**Ontario Energy Board**
P.O. Box 2319
27th Floor
2300 Yonge Street
Toronto ON M4P 1E4
Telephone: 416- 481-1967
Facsimile: 416- 440-7656
Toll free: 1-888-632-6273

**Commission de l'énergie de l'Ontario**
C.P. 2319
27e étage
2300, rue Yonge
Toronto ON M4P 1E4
Téléphone: 416- 481-1967
Télécopieur: 416- 440-7656
Numéro sans frais: 1-888-632-6273

Ontario

**BY E-MAIL**

July 2, 2015

Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

**Re: Guelph Hydro Electric Systems Inc. (Guelph Hydro)**
**2016 Distribution Rate Application**
**OEB Staff Interrogatories**
**Board File No. EB-2015-0073**

In accordance with Procedural Order No. 1, please find attached OEB staff's interrogatories in the above noted proceeding. Guelph Hydro and all intervenors have been copied on this filing.

Guelph Hydro's responses to interrogatories are due by July 31, 2015.

Yours truly,

*Original Signed By*

Georgette Vlahos
Analyst – Electricity Rates & Accounting

Attach.

**OEB Staff Interrogatories**
**2016 Cost of Service Rate Application**
**Guelph Hydro Electric Systems Inc. (Guelph Hydro)**
**EB-2015-0073**
**July 2, 2015**

## Exhibit 1 – Administration

**1-Staff-1**
**Letters of Comment**
**Ref: E1/T10/S1/Page 1, Section 2.4.9**

Following publication of the Notice of Application, the OEB received one letter of comment. Sections 2.4.2 and 2.4.5 of the Filing Requirements state that distributors will be expected to file with the OEB their response to the matters raised within any letters of comment sent to the OEB related to the distributor's application. If the applicant has not received a copy of the letters, they may be accessed from the public record for this proceeding.

Please file a response to the matters raised in the letter of comment referenced above. Going forward, please ensure that responses are filed to any subsequent letters that may be submitted in this proceeding. All responses must be filed before the argument (submission) phase of this proceeding.

**1-Staff-2**
**Expense Inflation Factors**
**Ref 1: E1/T2/S2/Page 3**
**Ref 2: E1/T2/S2/Page 7**

At Reference 1, Guelph Hydro states: "Guelph Hydro continues to work on finding efficiencies throughout the organization, and apart from the wage increases noted above, the balance of the OM&A budget reflects an average increase of 2.0% in 2015 and 1.50% in 2016."

At Reference 2, Guelph Hydro states: "An inflationary factor of 2% was applied to all non-payroll related expense items for 2015 and 2016 budgets."

(a) Please reconcile and clarify the inflationary factor used for non-labour expenses for 2016.
(b) Please identify the basis for the 2015 and 2016 inflation factors, and provide copies of any documents relied upon, as necessary.

**1-Staff-3**
**Customer Engagement**
**Ref: Chapter 2 of the Filing Requirements, Section 2.4.3**
**Ref: E1/T4/S1**

Chapter 2 of the Filing Requirements states, "The RRFE Report contemplates enhanced engagement between distributors and their customers to provide better alignment between distributor operational plans and customer needs and expectations." (Emphasis added)

Please describe the differences between customer engagement conducted in preparation for the current application and previous customer engagement.

**1-Staff-4**
**Reflecting Customer Needs**
**Ref: Chapter 2 of the Filing Requirements**

Chapter 2 of the Filing Requirements states, "Distributors should specifically discuss in the application how they informed their customers on the proposals being considered for inclusion in the application, and the value of those proposals to customers (i.e. costs, benefits and the impact on rates). The application should discuss any feedback provided by customers and how this feedback shaped the final application".

What forms of outreach were employed to explain how the current application serves the needs and expectations of customers? If none were employed, please explain why.

**1-Staff-5**
**Ref: E1/T9/S1/Page 1**

Guelph Hydro notes that on September 6th, 2014, the City of Guelph amalgamated Guelph Hydro Inc., the then parent company of Guelph Hydro, into Guelph Municipal Holdings Inc.

(a) Please describe if there have been any specific changes to the Board of Directors, or their roles.
(b) Please describe if there have been any changes with respect to the allocation of administrative services due to the corporate restructuring.

**Exhibit 2 – Rate Base**

**2-Staff-6**
**Ref 1: E2/T1/S2/Page 2**
**Ref 2: E4/T1/S1/Page 3**

At Reference 1, Guelph Hydro states that, "In 2015 and 2016, Guelph Hydro plans to extend the 2nd floor of 395 Southgate Drive in order to better manage the increase in FTEs that are expected as part of Guelph Hydro's growth plan. The projected costs of the expansion are $755,000 in 2015 and $804,000 in 2016" (395 Southgate Drive is Guelph Hydro's head office).

At Reference 2, Guelph Hydro states that "These increases in FTEs are expected to be temporary for a 2-3 year period as part of rebuilding a qualified and experienced workforce ahead of the retirement of seasoned journeypersons".

(a) Please provide details of Guelph Hydro's increase in FTE's related to its growth plan for each year over the next 10 year period. Please provide a FTE breakdown by job function and indicate whether the FTE's require space at the head office.
(b) Please confirm Guelph Hydro's current head office FTE count and complete the tables below using projected data growth over the next 10 years.

| | |
|---|---|
| Current Head Office | |
| Head Office FTE | |
| Square Footage | |
| Number of meeting rooms | |
| Meeting rooms – sq ft | |

| | |
|---|---|
| Expansion | |
| Head Office Employees Projected Over 10-year Horizon (FTE) | |
| Square Footage | |
| Capital Cost | |
| Number of meeting rooms | |
| Meeting rooms – sq ft | |

(c) Did Guelph Hydro explore options other than building expansion? If so, please provide an explanation of these options and why each was rejected. If no, why not?
(d) Did Guelph Hydro complete a business case for this expansion? If so, please file it.
(e) Has this project been approved by Guelph Hydro's Board of Directors?

**2-Staff-7**
**Arlen MTS**
**Ref 1: E2/T1/S2/Page 3**
**Ref 2: E1/T2/S4/Pages 8-9**
**Ref 3: E2/T1/S2/Page 8**
**Ref 4: Chapter 2 Appendices, Tab 2-AA – Capital Projects**

At Reference 1, Guelph Hydro notes that it is planning to undertake an additional investment in the Arlen TS in 2016.

At Reference 2, Guelph Hydro notes that at the time of its 2012 CoS filing, a cost was estimated at $14.8 million, but the final costs are $19.6 million. The primary reasons for the variance are as follows:

> …new high voltage breakers in addition to protection system with communication abilities to the source of the circuits which is at Hydro One Burlington TS, needed to be added and commissioned to connect Arlen TS. The distinction was that Arlen TS was LDC owned instead of being owned and operated as other TS`s supplying load into Guelph. This extra work contributed partly to additional cost including the upgraded protection systems, communications, breakers, engineering design changes and commissioning philosophy changes. The other reason for the extra cost was striving to respect a project commissioning date by the end of the year. Additional field resources were required and Arlen TS was connected to the transmission system on December 29th, 2011.

| | 2012 Filing | Final Costs | 2016 recovery |
|---|---|---|---|
| Property | $1.9 | $1.9 | $0 |
| Engineering and Environmental | 1.1 | 2.2 | 1.0 |
| Major Equipment | 6.0 | 7.1 | 1.1 |
| Construction and Commissioning | 5.0 | 5.9 | 1.0 |
| Bulk Supply Connection | 0.5 | 2.2 | 1.7 |
| Feeder Egress | 0.3 | 0.3 | 0.0 |
| Total | $14.8 | $19.6 | $4.8 |

At Reference 3, Guelph Hydro provides explanations for variances between the 2012 OEB-approved and 2012 actual capital spending. Under the distribution system

category, Guelph Hydro indicates a variance of $5,612,414 between the 2012 approved and 2012 actual balance which is due primarily to higher spending on the Arlen TS compared to what was initially projected. Guelph Hydro notes that it was determined that it would be more economical to build a station that has the capability for expansion in the future which was not part of the initial specifications. [Emphasis Added]

It appears that a portion of the cost variance may be attributable to poor forecasting, project execution and scope change.

(a) Please provide additional information to support the prudence of the expenditures in excess of the originally forecasted amount.
(b) Please provide more details on the specific overruns that are listed in the table above.
(c) The applicant states that part of the excess spending/cost overrun was attributable to "respecting the project commissioning date". Please quantify or estimate the dollar amount associated with this objective and indicate why this dollar amount should be considered a prudent expenditure to be recovered through rates.
(d) Please indicate what the consequences would have been if this project had not been expedited.

Guelph Hydro has indicated in its evidence that as an indirect result of the Regional Planning Process, there is the need for a solution at Guelph Hydro Arlen TS in order to mitigate high levels of short circuit due to the Hydro One GATR project which itself came out of the RPP process. Guelph Hydro anticipates spending of $800,000 in 2015 and $150,000 in 2016 on the Arlen TS – Series Reactor.

(e) Please provide more details, including but not limited to, the nature and reason(s) for the additional investment in the Arlen TS.

**2-Staff-8**
**Equipment – Fleet Trucks**
**Ref: E2/T1/S2/Page 4**

Guelph Hydro notes that in order to ensure that the quality of equipment available for its operating staff remains at a high standard, it plans to spend $803,332 in 2015 and $639,000 in 2016 on equipment. The 2015 investment is higher due to the planned acquisition of 2 large bucket trucks.

(a) Please clarify if Guelph Hydro is replacing or expanding its fleet.
(b) Please provide Guelph Hydro's replacement policy for its fleet.

**2-Staff-9**
**Ref: OEB Letter - Allowance for Working Capital, June 3, 2015**

The letter at the above reference issued by the OEB indicated that effective immediately, the OEB is adopting a new default value of 7.5% (working capital allowance) of the sum of the cost of power and operating, maintenance and administration (OM&A) costs. As in the past, distributors who do not wish to use the default value can request approval for a distributor-specific working capital allowance supported by the appropriate evidence from a lead-lag study or equivalent analysis.

Please indicate if Guelph Hydro intends to adopt the 7.5% value in response to this letter or, alternatively, whether Guelph Hydro plans to file a lead/lag study during the course of this proceeding.

**2-Staff-10**
**$D_1$-factor**
**Ref 1: E1/T3/S3/Page 2**
**Ref 2: E2/T2/S6/Pages 1-2**
**Ref 3: Policy Options for Funding Capital Investments (EB-2014-0219) [OEB website page]**
**Ref 4: E2/T2/S6/Page 2**

In its requested approvals (Reference 1), Guelph Hydro has requested approval of a $D_1$-factor that would be applicable in the first Price Cap IR application following this cost of service application (i.e., for January 1, 2017 rates). The effect of this proposal would be to eliminate the effect of the half-year rule with respect to the return of capital (depreciation) and return on capital of assets that are forecasted to enter service (i.e., capital additions) in the 2016 test year.

Guelph Hydro provides further details on its proposal for the $D_1$-factor in Reference 2. In the second reference, Guelph Hydro refers to the $D_1$-factor as an OEB proposal:

> On June 20, 2014, the Board issued a letter related to the *Proposal for New Policy Options for the Funding of Capital Investments* (EB-2014-0219). The Board proposed an adjustment mechanism referred to as the $D_1$-factor.

On the OEB website (Reference 3), the OEB documents that OEB staff has developed two new mechanisms on which it will be seeking comments before bringing new policy options to the OEB for consideration:

> Eliminate the effect of the half year rule on test year capital additions for the intervening years between rebasing applications (i.e. during the subsequent IR plan) by adjusting for the incremental revenue requirement (depreciation expense plus return on capital and associated taxes/PILs) of the test year capital additions. This is proposed to be accomplished through an adjustment (to be referred to as the $D_1$-factor) to the price cap formula in the first IR application subsequent to the cost of service application that resulted in rebased rates. The half year rule would still apply for the test year.

(a) Please confirm Guelph Hydro's understanding that the $D_1$-factor is an OEB staff proposal and not an OEB proposal.
(b) Please provide Guelph Hydro's views on the suitability, advantages and disadvantages of the $D_1$-factor as applied for.
(c) Please explain whether Guelph Hydro has considered any offsets to the $D_1$-factor that should be considered by the OEB.
(d) If the OEB were to not approve the $D_1$-factor, please identify any forecasted impacts on Guelph Hydro's ability to fund capital investments or on its financial situation in the Price Cap IR term from 2017 until it next rebases its rates, scheduled for 2021.
(e) At Reference 4, Guelph Hydro states "Guelph Hydro has calculated its $D_1$-factor to be 2.13%, which is below the acceptable adjustment of 3%. Please explain what Guelph Hydro means by "the acceptable adjustment of 3%".

**Distribution System Plan**

**2-Staff-11**
**Ref 1: E2/Appendix 2A, Section 5.3.1.1**
**Ref 2: E2/Appendix 2A/Page 17**
**Ref 3: Guelph Municipal Holdings Inc. (GMHI) 2014 Annual Report, Page 1**
**Ref 4: OEB Report, Renewed Regulatory Framework for Electricity Distributors (RRFE) - A Performance-Based Approach, October 18, 2012.**
**Ref 5: OEB Chapter 5 Filing Requirements for Electricity Transmission and Distribution Applications, Section 5.4.5.2 B.**
**Ref 6: E2/Appendix 2A/Page 35**

**Preamble:**
Section 5.3.1.1 of the DSP of Guelph Hydro provides the following Vision and Mission statements; **"**Vision Statement**:** An energy company powering sustainable communities. Mission Statement**:** Provide superior customer service while investing in energy-related initiatives that benefit the communities in which we operate and align with the energy-related objectives of the Province of Ontario, the City of Guelph and our shareholder, Guelph Municipal Holdings Inc.; thus enabling the Guelph Hydro group of companies to grow and enhance our position as an industry leader."

Reference 5 identifies four outcomes that are appropriate for electricity distributors: customer focus; operational effectiveness; public policy responsiveness; and, financial performance.

(a) Please provide an overview of how this vision aligns with the four RRFE outcomes.

Reference 3 indicates that one of the objectives of GMHI is the provision of an asset that, "Develops sustainable energy infrastructure in support of the Guelph Community Energy Initiative."

(b) Please explain how "sustainable energy infrastructure" relates to the four RRFE outcomes.
(c) Please explain conceptually how any trade-offs between the objective of sustainable energy infrastructure and the four RRFE outcomes are handled.
(d) Please explain what the relationship is between the criterion of "sustainable energy infrastructure" and that of "environmental benefits", as required by the Chapter 5 Filing Requirements (Reference 5).

Reference 6 states, "The output of this process is a sustainable, levelized five-year capital plan for the forecast period."

(e) Please explain the meaning of "sustainable" in the quoted statement in relation to the RRFE outcomes.

**2-Staff-12**
**Ref 1: E2/Appendix 2A/Page 18**
**Ref 2: E2/Appendix 2A/Page 313**
**Ref 3: OEB Report, Renewed Regulatory Framework for Electricity Distributors (RRFE) - A Performance-Based Approach, October 18, 2012.**
**Ref 4: OEB Chapter 5 Filing Requirements for Electricity Transmission and Distribution Applications section 5.0.3.4**

**Preamble**:
Reference 3 says on page 48: “Under the integrated approach to planning described in this Report grid-enhancing advanced information and exchange systems and equipment (which are commonly referred to as smart grid) are considered integral to all utility investment. Under this approach, no distinction is made for regulatory purposes between “smart grid” and more traditional investments undertaken by distributors and transmitters – more advanced technologies are so integrated with other activities that such distinctions are not productive.”

Reference 4 requests information, *inter alia*, where appropriate on options to facilitate consumer access to consumption data in an electronic format and mechanisms that facilitate “real time” data access and “behind the meter” applications.

Reference 1 lists “Smart grid development and implementation” as one of several types of investment that Guelph Hydro seeks to optimize and then states, “To GHESI, smart grid development has the following meanings: Transforming features of its current system to optimize system operational performance; Capturing and utilizing real-time data to better understand customer preferences and give more control to customers on their own electricity usage ; and Modifying the current system, where necessary, to accommodate and facilitate distributed generation.”

Reference 2 states, “In relation to Smart Grid development, GHESI expects minimal investment in this area over the forecast period aside from its continued investment into existing SCADA technology as it relates to its SCADA master system, communication infrastructure and line sensor technology which is contained in the system service portion of investments.”

(a) How does Guelph Hydro reconcile References 3 and 4 with the definition used by Guelph Hydro and the example of the SCADA master system?
(b) Does Guelph Hydro analyze and prioritize investments that meet its view of “smart grid” differently than other investments?

**2-Staff-13**
**Ref 1: E2/Appendix 2A/Page 64**
**Ref 2: E2/Appendix 2A/Appendix P**
**Ref 3: E1/T4/S3/Appendix 1B (Customer Satisfaction Survey)**

Reference 2 states: “A total of 356 online surveys were received, representing 0.7 per cent of the customer base. Of this, 354 were from Residential customers with only two

responses received from Commercial customers."

(a) Does Guelph Hydro find the response rates acceptable as a basis for measuring the customer outcomes? If so, why?

(b) How much weight did Guelph Hydro give to the customer preferences in setting priorities for investment?

(c) What steps does Guelph Hydro intend to undertake to improve the information regarding customer views of Guelph Hydro's performance, especially for commercial customers?

Reference 3 does not provide response rates for the UtilityPULSE survey of 15 Ontario LDCs.

(d) Please provide the response rates. If not known please provide a copy of the survey documentation.

**2-Staff-14**
**Ref 1: E2/Appendix 2A/Pages 75-77**
**Ref 2: E2/Appendix 2A/Page 79**
**Ref 3: E2/Appendix 2A/Pages 38-39**
**Ref 4: E2 Appendix 2A/Page 126**
**Ref 5: E2/T2/S8/Page 1/Section 2.5.2.8/Lines 11-15**
**Ref 6: E2/Appendix 2A/Page 82/Table 5.2.5**
**Ref 7: E2/Appendix 2A/Page 168**

Guelph Hydro states that it has achieved extremely high service quality and reliability standards, including ranking in the top 10% of its peers, and generally significantly exceeding virtually all OEB standards.

(a) Are the weather-normalized SAIFI, SAIDI and CAIDI targets for the same for all years covered in this DSP? If so, why are there no expected improvements?

(b) In Reference 2, Guelph Hydro intends to retain peak demand as a performance metric. Has it set any targets for the years 2017-2020?

(c) In Reference 3, Guelph Hydro provides a list of sources of cost savings. Please provide examples of how such sources of cost savings are translated into continuous improvement.

(d) Many distributors include worst performing feeders in their performance measures. In Reference 4, Guelph Hydro states that it does not include targets related to worst performing feeders in its business planning. Please provide reasons.

(e) How does Guelph Hydro balance setting targets for service and reliability ratings with the goal of optimizing expenditures?

**2-Staff-15**
**Project Prioritization and Pacing Tools and Methods**
**Ref 1: E2/Section 5.4.2.3 Project Prioritization Tools and Methods (OEB Filing Req. 5.4.2c)**
**Ref 2: E2/Appendix N: Material Capital Project Summary 2016, Kortright Road West / Rickson Avenue Reconstruction Phase 2 Project, Section 5.4.5.2 B.1.b (page 723)**
**Ref 3: E2/Appendix N: Material Capital Project Summary 2016, New 5M53 Feeder, Section 5.4.5.2 B.1.b (page 737)**

**Preamble:**
Guelph Hydro has described the tools and methods used for prioritizing and pacing projects in Reference 1. These are different for each of the four categories of projects. For System Service projects, it is not clear whether these processes, tools and methods apply to SCADA Infrastructure projects, SCADA / Remotely Operated Switches projects and Transformer Stations & Distribution Stations projects. For General Plant projects, it is not clear that the methods of prioritizing and pacing projects apply to all kinds of projects (i.e. among fleet, tools, Administration Building and Service Centre and computer equipment and software). In some project justifications, Guelph Hydro has not related the reasons for the assigned priority to Guelph Hydro's approach described in Reference 1. Examples of such projects can be found in Reference 2 and Reference 3.

Please describe how projects are prioritized and paced across all General Plant projects (i.e. among fleet, tools, Administration Building and Service Centre and computer equipment and software) and across all System Services projects (i.e. among SCADA Infrastructure projects, SCADA / Remotely Operated Switches projects, Distribution System Feeder Infrastructure upgrade projects and Transformer Stations & Distribution Stations projects).

**2-Staff-16**
**Ref: E2/Section 5.4.5.1 Overall Plan, Forecast Impact of System Investment on System O&M Costs**
**Ref: OEB Filing Req. 5.4.5.1**

Guelph Hydro has described the forecast impact of system investment on system O&M costs, including on the direction of expected impacts, but not on the timing of expected impacts.

Please give specific examples of the timing of expected impacts on O&M costs from system investments.

**2-Staff-17**
**Ref 1: E2/Section 5.4.5.1 Overall Plan, Drivers of Investments**
**Ref 2: E2/Section 5.4.5.1 Overall Plan (OEB Filing Req. 5.4.5.1), Table 5.4-53**
**Ref 3: Planned Capital Investments in Relation to Project Drivers**
**Ref 4: Exhibit 2 Section 5.1.1 Investment Categories (OEB Filing Req. 5.1.1)**
**Ref 5: Exhibit 2 Section 5.1.1 Investment Categories (OEB Filing Req. 5.1.1), Table 5.1-1 Summary of Drivers**
**Ref 6: OEB Filing Req. 5.4.5.1, 5.1.1.**

In the first reference, Guelph Hydro states "As overviewed in Section 5.1.1 and Table 5.1-1 Summary of Drivers the following information provides a summary of the ten key drivers GHESI has established for all capital expenditures within the four major categories."

However, different drivers have been used in the third and fourth references.

(a) Please use the drivers in Reference 4 for the table in Reference 2.
(b) Please use the drivers in Reference 4 for the descriptions following the table in Reference 2.
(c) Please state the expected evolution of each driver over the forecast period in the descriptions following the table in Reference 2.

**2-Staff-18**
**Ref 1: E2/Section 5.4.5.2 Material Investments (OEB Filing Req. 5.4.5.2), Table 5.4-54: Material Capital Programs and Projects for 2016**

In Reference 1, Guelph Hydro has provided a listing of material capital projects and programs for 2016 giving total expenditure and priority ranking for each material project. The same information has not been provided for 2017, 2018, 2019 and 2020.

(a) Please provide information for 2017, 2018, 2019 and 2020 as specified in OEB Filing Requirements Section 5.4.5.2.

**2-Staff-19**
**System Access and Ability to Meet Future Growth**
**Ref 1: E2/Appendix 2A/Page 14**
**Ref 2: E2/Appendix 2A/Page 16**
**Ref 3: E2/Appendix 2A/Page 23/Figure 5.0-4**
**Ref 4: E2/Appendix 2A/Page 157/Section 5.4.1.1**

System Access investments are difficult to project, as they are in response to customer connection requests. This category comprises the highest portion of 2016 capital expenditures and is based on investments from previous years and forecasted developments in the service area. The document contains conflicting information about both growth rates of the large industrial market, and also about Guelph Hydro's continued ability to meet that market's consumption demands using existing infrastructure, and consequently, operating under the forecasted 2015-2020 figures, which do not assume any major expansion to meet changes in demand.

(a) Please provide the basis for determining forecasted developments in the region, and in particular, provide an analysis of how historical forecasted developments have been aligned with historical actual developments.
(b) As of 2014, Guelph Hydro's electricity consumption was utilised as follows: 63% commercial, 16% large industrial and 21% residential. Please provide an assessment of how this mix will change in the 2015-2020 period.
(c) Please provide the city of Guelph Hydro's estimates for growth between 2015 and 2020 in the industrial market, if available.

On page 16 of Appendix A, it is stated that "it is also evident on figure 5.0-4 that the annual electricity consumption of Guelph Hydro's largest industrial customer's is growing at an accelerated rate, while that of residential consumers has remained unchanged in the past five years". However between 2013 and 2014 figure 5.0-4 actually shows a decrease of consumption among industrial customers of 7.9% and an increase in residential consumption of 4.6%.

(d) Please provide the rationale for relying on a growth rate for industrial and a flat rate for residential.
(e) Given the conflicting information about the expected consumption rates among Guelph Hydro's customer base, please confirm that if consumption by large industrial customers is growing at an accelerated rate, Guelph Hydro has sufficient capacity to meet forecasted demand.

**2-Staff-20**
**System Renewal**
**Ref: E2/Appendix 2A/Page 16**

Based on the outcomes of the Asset Condition Assessment (ACA) with respect to Guelph Hydro's system renewal requirements, it was determined that Guelph Hydro has previously been underspending in support of its system renewal requirements.

(a) Please provide an assessment of whether underspending on system renewal in the past could compromise Guelph Hydro's ability to meet its 2015-2020 forecasts.
(b) Please provide an assessment of whether any long term viability issues are expected as a result of the maintenance under-spending.

**2-Staff-21**
**Decrease in Asset Health**
**Ref 1: E2/Appendix 2A/Page 38**
**Ref 2: E2/Appendix 2A/Page 54**

Guelph Hydro has undertaken a more detailed data collection from multiple inspection cycles. The result of this increased data assessment has led to a decrease in the overall health from 2013-2014.

(a) Please provide an assessment of the extent to which the decrease in asset health identified between 2013 and 2014 is expected to impact Guelph Hydro's ability to meet its projections.
(b) Please quantify to what extent the change in asset health based on improved information is expected to result in Guelph Hydro to increasing OM&A and capital spending.

**2-Staff-22**
**Forecast Capital Expenditures Trending Analysis**
**Ref: E1/Appendix 2A, Section 5.4.4.8/Pages 358-360**

Guelph Hydro indicated that an inflation rate of 2.3% was used for the 2017-2020 forecasting period. The tables presented in section 5.4.4.8 do not appear to reflect a 2.3% growth rate in each category, and consequently, some categories may have crossed the materiality threshold. It should be noted that it was not practical to reconstruct and calculate the figures in each table, and so, table 5.4.47 was used as an example. A similar analysis should be considered for all tables in this section.

The preamble to table 5.4-46 indicates a year-over-year increase of 2.3%. Actual calculated year-over-year variances are calculated as being 3.07% for 2018, 2.92% for 2019 and 2.85% for 2020.

Please explain the methodology Guelph Hydro used to calculate the percentage of increase, and explain the variance between the figures listed here.

**2-Staff-23**
**Asset Management**
**Ref 1: E2/Appendix 2A/Page 93**
**Ref 2: E2/Appendix 2A/Page 102**

In 2014, the OEB added performance metrics, including measures to monitor the cost efficiency and effectiveness of planning quality and DSP implementation. Guelph Hydro is currently developing processes to monitor and report these metrics on a go forward basis. If Guelph Hydro's performance is substantially below the OEB's benchmarks, this will mean a required increase in spending. If Guelph Hydro's performance substantially exceeds the OEB's standards, there may be an opportunity for cost reductions.

(a) What is the asset management metric development process, and what will be considered?
(b) Given that asset management metrics have not yet been developed, please provide an overview of the standard to which Guelph Hydro is currently working in its asset management process.
(c) Please provide an overview of the expected impact of implementing these metrics, and specifically, whether the extent to which monitoring these metrics may have a financial impact on Guelph Hydro.
(d) Please provide an estimate of when the metrics will be defined.
(e) What impact is implementation of these new metrics expected to have on Guelph Hydro's ability to meet its 2015-2020 projections, and has adhering to new standards been factored into the forecasts?
(f) Will tracking and improving the Data Availability Index by closing the data gaps identified in table 5.2.18 drive an increase in spending?

**2-Staff-24**
**Asset Management Objectives**
**Ref 1: E2/Appendix 2A/Section 5.3.1.1/Page 108**
**Ref 2: E2/Appendix 2A/Table 5.3-1**

Each of Guelph Hydro's asset management objectives is weighed and utilised for project selection and prioritization. Table 5.3.1 provides a summary of Asset Management Objective weighting.

| AM Objectives | Corporate Core Value | Weighting |
|---|---|---|
| Public Safety | Safety, Relationships | 5 (26.3%) |
| Employee Safety | Safety, Caring, Relationships | 5 (26.3%) |

| | | |
|---|---|---|
| Environmental | Environmental Stewardship | 4 (21.1%) |
| Reliability and Power | Reliability, Relationships | 3 (15.8%) |
| Operational Efficiency | Efficiency, Innovation and Leadership | 2 (10.5%) |

Please outline the process for determining the weighting of each AM Objective.

**2-Staff-25**
**Asset Management Strategy – Budgetary Considerations**
**Ref: E2/Appendix 2A/Page 113, Section 5.3.1.2**

**Preamble:**
Guelph Hydro amortizes assets on a straight line basis. As assets age, maintenance and risk costs increase while the asset capital cost per year decreases. Guelph Hydro views the optimal replacement point for assets as occurring at approximately when annual asset cost reaches it minimum.

(a) Please provide an overview of "risk cost" calculations.
(b) Please provide a calculation of "asset capital cost per year".
(c) Please provide an estimate of the difference between replacing an asset between the end of its depreciated life and the time optimal replacement time is reached, and specifically address whether typically, optimal replacement time is before or after an asset is fully depreciated.

**2-Staff-26**
**Asset Condition Assessment**
**Ref 1: E2/Appendix 2A/Page 37**
**Ref 2: E2/Appendix 2A/Page 38**

**Preamble:**
Guelph Hydro states in Reference 1: As assets become aged and reach end of life (EOL), these investments are necessary to rectify and maintain the overall asset health condition at an acceptable level to prevent decline in system reliability performance and mitigate safety risks to Guelph Hydro employees and the public.

Guelph Hydro states in Reference 1: Based on outcomes for the ACA with respect to our system renewal requirements, it was determined that Guelph Hydro has previously been under spending. To address this gap, Guelph Hydro has been prudently ramping up its expenditures on system renewal efforts to ensure long-term system viability.

(a) Please include EOL criteria and explain their application for assets targeted for replacement.
(b) Please confirm whether Kinectrics EOL recommendations were independently confirmed by Guelph Hydro experts.
(c) Please support the statement that …"GHESI has previously been underspending"…by detailed explanation of how the EOL was determined prior to AM introduction and include examples and/or reference existing sections and paragraphs in this submission with explanations of the influence of AM on the increase in spending.
(d) Please clarify whether the General Plant "Land and buildings" assets are an integral part of the AM prioritization process, and whether Health Indices are used in the same manner as for (and together with) assets under the "System Renewal" investment category.

**2-Staff-27**
**Ref 1: E2/Appendix 2A/Page 106**
**Ref 2: E2/Appendix 2A/Page 115**

Guelph Hydro states: The first stage is designed to evaluate performance of past investments as they relate to the AM Objectives and the defined Annual Programs. During this stage, data is gathered to analyze the current state of assets and to compare the results year over year to ensure that the program objectives are being met.

(a) Please clarify if data for data inventory for asset registry is gathered using asset condition surveys.
(b) If so, please include this activity, including that of preparation of the asset condition survey forms, in Figure 5.3-2: Asset Management Strategy Flowchart on page 115 of Appendix A.
(e) Please clarify if end-of-life criteria is developed for each asset category,
(f) If so, please describe how these criteria are implemented with respect to health indices.

**2-Staff-28**
**Ref: E2/Appendix 2A/Page 114**

Guelph Hydro states: For distribution assets, considerations are primarily driven by the completion of ACAs. While the asset's age alone may not necessarily correlate to its condition, the collection and analysis of various asset data can be used for long-term planning estimates.

(a) Please explain the reason(s) the process of asset register (mentioned in paragraph b) on page 113 of Appendix 2A) is not mentioned here while ACAs are.
(b) Please indicate the process to obtain and to update asset register and the section in this document in which a percent completion for the asset register for each asset category is shown
(c) Please indicate what information would be shown on the asset register request forms for each asset category (for example would the following be obtained and shown in the data register: manufacturer, model, serial no, quantity, location, date refurbished, installed new, etc.?)

**2-Staff-29**
**Ref: E2/Appendix 2A, Page 115, Figure 5.3-2: Asset Management Strategy Flowchart**

Guelph Hydro states: The process begins with the collection of asset data, followed by the asset assessment processes, which are, in turn, followed by the selection and prioritization processes, culminating in the asset management plan, capital plan and asset database updates.

(a) Please clarify whether the data obtained in Asset Inspections are collected according to surveys designed specifically for use in asset condition assessments and subsequently directly useable for prioritization using health indices as well as directly comparable against end-of-life criteria. If so, please describe steps involved in designing Asset Inspection surveys, including that of the identification of survey deliverables
(b) Please indicate in this flowchart a reference to sections in this document describing the activities listed.
(c) Please explain how the overall Guelph Hydro utility program (i.e. all four areas combined) is prioritized for capital and OM&A programs so that individualized prioritization within the four areas is accomplished as well.
(d) Guelph Hydro and Hydro One systems are interconnected. Please clarify whether there is a relationship between Guelph Hydro's asset management process and that of Hydro One. If there is such relationship, please explain the process of work prioritization.

**2-Staff-30**
**Ref 1: E2/Appendix 2A/Page 118**
**Ref 2: E2/Appendix 2A/Page 119**
**Ref 3: E2/Appendix 2A/Table 5.3-2: List of Asset Inspections**

Guelph Hydro states: The following inspections and method of inspection shown in Table 5.3-2 are performed on an annual or monthly basis and are based on the OEB's minimum inspection requirements outlined in Appendix C of the DSC which are further discussed in section 5.3.2.3 of the DSP.

Please clarify whether the frequency inspection cycle for some assets exceeds or if it is below the minimum requirements outlined in Appendix C. If so, please identify those assets and their inspection frequency.

**2-Staff-31**
**Ref: E2/Appendix 2A/Page 117**

Guelph Hydro states: This data is used in the project prioritization process when calculating the overall risk score for each project area and for separating project areas requiring complete reconstruction from areas that can benefit from targeted minor work.

Please clarify whether the risk score would be the only criteria used for prioritization. If, it is not please include description of other prioritization criteria used or reference to appropriate section in Appendix A and illustrate how these are applied (e.g. weightings for each).

**2-Staff-32**
**Ref: E2/Appendix 2A/Page 123**

Guelph Hydro states: Enterprise Resource Planning Software – estimates for the replacement of generic assets are generated using the available estimating programs in Guelph Hydro's ERP software. These estimates serve as a per unit basis for estimating the replacement and maintenance costs for each project area.

(a) Please clarify the source of the unit basis used for estimates and whether these unit costs have been compared with other utilities and benchmarks. Has sensitivity analysis been performed to determine the effect of uncertainties in the cost data and their impact on decisions to maintain, refurbish or replace assets? If yes, please describe the nature and results achieved with this sensitivity analysis. If not, please indicate what other measures have been undertaken to establish confidence in the data
(b) If comparisons were made, please indicate which utilities and benchmarks have been used.

**2-Staff-33**
**Ref 1: E2/Appendix 2A, Table 5.3-8: Distribution Assets Inspection**
**Ref 2: E2/Appendix 2A/Page 144**

Guelph Hydro states the information presented in Table 5.3-8 outlines a summary of key information related to each asset within Guelph Hydro's distribution system. Information in this chart is updated on an annual basis and serves as a tool to assist in the management of the given asset.

(a) Please indicate Asset Category against each item listed and confirm that this listing directly corresponds to Asset Category in Table II-1 "Health Index Summary" in Appendix D.
(b) For all items listed: please provide an explanation how the actual (in addition to the minimum requirement) inspection requirement is being carried out as well an explanation of estimating steps taken to arrive at the inspection costs and indicate where included it is described in this document.
(c) For all items listed as "No" in "Evaluated in ACA" column: if an explanation is not already shown in this Table, please add notes in this Table to explain reason(s) for not being evaluated in ACA.
(d) For all items listed as "No" in "Maintenance Inspection Form Established": if an explanation is not already shown in this Table, please add notes in this table to explain reason(s) for not having inspection form established and the type, description and frequency of inspections intended.
(e) For all items listed as "Phase-out program in place" and "Not Currently Part of An Inspection Program": please add a note indicating the expected completion and start dates of the respective programs.

**2-Staff-34**
**Ref: E2/Appendix 2A/Page 147**

Guelph Hydro states that its asset replacement and refurbishment policies are optimized, prioritized and scheduled to align with budget envelopes and reduce O&M costs. Guelph Hydro's ACA determines health index ratings for assets based on inspection and maintenance records.

Guelph Hydro then states that however, due to practical considerations, many repair decisions must be made by expert opinion due to time constraints in dealing with trouble calls and outages.

(a) With respect to the repair decisions made due to “time constraints” please provide information to indicate what proportion of repairs would fall under this category, and what the implications, if any, have been to application of the Plan.
(b) Please also clarify whether the process of the ACA update includes the reactive work in case ACA indicate unit is in good condition and whether this type of reactive work would then impact the prioritization.

**2-Staff-35**
**Ref 1: E2/Appendix 2A Asset Management Process/Pages 103- 153**
**Ref 2: E2/Appendix 2A Ibid/Appendix K**
**Ref 3: Asset Depreciation Study for the OEB, Report No: K-418033-RA-001-R000 (2010)**

Reference 2 provides a comparison of current Guelph Hydro assumed Asset Useful Lives with those in Reference 3. For the asset classes that show shorter useful lives than in Reference 3 “rationales are provided highlighting the major contributing factors”.

(a) Please comment on the weightings in Section E-4 of Reference 3, concerning “combining industry research and utility interview findings”.
(b) The methodology defining the significance of “minimum maximum and typical values” in Reference 3 is not reproduced in the current Guelph Hydro submission. Please provide a rationale as to why only a typical useful life value is sufficient for the Guelph Hydro financial asset system.
(c) Please explain how the decision-risk associated with uncertainty in the data is accounted for in the Guelph Hydro planning process and indicate areas of the Guelph Hydro process which would be most sensitive to changes in the useful life value.

**2-Staff-36**
**Ref 1: E2/Appendix 2A/Pages 103-153**
**Ref 2: E2/Appendix 2A/Appendix K**
**Ref 3: Asset Depreciation Study for the OEB, Report No: K-418033-RA-001-R000 (2010)**

Wood Poles
According to the OEB asset depreciation study report (reference 3), the useful life of wood poles is in the range of 35 to 75 years, with typical useful life being 45 years. In Guelph Hydro’s financial asset system, a typical useful life value of 50 years is set up. This is within OEB study range, and better than OEB study typical useful life.

Concrete Poles

According to the OEB asset depreciation study report, the useful life of concrete poles is in the range of 50 to 80 years, with typical useful life being 60 years. In Guelph Hydro's financial asset system, a typical useful life value of 40 years is set up. This is due to the manufacturing issue that caused defects during practical operation.

RTUs

The OEB asset depreciation study report does not address the useful life of RTUs for integral switches. In Guelph Hydro's financial asset system, a typical useful life value of 10 years is set up. *This is as per operational experience* in Guelph Hydro's inventory records.

Primary Cables

Guelph Hydro uses two cable types: paper insulated lead covered (PILC), and solid dielectric both in duct and direct buried. For the purposes of this report, solid dielectric cable refers to cross linked polyethylene (XLPE) cable and ethylene-propylene rubber (EPR). According to the OEB asset depreciation study report, the useful life of primary cables (single-phase lateral, three-phase lateral, three-phase feeder) is in the range of 35 to 55 years, with typical useful life being 40 years. In Guelph Hydro's financial asset system, a typical useful life value of 40 years is set up. This is identical to OEB study typical useful life.

(a) For "wood poles", as for several other asset classes addressed in this study, where the value set up in Guelph Hydro's financial asset system falls within the OEB 2010 study no justification for the appropriateness of the value assumed is provided. Please provide a rationale for the 50 year value and discuss the implications for the Guelph Hydro financial plan if this value fell closer to the 35 or 75 year ends of the OEB range.

(b) For concrete poles, the issue which provides the basis for the useful life being taken as 40 years, well outside the OEB range of 35 to 75 years, is attributed to a single manufacturer. Please provide a quantitative basis for the selection of 40 years. As part of this answer, please provide the percentage of Guelph Hydro's concrete poles attributable to that one manufacturer.

(c) Under "RTUs" please explain what is meant by "per operational experience". In the reply, please indicate if the operational experience noted has been used to provide statistical support for the value selected.

(d) Regarding the three types of primary underground cables listed, it is noted elsewhere that XLPE and EPR are expected to have relatively long useful life,

whereas the overall useful life is represented in the Guelph Hydro financial asset system by 40 years – the OEB "typical" value. Please indicate the proportion of cable represented by each type. If it is feasible to differentiate between the three types of cable by sub-dividing this Asset Class, please comment on the likely schedule and financial effects that this differentiation may have if taken into account in the Guelph Hydro plan.

**2-Staff-37**
**Ref 1: E2/Appendix 2A, 5.3 Asset Management Process**
**Ref 2: E2/Appendix 2A, Appendix D Asset Condition Assessment**

Page 119: "The term "Sample Population" as used in the above table (Table 5.3-2) indicates that a representative sample of the overall asset population has been used to assess and extrapolate health information across the system."

Page 121: The results obtained in the ACA are extrapolated using the sample population where needed and formulated into histograms depicting the health of the population of each asset type

Page 119: "…Each inspection method is unique, however, most inspections are completed using inspection forms that are specific to the asset type being inspected"

(a) Please include description and a reference of how the sample population is defined e.g. what are the criteria used for selecting the quantities, equipment types.
(b) Some of the asset classes analyzed in Ref. 2 contain relatively small numbers of units. Please comment on the effect that this has on the reliability of the results produced (such as the Health Index).
(c) Please explain what is mean by "the results obtained in the ACA are extrapolated using the sample population where needed". Please indicate how and when this is done. Please give examples.
(d) It is not clear what is meant by "each inspection method is unique". For example does this mean every single asset has its own unique inspection method? Or does this refer to asset classes?

**2-Staff-38**
**Ref 1: E2/Appendix 2A, 5.3 Asset Management Process**
**Ref 2: E2/Appendix 2A Ibid, Appendix D Asset Condition Assessment**

**ACA (page 124 of Appendix A)** – the levelized 20-year replacement schedule is used to optimize project selection so that assets replaced per year meet the levelized targets identified in the ACA.

**Asset Replacement and Refurbishment Policies (page 147 of Appendix A)**
Guelph Hydro's asset replacement and refurbishment policies are optimized, prioritized and scheduled to align with budget envelopes and reduce O&M costs. Guelph Hydro's ACA determines health index ratings for assets based on inspection and maintenance records. This information is used to determine the predicted rate of failure of assets over a twenty-year window, which is levelized to minimize peaks and valleys in the replacement quantities over the twenty-year timeframe.

If the updated residual value based on the effective age, less the repair costs, is less than annualized value of a replacement unit, the asset will be replaced instead of repaired. However, due to practical considerations, many repair decisions must be made by expert opinion due to time constraints in dealing with trouble calls and outages.

Reference 2 provides both a "20 year levelized, condition-based Flagged for Action Plan" and a 20-year condition-based Flagged for Action Plan.

Please indicate if the latter Plan is taken into consideration, and if so how and when. If only the levelized plan is used, please explain how the risk of failing to carry out timely replacement is minimized. Please support this with information based on estimation of any historical consequences of failing to carry out timely replacement due to implementation of the Capital Plan based only on the levelized version.

**2-Staff-39**
**Gross Asset Analysis by Function – Other General Assets**
**Ref 1: E2/T1/S2/Page 4/Section 2.5.1.2/Lines 16-23**

Guelph Hydro aims to maintain a consistent level of investment in order to operate its business effectively. SCADA capital expenditures between 2012 and 2014 have averaged $282,365, with a peak of $323,733 in 2014. 2015 forecasted spend in this category is $218,000 with 2016 spend forecasted at $225,000.

Given historical spending, please provide the rationale for the 22% decrease in average spend between 2012-2014 and 2015-2016.

**2-Staff-40**
**Capital Expenditures by Category**
**Ref 1: E2/T2/Schedule Chart 2-1**
**Ref 2: E2/T2/Schedule Chart 2-2**

**Preamble:**
Chart 2-1 presents capital expenditures by category for the 2016 test year and Chart 2-2 presents this information for the 2017-2020 forecast. This information is the output of the asset management and capital planning process that have affected capital expenditures and overall allocation of the capital budget.

(a) What is the basis for the difference in the percentage of each category, given the general expectation of steady state operation?
(b) Please provide an analysis on the change in mix for CAPEX by category, and in particular the drop off in plant investment

**2-Staff-41**
**Capitalization of Overhead**
**Ref: E2/T2/S4/Page 1/Lines 2-4**

Each year Guelph Hydro capitalises a percentage of its OM&A costs that are related to self-constructed capital projects.

(a) How does the 5.94% rate used for the 2016 test year compare with rates used in the 2017-2020 forecast?
(b) Historical rates capitalised OM&A rates are in the 7%-8% range. What was the rationale for the 5.95% figure?

**2-Staff-42**
**Forecast Impact of System Investment on System O&M Costs**
**Ref: E2/Appendix 2A/Page 224**

Guelph Hydro is addressing several underground projects such as pole transformer removal and the replacement of direct buried underground conductors which have reduced system O&M costs arising due to cable and transformer failures. Renewal of these underground assets is anticipated to further reduce future O&M costs related to these assets although not in a readily quantifiable way.

(a) Please confirm whether cost reductions are reflected in Guelph Hydro's 2015-2020 forecasts.
(b) Please confirm the expected timing of any cost savings.

(c) Please confirm the assessment process for such projects given Guelph Hydro's view that cost savings cannot be readily quantified. Specifically, what measures were used to assess cost savings?

**Exhibit 3 – Operating Revenue**

**3-Staff-43**
**Load Forecast**
**Multivariate Regression Model for Estimating Consumption (kWh)**
**Ref 1: E1/T2/S3**
**Ref 2: E3/T1/S1**

Guelph Hydro notes that it employed the same regression model as was used in its 2012 cost of service application (re-estimated with updated data). Guelph Hydro notes that it explored other exogenous variables, but concluded that alternative models did not provide superior statistical performance.

OEB staff observes that Guelph Hydro's preferred model uses a linear trend variable, which Guelph Hydro notes (pages 4 and 7 of reference 2) was included as part of the Settlement Agreement in Guelph Hydro's 2012 cost of service application EB-2011-0123.

At page 13 of reference 2, Guelph Hydro describes the linear trend variable as follows:

> Trend variable (1, 2… to 204 number of observations): Trend estimation is a statistical technique to aid interpretation of data. When a series of measurements of a process are treated as a time series, trend estimation can be used to make and justify statements about tendencies in the data, by relating the measurements to the times at which they occurred.

As shown in Table 3-4 on page 16 of reference 2, the linear trend variable is the most significant regressor variable, with a *t*-statistic of 37.03.

On pages 27-29 of reference 2, Guelph Hydro includes an alternative model where it included population for Guelph and Rockwood (i.e. Guelph Hydro's licensed service territory) as an added variable. The model was rejected as the estimated coefficient of population was negative, contrary to theory, and statistically insignificant with a *t*-statistic of -0.02

(a) What is the economic rationale for the linear trend variable?
(b) OEB staff observes that the t-statistic of the trend variable decreases to 3.36, and that the Pearson correlation shown in Load Forecast Trial Results 3: Population (page 29 of reference 2) is 100% for the trend variable and population. Please provide an alternative forecast using a model where population is included but the linear trend variable is removed. Provide all regression statistics as shown for the alternative models. Also include a plot of fitted versus actuals, and a time series plot of the mean average percentage error (as shown in Table 3-2).

**Exhibit 4 – Operating Expenses**

**4-Staff-44**
**Ref: E4/T1/S1/Page 2**

At the above reference, Guelph Hydro notes that one of the main factors causing an increase in OM&A costs are human resource requirements and payroll factors and therefore, there is a need for well-developed succession planning. Guelph Hydro notes that in the next five years, it expects a significant number of employees to retire.

(a) Please provide Guelph Hydro's overall succession plan, if available.
(b) With respect to expected retirement over the five year period, does Guelph Hydro expect employees to be replaced on a 1:1 ratio?
(c) What is Guelph Hydro's real retirement rate versus retirement eligibility?
(d) Please provide the change in overall headcount over the next five years.

**4-Staff-45**
**Ref: E4/T1/S1/Page 3**
**Ref: E1/T3/S3, 2.3.3.3 Operational Effectiveness**
**Ref: Distribution System Plan, Page 103**
**Ref: E1, Appendix 1-J**

In 2014, Guelph Hydro signed a contract with Milton Hydro to provide to Milton Hydro Control Room services, 16 hours/day over five business days per week, and this shared service started in late 2014. Guelph Hydro plans to move to 24/7 control room coverage and also plans to expand service to Milton Hydro.

Guelph Hydro notes that revenue from the shared service arrangement will help offset the additional cost associated with expanded hours of coverage.

(a) Did Guelph Hydro complete a business case prior to entering into this agreement with Milton Hydro? If yes, please file this business case.
(b) What are the estimated incremental revenues for Guelph Hydro as a result of this agreement?
(c) What is the impact on the company's revenues and costs should the arrangement not continue past the three year term?
(d) Please provide details of the impact of this agreement on Guelph Hydro's proposed revenue requirement for the test year.
(e) Please provide a breakdown of how costs are allocated between Guelph Hydro and Milton Hydro for the shared control room.
(f) Please compare the net revenue from Milton Hydro with the additional cost of 24/7 coverage and please provide the additional incremental cost to Guelph Hydro for moving to 24/7 coverage.

**4-Staff-46**
**Ref: E4/T1/S1/Page 5**

At the above reference, Guelph Hydro indicated that under the terms of the company's current Collective Agreement with its unionized employees, negotiated increases are as follows:

- 3% across the board effective April 1, 2012 to March 31, 2013 based on a 3-year Collective Agreement expiring on March 31, 2013
- 2.75% across the board effective April 1, 2013 to March 31, 2014 based on a 4-year Collective Agreement expiring March 31, 2017
- 1.75% across the board effective April 1, 2014 and 1.0% across the board effective September 29, 2014, based on a 4-year Collective Agreement expiring March 31, 2017
- 2.75% across the board effective April 1, 2015, based on a 4-year Collective Agreement expiring March 31, 2017
- 2.5% across the board effective April 1, 2016, based on a 4-year Collective Agreement expiring March 31, 2017.

It is not clear why there are five different negotiated increases for both different and overlapping periods. Please clarify.

**4-Staff-47**
**Ref: E4/T2/S1/Page 1**
**Ref: Chapter 2 Appendices, Tab 2-JA**

The proposed OM&A costs in 2016 of $16,404,861 represent an increase of $3,199,408 or 24.23% over the 2012 actual OM&A. On average, this is a 6% increase annually.

(a) Please identify any customer engagement relating specifically to the increase in OM&A that supports the increases proposed in this application.

(b) Further, how has the Applicant communicated these benefits to its customers, and how did customers respond? Please provide some examples, including any customer feedback. If no communications took place, please explain why not

(c) Please identify what, if any, improvements in services and outcomes the applicant's customers will experience in 2016 and during the subsequent IRM term as a result of increasing the provision for OM&A in 2015 at the rate indicated.

(d) Please identify any initiatives considered and/or undertaken by Guelph Hydro, including any analysis conducted, to optimize plans and activities from a cost perspective.

**4-Staff-48**
**Ref: E4/T2/S1/Page 5**
**Ref: Chapter 2 Appendices, Tab 2-JL**

**Recoverable OM&A Cost per Customer and per FTE**
**including Street Lighting, Sentinel, and Unmetered Scatered Load connections**

| | Last Rebasing Year - 2012- Board Approved | Last Rebasing Year - 2012- Actual | 2013 Actuals | 2014 Actuals | 2015 Bridge Year | 2016 Test Year |
|---|---|---|---|---|---|---|
| Reporting Basis | | | | | | |
| Number of Customers | 66,470 | 65,072 | 65,924 | 66,857 | 68,253 | 69,680 |
| Total Recoverable OM&A from Appendix 2-JB | $ 14,326,000 | $ 13,205,453 | $ 15,087,591 | $ 14,104,266 | $ 15,333,069 | $ 16,404,861 |
| OM&A cost per customer | $ 215.53 | $202.94 | $228.87 | $210.96 | $224.65 | $235.43 |
| Number of FTEs | 116.7 | 111.25 | 115.48 | 121.76 | 126.25 | 130.83 |
| Customers/FTEs | 569.58 | 584.91 | 570.87 | 549.09 | 540.62 | 532.60 |
| OM&A Cost per FTE | $122,759.21 | $118,700.70 | $130,651.12 | $115,836.61 | $121,450.05 | $125,390.66 |

The table above indicates Guelph Hydro's OM&A cost per customer and per FTE.

(a) Please explain the difference between the 2012 Board-approved number of FTEs and the 2012 actuals.

**4-Staff-49**
**Ref: E4/T3/S1/Page 26**
**Ref: Chapter 2 Appendices, Tab 2-JB**

Presently Guelph Hydro bills the majority of its Residential and General Service under 50 kW customers on a bi-monthly basis. On April 15, 2015, the OEB issued its Notice of Amendment to the Distribution System Code which mandated monthly billing for Residential and General Service < 50 kW to be implemented until December 31, 2016. Guelph Hydro notes $360,000 in 2016 in incremental costs associated with monthly billing. Guelph Hydro also notes that currently it has approximately 4,000 customers on e-billing.

(a) Please provide the number of Residential and General Service under 50 kW customers that are currently billed on a monthly and on bi-monthly basis.
(b) Provide a breakdown of the costs associated with the $360,000 incremental costs.
(c) Please quantify any offsetting costs (benefits) associated with the implementation of monthly billing. Guelph Hydro may wish to relate this answer to IR 2-Staff-9 above.
(d) Please identify any impacts that the implementation of monthly billing will have on billing and collection expenses or any other OM&A category.
(e) Please describe the Applicant's efforts to promote e-billing to its customers.
(f) Please describe other initiatives that the Applicant has undertaken, or intends to undertake, to manage the costs of monthly billing for all customers.

**4-Staff-50**
**Ref: E4/T2/S1/Page 2**

At the above reference, Guelph Hydro indicates lower spending in billing and collection year over year from 2013 to 2015 in the amounts of approximately $25,000, $65,000 and $78,000, respectively.

(a) Please provide an explanation for the decrease in spending in 2013, 2014 and 2015.
(b) For the 4,000 customers that are on paperless billing, please indicate how many customers for each of 2013, 2014 and 2015 were/are on paperless billing.

**4-Staff-51**
**Ref: E4/T3/S1/Page 17**

Guelph Hydro notes that an additional expense not included in the 2012 budget is an additional Technologist-SCADA expected to be hired in 2015. Outsourcing the additional Technologist was considered, but not further pursued.

(a) Please explain why outsourcing this new hire was no longer pursued.

(b) Please provide a detailed breakdown of the costs or savings by not outsourcing the new Technologist.

**4-Staff-52**
**Ref 1: E4/T6/S3 – LRAM Variance Account (LRAMVA)**
**Ref 2: E4, Appendix 4-F – 2011 to 2013 Verified OPA Final and 2014 Preliminary CDM Results, Page 5, Table 2**

Guelph Hydro is seeking the disposition of the LRAMVA balance of $484,354 ($467,344 principal and $17,009 interest). The 1568 LRAMVA balance includes 2011, 2012 and 2013 OPA Final Verified Results and estimated 2014 OPA CDM results. Guelph Hydro expects to receive the final 2014 OPA Final Verified Results from the OPA in the fall of 2015 and it will reconcile the 1568 LRAMVA account balance following receipt of the final results by mid-October, 2015.

At reference 2, the OPA report indicates adjustments to Guelph Hydro's 2011 and 2012 verified results in the amount of 883,018 kWh and 257,548 kWh, respectively. Please explain how Guelph Hydro accounted for these variances in its savings.

**Exhibit 5 – Cost of Capital and Capital Structure**

**5-Staff-53**
***Cost of New Long-term Debt***
**Ref 1: E1/T2/S6**
**Ref 2: E5/T1/S1/Page 3/Table 5-3**
**Ref 3: E5/T2/S1/Page 3/Table 5-7**
**Ref 4: E5/Appendix 5-D**
**Ref 5: Board letter of November 20, 2014 announcing 2015 Cost of Capital Parameters [on the OEB's website]**

Guelph Hydro states that it is currently underleveraged and expects to obtain $30 million of debt financing in 2015 or 2016. In its application, Guelph Hydro has included the new loan in place as of July 1, 2016 at a rate of 4.85%, including adjustment for transaction costs of $250,000. The new loan is expected to have a maturity of 10 years. Table 5-3 shows that the unadjusted rate for the loan is 4.81%. The Board's deemed long-term debt rate for 2015 is 4.77%, as documented in the Board's letter of November 25, 2014 (Reference 5). The deemed long-term debt rate represents a commercial loan for an A-rated corporate entity with a maturity of 30 years. Guelph Hydro is expecting that its new loan will have a shorter maturity of 10 years.

(a) Please explain why Guelph Hydro has forecasted a rate for its new 10-year loan higher than the Board's current deemed long term debt rate, and why Guelph Hydro considers its forecast to be consistent with the Board's policy and practice on the cost of capital.
(b) The derivation for the 4.81% is provided in Table 5-7, based on estimates from three Canadian banks (Canadian Imperial Bank of Commerce, Royal Bank of Canada and Bank of Montreal). Appendix 5-D contains copies of the estimates provided by the banks. The BMO Capital Markets Economics forecast is dated November 21, 2014, and that of CIBC World Markets Inc. economic Forecasts is dated November 19, 2014. The RBC estimate is undated, and is also the highest forecast shown in Table 5-7 for both 2015 and 2016. What is the date of the RBC forecast?

**5-Staff-54**
***Cost of Debt and Capitalization***
**Ref 1: E1/T2/S6**
**Ref 2: E5/T1/S1 and E5/T2/S1**
**Ref 3: E5/Appendix 5-E**

Appendix 5-E (reference 3) is a copy of a Credit Rating Report by Standard & Poor's on Guelph Hydro. Standard & Poor's assesses Guelph Hydro's credit rating as A/stable/--. However, on page 3 of its report, Standard & Poor's analysts state:

> **Downside scenario**
> Although we don't expect it, a material, adverse regulatory ruling or a significant increase in leverage leading to sustained deterioration in forecast adjusted funds from operations (AFFO)-to-debt close to 13% could lead to a downgrade. Debt-financed unregulated activity exceeding 10% of total AFFO could also lead to a lower rating. [Emphasis added.]

Further in the same report (pages 5-6), Standard & Poor's analysts state:

> Although we have assumed that GHESI will continue to invest in rate-base growth that exceeds depreciation, we expect it will largely fund the growth with a mix of internally generated cash flow, cash on hand, and drawings on its revolver. We do not expect the company to increase leverage to match levels that the regulator prescribes during the current IRM period. We expect the utility's

dividend policy to be stable, at the greater of C$3 million or 50% of net income (adjusted for movements in regulated assets and liabilities).

Guelph Hydro has forecasted to increase its debt from about $65 million currently, with another $30 million by mid-2016, as discussed in references 1 and 2. With the new debt, Guelph forecasts that its actual gearing will be close to the deemed gearing of 60% debt.

The $30 million new debt is to fund investments in recent years, as well as new capital investments in 2015 and into 2016 that have to date been funded through cash from operations and retained earnings.

(a) Does Guelph Hydro believe that incurring $30 million in new debt will not result in a financial leveraging that could result in a downgrade per the downside scenario referenced in Standard & Poor's report? Please explain your response.

(b) While OEB staff recognizes the impact of transaction costs and costs for internal management and accounting of a larger portfolio of transactions on the cost of financing, Guelph Hydro's current strategy appears to be to obtain debt financing in infrequent but lumpy loans. Given the discussion and assessment in Standard & Poor's report, please explain why Guelph Hydro considers that such a strategy of infrequent but lumpy debt financing is efficient and optimal, and whether it balances the cost of investment financing overall against the risks and hence the relative costs of financing that should be recoverable in rates.

**Exhibit 6 – Calculation of Revenue Deficiency**

**6-Staff-55**

Upon completing all interrogatories from Board staff and intervenors, please provide an updated RRWF in working Microsoft Excel format with any corrections or adjustments that the Applicant wishes to make to the amounts in the populated version of the RRWF filed in the initial applications. Entries for changes and adjustments should be included in the middle column on sheet 3 Data_Input_Sheet. Please include documentation of the corrections and adjustments, such as a reference to an interrogatory response or an explanatory note. Such notes should be documented on Sheet 10 Tracking Sheet, and may also be included on other sheets in the RRWF to assist understanding of changes.

Also upon completing all interrogatories from OEB staff and intervenors please provide any updates to the following Microsoft Excel documents in working format: PILS, any Appendix 2 changes (e.g. cost allocation, rate design, and bill impacts, and so on as required), EDDVAR spreadsheet, and the updated cost allocation model (as per the interrogatory below) reflecting the revised revenue requirement in the updated RRWF.

**Exhibit 7 – Cost Allocation**

**7-Staff-56**
**Ref: E7/T1/S1/Pages 1 and 10**
**Ref: Cost Allocation Model, Sheet "I8 Demand Data"**

On page 1 of Exhibit 7/Tab 1/Schedule 1, Guelph Hydro states that it has "used the load profiles provided by Hydro One scaled to match the load forecast" to complete its cost allocation study. Sheet I8 of the cost allocation model indicates that the Non-Coincident Peak (NCP) test has resulted in a 1 NCP allocator for Guelph Hydro.

OEB staff notes that the use of the 1 NCP allocator for demand-related costs is unique among Ontario distributors. The coincident peak (CP) test results in the use of a 12 CP allocator for Guelph Hydro's bulk system costs. This indicates that Guelph Hydro's distribution system may not have a pronounced overall system peak. OEB staff also notes that the load profile data from Hydro One originated in 2004-2006.

(a) Please explain whether Guelph Hydro has made any attempts to confirm that the 1 NCP allocator continues to remain appropriate for its demand-related costs. If so, please provide further details. If not, please explain why not.
(b) Sheet I8 of the cost allocation model shows a DNCP1/PNCP1 value of 354,899 and a DNCP4/PNCP4 value of 330,829 for the GS 1,000 to 4,999 kW class. Given that the total DNCP1 value is 599,040 and the total DCNP4 value is 1,237,251 (i.e. the DCNP4 allocator appears to be a non-averaged value), please reconcile how it is possible for the DCNP4 allocator for the GS 1,000 to 4,999 kW class to be less than the DCNP1 allocator.

**7-Staff-57**
**Ref: Cost Allocation Model**
**Ref: OEB Letter – New Cost Allocation Policy for Street Lighting Rate Class, June 12, 2015**
**Ref: Cost Allocation to Different Types of Street Lighting Configurations (EB-2012-0383), prepared by Navigant Consulting Ltd., June 12, 2015**

On June 12, 2015, the OEB issued its letter outline the new policy regarding cost allocation for the street lighting class. The letter approved recommendations provided in the referenced report, prepared by Navigant Consulting Ltd. Navigant Consulting Ltd.'s report recommended the use of a "street lighting adjustment factor" instead of the number of connections for the allocation of primary and line transformer assets. The report estimated that distributors with device/connection ratios of 4:1, such as Guelph Hydro, would see a reduction of costs allocated to the street lighting class of 50% or less as a result of this change.

The report also used the 4 NCP values as the basis of the calculation of the street lighting adjustment factor. OEB staff notes that Guelph Hydro uses the 1 NCP allocator for the allocation of its primary and line transformer assets.

(a) Please provide a calculation of the street lighting adjustment factor using both 1 NCP and 4 NCP demands. Please explain which demand value Guelph Hydro proposes is most appropriate to use as the basis for its street lighting adjustment factor.
(b) Please provide class specific revenue requirements for the street lighting class using a street lighting adjustment factor based on: i) 1 NCP demand and ii) 4 NCP demand.
(c) Please provide an updated cost allocation study reflecting the changes adopted by the OEB's new cost allocation policy for the street lighting class. In that study, please reflect the street lighting adjustment factor calculation selected in part a).

**Exhibit 8 – Rate Design**

**8-Staff-58**
**Transformer Ownership Allowance**
**Ref 1: E8/T1/S1/Pages 7-10**

Guelph Hydro documents its approach to estimating the Transformer Owership Allowance that would be recoverable in rates. It has used an approach of estimating the qualifying kW of demand for the GS 50-999 kW class based on historical actuals, with a regression period from 2003 to 2014. Actual and forecasted data are shown in Table 8-7. Regression statistics are shown in Table 8-9.

(a) Please explain the purpose and what is being shown in Table 8-8. What are the leftmost and rightmost column headings?

(b) The data in Table 8-7 indicates a significant decline in qualifying TOA demand for the GS 50-999 kW class beginning in 2012. Qualifying demand drops from about 320,000 kW to 80,000 kW or less, a decrease of around 75%. Guelph Hydro's regression model uses a linear time trend for the period 2003-2014 and does not account for this structural change in 2012.

i. Please explain the decline in qualifying demand for the GS 50-999 kW customer class beginning in 2012 (i.e., why did the number or demand for GS 50-999 kW customers who own their own transformers decline so precipitously?).
ii. Given this structural change in the data, why did Guelph Hydro not account for this change in demand in its approach? For example, why did Guelph Hydro not introduce a binary variable for 2012 and going forward, or use another technique starting from 2012 to estimate the qualifying demand for 2015 and 2016?
iii. What is Guelph Hydro's current estimate of the qualifying demand for 2015 for the GS 50-999 kW class based on year-to-date actuals?

**8-Staff-59**
**Ref: E8/T3/S1**

In the reference, Guelph Hydro states:

> The timing of payment of the UTRs by Guelph Hydro does not match the timing of collection of the associated RTSRs from customers. Guelph Hydro is charged for transmission services provided in a given month in the following month. By the time Guelph Hydro bills the end-use customer, more than two additional months could have passed since Guelph Hydro received an invoice for transmission services. Therefore, deferral accounts (1584 and 1586) are needed to track the timing difference between when Guelph Hydro pays for the transmission service charges and when it receives payment of the corresponding retail transmission service charges from customers. [Emphasis Added]

(a) What customer classes are billed:
   a. Monthly
   b. Bi-monthly?

(b) OEB staff understands the emphasized section as stating the Guelph Hydro's customers could be billed more than three months after receiving service (i.e. more than two months after Guelph Hydro is charged for transmission services,

which is the month following when the services are delivered). Please provide a complete derivation of the lag of up to three months described in the evidence.

(c) Smart Meters and remote meter reading enable distributors, including Guelph Hydro to obtain consumption data for metered customers on a more continuous and efficient basis. This should shorten the lag for when Guelph Hydro can bill its customers. Further, the OEB has mandated that distributors adopt monthly billing for all customers by December 31, 2016. Please explain the impact of these initiatives, now and in the future, on the lag between when distribution and transmission services are delivered and when costs are recovered from customers.

**8-Staff-60**
**Ref: E8/T3/S1/Pages 1-3**
**Ref: RTSR Model, Tab 5**

On January 8, 2015 (EB-2014-0357), the Board issued a Rate Order for the 2015 Uniform Transmission Rates and on April 23, 2015 (EB-2013-0416), the Board issued a Rate Order for Hydro One Distribution's Sub-transmission rates (as seen in the table below). Please provide an updated RTSR Adjustment Workform in working Microsoft Excel format reflecting the new UTR's and Sub-Transmission Rates, as applicable, including any other corrections or adjustments that the Applicant wishes to make to the previous version of the Workform. Please include documentation of the corrections and adjustments, such as a reference to an interrogatory response or an explanatory note.

**2015 Sub-Transmission RTSRs**

| | |
|---|---|
| Network Service Rate | $3.41 per kW |
| Connection Service Rates | |
| Line Connection Service Rate | $0.79 per kW |
| Transformation Connection Service Rate | $1.80 per kW |

**8-Staff-61**
**Ref: E8, Table 8-5**
**Ref: Chapter 2 – Filing Requirements for Electricity Distribution Rate Applications**
**Ref: E8/T1/S1/Page 6**
**Ref: Cost Allocation Model, Tab O2**

Table 8-5 shows that the current monthly charges for the GS 50 to 999 kW, GS 1,000 to 4,999 kW, Large Use and Sentinel Lighting rate classes are above the ceiling fixed

charges calculated in Guelph Hydro's Cost Allocation Model. Guelph Hydro is proposing to increase both these charges further in 2016.

Page 53 of the Filing Requirements states that distributors are not expected "to raise the fixed charge further above the ceiling."

Please explain why Guelph Hydro is proposing to increase the monthly service charges for classes that are already above the ceiling charge calculated in the Cost Allocation Model.

**8-Staff-62**
**Ref: E8/T1/S1/Page 12**

Guelph Hydro is seeking approval for Standby rates for GS>50 kW classes (i.e.GS 50 to 999, GS 1,000 to 4,999 and Large Use). With the development of the Smart Grid, Smart Meters and installation of MIST meters, Guelph Hydro envisions more customers embracing load displacement generation ("LDG") or behind the-meter generation as a solution for energy savings and energy independence from the grid.

Currently, Guelph Hydro has one Large Use customer with an LDG; five other commercial customers have expressed interest in installing LDGs in the near future, and several other customers are exploring the feasibility of LDG through the CDM program study applications. In order to maintain distribution revenue neutrality,

Guelph Hydro is proposing to charge Standby Rates to LDG customers at the proposed volumetric rate for each corresponding class. The volumetric rate will be applied to generator's coincident peak demand (kW). All customers with LDG will be required to have an interval meter installed for generation.

(a) Please confirm if the proposed scenario means that all customers with installed LDGs would only pay the proposed distribution volumetric rate for the applicable rate class, while all other customers would continue to be charged all items on the tariff applicable to their rate class.
(b) Does Guelph Hydro propose that these rates be approved on an interim or final basis?
(c) Has Guelph Hydro initiated and/or completed any consultation with respect to the above rates with parties that may be affected by these charges?
    i. If not, please explain why.
    ii. If yes, please provide the feedback/results/concerns of this consultation.

**8-Staff-63**
**Ref: E8/T6/S1/Pages 1-2**
**Ref: E3/T3/S1/Page 1 – Other Revenue**

Guelph Hydro proposes two new Specific Service Charges for Bond Connection Underground and Overhead to be charged to joint use parties requesting to bond or connect equipment to Guelph Hydro's system neutral. Guelph Hydro notes that such parties include but are not limited to telecommunications providers. The charges are as follows:

| Specific Service | Unit | Charge |
|---|---|---|
| Bond Connection – Underground | $ per connection | 100.00 |
| Bond Connection – Overhead | $ per connection | 105.00 |

Guelph Hydro also notes that it projects two underground and six overhead bond connection requests in 2016.

(a) Has Guelph Hydro notified or consulted with the parties that it projects will be affected by this charge in 2016?
   i. If not, please explain why.
   ii. If yes, please provide any feedback/concerns/results in relation to Guelph Hydro's consultation with these parties.

Guelph Hydro provided the following calculations for these charges:

**Specific Service Charge: Bond Connection - Underground**

| | | Rate/Amount | Hours/Units | O/T Factor | Calculated Cost |
|---|---|---|---|---|---|
| L | Direct Labour (inside staff) Straight Time | 32 | 0.25 | | $ 8.00 |
| A | Direct Labour (inside staff) Overtime | | 0 | | $ - |
| B | Direct Labour (field staff) Straight Time | 38 | 0.73 | | $ 27.64 |
| O | Direct Labour (field staff) Overtime | | 0 | | $ - |
| U | Other Labour (Specify) | | 0 | | $ - |
| R | Payroll Burden % | 125% | | | $ 44.55 |
| | Total Labour Cost | | | | $ 80.18 |
| O | Small Vehicle Time | | | | $ - |
| T | Large Vehicle Time | 1 | 18 | | $ 18.00 |
| H | Other: Material | | | | $ - |
| E | Contract | | | | $ - |
| R | Other | | | | $ - |
| | Total Other | | | | $ 18.00 |
| **Total Cost** | | | | | **$ 98.18** |
| **Specific Service Charge Value Requested - round to nearest $5** | | | | | **$ 100.00** |

**Specific Service Charge: Bond Connection - Overhead**

| | | Rate/Amount | Hours/Units | O/T Factor | Calculated Cost |
|---|---|---|---|---|---|
| L | Direct Labour (inside staff) Straight Time | 32 | 0.25 | | $ 8.00 |
| A | Direct Labour (inside staff) Overtime | | 0 | | $ - |
| B | Direct Labour (field staff) Straight Time | 38 | 0.78 | | $ 29.56 |
| O | Direct Labour (field staff) Overtime | | 0 | | $ - |
| U | Other Labour (Specify) | | 0 | | $ - |
| R | Payroll Burden % | 125% | | | $ 46.94 |
| | Total Labour Cost | | | | $ 84.50 |
| O | Small Vehicle Time | | | | $ - |
| T | Large Vehicle Time | 1 | 20 | | $ 20.00 |
| H | Other: Material | | | | $ - |
| E | Contract | | | | $ - |
| R | Other | | | | $ - |
| | Total Other | | | | $ 20.00 |
| **Total Cost** | | | | | **$ 104.50** |
| **Specific Service Charge Value Requested - round to nearest $5** | | | | | **$ 105.00** |

(b) Please provide the assumptions of Guelph Hydro in determining the rates and hours required for each type of connection.

**8-Staff-64**
**Ref: E8/T6/S1/Pages 3-4**

Guelph Hydro is proposing a new Specific Service Charge (credit) for customers who have opted, or opt for paperless billing. The proposed charge is a one-time credit of $10.00. Guelph Hydro provides the derivation of the $10.00 credit as approximately one-year's worth of avoided costs for stamps, envelopes, paper, printing, as shown in Table 8-15. Guelph Hydro states that it currently has about 4,000 customers on paperless billing.

| **Avoided Costs per One Paper Bill** | |
|---|---|
| Envelope and Letter Head Costs | $0.18 |
| Canada Post Mailing Service Cost | $0.62 |
| **Costs Per One Electronic Bill** | |
| Epost Mail Data Processing Fee | $0.01 |
| **Total Monthly Credit Service Charge** | $0.79 |
| **One-time Credit Service Charge** | $9.48 |

(a) Please confirm that costs for bill printing and mailing are not included in Guelph Hydro's 2016 test year expenses and cost allocation for the 4,000 customers already on paperless billing. In the alternative, please explain.
(b) Once a customer opts for paperless billing, the avoided expenses are ongoing. Please explain the rationale for proposing a one-time credit as opposed to an on-going monthly credit, similar to the Transformer Ownership Allowance credit, that would reflect, or share, the avoided cost savings with the eligible customers.

(c) Please provide alternative feasible options for an ongoing monthly paperless billing credit.
(d) Please explain the process and any restrictions, for customers opting in or opting out of paperless billing.

**Exhibit 9 – Deferral and Variance Accounts**

**9-Staff-65**
**Ref 1: E1/T2/S4/Table 1-3**
**Ref 2: E1/T2/S8**
**Ref 3: E2/T1/S1/Page 8**
**Ref 4: E9/T1/S1/Pages 13-14**
**Ref 5: E9/T7/S1**
**Ref 6: E9/Appendix 9-B**

Guelph Hydro's installed smart meters included a "beyond minimum functionality" feature in terms of a Zigbee chip. The Zigbee chip enables functionality whereby the smart meter can communicate with enabled equipment and appliances within the customer's premises, and provide features such as communication to a tablet or display or control thermostats or other appliances. Per the evidence in Guelph Hydro's last cost of service application, the Zigbee chip added about $12 per capital cost for each installed Residential and GS < 50 kW smart meter.

Guelph Hydro sought approval for recovery of the Zigbee chip in its EB-2011-0123 application. In its Decision and Order EB-2011-0123, issued February 22, 2012, the OEB denied recovery of the cost of the Zigbee chip as a smart meter cost. However, the OEB noted that the Zigbee chip might be recoverable as a smart grid cost, but concluded that there was insufficient evidence to support recovery in that application.

The OEB allowed Guelph Hydro to track the Zigbee chip costs in Account 1555 – Smart Meter Capital costs in a sub-account "Zigbee chip initiative", and to apply for disposition and recovery as a smart grid cost when it had a business case to support such application. This is documented in the OEB's EB-2011-0123 decision, a copy of which is filed in reference 6.

Guelph Hydro has requested disposition and recovery of Zigbee chip costs in this Application. In reference 1, Guelph Hydro notes that this amount is: "[an addition to rate base from Account] 1555 – Smart Meter Capital – Sub-account Zigbee Chip initiative [of] $451,671 and the disposition of 1556 – Smart Meter OM&A accounts – Sub-account Zigbee Chip depreciation $186,845. In reference 2, Guelph Hydro notes that the opening January 1, 2016 fixed assets differs from the December 31, 2015 closing

balance due to the transfer of the Zigbee chip costs from Account 1555. Guelph Hydro provides further description of the adjustment in references 3, 4 and 5.

(a) Please provide the complete business case, including the calculations of a positive Net Present Value and other benefits to Guelph Hydro and to its customers, to support the proposed recovery of Zigbee chip costs.
(b) Please confirm if Guelph Hydro is seeking recovery as a smart grid cost. If so, please explain how the installation of the Zigbee Chip is consistent with the OEB's policy on smart grid.