Q. **Project C-53: Upgrade Corner Brook Frequency Converter, Corner Brook**

With reference to Appendix A - 2015 Siemens Report, Vol. II, Tab 15, pages A7-A8. Siemens recommendations do not, at least on their face, encompass the rotor wedging, replacement of bellows and installation of fans and air ducting components of this proposed Project. Are there any findings of the Siemens report which, in Hydro's view, support these components of the Project, and if not, what is Hydro's supporting expert assessment for these components of the Project?

A. The proposal to replace rotor pole wedges followed a verbal recommendation by Siemens in 2014, when it was discovered that retaining wedges between the spider and pole assemblies on the rotor had become loose and required temporary re-setting of the wedges in order to put the converter back in service.

The Siemens Report, 15-027, concentrated primarily on electrical testing of the 50 Hz and 60 Hz synchronous machines (rotors and stators) and the rotating DC exciters. Transformer cooling was not included in the scope of Siemen’s 2015 condition study. Rather, operations personnel at Hydro have observed temperatures on Corner Brook transformers T1and T2 to be tracking higher than normal in recent years. Hydro’s internal technical opinion is that the higher than normal temperatures on these air-cooled units are linked to less than optimum air circulation in the transformer vault area. As transformer temperature is directly related to loading and ambient air temperature, much higher operating temperatures can be expected when the converter is upgraded and operated at full capacity, if the upgrading is not completed. The proposed ventilation upgrades will enhance transformer cooling and slow transformer deterioration due to overheating.

Replacement of the flexible connections between the alternator air outlets and the air ducting system is required to maintain the integrity of the sealed air ducting system. The components in question are the original flexible connections and have been subjected to repeated mechanical and thermal stresses over the years, to the point where the fabric has ruptured allowing hot air and dust from the synchronous machines to enter the building. As well, the flexible connections contain 60 % chrysotile asbestos, which requires replacement with a non asbestos materials, due to safety and health concerns.