

1 **Q. Schedule B, page 6, states that “Typically, when failures occur at substations,**
2 **the first step considered is to transfer load to an adjacent substation with**
3 **available capacity and sufficient distribution tie points. In the case of MUN**
4 **Substation, the load cannot be transferred to another substation due to the**
5 **absence of sufficient customer-owned distribution tie points.”**
6

7 **(a) Would the Long Pond Substation have the capacity to handle the entire**
8 **MUN substation load, in addition to its normal load, if there were sufficient**
9 **tie points? Please provide detail showing the capacity deficit or surplus.**

10
11 **(b) What is the estimated cost to install sufficient tie points so as to enable**
12 **the Long Pond Substation to act as backup to MUN-T1?**
13

14 **(c) Has Newfoundland Power had, or plan to have, discussions with MUN to**
15 **investigate mechanisms to increase Newfoundland Power’s flexibility in**
16 **servicing MUN such as increasing the number of tie points or switchgear**
17 **facilities? If yes, please elaborate. If not, please explain the rationale for**
18 **not doing so.**
19

20 **A. (a)** Yes, the Long Pond (“LPD”) Substation currently has the capacity to handle the
21 entire Memorial (“MUN”) Substation load if there were sufficient customer-owned
22 distribution tie points. LPD Substation currently has one 25 MVA power
23 transformer. The current maximum coincident load on MUN Substation and LPD
24 Substation is approximately 19 MVA. Due to limited customer-owned distribution
25 tie points, only half of this load is able to be transferred from MUN Substation to
26 LPD Substation.
27

28 The construction of LPD Substation was funded through a contribution from
29 Memorial University of approximately \$4.0 million to provide a second supply point
30 for its St. John’s campus.¹ The substation was requested by the University to
31 provide redundancy and operational flexibility in the event of equipment failures at
32 MUN Substation.
33

34 The university has advised that, to date, only the Core Science Facility and the
35 Health Sciences Centre are being supplied by LPD Substation. The historical load
36 for the facilities on LPD Substation is approximately 9.7 MVA. All remaining
37 campus load has been supplied by MUN Substation. The MUN Substation load that
38 cannot be transferred to LPD Substation is approximately 10 MVA.
39

40 Upon completion of the *LPD Substation Capacity Expansion Project* in 2023, the
41 capacity of LPD Substation will increase to 50 MVA.² The electrification project at
42 Memorial University is expected to add 25 MW of new load to LPD Substation

¹ This included estimates for the capital cost of constructing the substation and transmission infrastructure, as well as an allowance for operating and maintenance costs.

² For more information, see the *2023 Capital Budget Application, Schedule B, Long Pond Substation Capacity Expansion*.

1 through the installation of two new electric boilers. This would increase the total
2 university load to approximately 44 MVA.

3
4 The university has also advised the Company of other campus load changes over
5 the coming years. The Harsh Environment Research Facility is a new single-level
6 Engineering Building Annex located adjacent to the Utilities Annex. Eastern
7 Health’s new Adult Mental Health and Addictions Facility is also under
8 development. These facilities are expected to be completed in 2024, adding
9 approximately 6 MW of load. Load is also expected to increase as the Core
10 Science Facility is further utilized and the Animal Resource Centre becomes
11 occupied, adding approximately 1 MW of load.³

12
13 Considering all of the above changes, the overall university load is forecast to
14 increase slightly above the 50 MVA capacity of LPD Substation in the coming years.

15
16 (b) The distribution systems served by MUN and LPD substations are customer owned
17 and operated. Newfoundland Power is not involved in the capital planning of the
18 university’s distribution system. The university’s system is substantially different
19 than Newfoundland Power’s distribution system.⁴ Accordingly, the Company
20 cannot comment on the costs involved to install sufficient customer-owned
21 distribution tie points to enable LPD Substation to act as backup to MUN-T1.

22
23 (c) Yes, Newfoundland Power has discussed the limits of the customer-owned
24 distribution system and any plans for upgrades with the university.

25
26 The design of the university’s distribution system poses challenges when
27 considering the installation of additional distribution tie points. Unlike
28 Newfoundland Power’s distribution system, the vast majority of the university’s
29 cable infrastructure is located in underground duct banks, through buildings and
30 tunnels. The university has distribution equipment, including switchgear and
31 disconnect switches, located in various facilities throughout the campus. Installing
32 additional distribution tie points would likely require upgrades to the university-
33 owned distribution equipment, and the construction of new underground duct
34 banks to install cabling from one area to another. Increasing the ability to transfer
35 load between MUN and LPD substations would require routing underground cables
36 across the campus, including across Prince Phillip Drive.

37
38 The university has advised that it has no plans at this time to modify the customer-
39 owned distribution system to allow for the transfer of additional load from MUN
40 Substation to LPD Substation.

³ While the construction of additional buildings at the campus is expected to be completed in 2024, the full forecast load is expected to materialize in 2025 as the buildings reach full occupancy. For additional information, see the response to Request for Information CA-NP-008.

⁴ Establishing a tie point between two adjacent feeders requires the installation of a distribution voltage rated switch or recloser. This is possible in many locations on Newfoundland Power’s distribution system, except for radial feeders that do not have any neighboring feeders on which to transfer the load.