Q. (Reference Schedule B, System Upgrades)

In reference to MC3 Equipment Upgrade, it is stated (page 132) "*This item involves the replacement of the MC3 drive-by collection devices used in operating Newfoundland Power's Automated Meter Reading ("AMR") Collection System*."

a) What is the expected life of the MC4 equipment upgrade?
b) When does NP believe that AMI will be the least cost metering technology on its system?
c) When was the first large scale deployment of AMI metering technology implemented in Canada?
d) In the November 15, 2018 Marginal Cost Study Update prepared by Christensen Associates Energy Consulting states (page ES-4): "Electricity demands on Hydro's Island Interconnected System are characterized by substantial seasonal differences, with approximately 2-to-1 differences between winter and non-winter levels of energy consumption and peak demands. Hydro's marginal costs to serve those loads show yet further variation, well beyond 7-to-1. These system conditions afford substantial opportunities for cost savings. To this end, Hydro is strongly encouraged to explore time-of-use (TOU) tariff options."
i. Does NP agree that time-of-use rates reflecting all-in marginal-cost would improve consumption efficiency and provide substantial opportunities for reducing peak demand and the cost of supply?
ii. Would time-of-use rates better reflect cost causation and improve the fairness of the rate regime?
iii. Could effective use of seasonal and/or TOU retail rates on the IIS, if implemented in the near future, potentially reduce load enough to defer, or avoid the need for both, or one of, the Avalon CT and Bay d'Espoir Unit 8?
iv. Does NP benefit financially from the implementation of time-varying and load-control rates?

A. a) There is no formal end of life, or end of support date from Newfoundland Power's vendor for MC4 equipment. Based on Newfoundland Power's operating experience with its metering collection technology, the expected life of frequent use MC4 devices is approximately six years and is also dependent on communication from the vendor regarding support timelines.

b) There is no current timeframe for when AMI technology may be a least-cost metering solution in the Company's service territory. As provided in the 2027 CBA AMI Update, Newfoundland Power will continue to explore funding opportunities

which could enable a transition to AMI ahead of a potential mid-2030s timeframe when its AMR technology will require mass replacement.[1]

c) The first large scale deployment of AMI in Canada was in the Province of Ontario following an Order in Council requiring the installation of AMI technology for all Ontario customers by December 31, 2010.[2]

d) The potential benefits, considerations and effectiveness of time-varying rate ("TVR") structures were analyzed in the 2025 Potential Study completed by Posterity Group (the "Study") and are summarized in section 4.3 of the 2027 CBA AMI Update filed as of the Company's *2027 Capital Budget Application*.[3] Of note, challenges of TVR structures on the Island Interconnected System include the flatness and persistence of the load curve observed on peak days, which limits the ability to shift load without potentially creating a new peak due to equipment rebound effects.[4] Overall, the potential benefit of TVR structures in the province is limited and would not preclude the need for Avalon CT and Bay d'Espoir Unit 8.

With respect to rate design, while time-of-use rates could better reflect cost causation in a vacuum, there are a number of factors to consider when implementing TVR structures. As examples, they should be implemented in a least cost manner and consider all rate design principles.[5] Rate offering approaches and participation are also important considerations for TVR structures. For example, it is common practice for TVR structures to be offered on an opt-in basis and participation rates in opt-in TVR structures in Canada have been relatively low.[6] Newfoundland Power's financial position is not benefited or harmed by customer rate structures.

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1 Based on current Canadian utility practice, Newfoundland Power anticipates that transitioning to AMI technology will be a reasonable alternative to re-investing in AMR technology once the Company's current AMR technology reaches the end of its useful life in the mid-2030s. In accordance with the Provisional Guidelines, a transition to AMI would require a fulsome business case, including detailed engineering assessments and assessment of alternatives, to support approval of an AMI capital project by the Board. See the *2027 Capital Budget Application, 2027-2031 Capital Plan,* Appendix B for further information.

2 See Government of Ontario Order in Council 1411/2004 dated June 23, 2004.

3 The Study was filed as part of Newfoundland and Labrador Hydro's *Application for Capital Expenditures for the Purchase and Installation of Bay d'Espoir Unit 8 and Avalon Combustion Turbine*, Additional Information – 2025 Energy Solutions Potential Study.

4 Exhibit 122 on page 134 of the Study provides the reference load shape for the IIS. Newfoundland Power observes similar challenges outlined in Prince Edward Island. For example, Dunsky Energy Consulting concluded in its *Prince Edward Island Efficiency Potential Study* that peak shifting measures, such as time-varying rate structures, will likely have limited potential to reduce annual peak. See the *Prince Edward Island Energy Efficiency Potential Study: Volume 1*, page 56.

5 Newfoundland Power has a set of criteria it uses in guiding its process for establishing appropriate rate structures. They suggest practicality, effectiveness in yielding a fair return, stability, efficiency, and fairness as being good rate attributes. These criteria are often in conflict with each other thus requiring a balance of criteria when designing rates. All aspects of this process are guided by the Criteria for Sound Rate Structure described by James Bonbright in *Principles of Public Utility Rates* (Bonbright, *Principles of Public Utility Rates*, Columbia University Press, 1961, Chapter 16).

6 See, for example, page 138 of the Study. See also part a) to the response to Request for Information CA-NP-021.