Q. (Reference CA-NP-065)
NP states that the original rationale for the Greenhill, Wesleyville and Port aux Basques thermal generation facilities "*was to ensure system reliability relating to peak load, voltage/frequency support and the ability to run isolated systems in the event of transmission line failures on radial transmission line systems.*"

a) In what ways, if at all, are these reasons still valid?

b) If these thermal units were not replaced then what would be the implications for system reliability?

c) It is stated that the proposed units will provide "*system support to ensure reliability during times of renewable generation shortages.*" Please elaborate. Specifically, what type of support will they provide and what type of renewable generation shortages are expected?

d) Are studies of the proposed units being coordinated with NL Hydro and do they form part of NL Hydro's reliability and resource adequacy study?

A. a) The original rationale for these units are still valid. The noted generation facilities are still operated during system peak when requested by Newfoundland & Labrador Hydro ("Hydro") and provide material voltage and frequency support during these events.[1] The units are also dispatched to provide local support during both planned and unplanned outages of transmission lines. All units are on radial transmission line systems except for the Greenhill unit.[2]

b) If these thermal units were not replaced, the impacts to the electrical system on the island would follow the response to part a). Specifically, a shortage of generation capacity or loss of voltage and frequency support during peak conditions could result in load shedding to ensure system stability. Customer outage minutes associated with planned and unplanned maintenance in the areas of Port-aux-Basques, Wesleyville and Greenhill would be expected to increase.

c) Hydro's *2024 Resource Adequacy Plan* proposes a minimum investment expansion plan that may still result in generation shortfalls as high as 169 MW during peak periods on the Island Interconnected System.[3] In such events where power may not be available to customers from Hydro's bulk supply system, the proposed units could provide support by ensuring supply to customers in the areas of Port-aux-Basques, Wesleyville and Greenhill. Moreover, any potential voltage and frequency constraints that currently exist on the island would be exacerbated during times of a generation shortfall. As a result, reliance on emergency backup generators for system support as described in part a) is expected to continue. Examples of the type of renewable

[1] For example, Hydro requested all thermal units to be dispatched for system support during last year's system peak on February 4, 2023.

[2] Prior to the installation of the Greenhill combustion turbine on the Burin Peninsula, the area was primarily served by Hydro-owned 138kV Transmission Line TL212. In 1990, Hydro constructed a second 138kV transmission line, TL219, to provide a looped transmission supply to the area. If TL219 were out-of-service during peak periods, an undervoltage condition would exist on the Burin Peninsula that can be mitigated by dispatching the Greenhill unit.

[3] See Hydro's *2024 Resource Adequacy Plan*, Appendix C, page 143 of 163.

generation shortages that could occur include an outage to the Muskrat Falls hydroelectric generating station and Labrador Island Link transmission line or generation shortages associated with other hydroelectric and wind generation facilities on the Island Interconnected System.

d) Hydro and Newfoundland Power coordinate regularly on system planning matters related to Newfoundland Power's transmission systems and generation facilities since they have implications for Hydro's bulk electricity system. Studies related to Newfoundland Power's thermal generation facilities are being coordinated with Hydro.[4] With respect to Hydro's *2024 Resource Adequacy Plan*, the proposed replacement of Newfoundland Power's thermal units was considered as a sensitivity within Hydro's expansion plan.[5] Replacement of Newfoundland Power's thermal generation facilities are not a part of Hydro's Minimum Investment Required Approach as outlined in the *2024 Resource Adequacy Plan*.[6]

[4] Recent analyses suggest that having 25 MW of generation available at Wesleyville and Greenhill may effectively avoid more costly transmission supply upgrades at Hydro's Stony Brook and Sunnyside terminal stations.

[5] See Hydro's *2024 Resource Adequacy Plan*, Appendix C, page 84 of 163.

[6] See Hydro's *2024 Resource Adequacy Plan*, page v to vi.