

**Snare Hydroelectric Facility  
Type A Water Licence  
Renewal  
W2023L4-0001**

Public Hearing  
December 6  
Behchokò Ko Gocho Centre  
Behchokò, NT



# Presentation Overview

- Introduction
- North Slave Electrical System
- Snare Facility Overview
- Tłıchǫ Partnerships
- Existing Water Licences
- Water Licence Renewal
- Summary of Interventions

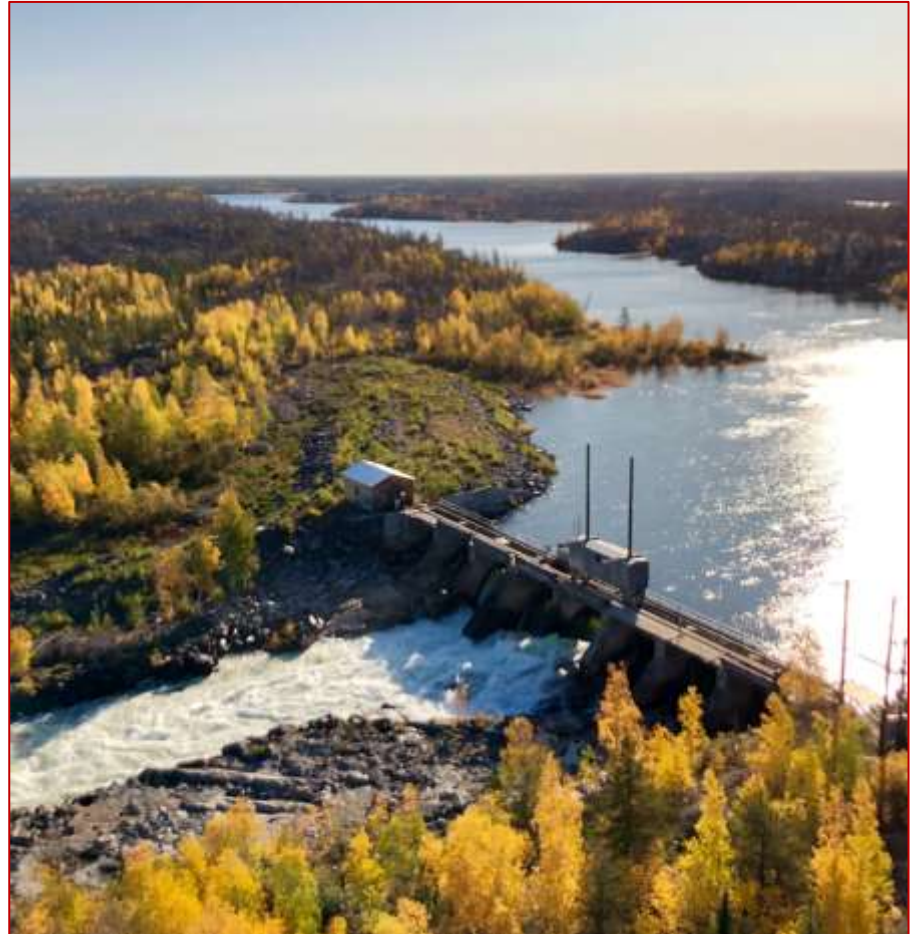


Photo of the 5B Spillway in Fall

# Participants

- **David Dewar** - Director, Health, Safety & Environment, NTPC
- **Dean Hendrickson** - Director, Hydro Operations, NTPC
- **Eileen Hendry** - Manager, System Control, NTPC
- **Jamie Tennant** - Civil Engineer, NTPC
- **Cameron Stevens** - Fisheries Biologist, WSP
- **Damian Panayi** – Regulatory Advisor, WSP
- **Doug Evanchuk** - NTPC Legal Counsel, McLennan Ross



Shoreline on Bigspruce Reservoir



# North Slave Electrical System

- The Snare Hydroelectric facility (Snare Hydro) is the main source of electrical power to the North Slave Electrical System
- The North Slave Electrical System includes power generation facilities at four locations:
  - Snare Hydro
  - Bluefish Hydro
  - Frank Channel Diesel
  - Jackfish Diesel
- Serving Yellowknife, Ndilo, Behchokò and Dettah



# Introduction

- Snare Hydro is currently regulated by two Type A Water Licences with the Wek'èezhìi Land and Water Board (WLWB):
  - N1L4-0150 for Snare River Watershed Hydroelectric Generation Facilities, owned and operated by the Northwest Territories Power Corporation
  - W2014L4-0004 for Snare Cascades, owned by Dogrib Power Corporation and operated by NTPC
- Both Water Licences expire on May 29, 2024
- This Public Hearing is to discuss the replacement Water Licence, W2023L4-0001

# Snare Facility Overview

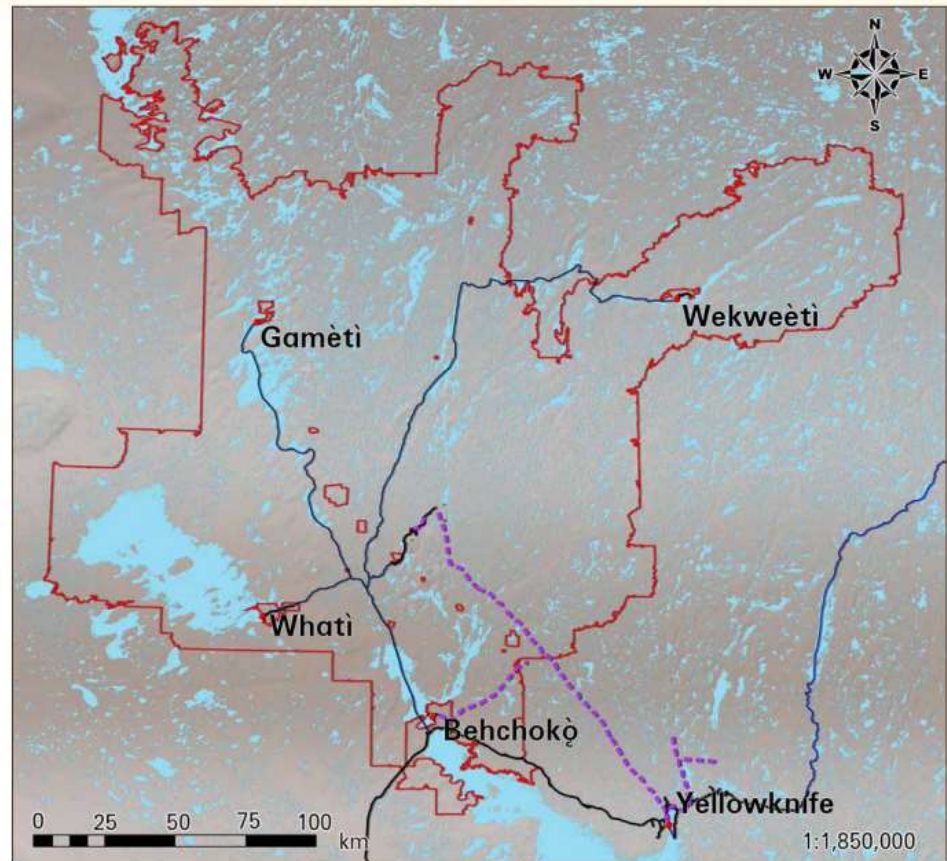
- Water retention and management is controlled at Bigspruce Reservoir
- Fills between June and November and depleted over winter
- Four hydroelectric stations downstream of Bigspruce Reservoir:
  - Snare Rapids
  - Snare Falls
  - Snare Cascades
  - Snare Forks





# Indigenous Relationships

- Facility is located within Tłıchǰ Boundary as outlined in the Tłıchǰ Land Use Plan
- Facilities are on titled land but surrounding areas are Tłıchǰ lands
- Area is also in the traditional lands of the North Slave Métis Alliance



# Tłıchǫ Partnerships

- NTPC has held many Tłıchǫ Access Agreements for the site
- Site Wide Tłıchǫ Access and Economic Agreement signed in 2021
- Strong partnership with Tłıchǫ Government via Dogrib Power Corporation (owner of Snare Cascades)
- 2022 Projects included:
  - Snare Road Capital Upgrades
  - Snare Road As/When Maintenance
  - Snare Winter Road
  - Right-Of-Way Brushing and Access Trails
  - 5B Spillway Channel Bridge Restoration



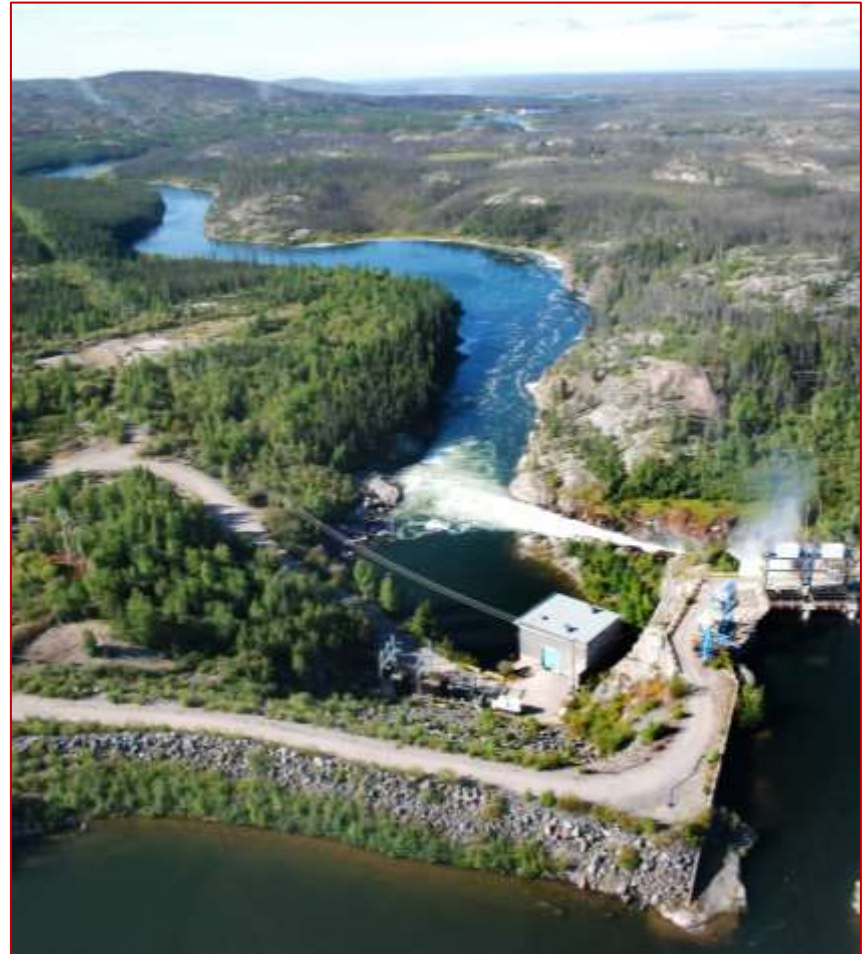
Snare Hydro All-Season Road



# Existing Water Licences

Water Licences N1L4-0150 and W2014L4-0004 regulate the use of water by the hydro facility and include:

- Storage of water in Bigspruce Reservoir and downstream forebays through maximum and minimum water levels
- Maximum duration of flow interruption during maintenance
- The operation and maintenance of all main and side dams
- The operation and maintenance of all spillways



Snare Forks

# Water Licence Renewal

**No major operational or facility changes planned**

W2023L4-0001 includes both NTPC and Dogrib Power facilities.



Snare Cascades

# Water Licence Renewal

Proposed changes to the Licence:

- Licence Conditions updated based on template of the Land and Water Boards of the Mackenzie Valley Standard Water Licence Conditions
- Snare Rapids Forebay (Bigspruce Reservoir)
  - During low water years, requested reduction of minimum level by 0.3 metres (1 foot) from April 15 to August 15, to increase use of hydroelectric power rather than diesel during low inflow years
- Snare Falls Forebay
  - Minimum level reduced by 0.3 m (1 ft) for up to 14 days between May 1 and October 1 to allow variance for maintenance inspections
- Minor changes to Surveillance Network Program for clarity
- Water Use for camp and road maintenance



# Summary of Interventions



# Tłıchq Government Recommendations

# Forebay Minimum Levels

## **Tłıchǫ Government-1**

*Recommendation:* The TG supports the proposed amendments to lower the Snare Rapids and Snare Falls minimum water levels if fish and fish habitat are protected.

*Response:* NTPC thanks TG for the support and the feedback provided through this process.



# Dam Crests and Design Elevations

## Tłıchǫ Government-2

*Recommendation:* The Board may wish to consider a Licence requirement that NTPC maintain the dam crests to design elevations at all times.

*Response:* NTPC believes that this concern is addressed through the various components of the Water Licence, including:

- Dam Safety Program
- Operations, Maintenance and Surveillance Manual
- Various Water Licence Conditions
- Reporting through the Water Licence Annual Report and NTPC Response to Dam Safety Review Report.

# Freeboard Analysis

## Tłıchq Government-3

*Recommendation:* The Board should consider whether a Licence condition(s) is needed to require a freeboard analysis, review of the inflow design floods, and verification of erosion protection

*Response:* These concerns are addressed through the Water License Conditions and the Dam Safety Guidelines, for example:

- Probable Maximum Flood Study, which may recommend the need for modifications or dam raises.
- This Study will inform the Dam Safety Review process, the recommendations of which will also be provided to the Board.

# Dam Safety Engineer

## Tłıchq Government-4

*Recommendation:* The TG recommends that the definition of dam safety engineer focus on dam safety.

*Response:* NTPC proposes the following definition:

*Dam Safety Engineer: A qualified professional engineer whose role is to ensure all dams and related hydraulic structures are maintained and operated in a manner that minimizes risks to public safety, the environment, and NTPC Operations, and in alignment with the Dam Safety Guidelines.*



# Climate Change

## Tłıchq Government-5

*Recommendation:* We recommend that the Licence include a requirement to periodically submit a report on how climate change has or is predicted to effect:

- environmental impacts of the Snare Hydroelectric Facility
- the efficacy of the Licence conditions

*Response:* NTPC shares TG interest in the impact of climate change, and has considered this in the proposed Water Licence Conditions. For example:

- Change to minimum levels in low water years
- Annual Engineering Inspections and Dam Safety Reviews
- Surveillance Network Program, Reservoir Operation Reports and Water Licence Annual Report
- Working with Fisheries and Oceans Canada to understand and mitigate risks to fish

# GNWT Recommendations

# Water Licence Term

## **GNWT-ECC-1**

*Recommendation:* GNWT-ECC recommends that the term of the renewed Type A Licence be 25 years.

*Response:* NTPC has reviewed the intervention and considers the submissions of GNWT-ECC to be legal argument. NTPC will provide a response in the Closing Arguments.

# Forebay Minimum Levels

## **GNWT-ECC-2**

*Recommendation:* GNWT-ECC recommends NTPC explain the operational limitations that must be considered by NTPC, while also minimizing potential impacts to the environment with regards to the proposed dates or duration which it would recommend to limit drawdown of Bigspruce Reservoir and the Snare Falls Forebay to the proposed lower limits.

*Response:* NTPC provided an expanded justification in the Response to Interventions. Separate responses are provided for Snare Rapids Forebay (Bigspruce Reservoir) and the Snare Falls Forebay.

# Reports and Plans

## **GNWT-ECC-3**

*Recommendation:* GNWT-ECC recommends the Water Licence require a report from the Septic Field Verification Study be submitted for Board approval.

## **GNWT-ECC-4**

*Recommendation:* GNWT-ECC recommends the Water Licence require the submission of a Geochemical Characterization and Management Plan, for Board approval.

*Response:* NTPC agrees with these recommendations



# Plans and Conditions

## **GNWT-ECC-5**

*Recommendation:* The Water Licence include the Standard Water Licence Conditions Part E Conditions 5 and 8.

## **GNWT-ECC-6**

*Recommendation:* The Water Licence require the submission of all plans requiring revisions, for Board approval, post-issuance of the Water Licence.

## **GNWT-ECC-7**

*Recommendation:* The Water Licence include a condition requiring the submission of an interim Closure and Reclamation Plan within a timeframe determined by the Board.

*Response:* NTPC agrees with these recommendations

# Fisheries and Oceans Canada Recommendations

# Fisheries and Oceans Canada

## DFO-1

*Recommendation:* Understanding the effects to fish and fish habitat in the outflows of Bigspruce Reservoir and during operations is important to maintaining a health fishery.

## DFO-2

*Recommendation:* NTPC submit a Request for Review to DFO. The information provided in the water license renewal application and the Request for Review form will help DFO determine if a Fisheries Act Authorization is required. This process can occur independent of the Water License Renewal process.

# Fisheries and Oceans Canada

## DFO-3

*Recommendation:* NTPC continue to work with DFO to complete an assessment to determine the death of fish and Harmful Alteration, Disruption or Destruction (HADD) which can occur independently of the Water License Renewal.

## DFO-4

*Recommendation:* The proposed minimum water level reduction should only occur when necessary and not within the timing windows to protect habitat and fish spawning. Operational plans should include a maintenance schedule for cleaning trash racks. Planned shutdowns should be gradual to mitigate stranding.

# Fisheries and Oceans Canada

## **DFO-5**

*Recommendation:* DFO and NTPC have been working cooperatively for many years. Both parties recognize the importance of protecting fish and fish habitat. NTPC continues to address DFO concerns and implement appropriate measures to ensure compliance with the Fisheries Act

*Response to DFO-1 to DFO-5:* NTPC will continue to work cooperatively with DFO, and plans to submit a Request for Review



# Final Comment

NTPC has found the Water Licence application process to date to be collaborative and positive, with the shared goal of maximizing renewable power from the Snare Hydroelectric Facility, while protecting the Snare River aquatic environment and traditional use of the area. NTPC looks forward to continued collaboration with all Parties and the WLWB.

# Thank you

