

# a wet summer plus lots of snow equals more renewable electricity in 2021

## HYDRO PLAYS A KEY ROLE IN YUKON'S ELECTRICITY MIX.

After lots of rain last summer and heavy snowfall this winter, we expect more water to be available to generate renewable electricity this year.

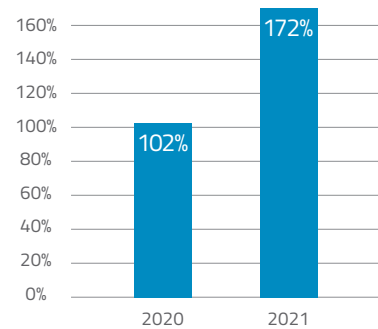
In 2021, we expect to use water to generate about 94% of the electricity needed by Yukoners connected to the grid. The remaining 6% will be produced using liquefied natural gas, primarily, as well as a small amount of diesel.



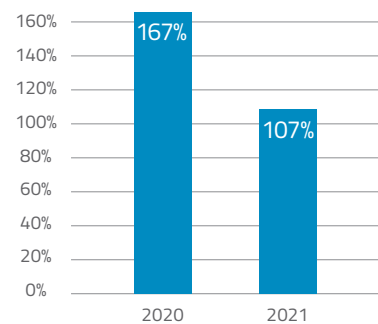
Aerial view of the Whitehorse Dam.  
Photo credit: Archbould Photography

## 2020 and 2021 snowpack levels

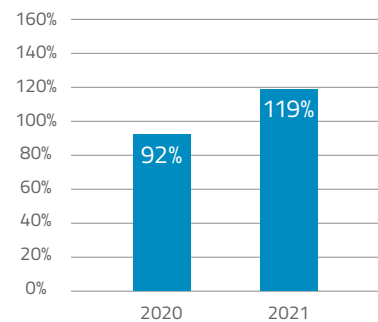
### WHITEHORSE RESERVOIR % OF NORMAL SNOW PACKS LEVELS



### MAYO RESERVOIR % OF NORMAL SNOW PACKS LEVELS



### AISHIHIK RESERVOIR % OF NORMAL SNOW PACKS LEVELS

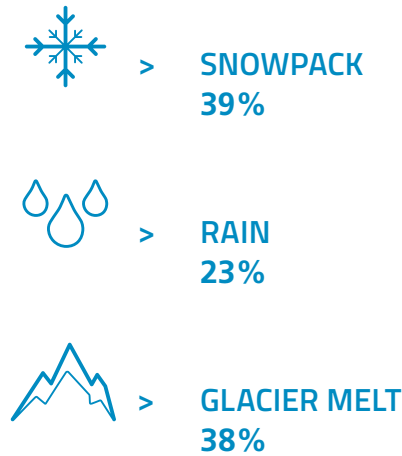


Source: Yukon Government Snow Survey Bulletin and Water Supply Forecasts, March 2020 and March 2021

## WHAT HIGH SNOWPACK LEVELS MEAN FOR THE SOUTHERN LAKES

On their own, snowpack levels don't paint the full picture of how much water will flow into the Southern Lakes this year.

Three sources of water contribute to reservoir inflows and water levels in the Southern Lakes:



Percentages are based on a simulated historical average (1981 to 2018)



The timing of each of these inflows also plays an important part in determining water levels. For example, heavy rain over a few days can cause a rapid increase to a lake's water levels. On the other hand, light rain spread out over several months might have little effect.

Right now, we can't say for certain how high the water levels on Southern Lakes will get this year. A lot will depend on the amount of rain we get and when this rain falls. There are also limits to the amount of water that can naturally flow through Miles Canyon on any given day.

Based on the information we have today, if we have a wet spring, our inflow model predicts that Marsh Lake water levels this summer could peak at 656.82 m. This is comparable to levels reached in 2004 and about 52 cm below levels reached during the 2007 flood.

## WHAT WE'RE DOING TO PREPARE

Every spring, we make room in Marsh Lake for rain and spring melt by lowering water levels on the lake close to its Low Supply Level (653.796 m) – the lowest level allowed under our water use licence.

This spring, because of high snowpack levels in the area, we're looking at ways to draw Marsh Lake water levels down even lower, to 10 cm below the current Low Supply Level.

In order to prepare, we are:

1. Opening gates at the Lewes River Control Structure to increase water inflows to the Whitehorse dam. This will happen over the course of several weeks so we can closely monitor the downstream effects of the additional water flow.
2. Offering secondary sales to SCADA-connected customers at specific times of the day when there's more water available than what is needed to generate electricity.
3. Spilling water at the Whitehorse dam, if necessary, to maintain increased flows through the dam.
4. Starting our application for an emergency amendment to our Whitehorse Rapids Generating Station water use licence. This is needed to allow us to draw down Marsh Lake 10 cm below the Low Supply Level.

And this is just the start.

Over the next several months, we'll keep a close eye on lake levels on Marsh Lake and downstream of the dam. We'll also continue to refine our forecasts as additional snow pack data and rain forecasts are made available. We will share our results with Yukon government's Water Resources branch and Emergency Measures Organization (EMO), and the public.

We'll also adapt as needed. As conditions change and our inflow forecasts become more clear, we'll look at what additional options exist within our control to draw down lake levels even further, if needed – always keeping top-of-mind the potential effects to the Southern Lakes, to neighbourhoods downstream of the dam, and to the land and environment.