Q. **Reference: Response to Request for Information NP-NLH-051.**

The response to Request for Information NP-NLH-051 states on page 2 of 2 at lines 3-8:

"The 1996 study which estimated ice loads on the Avalon and Connaigre peninsulas was completed almost 15 years prior to the release of the 2010 version of the CSA standard, and while Hydro is not in a position to comment on the development of the CSA standard, the authors would have had access to the results of the 1996 study when both the 2010 edition of the standard and the preceding 2006 edition were released."

Has Hydro inquired into the extent to which the Canadian Standards Association investigates local weather data in Canadian jurisdictions to assess the appropriateness of its weather models?

A. The CSA Group, which publishes CSA standards, including CAN/CSA-C22.3 No. 60826-10, is accredited by the Standards Council of Canada as a standards development organization. The basis for their accreditation is outlined in documentation published by the Standards Council of Canada.[1]

As noted in the Preface to CAN/CSA-C22.3 No. 60826-10:

> This Standard was reviewed for Canadian adoption by the CSA Subcommittee on Reliability-Based Design of Overhead Lines, under the jurisdiction of the CSA Technical Committee on Overhead Systems and the CSA Strategic Steering Committee on Power Engineering and Electromagnetic Compatibility, and has been formally approved by the Technical Committee. This

[1] Available at http://www.scc.ca/sites/default/files/publications/CAN-P-1-2012_e.pdf.

Standard has been approved as a National Standard of Canada by the Standards Council of Canada.

The CSA Subcommittee on Reliability-Based Design of Overhead Lines had broad representation from industry, utilities, consultants, and governments, as indicated in Appendix 1. The CSA Technical Committee on Overhead Systems, was similarly composed, as indicated in Appendix 2.

The following electrical utilities were represented on the subcommittee and/or the technical committee:

Utility	**Subcommittee on Reliability Based Design**	**Technical Committee on Overhead Systems**
Hydro One	M. Bell I. Hathout	M. Bell I. Hathout
Toronto Hydro	G.A. Daniell	M. Byrne
Hydro Quebec	J.C. Carriere R. Desbiens	J.C. Carriere R. Desbiens
SaskPower		M. Ereth
Newfoundland and Labrador Hydro		T. Gardiner
Enmax Power	M. Jaffer	M. Jaffer
Enersource Hydro Mississauga	C. Kafel	C. Kafel
Manitoba Hydro	Z.J. Kieloch E.H. Wiebe	Z.J. Kieloch
Nova Scotia Power	J. A. McFadgen	J.A. McFadgen
NB Power		T. O'Hara
Altalink	R. Renwick	R. Renwick
BC Hydro /BCTC	A. Zolotoochin	R. Rugge J. Toth
EPCOR Distribution		T. Shmyr
Newfoundland Power	T.L. Troke	G. Smith T.L. Troke
Hydro Ottawa	R. Williams	R. Williams

The subcommittee and committee approving the standard had broad industry representation, including from Newfoundland Power.

Local data from Newfoundland and Labrador was available for the Chaine meteorological model used in the Standard, as shown below:

CAN/CSA-C22.3 No. 60826-10 *Design criteria of overhead transmission lines*

Location	Elevation (m)	Latitude	Longitude	Minimum temperature (°C)*	Reference wind speed† (km/h)	Reference ice thickness‡ (mm)	Wet snow thickness§ (mm)
Prince Edward Island							
Charlottetown	5	46.23	–63.13	–22	112	30	—
Souris	5	46.35	–62.25	–21	114	30	—
Summerside	10	46.40	–63.78	–22	114	30	—
Tignish	10	46.95	–64.03	–22	122	30	—
Newfoundland and Labrador							
Argentia	15	47.30	–53.98	–14	130	35	—
Bonavista	15	48.65	–53.12	–16	140	40	—
Buchans	255	48.82	–56.87	–27	115	24	—
Cape Harrison	5	54.78	–57.95	–31	130	35	—
Cape Race	5	46.65	–53.07	–13	154	45	—
Channel–Port aux Basques	5	47.57	–59.15	–15	133	32	—
Corner Brook	35	48.95	–57.95	–18	111	24	—
Gander	125	48.98	–54.59	–20	117	30	—
Grand Bank	5	47.10	–55.77	–15	130	35	—
Grand Falls	60	48.93	–55.67	–29	100	28	—
Happy Valley–Goose Bay	15	53.32	–60.37	–32	98	20	—
Labrador City	550	52.95	–66.92	–38	95	15	—
St. Anthony	10	51.37	–55.58	–27	138	30	—
St. John's	65	47.57	–52.72	–16	138	42	—
Stephenville	25	48.55	–58.58	–18	114	24	—
Twin Falls	425	53.50	–64.53	–37	95	17	—
Wabana	75	47.63	–52.95	–17	130	40	—
Wabush	550	52.92	–66.87	–38	95	15	—

To reiterate the point made in Hydro's response to NP-NLH-004, the Labrador-Island Transmission Link has been designed to withstand meteorological loads consistent with a 500-year return period for portions of the line sharing a common corridor on the Avalon Peninsula, as recommended by the CSA standard. Consideration to the previous modelling as presented in Exhibit 85 of the Muskrat

Falls Review was also given, and the design loads exceed those as presented in that study. However, no justification can be found to further increase design loads for the Avalon Peninsula by extrapolating a 500-year return period for the loads as presented in Exhibit 85.

While meteorological loads could have been increased beyond the CSA standard with commensurate increases in project cost and electricity rates, a decision was taken to use the approved Canadian standard as a basis, and to ensure that the line could also withstand loadings as identified in previous studies.