Q. Describe how Newfoundland Power uses the Outage Cause Data to improve its reliability. Please state who is responsible for these analyses and how they are used.

A. Since 1999, Newfoundland Power's electrical system reliability has been generally improving.[1] In addition, it appears that Newfoundland Power's electrical system reliability has been improving relative to its Canadian peers.[2] Improvements in reliability have been achieved through various initiatives. Cause Codes play a role in each of these:

1. *Building electrical system infrastructure to a standard that meets or exceeds Canadian Standards Association ("CSA") requirements.* These standards are well established standards and are reviewed and adjusted by CSA as required. Newfoundland Power's standards at all times meet or exceed the CSA requirements. From time to time, however, Cause Codes may identify specific issues prompting design changes requiring infrastructure to be built to a higher standard. For example, in 1999 and 2000 the Frenchman's Cove FRN-02 distribution feeder was rebuilt under the *Distribution Reliability Initiative* project. Due to historical issues on the feeder related to high winds a design change was implemented and the distribution feeder was rebuilt using clamp top insulators.

2. *Regularly inspecting and maintaining electrical system infrastructure as required.* The inspection standards are modified from time to time to deal with identified issues. Cause Codes play a role in identifying problem areas. For example, the inspection and maintenance practices have been modified to accommodate an identified need to retrofit stainless steel transformers manufactured between 2001 and 2006 with reinforcing brackets.

3. *Identifying and targeting "specific identified" reliability issues.* Cause Codes help identify problem areas. For example, the latest *Rebuild Distribution Lines Update* report filed with the 2013 Capital budget application identified six specific problem items to be addressed. These included the need for lightning arrestors and current limiting fuses in some areas and the need to replace CP8080 and 2-Piece Insulators, automatic sleeves, porcelain cutouts and transformer mounting brackets.

[1] See, for example, Newfoundland Power's *2008 General Rate Application*, Company Evidence, Section 2: Customer Operations, page 23, line 9 *et seq.* where reliability performance of Newfoundland Power's electrical system from 2002 through 2006 was described. See also Newfoundland Power's *2010 General Rate Application*, Company Evidence, Section 2 (1st Revision): Customer Operations, page 2-7, line 9 *et seq.* where reliability performance of Newfoundland Power's electrical system from 1999 through 2008 was described. Finally, see Newfoundland Power's *2013/2014 General Rate Application*, Company Evidence, Section 2: Customer Operations, page 2-3, line 7 *et seq.* where Newfoundland Power's evidence outlined the reliability performance of Newfoundland Power's electrical system from 2007 through 2011.

[2] See the response to Request for Information PUB-NP-068, page 1, line 22 *et. seq.*

4. *Reviewing reliability statistics to identify worst performing feeders.* The Company annually reviews the 15 worst performing feeders in terms of SAIDI, SAIFI, customer minutes, CHIKM and CIKM. Once a distribution feeder is identified as one of the 15 worst performing feeders Cause Codes provide engineering staff with an understanding of issues on the various identified feeders and aid in the engineering assessment of the feeder to determine if it should be included in the *Distribution Reliability Initiative* project.

5. *Strategically modernizing substations and rebuilding transmission lines.* As with the worst performing feeders, Cause Codes provide engineering staff with an understanding of issues on the various substations and transmission lines identified for upgrade and aid in the overall assessment of the upgrade requirements. For example following an ice storm in 2010, a transmission line (41L) was rebuilt to an ice loading standard exceeding the CSA requirement following an assessment of damage caused by ice loading.

A Senior Engineer is responsible for the overall assessment of reliability data. Individual engineering and technical staff would utilize the data as required during their reviews or engineering assessments.