Welcome Henvey Inlet Wind Energy Centre



We welcome you to our second Public Information Centre. Your questions and comments are important to us. Please be sure to sign in and complete a comment sheet.



Why Are We Here?

Good Planning Involves The Community.

This Public Information Centre (PIC) continues the conversation on the Henvey Inlet Wind Energy Centre (HIWEC).

The purpose of this meeting is to:

» Provide an update on the HIWEC, review the HIWEC layout and discuss where we are in the environmental assessment (EA) process



- Provide an opportunity to speak with the HIWEC team and have your questions answered about the HIWEC
- » Share the results of the studies and investigations that have been conducted to date and get your feedback on the Interim Draft EA Reports
- Discuss next steps of the EA process, including the finalization of the EA Reports and the 30-day review and comment period

Who We Are

Henvey Inlet Wind

In October of 2014, Nigig Power Corporation (Nigig) entered into a joint venture partnership with Pattern Energy Group LP (Pattern Development) to jointly develop, own and operate the 300 megawatt (MW) HIWEC.

The HIWEC has a 20-year Power Purchase Agreement with the Independent Electricity System Operator (IESO).

Nigig Power Corporation

Nigig, owned by Henvey Inlet First Nation (HIFN) was first established in 2010. The Chief Executive Officer and President is community member Ken Noble. The corporation is overseen by four board members and four advisors. Nigig secured the largest Feed-In-Tariff contract in Ontario and is developing the largest First Nation wind energy centre in Canada at 300 MW.

Pattern Development

Pattern Development is a leader in developing renewable energy and transmission assets. With a global footprint spanning North America, South America, the Caribbean and Japan, Pattern Development's highly-experienced team has developed, financed, and placed into operation more than 4,000 MW of wind power. Our mission is to develop facilities built for lasting success. The Pattern Development team has expertise and experience in all stages: resource analysis, site development, power marketing, finance, construction, operations, and asset management. We operate and manage wind power facilities through our affiliated public entity Pattern Energy Group Inc. (Pattern

How Can You Get Involved?

We're Interested In What You Have To Say!

As you are reviewing the information presented, we encourage you to ask questions and provide your thoughts about the HIWEC.

Throughout the HIWEC EA process, you may visit our website at: www.henveyinletwind.com to access up-todate information.

We also encourage you to provide feedback to the team at any point during the study process by:

- » Email: info@henveyinletwind.com
- » Phone: 705.857.5265
- Henvey Inlet Wind Office » Mail: 295 Pickerel River Road Pickerel, ON P0G 1J0

Your Comments Matter!

All comments and questions gathered to date will be documented in the HIWEC Consultation Report. The report will include how these questions and comments were considered as part of the EA process and will be submitted as part of the Final Draft EA to the HIFN Council for approval.

Environmental Assessment Process

- » Pursuant to the Framework Agreement on Management of First Nation Land and the HIFN Land Code, HIFN's Band Council is the decision-making authority with respect to the creation and granting of interests in lands within HIFN Reserve No. 2 (I.R. #2)
- » These instruments also provide HIFN Band Council with the legislative, regulatory and executive authority to ensure environmental management of the Reserve
- » This authority includes responsibility for EA, permitting and environmental protection for projects on HIFN lands

- » HIFN has developed principles that address its overall requirements for EA and environmental protection which meet or exceed relevant provincial and federal environmental standards and/or guidelines
- » The HIWEC EA will be conducted in accordance with these principles, applicable HIFN laws and approved EA guidance. The EA must be acceptable to HIFN before HIFN decides whether to issue an environmental permit for the HIWEC. Key steps in the EA process are illustrated in the diagram to the right
- » If HIFN decides to issue a permit approving the HIWEC, it will use the EA to assist in developing terms and conditions of approval that may be enforced through its Environmental Protection laws, powers and responsibilities

HIWEC Study Area and Location

Turbine Siting Process

Steps for Developing a Site Plan

- Identify a sufficient wind resource and study the wind conditions for several consecutive years
- 2. Work with the HIFN community to identify appropriate locations for wind turbines and supporting HIWEC components (i.e., collector lines and access roads)

Work with the HIFN community to identify appropriate land

Identify natural constraints

- 3. Identify technical and environmental constraints based on input from HIFN, Anishinabek, HIWEC engineers, construction experts, ecologists and aquatic biologists, heritage experts, other Aboriginal communities and government agencies
- 4. Identify locations to site the HIWEC components by balancing these technical and environmental constraints while adhering to the setback distances prescribed by HIFN

Identify aquatic constraints

Identify socio-economic constraints

Identify local infrastructure constraints

Site turbine within remaining land available

Turbine Placement and Setbacks

- » The HIFN EA process has regard to existing federal and provincial standards for wind turbine setbacks
- » The proposed layout for the HIWEC includes a minimum turbine setback of 550 metres from known receptors
- » Detailed environmental studies have been conducted and potential impacts to environmental components are being identified and assessed

To understand what setbacks are needed to the natural and social environments, the Valued Ecosystem Components (VECs) are determined.

VECs are existing components of the environment

What is a receptor?

Existing buildings or vacant lots that are or could potentially be used for overnight accommodation (e.g., homes) or as an educational facility, health care facility, day nursery or place of worship.

that have recognized ecological value in existing science, law, or policy. The VECs being considered include:

- » Geophysical Environment (groundwater, soils and terrain)
- » Atmospheric Environment (climate and air quality)
- » Terrestrial Environment (wildlife and wildlife habitat, vegetation and ecological communities)
- » Aquatic Environment (surface water, fish and fish habitat)
- » Species at Risk
- » Land and Resources Used for Traditional Purposes by Aboriginal Persons
- » Cultural Resources / Heritage and Archaeological Sites
- » Noise
- » Visual Landscape

Nishshing Aki are resources HIFN identifies as having

Hospital

School

Setback Requirements

Feature	Setback Requirement
Noise receptor (see definition)	» 550 metres from turbine base
Public road right-of-way and railway right-of-way	» Turbine blade length plus 10 metres from turbine base
Property line	» Turbine height (excluding blades) from turbine base
Wetland	» 120 metres*
Woodland	» 120 metres*
Waterbody	» 120 metres*

* If HIWEC infrastructure (e.g., turbines, roads, collector lines, etc.) is

social, cultural or economic value. These include sacred sites, burial grounds old settlements.

located within the setback distances, additional analysis (i.e., Environmental Impact Study) will be provided in the Final Draft EA Reports.

Geophysical Environment Existing Conditions

The geophysical environment includes features (non-biological) on or below the surface of the ground, such as the geology, soil and groundwater.

Geology and Soil

The HIWEC study area lies within the Canadian Shield. It is part of the Central Gneiss Belt, which means that the bedrock is primarily made up of rock composed of layers that look like alternating dark and light colour bands.

At the surface, much of the HIWEC study area is exposed bedrock with thin topsoil and shallow root structures. This means that erosion can happen quite easily. In lower lying, wetland areas, peat and "muck" deposits (soil created from decomposing plants, trees and other organic matter) can be found.

Groundwater

Groundwater within the Canadian Shield is a source of drinking water for many residents. The exposed bedrock in the HIWEC study area is highly cracked which allows groundwater to move easily into and out of the rock.

Groundwater in the area generally flows from east to west and from areas of high elevation to lower areas toward Georgian Bay.

Twenty-eight Ministry of the Environment and Climate Change water well records were identified within

approximately 1 kilometre (km) from the HIFN I.R. #2 boundary.

Terrestrial Environment Existing Conditions

Vegetation and Ecological Communities

The HIWEC study area is located in the Georgian Bay Ecoregion. The majority of this area is dominated by mixed forest (32%), followed by deciduous forest (22%), coniferous forest (12%) and sparse forest (11%). Dominant trees species include:

- » Eastern White Pine
- » Balsam Fir
- » Red Pine

- » Jack Pine
- » Eastern Hemlock
- » Tamarack
- » Black Spruce
- » Yellow Birch
- » White Spruce
- » Sugar Maple

The following rare vegetation communities were also identified as potentially occurring:

- » Shallow Atlantic Coastal Marshes
- » Cliffs and Talus Slopes
- » Precambrian Rock Barrens
- » Old-Growth or Mature Forests
- » Bogs

» Rare Forests (Red Spruce, Jack Pine and White Oak)

Terrestrial Environment Existing Conditions

Wildlife and Wildlife Habitat

The ecological communities within the HIWEC study area provide habitat for a variety of birds, mammals, amphibians and reptiles.

A total of 18 Species of Conservation Concern (a species that may become endangered or threatened because of biological characteristics and / or identified threats) were identified as occurring or having the potential to occur within the HIWEC study area. These include:

Birds

Mammals

- » Bald Eagle
- » Eastern Wood-Pewee
- » Rusty Blackbird
- » Black Tern
- » Peregrine Falcon
- » Wood Thrush
- » Caspian Tern
- » Prairie Warbler
- » Yellow Rail

Insects

- » Horned Clubtail
- » Monarch
- » Mottled Darner

» Eastern Wolf

Reptiles

- » Common Five-lined Skink
- » Milksnake
- » Snapping Turtle
- » Eastern Ribbonsnake
- » Northern Map Turtle

Aquatic Environment Existing Conditions

Surface Water

Since Henvey Inlet is connected to Georgian Bay, it experiences high wind and waves. For this reason, most of Henvey Inlet has clear water and not much vegetation, except in areas of the Inlet that are more protected from wind and waves.

Most inland waterbodies in the HIWEC study area are wetlands - including bogs, fens, open-water ponds and shallow marshes. Wetlands, streams, rivers and other watercourses in the area connect and drain into the Key River, Henvey Inlet, or Georgian Bay.

Henvey Inlet is classified as cold water fish habitat until approximately 5 km west of Highway 69 where the thermal regime is unknown. As a tributary to Georgian Bay, Henvey Inlet has the potential to support numerous fish species such as Walleye, Lake Whitefish, Muskellunge, Smallmouth Bass, Channel Catfish, Largemouth Bass and Yellow Perch.

Walleye and Northern Pike spawning habitat was identified in Henvey Inlet, and Northern Pike spawning habitat was seen in the Key River.

The inland waterbodies and tributary outlets to Henvey Inlet and the Key River also provide habitat for a number of species such as Northern Redbelly Dace, Iowa Darter and Finescale Dace.

Vegetation

Different species of vegetation are found in the wetlands. In bog and fen habitats and along the edges of waterbodies the dominant vegetation includes species such as Sweet Gale, Bog Rosemary and Tamarack.

Aquatic vegetation typical of ponds and open water with bedrock shorelines include speices such as White Waterlily, Pondweeds and Cattails.

Species at Risk Existing Conditions

Federal Species at Risk

A total of 16 federally protected species were identified as occurring or having the potential to occur within the HIWEC study area, including five endangered species and 11 threatened species:

Birds

- » Canada Warbler (Threatened)
- » Common Nighthawk

Reptiles

- » Blanding's Turtle (Threatened)
- » Eastern Foxsnake

Activities that disrupt these species may require permits from Environment Canada.

What is a Species at Risk?

A species that is listed as endangered or threatened by the federal *Species at Risk Act, 2002,* or the provincial *Endangered Species Act, 2007.* In this study, species listed as endangered or threated under Schedule 1 of the *Species at Risk Act* are protected on HIFN I.R. #2.

(Threatened)

- » Golden-winged Warbler (Threatened)
- » Least Bittern (Threatened)
- » Olive-sided Flycatcher (Threatened)
- » Whip-poor-will (Threatened)

(Georgian Bay population) (Endangered)

- » Eastern Hog-nosed Snake (Threatened)
- » Eastern Musk Turtle (Threatened)
- » Massasauga Rattlesnake (Great Lakes / St. Lawrence population) (Threatened)
- » Spotted Turtle (Endangered)

Mammals

- » Little Brown Bat (Endangered)
- » Northern Myotis Bat (Endangered)
- » Tri-coloured Bat

Amphibians

 Western Chorus Frog (Great Lakes / St. Lawrence -Canadian Sheild population) (Threatened)

Provincial Species at Risk

One provincial bird Species at Risk, the Barn Swallow, was identified as potentially occurring within the HIWEC study area.

One provincial aquatic Species at Risk, the Lake Sturgeon, was identified as potentially occurring within the HIWEC study area.

Archaeology and Visual Landscape Existing Conditions

Cultural Resources / Heritage and Archaeological Sites

A Stage 1 archaeological assessment was completed and determined that there are areas within the HIWEC study area that have archaeological potential. Within these areas, a Stage 2 archaeological assessment will be completed to identify any archaeological resources.

Archaeological potential typically exists in areas previously inhabited by people, such as:

» Areas of well-drained soil or high ground next to

- hunting or fishing grounds
- » Old transportation routes
- » Old settlement areas
- » Other areas identified by the community as being of heritage significance

Visual Landscape

The visual and aesthetic landscape is important in the Georgian Bay and the HIWEC study areas.

The iconic Group of Seven frequently captured the area's scenic landscapes in their paintings throughout the early 20th century.

Most of the tourism based businesses within and adjacent to the HIWEC study area and along Georgian Bay such as resorts, lodges and marinas rely on the natural landscapes to attract vacationers, hikers and boaters.

Visual renderings have been developed to represent what the HIWEC will look like from a few key site lines and natural landscapes, once constructed.

Planning and Design

Planning

Interim Draft EA Reports have been prepared for the HIWEC which include descriptions of the undertaking, baseline studies, and preliminary environmental effects and mitigation for the HIWEC. These reports are available for review on the HIW website: www.henveyinletwind.com. We encourage you to review and provide comment on these documents.

Design

The HIWEC is proposed to include the installation of 90 –

120 wind turbines that will produce 300 MW of energy.

The major components of the HIWEC include:

- » Wind turbine generators and foundations
- » Access roads and crane pads
- » Meteorological towers
- » Pad-mounted transformers and collector lines
- » Transformer stations
- » On-Reserve transmission towers and foundations
- » Operations and maintenance (O&M) building
- » Construction compounds and laydown yards
- » Wind turbine generator staging areas
- » Concrete batch plant(s)
- » Crusher(s)
- » Parking areas

How Wind Turbines Generate Electricity

Harnessing the Wind

- » Wind turbines capture kinetic energy in surface winds and convert it into electrical energy using large blades mounted on tall towers
- » As wind moves over turbine blades, it causes "lift" – same effect used by airplane wings
- » Lift makes the blades rotate, which turns the shaft

Main Components

- » Blades which convert the wind's energy into rotational shaft energy
- » A nacelle (enclosure) containing a drive train, usually including a gearbox and generator
- » A tower to support the rotor and drive train
- » Electronic equipment such as controls, electrical cables and ground support

Ancillary Components

- » O&M building to monitor day-to-day operations of the HIWEC
- » Collector system to carry electricity from the turbines to the transformer stations
- » Transformer stations to "step-up" 34.5 kilovolt (kV) voltage of the collector system up to 500 kV transmission voltage
- » Transmission line (up to 500 kV) to carry electricity off-Reserve to the point of

» The turning shaft creates electricity within a generator, which in turn creates electricity that can be sent to the power grid

Gearbox (internal)

Nacelle

Hub

Blades (3)

Generator (internal)

equipment

» Transformer which converts the electricity into a common voltage

interconnection with the provincial transmission grid

« Diagram of a Typical Wind Farm Layout *not to scale

Construction

Overview of Construction Activities

Site Preparation

- » Vegetation clearing and site grading
- » Delineation of work areas and installation of erosion and sediment control measures

Construction of Facility

- » Construction of access roads (5 to 20 metres wide) and laydown areas
- » Transportation of equipment and materials

Site Restoration

- » Reclamation of temporary construction areas
- » Demobilization of construction works

Traffic and Roads

- » HIW will develop a traffic management plan. This plan will ensure that:
 - Only designated transportation routes will be followed

- » Foundation excavation and construction
- » Wind turbine generator installation
- » Collector system and on-Reserve transmission line installation
- » Installation of transformer stations
- » Power connection and commissioning

- Proper signage to notify community of construction activities will be displayed
- Requirements for use of provincial highways are met

Safety

» Fencing and signs will be used to mark off construction zones

Operations and Maintenance

» Following the term of the agreement, a decision will be made to extend the life of the facility or to decommission

Decommissioning

It is anticipated that the HIWEC will have a commercial operational life of 30+ years, which can be extended further with proper maintenance, component replacement and repowering.

At the end of the HIWEC's operational life, all components will be shut down and isolated from external electrical lines. HIW is responsible for all aspects of the decommissioning of the HIWEC including the associated costs.

Overview of Decommissioning Activities

- » Power disconnection and decommissioning of service
- » On-site delivery of decommissioning vehicles and equipment
- » Disassembly and removal of wind turbine generators, transformer stations, collector system and other HIWEC components from site, unless otherwise directed by HIFN
- » Reclamation of disturbed areas (including the reclamation of access roads, as required)
- » Removal of concrete foundations, where necessary
- » Demobilization of decommissioning works
- » Minimize environmental impacts related to decommissioning activities through the use of best management practices

Benefits of Wind Energy

- » Compatible with mixed land use (e.g., hunting and fishing)
- » Supports the local economy as local goods and labour will be used during construction and operation
- » Strengthens the economy of HIFN, helping to improve Band services
- » Increases revenue for all local service businesses (e.g., hotels and restaurants) during planning, construction and operation

The HIWEC will create many economic benefits for HIFN and surrounding region. In addition to the direct and in-direct job opportunities, additional spin off benefits will be gained from HIW's revenues. How the profits are used will be solely up to the Band, meaning both Chief and Council and the Membership collectively. The use of proceeds from the HIWEC will be determined in full consultation with the Membership.

Examples of Possibilities Include:

Annual Benefits of HIWEC

Generates enough clean energy to power 90,000 homes.

- » Provides a reliable supply of domestically produced energy
- » Reduces reliance on imported fossil fuels
- » Helps stabilize the cost of energy
- » Creates thousands of "green-collar" jobs in construction, operation and manufacturing
- » Benefits the environment and helps fight climate change
- » Generates long-term, stable revenue for HIFN

- » Expanded Band services, especially in areas of: Health, Education, Elder Services and Support, Youth Services and Support, Language Instruction and Retention and Housing
- » Reinvestment in new research and development and business development and expansion
- » Payments directly to Band Members as a "dividend"
- » Subsidized hydro bills

Injects more than \$10M annual net proceeds to HIFN.

150,000 *

Avoids 770,000 tonnes of CO2, equivalent to taking 150,000 cars off the roads.

21,500 *

Conserves enough water to meet the needs of about 21,500 people.

* Sources: Emissions offset calculations use annual electricity production for the HIWEC compared to emission rates from the Nanticoke coal plant as indicated in the Ministry of Energy's report Coal Fired Electricity Generation in Ontario. Car comparison assumes typical passenger vehicles produce 5.1 metric tons of CO2 per year: U.S. Environmental Protection Agency, Office of Transportation and Air Quality, "Greenhouse Gas Emissions from a Typical Passenger Vehicle," December 2011. Water conserved compared to coal-fired generation assumes 2,048 litres/MWh, source American Wind Energy Association. People supplied figure

based on Environment Canada's 2011 Municipal Water Use Report with 225 litres/day Ontario per capita water consumption.

Providing Clean and Safe Power

Ontario doctors, nurses, and other health professionals support energy conservation combined with wind and solar power to help us move away from the use of coal for energy generation.

More than 80 countries around the world are using commercial wind power today, and wind energy is broadly understood to be one of the safest and most environmentally-friendly forms of electricity generation.

With more than 318,000 MW of installed wind energy capacity and 225,000 wind turbines operating around the world, hundreds of thousands of people live near and work at operating wind facilities.

The balance of scientific evidence and human experience to date clearly concludes that wind turbines do not adversely impact human health. These conclusions are supported by a body of work by medical and scientific experts.

Source: Canada Association of Physicians for the Environment, Registered Nurses' Association of Ontario, the Lung Association, the Asthma Society of Canada, and Ontario College of Family Physicians. Global Wind Energy Council, Wind in the Numbers, Global Statistics 2014.

» "According to the scientific evidence, there isn't any direct causal link between wind turbine noise and adverse health effects."

Dr. Arlene King, Former Chief Medical Officer of Health, Province of Ontario

» "Opposition to wind farms on the basis of potential adverse health consequences is not justified by the evidence."

Dr. David Colby, Medical Officer of Health, Chatham-Kent

» Health Canada determined noise from wind turbines does not have any measurable effect on illness and chronic disease, stress, quality of sleep or overall quality of life.

Health Canada, November 6, 2014

Communication and Engagement

Your input is an important part of the EA process. Communication and engagement activities will be reflected in the Final Draft EA Reports which will be made available for a 30-day review and comment period.

» Draft HIWEC
 Description
 Report for review
 and comment –

January 23

- » Notice of
 Commencement
 and Invitation to
 PIC #1 –
 January 23
- » Notice of
 Commencement
 and Invitation to
 CIC #1 –
 January 29

» Notice of CIC #2 and PIC #2 – June 24

» Interim Draft
 EA Reports
 for review and
 comment –
 June 25

 » Notice of Final Draft EA Report and Study Completion – Early September
 » Final Draft EA Reports for

30-day review and comment – Early September

Transmission Line Study Area

The off-Reserve transmission line is not within the regulatory authority of HIFN powers and responsibilities set out in the First Nations Land Management Act or the Land Code.

Two potential routes for the off-Reserve transmission line are being assessed under the provincial Electricity Projects Regulation (O. Reg. 116/01).

A parallel public consultation program is underway for the off-Reserve transmission; Public Information Centres are scheduled in

Britt and Parry Sound on August 1, 2015.

Route A:

- » Approximate Length: 14 km
- » Travels east from the HIFN I.R. #2
- » Connects to the existing Hydro One Networks Inc. (HONI) 500 kV line at Hwy 522

Route B:

- » Approximate Length: 86 km
- » Travels South from HIFN I.R. #2, generally parallel to Highway 69 before diverting southeast from Highway 69 to follow the existing 500 kV HONI corridor

intersection

» Connects to the existing 230 kV line southeast of Parry Sound

Thank You For attending the second HIWEC PIC!

Next steps for the HIWEC:

» Collect feedback received from this meeting and finalize EA Reports » Release Final Draft EA Reports for 30-day review and comment » Submit Final Draft EA Reports to HIFN Council for approval

We value your feedback and want to hear from you!

Please help yourself to some refreshments and complete a comment sheet before you leave or send it to us before August 1, 2015:

info@henveyinletwind.com (705) 857-5265 295 Pickerel River Road Pickerel, ON P0G 1J0

To learn more about the HIWEC or to provide feedback, please visit our website at: www.henveyinletwind.com

