Generation

Q. Reference: "2025 Capital Budget Application," Newfoundland Power Inc., June 28, 2024, Supporting Materials, Generation: 4.1, app. A, p. 3.

An updated marginal cost study (the "Marginal Cost Update") completed by Hydro in 2023 provides estimates of the marginal energy cost as the opportunity cost of selling energy to other jurisdictions. The marginal energy cost estimates vary by time of day and by season. To recognize these time-varying characteristics, the costs are summarized by winter on-peak, winter off-peak and non-winter peak periods.

a) Given that Hydro will have excess energy available for export in the non-winter period, it is likely that any energy provided as part of this project would increase the energy available for export during off-peak periods. Please provide the results of the lifecycle cost analysis and the corresponding net economic benefit, assuming an electricity price calculated using off-peak pricing only.

b) Please describe how a 5% forced outage rate and a 14% reserve margin were determined for the discount to the Effective Capacity. Please provide the results of the lifecycle cost analysis and the corresponding net economic benefit assuming a 20% reserve margin discount.

c) As an additional sensitivity analysis, please provide the results of the lifecycle cost analysis and the corresponding net economic benefit, assuming a reduction in marginal energy cost by 50%.

A. a) It is Newfoundland Power's intention to maximize winter on-peak generating from the Cape Broyle – Horse Chops hydroelectric development (the "Development"). By automating the outlet gate from the Mount Carmel reservoir, Newfoundland Power intends to maximize winter on-peak generation and only operate in off peak periods to avoid spill.

Please see Table 1 for the results of the analysis requested.

Table 1:
CBHC Development Lifecycle Cost Analysis Results – Off-Peak/Non-Winter[1]

	50 Year Levelized Value	Net Benefit
Lifecycle Cost of the Development	2.65 ¢/kWh	
Cost of Replacement Production (Run-of-River)[2]	7.24 ¢/kWh	4.59 ¢/kWh
Cost of Replacement Production (Fully Dispatchable)	9.82 ¢/kWh	7.17 ¢/kWh

[1] Analysis was completed using the following production splits: Winter On-Peak = 0%; Winter Off-Peak = 41%; and Non-Winter = 59%.

[2] 'Cost of Replacement Production' – 'Lifecycle Cost of the Development' = 'Net Benefit'

b) A 5% forced outage rate was chosen as a typical forced outage rate for a fully dispatchable generation facility such as a gas turbine. A 14% reserve margin was chosen as a representative reserve margin for a balanced electrical system.

Please see Table 2 for the results of the analysis requested.

Table 2:
CBHC Development Lifecycle Cost Analysis Results – 20% Reserve Margin

	50 Year Levelized Value	Net Benefit
Lifecycle Cost of the Development	2.65 ¢/kWh	
Cost of Replacement Production (Run-of-River)	9.77 ¢/kWh	7.12 ¢/kWh
Cost of Replacement Production (Fully Dispatchable)	9.63 ¢/kWh	6.98 ¢/kWh

c) Please see Table 3 for the results of the analysis as requested.

Table 3:
CBHC Development Lifecycle Cost Analysis Results – 50% Energy

	50 Year Levelized Value	Net Benefit
Lifecycle Cost of the Development	2.65 ¢/kWh	
Cost of Replacement Production (Run-of-River)	7.79 ¢/kWh	5.14 ¢/kWh
Cost of Replacement Production (Fully Dispatchable)	7.94 ¢/kWh	5.29 ¢/kWh