Q. Should the system be able to withstand the loss of the Sunnyside sub-station (or any sub-station for that matter) without losing firm load?

A. The Hydro transmission system is planned such that it is acceptable to have loss of firm load for the complete loss of any terminal station on the Island Interconnected System. This is consistent with the North American Electric Reliability Corporation (NERC) transmission planning standards TPL-001-0.1, TPL-002-0b, TPL-003-0b and TPL-004-0a Table I Transmission System Standards – Normal and Emergency Conditions. Within the NERC transmission planning standards, Table I defines Category D – Extreme event resulting in two or more (multiple) elements removed or cascading out of service. Included in Category D is loss of a substation (one voltage level plus transformers), loss of a switching station (one voltage level plus transformers), and loss of a large load or major load centre. The evaluation of the risks and consequences include[1]:

- may involve substantial loss of customer demand and generation in a widespread area or areas ; and
- portions or all of the interconnected systems may or may not achieve a new, stable operating point.

[1] NERC TPL-004-0a System Performance Following Extreme BES Events Table I Category D dated June 20, 2013.