Q. From Liberty's Interim Report, Hydro had not been meeting long-term objectives of six-year cycles for preventive maintenance on its 105 power transformers, and also had substantial backlogs in terminal station corrective maintenance prior to the January 2014 outages. Please provide the calculations and amounts for preventive transformer maintenance if Hydro had maintained the six-year transformer maintenance schedule for the six years from 2010 through 2015.

A. Table 1 outlines the costs associated with Hydro completing transformer PMs within the given years as was originally planned. Table 1 contains average costs if Hydro in-house crews would have completed them as well as the average costs if a contractor would have been utilized. Both options would have been evaluated at the time based on crew availability and outage schedules.

**Table 1**

**Power Transformer**
**Cost Summary Calculation - PMs Not Completed Between 2010-2015**

| Year | PMs Not completed | Average Cost of PM | | Total Average Cost | | |
|---|---|---|---|---|---|---|
| | | In-House | Contractor | In-House | Contractor | |
| 2010 | 3 | $7,200 | $12,000 | $21,600 | $36,000 | |
| 2011 | 6 | $9,100 | $12,300 | $54,600 | $73,800 | |
| 2012 | 3 | $7,500 | $12,600 | $22,500 | $37,800 | |
| 2013 | 7 | $9,300 | $12,850 | $65,100 | $89,950 | |
| 2014 | 0 | | | $0 | $0 | |
| 2015 | 0 | | | $0 | $0 | |
| | | Total Average Costs | | $163,800 | $237,550 | |
| | | Additional Costs | | $32,760 | $49,400 | |
| | | | | Low | High | **Average** |
| **Total** | | | | **$196,560** | **$286,950** | **$241,755** |

| | | |
|---|---|---|
| In-house Costs: | | |
| Additional Cost of Travel and Fuel usage | | |
| Travel | 10% | $16,380 |
| Fuel | 10% | $16,380 |

| | | | | |
|---|---|---|---|---|
| Contractor Cost: | | | | |
| Additional Costs should be added for the OSR | | | | |
| Assumption: | | | | |
| Average | 1PM = one week | | | |
| OSR Costs for one week | | 40hrs | $65/hr | $2,600 |
| | 2010 | 3 | $7,800 | |
| | 2011 | 6 | $15,600 | |
| | 2012 | 3 | $7,800 | |
| | 2013 | 7 | $18,200 | |
| | | | **$49,400** | |

In-House Costs:

The average costs were derived from the actual costs of the PMs that were completed in the given years using in-house crews. Additional costs (estimate) are captured separately in the table which include fuel and travel.

The number of PMs completed in the given years is as follows 15 in 2010, 11 in 2011, 14 in 2012 and 10 in 2013.

Contractor Costs:

The average costs were derived from the actual costs of the PMs completed in 2014 by contractor. The average costs for 2014 ($13,100) was reflected back to the previous years assuming a 2% escalation cost over the time frame. Additional costs are captured separately based on the need to have an On Site Representative (OSR) on-site during contractor work execution.

There were a total of 13 PMs completed in 2014 by the contractor.

Overall average costs are also contained in Table 1 as it is unknown how this work would have been accomplished during that time.