Q. Reference: "2021 Capital Budget Application," Newfoundland Power, July 9, 2020, Volume 2, Feeder Additions for Load Growth at p.4.

Citation:

> **Compared to extending an adjacent distribution line, or constructing a new feeder, the least-cost alternative to address this overload condition is to: (i) upgrade and re-conductor 3.2 kilometres of 2-phase distribution line to 3-phase along Hodgewater Line; and (ii) re-conductor 0.8 kilometres of existing 3-phase distribution line along Hodgewater Line.**

Was a detailed cost-benefit analysis completed to determine which of these alternatives were the least cost? If yes, please provide. If not, why not?

A. Newfoundland Power completed an assessment of all viable alternatives to address the issues on the 4.0 kilometre section of SPF-02 feeder. The assessment determined that the upgrade and reconductor of the section of distribution line at an estimated cost of $600,000 was the least-cost alternative to address both feeder deterioration and resolve the overload conditions.

In addition to the selected alternative, the 2 other alternatives that were assessed included: (i) the extension of BLK-02 feeder to offload a portion of SPF-02 that is overloaded; and (ii) the construction of a new feeder from Springfield ("SPF") Substation.

The extension of BLK-02 would be approximately 7.0 kilometres and would also require the voltage conversion of a section SPF-02 from 12.5 to 25kV. Also, the 4.0 kilometre section of deteriorated #6 copper conductor would remain overloaded and would still require upgrading. The estimated cost of this alternative is more than double the selected alternative and is therefore not economically viable.

Since the existing main trunk of SPF-02 feeder is not overloaded and there are no other substations in the vicinity of overloaded conductor, the construction of a new distribution feeder would not alleviate the overload conditions and upgrades to SPF-02 would still be required. Therefore this is not a technical or economically viable alternative.