

1 **Q. Reference: “2022 Capital Budget Application,” Newfoundland Power, May 18,**
 2 **2021, Volume 1, Section 2.1, 2022 Substation Refurbishment and Modernization**

3
 4 **a) On what basis is the replacement of HUM-T3 justified (e.g., asset condition, load**
 5 **requirements, etc.)?**

6
 7 **b) Following elimination of the 4.16 kV infrastructure, in what year does**
 8 **Newfoundland Power forecast the Humber Substation 12.5 kV load to exceed the**
 9 **capacity of HUM-T3?**

10
 11 **c) Has the HUM-T3 on-load tap changer continued to experience gassing? If so,**
 12 **what attempts has Newfoundland Power made to address the gassing issue?**

13
 14 **d) Newfoundland Power provided a condition assessment report to support the**
 15 **replacement of HUM-T2. Does Newfoundland Power have a similar condition**
 16 **assessment report to support the replacement of HUM-T3? If so, please provide. If**
 17 **not, why not?**

18
 19 A. a) The replacement of the existing 13.3 MVA, 66/12.5kV HUM-T3 transformer with a
 20 new 25 MVA, 66/12.5kV transformer is required to provide adequate transformer
 21 capacity to support the voltage conversion and load transfer of the existing 4.16 kV
 22 distribution system.¹ An assessment of alternatives concluded that dismantling the
 23 4.16 kV equipment and expanding the 12.5 kV substation equipment to supply the
 24 existing 4.16 kV distribution at 12.5 kV is the least cost alternative to address the
 25 4.16 kV substation deficiencies required to maintain safe, reliable service to the
 26 customers served by Humber Substation.²

27
 28 b) Following elimination of the 4.16 kV infrastructure in 2022, the Humber Substation
 29 12.5 kV load will immediately exceed the capacity of the existing 13.3 MVA HUM-
 30 T3. The 2022 forecasted load of the combined HUM system is 19.5 MVA.³

31
 32 c) No, HUM-T3 has not experienced any gassing issues since the repair in 2018 which
 33 replaced the moving, stationary, arcing, and transfer contacts within the tap changer.

¹ Newfoundland Power’s 2020 Substation Load Forecast for the Corner Brook area was considered in determining the overall available system capacity of the surrounding 12.5 kV distribution system to support the potential voltage conversion and load transfer of the existing 4.16 kV distribution system. This included the forecast load growth associated with the new Corner Brook Acute Care Hospital which is scheduled to be completed in 2023. See the *2022 Capital Budget Application, Report 2.1 2022 Substation Refurbishment and Modernization, Appendix B Humber Substation 4.16 kV Infrastructure Replacement*, page B-7.

² See the *2022 Capital Budget Application, Report 2.1 2022 Substation Refurbishment and Modernization, Appendix B Humber Substation 4.16 kV Infrastructure Replacement*, page B-10.

³ See the *2022 Capital Budget Application, Report 2.1 2022 Substation Refurbishment and Modernization, Appendix B Humber Substation 4.16 kV Infrastructure Replacement*, page B-9, footnote 23.

- 1 d) No, Newfoundland Power does not have a condition assessment report for HUM-T3
2 similar to the report provided for HUM-T2. As indicated in the response to part a),
3 the replacement of HUM-T3 is not based on the condition of the transformer.