










**Wataynikaneyap Power Transmission Project
Phase 2: Connecting 17 Remote First Nations Communities
Draft Environmental Assessment Criteria and Indicators**





Criterion	Rationale for Selection including Positive Benefits	Summary of Indicators and Assessment Endpoints^a
<i>Air Quality</i>	<ul style="list-style-type: none"> • Sensitivity of human health to air quality • Sensitivity of the environment (soils, plants, animals) to air quality • Benefit of decreased reliance on diesel electricity generation at First Nation communities; thereby decreasing air emissions 	<ul style="list-style-type: none"> • Change in concentrations of various particles and gases in the air (predicted)
<i>Greenhouse Gases (GHG)</i>	<ul style="list-style-type: none"> • Greenhouse gases (GHG) contribute to climate change • National and provincial concerns with GHG and climate change • Benefit of decreased reliance on diesel electricity generation at First Nation communities; thereby decreasing greenhouse gas emissions 	<ul style="list-style-type: none"> • Change in greenhouse gas emissions (predicted)
<i>Noise</i>	<ul style="list-style-type: none"> • Sensitivity of humans and wildlife to the noise environment • Benefit of decrease in ambient noise from decreased use of diesel generators 	<ul style="list-style-type: none"> • Change in noise levels (predicted)
<i>Surface Water</i>	<ul style="list-style-type: none"> • Provides habitat for fish, aquatic organisms and aquatic vegetation • Important to recreational users and for aesthetics • Important to fauna and flora abundance and diversity • Important to human use (drinking water or other consumption) • Benefit of decreased risk of accidental spills of diesel that could affect water quality 	<ul style="list-style-type: none"> • Proportion of a catchment area that may be disturbed or influenced by a project activity • Changes to surface water quality
<i>Groundwater</i>	<ul style="list-style-type: none"> • Important in the hydrologic cycle • Important to human use (drinking water or other consumption) • Benefit of decreased risk of accidental spills of diesel that could affect water quality 	<ul style="list-style-type: none"> • Changes to groundwater flow • Changes to groundwater quality



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<i>Fish and Fish Habitat</i>		
Brook Trout 	<ul style="list-style-type: none"> • Has stringent habitat requirements (coldwater streams) and is sensitive to disturbance • Important species for recreation and harvesting • Benefit of decreased risk of accidental spills of diesel that could affect water quality thereby affecting fish and other aquatic organisms 	<ul style="list-style-type: none"> • Changes to area of available habitat • Changes to habitat quality • Changes to abundance
Lake Trout 	<ul style="list-style-type: none"> • Has stringent habitat requirements (coldwater lakes) and is sensitive to disturbance • Important species for recreation and harvesting • Benefit of decreased risk of accidental spills of diesel that could affect water quality thereby affecting fish and other aquatic organisms 	
Walleye 	<ul style="list-style-type: none"> • Important species for recreation and harvesting. • Habitat includes cool and warm water lakes, and large rivers • Benefit of decreased risk of accidental spills of diesel that could affect water quality thereby affecting fish and other aquatic organisms 	
Lake Sturgeon 	<ul style="list-style-type: none"> • Listed as "Threatened" under the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2016) and the provincial <i>Endangered Species Act, 2007</i> under the Species At Risk in Ontario list • Benefit of decreased risk of accidental spills of diesel that could affect water quality thereby affecting fish and other aquatic organisms 	
<i>Vegetation and Wetlands</i>		
Upland Ecosystems	<ul style="list-style-type: none"> • Main component of the naturally-occurring vegetation in the study areas • Basis for many local biological processes • Habitat for wildlife (including upland breeding water birds) • First Nation use of vegetation associated with this ecosystem 	<ul style="list-style-type: none"> • Changes to total area of upland ecosystems • Changes in the location, configuration and connectivity of upland ecosystems • Changes to the integrity of upland ecosystems on the landscape, including structure, function and presence of invasive species

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Riparian Ecosystems	<ul style="list-style-type: none"> • Conservation concern (limited distribution) • Social importance • Sensitive to development • Important for biodiversity • Performs hydrologic functions • Provides regional wildlife movement corridors • First Nation use vegetation associated with this ecosystem 	<ul style="list-style-type: none"> • Changes to total area of riparian ecosystems • Changes in the location, configuration and connectivity of riparian ecosystems • Changes to the integrity of riparian ecosystems on the landscape, including structural attributes (e.g., structural stage, wildlife trees), ecological processes and presence of invasive species
Wetlands	<ul style="list-style-type: none"> • Conservation concern and sensitivity to development • High aesthetic value and social importance • Important for biodiversity • Performs hydrologic and biochemical cycling functions • Important for wetland-dependent wildlife species (e.g., caribou, moose, beaver, marsh birds, amphibians and snapping turtle) • First Nation use of vegetation associated with this ecosystem 	<ul style="list-style-type: none"> • Changes to area of wetlands • Changes in the location, configuration and connectivity of wetlands • Changes in the integrity of wetlands on the landscape, including structural attributes (e.g., structural stage, wildlife trees), ecological processes and the presence of invasive species
<i>Wildlife and Wildlife Habitat</i>		
Forest-dwelling woodland caribou 	<ul style="list-style-type: none"> • Listed as 'Threatened' under the federal <i>Species At Risk Act</i> and the provincial <i>Endangered Species Act, 2007</i> • Important ecological role • Social/cultural importance 	<ul style="list-style-type: none"> • Changes to area of habitat types • Changes to habitat arrangement and connectivity • Changes to survival and reproduction including potential mortality (e.g., vehicle collisions, increased predation, hunting pressure)
Moose 	<ul style="list-style-type: none"> • Social/cultural importance • Prey species for large carnivores in boreal environments • Increase in moose density could negatively affect woodland caribou populations by increasing carnivore density 	<ul style="list-style-type: none"> • Changes to area of habitat types • Changes to habitat arrangement and connectivity • Changes to survival and reproduction including potential mortality (e.g., vehicle collisions, increased predation, hunting pressure)

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<p>Wolverine</p> 	<ul style="list-style-type: none"> • Listed as 'Threatened' provincially (<i>Endangered Species Act, 2007</i>) and as 'Special Concern' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) • Can be attracted to human disturbance and negatively influenced by human-caused mortality • Wide-ranging carnivore species in boreal environments • Surrogate species for effects to other furbearers (marten and lynx) 	<ul style="list-style-type: none"> • Changes to area of habitat types • Changes to habitat arrangement and connectivity • Changes to survival and reproduction including potential mortality (e.g., vehicle collisions, increased predation, hunting pressure)
<p>Little Brown Myotis</p> 	<ul style="list-style-type: none"> • Listed as 'Endangered' provincially (<i>Endangered Species Act, 2007</i>) and federally (<i>Species at Risk Act</i>) • Surrogate species for effects to northern myotis 	<ul style="list-style-type: none"> • Changes to area of habitat types • Changes to habitat arrangement and connectivity • Changes to survival and reproduction including potential mortality (e.g., collision with transmission line)
<p>Horned Grebe</p> 	<ul style="list-style-type: none"> • Listed as 'Special Concern' federally (<i>Species at Risk Act</i>) • Surrogate species for effects to black tern, which is listed as 'Special Concern' provincially, and other wetland nesting species (e.g., yellow rail) 	<ul style="list-style-type: none"> • Changes to area of habitat types • Changes to habitat arrangement and connectivity • Changes to survival and reproduction including potential mortality (e.g., collision with transmission line)

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<p>Other federal or provincial Species at Risk, including:</p> <ul style="list-style-type: none"> • Bald Eagle • Canada Warbler  <ul style="list-style-type: none"> • Barn Swallow • Eastern Whip-poor-will  <ul style="list-style-type: none"> • Common Nighthawk  <ul style="list-style-type: none"> • Bobolink • Olive-sided Flycatcher 	<ul style="list-style-type: none"> • Conservation concern as federally (<i>Species At Risk Act</i>) or provincially (<i>Endangered Species Act, 2007</i>) listed species • Important for continued ecological function of boreal ecosystems • Social/cultural importance 	<ul style="list-style-type: none"> • Changes to area of habitat types • Changes to habitat arrangement and connectivity • Changes to survival and reproduction including potential mortality (e.g., collision with transmission line)
<i>Socio-economic</i>		
<p>Labour Market</p>	<ul style="list-style-type: none"> • Project workforce hiring and procurement could affect employment, income, and training • Benefits of increase in local and regional employment and change in labour income 	<ul style="list-style-type: none"> • Changes in employment income • Assessment of training opportunities

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Regional Economy	<ul style="list-style-type: none"> • Project procurement of materials, goods, and services could affect business revenues • Benefits of increased business for locally and regionally-based businesses and suppliers 	<ul style="list-style-type: none"> • Changes in direct and indirect business revenues
Government Finances	<ul style="list-style-type: none"> • Project payment of taxes could affect government revenues • Use of services by the Project, and/or increase in service demand through project-induced in-migration may affect local government expenditures • Benefits of increase in government revenues 	<ul style="list-style-type: none"> • Changes to government expenditures on the Project • Changes to government taxation revenues
Housing and Temporary Accommodation	<ul style="list-style-type: none"> • Project requirements for worker accommodation during construction may result in temporary in-migration and increased demand for housing • Benefits of reduced load restrictions and subsequent potential for additional housing supply 	<ul style="list-style-type: none"> • Change in population due to project-induced in-migration • Change in demand and supply for housing and temporary accommodation
Services and Infrastructure Includes: <ul style="list-style-type: none"> • emergency and health services • water, waste, energy infrastructure • transportation 	<ul style="list-style-type: none"> • Project construction activities and/or induced in-migration may lead to a temporary increase in demand for services and infrastructure • Access to quality services is important to quality of life, health and wellbeing of residents and visitors • Benefits of improved community energy infrastructure • Benefits of reduced load restrictions improving other forms of community infrastructure 	<ul style="list-style-type: none"> • Change in population due to project-induced in-migration • Change in demand and supply for services and infrastructure
Community Wellbeing	<ul style="list-style-type: none"> • Wellbeing, inclusive of public safety, is a central value for nearby communities and land users • Potential for nuisance effects from Project-induced changes to noise and air quality • Potential for Project activities to affect public safety • Benefit of reduced risk to human health and public safety from decreased reliance on diesel generation (including decrease in air and noise emissions from operation of diesel generators) 	<ul style="list-style-type: none"> • Assessment of nuisance effects resulting from changes in noise and air quality and potential exceedance of recognized nuisance thresholds • Change in public safety due to potential hazards associated with the Project

Land and Resource Use

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Parks and Protected Areas	<ul style="list-style-type: none"> • Parks and protected areas have social, recreational, environmental and health and wellbeing value 	<ul style="list-style-type: none"> • Change in area and access of land use • Change in population due to project-induced in-migration • Change in environmental conditions (e.g. air quality, noise, water quality, visual aesthetics) and change in park users' experience • Change in availability of resources (see above indicators for fish and fish habitat and wildlife and wildlife habitat)
Commercial Land and Resource Use including: <ul style="list-style-type: none"> • consumptive such as trapping, hunting, fishing, guide outfitting • non-consumptive such as ATV tours, eco tours, snowmobiling and skiing tours, canoe trips • industrial uses such as mining and aggregate, forestry, agriculture 	<ul style="list-style-type: none"> • Consumptive land and resource use, non-consumptive commercial recreation, and commercial industry are an important part of the local economy and source of economic livelihoods for local businesses • Commercial land and resources have socio-economic importance to the local residents, businesses, communities and government 	<ul style="list-style-type: none"> • Change in area and access to land uses • Change in environmental conditions (e.g. air quality, noise, water quality, visual aesthetics) and changes to consumptive and change in non-consumptive users' experience • Change in availability of resources (e.g., fish and fish habitat and wildlife and wildlife habitat)
Non-commercial Recreation Land and Resource Use including: <ul style="list-style-type: none"> • consumptive uses such as hunting and fishing • non-consumptive uses such as snowmobiling, hiking, boating, etc. 	<ul style="list-style-type: none"> • Outdoor recreation and recreational amenities are valued aspects of the region, and contribute to health and wellbeing • Recreational land and resource uses have socio-economic importance to the local residents, businesses, communities and government 	<ul style="list-style-type: none"> • Change in area and access to land uses • Change in environmental conditions (e.g. air quality, noise, water quality, visual aesthetics) and changes to consumptive and non-consumptive users' experience • Change in availability of resources (fish and fish habitat and wildlife and wildlife habitat)
<i>Archaeological Resources</i>	<ul style="list-style-type: none"> • Archaeological remains are a non-renewable resource that could be affected by Project activities • Archaeological resources may have spiritual and/or cultural importance to Canadians, most notably, the Aboriginal peoples of Canada • Archaeological sites are protected under the <i>Ontario Heritage Act</i> 	<ul style="list-style-type: none"> • Number, type and location of known archaeological resources that may be affected by the Project • Area of archaeological potential that may be affected by the Project • Area of marine archaeological potential that may be affected by the Project
<i>Built Heritage and Cultural Heritage Landscapes</i>	<ul style="list-style-type: none"> • Built heritage remains and cultural heritage landscapes are non-renewable resources that could be affected by Project activities • Cultural heritage resources and landscapes may have spiritual and symbolic meaning for Canadians, most notably the Aboriginal peoples of Canada • Cultural heritage resources and landscapes are protected under the <i>Ontario Heritage Act</i> 	<ul style="list-style-type: none"> • Number, type and location of identified and potential built heritage resources and cultural heritage landscapes that may be affected by the Project

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<i>Landscape and Visual Resources</i>	<ul style="list-style-type: none"> • Landscape and visual resources provide a setting for and are important to the quality of land and resource use activities (i.e., outdoor tourism and recreation) • Landscape and visual resources are important to community character and well-being 	<ul style="list-style-type: none"> • Visibility of the Project from key viewpoints • Change to landscape character and visual quality as a result of the Project
<i>Human Health</i>	<ul style="list-style-type: none"> • People's health is important to the well-being of families and communities • Different members of communities may have different characteristics (e.g., occupancy, use of land and consumption of resources) which may result in different exposures and health risks • Benefit of reduced risk to human health and public safety from decreased reliance on diesel generation (including decrease in air and noise emissions from operation of diesel generators) 	<ul style="list-style-type: none"> • Hazard quotients (measure of non-carcinogenic risk) considering Project activities • Incremental Lifetime Cancer Risks (measure of carcinogenic risk) considering Project activities
<i>Aboriginal Rights, Treaty Rights and Interests</i> (as identified through engagement, Treaties, and other methods)	<ul style="list-style-type: none"> • Aboriginal Rights, Treaty Rights, and Interests and current use of lands and resources for cultural purposes (e.g., hunting, trapping, fishing, agriculture, horticulture and use of plants) are important for Aboriginal communities and individuals 	<ul style="list-style-type: none"> • Changes in preferred harvested species • Changes to, or restrictions on, preferred harvesting methods • Changes to quantity and quality of cultural use locations and access routes • Changes in the experience of lands and resources for cultural purposes

Note:

- a) The EA Workplan document provides detailed indicator definitions.
- b) Photos courtesy of OMNRF (www.Ontario.ca)