

1 **Q. (Reference Application Volume 2, St. John’s North-Portugal Cove System Planning**
 2 **Study) Please demonstrate how NP has incorporated customer preferences,**
 3 **planning criteria, system reliability, asset condition and benchmarking for this**
 4 **project. Please identify the risk impacts of not proceeding with this project in 2021**
 5 **both in terms of probability of failure and consequences of failure.**

6
 7 A. See the response to Request for Information CA-NP-008 for information on how
 8 Newfoundland Power incorporates customer preferences into its *2021 Capital Budget*
 9 *Application*.

10
 11 See the response to Request for Information CA-NP-007 for information on how
 12 Newfoundland Power incorporates benchmarking into its *2021 Capital Budget*
 13 *Application*.

14
 15 Capital expenditures related to the *St. John’s North-Portugal Cove System Planning*
 16 *Study* (the “Planning Study”) in 2021 are necessary to address load growth in the St.
 17 John’s North-Portugal Cove area (the “Study Area”).¹ Recommendations in the Planning
 18 Study include a new substation, transmission lines, and other additions.² Capital
 19 expenditures for these additions will enable the Company to continue to fulfill its
 20 obligation to provide customers with equitable access to an adequate supply of power.³
 21 The expenditures are driven by Newfoundland Power’s planning criteria, which is
 22 consistent with sound public utility practice.⁴

23
 24 Since 2013, Newfoundland Power’s 5-year capital plans have included projects to
 25 address forecast overload conditions at the Virginia Waters (“VIR”), Broad Cove
 26 (“BCV”), and Ridge Road (“RRD”) substations. These capital projects were deferred in
 27 accordance with the Company’s system planning criteria and through the identification of
 28 low-cost upgrades and additions to the distribution system that enabled the Company to
 29 more fully utilize existing transformer capacity. All existing transformer capacity in
 30 these substations has now been utilized.

¹ Both the number of customers and the electrical load within the Study Area have increased over the last 10 years. From 2009 to 2018, the number of customers within the Study Area increased by 1,814 customers, or 11%. The total electrical load on the 3 substations that supply customers in the study area increased by 18 MVA, or 14%, from 2009 to 2018

² Expenditures in the *Newfoundland Power 2021 Capital Budget Application* related to the Planning Study include: (i) \$4,296,000 for the construction of a new substation near St. John’s International Airport; (ii) \$1,343,000 for the construction of two new 66 kV transmission lines to the new substation; (iii) \$350,000 for the expansion of the Company’s fibre optic network to the new substation; (iv) \$151,000 for the construction of new distribution feeder exits from the new substation to the existing distribution feeders near the new substation; and (v) \$654,000 to upgrade the existing RRD substation feeder RRD-10.

³ Section 3(b)(ii) of the *Electrical Power Control Act, 1994* (“EPCA”) requires that consumers in the province have equitable access to an adequate supply of power.

⁴ The Company’s distribution planning criteria align with the Distribution Planner’s Manual published by the Canadian Electricity Association (“CEA”) and consist of the following system constraint factors: (i) ampacity; (ii) short circuit capacity; (iii) voltage and power quality; and (iv) reliability.

1 In 2020, the Company continued to apply its planning criteria to address load growth in
2 the Study Area in the completion of the Planning Study. The Planning Study included
3 three alternatives to address the need to accommodate load growth in the Study Area.
4 The alternatives primarily reflect the option of increasing transformer capacity at the
5 BCV and VIR substations or the construction of new substations.⁵ The least-cost
6 alternative to address the overload conditions and meet the electrical demands of
7 customers in the Study Area was recommended and included in the *2021 Capital Budget*
8 *Application*.

9
10 Capital expenditures related to the Planning Study ensure the Company adequately
11 addresses system growth and overload conditions on its electrical system. The
12 consequences of not completing this work in 2021 are twofold. First, overload conditions
13 can lead to in-service equipment failures, which can result in significant repair costs and
14 extended customer outages. Second, overload conditions can practically limit the ability
15 of Newfoundland Power to connect new customers to the distribution system in the Study
16 Area. The probability of these consequences occurring is high considering equipment
17 will be expected to operate above rated capacity.

⁵ Increasing the capacity at RRD substation was eliminated as a viable alternative due to the physical space limitations which impacts the feasibility of the alternative.