

- 1 **Q. (Reference PUB-NP-007) Please provide sensitivity analysis for Tables 1 and 2**
2 **by recalculating NPVs (and provide the spreadsheets) under the following**
3 **scenarios:**
- 4 **a) Assume discount rates of 6.5%, 7%, 7.5%, 8% and 8.5%.**
5 **b) Assume the avoided electricity cost for 2041 is 50% lower than used in**
6 **PUB-NP-007 for that year and similarly for 2042 to 2055. Calculate the**
7 **NPVs under this assumption in combination with discount rates of**
8 **5.81% and each of those listed in (a).**
9 **c) Please indicate the year in which the cumulative NPV of the two**
10 **alternatives become equal for each of scenarios considered in a) and b).**
- 11
- 12 A. a) The requested analyses are provided in Attachments A through E to this
13 response. The Excel files used to prepare the Attachments can be found on
14 Newfoundland Power's stranded website at <https://ftp.nfpower.nf.ca/>.
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- 16 b) The requested analyses are provided in Attachments F through K to this
17 response. The Excel files used to prepare the Attachments can be found on
18 Newfoundland Power's stranded website at <https://ftp.nfpower.nf.ca/>.
19
- 20 c) Table 1 on the following page provides a summary of the year in which the
21 cumulative NPV of the two alternatives becomes equal for each of the scenarios
22 requested in parts a) and b) of this response.

Table 1 Alternative 1 vs Alternative 2 ¹ Year in Which Cumulative NPVs Become Equal Requested Scenarios	
Scenario	Year
A: Discount Rate of 6.50%	2042
B: Discount Rate of 7.00%	2046
C: Discount Rate of 7.50%	2049
D: Discount Rate of 8.00%	2052
E: Discount Rate of 8.50%	--
F: Discount Rate of 5.81% and 50% of Avoided Costs from 2041-2055	2041
G: Discount Rate of 6.50% and 50% of Avoided Costs from 2041-2055	2042
H: Discount Rate of 7.00% and 50% of Avoided Costs from 2041-2055	2047
I: Discount Rate of 7.50% and 50% of Avoided Costs from 2041-2055	2050
J: Discount Rate of 8.00% and 50% of Avoided Costs from 2041-2055	--
K: Discount Rate of 8.50% and 50% of Avoided Costs from 2041-2055	--

1 Newfoundland Power notes that it takes a conservative approach in evaluating its
2 capital projects to ensure they are in the best interests of customers. For example,
3 in the net present value analysis provided in relation to the *LED Street Lighting*
4 *Replacement Plan* (the "Plan"), the Company did not apply inflation to non-labour
5 costs. In addition, the Company assumed a relatively high failure rate for its LED
6 fixtures.² Using a conservative approach provides a degree of flexibility in the
7 analysis should cost factors, such as discount rates, change over time.
8
9 To illustrate the flexibility provided by this approach, Newfoundland Power updated
10 its analysis to reflect inflation for non-labour costs and the current LED fixture failure
11 rate information from its supplier.

¹ Alternative 1 refers to the practice of installing an LED street light when a high pressure sodium ("HPS") street light has reached end of life. Alternative 2 refers to continuation of the remaining four years of the *LED Street Lighting Replacement Plan*.

² Newfoundland Power assumed a failure rate of 1% in its original NPV analysis. On September 1, 2022, the Company's LED street light supplier provided correspondence indicating a failure rate of 0.123% is currently appropriate. The updated failure rate was based on the supplier having over half a million luminaires shipped as of the end of July 2022.

1 Attachment L to this response provides the updated analysis based on the inclusion
 2 of non-labour inflation and a lower LED fixture failure rate. The Excel files used to
 3 prepare Attachment L can be found on Newfoundland Power's stranded website at
 4 <https://ftp.nfpower.nf.ca/>.

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 6 Table 2 summarizes the updated analysis based on the inclusion of non-labour
 7 inflation and a lower LED fixture failure rate.

Table 2 NPV Result (Including Non-Labour Inflation and Revised Failure Rate) (2023-2055) (\$000s)							
	Capital Expenditures	Retirement	Taxes and Net Salvage	Maintenance Costs	Avoided Electricity Costs	Total Costs	NPV
Alternative 1 End of Life HPS Fixture	30,045	7,352	7,517	29,265	-22,582	51,597	27,490
Alternative 2 Replacement Program	23,118	5,767	5,806	18,033	-39,915	12,809	20,082
Difference	-6,927	-1,585	-1,711	-11,232	-17,333	38,788	-7,408

8 Updating the analysis to reflect current non-labour inflation rates and lower LED
 9 failure rates further demonstrates the benefits of the Plan in comparison to reverting
 10 back to Newfoundland Power's prior approach of installing an LED fixture when an
 11 HPS reaches the end of its service life. The updated NPV analysis improves the NPV
 12 of the remaining four years of the Plan from \$4.3 million to \$7.4 million.

13
 14 Table 3 on the following page provides a summary of the year in which the
 15 cumulative NPV of the two alternatives becomes equal for each of the scenarios
 16 requested in parts a) and b) of this response when including non-labour inflation and
 17 lower LED failure rates.

Table 3 Alternative 1 vs Alternative 2 Year in Which Cumulative NPVs Become Equal Requested Scenarios Including Non-Labour Inflation and Lower Failure Rate	
Scenario	Year
A: Discount Rate of 6.50%	2040
B: Discount Rate of 7.00%	2041
C: Discount Rate of 7.50%	2042
D: Discount Rate of 8.00%	2045
E: Discount Rate of 8.50%	2048
F: Discount Rate of 5.81% and 50% of Avoided Costs from 2041-2055	2039
G: Discount Rate of 6.50% and 50% of Avoided Costs from 2041-2055	2040
H: Discount Rate of 7.00% and 50% of Avoided Costs from 2041-2055	2041
I: Discount Rate of 7.50% and 50% of Avoided Costs from 2041-2055	2042
J: Discount Rate of 8.00% and 50% of Avoided Costs from 2041-2055	2047
K: Discount Rate of 8.50% and 50% of Avoided Costs from 2041-2055	2049

1 Table 3 shows that Newfoundland Power's conservative approach in developing its
 2 NPV for the Plan would ensure the Plan remains economic for customers under all of
 3 the requested scenarios.