Q. **Reference: Economic and Technical Assessment, page 19 (p. 53 pdf)**

Citation:

> There are currently four diesel generating stations operating in the southern Labrador region and based on economies of scale it would suggest that it could be more economically feasible to minimize the number of facilities. A reduction in the number of diesel generating stations would inherently decrease the overall operating and maintenance costs in the region.
>
> Hydro forecasts that the total annual O&M cost for all four diesel generating stations would be approximately $2.15 million per year over the 50-year duration of the study. Hydro estimates that by supplying southern Labrador with one centralized diesel generating station, the overall O&M costs would reduce by approximately $670,000 per year.

a. Please explain in detail how these estimates of O&M costs were derived.

A. There were two different methods used for deriving the operating and maintenance ("O&M") costs (not including fuel costs) for each plant and they depended on if the plant was existing or a proposed new plant:

1) **Existing Diesel Plant:** the O&M costs of any existing plant were determined by calculating a five-year average of historical O&M costs for that plant.

2) **Proposed Diesel Plant:** the O&M costs of a proposed plant were estimated using the same methodology outlined in the report by Hatch.[1] This report has been provided in Newfoundland and Labrador Hydro's ("Hydro") response to PUB-NLH-21, Attachment 2. All diesel genset overhaul cost estimates were developed based on actual costs from previously performed overhauls on similar sized units. The frequency of diesel genset overhauls are based on operating hours, which varies depending on the rated speed of the unit, as shown

[1] "Newfoundland and Labrador Hydro - Coastal Labrador Energy - Southern Communities New Diesel Schemes - Class 3 Cost Estimates," Hatch, June 7, 2013.

in Table 10 of the application.[2] The projected operating hours for every unit in each alternative were derived using load profiles and forecasts.

The O&M costs for the proposed 25kV interconnections were also estimated based on actual costs associated with maintaining similar distribution lines owned by Newfoundland and Labrador Hydro. These estimates accounted for vegetation control, pole replacements, infrared (IR) inspections, as well preventative maintenance for gang-operated switches and distribution voltage regulators.

The total annual O&M costs for each alternative was a sum of the diesel plant O&M costs, diesel genset overhaul costs and proposed 25kV interconnection O&M costs. Although a substantial effort was put into the development of the O&M costs, a high level of accuracy for these estimates was not crucial for economic analysis. As outlined in Section 6.2 of the application,[3] a significant deviation from the estimated O&M cost would have to occur for the outcome of the cumulative present worth analysis to change.

The average annual O&M cost over the 50-year study for the status quo option (Alternative 1) was estimated to be $2.15 million per year. The average annual O&M cost over the 50-year study for the full interconnection option (Alternative 3b) was estimated to be $1.48 million per year, and the average O&M cost over the 50-year study for the proposed phased interconnection option (Alternative 3a) is $1.50 million per year. The difference can be attributed to the timing of reduction in the number of diesel plants in-service each alternative. The difference in average annual O&M costs between the status quo and the proposed phased interconnection is approximately $650,000 per year, with the difference between the status quo and the full interconnection equaling approximately $670,000 per year.

[2] "Long-Term Supply for Southern Labrador – Phase 1," Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, p. 35.
[3] "Long-Term Supply for Southern Labrador – Phase 1," Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, p. 43.