

**September 16<sup>th</sup>, 2010**

Re: **EB-2010-0249** – Initiative to Develop Electricity Distribution System Reliability Standards

To: Kirsten Walli (Board Secretary),

Please accept this document as Kingston Hydro's responses to Attachment A "Questions to Discuss – For Electricity Distributors" in the Letter issued on August 23<sup>rd</sup>, 2010 titled "Initiative to Develop Electricity Distribution System Reliability Standards Board File No.:EB-2010-0249."

These written responses were required by September 17<sup>th</sup>, 2010 per the timeline stated in the Letter.

**Q1)** In addition to SAIDI, SAIFI and CAIDI, what, if any, other system reliability measures do you use?

**A1)** *None-just SAIDI, SAIFI and CAIDI.*

**Q2)** Provide a detailed description of your methodology utilized to record SAIDI and SAIFI. Please include information such as:

**Q2a)** The degree of use of automated event tracking from SCADA systems, as well as reliance on manual observations.

**A2a)** *Kingston Hydro has maintained an Outage Database from 2000 onwards. Cause of outages, duration, outage code, weather, employees reporting and responding to the outage, comments received from customers, management staff notified, notes made by system operators and actions taken are manually recorded into the Outage Database. Major equipment failures are tracked and reported using an automated system, e.g. station breaker trips and forwarded to an on-call paging system and to blackberry devices used by system operators. 44kV overhead switch operations are also recorded in SCADA and reported and reset internally at year end (December). Minor equipment failures such as fuses are reported manually through customer feedback, i.e. customer phone calls.*

**Q2b)** Whether planned outages are tracked separately.

**A2b)** *Yes, planned outages are tracked separately per the 2006 Electricity Handbook Cause of Service Interruption Code system, i.e. scheduled outages are recorded and reported in the Outage Database as Outage Code "1".*

**Q2c)** The level of detail captured throughout a stepped restoration process to record the total customer duration impact.

**A2c)** *Although the definition of "significant" outages has not been formalized (usually a subjective decision made by the system operator, e.g. prolonged 44kV*

*outages are considered significant), significant planned outages tend to be restored and the switching order recorded in a stepped and planned manner.*

*Of the significant forced outages that occur in a year (approximately four significant forced outages occur in a year) the restoration switching order, equipment involved, circuit, duration and times are recorded. If stepped restoration is required, individual operation locations, times and durations are recorded for each step.*

**Q3)** Do you use system reliability performance results in planning, investment and maintenance expenditures, as well as establishing operation and maintenance procedures? Please explain.

**A3)** *Currently there is no formal feedback process tying reliability performance, i.e. indices into planning, investment and maintenance expenditures. However, reliability indices are monitored and reported annually to Kingston Hydro board members. A subjective process exists, i.e. a Priority Database is maintained where field concerns are recorded due to condition concerns and priorities are assigned for replacement or repair, collectively involving representatives from Operations, Engineering, Dispatch (System Operators).*

**Q4)** Do you identify and track the impacts of extraordinary events?

**A4)** *Extraordinary events are not identified and tracked because a formal definition of Extraordinary Event has not been adopted. However, comments related to storm and weather conditions are entered in the Outage Database whenever an outage occurs.*

**Q5)** What other actions do you take to manage system reliability performance?

**A5)** *Reliability has been maintained to date through the following programs: Substation inspection and maintenance program, overhead pole inspection and replacement program, equipment condition monitoring through Infra Red scanning of overhead lines, switches, station and underground vault equipment, transformer oil analysis, condition assessment of underground civil duct structures through camera work, cable condition testing, structural assessments of civil underground structures, i.e. transformer vaults. Finally, when an unplanned outage occurs, it is used as an opportunity to service equipment that required a planned outage, thus taking advantage of unplanned outages in improving future reliability performance.*

Regards,

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