

1 Q. **Reliability and Resource Adequacy Study Update, November 15, 2019**

2 With regard to operational studies, please provide:

3 a) A list of all completed, ongoing, and future operational studies pertinent to the Reliability
4 and Resource Adequacy Study and the LIL. Include how information in these studies will be
5 used in the assessment of long-term reliability of the Newfoundland and Labrador
6 Integrated System.

7 b) A status update regarding all operational studies that have not yet been filed with the
8 Board, are underway, or are yet to be started.

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11 A. a) Completed operational studies pertinent to the Reliability and Resource Adequacy Study are
12 summarized as follows:

13 i) Stage 4A Operational Study¹ - this study included a preliminary assessment of the
14 operation of the Island Interconnected System when the Labrador-Island Link (“LIL”)
15 bipole is operating at rated capacity. The study includes a preliminary specification for a
16 revised Under-Frequency Load Shedding (“UFLS”) scheme and an investigation of
17 reliability issues. These issues include the review of the implications of three-phase
18 faults at Bay d’Espoir Terminal Station as well as other contingencies.

19 ii) Stage 4B Operational Study² - this study included a review of power system stabilizer
20 (“PSS”) settings. As per Newfoundland and Labrador Hydro’s (“Hydro”) response to PUB-
21 NLH-171, as each PSS is placed in service, analysis will be performed using as-built
22 settings to assess impacts on system limits and procedures will be updated accordingly.

¹ Technical Note TN1205.62.05, “Stage 4A: Preliminary Assessment of High Power Operation,” TransGrid Solutions Inc., November 21, 2018.

² Technical Note TN1205.65.01, “Stage 4B: Power System Stabilizer Design,” TransGrid Solutions Inc., November 8, 2018.

- 1 iii) Stage 4C Operational Study³ - this study included an operational review of the Labrador
2 Interconnected Transmission System with the LIL and Muskrat Falls generators in
3 service. This study is the basis for operational limits in Labrador.
- 4 iv) Stage 4D Operational Study⁴ - this study includes a review of the period when the
5 system is transitioning from low to high power operation on the LIL. LIL and Maritime
6 Link transfer limits are determined as equipment is placed in service.
- 7 v) Stage 4E Operational Study⁵ - this study includes a review of high power operation when
8 all equipment is in service and operating up to rated capacity. The study includes the
9 specification of long-term operational limits for the LIL, the Maritime Link and the Island
10 Interconnected System.
- 11 vi) Review of Restart Times – As per Hydro’s response to PUB-NL-170, a PSSE study⁶ was
12 completed to assess restart times in consideration of overhead line faults.
- 13 Ongoing and future operational studies pertinent to the Reliability and Resource Adequacy
14 Study are summarized as follows:
- 15 i) Power Systems CAD (“PSCAD”) Analysis – as per Hydro’s response to PUB-NL-169,
16 PSCAD analysis is ongoing in support of the development of operating instructions. A
17 final report will be compiled for the end of the third quarter 2020 and filed with the
18 Board of Commissioners of Public Utilities (“Board”) in the fourth quarter of 2021.
- 19 ii) UFLS Study – as per Hydro’s response to PUB-NL-176, a study is being undertaken in
20 consultation with Newfoundland Power and is expected to be completed in 2020 and
21 filed with the Board in the early part of 2021.

³ Technical Note TN1205.66.07, “Stage 4C: Labrador Transfer Analysis,” TransGrid Solutions Inc., September 25, 2019.

⁴ Technical Note TN1205.71.07, “Stage 4D: Transition to High Power Operation Study,” TransGrid Solutions Inc., April 7, 2020.

⁵ Technical Note TN1205.72.04, “Stage 4E: High Power Operation,” TransGrid Solutions Inc., April 7, 2020.

⁶ Technical Note TN1205.77.03, “Operational Considerations of LIL Restarts and ML Runbacks,” TransGrid Solutions Inc., June 3, 2020.

- 1 iii) Critical-Clearing Time Study – at the request of Newfoundland Power, a critical-clearing
2 time study will be undertaken to confirm protection settings. This study is expected to
3 be completed in 2020 and filed with the Board in the early part of 2021.
- 4 b) Please see the expected completion dates provided in part a).