Q. **Reference: Application Volume 1, 2022 Capital Budget Application – Five-year Capital Plan (2022 – 2026) page 8)**

Regarding the plan to connect certain communities in southern Labrador to a single diesel generating station in Port Hope Simpson, has Hydro considered the technical and economic viability of integrating wind energy facility as a supplemental source of energy?

A. As noted in Newfoundland and Labrador Hydro's ("Hydro") Long-Term Supply for Southern Labrador – Phase 1 application ("Application"), Hydro does not consider wind, solar, or run-of-river hydro generation[1] as firm supply solutions for the southern Labrador region. "Renewable energy sources such as wind and solar installed in isolated systems are considered non-firm energy sources due to their intermittent nature."[2]

While renewable energy sources in their current state are not viable for the provision of firm capacity, these sources can be used to supply energy to offset diesel fuel consumption and thereby reduce operating costs. Hydro's Southern Labrador Renewable Energy Study, provided as part of Hydro's Application,[3] and the Labrador Interconnection Options Study[4] demonstrate that a southern Labrador interconnection would provide greater potential for renewable energy development than the continued operation of four separate isolated diesel generating stations. The Southern Labrador Renewable Energy Study demonstrates that the southern Labrador interconnection can provide up to 11.2 GWh of medium-scale[5] renewable energy potential compared to up to 9.7 GWh if the region remains isolated. The Labrador Interconnection Options Study demonstrates that connecting isolated systems in groups allows development of larger scale wind turbines and battery energy storage systems that have a lower levelized cost of

[1] Hydroelectric generating facilities with larger storage reservoirs would provide firm capacity to the system; however, the amount of capacity would be dependent on the particular site and the design of the facility.
[2] "Long-Term Supply for Southern Labrador – Phase 1," Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, at p. 20/11–13.
[3] "Long-Term Supply for Southern Labrador – Phase 1," Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, app. B.
[4] "Labrador Interconnection Option Study," Hatch Limited, November 10, 2020.
[5] Medium-scale renewable energy referrers to renewable energy systems that requires some level of diesel generation to be online at all time.

energy. These studies show that the single, larger regional diesel generation source supplying the four southern Labrador communities would be a more favorable and cost-effective configuration for maximizing renewable energy potential in the region.

Hydro has decided not to develop wind or solar power in the southern Labrador region on its own behalf as it has been identified within the Labrador Interconnection Options Study that the total cost of ownership of wind generation and storage to supply approximately 50% of energy, based on a 20-year study period, is approximately 50% higher than that of the continued operation of individual diesel generating stations, an option which Hydro has concluded is more expensive alternative than regional interconnection supplied by a single regional diesel generating station. Further, the provision of 50% of energy from renewable sources would still require diesel generation to provide the remaining energy and provide firm capacity in the event of reduced renewable generation.

Although Hydro has determined that development of wind and solar power in the region on its own behalf is not the least-cost alternative, Hydro is willing to engage in discussions for power purchase agreements with independent power producers who may be able to avail of different funding opportunities which enable them to cost-effectively develop renewable facilities so long as the outcome of such an arrangement would result in the provision of least-cost power for Hydro's customers.