*Alnus crispa),* Willow (*Salix* spp.), Northern Wild Raisin (Viburnum cassinoides) and Red Osier Dogwood (Cornus stolonifera) are common in the area. The majority of the ridge is comprised on exposed bedrock which supports a variety of lichens and pockets of heath land vegetation. A survey of the ridge carried out by the Department of Forest Resources and Agrifoods in 2001 found no rare plant species on Burnt Ridge (Sean Avery, Pers. Comm.)

Geology

Burnt Ridge runs in a south-westerly direction and covers an area of approximately 5 km^2. It is composed of coarse sandstone and gritty conglomerate bedrock of the Precambrian Musgravetown Group (Martin Batterson, pers. comm.). Much of the ridge top is covered by large areas of fractured exposed bedrock consistent with a felsenmeer. A subdued moraine wraps around the hill. (Martin Batterson, pers. comm.). A small pond (Anchor Pond) is present in the centre of the ridge.

Vegetation / Ground composition

Fields of large boulders characterize the plateau's surface. Shrubs and partially dense patches of up to 5 m (15 feet) conifers form the higher standing vegetation.

A small pit operation on the southern end of the plateau reveals the ground composition: loose gravel.

Visualization,
Burn Ridge Wind Farm

Climate

Burnt Ridge lies in the East Coast and Hinterlands Climatic Zone (Banfield, 1981). Annual precipitation for this area ranges from 1100 to 1500mm. Winters are generally cold with more than 50% of the precipitation falling as snow. Spring weather is cool with sea ice persisting until May or June. Prevailing winds are from the west and southwest and the strongest winds from the west to northwest. A summary of the climatic conditions found in Bonavista can be seen in Table 1.

Table 1 Climatic Statistics for Bonavista (Banfield, 1981).

	Bonavista
Mean number of days with temps . 15°C	85
Mean number of days with temps . 10°C	316
Mean July Air Temperature	14°C
Mean Maximum Temperatures July	18.9°C
Mean Minimum Temperatures July	10.2°C
Mean Date of Last Spring Air Frost	June 1
Mean Date of First Fall Air Frost	October 15

Resources and Land Use

The south eastern part of the ridge is within the Elliston community watershed. The pond which provides water for the town is primarily spring fed and lies at the foot of the ridge adjacent to Route 238.

Local activities are limited on the ridge due to its topography. Small numbers of ptarmigan and snow shoe hare are present on the ridge top. However, most hunting (hare snaring and moose hunting) in the area occurs on the wooded slopes and base of the ridge. Berry picking on the ridge is also limited with blueberries being harvested on the vegetated slopes and base of the ridge. Some domestic wood cutting occurs on the north-eastern and eastern slopes. A small quarry on the south western edge of the ridge is used occasionally by a local company (4A Construction). A firing range is located and the south western base (adjacent to Route 238) of the ridge with members firing away from the ridge in a south easterly direction.

Fish and Wildlife

Fish: Fish contained within the watershed at the base of the ridge include American eel, three spines stickleback and brook trout. No fish are present in Anchor pond which lies on top of the ridge. Atlantic salmon are present in the Bonavista watershed to the west of Elliston Ridge.

Mammals: Mammals present (personal observations) in the area can be seen in Table 2. Generally, there are low numbers (diversity and density) of mammals on top of the ridge due to limited habitat.

Table 2 Mammals present in the vicinity of Burnt Ridge (Personal Observations).

Species Seen on Top of Burnt Ridge	Species Seen on Slopes and Base of Ridge
Meadow vole (*Microtus pennsylvanicus*) Masked Shrew (*Sorex cinereus*) Snowshoe hare (*Lepus americanus*) Red squirrel (*Tamiasciurus hudsonicus*) Red fox (*Vulpes deletrix*) Moose (*Alces alces*) Ermine (*Mustela erminea*) Coyote (*Canis latrans*)	Beaver (*Castor canadensis*) Muskrat (*Ondatra zibethicus*) Norway Rat (*Rattus norvegicus*) House Mouse (*Mus musculus*) River otter (*Lontra canadensis*) Mink (*Mustela vison*) Little brown bat (*Myotis lucifugus*) Black bear (*Ursus americanus*) Lynx (*Lynx canadensis*) Meadow vole (*Microtus pennsylvanicus*) Masked Shrew (*Sorex cinereus*) Snowshoe hare (*Lepus americanus*) Red squirrel (*Tamiasciurus hudsonicus*) Red fox (*Vulpes deletrix*) Moose (*Alces alces*) Ermine (*Mustela erminea*) Coyote (*Canis latrans*) Polar bear (*Ursus maritimus*) Rare vagrant

Birds: Birds present (personal observations) in the area can be seen in Table 3. As with the mammals, the diversity and density of species is much lower on top of the ridge due to limited habitat. Most of the birds seen (or heard) on top of the ridge are breeding birds. The gulls are usually seen flying over the ridge from their breeding sites to the fish plant in Bonavista. Passerine migrants appear to move around the edges of the ridge during the spring and fall. I have no records of shorebirds (waders etc.) flying over the ridge. These birds tend to fly around the coastline.

References

Banfield, C.C. 1981. The climatic environment of Newfoundland. In: The Natural Environment of Newfoundland Past and Present. MacPherson A.G. and MacPherson J.B. (Eds.). 83-152.

Martin Batterson, Department of Mines & Energy, Natural Resources Building, 50 Elizabeth Avenue, St. John's, NL. A1A 1W5

Sean Avery, Dept. of Forest Resources & Agrifoods, P.O. Box 209, Clarenville, NL. A0E 1J0

Table 3 Birds present in the vicinity of Burnt Ridge (Personal Observations).

Species Seen on Top of Burnt Ridge	**Species Seen on Slopes and Base of Ridge**
Yellow warbler	Yellow warbler
Yellow rumped warbler	Yellow rumped warbler
Wilson's warbler	Wilson's warbler
Black and White warbler	Black and White warbler
Blackpoll warbler	Blackpoll warbler
Northern waterthrush	Northern waterthrush
	Magnolia warbler
Ruby Crowned Kinglet	
	Ruby Crowned Kinglet
White throated sparrow	
Fox sparrow	White throated sparrow
Savannah sparrow	Fox sparrow
	Song Sparrow
Dark eyed junco	Savannah sparrow
Snow bunting	Swamp sparrow
Common redpoll	
	Dark eyed junco
Horned lark	Snow bunting
	Common redpoll
Black Capped Chickadee	Pine grosbeak
	Purple finch
American crow	
Northern Raven	Cedar Waxwing
	Bohemian Waxwing
Northern Harrier	
Sharp shinned hawk	Horned lark
	Water pipit
Willow ptarmigan	
	Red breasted Nuthatch
Herring gull	Black Capped Chickadee
Ring billed gull	Boreal Chickadee
Common tern	
	American Crow
	Northern Raven
	Bald eagle

Table 3 continued

Species Seen on Top of Burnt Ridge	**Species Seen on Slopes and Base of Ridge**
- -	Northern Harrier Sharp shinned hawk Merlin Osprey Ruffed Grouse Herring gull Ring billed gull Common tern Black headed gull American bittern Black duck Green winged teal Northern pintail Ring necked duck

4.3 Construction

4.3.1 Construction Period

The construction period will last 6 to 9 months after all permits, the power purchase agreement (PPA), and the financing have been obtained. Furthermore, the severe winter weather conditions have to be taken into account. The preferred season for the construction of the wind farm is from April to October. Anticipating that all mandatory milestones for the implementation of the project have been achieved, contacts for the civil works and WTG's will be awarded by mid 2004. Civil works at the site would start at that time to be completed by mid 2005 followed by the turbine installation. The operation of the wind farm is anticipated to start in the autumn of 2005.

4.3.2 Construction Activities Affecting Physical Environment

The activities at the site will start with a survey to determine the exact locations of access roads, turbine foundations, and trenches for power and communication lines, transformer station and above ground feeder lines between the transformer station and the sub-station in Bonavista. This will be followed by the construction of gravel access roads, and excavation for foundations and trenches.

The next step will be the building of the steel re-enforced concrete foundations, construction of the transformer station, the installation of the power and communication lines and back filling.

The actual erection of a WTG will only take 1 to 2 days requiring large cranes and special transport trucks to be brought over from the mainland.

During the construction period, temporary buildings such as office containers and containers for material will be installed at the site.

4.3.3. Potential Source of Pollutants During Construction

During the construction period, potential sources of pollution are from human waste and construction equipment leaking oil, fuel and coolants into the soil.

4.3.4 Mitigation Measures

All normal precautionary measures and standard construction practices will be implemented to minimize disturbances to the site.

This will include measures to control run offs and soil erosion, dust emission; noise levels, avoiding oil, fuel and coolant spills.

Furthermore, the project proponents will only allow construction and craning equipment in good repair on site. Emergency response spill kits will be stored at the site in order to contain any spill of hazardous fluids. Waste collection bins and self contained toilets will be installed. To ensure the compliance with all the mitigation measures, a Site Supervisor will be appointed.

4.3.5 Potential Resource Conflicts

The use of the construction site for recreational land use will be restricted during the actual construction period for safety and liability reasons. A small gravel pit operation on the southern end of the plateau will not be affected.

4.4 Operation

4.4.1 Description of the Operation

Wind Turbines convert wind energy into electricity and start producing at wind speeds from 3.5 to 4.0 m/s. At 12 to 14 m/s, they produce their name plate capacity until they shut down when wind speeds reach 25 – 30 m/s. At these wind speeds the blades are feathered into the wind and the WTG is stopped. All turbines are monitored by an off site control center. Automatic notification will be given to the control center in the case of malfunction via modem.
Scheduled maintenance is performed twice a year.

4.4.2 Estimated Period of Operation

The expected period of operation for a modern WTG is 20 to 30 years after which it can be expected that technological advance will make the turbine obsolete. Upgrading the turbine or replacing it are options to be considered. In Europe for example, smaller turbines that were installed 15 years ago are now being replaced with larger, more efficient turbines.

4.4.3 Potential Source of Pollutants During Operation and Mitigation Measures

WTG's do not pollute the atmosphere with carbon dioxide, sulphur or hydrocarbons, nor do they create problems at the end of their useful life with regards to the disposal of radioactive waste. Potential sources of pollutants are restricted to fluids used in a WTG. These are:

Hydraulic Oil
Gearbox Oil
Coolant with Anti-freeze
Transformer Oil

In case of a leak, these fluids are contained inside of the turbine and can be removed safely. The transformer is installed on a concrete slab with a lip designed to contain any oil spill.

4.4.4 Potential Causes of Resource Conflicts

During the operation of the Wind Farm, no potential causes of resource conflicts are foreseen. The WTG require only a small amount of land and the use for recreational activities will not be restricted. Contrary, it can be expected that the Wind Farm becomes a tourist attraction.

4.4.5 Project Decommissioning

The advantage of a wind farm for electric power generation is the ease of decommissioning. The entire turbine can be removed within a couple of days with the help of cranes and trucks. The only remaining components of a wind farm would be the service roads and the foundation. Since the bulk of the foundation is underground and the service roads may be used for recreational activities, the impact would be negligible.

5.0 Occupation

5.1 Construction Phase

During the construction period a number of trades and equipment will be at the site.

During the excavation phase heavy earth moving equipment and graders will be used. This will be followed by the pouring of the steel re-enforced concrete foundation requiring ironworkers and cement trucks.

The actual erection of the WTG will involve heavy transport trucks for the nacelle, tower sections and the rotor blades. Two cranes will be utilized to lift the components.

During the construction phase, the number of people working at the site will be up to 15 people. The following trades will be used:

Heavy Equipment Operators	Electricians
Concrete Workers	Labourers
Iron Workers	Millwrights
Truck Drivers	Engineers
Crane Operators	Control Technicians
Line Workers	Site Supervisor

5.2 Operational Phase

During the operational phase the activities at the site will be limited to scheduled and un-scheduled maintenance.

The scheduled maintenance will be performed twice per year and require two service technicians 1 to 2 days per turbine.

Un-scheduled maintenance may include as little work as re-setting a circuit breaker to replacing a major component requiring the cranes and large trucks.

It is the intention of the proponents to establish a service facility in Bonavista or Elliston including an office for monitoring the WTG's, storage of spare parts, consumables and tools as well as a small work shop for repairs. The project will generate 2 permanent jobs and up to 4 additional temporary jobs. It is the intention to hire local people and have them trained by the turbine manufacturer.

6.0 Approval of the Undertaking

The following is a list of permits, approvals, and authorizations required for the undertaking:

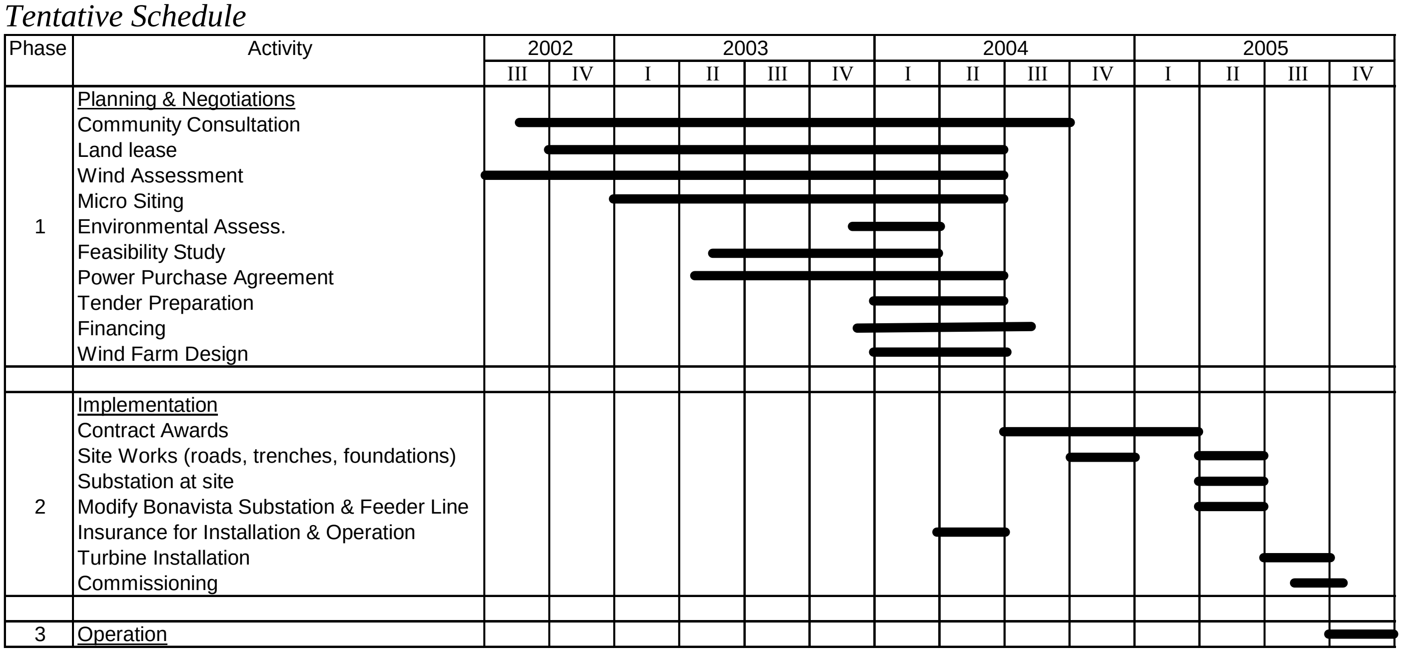
PERMIT	AUTHORITY
Building and Accessibility Exemption Registration.	Municipal Council
Environmental Permit.	Department of Environment

Crown Lands, Application for Grant perusal to Lease / Permit to occupy Crown land.	Department of Government Services and Land Office
Application to construct a road right of way on Crown Land.	Department of Government Services and Lands Office
Highway Access Permit.	Department of Works, Services and Transportation
Tall Structures Obstruction Clearance.	Transport Canada
Electrical Permit • Application for permit to install or repair electrical equipment or inspection of work.	Customer Services / Operations

7.0 Schedule

The schedule for the construction and operation of the project is dependant on getting all required permits and agreement including the PPA and financing in a timely manner. Six to nine months will be required after the PPA and the financing are in place. A tentative schedule is attached.

Tentative Schedule



8.0 Funding

WPI will be responsible for setting up the required funding for the project. A special purpose company (SPC) will be incorporated in NL, allowing local and foreign share holding.

9.0 References

Erich Hau, Wind Turbines, Fundamentals, Technologies, Applications, Economics

J. R. Salmon, P.G. Stalker, Zephyr North, May 1, 1999
Wind Resource Assessment for selected sites in Southeast Newfoundland (for Natural Resources Canada).

Wind Force 12, a blueprint to achieve 12% of the world's electricity from wind power by 2020. Prepared by BTI for the European Wind Energy Association (EWEA) and Green peace, 27th of May 2003 (http://www.ewea.org).

Wind Vision for Canada, 10,000 MW by 2010 by the Canadian Wind Energy Association. (CanWEA), June 2001 (www.canwea.ca).

Jonathan Joy (M.Sc.) Coordinating Instructor, Fish and Wildlife Technician Program, College of the North Atlantic, Bonavista Campus, prepared chapter 4.2.3 (Physical and Biological Environment within the Area). Jon has been working in the area since 1989 and made many field trips to proposed site.