

**IN THE MATTER OF** the *Ontario Energy Board Act, 1998*, S. O. 1998 c.15, (Schedule B);

**AND IN THE MATTER OF** an application by North Bay Hydro Distribution Limited for an order approving just and reasonable rates to be effective July 1, 2009.

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**Responses to Hydro One Networks Inc.  
Interrogatories**

**July 14, 2009**

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S.O. 1998, c.15, (Schedule B);

**AND IN THE MATTER OF** an application by North Bay  
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**North Bay Hydro Distribution Limited (“North Bay Hydro”)  
Responses to Hydro One Networks Inc. Interrogatories**

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**Preamble:**

North Bay Hydro Distribution Limited states Hydro One has confirmed that the transformers at North Bay TS are end of life and will be replaced. Construction activities are scheduled to commence in late 2010 with an in service target date of early 2011. The transformers will be industry standard stepping voltage from 115 kv to 44 kv. In preparation for the transformer replacements, the Applicant must convert the old 22 kv/4.16 kv distribution system to 44 kv/12.47 kv. This will harmonize distribution and supply voltages across the Applicant’s entire system.

**Question 1:**

State the benefit to customers of making the conversion now rather than waiting another five years.

**Response:**

The existing North Bay TS transformers are 57 years old and past their rated design life. Based on electrical industry recognized life expectancy, these transformers are beyond end of life and must be replaced to maintain adequate reliability to customers.

Between 15-20% of North Bay Hydro’s customers are supplied by North Bay TS.

North Bay Hydro also has a substation located within North Bay TS. The switchgear at this substation has been in service for almost 50 years and is well beyond its reliable service life. It poses a safety hazard to employees performing routine maintenance procedures. North Bay Hydro has plans to replace this substation as part of the TS re-build.

The refurbishment plan for North Bay TS involves transferring load to Trout Lake TS and completing the work at North Bay TS on de-energized equipment. Trout Lake TS only has capacity to accommodate the incremental short term load transfer in the next 5 years. Waiting to complete this work beyond this 5 year window could result in lengthy outages or expensive temporary supply measures. Refurbishing North Bay TS in a de-energized environment avoids the costs of a complicated outage plan that would require maintaining a 22kv bus during construction. Working in a de-energized environment is also safer for all parties.

North Bay Hydro is committed to standardizing its distribution system to 44kv/12.47kv. This will allow immediate benefits including:

- i) reducing line losses by eliminating lower voltages and old plant; and
- ii) improving reliability since all substations will be at the same supply and distribution voltage and can support each other during planned and unplanned outages.

Both Hydro One and North Bay Hydro have safety issues with equipment at North Bay TS. Correcting these problems will improve maintainability and outage management.

**Question 2:**

What (additional) problems could arise if you waited to undertake this conversion?

**Response:**

The secondary voltage of 22 kv at North Bay TS is not a standard voltage in the Hydro One system. Both North Bay Hydro and (as advised by Hydro One staff) Hydro One do not have spare 115 kv to 22 kv transformers in inventory that could be deployed quickly in the event that one of the transformers in service beyond rated design life fails. Neither utility can justify the purchase and maintenance of non-standard spare inventory.

Due to station age and limited property availability the North Bay TS transformers do not have functional spill containment systems. The same is true for North Bay Hydro's substation located within North Bay TS. A major transformer failure could result in an oil spill into Chippewa Creek which flows through residential areas into Lake Nipissing. North Bay Hydro and (as advised by Hydro One staff) Hydro One would like to refurbish their respective equipment now rather than wait 5 more years with increasing probability of failure.

The spare parts for equipment at North Bay TS (especially the transformer tap changers and ancillary bushings) are not available. North Bay Hydro also has difficulty finding components for its antiquated switchgear at its substation. Repairs to maintain existing equipment are expensive and time consuming for both parties.