



ᓄᓇᑭᓂ ᓄᓂᓕᓕᓕᓕᓕᓕᓕᓕ
Nunavut Nukkiqsautiit Corporation

ᓕᓕᓕᓕᓕᓕ ᓄᓂᓕᓕᓕᓕ
ᓕᓕᓕᓕᓕᓕᓕᓕᓕᓕᓕᓕ

Iqaluit's
Energy Future

[illegible]

We're ready to show you all the options for Iqaluit to make this transition.

[illegible][illegible][illegible]

Why Is This Important?

Iqalungmiut are currently 100% reliant on diesel fuel to meet their electricity needs all year long.

Like all communities in Nunavut, fuel is brought here by ship and stored in large tanks. The price of diesel right now out of Montreal is about \$2 / litre, and Iqaluit is burning around 15 million litres each year to generate electricity.

This doesn't count the fuel that is used for heat.

[illegible][illegible]

ወደፊት ግን ስራው ለሀገራችን ምን ዓይነት ምንጭ ሊሆን ይችላል፡፡

Even though Nunavummiut are paying some of the highest prices in Canada for their electricity bills, it's still not enough to cover the true cost of diesel. The Government of Nunavut has to cover the rest through subsidies, which takes away from the overall territorial budget (your tax dollars).

The price of diesel can change quickly and depends on politics and economies in other countries. Diesel spills, and the exhaust from burning diesel, are harmful to the environment, the climate, and human health.

As the world transitions away from the fossil fuel industry, prices are projected to keep climbing.

[illegible][illegible][illegible][illegible][illegible]

How it Works Now

Qulliq Energy Corporation (QEC) is responsible for the generation, distribution, and sale of electricity, as well as energy policy in Nunavut. They are owned and directed by the Government of Nunavut.

Right now, bringing on any new capacity to meet the growing demand for power requires installing new diesel generators and the shipment, storage, and burning of diesel.

Being so heavily reliant on imported fossil fuel is very risky for Nunavummiut. Growth in our City has been constrained as a result of limited electrical capacity and its high price—our future does not have to look like this.

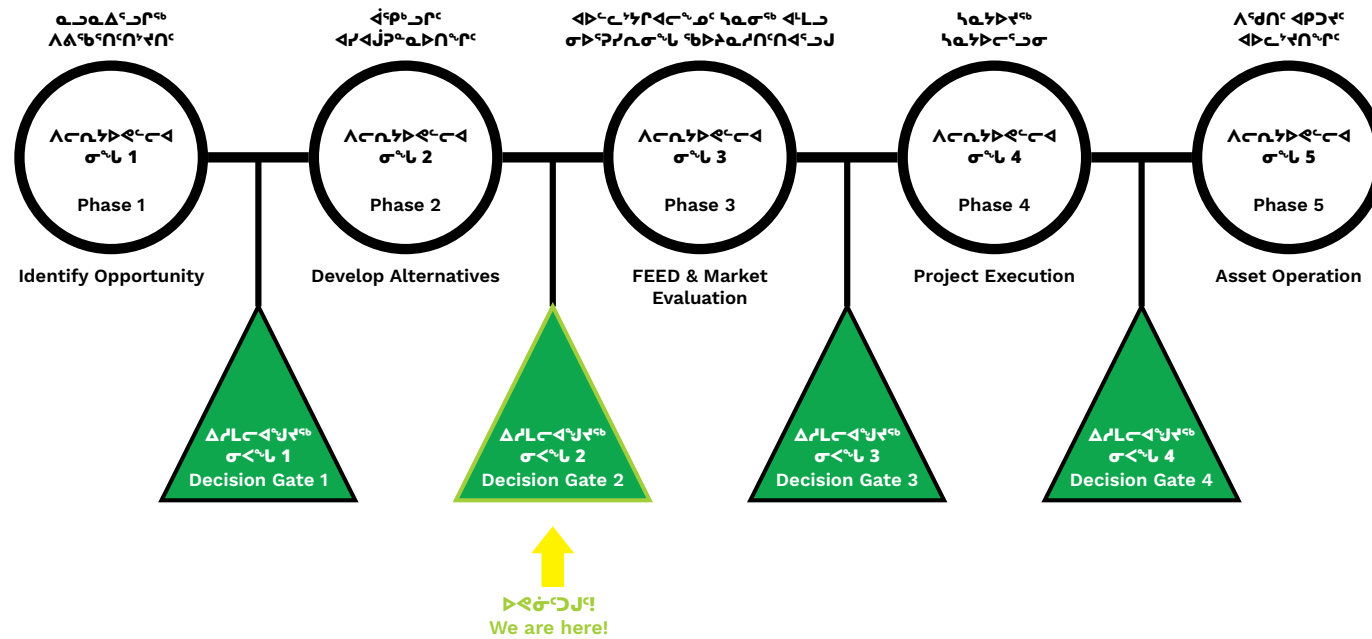
There are other options to generate electricity using renewable resources available right here.



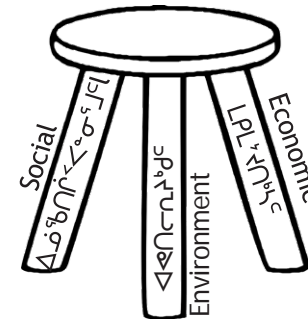
NNC's Approach

[illegible]

NNC follows our Phase Gate Approach which facilitates free, prior, and informed consent on project decisions.

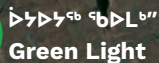
[illegible]

We also apply a “three-legged stool” perspective, placing equal importance on three factors:

[illegible][illegible]

We rank potential options based on these three streams of data, and the potential impacts (both positive and negative) they could have for Iqalungmiut. NNC then provides information on all the options, along with their rankings, so Iqalungmiut can make an informed decision on which potential future project (if any) they would like to proceed with.

If Iqalungmiut support further investigation of one of the top ranked potential future projects, NNC will advance the development of that project. Iqalungmiut will then have the opportunity to determine whether the project proceeds to construction after more data has been collected and a clear path forward has been determined.



10/10 **σπαρταλίζουμε**
Overall Rating

[illegible]

McKeand River South Hydro is our top ranked option and offers the best chance at lowering the cost of electricity in Iqaluit. It is in an area that, from land use study, is least-used for hunting and fishing. This option is scalable, and can expand and grow as Iqaluit grows. It is the top-recommended site!

᠋ᠡᠳᠦᠨᠭᠦᠰᠦ

- [illegible]

Summary

- ✓ Results in the lowest cost of electricity for all options (including diesel)
- ✓ High degree of scalability (we can increase the output as Iqaluit grows)
- ✓ Low to medium technical risks
- ✓ Lowest emissions of all options
- ✓ Few observations of land use compared to other options (lowest reported)
- ✓ Pumped storage can be added in future as Iqaluit grows
- ✗ Distance to Iqaluit (50km)
- ✗ Some water storage required
- ✗ Not previously studied
- ✗ Requires careful study of caribou migration



100%

[illegible]

Reduction in Diesel Consumption for Electricity Generation



ስለዚህ ለጥራት ምርመራ
 ለጥራት ምርመራ ማረጋገጫ
 ለጥራት ምርመራ ማረጋገጫ

Scan here to learn
more about this
project option





7/10 **συνολικό**
Overall Rating

02

Jaynes Inlet Hydro + Wind

[illegible]

This is a recommended option with high energy output and low risks, with some room for growth. It is possible to explore adding a pumped storage component to the project in the future to increase its output. This site's coastal location, its overland or submarine transmission request suggest it could have higher impact on hunting, fishing and recreation activities compared to McKeand South, but it is still a strong option.

᠋ᠡᠳᠦᠨᠲᠤᠭᠦ

- [illegible]

Summary

- ✔ Low to Medium Technical Risks (Cold Climate & Geotechnical)
- ✔ Low Resource Risk (Availability + Reliability)
- ✔ Previously supported by the Community for further study
- ✔ Low risk associated with reliability
- ✔ Low capital cost for high output; potential to lower electricity rates
- ✔ Pumped storage can be added in future as Iqaluit grows
- ❓ Longest transmission corridor among alternatives which is cause for concern for the marine environment
- ❓ Area used for harvesting beluga, seal, narwhal, clams and hunting caribou
- ❓ Site used for collecting drinking water from river and ice.
- ❓ Cabins in the area
- ❓ Lower potential growth compared to top ranked option



99.5%

[illegible]

Reduction in Diesel Consumption for Electricity Generation



፲፱፻፳፱ ሐዘን ምስክር

Scan here to learn
more about this
project option





Green Light

7.4/10

σΠΔΠΛΥΓ^αμ^ε
Overall Rating



σᾰῑῑῑῑ ᾰῑῑ
Niaqunguk Wind

[illegible]

This is the highest ranking “wind only” option for Iqaluit. It is close to town and not in an area, from the land use report, that was noted for frequent hunting and fishing. It has been identified as a low risk site for animals, including birds. The energy output is not as high as hydro and you will still need diesel.



14km

Δᵇᵇᵇᵇᵇᵇ · To Iqaluit



14

᠋ᠡᠳᠦᠨᠭᠦᠰᠦ

- [illegible]

Summary

- ✓ Lowest cold climate risk
- ✓ Low geotech risk
- ✓ Lowest development time
- ✓ Highest wind energy potential
- ✓ Closest development to town (14km)
- ✓ Low environmental impact
- ⚠ Less than 60% of energy demand is met by renewables
- ⚠ High CO2 emissions compared to hydro options (still need diesel)
- ⚠ Short life span compared hydro (15 years)
- ⚠ Median risk associated with reliability
- ⚠ Unlikely to replace diesel



45.5%

[illegible]

Reduction in Diesel Consumption for Electricity Generation



$\Delta^{\frac{1}{2}} \Delta^{\frac{1}{2}} \Delta^{\frac{1}{2}}$
 $\Delta^{\frac{1}{2}} \Delta^{\frac{1}{2}} \Delta^{\frac{1}{2}}$
 $\Delta^{\frac{1}{2}} \Delta^{\frac{1}{2}} \Delta^{\frac{1}{2}}$

Scan here to learn
more about this
project option



▶▶▶⁵⁶ 56▶▶⁶⁷

Green Light

6.6/10

σΠΔΛΛΓμδ
Overall Rating

04

σΔ^ad^aJ^b Δ_{mn}

Jaynes Inlet Wind

ልረህና ስህተት ሊኖር ይችላል፡፡ ስለዚህ ለሰነድ ማረጋገጫ ማድረግ አስፈላጊ ሲሆን፡፡
 ለዚህም ማረጋገጫ ማድረግ ለሰነድ ማረጋገጫ ማድረግ አስፈላጊ ሲሆን፡፡
 ለዚህም ማረጋገጫ ማድረግ ለሰነድ ማረጋገጫ ማድረግ አስፈላጊ ሲሆን፡፡
 ለዚህም ማረጋገጫ ማድረግ ለሰነድ ማረጋገጫ ማድረግ አስፈላጊ ሲሆን፡፡

While one of the furthest sites from town, this is a strong wind resource as it is situated high up on a ridge. The length of the transmission line required for this option make Niaqunguk Wind a more cost-effective, and lower impact choice.



95km

Δᵑᵇᵐᶜ · To Iglouit



16

QΔΩ^{6b}⌋^c

- [illegible]

Summary

- ✓ Lowest cold climate risk
- ✓ Low geotech risk
- ✓ Lowest development time
- ✓ Less intrusive to marine habitat/migration routes than hydro
- ✓ 2nd highest wind energy potential
- ⚠ Less than 60% of energy demand is met by renewables
- ⚠ High CO₂ emissions compared to hydro options (still need diesel)
- ⚠ Short life span compared hydro (15 years)
- ⚠ Median risk associated with reliability
- ⚠ Unlikely to replace diesel
- ⚠ Long transmission line required



49%

[illegible]

Reduction in Diesel Consumption for Electricity Generation



፲፱፻፳፱ ልዩ ስርዓት
 ለጥያቄው ማረጋገጫ
 ለጥያቄው ማረጋገጫ

Scan here to learn
more about this
project option

[illegible]

Green Light

6.2/10

Overall Rating

05

$\Delta^a \bar{b}^b \bar{c}^c \bar{d}^d \bar{e}^e \bar{f}^f \bar{g}^g \bar{h}^h \bar{i}^i \bar{j}^j \bar{k}^k \bar{l}^l \bar{m}^m \bar{n}^n \bar{o}^o \bar{p}^p \bar{q}^q \bar{r}^r \bar{s}^s \bar{t}^t \bar{u}^u \bar{v}^v \bar{w}^w \bar{x}^x \bar{y}^y \bar{z}^z$
 $\Delta^a \bar{b}^b \bar{c}^c \bar{d}^d \bar{e}^e \bar{f}^f \bar{g}^g \bar{h}^h \bar{i}^i \bar{j}^j \bar{k}^k \bar{l}^l \bar{m}^m \bar{n}^n \bar{o}^o \bar{p}^p \bar{q}^q \bar{r}^r \bar{s}^s \bar{t}^t \bar{u}^u \bar{v}^v \bar{w}^w \bar{x}^x \bar{y}^y \bar{z}^z$

Jaynes Inlet Pumped Storage + Wind

[illegible]

The pumped storage part of this option increases the energy output compared to Jaynes Inlet Wind, allowing it to grow as Iqaluit grows. Because this technology has not yet been demonstrated in the arctic, there is uncertainty and risk. But if the community prefers this site, it makes sense to study this option further.



95km

ᐃᓄᓂᓐ. To Igalyit



18

᠋ᠡᠳᠦᠨᠭᠦᠰᠦ

- [illegible]

Summary

- ✓ Low to Medium Technical Risks (Cold Climate & Geotechnical)
- ✓ Low Resource Risk (Availability + Reliability)
- ✓ Previously supported by the Community for further study
- ✓ Low risk associated with reliability
- ✓ Low capital cost for high output; potential to lower electricity rates
- ? Longest transmission corridor among alternatives which is cause for concern for the marine environment
- ? Area used for harvesting beluga, seal, narwhal, clams and hunting caribou
- ? Site used for collecting drinking water from river and ice.
- ? Cabins in the area
- ? Lower potential growth compared to top ranked option
- ? Technical risk associated with arctic pumped storage



99.5%

ᐃᓕᓗᐅᑦᓴᓴᓴ ᐅᑦᓴᓴᐅᓗᐅᓴᓴᓴᓴ
ᐅᓴᓴᓴᓴᓴᓴᓴᓴ ᐅᓴᓴᓴᓴᓴᓴᓴᓴ

Reduction in Diesel Consumption for Electricity Generation



ስለዚህ ለጥራት ምርመራ
 ለጥራት ምርመራ
 ለጥራት ምርመራ

Scan here to learn
more about this
project option



Armshow Wind

Renewable energy was explored for Iqaluit, this site was rejected due to its importance for hunting, fishing, recreation and animal habitat. We hear you. All options in this area are not recommended.

The last time renewable energy was explored for Iqaluit, this site was rejected due to its importance for hunting, fishing, recreation and animal habitat. We hear you. All options in this area are not recommended.

Summary

- 51.5% of energy demand met by renewables
- Low to Medium technical risks (cold climate + Geotech)
- Low constructability risk
- Large MW capacity
- Heavy land and resource use year-round by Iqalungmiut
- Will affect the migration of arctic char. This is an important char habitat and fishing area
- Will break up a large amount of land used for animal habitats. This is an important migratory corridor for many animals
- Site used for harvesting various species (beluga, bowhead, clam seaweed, ptarmigan, caribou and berry harvesting).
- Will affect waterways leading to Iqaluit, including areas used to teach fishing to younger generations
- Health and Safety risk rated "medium"

Summary

- 51.5% of energy demand met by renewables
- Low to Medium technical risks (cold climate + Geotech)
- Low constructability risk
- Large MW capacity
- Heavy land and resource use year-round by Iqalungmiut
- Will affect the migration of arctic char. This is an important char habitat and fishing area
- Will break up a large amount of land used for animal habitats. This is an important migratory corridor for many animals
- Site used for harvesting various species (beluga, bowhead, clam seaweed, ptarmigan, caribou and berry harvesting).
- Will affect waterways leading to Iqaluit, including areas used to teach fishing to younger generations
- Health and Safety risk rated "medium"



51.5%

Reduction in Diesel Consumption for Electricity Generation

Reduction in Diesel Consumption for Electricity Generation



Scan here to learn more about this project option

Scan here to learn more about this project option