



ከመጋቢት 2025
JANUARY 2025



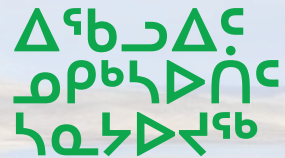
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Nunavut Nukkiksautiit Corporation (NNC) is a
100% Inuit-owned subsidiary of Qikiqtaaluk
Corporation (QC). That means NNC works for
the benefit of Qikiqtani Inuit.

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.

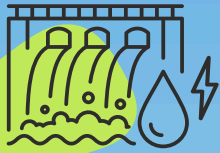


The Iqaluit Nukkiksautiit Project is a renewable power project that will transform Iqaluit's energy landscape.

[illegible]

The Project has the potential to become Iqaluit's main electricity source, replacing diesel-generated electricity with clean, renewable power. It also has the potential to 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.

This booklet provides an update on the 2024 field program findings, the resulting impacts to the Project concept, and outlines the planned activities over the next year. It also presents additional project options for your consideration and input.



ᐃᓚᓇ ᐃᓚᓂᑦ ᐅᓕᓕᐱᖃᐅᐱᖃᐱᑦ HOW WATER POWER WORKS

1

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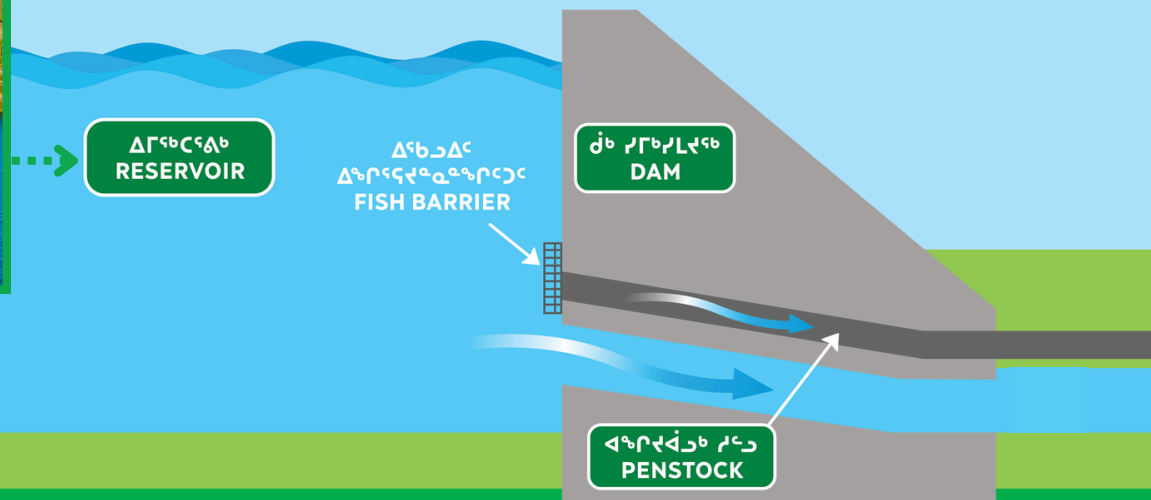
The **dam** creates a **reservoir**
by blocking the outlet of a
natural lake.



2

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Some of the water leaves the
reservoir through the **penstock**
(a big pipe) to the **powerhouse**.

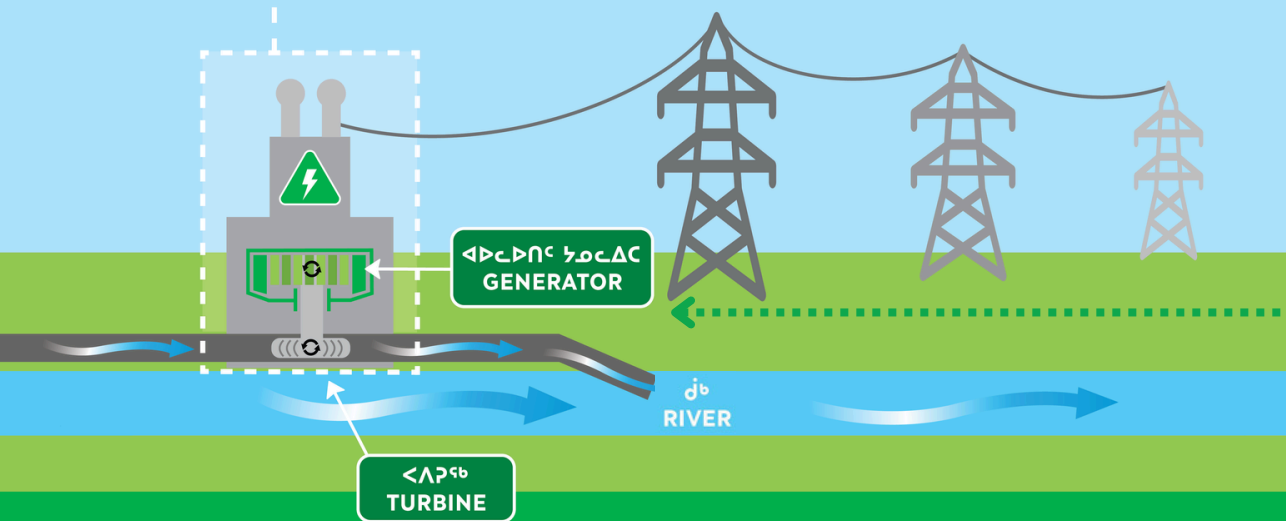




The moving water in the penstock turns the **turbine**.

The turbine turns the **generator** to produce electricity.

The **electricity** is exported to the grid.



OUR APPROACH

NNC follows a “Phase Gate” approach to delivering projects. Engagements with Rightsholders, the public, stakeholders, and partners are part of every Phase, to ensure we are taking direction from Rightsholders in project decision-making, and that all parties have input. Between each Phase there is a Decision Gate which requires approval to move on to the next Phase from engagement participants and Inuit leadership.

[illegible]

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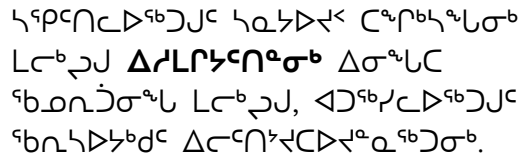
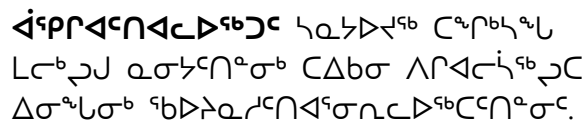
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NNC identified the value to Iqalungmiut in exploring clean power solutions to meet Iqaluit's needs. NNC completed a Technical and Economic Feasibility Review, a Tusaqtavut Study on Inuit land-use, and a desktop Environmental Survey.

Inuit leadership from Qikiqtaaluk Corporation and Qikiqtani Inuit Association supported doing more studies to find the best path forward.

17 different power system options were identified at sites near Iqaluit, including different types of water power, wind power, a combination of water and wind, and continuing with diesel.

[illegible]

10



WHAT WE THOUGHT

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Our desktop study of the Project site predicted mostly bedrock in the area.

An initial Project concept for a large reservoir and water power plant was developed assuming bedrock conditions.





ΔΛΔΉΣΒ ΔΣΓΛΔΉΒΉΉ WHAT WE DISCOVERED



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2024.

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NNC and the engineering team conducted a site investigation in September 2024.

Site Activities:

- camera and drone photos
- LiDAR (laser) scan of topography
- collected ground samples

Site Findings:

The ground conditions around the proposed dam area and reservoir have more gravel than originally predicted in the desktop studies.



HOW WE ADJUSTED

[illegible][illegible][illegible]

The site investigations found more gravel than we originally anticipated, and the depth to bedrock is currently unknown.

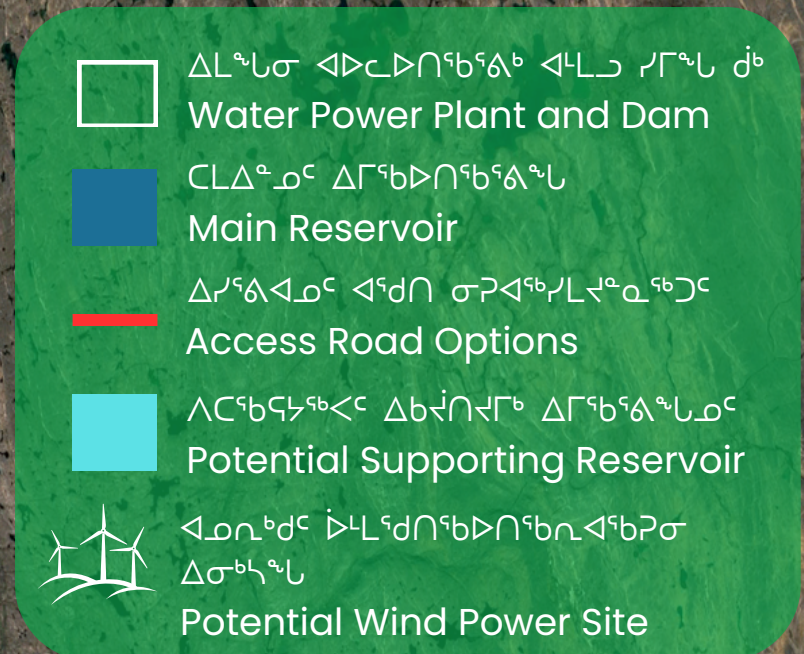
This means the reservoir cannot be as large as we first thought.

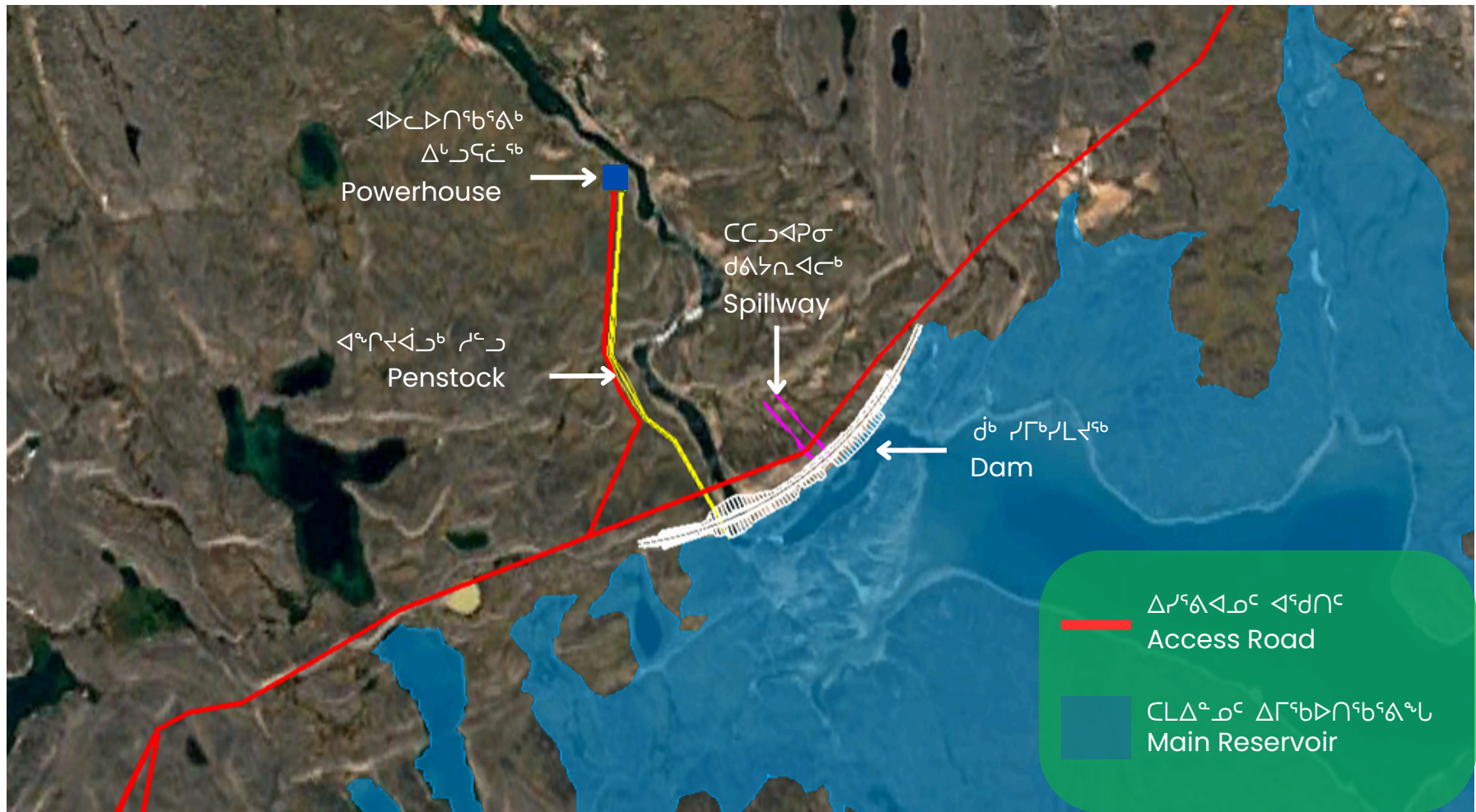
To meet Iqaluit's electricity demand, it is possible (but not yet determined) that a second supporting reservoir upstream from the main reservoir may be needed. Or, supplemental wind power could be added to meet the Project's electricity generation target.



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Project adjustments and revisions are a normal part of the engineering process. Design is an iterative process based on continued information that is gathered.







ΔΛΓΓ ΔΔΔΔΔΔΔΔΔΔ ΔΔΔΔ WATER POWER PLANT COMPONENTS

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DAM: A barrier constructed, typically at the outlet of a lake, to hold back water and raise the water level of the lake, forming a reservoir.

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POWERHOUSE: A building that houses the turbine, generator and other electrical components.

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SPILLWAY: When there is too much water in the reservoir, it passes over the dam through the spillway in a safe and controlled way. This water flows into the river.

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PENSTOCK: A pipe that brings water from the reservoir to the powerhouse. It can be buried or above ground.



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As we advance with Phase 3 of the
Project, we will continue to apply the
“three-legged stool” approach.

Equal importance will be placed on the
economic, environmental and social
values of the Project. There are
unknowns and uncertainties about each
of these ‘legs’ that need to be
determined and will continue to shape
the Project scope.

As we gather information on these
unknowns our engineers will be able to
develop a preliminary design.

The design will be an iterative process
based on continued information that is
gathered about each of the Project
values.

? ᖃᐅᐃᑦᐅᖃᐅᐃᑦᐅᐃᑦᐅᐃᑦ 2025-ᐅᑦ WHAT'S NEXT FOR 2025

2025



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WINTER/SPRING



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- Continue to revise the Project concept to determine how much electricity we can expect the Project to produce, and to determine cost estimations
- Hire archaeological and environmental consultants
- Engage on:
 - Trail systems near the site
 - 2024 Project outcomes and Project additional options
 - 2025 field program review through IQ lens and transport routes through town with Rightsholding organizations
- Engage with QEC on preliminary terms of a power purchase agreement, or other commercial agreement

2025

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- Conduct archaeological surveys of the Project site and access road
- Hire supporting roles for 2025 field programs
- Engage community and NIRB on 2025 field program plans
- Engage community on Project worker housing
- Engage QEC on logistical and technical expectations



22

ካህናት ምዕራባዊ ካህናት PROJECT ROADMAP

ፎካል ካህናት ENGINEERING



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ፎካል ካህናት ምዕራባዊ ካህናት

2022

Desktop Studies and
Early Study Work

Project Concept Development
and Refinement

ፎካል ካህናት ፎካል ካህናት ፎካል ካህናት SITE INVESTIGATIONS & FIELD WORK



ፎካል ካህናት ምዕራባዊ ካህናት
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2024

Water Flow
Monitoring

Technical Fieldwork, Archaeological
Surveys, Environmental Field Work Year 1

ፎካል ካህናት ፎካል ካህናት ፎካል ካህናት REGULATORY & COMMUNITY APPROVALS



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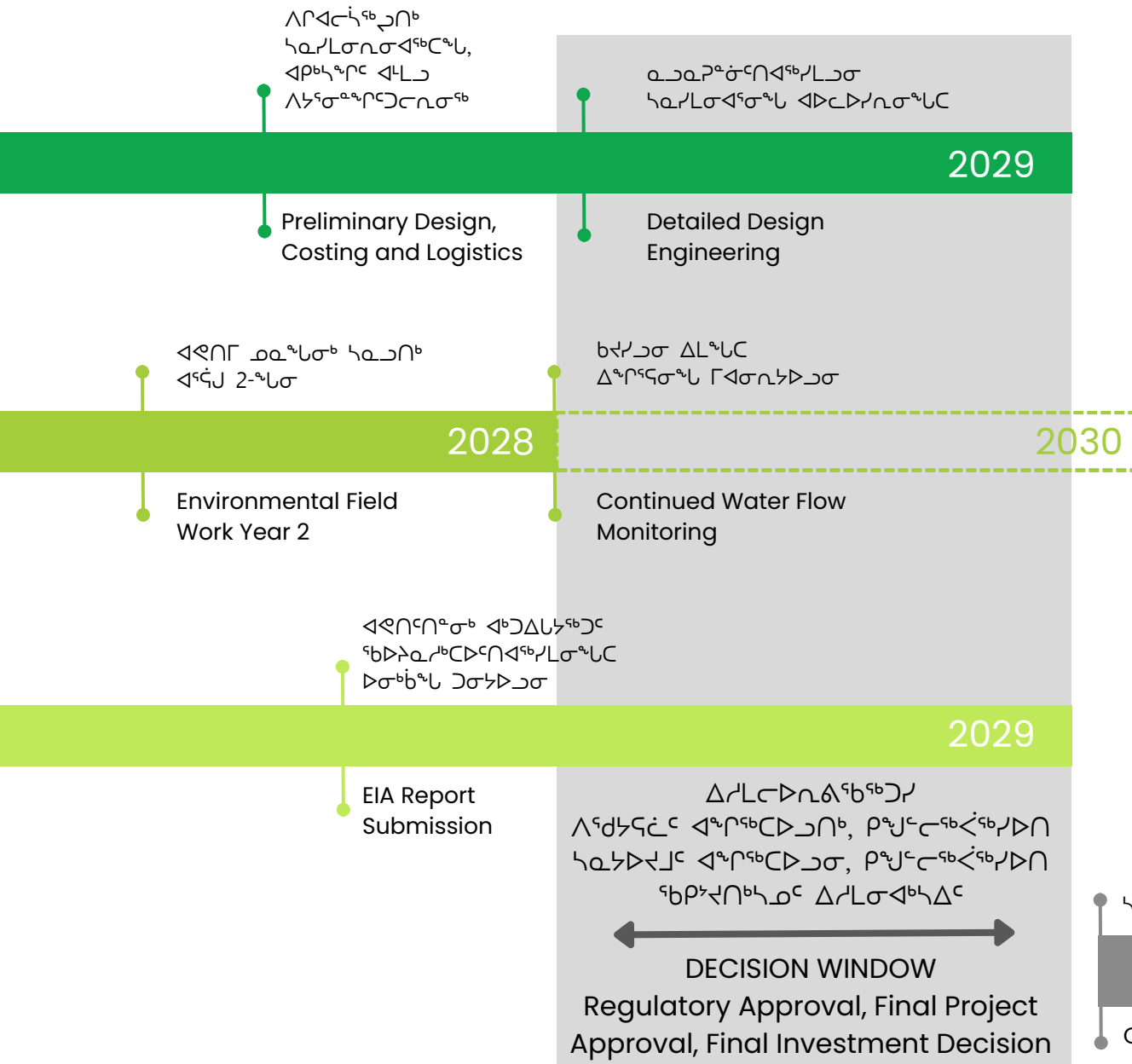
2023

Regular Engagement with Rightsholders and
Stakeholders, Environmental Impact
Assessment (EIA) Scoping

EIA Development, Power
Purchase and Partnership
Agreements

ካህናት CONSTRUCTION





There are many unknowns about the Project schedule, and it will likely change as the Project progresses. Certain activities, such as regulatory approvals, have unknown timeframes which could extend the Project schedule.

The earliest we could expect the plant to be operational is 2033. There are still many studies needed, regulatory processes to move through, and financing is yet to be secured. This is a very typical timeline for a new water power project in Canada.

With proper maintenance, the water power plant will have a minimum useful life of 100 years.

Based on our current information, the water does not freeze to the full depth of the lake and river, so water still flows in the winter. We have water flow data collection stations installed at the site right now, to give us a year-round set of flow data. The engineering team will design the water power plant for freezing conditions and seasonal changes and will ensure water will always flow from the reservoir to the water power plant.

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