COUNTY OF BRUCE

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT

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County of Bruce Wind Energy Application Requirements
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The intent of this document is to indicate to prospective developers of wind energy in the County of Bruce the County's preferred policies in regards to the development of the wind resource in the County. These policies are in addition to any guidance that may be given to a wind energy developer by a lower tier municipality.

Section 62.0.2 of the Planning Act RSO 1990 as amended exempts renewable energy projects, including wind energy projects, from the provisions of the Planning Act R.S.O. 1990 as amended, including those sections of the Planning Act dealing with official plans, zoning by-laws and subdivision/lot creation.

The County of Bruce considers wind energy to be an abundant, renewable and non-polluting energy resource, and therefore supports opportunities that convert the kinetic energy of the wind into a usable form.

Wind Energy Conversion Systems (WECS) are mechanical devices (commonly known as wind turbines) that are designed to convert wind energy into electricity. These systems can occur as Micro, Small, Medium or Large scale systems and are defined as follows:

Type	*Total Swept Area (TSA)in Square Metres (sq. m.)*	*Rotor Diameter in Metres (m.)*
Micro Wind Energy Conversion System (MWECS)	*≤40 sq. m.*	*≤7.1 m.*
Small Wind Energy Conversion System (SWECS)	*>40 sq. m. and ≤350 sq. m.*	*>7.1 m. and ≤21.1 m.*
Medium Wind Energy Conversion System (MdWECS)	*>350 sq. metres and ≤2827 sq. m.*	*>21.1 m. and ≤60 m.*
Large Wind Energy Conversion System (LWECS)	*Total Swept Area of more than 2827 square metres [rotor diameter of more than 60 metres] OR a Rated Power Output of two megawatts (2 MW) OR constitutes part of a Project that meets the requirements for an Environmental Screening Report (ESR) regardless of Total Swept Area or Rated Power Output.*	

"Total Swept Area (TSA)" is defined as the area through which the rotor blades of a wind turbine spin as seen when directly facing the center of the rotor blades as calculated by the equation [TSA = PI x (rotor diameter/2)^2].

"Rated Power Output" is defined as the power produced by a wind turbine at the rated wind speed.

For the purposes of this Official Plan " WECS - Total Height" means the distance from the base of a tower and/or the base of a supporting structure to the furthest vertical extension of any blade.

For the purposes of this Official Plan, wind turbine, wind generating system, and wind energy conversion system shall have similar meaning.

1. Micro and Small Wind Energy Conversion Systems

.1 A Micro Wind Energy Conversion System (MWECS) shall be a permitted use in all land use

designations of the County of Bruce Official Plan. The local Comprehensive Zoning By-law shall establish the following regulations to allow for 'as of right' use for MWECS subject to the following policies:

i) On a lot having a lot area of 0.1 hectare (0.25 ac.) or less, the maximum "WECS – Total Height" shall be no more 25 metres (80 ft.).

ii) On a lot having a lot area of more than 0.1 hectare (0.25 ac.), there shall be no maximum "WECS - Total Height".

iii) A MWECS shall not exceed the height recommended by the manufacturer or distributor of the wind turbine.

iv) Any other provision or policy as required by the local municipality regulating setbacks, noise, engineering standards, anchor points etc.

.2 A Small Wind Energy Conversion System (SWECS) shall be a permitted use in all land use designations of the County of Bruce Official Plan with the exception of a 'Hazard Land Area' designation. The local Comprehensive Zoning By-law shall however establish the following regulations to allow for 'as of right' use for SWECS only in a 'Agriculture', 'Rural, 'Major Open Space' or 'Travel Trailer Park and Commercial Campground' designation subject to the following policies:

i) There shall be no maximum "WECS - Total Height".

ii) Setbacks for a SWECS mounted on a stand-alone or guy-wired tower shall be no less than the "WECS - Total Height" from all lot lines and shall be measured from the base of the tower.

iii) A SWECS shall not exceed the total height recommended by the manufacturer or distributor of the wind turbine.

iv) A SWECS shall be setback a minimum of 90 metres (295 ft.) from the closest residential or similar noise sensitive use.

v) The minimum setback between a SWECS and the boundary of a vacant lot 1.0 hectares in area or smaller that has been zoned by the local municipality to permit residential or similar noise sensitive uses shall be 90 metres (295 ft.). For lots greater than 1.0 hectares in area that have been zoned by the local municipality to permit residential or similar noise sensitive uses, a SWECS shall be located such that there remains a minimum of 1.0 hectare of developable land with frontage on a open and maintained municipal roadway on the vacant lot that will be located more than 90 metres away from the SWECS.

vi) Any other provision or policy as required by the local municipality regulating setbacks, noise, engineering standards, anchor points etc.

2. Medium and Large Wind Energy Conversion Systems (MdWECS/LWECS)

Given their usually large size and space requirements, it is anticipated that MdWECS and LWECS will tend to locate outside of urban areas. A MdWECS or LWECS, however, are considerably different from the typical uses located in an urban, agricultural or rural area and therefore the County feels that it is important to carefully control the establishment of these medium and large scale systems in order to ensure the compatibility of the land use with neighbouring uses and to ensure the safety of the general public.

.1 Policies – MdWECS and/or LWECS

A MdWECS and/or LWECS shall be subject to the following policies:

.1 Medium and/or Large Wind Energy Conversion Systems may be permitted only by a site specific amendment to the local Comprehensive Zoning By-Law but shall not require an amendment to the County Official Plan provided the policies of this Section are adhered to.

A MdWECS and/or LWECS shall be a permitted use only on lands designated 'Agriculture', 'Rural, or 'Major Open Space' in the County of Bruce Official Plan. A MdWECS and/or LWECS shall be permitted in other designations as described in this Plan i.e., 'Primary Urban Community', 'Secondary Urban Community', 'Hamlet', 'Rural Recreational Area' etc. without an amendment to this Plan provided that: i) a local Official Plan permits the use; or ii) an Amendment to this Official

Plan and/or local Official Plan has been approved.

.2 Setbacks for a MdWECS and/or LWECS shall be in accordance with the following:

i) The minimum setback between a MdWECS and/or LWECS and the boundary of lands designated 'Rural Recreational Area', 'Primary Urban Community' or 'Secondary Urban Community' in the County of Bruce Official Plan or local Official Plan shall be 700 metres from any turbine.

ii) The minimum setback between a MdWECS and/or LWECS and the boundary of lands designated 'Hamlet', 'Inland Lake Residential' or 'Estate Residential' in the County of Bruce Official Plan or local Official Plan shall be 600 metres from any turbine.

iii) The minimum setback between a MdWECS and/or LWECS and a 'Rural Residential Cluster' shall be 500 metres from any turbine. A 'Rural Residential Cluster' means four (4) or more residential lots, the four (4) or more lots being an average of 0.8 hectares (2 acres) or less in total lot area, that share a common boundary including lots located directly across a roadway from one another. Measurements shall be taken as the shortest distance between the lot line of the closest lot to a proposed MdWECS and/or LWECS and the closest edge of a turbine.

iv) The minimum setback between a MdWECS and/or LWECS and the boundary of lands designated 'Travel Trailer Park and Commercial Campground' in the County of Bruce Official Plan or local Official Plan shall be 400 metres from any turbine. Measurements shall be taken as the shortest distance between a zone line designating a 'Travel Trailer Park and Commercial Campground' and the closest edge of a turbine.

.3 A Large Wind Energy Conversion System shall be subject to Site Plan Control. A Medium Wind Energy Conversion System may be subject to Site Plan Control.

.4 The Shadow Flicker from a MdWECS and/or LWECS experienced at any sensitive non-participatory receptor within 1000 metres of a MdWECS and/or LWECS shall not exceed a maximum of 30 hours per year or a maximum of 30 minutes per day as a result of the operation of the MdWECS and/or LWECS. Shadow flicker calculations shall be based on 'worst case scenario' in that prevailing weather and/or cloud cover conditions shall not be taken into consideration. Mitigation of shadow flicker shall not be considered.

A 'sensitive receptor' shall be defined as including one or a combination of:
• residences or facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.), or
• institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.), or
• outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), or
• other outdoor public areas where there are continuous human activities (eg: commercial plazas and office buildings).

'Non-participatory' shall be defined as an abutting landowner that has not signed an option agreement and/or lease/easement agreement that: a) permits the erection of a MdWECS and/or LWECS; or b) permits the construction of project infrastructure i.e., access roads and/or electricity transmission line on lands abutting a proposed MdWECS and/or LWECS.

.5 All LWECS shall have a 'Type Certification/Type Certificate' (international standards issued by the International Electrotechnical Commission IEC) from a certified approval body indicating conformity with national and/or international standards. A Project shall implement only turbines that have achieved type certification by a reputable and experienced third party verification institute such as DNV, GL, Risø, WindTest, etc. with a demonstrated design life of at least 20 years.

.6 All MdWECS and/or LWECS shall be planned in a way that no more than 25% of a neighbouring non-participatory landowner's lot/parcel shall be impacted by a potential noise exposure from a

turbine(s) that will be greater than that allowed by the MOE for a sensitive receptor.

.7 Setbacks from road allowances, lot lines, structures (on-site and off-site), and maximum height provisions shall be established in the site specific Comprehensive Zoning By-law amendment.

.8 Climatic conditions are the principal location criteria for wind turbines. A LWECS is permitted in the Rural and Agricultural designations but are encouraged to locate on lands of lesser agricultural capability where climatic conditions are of a similar nature.

.9 All MdWECS and LWECS shall be sited in accordance with the requirements of the Ministry of Environment publication PIBS 4709 (Noise Guidelines for Wind Farms - Interpretation for Applying MOE NPC Technical Publications to Wind Turbine Generators, as amended) and MOE NPC-232 (Sound level Limits for Stationary Sources in Class 3 Areas (Rural)) excepting however that the acoustic emissions calculated/observed value for all sensitive receptors shall be increased by 5dB to account for cyclic variation in sound level in accordance with NPC-104, 'Sound Level Adjustments', Ontario Ministry of the Environment.

.10 All of Bruce County, exclusive of those areas within a defined settlement boundary, shall be considered to be a Class 3 Area in reference to NPC-232.

.2 Submission Requirements – MdWEC and/or LWECS

.1 Prior to Council approving a site specific Zoning Amendment the owner shall provide the following information to the satisfaction of local Council:

Note: √ = Required Submission x ***= Not Required as part of Submission***

	Submission Requirement	***LWECS***	***MdWECS***
(a)	*A Statement of Completion of a Category 'B' - Environmental Screening Process for LWECS that are subject to the Ontario Environmental Assessment Act (EAA) or a MOE Minister or Director decision.*	√	x
(b)	*A copy of any federal approval/decision for LWECS that are subject to the Canadian Environmental Assessment Act.*	√	x
(c)	*A general description of the project including number of turbines and ancillary infrastructure; summary of wind measurement findings; and proposed duration of the project.*	√	√
(d)	*Make and model of turbines, rated power output, rotor diameter, cut-in and cut-off wind speeds, hub heights, full drawings of turbine and tower with specifications of construction materials, colour and finishes (with specialist advice to suit requirements of the location) manufacturer's certification of noise emission including sound power and narrow band frequency spectrum.*	√	√
(e)	*An assessment of the WECS with reference to the requirements of the Ministry of Environment publication PIBS 4709 (Noise Guidelines for Wind Farms - Interpretation for Applying MOE NPC Technical Publications to Wind Turbine Generators, as amended) and MOE NPC-232 (Sound level Limits for Stationary Sources in Class 3 Areas (Rural)) excepting however that the acoustic emissions calculated/observed value for all sensitive receptors shall be increased by 5dB to account for cyclic variation in sound level in accordance with NPC-104, 'Sound Level Adjustments', Ontario Ministry of the Environment.* *All of Bruce County, exclusive of those areas within a defined settlement boundary, shall be considered to be a Class 3 Area in reference to NPC-232.* *A map/figure that shows all lands and sensitive receptors potentially impacted by a >40.0 dB emission level shall be provided. This information should be placed in context in terms of how it affects neighbouring landowners.*	√	√
(f)	*Mathematical modeling of the Shadow Flicker potential for all sensitive non-participatory receptors located within 1000 metres of the proposed WECS. The Application shall indicate how shadow flicker has been calculated and the results of the modeling.*	√	√
(g)	*A description of the visual effect of the proposed LWECS on the locality shall be provided. This shall include at a minimum:*	√	x

	• *the preparation of photo montages to simulate the appearance of the turbines and transmission lines (where applicable) as they would be viewed from key locations including views from both the land, the lakeshore/beach and the lake where relevant;* ƒ *an assessment of the degree to which turbines are likely to affect views from selected locations – to be completed by a landscape architect qualified in landscape character assessment.* *A detailed 'landscape analysis' or the preparation of a map indicating the 'Zones of Visual Influence' may be required particularly in locations of high landscape quality at the discretion of the County of Bruce.*		
(h)	*The written approval of Transport Canada and NAV Canada for any WECS proposed to be constructed within 10 km of an airport reference point. For any WECS proposed to be constructed within 10 km of an airport reference point the local airport authority/board must be consulted and details of such consultation provided as part of a Submission.*	√	√
(i)	*Details of proposed method/routing of connections to the grid.*	√	x
(j)	*An indication of whether the proposed development will proceed in stages and, if so, the timing of each stage.*	√	x
(l)	*Cross sections showing existing and proposed ground levels in relation to proposed towers and other structures.*	√	x
(k)	*The Application shall indicate how shadow casting for all sensitive non-participatory receptors located within 500 metres of the proposed WECS has been calculated and the results of the modelling.*	√	√
(l)	*Information regarding possible electromagnetic interference. A survey of installations likely to be affected including radio, television, air and sea transport navigation, microwave transmissions, etc. is to be provided. Facilities shall be installed at the developer's expense to ensure that radio or television transmission in the area is not interfered with by the proposed development. Consultation with the relevant authorities prior to the wind turbines being commissioned should be undertaken. Should pre- and post-testing show impacts, remedial measures will be required.*	√	√
(m)	*A copy of the Ontario Energy Board license or other documentation, indicating that the developer may operate as a licensed electricity generator.*	√	x
(n)	*Detailed construction drawings of the turbine foundations to be filed with the Chief Building Official with confirmation that the turbine foundations have been certified by a professional engineer who holds a recognized engineering licence in Canada.*	√	x
(o)	*An Environmental Management Plan that outlines the construction details, operational and maintenance requirements of the WECS; establishes the manner in which complaints and any required mitigation measures and other required monitoring will be addressed; and a description of the manner in which decommissioning and rehabilitation of the WECS and any ancillary infrastructure i.e., transformer stations will take place.*	√	√
(p)	*A detailed drawing prepared at a scale no less than 1:1,000 showing:* • *lot dimensions and lot area;* • *location of each WECS proposed with UTM and/or latitude and longitude of each WECS;* • *contours of the lot at 5 metre intervals or less;* • *setbacks of each WECS from lot lines;* • *proposed setbacks to all buildings and structures on the lot;* • *permanent and/or temporary working areas around each WECS;* • *proposed ancillary facility location including 'lay down/storage areas', substations, roadways (permanent and temporary), underground/aboveground wiring;* • *existing use and location of all buildings and structures on the lot;* • *adjoining roads including type and classification;* • *location of any forested, Hazard or Environmental Protection lands on the lot;* • *any other notable features or characteristics of the lot.* *A digital file of the above drawing in AutoCAD 14 (dwg or dxf) format referenced to*	√	√

	NAD83UTM is also to be submitted.		
(q)	*A table indicating the setbacks from all sensitive receptors within 500 metres of the proposed LWECS.*	√	√
(r)	*The site specific amendment to the Zoning By-Law may provide for a 'H/h' Holding provision as per Section 36 of the Planning Act if required. The 'H/h' Holding provision may address the following requirements in addition to any other requirements as identified by the local municipality:* *(i) The submission of an 'Operational Protocol and Emergency Services Plan' outlining the details of the operating protocols including policies for dealing with extreme weather, icing etc. (Operational Protocol) and an emergency services protocols including safety, accident prevention, local emergency services liaison etc. (Emergency Services Plan).* *(ii) The registration as per Section 41(10) of the Planning Act RSO 1990 as amended of a 'Site Plan Agreement' as per Section 41(7)(c).* *(iii) The submission of 'Information on Construction Period' outlining details of access routes to be used by construction traffic. Details of weight, width and axle loading of vehicles and frequency of special loads. Detailed phased program for the construction period together with estimates of traffic generation (type and volume), ancillary temporary structures required for construction period.* *(iv) The provision of 'Financial Assurance'. At the discretion of the local municipality, the developer may be required to lodge with the municipality a cash deposit, a bond, or other security to secure the reinstatement of public roads which maybe damaged by the transport of materials to the site, coupled with an agreement empowering the municipality to apply such security or part thereof to the satisfactory reinstatement of the public road. The form and the amount of the security shall be as agreed between the municipality and the owner.* *(v) A Certificate of Approval (Air) from the MOE in accordance with Section 9 of the Environmental Protection Act.* *(vi) The submission of a 'Complaint Protocol' outlining how individuals, agencies, etc. may lodge complaints regarding any element of turbine operation including noise, shadow flicker etc. and details of how such complaints are to be addressed by the operators.*	√	x
(s)	*A 'Stage 2 Archaeological Study' if required by the Ministry of Culture. All recommendations of the Report and/or requirements of the Ministry must be incorporated into the Environmental Management Plan.*	√	? √
(t)	*Any 'Other Information' requirements as may be deemed critical by the local Municipality, County of Bruce, Province of Ontario or local Conservation Authority.*	√	√