

NLH-LAB-002. Re: “Newfoundland and Labrador Hydro’s Proposed Network Addition Policy and Transmission Expansion Study”, Section 2.3.2, page 13.

Is the direct investment cost per kW of \$1,532 for Alternative 17 considered to be an outlier compared to the direct investment cost per kW of the other projects provided in Table 3 (i.e., in which the largest cost per kW is \$500)? If not, why not?

RESPONSE:

The direct investment cost for Alternative 17 is considerably greater than that of the other projects in Table 3. However, that does not necessarily mean that it should be characterized as an “outlier”.

An Engineering Statistics Handbook published by the US National Institute of Standards and Technology defines the term “outlier” as follows:

An outlier is an observation that lies an abnormal distance from other values in a random sample from a population. In a sense, this definition leaves it up to the analyst (or a consensus process) to decide what will be considered abnormal. Before abnormal observations can be singled out, it is necessary to characterize normal observations.¹
(underlining added)

The projects listed in Table 3 do not constitute a random sample from a population, but rather a group of specific projects identified by Hydro to be the least cost solutions to meet different levels of load growth.

Alternative 17 is certainly the most expensive of these projects, but it is, according to Hydro, the least cost solution for increasing transmission capacity in Labrador West once the capacity made available by the “Wabush TS Upgrades and 230 kV uprating” project is exceeded.

For this reason, it is inappropriate to describe Alternative 17 as an “outlier”. On the contrary, since Hydro’s view is that it contributes to “the cost of transmission system expansion to meet incremental load beyond the baseline load forecast”², it should indeed be included in the calculation of the “Expansion Cost per kW” (the Unit Expansion Cost). While inclusion of Alternative 17 results in a higher Unit Expansion Cost, this cost is a reflection of the construction and other costs associated with the project. Alternative 17’s high costs should not cause it to be dismissed as an “outlier”.

¹ <https://www.itl.nist.gov/div898/handbook/prc/section1/prc16.htm>.

² LAB-NLH-059b. Unless otherwise noted, all emphasis in quotations is added.