

## **Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) Comments**

### **Nunavut Impact Review Board (NIRB) Review**

NIRB File No.: 25XN022

CIRNAC File Reference: GCdocs# 139382280

### **Introduction**

This document provides a comprehensive response to the comments submitted by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) 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 CIRNAC 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 CIRNAC submission.

### **Responses to CIRNAC Comments**

#### CIRNAC #1: Spill Prevention

Construction, operation and maintenance will handle diesel (100 gallon) for a 30 kW generator at a shoreline-adjacent array and along the ~4 km interconnect, including the Fresh Water Creek crossing. During Spring melt, overland flow paths are short and hydraulically connected to the bay/creek; even small releases can rapidly reach surface water. CIRNAC recommends the Proponent considers:

- Storing diesel fuel in secondary containment areas and conduct refueling activities on impermeable surfaces equipped with spill trays and absorbent materials;
- Maintaining spill-response equipment at all refueling sites and conduct regular spill drills; Ensuring hazardous materials storage and greywater sumps are at least 31 meters from any waterbody's high water mark; and,
- Implementing daily inspection routines for all fuel storage and handling areas.

#### Proponent Response:

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

### CIRNAC #2: Battery Energy Storage System (BESS) Safety

The BESS comprises 3 MWh LiFePO<sub>4</sub> units with an estimated enclosure volume of 70 m<sup>3</sup>. While solid state preference reduces leakage and thermal-runaway probability, a container event could release toxic smoke/soot and contaminated fire-water that can mobilize on tundra toward nearby waters. Local responders may also have limited Li-ion experience in Arctic conditions. CIRNAC recommend the Proponent considers:

- Developing an emergency response plan specific to battery storage system before it is commissioned;
- Installing automated fire suppression systems within battery enclosures;
- Training local emergency response teams specifically in lithium-ion battery incident management; and,
- Establishing robust emergency response protocols including contaminated water capture and hazardous waste disposal planning.

### 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.

The TROES container fireproof board material can have a flame-retardant time of no less than 2 hours, which is based on the latest data from the battery manufacturer (Narada Power). The fire protection system consists of a FFT 1230 Clean Extinguishing Agent and Control Panel (both UL listed). It will empty the entire can rapidly when high temperature is detected, terminating propagation of the fire. The container will undergo the SPE-1000 field certification on-site in accordance with the UL9540 standard.

This fire suppression information is specific to the TROES battery system, however if the supplier changes before construction of the project, we will look for similar fire safety engineering solutions, in addition to the emergency response plan.

Training will be provided to local project staff as well as Emergency Responders in Cambridge Bay prior to start-up, and at regular intervals during the project lifetime as part of the regular training and operations plan for the plant.

### CIRNAC #3: Preventing Erosion and Habitat Restoration

Construction includes array grading and 4 km of underground/overhead interconnection adjacent to the Cambridge Bay shoreline and across Fresh Water Creek. A temporary construction bridge is planned for a small parallel creek segment to avoid vehicle fording; without controls, melt and storm events can

mobilize silts to the bay/creek. CIRNAC recommends the Proponent considers:

- Confining all construction activities to defined areas by making work boundaries to prevent any unintentional damage to adjacent tundra;
- Implementing erosion and sediment controls (e.g., silt fencing, stabilized entrances) pre-disturbance;
- Diverting clean runoff around disturbed areas; and,
- Immediately stabilizing and revegetating exposed soils.

Proponent Response:

The river crossing upgrades will be addressed under a separate NIRB application, as was recommended to the project team to allow dedicated focus on the concerns and impacts of that project.

For the rest of the Solar + Storage project, one of the first activities for site preparation will be the installation of construction fencing around the site. This will serve the dual purpose of ensuring that construction activities are limited to the site in question, and to prevent any construction waste inadvertently blowing away in the wind and entering waterways. Daily checks of the fence to collect any waste caught by the fence, and to ensure it's in good repair will be conducted during construction season.

*Erosion Control*

The primary mechanism for erosion control is the avoidance of activities that may contribute to erosion. The following erosion control measures will be implemented during construction:

1. The disturbance of new areas will be limited to the minimum required;
2. Installation or implementation of erosion prevention and drainage control measures will be conducted prior to land disturbance; Diverting clean runoff around disturbed areas can be achieved through drainage control measures.
3. Routine monitoring will be conducted during construction to identify areas of potential erosion and to implement appropriate mitigation measures. Progressive erosion and sediment control measures will be implemented as required;
4. Erosion control options will be considered as appropriate to enhance soil stability and reduce surface water runoff. Such options may include:
  - Slope treatments, achieved by roughening slopes (e.g., step-grading, grooving, tracking) to improve stability and increase seeding success and vegetation growth. Such treatments reduce runoff velocity and increase soil-water infiltration;
  - Erosion control structures (e.g., mats, nets, fibrous rolls) deployed on short, steep slopes where there is high erosion potential and slow vegetation establishment. Such structures

are used to slow runoff and reduce erosion where there is flowing water;

- Check dams and dikes are temporary barriers constructed of rocks, gravel bags, sandbags or fibre rolls. Such structures are installed across a constructed swale or drainage ditch to reduce water velocity.
5. Work with heavy equipment will be conducted at times of the year where the ground is frozen as much as possible to limit damage to the tundra
  6. Impacted and exposed soils will be stabilized and revegetated (as possible) immediately.

#### *Sediment Prevention*

Sediment barriers are temporary sediment control devices, used to protect water quality of receiving environments (i.e., down gradient rivers, streams and other water bodies) from sediment in water runoff. The most common sediment barriers are silt fences, which are often used in combination with other water control measures such as sediment traps and basins. Other sediment barrier options include straw bales and berms of erosion control mix. Engineering requirements may vary depending on the locations of sediment barriers. Factors including drainage/surface area of exposed soils and time of year will be considered when placing sediment barriers.

The following sediment prevention measures will be implemented during construction:

1. If an inspection reveals that silt is entering any waterbody, further mitigative measures will be implemented, such as temporary drainage ditches, ditch blocks/check dams, siltation control (silt fencing/silt curtain/geotextile/spring berms) or sediment dam traps, to intercept run-off. The necessary or appropriate measures will be determined in the field;
2. Existing or new siltation control structures used during construction will be monitored for excessive accumulation of sediment. Accumulated sediment will be removed from control structures to maintain effectiveness. In particular:
  - Accumulated sediment will be removed when it reaches 60% of the height/depth of the siltation control structure, or no less than once per month during active accumulation;
  - Effluent from control structures will be released to flow overland for appropriate filtration prior to entering waterbodies; and
  - Excess water will be removed from siltation control structures prior to excavation of sediment.

#### CIRNAC #4: Permafrost Protection

The site is underlain by continuous permafrost. Ground disturbance, heat transfer from foundations, and snow drifting around racking can deepen the active layer and cause thaw settlement, affecting terrain stability and nearby drainage. Further to indicated measures, CIRNAC recommends that the Proponent to perform regular monitoring to track ground temperatures, active layer thickness, and trigger corrective measures as needed. Also, where feasible, heavier ground-disturbing work could occur in colder periods, and summer traffic could be minimized off prepared/stabilized surfaces.

#### Proponent Response:

The Proponent applied to and received funding from the Climate Preparedness in the North Program (CCPN). Under the CCPN funding, permafrost monitoring stations are installed to collect pre-construction baseline data and to monitor potential permafrost degradation associated with the installation and operation of the solar infrastructure, if any. The Kitikmeot Corporation will serve as the owner of the monitoring stations until the structure and ownership of the solar farm are finalized, at which point ownership of the stations will be transferred to the new project owner.

Aurora Energy Solutions will be responsible for the operation and maintenance (O&M) of the permafrost monitoring stations throughout the duration of the project. Collaboration has been established to share data with permafrost experts within Polar Knowledge at the Canadian High Arctic Research station and additional opportunities to collaborate and share data with permafrost and climate change experts will be pursued. The project budget includes funding to support two years of O&M and data collection activities. Long-term monitoring beyond this period will depend on the availability of additional funding and the responsibilities assumed by the future owner of the solar farm. The baseline data and ongoing monitoring will indeed allow the project owner to implement corrective measures to protect the integrity of the permafrost throughout the site which will ultimately minimize impact to the environment and to the longevity of the infrastructure. The project design team has opted to choose a racking design that aims to minimize snow drifting around the solar array to reduce impacts to permafrost that result from drifting snow negatively affecting the freeze thaw cycles of the ground active layer.

The construction season for the project is anticipated to occur between June and October. Where feasible, activities involving heavy equipment and significant ground disturbance are expected to take place during colder periods.

#### CIRNAC #5: Consultation with interested parties

CIRNAC recommends that the Proponent continue consulting with the Hamlet of Cambridge Bay, the Nattivak Hunters and Trappers Association, Pitquhirnikkut Ilihautiniq / Kitikmeot Heritage Society Board, the Ekaluktutiak Hunters and Trappers Organization, and any other relevant organizations or individuals

on its project proposal. As part of these consultation activities, several issues should be considered, including, but not limited to:

- Incorporation of Inuit Qaujimajatuqangit into project activities;
- Mitigation measures to prevent any disturbance to wildlife and the environment;
- Mitigation measures to prevent disturbance to sites of cultural, archaeological, and/or environmental significance;
- The experience of community members who practice traditional and recreational activities within or in close proximity to project area;
- Training and employment opportunities for Inuit and community members;
- Procurement opportunities for local and Inuit-owned businesses; and
- Regular updates on the status of project activities.

Proponent Response:

As demonstrated through our engagement efforts to date, the project team remains highly committed to practicing participatory decision-making with the community. The team maintains regular communication and reporting with key stakeholders in Cambridge Bay, including local organizations, leadership bodies, and community members.

We acknowledge and appreciate CIRNAC's recommendations regarding continued consultation with the Hamlet of Cambridge Bay, Pitquhirnikkut Ilihautiniq / Kitikmeot Heritage Society Board, the Ekaluktutiak Hunters and Trappers Organization, and other relevant organizations or individuals.

Moving forward, we will continue to engage with these groups to ensure that:

- Inuit Qaujimajatuqangit (IQ) is meaningfully incorporated into project planning and implementation;
- Appropriate mitigation measures are in place to prevent disturbance to wildlife, the environment, and sites of cultural, archaeological, or environmental significance;
- The experiences and knowledge of community members who use the project area for traditional and recreational purposes are respected and integrated;
- Training, employment, and procurement opportunities for Inuit and local businesses are maximized; and
- Regular updates on the status of project activities are shared with stakeholders.

All points raised by CIRNAC will continue to be upheld and integrated throughout the life of the project.

### **Conclusion**

The project team appreciates CIRNAC's thorough review and constructive feedback. All comments have been considered and integrated into project planning and management. Ongoing engagement with CIRNAC, 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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