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IQALUIT NUKKIKSAUTIIT PROJECT

ΔΓԳՄԸ ԻՆԼԵԴՈՒՆ ԱԿՏԵԼ:
ՎԼԵԴՈՒՆ, ՔԻՆՈՅԸ

WATER POWER FOR IQALUIT: YOUR QUESTIONS, OUR ANSWERS

LA 2025
May 2025



NNC was created in 2017 in response to the desire of Qikiqtani communities to explore renewable energy. We develop Inuit- and community-led projects that advance energy sovereignty in Nunavut.



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IQALUIT NUKKIKSAUTIIT PROJECT

The Iqaluit Nukkiksautiit Project is a renewable power project that has the potential to transform Iqaluit's energy landscape.

The Project is proposing a water power plant along the river at Kuugaluk, about 60 km northeast of Iqaluit. Wind turbines along the access road to the site may also be included.

The Project could replace diesel-generated electricity with clean, renewable power, becoming Iqaluit's main electricity source. It could also be made bigger to supply electricity for heating homes and businesses in Iqaluit, or for producing electricity for industrial users, such as future mines nearby.

ABOUT THIS BOOKLET

NMC
ᑎᓄᓐᕐ ᑎᓄᓂᓂᓐᕐ
Nunavut Nukkiksautiit Corporation

ᐃᖅᑲᐱᐁ ᑎᓄᓂᓂᓐᕐ ᑎᓄᓂᓂᓐᕐ IQALUIT NUKKIKSAUTIIT PROJECT

ᐃᖅᑲᐱᐁ ᑎᓄᓂᓂᓐᕐ ᐃᓚᓴᐁ ᐆᓴᓴᐱᐁ ᑎᓄᓂᓂᓐᕐ
LET'S TALK WATER POWER

ᐆᓴᓴᐱᐁ 2025
JANUARY 2025

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Throughout this booklet, questions and answers are grouped by theme.

The themes include:

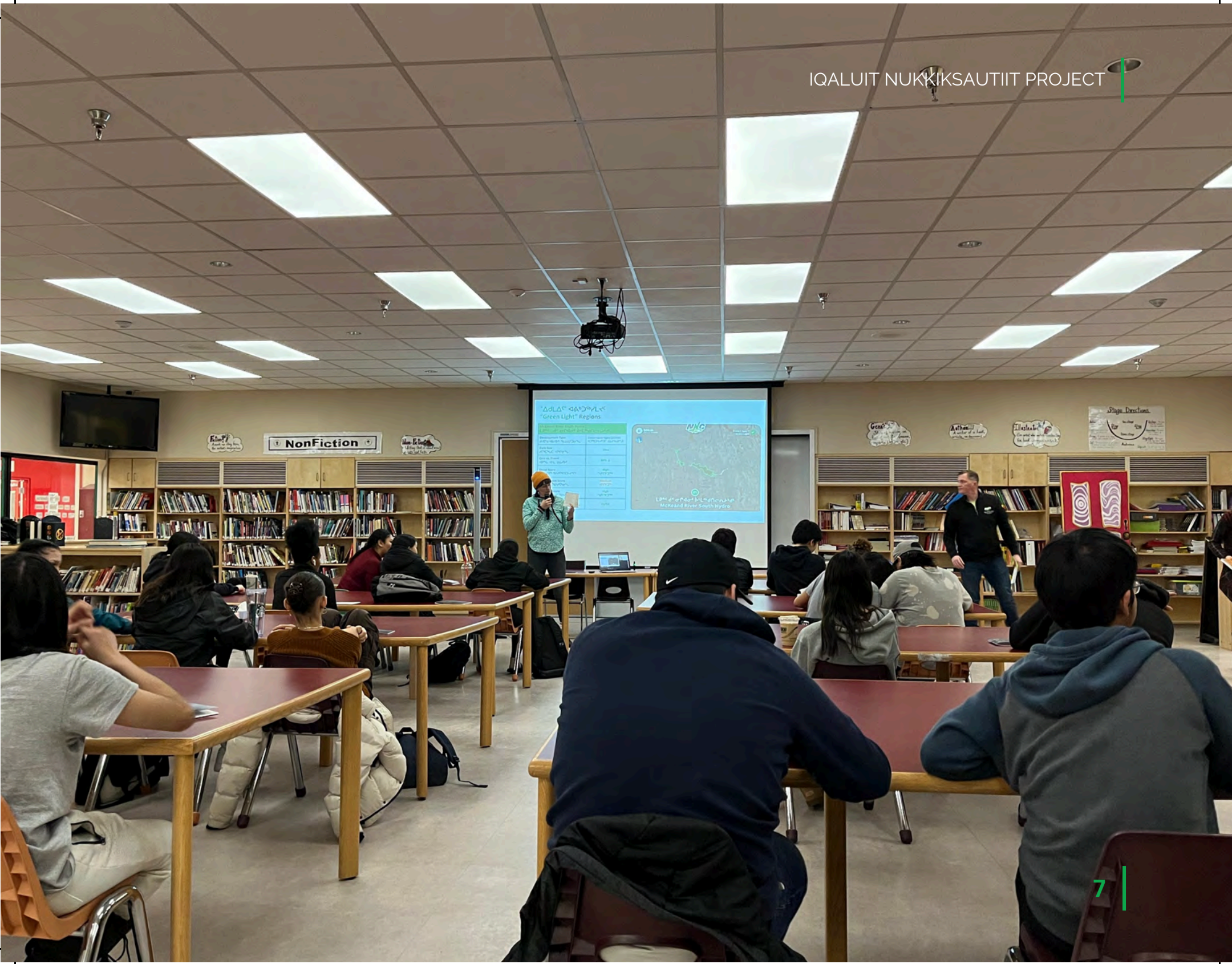
SITE SELECTION
PROJECT SIZE AND GOALS
WIND TURBINES
ENVIRONMENTAL
HOW IT ALL WORKS
OTHER TECHNOLOGIES
ACCESS ROAD



ፍጥነት
QUESTIONS



ምዕራፍ
ANSWERS



Green Light Regions

Region	Population	Area (km²)	Population Density (per km²)
Region 1	1,200	100	12
Region 2	2,500	200	12.5
Region 3	3,800	300	12.7
Region 4	5,100	400	12.8
Region 5	6,400	500	12.8
Region 6	7,700	600	12.8
Region 7	9,000	700	12.9
Region 8	10,300	800	12.9
Region 9	11,600	900	12.9
Region 10	12,900	1,000	12.9

Map of the region showing the location of the Green Light Regions.

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[illegible][illegible]

SITE SELECTION

Iqalungmiut voted to choose the best location and technology for a renewable energy project that could get the city off of diesel. The vote used a ranked ballot system.

Project team experts evaluated 16 options (including continuing with diesel) for social, environmental, and technical viability.

Water power on the river at **Kuugaluk** (McKeand River South) was ranked as the best option, followed by **Jaynes Inlet Hydro and Wind**, and **Niaqunguk Wind**. Voters (those who attended the engagement sessions) agreed, with 76% in favour of water power at Kuugaluk.

$$\Delta^a b \Delta^c \rightarrow \rho^b \gamma \dot{\rho}^c \rightarrow \sigma^a \gamma$$

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HAVE YOU CONSIDERED THE PREVIOUS DATA THAT WAS COLLECTED BY QEC? WHAT ABOUT AXEL HAVE'S INFORMATION?

[illegible]

Yes, QEC shared all their past studies on water power near Iqaluit with us. It is our understanding that Axel Have's work was part of the information they provided.

[illegible]

QEC did some great work over 10 years ago on water power potential for Iqaluit. There was significant community push-back around the site that was chosen at that time – Nunngarut (Bay of Two Rivers / Armshow River). This was the main reason NNC looked at other options when we re-started the project.



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[illegible][illegible][illegible]

- [illegible]



THERE WAS A DAM THAT WAS APPROVED BY ELDERS ACROSS THE BAY – WHY ARE THEY NOT BEING LISTENED TO?



When QEC was looking into water power for Iqaluit 15 years ago, two main sites were chosen:

- Nunngarut (Armshow River / Bay of Two Rivers)
- Qigirrijaarvi (Jaynes Inlet)

Many concerns were raised about both locations, especially Nunngarut. Some of those concerns were voiced by Elders.

Public concerns, and QEC's difficulties with raising enough money to build a water power plant, are what stopped the project at that time.

The Qikiqtani Inuit Association started to reconsider the idea of water power about 6 years ago, around the time when NNC was set up as the renewable energy arm of Qikiqtaaluk Corporation.

When we did a complete review of all the information available, concerns around needing to protect Nunngarut as an important cultural resource were very clear – Inuit didn't want development happening there. Qigirrijaarvi still had some concerns, too, as a popular area for fishing and hunting. As well, the ability of this site to meet Iqaluit's electrical load is not as good as Kuugaluk.

Feedback from all Nunavummiut, including Elders, is very important to NNC. We listen seriously to this feedback and do our best to make sure renewable power options:

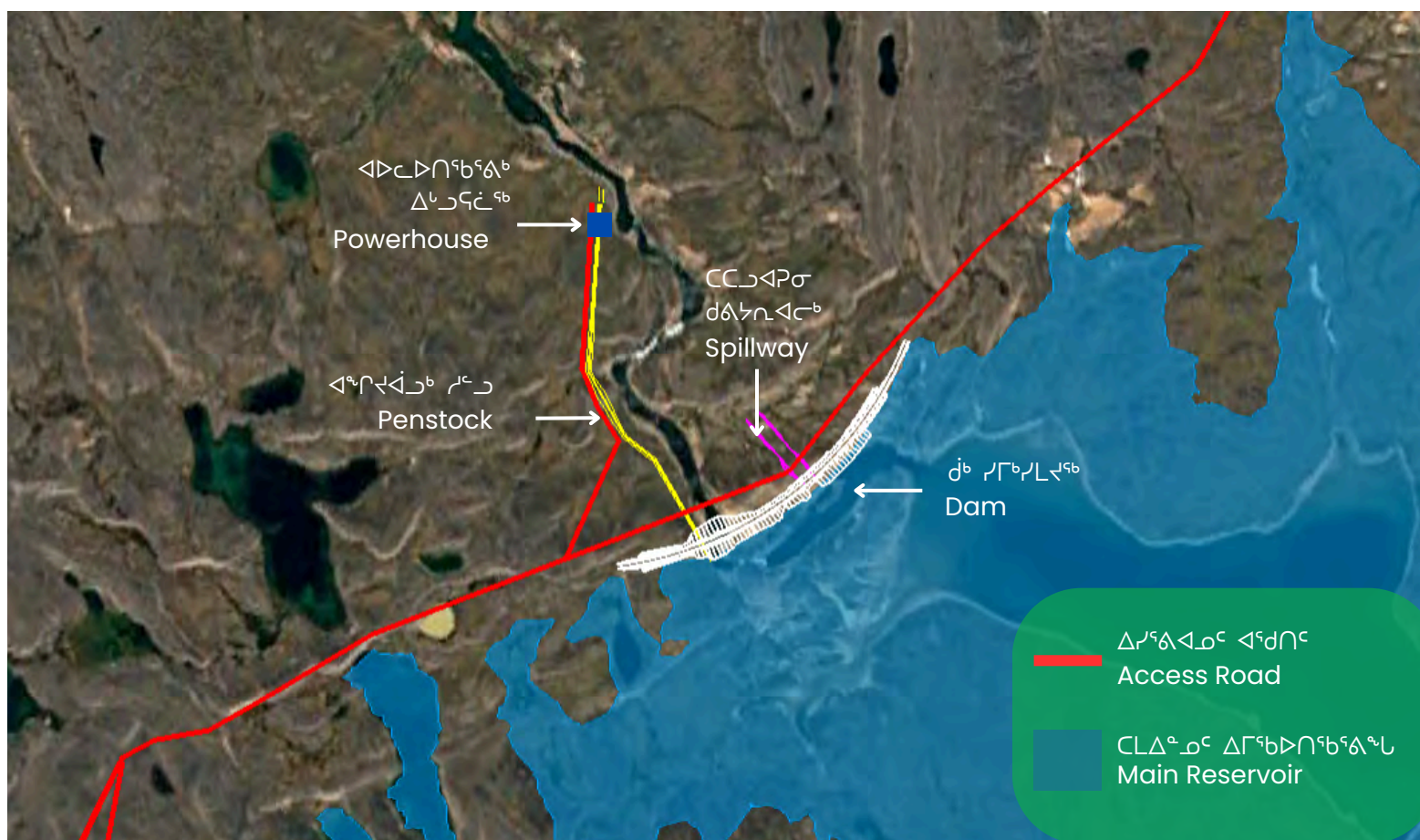
- Respect Inuit culture
- Minimize environmental impact
- Bring economic and environmental benefits



PROJECT SIZE AND GOALS



The current Project concept assumes the Project will produce clean power to meet Iqaluit's current and future electricity demand. We consider this the **base scenario**.



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The Project may be able to support either Additional Option 1 or Additional Option 2, but not both.

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WHAT ARE THE REALITIES OF HAVING AN INDUSTRIAL USER?

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The Iqaluit Water Power Project is a community project. The needs and priorities of Iqalungmiut and Panniqtummiut will always come first. Any decision to allow an industrial user, like a mine, would only happen with the free, prior, and informed consent of the community.

Having a large customer like a mine could help the project run at full capacity and lower electricity costs for everyone. When more power is sold, the overall cost of producing it is shared, which can make power cheaper for all users.

A large customer can help make the Project more financially secure, allowing profits to be shared with Iqalungmiut and Panniqtummiut. Profits can also be reinvested in other clean energy projects across the Qikiqtani Region, helping more communities move away from diesel.

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**HOW CAN THE CAPACITY OF
THE WATER POWER PROJECT BE
INCREASED?**

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There are two ways we can increase the capacity:

1. **Build a second reservoir** to store more water and produce more electricity.
2. **Add wind turbines** along the access road to help supply power without using as much water.

It is possible to do both of these options.



[illegible][illegible]

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WHY CAN'T WE DO BOTH – PROVIDE ELECTRIC HEATING FOR IQALUIT AND SELL POWER TO AN INDUSTRIAL USER?

NNC will study this question to model how much power is needed for the electrification of heating. For now, estimates from Qulliq Energy Corporation (QEC) suggest that if every home and building in Iqaluit switched from furnaces to electric heating, the city would need about five times more electricity than it currently uses.



That's a big increase—and the Kuugaluk reservoir can only produce so much power.

If Iqaluit wants to move fully to electric heat, most of the electricity from this project would need to go to homes and buildings in the city. There wouldn't be enough extra power left over to reliably supply an industrial user, like a mine.

We could still make use of both options, just not all at once. It will likely take years for all homes and buildings to switch over to electric heating. During that time, NNC could sell the extra electricity to a potential mine. For example, the lifespan of the proposed DeBeers mine near Iqaluit is 10 -12 years. By then, Iqaluit would likely be ready for electric heat, and the power for the industrial customer can shift to the community.

ARE YOU IN TALKS WITH DEBEERS ABOUT THE PROJECT?



Yes, we have been engaged with DeBeers on their proposed mine. They have shared some of their field data with us, and we continue to talk openly with them about possible collaboration.

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2. ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ (ᐱᐃᐅᐃᑦ) – ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ (ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ, ᐃᐅᐃᐅᐃᑦ MWh)

2024-ᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ 10.3 ᐅᐃᐅᐃᑦ (MW). ᐃᐅᐃᐅᐃᑦ 10-ᐅᐃᐅᐃᑦ, 9.6 ᐅᐃᐅᐃᑦ (MW) ᐃᐅᐃᐅᐃᑦ 11.1 ᐅᐃᐅᐃᑦ (MW) ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ. 2030 ᐅᐃᐅᐃᑦ, ᐃᐅᐃᐅᐃᑦ 11.1 ᐅᐃᐅᐃᑦ (MW) ᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ.

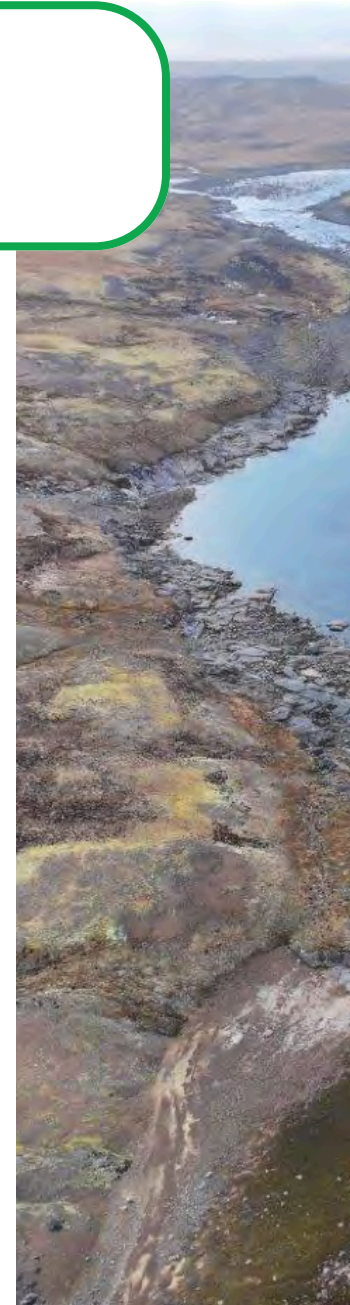
ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ, ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ 60,876 ᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ (MWh) 2024-ᐅᐃᐅᐃᑦ, ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ. ᐃᐅᐃᐅᐃᑦ 65,670 ᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ (MWh) ᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ 2030 ᐃᐅᐃᐅᐃᑦ.

15 ᐅᐃᐅᐃᑦ (MW) ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ. ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ, ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ. ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ.

ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ. ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ.

ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ.

ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ 30 ᐅᐃᐅᐃᑦ (MW) ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ 2050 ᐃᐅᐃᐅᐃᑦ ᐃᐅᐃᐅᐃᑦ.





HOW LONG WILL 15 MW OF POWER MEET IQALUIT'S ENERGY NEEDS?

There are two ways to measure how much electricity a community needs:

1. **Peak load (demand)** – the highest amount of power needed at one time (measured in megawatts, or MW)
2. **Generation load (demand)** – the total amount of power used over time (measured in megawatt hours, or MWh)



In 2024, Iqaluit's peak load was 10.3 MW. Over the past 10 years, it has stayed between 9.6 MW and 11.1 MW. By 2030, it's expected to be 11.1 MW. For generation load, Iqaluit used about 60,876 MWh in 2024, and that number is slowly growing. It's expected to reach around 65,670 MWh by 2030.

A 15 MW water power plant should meet Iqaluit's peak demand for many years. But if electric heating becomes common, the city will need much more power. That would change the plan.

The plant must also have enough water stored to supply power all year. To know this, we need to learn how much water the reservoir can hold and how fast it refills each year. We'll get that data from studies starting this summer.

Wind power can also help. Every bit of wind energy used saves water behind the dam. That's why combining wind and hydro is a good idea.

This project includes a plan to grow. If needed in the future, the plant could be upgraded to 30 MW to meet Iqaluit's energy needs well past 2050.

ᑲᓇᑲᓇᑲᓇ 10-11 ᐱᐱ ᑲᓇᑲᓇᑲᓇ (MW)
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ᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ, ᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ?



**WE HEAR THAT 10 – 11 MW IS THE
PEAK LOAD RIGHT NOW. HOW
WOULD THE PEAK LOAD CHANGE
IF WE CONVERTED TO ELECTRIC
HEATING, AND COMPLETELY CUT
TIES WITH THE TAR SANDS?**

ᐱᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇ (10-11 ᐱᐱ ᑲᓇᑲᓇᑲᓇ
(MW)) ᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᐱᓇᑲᓇᑲᓇ (QEC) ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ.

ΔᑦᑲᓇΔᑦ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ, ᑲᓇᑲᓇᑲᓇ ᐱᓇᑲᓇᑲᓇᑲᓇ – ᐱᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ.

Δᑦᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᐱᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ,
ᓄᓇᑲᓇ ᓄᑭᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇ (NNC) ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᐱᑦᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ.

ᑲᓇᑲᓇᑲᓇᑲᓇ ᐱᑦᑲᓇᑲᓇᑲᓇᑲᓇ ᐱᓇᑲᓇᑲᓇᑲᓇᑲᓇ
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ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ. ᑲᓇᑲᓇ ᐱᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ
ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ ᑲᓇᑲᓇ ᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇᑲᓇ.



The current peak load (around 10–11 MW) comes from QEC data.

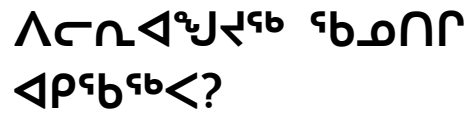
If Iqaluit fully switched to electric heating, the demand for power—especially peak load—would go up a lot.

Since many Iqalungmiut are interested in this idea, NNC is working with partners to study what that would look like and what it would take.

Energy efficiency is key when it comes to making the most of heating. Renovations like better insulation and sealing up drafts will help homes stay warm and use less power. This will be an important part of making the switch to electric heat possible and affordable.

At this time, the current project design does not include electricity demand from electric vehicles. However, it does plan for growing electricity needs in Iqaluit—such as more people, new buildings, and the possible switch to electric heating. If Iqalungmiut want small passenger electric vehicles to be included in electric load forecasting, that’s something we can do.

During public engagement events, we have a dedicated notetaker typing out all questions and comments from the audience on a laptop. The notetaker, like all NNC staff, uses an earpiece for simultaneous Inuktitut interpretation. A second notetaker also writes things down by hand, just in case anything is missed.

[illegible]

The GN is not responsible for paying the cost, unless they decide that they'd like QEC to be a partner in owning the project. Either way, the cost of this project won't impact customers through raising taxes and won't be passed on to customers through their power bills.

To meet Iqaluit's electricity demand, it is possible that supplemental wind power could be added to meet the Project's electricity generation target.



Wind power can be built faster than water power. If everything goes smoothly, a wind project might take 3–4 years, while a water power project could take 7–10 years. Timelines depend on things like environmental studies, community approval, government rules, construction methods, and getting equipment and materials to Nunavut.

We don't know the exact height yet, but a 2 MegaWatt wind turbine—the size we're likely to use—usually has a hub height between 70 and 100 metres. That's the height of the pole that the holds up the turning blades of the turbine. The blades are between 40 and 65 metres long. Therefore, the maximum height could be around 165 metres.

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 Cεεεεεεεεεε?



**WOULD A PHASED APPROACH
 ENABLE A GREATER
 GREENHOUSE GAS EMISSIONS
 REDUCTION OVERALL?**

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Yes. Starting with wind would help cut diesel use earlier, which means fewer emissions overall.

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In terms of using wind energy for construction – it would be very expensive to set up a transmission line from the potential wind turbine site on the access road out to the construction site. There is also a carbon footprint to this, from shipping the materials up, and the heavy equipment needed to install the poles and cables.

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Construction should take around 2 years. The energy demand from heavy equipment and the workers' accommodations will be met by diesel generators. NNC can look at ways to reduce the amount of diesel needed, through small-scale wind turbines, solar panels, and batteries.



**IS THE WIND USED AS BACKUP?
OR WOULD THE WIND BE
OPERATING AT THE SAME TIME
AS THE HYDRO FACILITY?**

[illegible]

The wind turbines would run at the same time as the hydro plant. Wind power would reduce how much water we need to use, helping to save it for later. Using both together makes the whole system stronger and more reliable.

[illegible]

NNC will work with Inuit and environmental experts to better understand the land, water, and wildlife around Kuugaluk. These studies will determine baseline conditions and help to predict any potential effects the water power project might have on plants, animals, fish, and the environment in the area.



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ᐱᐱᐱᐱᐱᐱᐱ?



**WILL THERE BE ANY FISH
LADDERS AT ANY OF THE DAMS?**



ᐃᖃᐱᐱᐱ ᐅᖃᐱᐱᐱ, ᐃᖃᐱᐱᐱ. ᐱᐱᐱᐱᐱᐱᐱ
ᖃᐱᐱᐱᐱᐱᐱᐱᐱᐱ ᐃᖃᐱᐱᐱ ᐅᐱᐱᐱᐱ
ᐃᐱᐱᐱᐱᐱᐱᐱᐱ ᐃᐱᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱᐱᐱᐱᐱ. ᐱᐱᐱᐱ ᖃᐱᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ 2025-ᐱ.



ᐃᖃᐱᐱᐱ ᐱᐱᐱᐱᐱᐱ ᖃᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱᐱ
ᐃᐱᐱᐱᐱᐱᐱᐱᐱ ᐃᖃᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱᐱᐱᐱ. ᐃᐱᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱᐱ ᐃᖃᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱᐱᐱᐱᐱᐱ. ᐃᐱᐱᐱᐱᐱᐱ ᐃᐱᐱᐱᐱᐱᐱ, ᐱᐱᐱ ᐃᐱᐱᐱᐱᐱᐱ
ᐱᐱᐱᐱᐱ, ᐃᐱᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱ ᐱᐱᐱᐱᐱᐱᐱᐱ
ᐃᐱᐱᐱᐱᐱᐱᐱᐱᐱ ᐃᖃᐱᐱᐱ ᐃᐱᐱᐱᐱᐱᐱᐱᐱᐱ.

If fish are in the river, yes. The first thing we need to find out is whether or not fish live in or travel through the river at Kuugaluk. We will start those studies in summer 2025.

A fish ladder is a series of small steps or pools that help fish swim around a dam. Installing them is a great way to minimize impacts to fish. In some places, like Inukjuak in Nunavik, a similar water power project actually helped increase the fish population.

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ᐱᓄᓐᑲᓄᓐ ᑦᑲᓄᓐ



**HOW WOULD THE WIND
TURBINES IMPACT WILDLIFE?
IS THERE ANY VISUAL IMPACT?**

ᐱᓄᓐᑲᓄᓐ ᓄᑲᓐᑲᓄᓐ ᑦᑲᓄᓐ, ᑲᓄᓐ, ᐱᓄᓐ ᑦᑲᓄᓐ. ᐱᓄᓐ ᑦᑲᓄᓐ ᑲᓄᓐᑲᓄᓐ ᑲᓄᓐᑲᓄᓐ, ᑲᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ ᑦᑲᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ.

ᑲᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ. ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ, ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ. ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ ᐱᓄᓐᑲᓄᓐ.



Wind turbines would be something new for wildlife, such as caribou, near Iqaluit. Some animals might stay away at first, but with time they can learn that they aren't a threat.

There is a small chance that birds could hit the turbines. To help prevent this, we would not build turbines on bird migration paths, and we would set the turbine height at a safe level. We can also stop the blades from spinning during migration times if needed.

We'll be listening to Inuit on what they know about wildlife in the area, and consulting with other communities in the Arctic that have already built wind turbines. Our environmental scientists will also study local wildlife and share more as they learn. Research plans will be developed together with Rightsholders in Iqaluit and Panniqtuuq and will follow all rules set by groups like NIRB to make sure animals are protected.

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**WHAT ARE THE EFFECTS OF
THE WATER FLOWING TO
OTHER AREAS IF THIS AREA IS
DAMMED OFF?**

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2024-ᕐ) ᕐᕐᕐᕐ ᕐᕐᕐᕐᕐᕐᕐᕐ ᕐᕐᕐᕐᕐᕐᕐᕐ
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The truth is: we don't know the answer yet.
We are doing hydrometric studies (started
in fall, 2024) and environmental studies
(starting in summer, 2025) to gather data.
This will help us understand how water
moves through the land and what might
happen if a dam is built.



For now, it's important to keep in mind that if
the dam is built, water will not be taken
away from the environment, and nothing is
added to the water – it stays clean.

We look forward to sharing this information
and results as soon as we have them. This
information will help Iqalungmiut and
Panniqtuumiut to make informed decisions
about proceeding with construction.

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ላባባሽኑ? ልብጋልጋሽኑ
ሊጋሽኑ?



**WHAT IS THE IMPACT OF THE
LOWER HEIGHT / ELEVATION OF THE
RESERVOIR? DO WE NEED TO
WORRY ABOUT DROUGHTS?**

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The lower elevation of the reservoir means less water is available for electricity generation than we first thought.

The size of this project is not expected to make droughts more likely. After the water passes through the turbines, it's released back into the river.

The Project doesn't take water away from the environment, and nothing is added to the water – it stays clean. Any extra water that the plant can't use flows through the spillway, back into the river downstream.

[illegible][illegible][illegible]

HOW IT ALL WORKS

While building and operating a water power plant in an Arctic environment presents logistical challenges, there are examples of similar projects in other remote Northern communities that are successful. We are learning from these communities to guide and support the success of the Iqaluit Nukkiqsautiit Project.

There are still many unknowns related to the Project site and overall scope. We are collecting several data sets starting this summer, including: geotechnical, environmental and archaeological field studies. Community engagement will be ongoing, before and after each field season. These efforts will help everyone better understand the site, prioritize Inuit Qaujimajatuqangiit, and finalize the Project design.



$$\Delta^a b \Delta^c \rightarrow \rho^b \gamma \dot{\rho}^c \rightarrow q \gamma \sigma^a$$
[illegible]

HOW ARE YOU COMBATING THE GEOTECHNICAL CONCERNS?

[illegible][illegible][illegible]

We don't yet have enough information about the ground and bedrock at Kuugaluk.

Over the next couple of summers, we will do fieldwork like LiDAR surveys and drilling to study the area. Once we have the results, we can decide the best way to deal with any issues.

Along with the environmental studies, this work is a high priority, because it will help determine how big the dam and reservoir can be and how much power the project can produce.

OTHER TECHNOLOGIES

NNC explored 16 different project options for a clean energy project in Iqaluit. These projects included river water power, wind power, and pumped water energy storage.

Other technologies such as solar, tidal, and nuclear power have been researched but are not optimal options for Iqaluit.

[illegible]



41



Yes, we have looked at nuclear power. Small nuclear reactors (SMRs) are not ready yet to safely and reliably power Iqaluit. An SMR has not yet been built in Canada and is still many years away from being ready.



There is no difference between hydro and water power. NNC uses the term water power because it is easier to translate to Inuktitut, and it is becoming the more common term within the industry itself.

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 Կոնսուլ Գրիգորյանը և Կոնսուլ Գրիգորյանը և Կոնսուլ Գրիգորյանը
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THE SUN IS OUT FOR SIX MONTHS OF THE YEAR, AND SOLAR PANELS HAS LESS RISK THAN WIND. WHY NOT CHOOSE SOLAR?

OTHER TECHNOLOGIES

[illegible][illegible]

Solar energy is a great option and does not carry the same kinds of environment concerns as wind, since there are no moving parts and it can be built close to the ground. But to power all of Iqaluit, we would need a very large amount of land for solar panels — much more than for wind turbines.

Also, solar power is not always available, therefore it can only reduce diesel – not replace it, like water power can. Wind is also much more reliable, because it is present all year round.

Water power already includes energy storage. The water stored behind the dam holds potential energy. When it flows down through the turbines with gravity, that potential energy is turned into electricity. The more water stored, the more power we can make when needed.

There will likely be a battery energy storage system (BESS) at the substation in Iqaluit (near the QEC power plant) for voltage and frequency support. This is to help make sure the electricity going into the city is good quality and consistent.

With water power, we don't need big batteries like we would with wind or solar projects, because the reservoir acts like a natural battery.

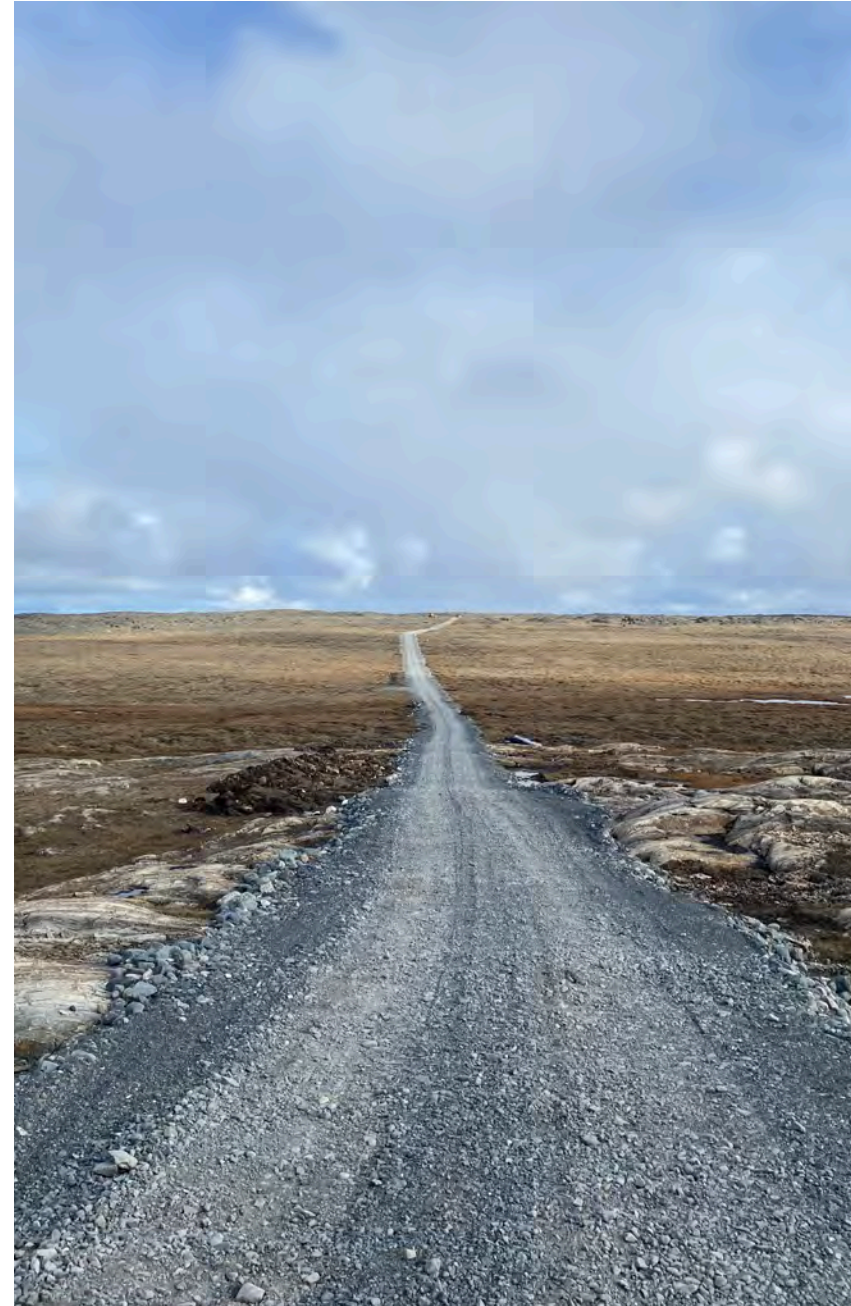
ACCESS ROAD

[illegible]

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The Kuugaluk site is about 60 kilometres from Iqaluit. To reach it, a new access road will need to be built. Before any construction begins, experts will study how the road might affect caribou and other wildlife in the area, including their movement patterns. The project team will also study how the land along the road is used by Iqalungmiut and Panniqtummiut, to make sure important travel routes, hunting areas, and cultural sites are respected.

All studies will be shared and discussed with
Rightsholders, to integrate Inuit Qaujimajatuqangiiit.



[illegible][illegible]

If people want to use the road, they can, but it will be at their own risk. NNC hopes the road will help hunters, and we plan to build some cabins along it for public use.

It hasn't yet been decided where the access road will come into town. NNC is working with Rightsholders to co-develop the route. It is a high priority to make sure that it causes minimal disruption to the daily lives of Iqalungmiut and fits with the City's future development plans.

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Our Project is shaped by your feedback.

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To ask questions, voice your concerns, and provide
your thoughts on Iqaluit's energy future go to:

www.nunavutcleanenergy.ca

