Q. **Reference: Marginal Cost Study Update – 2018 – Summary Report, Nov. 15, 2018, Appendix A (Christensen Associates Energy Consulting, Cost Estimates and Methodology for Generation and Transmission Services, 2021-2029, page 16 (38 pdf)**

Citation:

> As mentioned, marginal energy and operating reserve costs for Hydro's Island Interconnected System is based on projections of NEISO energy and operating reserve prices, after accounting for path charges and Hydro's network losses.[29]
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> Note 29: The analysis implicitly presumes that Hydro has sufficient capacity to sell power into the NEISO. However, there are occasional timeframes where such assumption may not hold owing to generation or capacity constraints. In addition, it is likely that, on occasion, Hydro will face NEISO energy prices sufficiently low that the sale of power into wholesale markets is not warranted, as path charges would negate all benefits arising from the sale.

a) Has CAES analyzed the expected number of hours per year during which Hydro will and will not be able to sell power into the NEISO, owing to generation or capacity constraints, or to unavailability of transmission capacity along the path? If so, please provide the results of this analysis. If not, please comment on the extent to which such an analysis might lead CAES to modify its estimates of Hydro's marginal costs.

b) Has CAES analyzed the expected number of hours per year during which NEISO energy prices are expected to be sufficiently low that the sale of power into wholesale markets is not warranted, as path charges would negate all benefits arising from the sale? If so, please provide the results of this analysis. If not, please comment on the extent to which such an analysis might lead CAES to modify its estimates of Hydro's marginal costs.

A. This response has been provided by Christensen Associates Energy Consulting.

a) Christensen Associates Energy Consulting has not conducted such an analysis, although related issues have been explored. Estimates of marginal costs should account for the anomalous conditions mentioned regardless of the number of hours that such conditions are present. Difficulty in predicting the frequency of anomalous conditions increases as the frequency of such events declines. Please reference our response to LAB-NLH-026 for a definition of the relevant conditions.

b) Given the limits of data and, implicitly, the likelihood of forecast error—note that the analyses cover several forward years—the referenced condition (low external power prices) is incorporated within the 2018 Marginal Cost Update.