



## **NIRB Application for Screening #125450**

### **Nunavut Clean Energy Project: Rankin Inlet and Baker Lake**

**Application Type:** New

**Project Type:** Infrastructure

**Application Date:** 2/17/2019 12:07:19 AM

**Period of operation:** from 0001-01-01 to 0001-01-01

**Proposed Authorization:** from 0001-01-01 to 0001-01-01

**Project Proponent:** Kailey Wright  
Northern Energy Capital Inc  
7209 7th Ave  
Whitehorse Yukon Y1A 1R8  
Canada  
Phone Number:: 250-686-6644, Fax Number::

## DETAILS

### Non-technical project proposal description

English: As a corporation, Northern Energy Capital exists to empower and enable community-owned renewable energy projects that transform the way energy is delivered in our northern communities, and in the process leave citizens with greater reliability, resilience and economic opportunities. Our advanced wind turbine de-icing and anti-icing technology will allow our Nunavut clean energy projects to continue to generate power during an icing event. Internal hardware, software, and gearboxes are internally heated to enable the wind turbine to operate in temperatures down to -40°C. The result is more power, when it's needed the most. We have two proposed projects in the Kivalliq region of Nunavut, and the timeline for construction of the wind turbines is summer 2021, with the wind assessment occurring prior to this. The Rankin Inlet Clean Energy Project will be the first renewable energy development in Nunavut capable of displacing fossil fuel on a commercial scale. With a population of 2,700 and an annual energy demand of over 18 GWh the 2 MW project has the capacity to generate over 30% of Rankin Inlet's total electricity. A 2MW wind farm provides the capacity to displace 37 million litres of diesel (100,000 tonnes of carbon emissions) over its lifetime and, in the process, generate new economic opportunities for citizens and business to participate in renewable energy production. With an average annual wind speed of 7.4 m/s Baker Lake is the perfect candidate for a wind energy project. Energy demand in Baker Lake is approximately 8.9 GWh annually, and a 2 MW project will have the capacity to generate over 50% of Baker Lake's total electricity. This will reduce carbon emissions by over 4,000 tonnes annually; or over 1.5 tonnes per person annually.

French:

[illegible]

Inuinnaqtun: .

## Personnel

Personnel on site: 25

Days on site: 100

Total Person days: 2500

Operations Phase: from 2021-03-21 to 2021-10-20

Operations Phase: from 2021-10-20 to 2041-10-20

### Post-Closure Phase: from to

## Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Baker Lake Site	Other	Municipal	This site has not had any prior development. A meteorological tower will be erected to establish the wind resources, with wind turbines constructed in future to provide power to the community.	None identified.	This area is North of the Hamlet of Baker Lake, within the municipal boundaries.
Rankin Inlet Site	Other	Municipal	This site has not had any development prior to NEC acquiring the Land Use permit. A meteorological tower has been erected to assess the wind resources of the proposed site. Wind turbines constructed in the future will provide power to the community.	None Identified.	This area is North-West of the Hamlet of Rankin Inlet, within the municipal boundaries.

## Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Baker Lake	Sheldon Dorey	Baker Lake Hamlet Council	2018-10-01
Rankin Inlet	Martha Lenio	WWF Canada	2018-05-15
Rankin Inlet	Kevin Sanguin	Sakku Development Corporation	2017-09-15
Rankin Inlet	David Kakuktinniq	Sakku Development Corporation	2018-06-20

## Authorizations

Indicate the areas in which the project is located:

Kivalliq

### Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Transport Canada	Authorization to erect the Meteorological Tower in Baker Lake.	Active	2018-11-21	
Other	NAVCAN: Authorization to erect the Meteorological Tower in Baker Lake.	Active	2019-01-06	
Transport Canada	Authorization to erect the Meteorological Tower in Rankin Inlet	Active	2018-05-14	
Other	NAVCAN: Authorization to erect the Meteorological Tower in Rankin Inlet	Active	2018-04-30	
Government of Nunavut, Community and Government Services	Land Use Permit for Rankin Inlet Site	Active	2018-06-14	
Government of Nunavut, Community and Government Services	Land Use Permit for Baker Lake Site	Active	2019-04-01	2021-03-31

### Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	Barge will be used to bring the wind turbines and other equipment to Rankin Inlet, and the same barge will be used to transport the equipment through Chesterfield Inlet to Baker Lake.	
Land	Overland transportation will be required to bring the turbines to their respective site locations.	

### Project accomodation types

Community

## Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Bulldozer	1	D8 or equivalent	Road upgrading, site preparation
Excavator	2	300 series or smaller	site prep, road building, equipment handling
Dump truck	2	standard	movement of material for access upgrading and site prep
Grader	1	standard	access upgrading and development
Cement truck	2-4	standard	used to pour tower foundations
Water truck	1	standard	to supply water to rock drills from a municipal source
rock drills	1	small	to drill bedrock for blasting or direct anchor placement
skid steer and/or boom lift	1	standard	these will be used to move materials around at the laydown areas
Cranes	2	250-400 tonne main crane and a 90 tonne small crane	used for wind tower assembly

### Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	1	500	500	Liters	Power equipment (Construction Phase)
Gasoline	fuel	1	205	205	Liters	Small gas powered equipment
Propane	fuel	1	100	100	Lbs	Propane heaters (if required)

### Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	Water needed by equipment will be sourced by our contractors through their regular channels. Water requirements are expected to be minimal. No other water will be required on site.	

# Waste

## Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Equipment installation	Non-Combustible wastes	1 tonne maximum	General construction waste. No waste storage will occur on site. Waste will consist of general construction waste and will be disposed of at the local municipal waste facilities. No hazardous waste will be produced.	None.

### Environmental Impacts:

No predicted negative environmental impacts. This project is anticipated to significantly reduce the amount of diesel combustion in the Kivalliq region, and will therefore limit the amount of possible fuel spills as well as the need to ship significant amounts of fuel. This will improve the overall environmental health of the region.

# **Additional Information**

**SECTION A1: Project Info**

**SECTION A2: Allweather Road**

**SECTION A3: Winter Road**

**SECTION B1: Project Info**

**SECTION B2: Exploration Activity**

**SECTION B3: Geosciences**

**SECTION B4: Drilling**

**SECTION B5: Stripping**

**SECTION B6: Underground Activity**

**SECTION B7: Waste Rock**

**SECTION B8: Stockpiles**

**SECTION B9: Mine Development**

**SECTION B10: Geology**

**SECTION B11: Mine**

**SECTION B12: Mill**

**SECTION C1: Pits**

**SECTION D1: Facility**

**SECTION D2: Facility Construction**

**SECTION D3: Facility Operation**

**SECTION D4: Vessel Use**

**SECTION E1: Offshore Survey**

**SECTION E2: Nearshore Survey**

**SECTION E3: Vessel Use**

## **SECTION F1: Site Cleanup**

## **SECTION G1: Well Authorization**

## **SECTION G2: Onland Exploration**

## **SECTION G3: Offshore Exploration**

## **SECTION G4: Rig**

## **SECTION H1: Vessel Use**

## **SECTION H2: Disposal At Sea**

## **SECTION I1: Municipal Development**

### **Description of Existing Environment: Physical Environment**

This section outlines the general condition of each site including existing infrastructure and physiological characteristics. Both the Rankin Inlet and Baker Lake sites exist within the local municipal boundaries for those respective communities and within pre-disturbed areas. Both sites consist of gently undulating shallow soils with little to no vegetation. Bedrock exists at or near ground surface at both sites.

### **Description of Existing Environment: Biological Environment**

Described in part above.

### **Description of Existing Environment: Socio-economic Environment**

Community consultation is on-going. So far the feedback from both the Baker Lake and Rankin Inlet communities has been very positive. This project will grow and continue to employ two full-time workers at each site. The construction phase will also allow for additional employment, which will be sourced primarily from the Hamlets. Outside workers will require lodging and meals from the Hamlet during the construction phase and provide economic benefits during that time.

### **Miscellaneous Project Information**

### **Identification of Impacts and Proposed Mitigation Measures**

The impacts from this project are largely positive. The positive impact of diversification of the communities energy generation will take some of the load off of the aging power plants. This project represents Nunavut's first big step into clean energy will be a landmark project for the territory. This project will reduce the reliance of diesel to generate electricity in these communities, reducing all the risks associated with shipping, storing, and burning large quantities of fossil fuels.

### **Cumulative Effects**

The life of a wind farm is typically 25-30 years. Rankin Inlet and Baker Lake will benefit from this infrastructure for future generations.



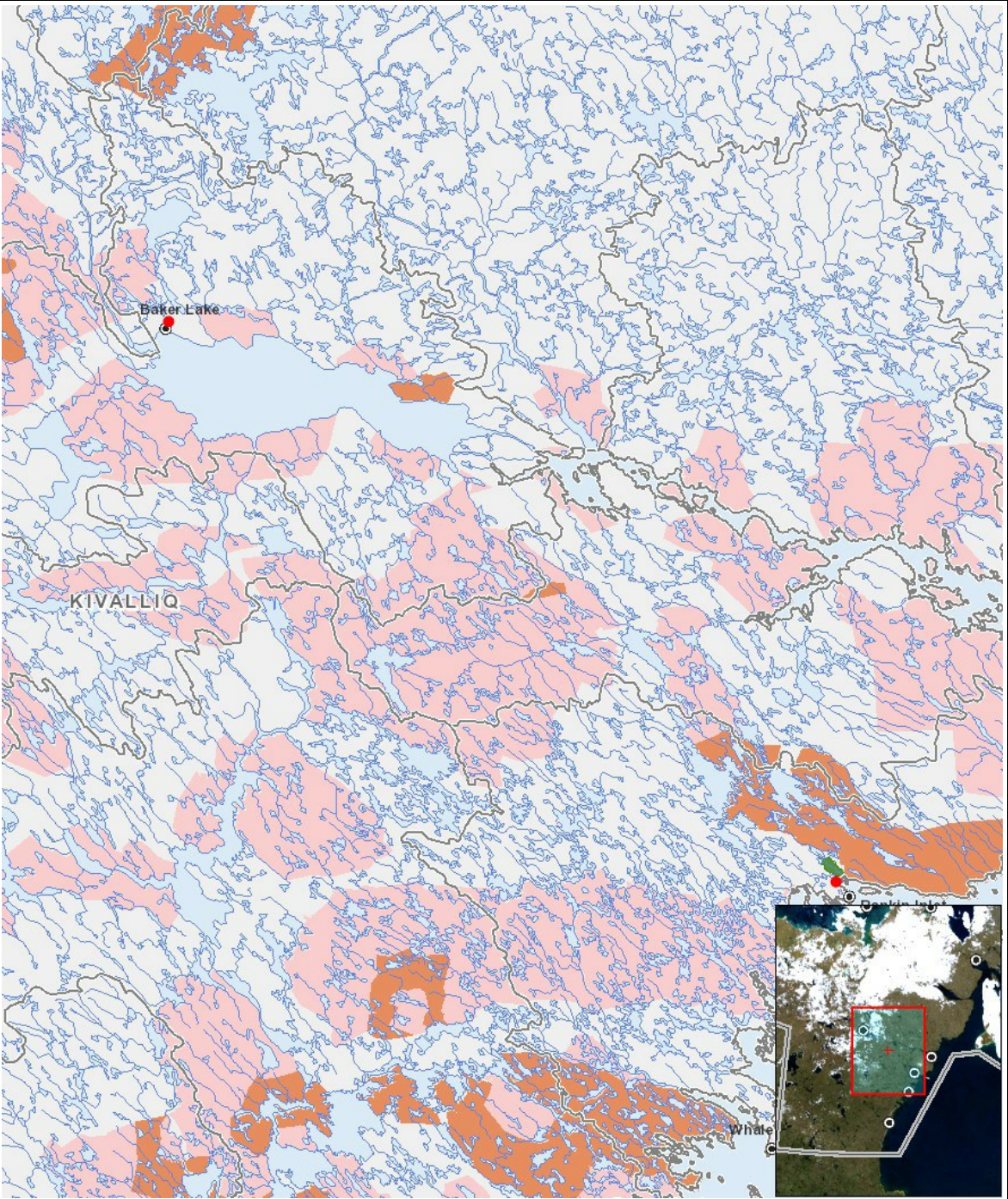
# Impacts

## Identification of Environmental Impacts

		PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
<b>Construction</b>																										
Other		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	-	-		P	-	-	-	-
<b>Operation</b>																										
Other		-	-	-	-	-	-	-	-	-	-	-	P	M		-	-	-	-	-		P	-	-	-	-
<b>Decommissioning</b>																										
-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

1	point	Rankin Inlet Site
2	point	Baker Lake Site