

1 **Q. Reference: “2022 Capital Budget Application,” Newfoundland Power, May 18,**  
 2 **2021, Volume 1, Section 1.2, Sandy Brook Plant Penstock Replacement, Appendix A**  
 3

4 a) **What is the class of the capital cost estimate which supports the application for**  
 5 **this project? If class is unavailable, what is the accuracy range of this estimate?**  
 6

7 b) **Did Newfoundland Power conduct a sensitivity analysis with respect to capital**  
 8 **costs? If so, please provide the results of this analysis. If not, why not?**  
 9

10 c) **Please provide a cost-benefit analysis for this project assuming cost overruns of**  
 11 **25%.**  
 12

13 d) **Please provide a cost-benefit analysis for this project assuming cost overruns of**  
 14 **50%.**  
 15

16 A. a) Newfoundland Power does not develop its capital cost estimates to correspond to any  
 17 particular class of estimate. The Company’s cost estimates are completed using  
 18 elemental cost breakdowns of the proposed scope of work. For the *Sandy Brook*  
 19 *Plant Penstock Replacement* project the cost estimate was completed using  
 20 engineering site visits, detailed site information, and knowledge of the length and  
 21 approximate size of the new penstock.  
 22

23 Newfoundland Power’s capital cost estimate also considered similar projects that  
 24 were completed by the Company in the past. This includes the *Pierre’s Brook Hydro*  
 25 *Plant Penstock Replacement and Surge Tank Refurbishment* project which was  
 26 completed in 2017. Actual capital expenditures associated with the Pierre’s Brook  
 27 project were 5% below Newfoundland Power’s capital budget estimate.<sup>1</sup>  
 28

29 The execution of Newfoundland Power’s capital budget projects is monitored by the  
 30 Board. Capital budget project variances greater than 10% and \$100,000 are required  
 31 to be reported to the Board in the Company’s annual Capital Expenditure Status  
 32 Report.  
 33

34 b) The economic analysis completed for the *Sandy Brook Plant Penstock Replacement*  
 35 project includes capital costs and estimates the levelized cost of production from the  
 36 hydro plant to be 3.22 ¢/kWh. The value of production from the hydro plant is  
 37 estimated to be between 10.26 ¢/kWh and 13.43 ¢/kWh.  
 38

39 The value of production from the hydro plant is approximately 3 to 4 times the cost of  
 40 production from the hydro plant. This demonstrates that the decision to proceed with  
 41 the project is not highly sensitive to reasonable changes in capital costs.

---

<sup>1</sup> The *Pierre’s Brook Hydro Plant Penstock Replacement and Surge Tank Refurbishment* project was a multi-year project approved by the Board in Order Nos. P.U. 40 (2014) and P.U. 28 (2015). Capital expenditures of \$15,762,000 were approved by the Board for the project. Actual expenditures were \$15,032,000.

- 1 See responses to parts c) and d) below for the results of sensitivity analyses involving  
 2 capital costs.  
 3  
 4 c) Table 1 summarizes the results of the cost-benefit analysis for the *Sandy Brook Plant*  
 5 *Penstock Replacement* project assuming cost overruns of 25%.

**Table 1**  
**Sandy Brook Plant Penstock Replacement Sensitivity Analysis**  
**Capital Cost Overruns of 25%**

	<b>50 Year Levelized Value</b>	<b>Net benefit</b>
Cost of Plant Production	<b>3.68 ¢/kWh</b>	
Benefits of Production (Run of River)		
Value of Energy	5.67 ¢/kWh	
Value of Capacity	<u>4.59 ¢/kWh</u>	
<b>Total</b>	<b>10.26 ¢/kWh</b>	<b>6.58 ¢/kWh</b>
Benefits of Production (Fully Dispatchable)		
Value of Energy	5.67 ¢/kWh	
Value of Capacity	<u>7.76 ¢/kWh</u>	
<b>Total</b>	<b>13.43 ¢/kWh</b>	<b>9.75 ¢/kWh</b>

- 6 d) Table 2 summarizes the results of the cost-benefit analysis for the *Sandy Brook Plant*  
 7 *Penstock Replacement* project assuming cost overruns of 50%.

**Table 2**  
**Sandy Brook Plant Penstock Replacement Sensitivity Analysis**  
**Capital Cost Overruns of 50%**

	<b>50 Year Levelized Value</b>	<b>Net benefit</b>
Cost of Plant Production	<b>4.13 ¢/kWh</b>	
Benefits of Production (Run of River)		
Value of Energy	5.67 ¢/kWh	
Value of Capacity	<u>4.59 ¢/kWh</u>	
<b>Total</b>	<b>10.26 ¢/kWh</b>	<b>6.13 ¢/kWh</b>
Benefits of Production (Fully Dispatchable)		
Value of Energy	5.67 ¢/kWh	
Value of Capacity	<u>7.76 ¢/kWh</u>	
<b>Total</b>	<b>13.43 ¢/kWh</b>	<b>9.30 ¢/kWh</b>