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Environment and Climate Change Canada (ECCC) Comments

Nunavut Impact Review Board (NIRB) Review

NIRB File No.: 25XN022

ECCC File Reference: 5420 000 007/017

Introduction

This document provides a comprehensive response to the comments submitted by Environment and Climate Change Canada (ECCC) as part of the Nunavut Impact Review Board (NIRB) review process. The purpose is to address each concern, clarify project commitments, and demonstrate compliance with relevant regulatory requirements, when applicable.

General Approach

The project team values the input from ECCC and is committed to ensuring that all environmental and climate-related issues are thoroughly considered. Responses are organized according to the topics identified in the ECCC submission.

Responses to ECCC Comments:

1. **Topic: Potential for Impacts 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.

Proponent Response:

Report: *"Social, Economic, and Environmental Impacts – Cambridge Bay Solar and Storage Project"*

Sections 8.2 – *Potential Environmental Impacts* and 8.5 – *Mitigation Measures* have been revised to acknowledge the potential effect on marine water quality and the corresponding control measures to prevent it.

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

ECCC Recommendation(s)

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

Proponent Response:

A change order has been issued by the engineering firm conducting the Phase I Environmental Site

Assessment. In addition to surface water samples, the proponent will analyze quarry samples to assess the potential for ARD/ML in the quarry rock. A copy of the laboratory results will be provided to NIRB.

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

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.

Proponent Response:

The proponent acknowledges and agrees with this recommendation. Specific instructions will be included in the Construction Management Plan.

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

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.

Proponent Response:

The proponent acknowledges and agrees with this recommendation. Specific instructions for the Battery Energy Storage System (BESS) will be incorporated into the Project's Emergency Response Plan once developed. The Emergency Response Plan will also include procedures to address potential battery fires or explosions, in accordance with ECCC's guidance.

The proponent would like to note that we plan to use lithium-ion phosphate (LiPO4) batteries, which are more stable and less prone to fires than other types of lithium-ion batteries. Training for local emergency responders, in addition to project maintenance staff, will be included as part of the annual training updates during the operation phase of the project.

5. **Topic: Combustion of Pallets**

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.

Proponent Response:

The proponent acknowledges that chemically treated wooden pallets cannot be burned. The proponent will use untreated wooded pallets as much as possible, if given the option. If pallets arrive that have been treated, they will be disposed of properly, either locally or shipped south.

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

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.

Proponent Response:

The batteries and sensitive electronic components, including inverters, will be housed within e-houses (modified seacans) equipped with auxiliary power systems to support heating, cooling, lighting, controls, and fire suppression, as required. The enclosures will be insulated to reduce the energy demand for temperature regulation and to maintain internal conditions within acceptable operational ranges. Each e-house will also include an uninterruptible power supply (UPS) to ensure continued operation in the event of a grid power outage.

The lithium-ion batteries ($LiFePO_4$) are sensitive to low temperatures and perform best when maintained above freezing. Accordingly, the temperature control systems will operate continuously throughout the year—not only during the polar night or at extreme cold temperatures (e.g., -40°C). During periods without solar generation the equipment will draw power from the QEC grid, with the UPS providing back-up power in the event of a grid outage. A back-up oil-heated system will also be present to ensure the batteries remain within a safe operational temperature zone.

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

ECCC Recommendation(s)

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

Proponent Response:

The proponent acknowledges ECCC's recommendation. Where applicable and appropriate, consideration will be given to sourcing external equipment equipped with engines meeting Tier 4 emission requirements

to help minimize potential air quality impacts.

8. **Topic: Species at Risk**

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.

Proponent Response:

The proponent has issued a Request for Proposal (RFP) to engage an external firm to collect and evaluate information required to understand the potential effects of the proposed project activities on species at risk and to develop appropriate recommendations. The RFP is attached to this document.

We have done multiple site visits, consultations with the Hunters and Trappers Association and local community members. We do not anticipate impacts on species at risk arising from this project, however if we do find there will be impacts, we will mitigate the impacts in line with best practices.

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

ECCC Recommendation(s)

ECCC recommends the Proponent:

- Identify adverse effects of the Project on the species at risk likely to be affected and their critical habitat;
- 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:

- Mitigation and monitoring measures be consistent with applicable species at risk Recovery Strategies and Action Plans or Management Plans.
- 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.
- The Proponent submit monitoring reports to the appropriate regulators and organizations

with management responsibility for that species.

Proponent Response:

The proponent has issued a Request for Proposal (RFP) and will engage an external firm to 1) identified any species at risk that are present in the Project area, 2) collect and evaluate information required to understand the potential effects of the proposed project activities on species at risk and 3) to develop appropriate recommendations. The RFP is attached to this document.

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

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.

Proponent Response:

The proponent acknowledges ECCC's comment and recommendations regarding the protection of migratory birds, their nests, and eggs. A local firm with extensive knowledge of the site conditions and migratory bird populations in the area will be retained to support the Project. This firm will take into account all points raised by ECCC, including adherence to the *Migratory Birds Regulations, 2022* and ECCC's *Guidelines to Avoid Harm to Migratory Birds*. Appropriate measures and timing restrictions will be recommended to minimize risks and ensure that all phases of the Project are carried out in a manner that avoids harming, killing, or disturbing migratory birds or their nests and eggs. The proposal is included in this document.

Extensive engagement has been undertaken with the community, including Elders, local knowledge holders, and the Ekaluktutiak Hunters and Trappers Organization (HTO). No concerns regarding potential impacts to migratory birds or their habitats were raised during these consultations. The Proponent remains committed to incorporating both scientific and traditional knowledge into project planning and to maintaining ongoing communication with local stakeholders to ensure continued protection of

migratory birds and their habitats throughout all project phases.

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

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:

Halt all disruptive activities in the nesting area until nesting is complete and the young have fledged; and

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)

Proponent Response:

The Proponent acknowledges ECCC's recommendations regarding the protection of migratory birds and their nests and commits to implementing measures consistent with ECCC's *Guidelines to Avoid Harm to Migratory Birds*. Vegetation brushing and other habitat-disturbing activities will be scheduled to avoid the general nesting period (late May to mid-August) to the extent possible. Should active nests be identified during construction, all disruptive activities in the area will be halted until nesting is complete and the young have fledged. An appropriate protective buffer zone will be established around any identified nests, with setback distances determined based on species, disturbance intensity, and habitat characteristics.

To formalize these commitments, a Wildlife Protection section will be included in the Construction Management Plan. This section will outline procedures specific to migratory birds and other wildlife species potentially present in the project area. The Wildlife Protection section will also form part of the training materials for site contractors to ensure they are aware of species sensitivities, know how to identify wildlife or nests, and understand appropriate response protocols if wildlife interactions occur during project activities.

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

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

Proponent Response:

The proponents acknowledge there can be impacts to wildlife, including birds, as a result of development. For the CBSS project, we have done extensive consultation with the community and HTA, as well as visits to the site at various times of year, and understand the area to be a low-use site for birds, and for wildlife in general. From reading some of the references shared, we can confirm that the angles of the panels are to be installed at an angle (35°) that will differentiate it from nearby water sources (0°), resulting in polarized light in a different direction than surrounding water sources. We also will have a monitoring program in place during construction and operation to observe any changes in land use by wildlife so we can mitigate any negative impacts if they are seen.

Conclusion

The project team appreciates ECCC's thorough review and constructive feedback. All comments have been considered and integrated into project planning and management. Ongoing engagement with ECCC, NIRB, and the community will continue to ensure environmental protection and regulatory compliance throughout the life of the project.

For further information or clarification regarding these responses, please contact:

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Included Documentation:

- Updated social economic and environmental report.
- RFP for Viventem (contractor for SARA and wildlife impacts study)

SOLVEST

NORTHERN SOLAR SOLUTIONS

Social, economic and environmental impacts Cambridge Bay Solar and Storage Project, NU

Last revision: 2025-06-26

Prepared by:

AURORA ENERGY SOLUTIONS

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EXECUTIVE SUMMARY

This report presents the findings of a socio-economic and environmental impact assessment for the proposed Cambridge Bay Solar and Storage (CBSS) Project in Nunavut, Canada. Led by Kitikmeot Corporation and supported by High Latitude Consulting and Aurora Energy Solutions, the CBSS project is designed to deliver 4 MW DC of solar power and 3 MWh of battery storage capacity, significantly reducing diesel dependence in the region by an estimated 1.2 million litres annually. The project responds to local and territorial priorities for clean energy development and community resilience.

The report incorporates extensive community engagement, technical assessments, and environmental due diligence. It confirms strong community support for renewable energy development in the community, identifies minimal potential adverse environmental impacts, and numerous positive economic and social impacts. The selected project site—across the bay from Cambridge Bay—is municipally owned, flat, dry, and unencumbered by competing land uses or ecological sensitivities. Anticipated benefits include potential long-term energy cost stability, employment opportunities, infrastructure improvements, and enhanced Inuit economic participation.

Environmental risks such as permafrost degradation, sediment disturbance, and battery containment have been addressed through forward-looking mitigation strategies, including climate-resilient foundation design, monitoring of permafrost and runoff, and the use of solid-state battery technologies. The project aligns closely with Inuit Qaujimajatuqangit (IQ) principles, particularly in community participation, sustainability, and stewardship of the land.

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1 Introduction

This report presents a comprehensive socio-economic and environmental impact assessment for a proposed large-scale solar and battery energy storage infrastructure project in Cambridge Bay, Nunavut. The assessment has been undertaken in accordance with the regulatory requirements of the Nunavut Impact Review Board (NIRB), which oversees the integrated assessment of potential impacts of major development projects in Nunavut.

The purpose of this report is to evaluate the potential positive and negative effects of the proposed project on the environment, economy, and social fabric of the community. It aims to support informed decision-making by identifying all areas of potential concern. This will be done through assessing the project's impacts based on the authors' in-depth knowledge of the community, through extensive community engagement, and through using several technical reports, at which point mitigation strategies will be proposed. This process includes an analysis of current and historical environmental conditions, community support, employment opportunities, and cultural & land-use considerations.

This assessment seeks to ensure that the project aligns with the values and priorities of Nunavummiut, while contributing to the territory's long-term goals for energy security, economic development, and environmental sustainability.

2 Project Description

The Kitikmeot Corporation retained the services of High Latitude Consulting and Aurora Energy Solutions to assess the feasibility of a large scale solar & battery system for Cambridge Bay, Nunavut, under the Government of Nunavut's Independent Power Purchaser program. This project is funded by Natural Resources Canada's Clean Energy for Rural and Remote Communities Program (CERRC). The Cambridge Bay Solar + Storage project, hereafter referred as the *CBSS project*, has the proposed specifications:

- **Solar Photovoltaic Sizing:** 4 MW DC / 2.96 MW AC. Approximately 7,700 ground mounted solar panels will be installed on site.
- **Battery Energy Storage System (BESS):** 2 x 1.5 MW/ 1.5 MWh Lithium Ion batteries (Total storage 3 MW / 3 MWh). This sizing may change depending on the outcome of the Connection Impact Assessment. There will be two (2) inverters for the batteries, capable of providing Grid Forming services. Currently the batteries are planned to be co-located with the solar infrastructure. However, co-locating with the plant may be preferred as the project develops.
- **E-Building:** will house the controls and monitor equipment.
- **Transmission Line Connection:** A 4km long combination of underground high voltage cables and overhead power lines will link the project site to the community electricity grid interconnection point and will also facilitate connections to other future renewable generation expansions in the area.

The system is expected to generate 4,339 MWh/year displacing 1.2 million litres of diesel per year. This is enough to power all residential units in Cambridge Bay (700 homes) for one year.

A conceptual rendering of the project at the proposed site is depicted in Figure 1.

Figure 1: Rendering of the proposed Cambridge Bay Solar and Storage Project

Location: The proposed site is located across the bay from the community, near "Old Town". Refer to Appendix A Site Location. There is an existing unmaintained access road that leads from the crossing at Fresh Water Creek all the way along the project site that will serve as seasonal access. The land identified for the solar farm development is located south of two Nav Canada lots: Lot #1008, Quad 077D/02, Plan 3197 and Lot #1011, Quad 077D/02, Plan 3197. In order to connect the solar infrastructure to the nearest power pole situated north of the site and east of the Stone Church, an underground interconnection power cable must run along the road at the edge of NAV Canada Lot #1011. The Proponent has secured a letter of no objection from Nav Canada and Transport Canada.

Though Cambridge Bay is surrounded by a seemingly vast amount of land, much of it is inaccessible because of the North Warning System land utilization, water supply setbacks, and proximity to waste dumps. The project site is also one of the rare locations close to the community that has a very flat, even, and dry surface, and is in proximity to a newly constructed high voltage power line that connects to the community grid. Finally, the site benefits from low traffic in the area, which would cut down on dust covering the panels, a significant factor in the summer season.

The status of the project site land is vacant untitled municipal land. The lot did not previously exist; as part of the feasibility study, and after extensive engagements with the municipal council and the Government of Nunavut Community and Government Services, a formal lot was created. The site location is legally

surveyed and has received final approval from the Government of Nunavut (May 2025). The registration is currently undergoing the final steps at the Land Title Office. Please refer to Appendix B for a copy of the Final Survey.

Timeline: This project is at the feasibility study stage and technical specifications are subject to adjustments. The potential timeline for construction is June 2026 to October 2027. A 30-year operation lifetime is planned, from October 2027 to October 2057. Decommission can occur over one year, from October 2057 to October 2058.

3 Approach

3.1 Community and Stakeholders Engagement Process

Over the past several years, the Proponent has carried out a comprehensive community and stakeholder engagement process to gauge community support, identify potential environmental, social, and economic concerns, and integrate this feedback into the project design.

- **Community Energy Plan (CEP) (2022-2024):** Engagement activities included a launch event, surveys, business interviews, and a community energy week. The community expressed strong interest in renewable energy and energy efficiency projects, with 74% of survey respondents supporting a community-scale solar farm.
- **Stakeholder Engagement (2023):** Building on CEP findings, the Proponent conducted targeted sessions with key stakeholders such as the local MLA, Elders, and businesses to inform the feasibility study. Details are provided in Appendix C.
- **Community Engagement – Feasibility Study (2024):** Following the release of the preliminary design of the large-scale solar and battery system, the Proponent led intensive engagement activities to gather feedback from the community. Findings are summarized in Appendix D.
- **Engagement with the Ekaluktutiak Hunters & Trappers Organization (EHTO):** The EHTO is a key stakeholder in the CBSS project, expected to provide important input on the proposed project scope and location. To date, formal engagement with the organization has not been possible due to recent turnover on the EHTO Board. Nonetheless, meaningful engagement with EHTO remains a priority activity within the ongoing feasibility study. The CBSS team has held informal discussions with both current and former EHTO members, who have expressed general support for the project. A formal letter of support from the EHTO Board will be obtained and submitted once it becomes available. As part of the formal engagement process, the CBSS team intends to consult the EHTO Board on the following key questions regarding the project site and its use:
    - Does the area fall within a known wildlife migration route?

- Is it used as a nesting ground for birds or other species? Are any of the identified species listed under the Canada's Species at Risk Act?
- Is the site currently used or historically known for harvesting activities?
- Are there any concerns regarding the proposed location or intended use of the land?

3.2 Technical Studies

This report also draws from two technical studies:

Archeological Study

In the summer of 2024, the project team retained the services of Nunami Stantec Limited to carry out an Archaeological Impact Assessment (AIA) for the proposed project. This assessment aimed to ensure due diligence given the region's rich archaeological heritage, address questions raised by the community—particularly Elders—regarding the presence of potential archaeological sites, and fulfill the requirements of the Nunavut Impact Review Board. The study was conducted under a Class 2 Archaeologist's Permit (2024-21A). The AIA focused on evaluating the proposed project footprint in relation to known and potential archaeological resources. As part of the assessment, an archaeologist conducted a pedestrian survey of the solar farm site to identify and document any archaeological features. Additional targeted inspections were conducted in surrounding areas to confirm and officially record reported sites. The assessment resulted in the identification of six new archaeological sites, none of which were found to be in conflict with the planned development. Additional information and findings are included in Section 7 Social Impacts Assessment. The Archeological Impact Assessment is included in the NIRB application.

Geotechnical Investigations

In the fall of 2023, the Proponent retained the service of PRI Engineering to conduct a geotechnical field evaluation of the proposed lot. In addition to a site reconnaissance and desktop review, a total of twelve (12) test pits were advanced in the project area. The report provided recommendations for geo-ballast foundations and included that an adfreeze or rock socket foundation design option could be developed, but would require a drill program to verify the permafrost characteristics and depth to bedrock throughout the site. The team conducted a high-level climate risk assessment and after review of the climate data, discussion with the residents in the community and the lead geotechnical scientist at Polar Knowledge, the Proponent identified that the location of the future solar farm might be highly sensitive to climate change and in particular to permafrost degradation. This would, in turn, impact the foundation of the solar panels and the longevity of this large-scale renewable energy project. In order to ensure that the first community solar infrastructure of the region is climate resilient and that the design minimizes potential negative impacts on the area's permafrost, the Proponent applied and received funding from the Climate Change Preparedness in the North program (CCPN). The program is currently on-going. Additional information is included in Section 8 Environmental Impacts Assessment. A copy of the project workplan can be shared with the Nunavut Impact Review Board. A separate NPC/NIRB application will be submitted.

3.3 Federal Agencies

The Proponent consulted with Nav Canada and Transport Canada regarding the site's proximity to federal lands and secured letters of no objection from both agencies.

3.4 Inuit Qaujimaningit (IQ) Principles

The Inuit Qaujimajatuqangit (IQ) principles are foundational cultural values and knowledge, emphasizing the importance of community engagement, sustainability, and respect for the environment. Here's how our project and engagement efforts aligned with these principles:

1. **ᐱᓴᓪᓂᖅ— Pijitsirniq: Serving and providing for family and/or community.**

   This project was designed to serve the community by planning for a sustainable energy future, thereby improving the quality of life and reducing the impact of climate change.

2. **ᐊᔭᐊᖅᑎᑦᓂᖅ— Aajiiqatigiinniq: Decision-making through discussion and consensus.**

   Several engagement and information sessions, along with community events and surveys, allowed for broad community input and consensus-building. This was built upon the residents' priorities for their community.

3. **ᐃᑲᔪᖅᑎᑦᓂᖅ— Ikajuqtigiinniq: Working together for a common cause.**

   The inclusive approach ensured that all community members, including Elders, youth, businesses, and residents, were involved in the process. This collective effort towards a common goal demonstrated strong community collaboration.

4. **ᖃᓄᐃᑦᑐᖅ— Qanuqtuurniq: Being innovative and resourceful.**

   The project showcases northern innovation in its design, technical input & knowledge, and engagement strategies. The team is using community-based personnel and expertise to solve novel technical challenges and modernize the local energy system.

5. **ᐊᕿᑎᑦᑎᓂᒃ ᖃᒪᓕᕆᓂᖅ— Avatittinnik Kamatsiarniq: Respect and care for the land, animals, and the environment.**

   By focusing on reducing fossil fuel consumption and planning for renewable energy, the plan shows a commitment to environmental stewardship.

6. **ᐱᓕᒪᒃᑲᓂᖅ— Pilimmaksarniq: Development of skills through observation, mentoring, practice, and effort.**

   The engagement events not only gathered input but also served as educational platforms, increasing the community's knowledge about renewable energy. The Proponent developed several supporting documents, such as Infographics to further educate the community through highly visual and engaging deliverables.

7. **ᐃᓄᖅᑲᑎᑦᓯᐊᖅᓂᖅ— Inuuqatigiitsiarniq: Respecting others, relationships, and caring for people.**

   The CBSS project core focus is the well-being of the residents, fostering a healthier environment, reducing energy poverty, and enhancing energy sovereignty.

8. **ᑐᙵᓚᓐᓂᖅ— Tunnganarniq: Fostering good spirit by being open, welcoming, and inclusive.**

   The process included all perspectives, respecting divergent opinions, and engaging with everyone in the community. These projects include technical content that can deter or intimidate non-experts. Efforts were made to ensure that community stakeholders felt comfortable participating in discussions.

Through these efforts, the project not only aligned with the IQ principles, but also strengthened the community's capacity to address energy and environmental challenges collectively.

4 Project Boundaries

The project boundaries encompass the future site location and the transmission line connection route (a 4km long combination of underground high voltage cables and overhead power lines will link the project site to the community electricity grid interconnection point). Refer to Figure 2 below.

Figure 2: Project Boundaries

The construction of the CBSS infrastructure will require the transport of materials and equipment across Freshwater Creek at two bridge locations approximately 2.5 km to the northeast. Currently, the second bridge spanning the crossing of a small parallel portion of Freshwater creek is not sufficient to support construction vehicles. Community heavy equipment has historically crossed this section by driving heavier/larger vehicles across directly on the riverbed, which causes minimal damage. The project team has identified that a temporary construction bridge will be needed to cross that small portion of the river with a large volume of construction vehicles, without causing degradation of the riverbanks or bed. To support this, the Proponent is preparing a separate project that will be submitted to the Nunavut Impact Review Board (NIRB) later. Engagement with the Department of Fisheries and Oceans (DFO) has already begun to establish the necessary processes for obtaining authorizations for the creek crossings.

5 Description of Existing Conditions

5.1 Community Information

Situated on the southern coast of Victoria Island within the Nunavut's Kitikmeot region, the Municipality of Cambridge Bay is the largest regional settlement, with a population of 1,760 (2021 census). Its traditional Inuinnaqtun name, Iqaluktuuttiaq, translates to "good fishing place." Cambridge Bay is the administrative and transportation hub of the Kitikmeot region, headquarters for several Inuit associations, and a regional center for businesses in western Nunavut. It is also a significant hub for Arctic Ocean navigation, particularly for research and passenger vessels traversing the Northwest Passage.

Figure 3: Cambridge Bay Aerial View

The Inuit's presence in this region dates back over 4,000 years, beginning with the pre-Dorset people who left early traces of settlement. The Dorset people arrived around 500 CE, succeeded by the Tuniit

approximately 300 years later. Around 1250 CE, the Thule people, who are the ancestors of today's Inuit, migrated here from Alaska. Roughly 500 years ago, the modern Inuit emerged, adopting similar hunting and fishing methods as the Thule. Notable groups such as the Copper Inuit (Inuinnait), who utilized native copper for tools, were prominent in this region.

Inuit have traveled, hunted, and fished in this area for hundreds of years. Although it was used as a fishing and meeting place, few Inuit lived year-round at the site before the 1950s. Permanent settlement began when the Hudson's Bay Company set up a trading post in 1921. The construction of the Cambridge Bay LORAN Tower post-World War II and the establishment of a Distant Early Warning (DEW) Line site in 1955 further catalyzed community growth. In the present day, the DEW Line site has been converted to a North Warning Station. Cambridge Bay evolved into an administrative center within the Northwest Territories before becoming part of the newly formed Kitikmeot administrative region of Nunavut in 1999. Today the community has municipality status and operates under the direction of a mayor and council.

Energy infrastructure

In the fiscal year of 2019-2020, the community consumed about 400,000 GJ (or 110,000 MWh) of energy for electricity, heating, and transportation services, the equivalent of 10 million litres of diesel costing $12 million, based on the 2019 fuel rates (*Cambridge Bay Community Energy Plan*). All the energy came from imported petroleum products (diesel and gasoline). A dwelling in Cambridge Bay consumes approximately 6.2 MWh and 5,000 L of diesel yearly for its electricity and heating respectively.

The power plant, owned and operated by Qulliq Energy Corporation, was built in 1967 and is now operating beyond its intended service life. Plans are underway to build a new power plant within the next five years, which will include modifications to the power distribution system as part of its integration.

As of 2025, only three buildings in the community are partially powered by renewable energy, which are the Kuugalaaq Cultural Campus, Canadian High Arctic Research Station, and a residential multiplex. The generation capacity of these installations is quite small and have a negligible impact on the overall community generation mix.

A large number of community members have embraced renewable energy for off-grid applications at recreational cabins outside of the community. Both small wind and solar generation have been popular choices with a recent spike in solar generation adoption due to the Government of Nunavut's Renewable Energy Cabin Grant Program. This program has been a great success in building awareness around the viability of renewable energy in the North.

5.2 Physical Environment:

Based on the first geotechnical investigation (2023) and preliminary results from the second geotechnical study, the following site characteristics are present:

- The site is located approximately 130 meters east of the Coronation Gulf and has an area of approximately 35.6 acres. Ground surface elevations range from 6 meters above seal level (mASL)

to 15 masl. The change in elevation is predominantly due to an outcrop southwest of the site, as the site is generally flat.

- Surface water pooling and a bedrock outcrop are present on site.
- A surficial layer of topsoil was encountered at most test pits, up to depths ranging from approximately 0.10 mBGS to 0.15 mBGS, with the exception of two (2) test pits where layers of boulders and cobbles were observed at the surface.
- Light brown sand and gravel, gravelly sand to sandy gravel was encountered in half the test pits, while the other test pits were layers of brown silt and sand/silty sand and sandy silt.
- Bedrock was not encountered at any of the twelve (12) test pit locations investigated in 2023. Based on preliminary results from the geophysical analysis, bedrock surface likely varies from 5 mBGS to 8 mBGS across most of the site, with some areas as shallow as 2 mBGS to 4 mBGS. It generally shallows from east to west. The maximum depth to bedrock is likely 10 mBGS to 12 mBGS. This will be confirmed during the geotechnical field investigation in summer 2025.
- Depths to permafrost ranges on average between 1 and 2 mBGS.
- Most test pits were dry, except for two (2) test pits located on the northwest side of the site where groundwater levels were at 0.5 mBGS.
- Cambridge Bay lies withing a zone of continuous permafrost. Cambridge Bay has a mean annual air temperature of -13.9°C (1976-2005), which is expected to rise to -10.7°C for the period of 2021-2050.

5.3 Biological Environment

The region is characterized by moist tundra dominated by low shrubs, forbs, grasses, and cryptogams. Approximately 150 species of vascular plants are found in the area. The arthropod community near Cambridge Bay is relatively diverse, comprising hundreds of insect and spider species. Cambridge Bay serves as a key fishing area for Arctic char and lake trout, supporting a small commercial fishery. Southern Victoria Island is an important staging and nesting habitat for numerous migratory bird species, especially shorebirds, and supports healthy populations of caribou, muskoxen, Arctic hares, Arctic foxes, and Arctic wolves[1].

Cambridge Bay serves as a vital habitat for numerous migratory bird species. The Ahiak Migratory Bird Sanctuary, located south of Cambridge Bay, is Canada's largest federally protected nature preserve and supports one of the world's largest concentrations of nesting geese2. A total of 79 bird species have been documented in the Cambridge Bay area, with common sightings including Thayer's Gull, Sabine's Gull, King Eider, Long-tailed and Parasitic Jaegers, various shorebirds, and Pacific Loon[3].

[1] https://www.interact-gis.org/Home/Station/57

[2] https://www.canada.ca/en/environment-climate-change/services/migratory-bird-sanctuaries/locations/ahiak.html

[3] https://www.1000towns.ca/birding-cambridge-bay/

6 Economic Impacts Assessment

The introduction of a large-scale renewable energy infrastructure in Cambridge Bay presents an opportunity for long-term economic development and community prosperity. The preliminary analysis highlights significant potential impacts across various economic indicators during both the construction and operation phases of the project.

6.1 Energy Affordability

The adoption of renewable energy in Nunavut has significant potential to improve energy affordability, particularly when pricing structures go beyond simply reflecting avoided diesel fuel costs. The Qulliq Energy Corporation (QEC)'s 2021 renewable energy pricing strategy[4], as reinforced by a 2024 backgrounder from the Pembina Institute[5], recommends a comprehensive approach to energy purchase agreement (EPA) rates. This includes accounting for non-fuel operations and maintenance savings, avoided government subsidies on diesel, and broader social and environmental benefits such as carbon reductions. Under this model, the EPA rate could be set at $0.402/kWh—substantially higher than the current $0.248/kWh rate—without increasing costs to customers, as only the $0.27/kWh reflecting direct QEC savings would be paid by ratepayers. The remaining portion would be covered by contributions from the Government of Nunavut and the federal government. Additionally, the strategy supports a further adder of $0.04–$0.08/kWh for Inuit-owned projects, recognizing the need for equitable energy development aligned with territorial policy. By properly valuing these broader benefits, this integrated pricing model would increase revenues for renewable projects by up to 62%, making them more viable while maintaining affordability for Nunavummiut.

To date the Qulliq Energy Corporation has not made any modifications to the IPP pricing structure. However, territorial developers and renewable energy stakeholders continue to lobby and advocate for improvements to be made to policy, including the need for the Government of Nunavut to modernize the territory's energy strategy and update QEC's mandate.

6.2 Project spending within the community

The project is expected to generate both direct and indirect employment opportunities during construction and operations.

Although precise figures are still being finalized, a significant share of the construction-phase budget is expected to be allocated to local contractors, suppliers, and service providers. The specific breakdown of these allocations will ultimately depend on how the developer's general contractor manages the project. This may include activities such as civil construction, logistics, equipment handling, accommodations support, and related services.

[4] InterGroup Consultants Ltd. (2021). *Specialized Pricing Strategy for Renewable Energy Suppliers to QEC: Final Report – August 2021.* Prepared for Qulliq Energy Corporation.
[5] He, E. (2024, January). *Rethinking energy purchase agreement rates in Nunavut: InterGroup study recommendations to QEC would increase revenues for renewable energy projects.*

The following table outlines high level estimates on cost components that could be spent within the community. However, these estimates are subject to refinement as the design progresses and is finalized.

Table 1: CBSS Community Economic Inputs

Service Type/Materials	Estimated Expenditure in Community	Notes
Accommodations	$135,000.00	Crew hotels
Food	$81,000.00	Crew meals
Granular Materials	$200,000.00	Gravel, sand, etc.
Heavy Equipment Support	$2,500,000.00	Excavator, loaders, drills, etc.
Vehicle Rentals	$80,000.00	Crew pick-up trucks and ATVs
Total	**$2,996,000.00**	

During the construction phase, which is anticipated to span two construction seasons (end of June to early October), the project will require a variety of skilled and general labor positions. At least four local contractors have been identified as capable of delivering key components of the work. Work assignments will be distributed based on technical competency, safety compliance, and capacity, with an emphasis on equitable distribution among local providers.

The following table summarizes the types of labour positions that will be created by the CBSS project:

Table 2: Expected job creation during the construction phase

Position Title	Est. # of Positions	Duration	Notes
Installation Labourer	8	2 years seasonal	Local work force
Electrician	4	2 years seasonal	Some capacity from out of town
Heavy Equipment Operator	3	2 years seasonal	Mixture of local and transient work force
Maintenance Technician	1-2	Long term (Completion onward) 40yrs	Local work force trained in Cambridge Bay

Indirect economic benefits are also expected through increased demand for accommodations and hospitality services. During construction, tradespeople and technical staff from outside the community will require lodging and meals, which will drive revenue for local hotels, restaurants, and stores. The presence of visiting workers and project partners also provides secondary business opportunities in areas such as transport, equipment rental, and guiding services. Cambridge Bay boasts a well-established hospitality sector, including several hotels, suites, restaurants. Additionally, local artisans may experience increased demand from visiting personnel and associated economic activity. Sales of locally produced carvings, prints, and textiles can benefit from temporary markets created during the project construction.

Beyond construction, the operation and maintenance of the facility will generate long-term employment opportunities and increase workload for certain existing roles. This may include technicians, road & infrastructure maintenance, and administrative or logistical support positions. During community engagement sessions, the Proponent received early expressions of interest from local residents, indicating strong community support and a willingness to participate in the renewable energy transition. More broadly, infrastructure projects like CBSS contribute to the local economy by stimulating demand for services and personnel. A key objective is to ensure that the resulting economic benefits remain within Cambridge Bay to the greatest extent possible.

6.3 Other Infrastructure Development

The construction of renewable energy infrastructure—such as access roads, solar or wind installations, and battery storage systems—will require physical upgrades that can provide lasting benefits. For example, roads built or improved as part of the project may enhance access to hunting grounds, support land-based activities, or contribute to the town development across the bay.

The existing access road to the project site is currently unmaintained and dates back to the establishment of the “Old Town” area during the construction of the Distant Early Warning (DEW) Line site. Today, it continues to be used by community members accessing traditional camping and fishing areas. To support a smooth construction process and enable efficient transport of granular materials, a minor resurfacing is planned from the river crossing to the project site. As a result, the main access road, along with two adjacent trails near the project site, will be upgraded from their current condition.

6.4 Inuit Economic Involvement

In support of Inuit economic participation, the Proponent is committed to prioritizing the employment of local Inuit workers and contracting Inuit-owned businesses wherever possible. This aligns with the broader goal of fostering self-determined economic development and ensuring that renewable energy investment contributes meaningfully to Inuit prosperity.

However, the scale of potential impact reinforces the need for continued planning to ensure capacity-building, skills training, and equitable distribution of benefits.

7 Social Impacts Assessment

The proposed renewable energy infrastructure project was met with widespread community support during the engagement process. Community members expressed a strong preference for sustainable energy development and showed no opposition to the project's scale or objectives. This section summarizes the potential social impacts of the project and outlines how identified concerns will be addressed through mitigation and community benefit measures.

7.1 Land Use Compatibility and Site Selection

The selected project site lies within municipal boundaries and was identified in collaboration with local leadership as a preferred location for development.

- The chosen site received broad approval, with many participants noting it is not heavily used and is visually unobtrusive.
- The area is bordered by two trails leading to Back Point and Aptalok Bay. While there were concerns about potential disruption during construction, the project design ensures continued public access and protection of these trails and surrounding tundra. Any disturbance will be restored post-construction.
- The site falls within municipal boundaries and has received formal approval from the municipal council. The land has been officially transferred from municipal reserve, and a lot number has been obtained.

Although the site is bordered by two trails leading to Back Point and Aptalok Bay, these trails are not expected to be significantly impacted. The project design prioritizes protection of surrounding tundra and trail access. Any temporary disruption during the construction phase will be mitigated and the site restored upon project completion.

7.2 Traditional Land Use and Cultural Resources

Based on community engagement activities carried out in 2024, feedback from local knowledge holders and the Archeological Impact Assessment (Nunami Stantec Limited, 2025):

- Community members did not identify the area as being used for hunting, fishing, harvesting, or other traditional activities.
- No concerns were raised regarding harvesting grounds or the presence of burial sites, caches, or culturally significant land uses.
- The Archeological Impact Assessment recorded six new archaeological sites; all located outside of the project area.
- No impacts are anticipated on traditional travel or harvesting routes.

Community consultation confirmed that the site does not hold cultural significance. Although outside of the project area, the archaeological sites identified through the Archaeological Impact Assessment will be actively avoided during both construction and operation of the project. If any future development proposes to disturb these sites, further archaeological investigation will be undertaken in accordance with applicable regulations.

7.3 Community Infrastructure and Benefits

Several positive outcomes are anticipated:

- The project will include upgrades to the existing access road between the community and the eastern side of the Bay, which will improve year-round access for community members traveling to Aptalok Bay and nearby areas.
- The establishment of a formal municipal right-of-way through a segment currently owned by Transport Canada will increase local control over road infrastructure and improve community access to the project site area and beyond.
- No housing displacement, land use conflicts, or interference with municipal services are expected.

7.4 Conclusion

The project is not anticipated to generate adverse social impacts, provided that access is maintained and mitigation measures are implemented. No significant issues related to land use, cultural resources, or social services were identified during the engagement process. The project is expected to support broader community goals related to infrastructure improvement and clean energy development.

8 Environmental Impacts Assessment

The proposed large-scale renewable energy project has been designed with a strong commitment to sustainable development and respect for local ecosystems. This chapter outlines the known historical and current environmental conditions, identifies potential risks associated with the project during construction and operation, and identifies planned mitigation measures throughout the life of the project.

8.1 Environmental Site Conditions

Historical Land Use

During the community engagement in early 2024, residents raised concerns about the possibility of site contamination, citing remnants of the “Old Town”, including abandoned concrete footings and anecdotal reports of buried fuel barrels.

While no physical evidence of contamination was observed during preliminary site inspections, the Proponent retained Nunami Stantec to carry out a Phase I Environmental Site Assessment (ESA) with limited soil sampling as a due diligence measure. This assessment will formally document historical land use, identify any recognized environmental conditions, and inform the need for further investigation or remediation, if warranted. During the site visit, limited soil sampling will be conducted to provide additional, limited information about areas of potential contamination identified during the Phase I ESA records review and site visit. Samples will be collected for analysis of COCs, including benzene, toluene, ethylbenzene, xylene(s) (BTEX), petroleum hydrocarbon (PHC) fractions F1 through F4, grain-size, and

polycyclic aromatic hydrocarbons (PAHs). Other CoCs may be analyzed if identified during the historical records review and site visits as being applicable to the site or the surrounding properties.

The Phase I EAS report will be sent to the Nunavut Impact Review Board as soon as available.

Current Land Use

The project site is located within the municipal boundaries of Cambridge Bay. No areas of heightened ecosystem sensitivity or protected environmental zones have been identified within the proposed project footprint. The area is currently accessed via an existing road, which will be used and improved during the project, thereby avoiding the need for new access routes and minimizing ground disturbance.

8.2 Potential Environmental Impacts

Construction Phase

Construction activities—such as the transportation of personnel and equipment, road access improvements, and the installation of the solar array—may temporarily disturb the environment. Identified potential adverse effects include:

- Noise and visual disturbance to migratory and non-migratory birds and other wildlife, particularly during peak construction activities.
- Potential adverse impacts on surface water quality due to sediment runoff or accidental releases.
- Potential adverse impacts on marine water quality due to sediment runoff or accidental releases, given that the Project site is located only 130 metres from the Coronation Gulf.
- Disturbance to vegetation and topsoil, which could impact soil stability and habitat cover.
- Permafrost disruption.
- Exposed rock or soil materials from the quarry might release acidic water and harmful metals when disturbed. However, the CBSS project will use pre-stockpiled granular materials and quarry operators to regularly monitor process materials for contaminants and other important markers to ensure contamination is not dispersed into the community.

No concerns were raised during community engagement sessions in 2024, by Elders or other community members, regarding the location or ecological impact of the project. The CBSS team has held informal discussions with both current and former EHTO members, who have expressed general support for the project. A formal letter of support from the EHTO Board will be obtained and submitted once it becomes available.

Operation Phase

Permafrost Degradation: As discussed in Section 3.2 Technical Studies, the initial foundation option was a geo ballast solution in the form of gabion rock baskets. Through consultation with permafrost experts, there are concerns that this option may pose a risk to the infrastructure under certain future climate change scenarios due to the destabilization of the permafrost. As observed in Old Crow, Yukon, unplanned

permafrost degradation can significantly affect solar panel foundations, reducing their lifespan and increasing maintenance costs. Additionally, the impact of the solar infrastructure on the permafrost and ground surface over the long term is not well understood. To our knowledge this kind of analysis has never been done in Nunavut for large scale renewable energy projects. The Proponent has identified the following risks:

- The solar panels, racking, and foundations might cause significant heat transfer to the ground, due to their high thermal conductivity. Heat transfer could have a significant impact on the active layer, especially considering our warming climate. Foundation piles are made of steel and penetrate deep into the permafrost, often into bedrock. These piles can introduce a heating effect deep into the permafrost disrupting what was previously continuous permafrost which would thaw adjacent ice lenses.
- Solar infrastructure, specifically racking designs with geoballast foundations, has significant potential to create snow accumulation and drifting as a result of introducing obstructions on previously and otherwise wide-open tundra. Snow accumulation will insulate the ground against the deep winter cold, preventing it from being exposed to the effects of deep-freezing, and as such deepening the active layer. In turn, high winds contribute to thinner snow covers which helps protect the permafrost.

Mitigation measured are discussed in Section 8.5.

Battery leakage: Solid-state lithium batteries that would be used for this project represent a significant advancement in safety over traditional liquid electrolyte batteries. Unlike their liquid filled counterparts, solid-state batteries using the latest chemistries, such as lithium iron-phosphate, use solid components which eliminate the risk of liquid leakage, reduce the risk of thermal runaway in faulty conditions, and greatly reduce the likelihood of fire and explosions. Consequently, solid-state batteries offer a more stable and safer option, particularly in large-scale energy storage applications where safety and reliability are paramount. Proper maintenance routine and predictive maintenance will be planned and implemented in collaboration with the equipment manufacturers. There may be special considerations for first responders such as the fire department responding to the BESS. However, those specific instructions will be created in the construction phase of the project, as exact battery chemistry may vary.

No other measurable environmental effects are anticipated during the operational phase. The solar array and supporting infrastructure are passive and non-emitting, and routine maintenance will be limited in scale and frequency. The physical footprint will remain unchanged, and no further disturbance to land, water, or wildlife is expected.

8.3 Geographic Scope of the Project

The physical footprint of the proposed project remains entirely within the boundaries of the Hamlet of Cambridge Bay. It does not encroach on traditional harvesting areas or designated wildlife habitats.

No construction camps will be required, as proximity to the community allows the project to rely on local accommodations and contractors. This reduces the need for land clearance and associated environmental disruption.

The existing access road will be used and improved. In fact, improvements made to the road and a temporary bridge during construction may provide lasting benefits for community access while minimizing ecological disturbance.

8.4 Ecosystem Sensitivity and Habitat Concerns

To the best of the team's knowledge, the preliminary review of the project footprint has not identified any species at risk, nesting grounds, or areas of elevated ecological sensitivity. The site does not overlap with protected or ecologically significant areas, nor with known wildlife corridors. This assessment will be further confirmed through upcoming engagement with the local Hunters and Trappers Organization (EHTO).

Nonetheless, the project team remains committed to the monitoring and adaptive management of the site. Any incidental findings of environmental sensitivity during construction will trigger a review and application of enhanced mitigation measures as necessary.

8.5 Mitigation Measures

To manage potential risks during construction and ensure environmental protection, the Proponent will implement the following measures:

Pollution and Waste Management

All hazardous and non-hazardous waste will be managed to prevent environmental release and harm to wildlife.

Waste will be segregated, stored, and transported according to territorial and federal regulations.

Fuel and Chemical Handling

Fuel and Chemical Storage: Fuel will be stored in compliance with regulatory standards, using secondary containment systems and spill kits readily available at storage areas.

Personnel will be trained in spill response procedures, and fueling activities will be monitored and recorded.

Marine, Surface and Groundwater Protection

Erosion and sediment control measures will be implemented to protect all nearby water bodies.

Construction activities will be timed and designed to reduce the potential for runoff or sedimentation.

Site Restoration

The Proponent commits to restoring disturbed areas to a natural condition, including revegetation where feasible.

Permafrost disruption

The Proponent applied to and received funding from the Climate Preparedness in the North Program (CCPN). Under this funding program, our team is exploring alternative designs, such as pile foundations, that are more resilient to climate change. This requires a comprehensive analysis of permafrost conditions and climate sensitivity of the site to fully understand the subsurface environment. Additionally, the impact of the solar infrastructure on permafrost, which may exacerbate the effects of climate change, is not currently well understood. The Proponent is currently conducting an in-depth study to:

- Collect additional geotechnical and climate data to inform the design of the solar array foundations.
- Install permafrost monitoring stations to capture pre-construction baseline data and to assess potential permafrost degradation resulting from the installation of the solar infrastructure, if any. This work will be submitted under another NPC/NIRB application.
- Conduct a snow drifting study before and after construction.

Capturing baseline permafrost and active layer performance data ahead of construction is critical for understanding the true effects of the infrastructure on the site. Preliminary results can be shared with NIRB upon request.

Acid Rock Drainage (ARD) and Metal Leaching (ML) Analysis

During the Phase I ESA site visit, Nunami Stantec will evaluate the 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.

Others

The Proponent further undertakes to prevent new occurrences of pollution, garbage, or contamination and to remediate any incidental impacts during the course of the project.

8.6 Proponent Commitments

Based on current planning and community feedback, the proposed renewable energy project is not expected to result in significant adverse environmental effects. The Proponent has integrated community concerns and site knowledge, and best environmental practices into project design and planning. The operational footprint is minimal, and the long-term benefits—both environmental and socio-economic—are expected to significantly outweigh short-term impacts.

The Proponent makes the following environmental commitments:

- Conduct a Phase I ESA, limited soil sampling and ARD/ML testing as due diligence based on community concerns.
- Employ best practices for waste and spill management.
- Utilize existing infrastructure and avoid unnecessary land disturbance.
- Avoid construction camps and prioritize the use of local contractors and accommodations.
- Ensure the site is restored and revegetated where applicable, after construction.
- Monitor and adapt mitigation measures as necessary throughout project execution.

9 Conclusion

The CBSS Project represents a major milestone in the energy transition for Cambridge Bay. This assessment finds that the project is fully supported by the community, will provide local economic growth, and is environmentally sound, provided that recommended mitigation and monitoring measures are fully implemented. Through meaningful engagement, careful site selection, and a commitment to local benefit, the project is positioned to deliver long-term value to the community while reducing greenhouse gas emissions and advancing Nunavut's renewable energy goals.

While final design elements and permitting processes remain underway, no significant barriers have been identified. The project team recommends continued collaboration with community stakeholders and regulatory agencies to ensure that all environmental, cultural, and economic considerations are addressed as the project progresses to implementation. With appropriate support and continued transparency, the CBSS Project has the potential to serve as a model for sustainable, community-driven energy infrastructure in the Canadian Arctic.

10 Closure

Should you have questions regarding this report, please do not hesitate to contact the undersigned.

Regards,

Tom Rutherdale

President, Aurora Energy Solutions

APPENDIX A

CAMBRIDGE BAY SOLAR AND STORAGE PROJECT LOCATION AND LAND SKETCH

Figure A: Project Location (in blue)

APPENDIX B

CAMBRIDGE BAY SOLAR AND STORAGE PROJECT OFFICIAL SURVEY

APPENDIX C

STAKEHOLDER ENGAGEMENT REPORT (2023)

APPENDIX D

CBSS FEASIBILITY STUDY COMMUNITY ENGAGEMENT REPORT (2024)

SOLVEST
NORTHERN SOLAR SOLUTIONS

118 Titanium Way | Whitehorse, Yukon Y1A E08 | 867-457-5690

Environmental Support for the CBSS Project

Request for Proposal

Purpose:

The team for the Cambridge Bay Solar + Storage project (CBSS) requires support on specific environmental deliverables related to wildlife impact mitigation and monitoring.

Deliverables:

The final deliverable will be a report that covers the three key wildlife impact areas of interest below:

1. Species At Risk
    a. Consult the Government of Canada's Species at Risk (SAR) registry to obtain the most current information for species that may be impacted at the CBSS project site, and identify adverse effects of the CBSS Project on the species at risk likely to be affected and their critical habitat;
    b. Suggest measures be taken to avoid or lessen those adverse effects and monitor them to inform adaptive management;
    c. Mitigation and monitoring measures should be consistent with applicable species at risk Recovery Strategies and Action Plans or Management Plans; (these plans are published for relevant species on the Gov't of Canada websites)
    d. IF NO SPECIES AT RISK WILL BE IMPACTED: Write a short report outlining how the SAR database was consulted, and how it was found that the project would not impact any current species at risk.
2. Wildlife Managed by the Government of Nunavut
    a. Consult the Draft Nunavut Land Use Plan to confirm what species managed by the Government of Nunavut in the project area require protection measures,
    b. List the mitigation actions that can be taken to reduce or remove impact on these species.
3. Migratory Birds

a. Suggest a monitoring plan for ensuring potential migratory bird impacts are captured prior to construction, and on-going monitoring and mitigation for during and post-construction

b. IF NO MIGRATORY BIRDS WILL BE IMPACTED: Write a short report outlining what was done to determine there are no migratory birds using the CBSS project area, and what can be done to monitor any potential negative impacts on birds that the project may introduce.

Proposal Submission Guidelines:

Please submit the following:

- Proposed methods used to collect, analyze and report on relevant information
- Proposed project timeline for completing the Deliverables
- Kick-off and end dates
- Relevant qualifications, professional designations, and/or experience of the team members
- Pricing

Proposals/quotes can be submitted by e-mail to:

Martha Lenio

Project Manager, Cambridge Bay Solar + Storage Project

mlenio@solvest.ca

519-496-6803

Qujannamiik!