Q. **Reference: RRAS, 2022 Update, Vol. I, page 6 (30 pdf); Vol. III, page 41 (122 pdf)**

Citation 1 (Vol. I, page 6):

> From an energy perspective, Hydro completed an assessment of its ability to meet firm energy requirements in consideration of firm hydraulic energy sequences.[25]
>
> Note 25: Minimum storage targets are developed annually to provide guidance in the reliable operation of Hydro's major reservoirs: Victoria, Meelpaeg, Long Pond, Cat Arm, and Hinds Lake. The minimum storage target is designed to show the minimum level of aggregate storage required such that if there was a repeat of Hydro's critical dry sequence, or other less severe sequence, Hydro's load can still be met through the use of the available hydraulic storage, maximum generation at the Holyrood TGS, and imports. Hydro's long-term critical dry sequence is defined as January 1959 to March 1962 (39 months). Other dry periods are also examined during the derivation to ensure that no other shorter-term historic dry sequence could result in insufficient storage.

Citation 2 (Vol. III, page 41):

> The Newfoundland and Labrador Interconnected System energy criterion is that the Newfoundland and Labrador Interconnected System should have sufficient generating capability to supply firm energy/ requirements with firm system capability.[126]
>
> The ability to meet energy requirements is continually evaluated in consideration of historical inflow sequences and future customer and contracted requirements.[127,128] In the 2018 Filing and the 2019 Update, there were no violations of the energy criteria.
>
> Note 126 : On the Island, firm capability for the hydroelectric resources is the firm energy capability of those resources under the most adverse three-year sequence of reservoir inflows occurring within the historical record. Firm capability for the thermal resources (Holyrood TGS) is based on energy capability adjusted for maintenance and forced outages.

Please

a) confirm that the ability of the Muskrat Falls Generating Facility is <u>not</u> evaluated in consideration of the most adverse three-year sequence of historical inflow, and

b) explain why that is the case. If not confirmed, please provide a full explanation.

A. **a)** The ability of the Muskrat Falls Hydroelectric Generating Facility is not evaluated in consideration of the most adverse three-year sequence of historical inflow. However, modelling of the Island's firm energy capability under the most adverse three-year sequence of reservoir inflows includes Muskrat Falls hydrology and the supply of energy from the Muskrat Falls Hydroelectric Generating Facility to the Island over that period.

b) The evaluation of the Island's firm energy capability under the most adverse three-year sequence of reservoir inflows is a product of the substantial storage in the Island Reservoir System. Some of Newfoundland and Labrador Hydro's ("Hydro") generating facilities have reservoirs that will cycle from full storage to minimum storage within one year, while the largest reservoirs require multiple years to cycle between those operating limits. This cycle is driven by consecutive years of above- or below-average reservoir inflows, which is why Hydro's Island reservoirs are optimized over multi-year periods, including the most adverse three-year period in the hydrological sequence. The Muskrat Falls Hydroelectric Generating Facility is a run-of-river hydroelectric facility and its reservoir is very small when compared to the Island's reservoirs. It can cycle its reservoir from full storage to minimum storage daily. Furthermore, production at the Muskrat Falls Hydroelectric Generating Facility is governed by the hydrological conditions in Labrador. Island and Labrador hydrology will differ because of the variation in meteorological conditions between the two geographic regions. A dry period on the Island will not necessarily equate to a dry period in Labrador, which mitigates Hydro's overall hydrological risk when observing below-average inflows on the Island.