



NIRB Application for Screening #125628

Igloolik New Power Plant

Application Type: New

Project Type: Power Plant

Application Date: 7/17/2021 2:11:30 PM

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

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

Project Proponent: Megan Larose
Qulliq Energy Corporation
PO Box 250
Iqaluit Nunavut X0A 0H0
Canada
Phone Number:: 867 979 7553, Fax Number::

DETAILS

Non-technical project proposal description

English:

Qulliq Energy Corporation (QEC) is a Government of Nunavut territorial corporation. Through the operation of 25 stand-alone diesel power plants, QEC is the sole provider of electricity to approximately 15,000 customers in the territory. Qulliq Energy Corporation is proposing to construct and operate a new power plant in the Hamlet of Igloolik located in the Qikiqtaaluk Region of Nunavut (the project). Igloolik is a community with increasing demand for electricity, reflecting its growing population. The existing Igloolik power plant was constructed in 1974 and has exceeded its design life. The installed firm capacity of the existing power plant is inadequate to meet the community's projected required firm capacity as early as 2022/2023. Without changes to the power generation infrastructure, the capacity shortfall will steadily increase with increased electricity demand in the community, resulting in reduced plant reliability. This multi-year project will include a new four-engine power generation facility designed for a 40-year life, with installed capacity of 3,450 kilowatts, and will incorporate new technology to improve reliability, efficiency, operation, and safety. The new plant will be capable of integrating renewable energy sources. Construction will include a fuel system consisting of two 90,000 litre double-walled, 110% contained horizontal fuel tanks and fuel piping and pumping facilities. Additionally, QEC has plans for a Quonset garage, transformer storage, pole racks, oil and glycol drum storage, and waste disposal area with containment. Space will be allocated for transient staff accommodations, sea cans for storage, and a back-up emergency generator. Upgrades to the existing distribution system will be required to connect to the new power plant. The main power plant building will include an office, electrical control room, mechanical room, and garage/workshop, in addition to the power generation hall. An approximately 250-metre fuel pipeline will be constructed to connect to the Petroleum Products Division (PPD) bulk fuel storage facility located to the south. The pipeline will be a combination of aboveground and underground construction. The proposed lot is approximately 8,516 square metres located on unsurveyed, untitled Commissioner's land, east of Lot 1000 Plan 1567 (airport property), and approximately 225 metres north of the PPD bulk fuel facility. A QEC land application was presented to, and approved by the Hamlet of Igloolik on June 17, 2021. There are no natural drainages, or watercourses within 100 metres of the project location. There are no designated wildlife areas, marine protected areas, territorial or national parks or Inuit owned lands in conflict with the power plant location. An archaeological impact assessment will be carried out in July 2021 to determine if archaeological sites are in potential conflict with the project and identify any necessary avoidance or mitigation measures. The project schedule is shown in Table 1.

Task	Timeline
Secure land and complete archaeological impact assessment	March 2021 to March 2022
Detailed engineering design	April 2022 to March 2023
Contracting and procurement	April 2023 to March 2024
Construction	April 2024 to December 2025 (seasonal)
Testing and commissioning	January 2026 to March 2026
Plant handover to QEC Staff	March/April 2026

The contractor awarded the construction tender will determine the required labour force to meet project requirements. It is estimated that approximately 21 workers will be on-site, depending on the construction phase. As per the Nunavummi Nangminiqagtunik Ikajuuti (NNI) Regulation, contractors will be obligated to meet mandatory Inuit labour levels for all construction work. QEC has staff in Igloolik that are responsible for the day to day operation of the power plant. This includes a Plant Superintendent (full time), and two Assistant Operators (part time). It is expected that existing staff will transition over to the new power plant once it has been constructed and commissioned. No new staffing is anticipated to be required as a result of this project. The majority of construction materials for the Project will be delivered to the community by sealift. Some materials may be sourced locally or delivered via cargo plane depending on size and quantity. The contractor will be responsible for sourcing construction equipment. This may include a combination of sub-contracting locally available equipment or bringing equipment to the community through the annual sealift. This project is anticipated to provide an overall benefit to the Hamlet of Igloolik with more efficient use of diesel, a non-renewable resource, and the reduction of greenhouse gas emissions. It will also allow QEC to improve power generation infrastructure in the community, support continued community growth and achieve its mandate for the provision of safe, reliable electrical power to the communities it serves.

French: La traduction en français n'a pas été identifiée comme une exigence pour cette communauté.

[illegible]

Inuinnaqtun: Translation of the non-technical summary to inuinnaqtun was not identified as a requirement for this community.

Operations Phase: from 2024-04-01 to 2026-03-31

Operations Phase: from 2026-04-01 to 2046-03-31

Post-Closure Phase: from to

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Proposed Lot Boundary_Igloolik	Fuel and chemical storage	Commissioners	The proposed lot is located on unsurveyed, untitled Commissioner's land, east of Lot 1000 Plan 1567 (airport property), and approximately 225 metres north of the PPD bulk fuel facility. The terrain within and surrounding the proposed lot is made up of broken rock and gravel and has not been previously developed. There are a number of sea cans located within the proposed lot that are suspected to belong to Canadrill as they currently occupy the adjacent lands to the northwest.	An archaeological impact assessment will be carried out in July 2021 to determine if archaeological sites are in potential conflict with the project and identify any necessary avoidance or mitigation measures.	The proposed power plant lot is located within the Municipal Boundary of the Hamlet of Igloolik, approximately 1.6 kilometres from the community core. There are no designated wildlife areas, marine protected areas, territorial or national parks or Inuit owned lands in conflict with the power plant location. There are no natural drainages, or watercourses within 100 metres of the project location.
Proposed Lot Boundary_Igloolik	Municipal and Industrial Development	Commissioners	The proposed lot is located on unsurveyed, untitled Commissioner's land, east of Lot 1000 Plan 1567 (airport property), and approximately 225 metres north of the PPD bulk fuel facility. The terrain within and surrounding the proposed lot is made up of broken rock and gravel and has not been previously developed. There are a number of sea cans located within the proposed lot that are suspected to belong to Canadrill as they currently occupy	An archaeological impact assessment will be carried out in July 2021 to determine if archaeological sites are in potential conflict with the project and identify any necessary avoidance or mitigation measures.	The proposed power plant lot is located within the Municipal Boundary of the Hamlet of Igloolik, approximately 1.6 kilometres from the community core. There are no designated wildlife areas, marine protected areas, territorial or national parks or Inuit owned lands in conflict with the power plant location. There are no natural drainages, or watercourses within 100 metres of the

			the adjacent lands to the northwest.		project location.
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Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Igloodik	Hamlet Land Development Officer	Hamlet of Igloodik	2021-06-04
Igloodik	Hamlet Chief Administrative Officer	Hamlet of Igloodik	2020-08-21
Igloodik	Hamlet Council	Hamlet of Igloodik	2020-08-11

Authorizations

Indicate the areas in which the project is located:

South Baffin

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Hamlets and Municipalities	Land application. Motion #77 approving the land application received 2021-06-17	Active	2021-06-17	
Government of Nunavut, Community Government & Services	Lease Agreement for Commissioner's Land. In progress subject to motion received from the Hamlet.	Applied, Decision Pending		
Hamlets and Municipalities	Development Permit	Not Yet Applied		
Government of Nunavut, Community Government & Services	Building Permit	Not Yet Applied		
Government of Nunavut, Department of Economic Development & Transportation	Nunavut Airport Authority - Project Review and No Objection Letter	Not Yet Applied		
Transport Canada	Aeronautical Assessment	Not Yet Applied		
Other	NavCanada - Land Use Proposal Submission Review and No Objection Letter	Not Yet Applied		
Nunavut Water Board	Hydrostatic Test - Type B license for water use and disposal of test water (to be completed by the construction contractor)	Not Yet Applied		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Construction labour and some materials will be transported to the community by air	
Water	Construction equipment and materials will primarily be transported to the community by sea lift	

Project accommodation types

Community

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Excavator	1		excavation
Backhoe	1		excavation, material movement
Bulldozer	1		material excavation and movement
Grader	1		civil construction, level soil/gravel as needed
Compactor Machine	1		site compaction as required
Articulated Truck (Dump Truck)	1		transport of materials to, from, within construction site
Tower Crane	1		Lifting materials to height
Pile Boring/Drilling Equipment	1		pile installation
Boom Truck	1		lifting construction materials to height
Telehandler	1		carry/transport heavy loads on site
Fork Lift	1		carry/transport materials
Trailer	1		transport materials to, from, and with the construction site
Concrete Mixer	1		mix and pour concrete
Welding Machine	2		welding and steel cutting
Generator	4		Four generators will be installed in the power plant with a generating capacity of 3,450 kilowatts

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	0	0	0	Liters	Fuel will be required during construction for all equipment used on site. Fuel storage and handling during construction will be the responsibility of the contractor. Details regarding the location and volume of fuel storage and location of equipment refueling during construction are

						not known at this time. The contractor will be required to have a fuel management plan.
Diesel	fuel	2	90000	180000	Liters	Fuel will be used/stored at the power plant to run the generators. Fuel will be stored in above-ground horizontal fuel storage tanks.
Solvent (Varsol)	hazardous	4	205	820	Liters	generator maintenance and operation
Engine Oil	hazardous	16	205	3280	Liters	Generator operation and maintenance
Propylene Glycol	hazardous	1	2000	2000	Liters	Power plant operations, heat transfer

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	To be determined by the construction contractor.	To be determined by the construction contractor.

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Municipal and Industrial Development	Combustible wastes	unknown	Disposal of construction waste will be the responsibility of the contractor. If permitted by the Hamlet, some waste may be disposed of at the local landfill. During operations, QEC will dispose of domestic waste in the local landfill if permitted by the Hamlet. Waste that is not permitted in the local landfill will be shipped south as part of QECs annual waste shipment.	none
Fuel and chemical storage	Combustible wastes	unknown	Disposal of construction waste will be the responsibility of the contractor. If permitted by the Hamlet, some waste may be disposed of at the local landfill. During operations, QEC will dispose of domestic waste in the local landfill if permitted by the Hamlet. Waste that is not permitted in the local landfill will be shipped south as part of QECs annual waste shipment.	none
Fuel and chemical storage	Hazardous waste	2,050 Litres	The amount of liquid waste during operation will vary annually. Waste fuel, oil, glycol and solvent will be collected in drums, stored within secondary containment and shipped south for disposal.	none
Fuel and chemical storage	Non-Combustible wastes	unknown	The amount of non-combustible waste generated during construction is unknown. The construction	none

			contractor will be responsible for the management and proper disposal of non-combustible waste. The amount of non-combustible waste generated during operation will vary annually. The material will be stored in quatrex bags or other appropriate containment and shipped south for disposal.	
Municipal and Industrial Development	Non-Combustible wastes	unknown	The amount of non-combustible waste generated during construction is unknown. The construction contractor will be responsible for the management and proper disposal of non-combustible waste. The amount of non-combustible waste generated during operation will vary annually. The material will be stored in quatrex bags or other appropriate containment and shipped south for disposal.	none
Municipal and Industrial Development	Overburden (organic soil, waste material, tailings)	unknown	Disposal of overburden and soil/rock excavated for the power plant to be determined by the contractor in communication with the Hamlet. Volume to be determined. If possible, some overburden material may be used to build up other areas within the plant site.	none

Environmental Impacts:

Please refer to the attached Project Description document (Table 4). Note: The environmental impact identified for permafrost, sediment and soil quality, air quality, and noise levels should be negative/mitigable for the construction and operation phases of the Municipal and Industrial Development and Fuel and Chemical Storage activities. The selection changes automatically to negative/non-mitigable every time this page is viewed.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Please refer to the attached Project Description document.

Description of Existing Environment: Physical Environment

Please refer to the attached Project Description document.

Description of Existing Environment: Biological Environment

Please refer to the attached Project Description document.

Description of Existing Environment: Socio-economic Environment

Please refer to the attached Project Description document.

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Please refer to the attached Project Description document.

Cumulative Effects

Please refer to the attached Project Description document.

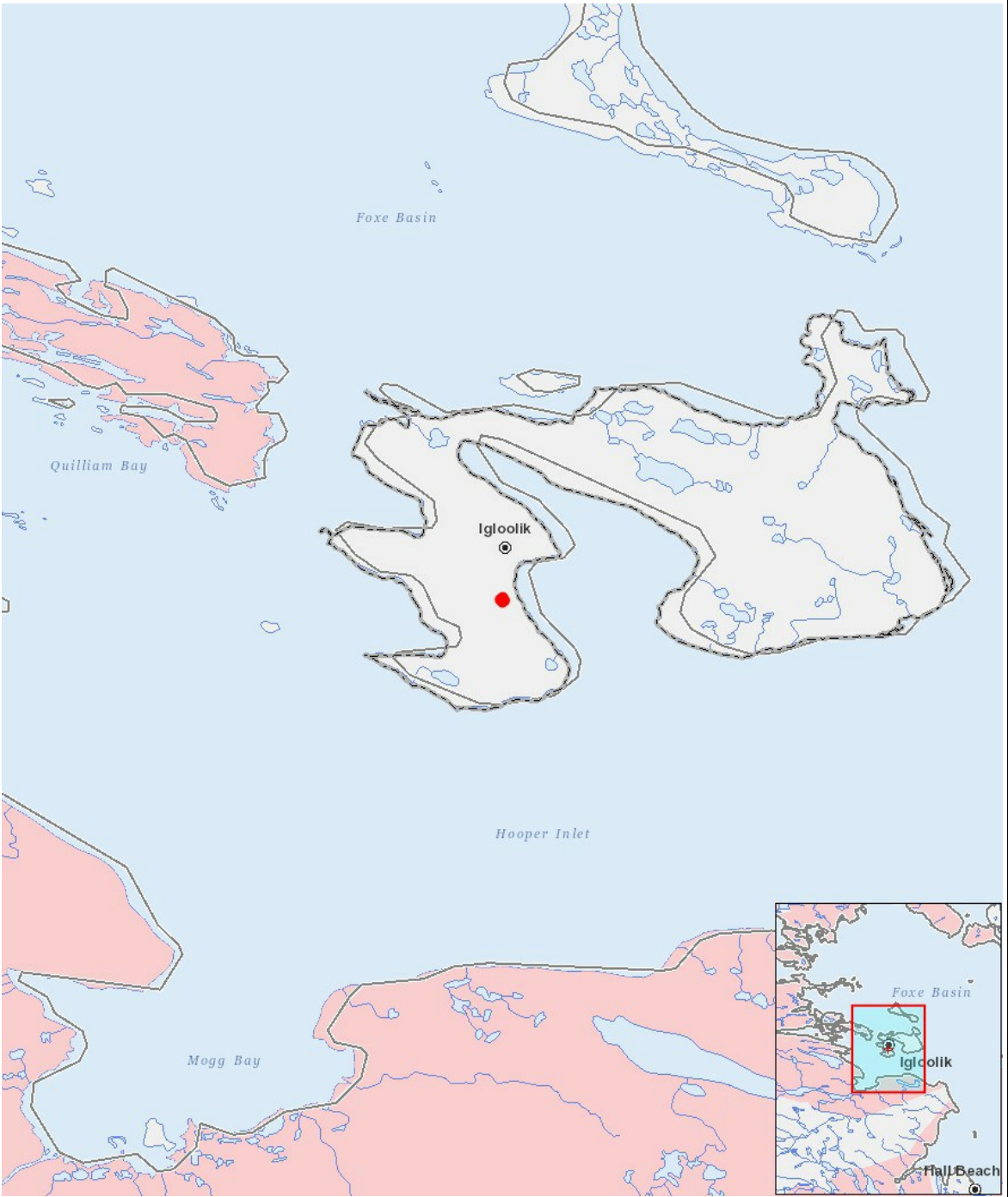
Impacts

Identification of Environmental Impacts

		PHYSICAL																				BIOLOGICAL		SOCIO-ECONOMIC									
		Designated environmental areas		Ground stability	Permafrost	Hydrology / Limnology		Water quality	Climate conditions		Eschers and other unique or fragile landscapes		Surface and bedrock geology		Sediment and soil quality	Tidal processes and bathymetry		Air quality	Noise levels	Vegetation		Wildlife, including habitat and migration patterns		Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning		Wildlife protected areas	Archaeological and cultural historic sites		Employment	Community wellness	Community infrastructure	Human health
Construction																																	
Fuel and chemical storage		-	-	M	-	-	-	-	-	-	M	-	M	M		-	-	-	-	-	-	-	-	-	-	-		U	P	-	P	-	
Municipal and Industrial Development		-	-	M	-	-	-	-	-	-	M	-	M	M		-	-	-	-	-	-	-	-	-	-	-		U	P	-	P	-	
Operation																																	
Fuel and chemical storage		-	-	M	-	-	-	-	-	-	M	-	M	M		-	-	-	-	-	-	-	-	-	-	-		-	-	-	P	-	
Municipal and Industrial Development		-	-	M	-	-	-	-	-	-	M	-	M	M		-	-	-	-	-	-	-	-	-	-	-		-	-	-	P	-	
Decommissioning																																	
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(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

1	polygon	Proposed Lot Boundary_Igloolik
2	point	FourCorners_706_Igloolik_PwrPlnt_Location