

Q. Reference: Response to PUB-NLH-123

- a)** For each of the Assets identified in Table 1, provide the list of actual transmission, distribution, substation and terminal station equipment (i.e. breakers, reclosers, voltage regulators, tap changers, disconnect switches, etc.) that are currently able to be remotely monitored and controlled from the Energy Control Centre.
- b)** For the period from 2021 to 2025, provide a table identifying each time that the diesel generator backup units at St. Anthony Diesel Plant and Hawke's Bay Diesel Plant were remotely started and stopped, the reason for the remote operation and the duration for each event.
- c)** Does Hydro have other diesel generator backup units other than St. Anthony Diesel Plant and Hawke's Bay Diesel Plant? If yes, provide a list of these other diesel generator backup units including what if any equipment is remotely monitored and controlled from the Energy Control Centre. If not, what are Hydro's plan to extend remote monitoring and control to these diesel generator backup units?
- d)** Hydro states that the ability to remotely control distribution equipment will improve outage response times. Provide Hydro's estimate for the potential improvement for each of the reliability indices provided in Charts 1 and 2 in the response to PUB-NLH-118 when a broad deployment of remotely control distribution equipment has been completed.

- A. a)** The list of actual transmission, distribution, substation and terminal station equipment (i.e., breakers, reclosers, voltage regulators, tap changers, disconnect switches, etc.) that are currently able to be remotely monitored and controlled by the Energy Control Centre ("ECC") is outlined in Table 1.

Table 1: Automation and Monitoring Systems – Hydro Rural Service Areas¹

Location	Asset	Equipment Type	Quantity
Labrador Interconnected		230 kV Breakers	1
		138/25 kV Transformer	4
		25 kV Breakers	16
			1
		Station Service/DC	1
		Battery System	
		230 kV Breakers	2
		230/46 kV Transformer	11
		46 kV Breakers	29
		Motorized Disconnects	8
			3
		Cap Banks	2
		Station Service/DC	2
		Battery System	
		46 kV Breakers	2
		25kV Breakers	3
		25kV Reclosers	6
		46/25kV Transformer	2
		Motorized Disconnects	6
		Station Service/DC	1
		Battery System	
		46 kV Breakers	2
		25kV Breakers	3
		25kV Reclosers	6
		46/25kV Transformer	2
		Motorized Disconnects	5
		Station Service/DC	1
		Battery System	
Great Northern Peninsula	Various Site Locations²		
		None	0
		69/12.5 kV Transformer	1
		12.5 kV Reclosers	3
		69/4.16 kV Transformer	1
		69 kV Breaker	1
		69 kV Switch	1
		Station Service/DC	1
		Battery System	

¹ Newfoundland and Labrador Hydro ("Hydro") plans to extend remote monitoring and control to the Jean Lake, Parson's Pond, Glenburnie, and Wiltendale Terminal Stations, and the Fogo Island Substation.

² The Great Northern Peninsula is defined as communities north of Deer Lake, including Main Brook, Roddickton, St. Anthony, Parson's Pond, Sally's Cove, Bear Cove, Plum Point, Glenburnie, Wiltendale, Rocky Harbour, Cow Head, Daniel's Harbour, and Hawke's Bay.

Location	Asset	Equipment Type	Quantity
		138/69 kV Transformer	1
		69 kV Capacitor Banks	3
		69 kV Circuit Breakers	3
		138 kV Disconnect	1
		Station Service/DC Battery System	1
			3 Controls
		69/25 kV Transformer	1
		69 kV Breaker	1
		25 kV Recloser	1
		69 kV Disconnect	3
		25 kV Reclosers	
		4.16 kV Breakers	8
		Station Service/DC Battery System	1
		None	0
		138/12.5 kV Transformer	1
		12.5 kV Reclosers	2
		138 kV Reactor	1
		138 kV Breakers	2
		138 kV Disconnect	1
		138 kV Breakers	4
		138 kV Reactors	2
		12.5 kV Reclosers	2
		138/12.5 kV Transformer	1
		Station Service/DC Battery System	1
		12.5 kV Reclosers	2
		69 kV Breaker	1
		12.5 kV Recloser	1
		69 kV Disconnect	1
		Station Service/DC Battery System	1
		138 kV Breakers	1
		66 kV Breakers	2
		138 kV Disconnect	2
		138/66 kV Transformer	1
		138 kV Breaker	1
		138 kV Disconnect	2
		66 kV Breakers	1
		138/66 kV Transformer	1
		Station Service/DC Battery System	1

Location	Asset	Equipment Type	Quantity
		66 kV Breakers	1
		12.5 kV Recloser	1
		66 kV Disconnect	1
		Station Service/DC	1
		Battery System	
		66 kV Breaker	1
		12.5 kV Reclosers	2
			3
		4.16 kV Breakers	2
		Station Service/DC	1
		Battery System	
Baie Verte Peninsula		138 kV Circuit Switcher	1
		25 kV Reclosers	4
		138/25 kV Transformer	1
		Station Service/DC	1
		Battery System	
Green Bay Area		138 kV Circuit Switcher	1
		25 kV Reclosers	2
		138/25 kV Transformer	1
		Station Service/DC	1
		Battery System	
		138 kV Circuit Switcher	2
		25 kV Reclosers	
		138/25 kV Transformer	
		Station Service/DC	1
		Battery System	
Fogo Island		66 kV Disconnect	1
		25 kV Recloser	1
		66/25 kV Transformer	1
		Station Service/DC	1
		Battery System	
		25 kV Recloser	2
Connaigre Peninsula		25 kV Recloser	1
		69/25 kV Transformer	1
		25 kV Recloser	2
		69/25 kV Transformer	1
Southwest Coast		138/66 kV Transformer	1
		66 kV Breaker	1
		138 kV Disconnect	1
		Station Service/DC	1
		Battery System	
		25 kV Recloser	2
		138/25 kV Transformer	1
		138 kV Disconnect	1
		Station Service/DC	1
		Battery System	

b) Through Hydro's ECC, both the St. Anthony Diesel Plant and Hawkes Bay Diesel Plant can be remotely started and stopped. However, plant operators are required to be onsite before the plants are started for monitoring purposes in accordance with operating procedures; therefore, the events listed in Table 2 for Hawkes Bay Diesel Plant were completed locally. There were no remote starts and stops in the requested period for St. Anthony Diesel Plant.

Table 2: Hawkes Bay Diesel Plant Remote Stops and Starts

Date	Duration	Reason
October 29, 2021	13:51–17:18	Support for planned transmission line work on the Northern Peninsula
April 20, 2022	9:36–21:29	Support for forced transmission line outages on the Northern Peninsula
November 16, 2022	7:53–17:00	Support for planned transmission line work on the Northern Peninsula

c) In addition to the Hawke's Bay Diesel Plant and the St. Anthony Diesel Plant, Hydro has diesel generation backup units located in Mud Lake, Goose Bay,³ and six diesel generators at the Holyrood Thermal Generating Station ("Holyrood TGS").⁴ The units are not controlled or monitored from the ECC, and there are no plans to extend remote monitoring to control these diesel generating units.

d) Hydro is not currently able to quantify a discrete reliability improvement attributable to each individual asset investment. Therefore, Hydro does not forecast a change in SAIDI,⁵ SAIFI,⁶ CHI,⁷ or any other reliability metric as a direct result of the completion of proposed work. The relationship between individual assets and system reliability is often indirect and complex, and Hydro does not presently have sufficient asset-level data, metrics, and processes to establish such a measure.

³ The North Plant in Goose Bay is no longer operational.

⁴ Hydro has six standby diesel generators located at the Holyrood TGS, which are primarily used to black start the generating station, if required.

⁵ System Average Interruption Duration Index ("SAIDI").

⁶ System Average Interruption Frequency Index ("SAIFI").

⁷ Customer Hours Interrupted ("CHI").