

7.8 Summary of Project Activities, Mitigation Measures, and Significance of Net Effects

Project Activity	Affected Environmental Feature(s)	Potential Effect(s)	Mitigation Measures	Net Effect(s)	Significance of Net Effects
Construction Activities					
<ul style="list-style-type: none"> turbine construction construction of turbines in close proximity to drains 	<ul style="list-style-type: none"> drains crossed by the power lines, access road or adjacent to turbine construction sites 	<ul style="list-style-type: none"> erosion of drainage banks short-term increases in turbidity from soil erosion short-term degradation of fisheries habitat 	<ul style="list-style-type: none"> consult the LTVCA, DFO and MCK to determine permitting and mitigation/compensation requirements in the event that construction will occur proximal to watercourses, prior to, and for the duration of construction, erosion control fencing fronted with a row of straw bales will be securely installed on both banks of the watercourse parallel to the water's edge refuelling of construction equipment will occur a minimum of 100 m from a surface water receptor or body of water as appropriate, report spills to Ministry of Environment Spills Action Centre 	The effect will be spatially limited and of a temporary duration with the implementation of the protection and mitigation measures specified in addition to those that may be implemented as a result of Fisheries Act requirements.	Minimal
<ul style="list-style-type: none"> turbine construction foundation construction 	<ul style="list-style-type: none"> groundwater 	<ul style="list-style-type: none"> inadvertent interception of water-bearing formations during foundation or power line construction inadvertent interception and potential damage to non-documented shallow dug wells 	<ul style="list-style-type: none"> refuelling and other potentially contaminating activities will not occur near wells as appropriate, spills will be reported immediately to the MOE Spills Action Centre repair of any damaged wells 	Following the implementation of good construction practices it is anticipated that this effect will be short-term in nature and have little to no effect on adjacent private water wells.	Minimal
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> residential, commercial, and institutional land-use 	<ul style="list-style-type: none"> temporary and limited demand of local services temporary disturbance and inconvenience to local rural inhabitants 	<ul style="list-style-type: none"> project representatives will be available to respond to community concerns all efforts will be made to minimize inconvenience to local inhabitants where practical and cost effective local goods and services will be purchased locally 	<p>There will be short-term disruption to traffic patterns along local roads and the potential for short-term inconvenience to residential, commercial, and institutional receptors in the affected areas.</p> <p>Lands hosting the Project will also be removed from their present use for the life of the Project.</p>	Minimal
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> air quality 	<ul style="list-style-type: none"> temporary increase in nuisance dust and construction vehicle emissions 	<ul style="list-style-type: none"> nuisance dust will be controlled as needed by watering topsoil piles, construction sites, and access roads as appropriate, road surfaces at construction access points will be cleaned of debris all combustion engine equipment will be appropriately maintained to meet emission standards of the MOE and/or MTO 	<p>Application of mitigation measures should limit dust and odour emissions to the work areas and limit combustion emissions.</p> <p>Any net effects are expected to be short-term and localized.</p>	Minimal
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> environmental noise 	<ul style="list-style-type: none"> short-term construction-related noise at offsite receptors 	<ul style="list-style-type: none"> maintain construction vehicles in good working order with functioning standard engine muffling devices to the extent possible, restrict work activity to daylight hours and with regard for any local regulations and by laws 	Short-term, intermittent noise increases at the work areas and/or along the haul routes.	Low
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> VTE species, wildlife, and habitat 	<ul style="list-style-type: none"> limited removal of habitat temporary disruption to movement of wildlife 	<ul style="list-style-type: none"> where practical, avoid clearing during breeding season for migratory birds (01 May to 31 July) restrict vehicle movements to construction area and access roads and avoid harassment of wildlife minimize natural vegetation removal to the extent practical through strategic siting of turbines away from natural areas 	<p>Some potential for disturbance of natural features, habitats, and species as a result of the limited removal of vegetation and increased human activity.</p> <p>Effects are expected to be short-term in duration and spatially limited to the work areas and immediately adjacent areas.</p>	Low
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> breeding birds 	<ul style="list-style-type: none"> limited removal of habitat 	<ul style="list-style-type: none"> where practical, avoid clearing during breeding season for migratory birds (01 May to 31 July) minimize natural vegetation removal to the extent practical through strategic siting of turbines away from natural areas 	<p>Construction of the turbines in areas close to, or within, natural habitat has the potential to create some disturbance to natural habitat for breeding and migratory birds.</p> <p>However, careful siting of these features has minimized both the spatial and temporal disturbance.</p>	Low
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> agriculture and rural resources 	<ul style="list-style-type: none"> disruption of artificial drainage systems potential productivity reduction in areas best suited for growing common crops 	<ul style="list-style-type: none"> topsoil stripping minimize diagonal severance through routing of access roads and power lines along headlands and field edges and placement of turbines near lot lines and in headlands 	<p>Limited disturbance to agricultural lands, operations, and infrastructure are expected in the construction workspace areas.</p> <p>Portions of these areas will be rehabilitated following construction and put back into agricultural use.</p>	Low

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		(i.e., CLI Class 1, 2, and 3 lands) <ul style="list-style-type: none"> disturbance to normal agricultural cultivation activities Spread of soybean cyst nematode to non-infested fields 	<ul style="list-style-type: none"> identify type and location of drainage system as appropriate retain licensed tile contractor to repair drainage system if required ensure livestock are not effected by turbine construction through erecting of temporary or permanent fencing as required return extra land taken for construction as close to pre-construction condition as is practical identify fields infested with SCN prior to construction thoroughly wash all machinery before transport to non-infested fields and start construction first on non-infested fields 		
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> neighbourhood and community characteristics 	<ul style="list-style-type: none"> temporary disruption in the enjoyment of the rural character of the area 	<ul style="list-style-type: none"> a project representative will be available to respond to individual concerns construction related activities will be conducted to minimize disturbance to the local rural inhabitants as much as is practical 	Temporary effect to the neighbourhood character due to the increased activity on roads and in nearby towns. Activity at the work areas may temporarily result in nuisance noise and dust and some sporadic inconvenience to local residents.	Low
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> construction related traffic 	<ul style="list-style-type: none"> temporary increase in traffic volume intermittent temporary disruption of local traffic patterns intermittent / temporary inconvenience to local traffic 	<ul style="list-style-type: none"> development of a traffic management plan as appropriate ensure all contractor employees adhere to local speed limits, traffic signage, and utilize safe defensive driving practices 	Road safety is not expected to be an issue during the construction phase, however, the potential for accidents along the haul routes and on-site cannot be totally avoided.	Minimal
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> public health and safety 	<ul style="list-style-type: none"> increased hazard to local inhabitants due to increased construction vehicle activity hazard to persons who make unauthorized access to work sites 	<ul style="list-style-type: none"> ensure all contractor employees adhere to local speed limits, traffic signage, and utilize safe defensive driving practices controlled access to work site 	With the application of protection and mitigation measures there is little risk to public health and safety.	Minimal
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> historical and archaeological resources 	<ul style="list-style-type: none"> damage or destruction of buried artefacts 	<ul style="list-style-type: none"> completion of a Stage II Archaeological Assessment at turbine construction sites and along access roads prior to commencement of construction notification to contractors on stop work protocol should artefacts be encountered during construction 	By following the procedures recommended, no net effects to historical and/or archaeological resources are anticipated.	Minimal
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> viewscape 	<ul style="list-style-type: none"> construction machinery will temporarily alter the viewscape 	<ul style="list-style-type: none"> minimize time and location of equipment on worksite to the shortest extent practical 	With the implementation of the identified protection and mitigation measures, and considering the dispersed nature of the construction activities, no net adverse effects have been identified.	Low
<ul style="list-style-type: none"> general activities associated with Project construction 	<ul style="list-style-type: none"> disposal of wastes 	<ul style="list-style-type: none"> nuisance refuse being spread to adjacent properties potential for surface and/or groundwater contamination 	<ul style="list-style-type: none"> systematic collection of waste removal of all wastes to an approved disposal facility appropriate handling and disposal of all waste classes according to current provincial standards and guidelines disposal of contaminated material if encountered to current regulatory standards 	Temporary on-site storage of waste should not present any adverse effect. It is possible that the disposal of wastes will have a minor incremental effect on soil, groundwater, and surface water at the waste disposal site.	Low
Operation Activities					
<ul style="list-style-type: none"> general activities associated with Project operation 	<ul style="list-style-type: none"> residential, commercial, and institutional land-use 	<ul style="list-style-type: none"> loss of use of land taken for the Project perceived effects to property values adjacent to Project 	<ul style="list-style-type: none"> compensation provided to those landowners who have lost land use for the Project via the LLA research into the correlation between wind plants and property values indicates no material effect 	With regard to land-use the operation of the Project is not anticipated to greatly affect the character of the area. With regard to property values and wind plants property values, under current market conditions, are expected to be maintained at least at present values.	Minimal
<ul style="list-style-type: none"> turbine operation 	<ul style="list-style-type: none"> environmental noise 	<ul style="list-style-type: none"> limited off-site environmental noise effects from mechanical and aerodynamic noise emitted from the operating wind turbines 	<ul style="list-style-type: none"> environmental noise at non-participating receptors will be within acceptable MOE limits at all critical Points of Reception within 1,000 m of one or more turbines for wind speeds of 6, 7, 8, 9, 10, and 11 m/s. 	Based upon the modelling completed, and the MOE's approval of the modelling, the Project will be in compliance with applicable environmental noise guidelines.	Low

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<ul style="list-style-type: none"> turbine operation 	<ul style="list-style-type: none"> breeding birds 	<ul style="list-style-type: none"> mortality due to collision of birds and bats with turbines 	<ul style="list-style-type: none"> siting of turbines away from known migration routes siting of turbines in non-natural areas 	<p>Habitat loss or disruption during construction was flagged as a larger concern than disturbance or direct mortality as a result of Project operation.</p>	Low
<ul style="list-style-type: none"> Project operation 	<ul style="list-style-type: none"> neighbourhood and community characteristics 	<ul style="list-style-type: none"> changes in the present local character 	<ul style="list-style-type: none"> KEPA will continue to work with the community to make the incorporation of the Project into the rural landscape positive 	<p>Some short-term dissatisfaction may arise from some, but this will be balanced by the anticipated spin offs to local tourism, KEPA's continuing involvement in the community, and the positive feedback generated from the utilization of renewable power.</p>	Low
<ul style="list-style-type: none"> Project operation 	<ul style="list-style-type: none"> public health and safety 	<ul style="list-style-type: none"> threats from EMF, ice fall and throw, and catastrophic failure 	<ul style="list-style-type: none"> all equipment will be maintained to current mandated industry standards braking system on turbines to stop blades from rotating when they are out of alignment turbines will be equipped with lightning protection turbines will be fitted with appropriate navigational lighting and identified on aircraft navigational maps 	<p>Though the possibility of injury from ice falling or thrown from the blades or from the collapse of the entire structure remotely exists, the possibility of this happening with the built-in safety features to the structure, as well as on-going maintenance of the equipment, is unlikely.</p>	Minimal
<ul style="list-style-type: none"> turbine operation 	<ul style="list-style-type: none"> viewscape 	<ul style="list-style-type: none"> change in present viewscape 	<ul style="list-style-type: none"> low visibility paint on the turbines and lighting will be utilized to attenuate visual effects 	<p>The wind turbines will permanently alter the existing viewscape, however, existing landform, tower colouring and lighting combine to reduce the extent of this effect.</p>	Low
<ul style="list-style-type: none"> Project operation 	<ul style="list-style-type: none"> disposal of wastes 	<ul style="list-style-type: none"> nuisance refuse being spread to adjacent properties potential for surficial and /or groundwater contamination 	<ul style="list-style-type: none"> systematic collection of waste removal of all wastes to an approved disposal facility appropriate handling, storage, and disposal of all waste classes according to current provincial standards and guidelines 	<p>Temporary on-site storage of waste should not present any adverse effect.</p> <p>It is possible that the disposal of such wastes will have a minor incremental effect on soil, groundwater, and surface water at the waste disposal site itself.</p>	Low
<ul style="list-style-type: none"> Project operation 	<ul style="list-style-type: none"> accidents and malfunctions 	<ul style="list-style-type: none"> seismicity third party damage aeronautical obstruction 	<ul style="list-style-type: none"> turbines will be built to Ontario Building Code requirements for earthquakes in the area turbines will be maintained to current regulatory standards turbines equipped with sensors that will shut down the turbines in the event of excessive ice loading turbines will be equipped with lighting to current federal regulatory aeronautical obstruction standards 	<p>With the application of the recommended mitigation measures any accidents or malfunctions are expected to be limited to levels well below those that could cause significant negative net effects.</p>	Low
<ul style="list-style-type: none"> Project operation 	<ul style="list-style-type: none"> climatic fluctuations extreme events 	<ul style="list-style-type: none"> potential effect on current regional climate patterns potential damage from extreme events including rain, hail, ice storms, fire, tornadoes, earthquakes, and lightning strikes 	<ul style="list-style-type: none"> surficial drainage patterns will be restored to original condition to convey rain waters turbine blades, nacelle, and tower are constructed of materials able to withstand damage from the impact of hail turbines are designed to automatically shut down when there is ice load on the blades turbine blades will stop moving at wind speeds greater than 25 m/s, and the foundation design will resist similar forces structures will be designed to meet the earthquake loads for the area as per the Ontario Building Code the turbines, substation, and TS will be equipped with lightning protection systems 	<p>Given that the turbines are built to withstand extreme weather occurrences, and are equipped with failsafe devices, the potential effects of the climate on the Project are expected to be limited to levels well below those that could cause significant negative net effects</p>	Minimal

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<i>Decommissioning Activities</i>					
<ul style="list-style-type: none"> structure removal 	<ul style="list-style-type: none"> soils, terrain, vegetation 	<ul style="list-style-type: none"> reduced productivity of land 	<ul style="list-style-type: none"> compensation over life of project through LLA removal of foundations and subsurface structures to depths where they will not interfere with agricultural activities rehabilitation of soil as appropriate 	With the removal of the equipment/facilities and soil rehabilitation the site can generally be returned to productive agricultural use if desired.	Minimal