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ECCC File: 5420 000 007/017  
NIRB File: 25XN022



August 6<sup>th</sup>, 2025

via email at: [info@nirb.ca](mailto:info@nirb.ca)

Francis Emingak  
Screening Officer  
Nunavut Impact Review Board  
29 Mitik Street  
P.O. Box 1360  
Cambridge Bay, NU X0B 0C0

Dear Francis Emingak:

**RE: 25XN022 – Kitikmeot Corporation – Cambridge Bay Solar + Storage – Notice of Screening**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) by Kitikmeot Corporation (the Proponent) regarding the above-mentioned notice of screening.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental emergencies preparedness and responses. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

**1. Topic: Potential for Impacts to Marine Water Quality**

Reference(s)

- NIRB Application for Screening #126182 – Cambridge Bay Solar and Storage
- Social, Economic, and Environmental Impacts – Cambridge Bay Solar and Storage Project
  - Section 8.2 – Potential Environmental Impacts
  - Section 8.5 – Mitigation Measures



### Comment

The Proponent has acknowledged the potential for adverse impacts to surface water quality due to sediment runoff or accidental releases. As a result of this potential for impacts, Section 8.5 states that “erosion and sediment control measures will be implemented to protect nearby waterbodies” and that “construction activities will be timed and designed to reduce the potential for runoff or sedimentation.” As stated in the application, the Project is only 130 m from the Coronation Gulf, and therefore there is a potential pathway for effects to marine water quality if mitigations are not applied. However, the application does not explicitly mention impacts to marine water quality. ECCC notes that impacts from sediment runoff and accidental releases, and the associated mitigation measures, would also apply to marine water quality.

### ECCC Recommendation(s)

ECCC recommends that the Proponent acknowledge the potential for effects to marine water quality and apply all erosion and sediment control measures to also prevent impacts to marine water quality.

## **2. Topic: Potential for Impacts to Marine Water Quality**

### Reference(s)

- Social, Economic, and Environmental Impacts – Cambridge Bay Solar and Storage Project
  - Section 8.2 – Potential Environmental Impacts
  - Section 8.5 – Mitigation Measures

### Comment

The Proponent acknowledges the potential for exposed rock or soil materials from the quarry to release acidic water and harmful metals when disturbed and have committed to the following mitigation measure:

“During the Phase I Environmental Site Assessment (ESA) site visit, Nunami Stantec will evaluate the Acid Rock Drainage/Metal Leaching (ARD/ML) potential of the quarry materials intended for project use and will collect surface water samples (if present) from two unique locations: (1) water that has been in contact with the quarry material at the proposed quarry source, and (2) water from areas where quarried rock has previously been used in road, bridge, or culvert construction. Water sampling at the quarry will provide baseline geochemical data on the unaltered source material, helping to predict its ARD/ML potential prior to future use. In contrast, sampling water near previous construction sites will provide some information about the actual ARD/ML potential of the material under field conditions, where it is exposed to weathering, runoff, and mechanical disturbance.”

ECCC notes that it is not sufficient to only sample water that is currently in contact with the quarry rock to evaluate the ARD/ML potential. Sampling of water in contact with an exposed surface would have limited usefulness in assessing ARD/ML potential since any sulphides

on or close to the rock surface would have been oxidized and washed away. Extraction and analysis of fresh rock samples will be required to adequately assess the potential for ARD/ML in the quarry rock.

#### ECCC Recommendation(s)

ECCC recommends the Proponent extract and analyze fresh quarry rock samples for assessment of ARD/ML potential.

### **3. Topic: Mitigation Measures – Construction Phase**

#### Reference(s)

Social, economic and environmental impacts, Cambridge Bay Solar and Storage Project, NU, Section 8.5 Mitigation Measures (pg. 21) AND NIRB Application for Screening #126182 Cambridge Bay Solar + Storage, Environmental Impacts (pg. 10)

#### Comment

Adverse effects from this project are most likely to occur during the construction phase, where use of construction vehicles and equipment could result in spills of fuel or other hazardous substances to the land, air, or water. These risks are well known and common among projects and can be effectively mitigated with standard mitigation measures and plans. The proponent's review of social, economic, and environmental impacts has outlined several mitigation measures that will be implemented during the construction phase that would help to reduce the likelihood of accidents and malfunctions.

#### ECCC Recommendation(s)

ECCC recommends that the proponent consider implementing the suggested mitigation measures and develop the recommended plans for use during the construction phase of the project. In addition to those proposed by the proponent, the following mitigation measures, which are commonly implemented during the construction phase of projects, should also be considered:

- **General**
  - spill kits are placed anywhere that spills or leaks of fuel or hazardous substances could occur – not just storage areas. Specifically, appropriately stocked spill kits should be at refueling sites, fuel or hazardous substance storage sites, or any location where a spill of fuel or other hazardous substance could occur.
  - training is provided to all employees and contractors should also include fueling, equipment operation, and handling of hazardous materials – not just spill response procedures.
  
- **Fuel storage and fueling**

- Use of drip trays or absorbent mats to prevent drips when refueling vehicles or equipment in an area that does not have secondary containment.
  - Use of fuel nozzles that are equipped with automatic shutoffs to prevent overfilling.
  - Operators stationed at both ends of hoses during refueling operations, unless both ends of the fuel hose are visible and accessible by one operator.
  - Fuel remaining in hoses is discharged into equipment or returned to the storage container.
  - Adequate illumination is provided at refueling areas.
  - Refuel vehicles and equipment at least 31 m from the normal high-water mark of any water body.
- **Vehicles and Equipment**
    - Use of secondary containment for any stationary equipment with a built-in fuel tank.
    - Use of biodegradable hydraulic oil (when appropriate) for equipment that is used near or in water.
    - Use of drip trays or absorbent mats under equipment not being used for a period of two hours or more. Drip trays / absorbent mats should be positioned in areas of potential leakage, including engine oil pans, hydraulic oil pumps, fittings, hoses, radiators, coolant reservoirs, fittings, hoses, and fuel pumps, filters, tanks, and hoses.
    - Storage of vehicles and equipment at least 31 m from the normal high-water mark of any water body.
    - All vehicles and equipment are subject to regular inspection and maintenance.

The following plans could be developed by the proponent to help reduce the likelihood of an accident or malfunction occurring and reduce the impacts if one does occur:

- Spill contingency / response plan – detailing the procedures that will be put into place, and resources available, to respond to a spill, should one occur. All project personnel that handle fuels or hazardous substances should be familiar with the spill contingency plan, and copies should be made available for reference at any site where spills of fuel or hazardous substances could occur.
- Waste management plan – detailing the procedures to safely handle, store, and dispose of wastes, including hazardous wastes.

#### **4. Topic: Emergency Response – Battery Accidents and Malfunctions**

##### Reference(s)

Social, economic and environmental impacts, Cambridge Bay Solar and Storage Project, NU, Section 8.2 Potential Environmental Impacts (pg. 19—20) AND NIRB Application for Screening #126182 Cambridge Bay Solar + Storage, Identification of Impacts and Proposed Mitigation Measures (pg. 13—14)

### Comment

The batteries proposed for this project are of the lithium iron phosphate (solid state) type. As such, there will likely be minimal to no risk of leaks or spills. Nonetheless, accidents or malfunctions could result in fires or explosions, with associated risk of hazardous fumes released into the air, and damage to the environment in the vicinity of the battery facility. The proponent has noted that “There may be special considerations for first responders such as the fire department responding to the Battery Energy Storage System (BESS). However, those specific instructions will be created in the construction phase of the project, as exact battery chemistry may vary.”

### ECCC Recommendation(s)

ECCC recommends that when the information on specific instructions for the BESS has been developed, it is incorporated into a project emergency response plan. ECCC further recommends that the proponent incorporate battery fires or explosions into an emergency response plan for the project.

## **5. Topic: Combustion of Pallets**

### Reference(s)

- NIRB Application for Screening #126182 – Cambridge Bay Solar and Storage
- Nunavut’s Environmental Guideline for the Burning and Incineration of Solid Waste, 2012

### Comment

In the Waste section, the Waste Management table mentions pallets and cardboard will be burned if there is no demand for the pallets. It is not evident whether open burning or incineration is intended for burning. Pallets are typically made with treated wood. Nunavut’s Environmental Guideline for the Burning and Incineration of Solid Waste restricts the open burning method of disposal to paper products, paperboard packing including boxboard and cardboard, untreated wood, and natural fiber textiles as indicated in Table 2.

### ECCC Recommendation(s)

ECCC requests that the Proponent verify whether the pallets are made of untreated wood. If that is not the case, then indicate a suitable method of disposal such as combustion in an incinerator, or local or external recycling.

## **6. Topic: Project Resilience to Extreme Cold**

### Reference(s)

- Community Solar Project Overview
- Cambridge Bay Canadian Climate Normals, available at:  
[https://climate.weather.gc.ca/climate\\_normals/results\\_1991\\_2020\\_e.html?searchTyp](https://climate.weather.gc.ca/climate_normals/results_1991_2020_e.html?searchTyp)

[e=stnName\\_1991&txtStationName\\_1991=cambridge+bay&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=371000000&dispBack=1](#)

#### Comment

The Community Solar Project Overview mentions that battery storage in sea cans operates at temperatures within the range of -40C to +55C. Obviously the solar array will not be operating during the polar night, and there will be a shutdown period during part of the winter. What is not evident is the resiliency of the Project components during periods of extreme cold. The climate normals tables indicate average daily minima temperatures are near -35C during January and February, and temperatures dip below -40C on average about 13 days per winter.

#### ECCC Recommendation(s)

ECCC requests that the Proponent elaborate on the resiliency of the Project components and what, if any measures have been put in place for periods when temperatures dip to less than -40C.

### **7. Topic: Clean engines for externally sourced equipment**

#### Reference(s)

- NIRB Application for Screening #126182 – Cambridge Bay Solar and Storage

#### Comment

The Material Use section contains an Equipment to be used table. It is encouraging that local contractors will potentially benefit from working on the construction of this Project. For any equipment that needs to be sourced externally, the air quality impacts would be much reduced if this equipment is equipped with engines meeting Tier 4 emission requirements.

#### ECCC Recommendation(s)

ECCC recommends that any equipment sourced externally be equipped with engines meeting Tier 4 emission requirements.

### **8. Topic: Species at Risk**

#### Reference(s)

- NIRB Application for Screening #126182 Cambridge Bay Solar + Storage

#### Comment

Species at risk are assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or added to Schedule 1 of the Species at Risk Act (SARA) on a regular basis. It is important for proponents to ensure they are aware of what species are present in the project area and take appropriate actions to ensure compliance with the SARA.

The killing, harming or harassing of listed species as well as the damage and destruction of their residences is prohibited under SARA. In the territories, the prohibitions apply automatically to:

- Threatened, Endangered and Extirpated species listed on Schedule 1 of SARA on lands under the authority of the federal Minister of Environment.
- Migratory Birds (as defined under the Migratory Birds Convention Act [MBCA]) everywhere they are found.

These prohibitions can apply elsewhere if there is an order put in place.

The destruction of critical habitat of species listed under Schedule 1 of SARA is prohibited on all lands identified within the critical habitat protection order for the species.

#### ECCC Recommendation(s)

As species are assessed and listed on a regular basis, ECCC recommends the Proponent:

- Consult the Species at Risk registry (<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>) to obtain the most current information for their operations.

Consult the Government of Nunavut to identify appropriate mitigation and/or monitoring measures to avoid and lessen project effects to species under their management responsibility.

### **9. Topic: Species at Risk – SAR Missing and/or Effects and Measures Missing**

#### Reference(s)

- NIRB Application for Screening #126182 Cambridge Bay Solar + Storage

#### Comment

Section 79 of SARA requires the assessor and decision body to ensure that where a project is likely to affect a listed species or its critical habitat, all adverse effects of the project are identified and considered in the assessment of the project. Appropriate measures must be taken to avoid or lessen those effects and include monitoring. Measures should be consistent with applicable recovery documents.

Section 79 applies to all listed species on Schedule 1 of SARA including those listed as Special Concern, Threatened, Endangered and Extirpated. As a matter of best practice, COSEWIC-assessed species should be assessed similarly to those listed under SARA.

The Proponent has not identified any species at risk that are likely to be present in the Project area, nor has the Proponent identified any adverse effects of the Project on species at risk.

Table I in Appendix I contains a list of the species that are likely to be encountered in the Project area that have been assessed as at risk by COSEWIC or listed on Schedule 1 of SARA.

The Project may have adverse effects on listed species including impacts due to noise or other sensory disturbances, wildlife injury or mortality and wildlife attraction.

#### ECCC Recommendation(s)

ECCC recommends the Proponent:

- a. Identify adverse effects of the Project on the species at risk likely to be affected and their critical habitat;
- b. Ensure that measures are taken to avoid or lessen those adverse effects and monitor them to inform adaptive management.

If the Proponent encounters species at risk, the primary mitigation measure should be avoidance. ECCC recommends:

- c. Mitigation and monitoring measures be consistent with applicable species at risk Recovery Strategies and Action Plans or Management Plans.
- d. At a minimum, monitoring should include recording timing and location of observed species at risk, their behavior when encountered, and actions taken by the Proponent to avoid disturbance to the species, its habitat, and/or its residence.
- e. The Proponent submit monitoring reports to the appropriate regulators and organizations with management responsibility for that species.

### **10. Topic: Project Activities Within Migratory Bird Habitat - Project Activities During Nesting Season**

#### Reference(s)

- NIRB Application for Screening #126182 Cambridge Bay Solar + Storage

#### Comment

The *Migratory Birds Regulations* (MBR) prohibit the disturbance or destruction of migratory birds and their nests or eggs.

The project occurs during the nesting season for migratory birds which extends from late May to mid-August for this region (Nesting zone N10).

Migratory birds, their nests and their eggs can be inadvertently harmed, killed, disturbed or destroyed because of many activities including, but not limited to, clearing of trees and other

vegetation, draining or flooding land, or using fishing gear. Harming of individual birds, nests or eggs, can have long-term consequences for migratory bird populations in Canada, especially through the cumulative effects of many different incidences.

#### ECCC Recommendation(s)

ECCC recommends the Proponent carry out all phases of the project in a manner that reduces risk to migratory birds and to avoid harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests and eggs.

Proponents should not conduct potentially destructive or disruptive activities at key locations or during key periods to avoid negative impacts to migratory birds. In this regard, the Proponent should take into account ECCC's Guidelines to Avoid Harm to Migratory Birds (<https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>) and visit Fact Sheet Nest Protection Under the Migratory Birds Regulations, 2022 () and Frequently Asked Question, Migratory Birds Regulations, 2022 (<https://www.canada.ca/en/environment-climate-change/services/migratory-bird-permits/faq-migratory-birds-regulations-2022.html>) for more information on the amended Migratory Bird Regulations and updates to nest protections.

### **11. Topic: Project Activities (Brushing) Within Migratory Bird Habitat During Nesting Season**

#### Reference(s)

- NIRB Application for Screening #126182 Cambridge Bay Solar + Storage

#### Comment

The Proponent indicates that vegetation brushing, and habitat alteration and/or disturbance may be required during the general nesting period as part of project activities.

The Project is located in Nesting Zone N10. In this area, migratory birds may be found nesting from late May to mid-August.

During this period, activities that may disturb or alter nesting habitat may increase the risk of destruction of the nests and eggs of migratory birds. It is important to note that nesting and migration periods may vary from year to year due to climatic conditions and some species may nest outside the dates provided if conditions are favourable.

If there are occupied migratory bird nests where work is planned, activities that could disturb or destroy nests should be avoided, adapted, rescheduled or relocated. The best way to avoid disturbing or destroying active nests is to avoid conducting harmful activities during the breeding season.

Determining the presence of nesting migratory birds may help reduce risks, but active nest searches are not recommended as the ability to detect nests is very low while the risk of disturbing and/or damaging active nests is high.

As detailed in ECCC's [Guidelines to Avoid Harm to Migratory Birds](https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html) (<https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>), nest surveys to determine nest occupancy may only be appropriate when all these conditions are met:

- Conducted by skilled and experienced observers;
- Using appropriate methodology;
- Only a few nesting spots or a small community of migratory birds is expected; and
- The activities will take place in simple habitats.

Proponents are reminded that migratory bird species may nest on the ground, in ground cavities, in grasses, shrubs, cliffs, trees, tree cavities and other sites and that nest sites are often cryptic or camouflaged, making them difficult to locate.

#### ECCC Recommendation(s)

ECCC recommends the Proponent avoid vegetation brushing and habitat disturbance during the general nesting period, which extends from late May to mid-August for this region.

The Proponent must consider options such as avoiding, adapting, rescheduling or relocating activities. If a nest containing a migratory bird or egg is discovered/disturbed, the Proponent must:

- a. Halt all disruptive activities in the nesting area until nesting is complete and the young have fledged; and
- b. Establish a protective buffer zone around the nests. The buffer zone must be determined by a setback distance appropriate for the species, the intensity of the disturbance, and the surrounding habitat until the young have naturally and permanently left the vicinity of the nest. Proponents are encouraged to follow the guidance on ECCC's [Guidelines to Avoid Harm to Migratory Birds](https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html) (<https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>)

For further questions or technical information, please contact ECCC ([cwsnorth-scfnorth@ec.gc.ca](mailto:cwsnorth-scfnorth@ec.gc.ca)).

## **12. Topic: Installation of Solar Panel Arrays**

#### Reference(s)

- NIRB Application for Screening #126182 Cambridge Bay Solar + Storage
- Horváth, G., Kriska, G., Malik, P., & Robertson, B. (2009). Polarized Light Pollution: A New Kind of Ecological Photopollution. *Frontiers in Ecology and the Environment*, 7(6), 317–325.

- Horváth, G., M. Blahó, A. Egri, G. Kriska, I. Seres and Robertson, B. (2010). Reducing the maladaptive attractiveness of solar panels to polarotactic insects. *Conservation Biology* 24: 1644–1653.
- Jennifer A. Smith, James F. Dwyer, Avian interactions with renewable energy infrastructure: An update, *The Condor: Ornithological Applications*, Volume 118, Issue 2, 1 May 2016, Pages 411–423, <https://doi.org/10.1650/CONDOR-15-61.1>

### Comment

The construction of solar panel fields is an operational activity that has presented new risks to wildlife including migratory bird populations. Solar panels can have direct impacts on migratory bird mortality, particularly for water birds, due to the reflection of polarized light giving the impression of water (Horvath, et al, 2009 & 2010; Smith and Dwyer, 2016). Effects to wildlife have not been discussed in the project proposal and mitigation has not been proposed, beyond the impacts of clearing activities. It is unclear to ECCC if the risks have been considered or if there are already measures that may reduce the risk of bird collisions with solar panels.

### ECCC Recommendation(s)

ECCC recommends that mitigations be implemented to reduce migratory bird attraction by:

- Placing solar panel arrays in areas with low bird density (e.g. away from areas of high bird use, regularly used flight paths, migration corridors, aggregation areas).
- Installing markings or scare devices on solar panels to address the risk of attraction due to the mistaken impression of water;
- Altering the angle of solar panels to reduce likeness to water; and
- Implementing an adaptive monitoring program to determine whether migratory birds are being impacted by the solar panels and ensure the effectiveness of any mitigation measures that are employed

If you need more information, please contact Kelvin Mok at 647-951-8836 or [Kelvin.Mok@ec.gc.ca](mailto:Kelvin.Mok@ec.gc.ca)

Sincerely,

Kelvin Mok  
Environmental Assessment Officer

Attachment(s): Appendix I Species at Risk Table

cc: Eva Walker, Head, Environmental Assessment North (NT and NU)  
Russ Wykes, Senior Environmental Assessment Officer