April 11, 2018

Jaida Ohokannoak
Technical Advisor II
Nunavut Impact Review Board
P.O Box 1360
Cambridge Bay, NU X0B 0C0

Sent VIA Email: info@nirb.ca

RE: Notice of Screening for Northern Energy Capital's "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal (NIRB File No. 19XN014)

Dear Jaida Ohokannoak,

On behalf of the Government of Nunavut (GN), I would like to thank the Nunavut Impact Review Board (NIRB) for the opportunity to provide comments on Northern Energy Capital's "*Nunavut Clean Energy Project: Rankin Inlet and Baker Lake"* project proposal.

After due consideration, the GN has concluded that the project proposal is missing several components which are viewed as fundamental in completing the GN's review of the project. This includes details regarding (1) potential environmental effects of the project, (2) environmental impacts and mitigation measures, (3) baseline conditions of valued ecosystem components, (4) wildlife mitigation and monitoring, and (5) impacts on soils and vegetation.

The rationale for the inclusion of these additional components is largely based upon potential impacts the project may pose to the surrounding environment and wildlife. Please refer to the attached Appendix for further details.

The GN believes that the aforementioned components are fundamental to the screening of the project, and accordingly recommends that the NIRB exercise its power to request additional information from the Proponent pursuant to s. 144(1) of the NuPPAA.

Should you have any concerns, please contact me by phone at 867-975-7808 or by email at cspencer@gov.nu.ca.

Qujannamiik,

[Original Signed By]
Chris Spencer
Avatiliriniq Coordinator
Government of Nunavut

cc: Phillip Innes, Project Assessment Archaeologist (PInnes@gov.nu.ca)
Alexander Kelly, Project Manager, Impact Assessment (AKelly@gov.nu.ca)

Appendix

GN-01: Terrestrial Wildlife Effects	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Terrestrial Wildlife Effects
References	• NIRB Public Notice of Screening for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal • NIRB Public Notice of Screening and Comment Request for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal – Project Overview • NIRB Application for Screening #125450 - Nunavut Clean Energy Project: Rankin Inlet and Baker Lake • NPC Application - 190214-19XN014 • NPC Conformity Determination - 190214-19XN014 • Thaxter et al. (2017). Bird and bat species' global vulnerability to collision mortality at wind farms revealed through a trait-based assessment. Proc. R. Soc B. 284: 20170829 • Watson et al. (2018). Raptor interactions wind energy: Case studies from around the world. J. Raptor Res. 52:1–18 • International Finance Corporation (IFC). (2015). Environmental, Health, and Safety (EHS) Guidelines for Wind Energy

CONCERNS

The Project Proposal contains insufficient information, which impedes the GN's accurate assessment and review of the Projects potential environmental effects.

The International Finance Corporation (2015) suggests that development and operation of wind power projects and associated infrastructure, though having a limited footprint, may adversely affect biodiversity by:

- Producing shadow flicker;
- Generating construction and operation noise;
- Generating overpressure from blasting;
- Causing bird and bat collision-related fatalities; and
- Converting/degrading terrestrial habitat.

The proposed Wind Energy Project sites are located 6.3 km north west of the community of Rankin Inlet and 2.3 km north east of the community of Baker Lake, within the annual ranges of Qamanirjuaq, Ahiak, Lorrilard, and Wager Bay caribou herds. Construction and operation of Project roads may have an impact on caribou movement. This impact has the potential to modify caribou summer distributions, removing them from traditional hunting areas. The design

characteristics of the roads should allow for permeability to terrestrial wildlife and should include mitigation measures for road and site closure in the event of caribou migrations through the project sites.

The Project Proposal lacks information related to the environmental impacts and mitigation measures of the Proposed Project. In particular the Nunavut Planning Commission (NPC) Project application states that the Project's environmental impacts are as follows:

> "There will be some ground disturbance through access development and upgrading, though any disturbances will be short-term., limited to one season. All roads will be graded to ensure proper drainage and to minimize transport of sediments to any nearby sensitive receptors, if present. Sediment and erosion control measures will be implemented if construction activities occur near watercourses. All construction activities will be greater than 30 m from any watercourse to the extent possible. Fuel will not be stored on site to minimize potential contamination of the ground. Re-fueling of equipment, if necessary, will occur greater than 30 m from any water sources and spill kits will be kept nearby." (NPC Application)

NPC Conformity Determination indicates that the Project:

> "…[C]onforms to the Keewatin Regional Land Use Plan (KRLUP). The Proponent has undertaken to comply with the applicable conformity requirements of Appendix C, G, and H of the KRLUP."

These conformity requirements define the appropriate mitigation measures for protection of caribou and muskox but do not provide information on the Project effects on birds (raptors in particular). Wind turbines are a well-documented source of bird mortality with raptors being particularly vulnerable to collisions (Thaxter et al., 2017; Watson et al., 2018).

The Project Application does not provide an adequate description of baseline conditions of Valued Ecosystem Components (VEC) within the Project area. These information gaps do not allow for proper discussion and assessment of:

- Caribou, muskox, and raptors;
- Soils and vegetation; and
- Potential mitigation measures to address such impacts.

The Project Proposal does not include a proposed Wildlife Mitigation and Monitoring Plan, alternatives for the site selection, or a discussion on how the proposed site selection reduces the adverse impacts on biodiversity.

RECOMMENDATIONS

The GN suggests that missing information is necessary for the Board to conduct its screening. Accordingly, the GN asks that the NIRB exercise its power pursuant to s. 144(1), and direct the Proponent to provide the information described below:

1. A complete Project description with associated facilities;
    - Include key information such as wind turbine height, location and

seasons of operation which are factors known to affect bird mortality rates;

2. Site selection alternatives;
    - Raptor survey results should inform wind turbine site selection, along with a bird risk assessment and details of mitigation and monitoring;
3. Assessment of the Project impacts and the proposed mitigation;
4. The Proponent should develop a Wildlife Mitigation and Monitoring Plan that outlines proposed mitigation measures and a monitoring program to ensure proposed mitigation is effective.
    - Include general discussion of risk factors associated with wind turbines and based on this provide an impacts-significance conclusion supported by quantitative (testable) predictions about levels of bird mortality, and an assessment of those levels in the context of regional bird populations;
    - Include the Proponent plan's for wildlife deterrence and response.

GN-02: Wind Energy Design Specifications	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Wind Energy Design Specifications
References	• NIRB Public Notice of Screening for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal • NIRB Public Notice of Screening and Comment Request for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal – Project Overview • Northern Energy Capital. (2019). Rankin Inlet and Baker Lake Wind Energy Project Overview. Final Project Proposal

CONCERNS

The Project Proposal is lacks design specifications. This lack of information impedes the GN's assessment and review of these Rankin Inlet and Baker Lake Projects.

- In Section 1 – Introduction of the Project Proposal, there are references to 900 kW wind turbines but figure 2 of the Project Proposal references 1000 kW wind turbines (Northern Energy Capital, 2019). The actual wattage of the wind turbine installations is unclear.
- The Project Proposal does not specify what data was used to determine the annual average wind speeds; it does not reference Rankin Inlet's annual average wind speed.
- The Proponent has not specified if they will consider local monthly average temperatures when calculating the potential power output generated by the Project.
- The Proponent should provide monthly energy generation data, with associated monthly average wind speeds, throughout operation of the Project.
- The GN is concerned about the proposed 25 kV powerline because the communities of Rankin Inlet and Baker Lake are likely operating at a much lower voltage than this.
- The Proponent did not specify its source for fuel usage source and diversion data.
- The Proponent did not provide a sufficient climate change assessment to account for changes in ground permafrost conditions, specifically in regards to the underground high voltage cables connecting wind turbines.

RECOMMENDATIONS

The GN suggests that missing information is necessary for the Board to conduct its screening. Accordingly, the GN asks that the NIRB exercise its power pursuant to s. 144(1), and direct the

Proponent to provide the information described below. The Proponent should clarify:

1. The defined wattage of the tower installations;
2. What wind speed data was used in determining annual average wind speeds;
3. If the local average monthly temperatures were considered when calculating the potential power output and tower design;
4. Predicted monthly energy generation related to associated average wind speeds;
5. Source of fuel usage and diversion data;
6. If permafrost conditions and potential climate change impacts are being considered in this Project.

The Proponent should create a Contingency Plan in the event that Qulliq Energy Corporation Independent Power Producer (IPP) program can only purchase a portion of the energy produced from the project;

GN-03: Waste, Water, and Emergency Planning	
Department	Health
Organization	Government of Nunavut
Subject/Topic	Waste, Water, and Emergency Planning
References	• NIRB Public Notice of Screening for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal • NIRB Public Notice of Screening and Comment Request for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal – Project Overview • Northern Energy Capital. (2019). Rankin Inlet and Baker Lake Wind Energy Project Overview. Final Project Proposal

CONCERNS

There are important information gaps within the Project Proposal that preclude adequate assessment of the potential adverse effects of the Project. The GN has the following concerns:

- The proposed installations are permanent, but following construction, the sites will remain largely unoccupied (Northern Energy Capital, 2019; Section 1.2). The Project Proposal does not specify who is responsible for responding in case of an emergency.
- Drilling and blasting of bedrock to construct the foundation of the towers could potentially produce slurry (Northern Energy Capital, 2019; Section 1.2.4). This should be considered and a Disposal Plan should be developed accordingly.
- Superficial water sources should be considered due to the safety concern associated with wind turbine connections via underground high voltage cables (Northern Energy Capital, 2019; Section 1.2.6).
- The Proponent has not provided a Spill Management Plan relating to hazardous waste being transported off-site by each contractor. The Proponent has not provided information on whether the local municipality has been approached to provide additional capacity for waste management (Northern Energy Capital, 2019; Section 1.2.8).
- Northern Energy Capital, 2019; Section 1.2.8 mentions the daily transportation of fuel (diesel, gasoline, and propane). The Proponent has not provided a Spill Management Plan. The Proponent has not mentioned if they will develop a global Spill Management Plan or if each individual contractor will manage their own.
- The Proponent has not provided information on how much water will be required from the municipal source for the rock drills (Northern Energy Capital, 2019; Section 1.2.9).

RECOMMENDATIONS

The GN suggests that missing information is necessary for the Board to conduct its screening. Accordingly, the GN asks that the NIRB exercise its power pursuant to s. 144(1), and direct the Proponent to provide the information described below. The Proponent should specify:

1. How much water will be needed from the municipal source (industrial and blasting purposes);
2. The capacity of the local municipal waste facility for their waste;
3. Who is responsible for maintaining camps (Proponent or individual contractor);
4. The source of medical and emergency services;
5. Mitigation measures relating to the blasting phase of the project.

GN-04: Archaeological and Palaeontological Sites	
Department	Culture & Heritage
Organization	Government of Nunavut
Subject/Topic	Archaeological and Palaeontological Sites
References	• NIRB Public Notice of Screening for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal • NIRB Public Notice of Screening and Comment Request for Northern Energy Capital Inc.'s "Nunavut Clean Energy Project: Rankin Inlet and Baker Lake" Project Proposal – Project Overview • NIRB Application for Screening #125450 - Nunavut Clean Energy Project: Rankin Inlet and Baker Lake

CONCERNS

The proponent proposes the installation and operation of wind turbines at two locations near the communities of: (1) Rankin Inlet; and (2) Baker Lake. Project activities include: construction of Mast towers; drilling and blasting of bedrock; installation of transforming station; construction of 'lay down area'; upgrading existing roads (increasing road width to 7 m) and construction of new access roads for the purpose of transporting equipment, crews and supplies; and the installation of underground cable from transforming stations to the community.

A search of the Nunavut Archaeological Site Database indicates that there are numerous archaeological sites in the vicinity of the proposed project locations. This however does not preclude the presence of unrecorded sites or cultural features as the area has not been the object of a systematic archaeological assessment.

RECOMMENDATIONS

On the basis that the area proposed for development has not been the object of an archaeological survey, the Department of Culture and Heritage recommends that:

1. A qualified archaeologist applies for Class 2 permits in order to conduct archaeological field assessments of any areas subject to ground disturbance activities in both Rankin Inlet and Baker Lake (Mast towers and lay down area, transforming station, road construction and access roads, underground cable installation and any access areas where project activities will occur)

2. No activities be conducted in the vicinity (50 m buffer zone) of any archaeological/historical sites. If archaeological sites or features are encountered, activities should immediately be interrupted and moved away from this location. Each site encountered needs to be recorded and reported to the Government of Nunavut

Territorial Archaeology Office.

All archaeological and palaeontological sites in Nunavut are protected under the Nunavut Act. The applicant must understand that it is their responsibility to ensure that no heritage resource sites are disturbed in the course of their activities. No person shall alter, or otherwise disturb an archaeological site, or remove any artifact from an archaeological site without the proper authorizations. Moreover, the building of inuksuit is not recommended.