Q. [Account 361.12 – Bare Aluminum Cables] – As it relates to certain statements made in Mr. Wiedmayer's rebuttal testimony on pages 6 through 14 of Appendix A as it relates to Account 361.12 – Bare Aluminum Cables, please provide all studies, analyses, and other support and justification for the claim that the Company's reliability program and improvements to poles will most likely result in shorter service lives for bare aluminum cables, as referenced on page 6 of Appendix B. The response should provide all documents that clearly support the claim made by the Company.

A. Newfoundland Power has not conducted a formal study to justify the referenced claim.

The Company's position is explained on page 9 of Appendix B, that if poles are "stronger structurally, the impact of the elements (…such as storms and wind) will have less of an effect on poles. Instead, the elements will have a greater effect on conductor. In other words, wind that would damage decaying poles will not knock down stronger, newer poles, but will instead be more likely to damage the cable on the poles ..."

This position is primarily related to the known effects of the mechanical stresses which occur under heavy ice and wind loading conditions. The mechanical forces on poles and conductors under heavy ice and wind loading will ultimately break poles and/or damage conductor.[1]

When a pole breaks, the stress on the conductor will often be released as the conductor falls to the ground limiting further damage to the conductor.[2] If the pole does not break, ice will continue to build up on the conductor until the conductor either breaks or is stretched beyond its elastic limit.

Depending upon the condition of the broken conductor, it will either be repaired or replaced. If the conductor is stretched beyond its elastic limit, the conductor will be permanently deformed shortening its service life to an extent that otherwise would not have occurred.[3]

[1] Mechanical stress will either be in the form of weight placed on the conductor and supporting structures by ice, or conductor galloping as a result of the wind.

[2] When a pole breaks, the stress from conductor galloping will also stop.

[3] Elastic deformation of the conductor will reduce its mechanical strength and reduce its current carrying capacity. Either condition will shorten the conductor's service life and may result in the conductor having to be replaced immediately.