

D^ab_cDⁿ_c: 613-738-2646, P^bd^bd_c: 613-738-9939

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(See documents for executive summary & brief translated summary) Chesterfield Inlet consumes 2,123 MWh per year in electricity supplied entirely by diesel generators. This costs the hamlet over \$1.5 million every year and emits 1,307 tonnes of direct greenhouse gas emissions. This does not include the fuel associated with transporting diesel to Chesterfield Inlet. Chesterfield Inlet is located along the Hudson Bay coast in the Kivalliq region and receives the highest amount of solar energy in Nunavut. This is comparable to the same solar energy much of Ontario receives which has had a booming solar industry over the last decade. The Igluligaarjuk Midnight Sun, solar and storage microGrid demonstration project aims to tap into this free solar resource to reduce the hamlet's reliance on diesel for electricity. This project will utilize 609 kW of solar modules on iSolara's patented dual position QuickTrack system paired with a 636 kWh lithium ion energy storage system to act as an independent power system on the hamlet's existing grid. This project is expected to create 15-20 local jobs during construction and 1 job for operation & maintenance over the 10 year operational lifetime of the project. Solar energy will be fed directly into the grid to provide clean energy to all residents in the community. If the solar array is producing more than the grid can handle, excess energy will be stored in the energy storage system. During the winter months when there is limited solar energy the energy storage system will remain charged and can act as a back-up in the event of a generator failure or maintenance. This demonstration project aims to prove that simple solar with storage systems can easily integrate into the existing northern electrical infrastructure and work hand-in-hand with diesel generators. The ultimate goal is to deploy these systems in all remote communities to eliminate the need for vast fuel storage systems and diesel generators.

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Inuinnaqtun: No Inuinnaqtun translation at this time - Affected community speaks English and Inuktitut

Personnel

Personnel on site: 12

Days on site: 120

Total Person days: 1440

Operations Phase: from 2022-04-01 to 2022-09-15

Operations Phase: from 2022-09-15 to 2032-09-15

Post-Closure Phase: from to

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General Project Location (to be evaluated & confirmed) - Solar Array & Battery Storage Facility	Equipment installation	Municipal	Chesterfield Inlet is one of the oldest communities in Nunavut, with a population of almost 500. Currently, the community's electricity is supplied entirely by diesel generators. The Quliq Energy Corporation and the government of Canada are trying to reduce reliance on diesel generators and increase the usage of renewable energy resources in Nunavut. This project could supply nearly 1/3 of the community's electricity needs in clean solar energy, eliminating 200,000 litres in diesel fuel use.	The Hamlet of Chesterfield Inlet has recently been conducting site surveys around the community to identify areas of archaeological significance. The community, represented by David Kattegatsiak, has been working with iSolara to develop preliminary project site locations based on using non-archaeologically significant areas in the community.	~1km from central Chesterfield Inlet~230km from Harry Gibbons Bird Sanctuary

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ᐱᑦᑕᑎᐱᑎᐱᐅᑦᑕᑎᐱᑦ	David Kattegatsiak, Community Economic Development Officer	Hamlet of Chesterfield Inlet	2018-03-29

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ᓂᓐᓂᓐ ᓂᓐᓂᓐ, ᓂᓐᓂᓐ	Approval of the project by the Nunavut Planning Commission	Applied, Decision Pending		
ᓂᓐᓂᓐ ᓂᓐᓂᓐ, ᓂᓐᓂᓐ	Submission of Project plans to Safety Services Division for electrical safety approval	Not Yet Applied		
Hamlets and Municipalities	Letter of Community Support ----- The Hamlet of Chesterfield Inlet provided iSolara with a letter of	Active	2018-04-19	

	community support expressing that a motion had been passed by council committing to support the Igluligaarjuk Midnight Sun project. This letter also included mention of the Hamlet and iSolara's ongoing work to develop a community engagement plan, together. The letter also identified David Kattegatsiak, the Hamlet's Economic Development Officer, as the community champion for the project.			
Hamlets and Municipalities	Authorization to Act as Agent ----- Simeonie Sammurtok, Mayor of the Hamlet of Chesterfield Inlet, provided iSolara with a letter for Authorization to Act as Agent to contact the Quliq Energy Corporation. This letter was provided to allow iSolara to contact the QEC on behalf of the Hamlet in order to obtain information regarding the Hamlet's diesel generator's and load information.	Active	2018-04-23	
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NRCAN's Clean Energy for Rural and Remote Communities program for project funding			
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Project transportation types

Transportation Type	Transportation Description	Length of Use
Air	Transportation of iSolara & specialized personnel to site from Ontario	
Water	Shipping of materials	

Project accomodation types

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Diesel Generator	1	4' x 4' x 4'	Small portable generator for on-site electricity generation
Boom Truck	1	35' x 15' x 18'	Materials transport
Excavator, Skid Steer	1	25' x 25' x 25'	Site excavation, preparation, moving materials

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Diesel	fuel	25	20	500	Liters	General Construction Equipment

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Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION 11: Municipal Development

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During preliminary project phases, an extensive site assessment will be conducted to investigate environmental factors affecting the project and potential impacts the project could have on the local environment including: geotechnical study, review of heritage data, wildlife and plant screening, local habitat conditions study, and any natural features that could be affected by the project. The community will also be engaged throughout each stage of the project, providing input to exact location of the project and opening discussions for any concerns they may have.

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During preliminary project phases, an extensive site assessment will be conducted to investigate environmental factors affecting the project and potential impacts the project could have on the local environment. In particular, local biology will be assessed including a screening of local significant wildlife and plants, migratory birds, rare species, species at risk, wildlife behaviour, water topography, and any other natural factors that may be affected by the project.

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The project is tentatively planned to be located on the outskirts of Chesterfield Inlet - approximately one kilometre from the community's heart (close enough for electrical grid connection). The location will be finalized with factors in mind to minimize interrupting future community development or infrastructure, like roadways, etc. The Hamlet has recently been surveying the community and surrounding areas for planning purposes and to identify areas of archaeological significance, and has been working with iSolara to identify appropriate areas for the project that will not affect any such archaeological sites.

Miscellaneous Project Information

A Pre-Feasibility report has been completed by iSolara including simulations of the community's energy system in order to identify the viability of the proposed system. This report evaluated the energy needs of the community and the potential for solar power generation, paired with battery storage, in order to identify the ideal system size for the project. For construction of the solar array, some minor

earth moving will be required to level site grade and/or prepare for piles to anchor the racking system. Distribution poles will likely need to be installed adjacent to the site to connect to the existing distribution system. No new road is expected to be built, but access laneways/driveways will be built from existing roads onto the project site. The overall area of the of the site would encompass approximately 4 acres of land, but much of which is open space between solar array racking. A fence may be constructed around the site if it is determined that access must be restricted to the entire array.

உடையவர்களுக்கும் அருள்கூர்ந்து உதவி செய்து கொடுக்கப்படுகிறார்கள். இவ்வாறு உதவி செய்து கொடுக்கப்படுகிறார்கள்.

During construction, the community will be impacted by increased heavy equipment operation near the community including increased noise levels. The community will also be affected through the presence of construction crews requiring accommodation and services, which will provide economic benefit to the community's businesses. Excess materials from shipping equipment (skids, wood, cardboard) may also be provided to the community to be reused, or burned for heat in the case of safely combustible materials. During operation of the system, less diesel fuel will need to be imported to the community and burned for electricity, improving the local air quality and reducing the volume of fuel deliveries. Although project operation is specified as ending in 2032, equipment lifetime will last longer and the system will continue to be able to operate in reasonable capacity thereafter.

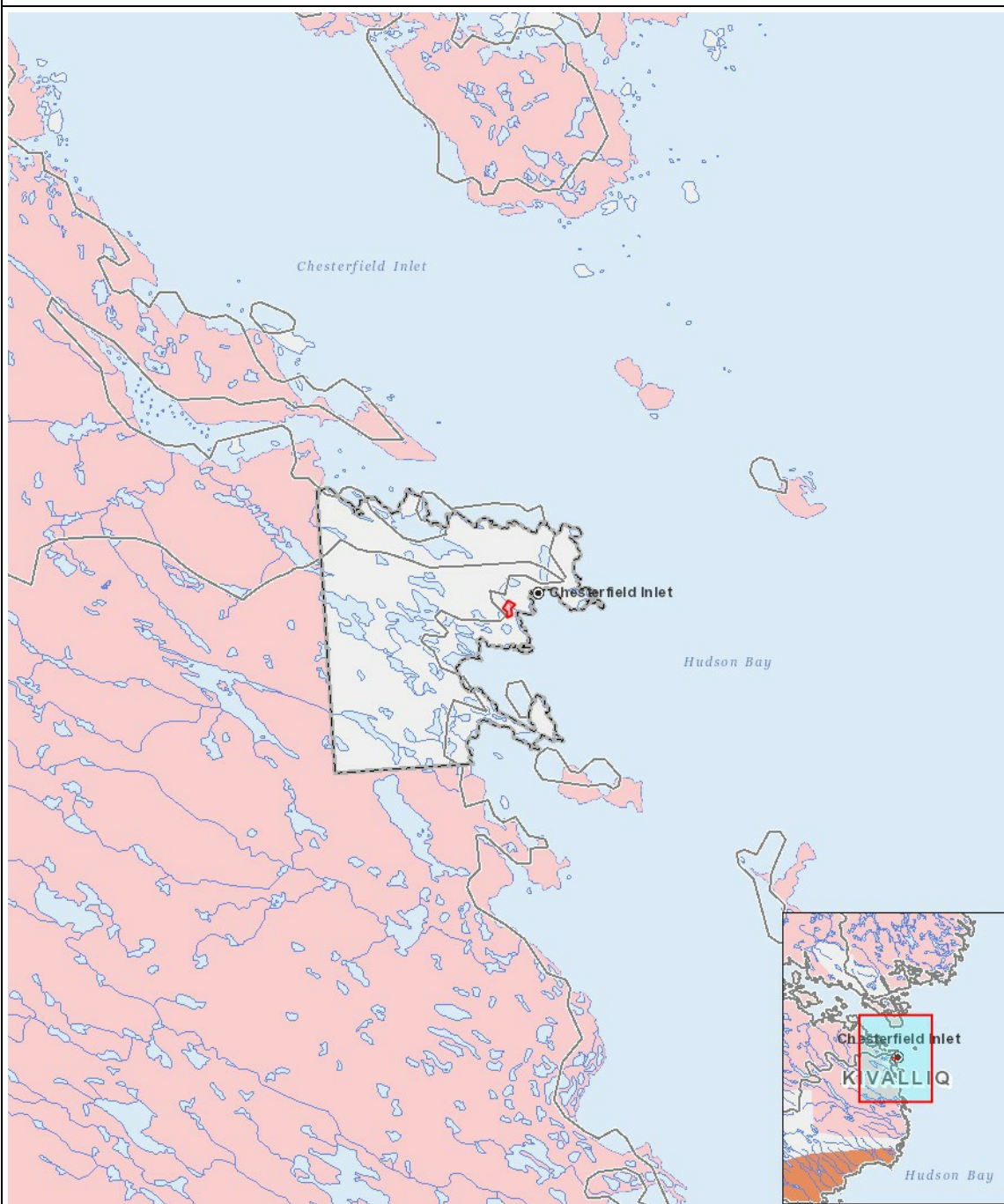
Cumulative Effects

Due to the reduction in diesel fuel usage for electricity generation this project would cause, there would be a decrease in local air contaminants and in GHG emissions. This would be a factor contributing to reduced impact of the community on global warming and overall environmental health and sustainability. Implementing this type of a system for all similar communities in Nunavut would greatly improve the territory's energy usage profile and reduce its contribution to global warming and environmental pollutants.

Impacts

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$$(P = \langle b \rangle \dot{\cup} P \cap \langle a \rangle^c, N = \langle b \rangle \cap \langle c \rangle \langle a \rangle^c \cup \langle c \rangle \langle a \rangle \langle c \rangle^c, M = \langle b \rangle \cap \langle c \rangle \langle a \rangle^c \cup \langle c \rangle \langle a \rangle \langle c \rangle^c, U = \langle b \rangle \cup \langle a \rangle \langle c \rangle^c)$$



List of Project Geometries

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|-----------|---|
| 1 polygon | General Project Location (to be evaluated & confirmed) - Solar Array & Battery Storage Facility |
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