1 Q.   **Reference: Volume II, 2023 Capital Budget Application, Project 1, Additions for Load Growth –**
2   **Upgrade Transformer Capacity (2023–2024) – Jean Lake Terminal Station, Attachment 1, page**
3   **6, Table 3, and page 9, lines 12 to 16.**

4   Please provide a sensitivity analysis for variations in forecasted load in Table 3 such as with the
5   cryptocurrency mining customer load of 0.489 MW in 2024 removed. Please include net present
6   value calculations for each of the alternatives evaluated in the sensitivity analysis.

7

8

9 A.   A sensitivity load flow analysis was performed for the following variations in forecasted load:

10   i.   Peak P90 Non-Coincident load, including cryptocurrency customer load of 0.489 MW

11   ii.   Peak P90 Non-Coincident load, without cryptocurrency customer load of 0.489 MW

12   iii. Peak P50 Non-Coincident load, including cryptocurrency customer load of 0.489 MW

13   iv.   Peak P50 Non-Coincident load, without cryptocurrency customer load of 0.489 MW

14   For clarification, the cryptocurrency mining customer load of 0.489 MW is for an existing
15   customer and therefore will remain included in the load forecast. Table 1 is a summary of the
16   load flow analysis used to determine the transformer loading at Jean Lake Terminal Station for
17   the contingency situation of the loss Transformer T1, based on the peak P90 non-coincident load
18   forecast. Table 2 is a summary of the load flow analysis used to determine the transformer
19   loading at Jean Lake Terminal Station for the contingency situation of the loss Transformer T1,
20   based on the peak P50 non-coincident load forecast. The first instance of a transformer reaching
21   100% loading is highlighted in red text for each sensitivity scenario.

Table 1: Peak P90 Load Forecast: Transformer Loading Under Contingency Operations (Loss of Transformer T1)

Year	With 0.489 MW Crypto Customer			Without 0.489 MW Crypto Customer		
	Peak P90 Non-Coincident (MW)	T6 Loading	T4 Loading	Peak P90 Non-Coincident (MW)	T6 Loading	T4 Loading
2022–2023	23.164	98%	96%	22.675	95%	93%
2023–2024	23.862	100%	99%	23.373	98%	96%
2024–2025	24.199	102%	100%	23.710	100%	98%
2025–2026	24.381	103%	101%	23.892	100%	99%
2026–2027	24.581	103%	102%	24.092	101%	100%
2027–2028	24.812	104%	103%	24.323	102%	101%
2028–2029	24.967	105%	103%	24.478	103%	101%
2029–2030	25.157	106%	104%	24.668	104%	102%
2030–2031	25.379	107%	105%	24.890	105%	103%
2031–2032	25.629	108%	106%	25.140	106%	104%

Table 2: Peak P50 Load Forecast: Transformer Loading Under Contingency Operations (Loss of Transformer T1)

Year	With 0.489 MW Crypto Customer			Without 0.489 MW Crypto Customer		
	Peak P50 Non-Coincident (MW)	T6 Loading	T4 Loading	Peak P50 Non-Coincident (MW)	T6 Loading	T4 Loading
2022–2023	22.684	96%	94%	22.195	93%	91%
2023–2024	23.382	98%	97%	22.893	96%	94%
2024–2025	23.719	100%	98%	23.230	98%	96%
2025–2026	23.901	101%	99%	23.412	98%	97%
2026–2027	24.101	101%	100%	23.612	99%	97%
2027–2028	24.332	102%	101%	23.843	100%	98%
2028–2029	24.487	103%	101%	23.998	101%	99%
2029–2030	24.677	104%	102%	24.188	102%	100%
2030–2031	24.899	105%	103%	24.410	103%	101%
2031–2032	25.149	106%	104%	24.660	104%	102%

1   As discussed in Newfoundland and Labrador Hydro's ("Hydro") response to NP-NLH-023 of this

2   proceeding, a cost benefit analysis was not performed for this application. The recommended

1   upgrade is the implementation of the final phase of the least-cost solution identified in

2   Additions for Load – Wabush Substation Upgrades project, filed as part of Hydro's 2021 Capital

3   Budget Application.[1]

---

[1] "2021 Capital Budget Application," Newfoundland and Labrador Hydro, rev. November 2, 2020 (originally filed August 2, 2020), vol. II, tab 16.