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Ontario

BY E-MAIL

December 9, 2016

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

Dear Ms. Walli:

Re: London Hydro Inc. (London Hydro)
2017 Distribution Rate Application
OEB Staff Interrogatories
Board File No. EB-2016-0091

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

London Hydro's responses to interrogatories are due by January 17, 2016.

Yours truly,

Original Signed By

Harold Thiessen
Ontario Energy Board staff
Case Manager, EB-2016-0091

Attach.

OEB Staff Interrogatories
2017 Cost of Service Rate Application
London Hydro Inc. (London Hydro)
EB-2016-0091
December 9, 2016

Exhibit 1 – Administration

1-Staff-1
Responses to Letters of Comment
Ref: Sections 2.4.2 and 2.4.5 of the Filing Requirements

Following publication of the Notice of Application, at this point, the OEB received 9 letter(s) 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 letters 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
Conditions of Service
Ref: E1/T3/S14

London Hydro indicates that it has posted its most recent Conditions of Service on its website and briefly describes changes to its Conditions of Service since its last cost of service application. London Hydro also includes a brief overview of changes from 2014 to 2016.

a) Please identify any rates and charges that are included in the Applicant's Conditions of Service, but do not appear on the OEB-approved tariff sheet, and provide an explanation for the nature of the costs being recovered through these rates and charges.
b) Please provide a schedule outlining the revenues recovered from these rates and charges from 2013 to 2015 inclusive, and the revenues forecasted for the 2016 bridge and 2017 test years.
c) Please explain whether, in the Applicant's view, these rates and charges should be included on the Applicant's tariff sheet of approved rates and charges.

1-Staff-3
Updated Revenue Requirement Work Form (RRWF)
Ref: RRWF workbook

Upon completing all interrogatories from OEB 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.

1-Staff-4
Updated Appendix 2-W, Bill Impacts
Ref: Appendix 2-W

Upon completing all interrogatories from OEB staff and intervenors, please provide an updated Appendix 2-W for all classes at the typical consumption / demand levels (e.g. 286 and 750 kWh for residential, 2,000 kWh for GS<50, etc.).

1-Staff-5
Customer Engagement
Ref: E1/T6/S1; DSP Appendix A

Chapter 2 of the Filing Requirements states:

> Distributors should specifically discuss in the application how they informed their customers of 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 that customers would face). The application should discuss any feedback provided by customers and how this feedback shaped the final application.
>
> Distributors should also reference any other communications sent to customers about the application, such as bill inserts, town hall meetings held, or other forms of outreach undertaken to engage customers and explain to them how the application serves their needs and expectations, and the feedback heard from customers through these engagement activities.

a) London Hydro's outreach activities included "billing inserts, radio advertisements, bus shelter signage, digital ads, website, newspaper, media interviews…Home Shows, community events, set up kiosks in local malls and libraries". For each of

London Hydro's outreach activities above, please state whether they informed London Hydro's customers about proposals being considered for inclusion in the application. For each outreach activity that included information about London Hydro's proposals for the application, please provide a copy of the information provided (e.g., brochure, bus shelter ad proof), a summary of feedback received for that outreach activity and how that feedback shaped London Hydro's application.

b) Please describe the outreach activities used to keep London Hydro customers up to date on progress with capital plans, and please include copies of outreach materials used to do so.

c) Please confirm that the brochure included in DSP Appendix A at page A-29 was provided to 63 customers. If not, how many London Hydro customers received the brochure?

d) Please confirm that the brochure does not contain the costs, benefits or the impact on rates for each of the projects described.

e) Please confirm that the brochure does not mention London Hydro's 2017 Cost of Service Application.

f) At DSP Appendix page A-27, London Hydro states that customers who expressed interest in the cost of the overall capital program were told that a $1M increase in capital spending adds about $0.35 to the annual electricity bill. Please explain whether customers who requested information about the overall capital program were given the size of the capital program being proposed in the application.

1-Staff-6
2015 Scorecard
Ref: E1/T2/S1, p. 21

London Hydro's 2015 scorecard was not available at the time of filing but it is now posted on the London Hydro website.

Please provide an explanation or discussion of any differences from the 2014 Scorecard.

1-Staff-7
Long-Term Load Transfer (LTLT) customers
Ref: E1/T2/S1, p. 21

London Hydro has a number of LTLT customers served by Hydro One and serves a number of Hydro One customers via LTLTs as well. The LTLT agreements are scheduled to be eliminated in month 14 of Hydro One's plan filed in EB-2015-0006.

a) Please provide an update on progress to filing a joint Service Area Amendment(s) with Hydro One.

b) Please provide an estimate of the value of assets that will be transferred between Hydro One and London Hydro has part of the service area changes associated with the elimination of LTLT agreements.

1-Staff-8
Benchmarking
Ref: Exhibit 1

Please provide copies of all benchmarking studies, evaluation, surveys undertaken by London Hydro, either through a third-party or internally, since 2013.

1-Staff-9
Differences in CGAAP and IFRS
Ref: E1/T8/S1, p. 3

It is stated that there are differences between CGAAP and IFRS relating to the treatment of pensions and post-employment benefits, however, they have no impact on revenue requirement. Please explain what these differences are and why they do not impact revenue requirement.

1-Staff-10
Differences in PP&E
Ref: E1/T8/S1, Attachment 2015 AFS

Per note 25d of the 2015 audited financial statements, reclassification of deposits held for construction to deferred revenues as at December 31, 2014 increased current and long term deferred revenue and also increased PP&E by $1.9M.

a) Please explain why the reclassification of deposits to deferred revenue led to an increase in PP&E.
b) Please explain whether this increase has been included in rate base.

1-Staff-11
Differences in PP&E
Ref: E1/T8/S1, Attachment 2015 AFS and Attachment 2
Ref: E2/T3/S1, Page 184, Table 2-46

In the 2015 audited financial statements, PP&E and intangible assets total $267M. In Part 1 of Attachment 2, PP&E totals $241M. In Table 2-46, PP&E is $262M. Please reconcile the different PP&E amounts.

Exhibit 2 – Rate Base

2-Staff-12
IFRS Adjustment
Ref: E2/T1/S1, Table 2-1

In the Summary of Rate Base table, the PP&E balance is adjusted by 1576 CGAAP to IFRS Adjustment. Per the July 2012 FAQ #2, the offsetting journal entry to Account 1576 is to Account 4305 Regulatory Debit or Account 4310 Regulatory Credit. The PP&E balance is adjusted on a prospective basis to be in line with the capitalization and depreciation policy changes. Please clarify what the 1576 adjustment line to rate base represents.

2-Staff-13
Capitalized OM&A
Ref: E2/T1, Appendix 2-2 Capitalization Policy Chapter 2 Appendices – 2D
Ref: E1/T1/S1, Attachment 2015 AFS

In Appendix 2-D,

a) For each of the categories listed in the table Capitalized OM&A, please explain how these categories are eligible for capitalization under MIFRS and London Hydro`s capitalization policy, and how they are directly attributable overhead.
b) Please explain what types of costs under the Operations and maintenance category have been capitalized in the Capitalized OM&A table.
c) Please confirm that London Hydro's external auditors have audited the level and components of capitalized overhead, and have accepted them with no issues.
d) The capitalized OM&A in 2015 and 2014 is $9.9M and $9.5M. In the 2015 audited financial statements, note 18 operating expenses, allocations to capital and billable activities is $1.7M for both 2015 and 2014. Please reconcile the capitalized OM&A amount per Appendix 2-D to the amount from the 2015 audited financial statements.

2-Staff-14
New information on capital plans
Ref: E2/T2/S3, p. 39-45

a) Has any information come forward, since the application was submitted, to indicate that 2016 or 2017 capital expenditure forecasts require amendment? If so please provide an update with any rationale for changes.
b) Are all of the projects and related capital expenditures that are listed in Table 2-16 expected to be placed in-service in 2017 and to be added to the 2017 Rate Base?

c) If some of the projects that are listed in Table 2-16 are not expected to be in-service in 2017 and as a result will not be added to the 2017 Rate Base, please identify all such projects, the associated capital expenditure and the expected in-service date.

2-Staff-15
Talbot TS #2 project true-up
Ref: E2/T2/S9, p. 174-175

London Hydro has indicated that the "Talbot TS #2" project is subject to a second true-up calculation by Hydro One and will require a further capital contribution from London Hydro.

a) Please provide an update regarding the negotiations with Hydro One.
b) Please explain why London Hydro is seeking to include in the proposed ACM double the estimated payment to Hydro One ($1.0M vs. $0.5M).

2-Staff-16
Nelson TS upgrade project
Ref: E2/T2/S3, p. 75-77
Ref: E2/T2/S9, p. 171-173
Ref: EB-2016-0160, Exhibit B01/T03/S11, p. 1-2

At the first and second references, London Hydro indicates that the entire capital contribution to be made to Hydro One for the Nelson TS Upgrade project is $8.3M. London Hydro's proposed ACM includes recovery of over $8.6M for this project. Hydro One's 2017-2018 Transmission Rate Application includes a capital contribution of $10.5M.

a) Please describe the status of the Nelson TS Upgrade project including major milestones.
b) Please confirm that London Hydro has made payments to Hydro One for this project on June 15, 2015 and March 15, 2016 according to the CCRA described at references 1 and 2.
c) Please explain why the amount of capital included in the proposed ACM for the Nelson TS project exceeds the estimated project cost ($8,615,590 vs. $8,300,000). Please detail any calculations to derive the amount proposed for inclusion in the ACM.
d) Please explain the difference between the capital contribution included in Hydro One's application and that in London Hydro's application.

2-Staff-17
Lead-lag study
Ref: Exhibit 2, Appendix 2-3, Working Capital Requirements of London Hydro's Electricity Distribution Business
Ref: OEB June 3, 2015 Letter, RE: Allowance for Working Capital for Electricity Distribution Rate Applications

Please describe the major drivers for difference between the 8.67% working capital allowance calculated in the first reference and the 7.5% default allowance in the second reference. Please include whether the driver is methodological (e.g., Navigant's use of mid-point method and use of statutory dates for certain payments) or a characteristic of London Hydro (e.g., London Hydro-specific lead/lag periods).

Distribution System Plan

2-Staff-18
General/Indicative Asset Management Questions
Ref: E2/T3/S1 Appendix 6, London Hydro DSP 1.1 Distribution System Plan Overview, Page 13 *et al*
Ref: E2/T3/S1 DSP Appendix G Electric Distribution System Asset Sustainment Plan: 2015 to 2029 ("ASP") 1.4 Overhead Transformers 1.4.3, Inspection Plan, Figure 1-13., Page 48

London Hydro states at Line 7, p15: "System Renewal is the area with the largest planned increase, going from 39% in 2012 to 49% in 2021 (excluding Nelson TS payments). This increase reflects the increasing volume of work that needs to be done each year to address aging infrastructure, system voltage conversion and maintain system reliability."

London Hydro states at line 3, p15, Section 1.1.1 under *New Technology & Innovation* that "London Hydro has been very active in the development and use of new technology to improve customer engagement and internal business processes"**.**

London Hydro states at line 5, p27, Section 1.3.1 that "Each crew leader is given access to a smart phone application referred to as EASY (Economic Assessment System) which provides current data on the progress of capital projects

London Hydro states at line 4. p21, Section 1.2 (citing OEB 5.2.2) " distributor has met the Board's expectations in relation to coordinated infrastructure planning with customers, the transmitter, other distributors…and other third parties as appropriate".

London Hydro states, at line 3, p25 Section 1.3.1 (citing OEB 5.2.3) "London Hydro has metrics in place to ensure that ongoing and new initiatives related to the distribution system are effective".

a) Please confirm that the 49% of spending shown is 49% of the total capital spending. Also, please indicate the % proportion of the total capital spending attributed to aging infrastructure in each year from 2012 to 2021.
b) The use of field input screens for periodic inspection of Assets is not mentioned here. Does London Hydro use field input screens, such as shown in Ref. 2 above, for periodic inspection of assets? If so, please summarize the use of field input screens and explain how it forms part of London Hydro's asset management programs.
c) No consultations with other distributors or experts in the area of Asset Management appear to be mentioned in Section 1.2. Areas of particular interest to Asset Management would include typical useful lives (TUL) of assets, the effectiveness of remediation measures (such as silicone injection) and weather-related damage to assets experienced by neighbouring utilities. In such cases, combining experiential data-bases could lead to a significant improvement in the statistical validity of asset-replacement estimates. Has London Hydro engaged other utilities in these discussions? If so provide a summary of those discussions.
d) The information provided does not appear to reference tools normally used by large utilities for human performance assurance such as internal assessments, peer-reviews (e.g. by teams from other utilities), or abnormal event/incident tracking.
    i. To what extent are such tools applied by London Hydro?
    ii. If applied please provide a summary of results and consider inclusion of this information in this section of the DSP.
    iii. If not currently practiced is there a plan to include such measures in future years, and if so, when is expected to be implemented?

2-Staff-19
General/Indicative Asset Management Questions
Ref: E2/T3/S1 DSP 1.1.1 Key Elements of the DSP, Page 14

London Hydro states: "As with most Ontario distributors, many of London Hydro's assets are approaching end of life, and maintaining system reliability has required an increase in System Renewal spending over the past ten years. System renewal continues to be the focus of investment for the next five years, representing 50% of the total capital spending."

a) Please include a reference or point to a section in this DSP where the end-of-life criteria for each asset type are outlined and explain how these end-of-life criteria were applied to assets targeted for replacement.
b) Does London Hydro use Health Indices (or equivalent) to define the condition of individual assets?

c) Is it possible to compare the condition of an individual asset to other assets of the same type? If available, please include a reference or point to a section in this DSP in which such comparison of asset conditions is described and ranked.

d) Can overall Asset conditions (“Health”) be compared across asset types? If available, please include a reference or point to a section in this DSP in which such comparison of asset class across asset types is described and ranked.

e) Please clarify whether the General Plant "Land and buildings" assets are an integral part of the Asset Management prioritization process, and whether their condition (e.g. health) would be considered in the same manner as for (and together with) assets under the "System Renewal" investment category.

2-Staff-20
General/Indicative Asset Management Questions
Ref: E2/T3/S1 DSP 1.1.5 Changes since Last DSP Filing, Page 18

London Hydro states: “Since 2012, the Asset Management Process has been refined and Table 2 below summarizes the major changes that have been implemented and their impact on the DSP.”

a) Please explain whether the London Hydro organizational structure has remained as it was in 2012, and specifically whether there were any changes in Asset Management staff roles and responsibilities. If so, please describe the main changes.

b) Please provide a current London Hydro organization chart, or point to a section in this DSP, which would include the London Hydro staff in the Asset Management organization as well as any external contractors with assigned roles in the organization. Please show the Asset Management reporting structure, descriptions of roles and responsibilities for all key personnel.

c) Please explain whether benchmarking London Hydro’s Asset Management approach against other similar utilities was considered and/or undertaken. If so, please summarize the benchmarking results.

d) If any changes in the Asset Management process are contemplated, please:
   i. Describe the main intended changes in the London Hydro Asset Management process, and
   ii. Indicate the number of years for these changes to be fully in place.

2-Staff-21
General/Indicative Asset Management
Ref: E2/T3/S1 DSP 2.1.2 Components, Page 41

London Hydro states:

> ***Asset Management Lifecycle***
>
> The ongoing process for managing the assets of London Hydro is summarized in the following flowchart (Figure 7, also found in EI-31 page 6).

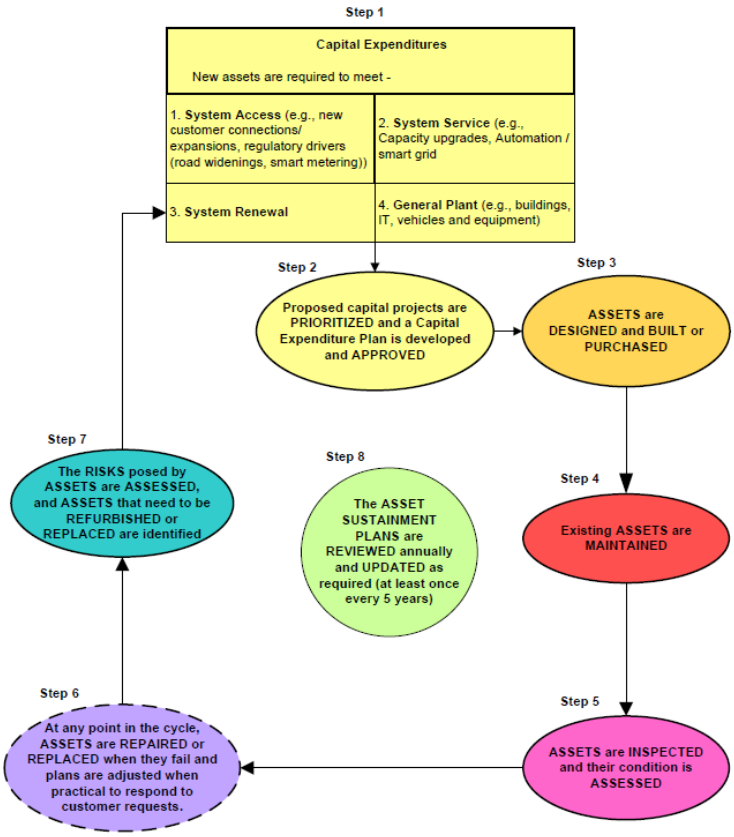

Figure 7: Asset Management Lifecycle

a) In Figure 7 “Asset Management Lifecycle” above, please indicate or explain the connection(s) between Step 8 and Steps 1 to 7.

b) In block 3 of Step 1. “System Renewal”, please explain or provide graphical representations of the hierarchical relations and linkages with the three other investment categories (System Access, System Service and General Plant).

c) Please provide linkages and all detailed steps associated with System Renewal investment category[1]. (Attached AM Flowchart[2] may be used as an example of steps which could be included.)

d) For Step 5. "ASSETS are INSPECTED and their condition is ASSESSED". Please explain:

i. Does London Hydro have an approved Asset Condition Assessment process and procedures? If so, please provide that process and/or copy of the procedure.

ii. Are the questions in the inspection forms and the answers designed to be directly useable in Asset Condition Assessments?

iii. What are the individual steps to carry out the Asset Condition Assessment, what is the format of the Asset Condition Assessment outcome (e.g. an Asset Condition Report), and based on the assessed condition is the health of the asset indicated?

iv. What parameters or what indications are used to indicate the health of an asset, and explain whether and how the health indication would be comparable to other assets of the same type and to assets across all the asset types?

2-Staff-22
General/Indicative Asset Management
Ref: E2/T3/S1 DSP 2.1.2 Components, Page 44

London Hydro states on Line 5: "The ASP (*Asset Sustainment Plan*) provides documentation regarding the various assets sorted by type, including where the information regarding the asset is stored and maintained (asset register), the overall condition assessment of the asset type (typically presented in tables or graphs), the inspection plan for the asset type, a risk assessment by asset type, the asset capacity utilization, and the asset sustainment strategy." (term in *italics* added)

Please provide a table that lists all asset types considered by the asset management activities and provide a description of each of those asset types. Please describe how this table would align with Tables 28 to 32 in the DSP.

2-Staff-23
General/Indicative Asset Management
Ref: E2/T3/S1 DSP 2.3.1 Asset Replacement, Refurbishment and Maintenance, Page 81

[1] Such detailed representation would highlight that the planned spending in this category will have been the largest relative to other investment categories and it would explain that a process has been instituted to pro-actively manage replacements of aging assets.
[2] AM Flowchart showing an illustrative example of Asset Management process used in MEARIE Seminar on OEB Filing Requirements, 12 January 2016.(see last page of this IR list)

London Hydro states on Line 34: “The tables below summarize by asset type the inspection cycle, maintenance program, the factors used to determine if an asset is repaired, replaced or refurbished, and the sustainment strategy for each asset class. Section 7 of the AMP provides additional details on the inspection and maintenance cycles by department.”

a) Please confirm that the tables (Tables 28 to 32 in this DSP) constitute a complete list of London Hydro asset types, and indicate which of the asset types listed in these tables are being managed and monitored for Asset Management purposes, “System Renewal” category.
b) Please provide a table, or point to such table, which would list assets as for Tables 28 to 32 in this DSP, but which would also include the asset types, asset quantities, how many of each asset type have had condition assessments completed, and the overall condition of the asset type.

2-Staff-24
General/Indicative Asset Management
Ref: E2/T3/S1 DSP Appendix G Electric Distribution System Asset Sustainment Plan: 2015 to 2029 (“ASP”) 1.4 Overhead Transformers 1.4.1, Age and Life Expectancy, 1.4.6 Asset Sustainment Strategy, Pages 46 to 49
Ref: “Asset Depreciation Study for the Ontario Energy Board”, Kinectrics Inc. Report No.; K-418033-RA-001, July 2010

London Hydro states: “At the end of 2013, London Hydro's overhead distribution system had 7,630 pole-mounted transformers...For the purpose of this report, a useful life span of 50 years is used in determining when this type of asset will pass its life expectancy.” (page 46)

London Hydro states: “London Hydro does not proactively replace individual pole mounted transformers, but rather allows most units to run to failure… Nevertheless, it is important to note that, based on a life expectancy of 50 years, 1,687 transformers will pass their life expectancy and may need to be replaced over the next 15 years.” (page 49)

a) Please clarify whether the useful life span selected for London Hydro overhead transformers has been selected based solely on London Hydro past experience, or whether other sources were also considered? If the life span was selected based solely on London Hydro past experience, please provide the assessment and data and failure prediction methods e.g. statistical analysis used supporting the selection of the life span. If other sources of information such as Kinectrics report listed as **Reference 2** above, were considered, please provide references and explain how data as used.

b) Please describe the approach and the method (e.g., statistical analysis) outlining how London Hydro arrived at the number of transformers expected to be replaced over the next five years, whether the replacement quantities would be the same each year and point to the capital expenditure table in this DSP where the replacement numbers are shown.

c) Please clarify whether other effects on transformer life were considered together with transformer age and how they were used in arriving to the expected transformer replacement quantities.

d) Please explain whether London Hydro's approach to assessing the condition of pole mounted transformers was benchmarked against other similar utilities. If so, would you please provide the highlights of the results? If not, please explain why not.

2-Staff-25
General/Indicative Asset Management
Ref: E2/T3/S1 DSP Appendix G ASP 3.1 Power Transformers 3.1.1 Age and Life Expectancy, 3.1.6 Asset Sustainment Strategy, Pages 82 to 87

London Hydro states: "London Hydro has adopted a life expectancy of 60 years for older substation transformers but anticipates that units installed after 1965 will only have a 50 year average lifespan due to changes in the electrical design. Of the 52 substation transformers currently in service, approximately half of them will reach their end of life over the next 15 years." (page 82)

London Hydro states: "The System Planning Department at London Hydro developed the "4.16 kV Aging Infrastructure System Planning Report (2011)" that addresses aging 4.16 kV assets, which include substations, underground and overhead distribution plant." (page 87)

a) Please describe how the expected life expectancy was determined to be 60 prior to 1965 and 50 years after 1965 and provide supporting data and analysis for both determinations.

b) Please include the estimated annual station maintenance cost vs replacement costs used to support transformer replacement over the next five (5) years, bearing in mind the 50 and 60 year expected lives described above.

c) Please describe the approach and process by which London Hydro arrived at the number of transformers expected to be replaced over the next five years, explain whether the replacement quantities would be the same each year and point to the capital expenditure table in this DSP where the replacement numbers are shown (i.e. is the replacement smoothed).

d) Please provide the "4.16 kV Aging Infrastructure System Planning Report (2011)".

e) To the extent that transformer replacement includes a decommissioning/remediation component, please clarify whether station decommissioning costs are reflected in capital expenditures for the forecast period and point to the capital expenditure table in this DSP where the decommissioning cost would be shown.

f) Please explain whether London Hydro's approach to assessing the condition of the power transformers was benchmarked against other similar utilities. If so, would you please provide the highlights of the results? If not, please explain why not.

2-Staff-26
Organization and Responsibilities for Asset Management
Ref: E2/T3/S1 DSP
Ref: E2/T3/S1 DSP -Appendix G, Asset Management Plan – 2016 & 2017, Section 6, Engineering Instruction 31 (Asset Management Policy and Processes)
Ref: A flowchart showing an illustrative example of Asset Management process used in MEARIE Seminar on OEB Filing Requirements, 12 January 2016

Engineering Instruction EI-31, and in particular the figure on p6 of **Reference 2**, (also shown in **Reference 1** as Figure 7, page 42) is very helpful in understanding the general process applied in the course of the "Asset Management Lifecycle". However, in general, utilities have found that the consistency of interpretation and application of such procedures is only effective when compliance with them is periodically reviewed.

London Hydro states on p37, paragraph 1. of the above Engineering Instruction "In order to ensure a consistent methodology is used for the introduction or revision of standards at London Hydro, we have developed a Procedure for the Implementation of New and Revised Standards. All engineering staff adhere to this procedure to ensure that important changes are vetted by and communicated to all stakeholders."

London Hydro states on p24, paragraph 2, "When customer preferences contradict London Hydro's design standards and construction practices, the Chief Engineer and VP of Operations considers London Hydro's requirements in terms of its Conditions of Service, regulatory obligations and its responsibility to the customer base at large when making decisions."

a) In the organization chart requested for London Hydro in staff interrogatory **2-Staff-20**, show the hierarchy pertinent to the roles referred to in **Reference 2** in the section "Responsibilities" on page 7. This would help to better understand the process application in practice.
b) In certain instances, it is not clear who has overall responsibility.
    i. More than one responsibility-holder may be listed against a task in the Instruction without indicating who "leads". Please indicate (e.g. by highlighting in the text) the officer with primary responsibility for each responsibility area.

ii. Regarding the role of the Chief Engineer, as stated on p24, it is not clear that he has final authority on the design. Please clarify whether this is the case.

c) Providing the experience to date with this Instruction and related governance documents would be useful in establishing confidence in their consistent and effective application.
   i. Has the application of EI-31 been the subject of an internal or external review (or audit) to confirm it is cost-effective and being applied as intended by senior management? If so can London Hydro please provided a summary of the results? If not, is there an intent to initiate such a review or audit in the near future?
   ii. As for a. above, has there been, or is there planned, a review of the application of the "Procedure for the Implementation of New and Revised Standards"

d) While the overall process for selecting and approving assets for replacement appears appropriately defined in EI-31, the actual steps taken to manage specific asset classes and assets was not found. An example of this type of flow chart is included below (last page) from **Reference 3**. Does London Hydro have such a (detailed) process and apply it to system renewals? If so please point to or provide it and along with an overview of London Hydro's experience with the Process from the perspective of System Renewal investment?

2-Staff-27
Prioritization process
Ref: E2/T3/S1 DSP
Ref: E2/T3/S1 DSP-Appendix G, Asset Management Plan – 2016 & 2017, Sections 4-7
Ref: "Asset Depreciation Study for the Ontario Energy Board", Kinectrics Inc. Report No.; K-418033-RA-001, July 2010

London Hydro states that it uses documented criteria to select and rank projects for capital replacement. Also, London Hydro states that its data collection follows a well-defined template for each Asset Class. However, the quantitative values used for ranking are either not provided (for most criteria), or provided without explanation of the method of their derivation (e.g. for Reliability and Safety). Use of common data and processes for AM do not appear to be in evidence. These aspects make it difficult to confirm the logic of the selection process for asset replacement.

P 43 line 19 of **Reference 1**, "Prioritization and Approval" lists examples of main and secondary drivers and points to p34-35 of Ref 2 for the Primary Drivers.

a) Are these given standardized weights and scores (other than to state qualitatively that safety is the highest level criteria)? If so, please point to these. If not, please explain how project prioritization works in practice.

b) If weighting factors and scores are applied, is there a risk (associated with the linear combination of several weighted factors) that the key criteria of safety and reliability may be diluted in the prioritization process? In this case, please explain how this risk is compensated for.
c) Figure 24, p87/131 of **Reference 1** provides a useful graphical representation of Safety and Reliability scorings (which addresses in part the concern raised above concerning undue influence of secondary drivers).
    i. Despite the relatively high Safety risk ranking of Projects 16/17F4 and 16/17G7 it is not clear that rate of replacement matches the relatively high safety risk. Please confirm that the rate of replacement of these assets is consistent with their safety risk- ratings and that acceleration of the rate of replacement is not warranted. Please refer specifically to paragraph 1.2.4 “Risk Assessment” in Section 7 of Ref 2.
    ii. Similarly, for those poles representing the highest fire risk (16/17G2) and said to be “targeted for refurbishment on a prioritized basis” in the ‘Overview” – is it still expected that this replacement will be completed in 2016-2017?
d) How do the weightings provided in the Analytical Ranking Model (Section 4 of **Reference 2** pertain to the “main and secondary drivers” referred to in Questions 1 and 2, and to the graphical representation of Safety and Reliability risk referred to in Question 3 above? Please clarify if these are separate systems applied independently or parts of one consistent approach.
e) London Hydro states In 9.1.4 of Section 7 (p148) of **Reference 2** that “ It is strongly recommended that London Hydro invest in gathering detailed information about the age of residential cables using all the resources available …. “. Is this recommendation consistent with the priority currently applied to this work? In general, how are the priorities implied in the Asset Sustainment Plan reflected in the various aspects of priority ranking referred to in the previous point?
f) In general, London Hydro does not appear to reference AM “good practices” from others in establishing replacement project priorities
    i. There is an established AM nomenclature (e.g. Typical Useful Life (TUL), Asset Health) or industry reference values for asset lifetimes, as described in **Reference 3**.[3] Use of this makes comparison of experiences between utilities easier. Is there an intent to apply this standard nomenclature in future?
    ii. Evidence was not observed in the submission for the sharing of experience between London Hydro and its neighbouring utilities to support London Hydro’s own data, or to contribute to the Safety and Reliability of similar projects. Of particular note in this regard would be the long-term performance of Silicone Injection for life extension of underground cables, which makes up

[3] “Asset Depreciation Study for the Ontario Energy Board”, Kinectrics Inc. Report No.; K-418033-RA-001, July 2010

approximately 19% of the Projects' budget in both 2016 and 2017. Has this occurred? If so please point to it or summarize the results of this sharing of information.

iii. Pooling weather-related experience between utilities with common challenges such as lightning protection, storm damage (and eventually climate change) would also improve the quality of estimates for potentially impacted assets, particularly when projecting these out over the longer time periods. Has this been considered by London Hydro? If so, please point-to or describe the results of these initiatives. See also the following point.

g) In **Reference 1** Line 10, p49/131, reference is made to environmental challenges such as frequent thunderstorms and the fact that (line 15) "London is located in Canada's Tornado Alley." Also the frequency of high temperatures in summer may affect certain components. Have any increases in damage over the last decade due to these factors been observed? Has the potential for climate change to influence asset repair/replacement budgets been considered in London Hydro's longer term projections?

2-Staff-28
Data collection, management and use
Ref: E2/T3/S1 DSP
Ref: E2/T3/S1 DSP-Appendix G, Asset Management Plan – 2016 & 2017, Sections 4-7.

London Hydro states on p44, Line 6 of **Reference 1** in describing the Asset Sustainment Plan that the "Overall condition assessment of the asset type is referred to". In practice, the condition of each member of an asset type/class is important to determine the overall condition of the asset type.

London Hydro states in the ASP 2.2.3 Inspection Plan, p.77 that "the majority of the downtown and egress cable is located inside the duct and maintenance hole system and cannot be visually inspected (except in the maintenance holes or vaults)",

London Hydro states in the ASP 7.1.3 Inspection Plan, p. 133 that "London Hydro has also developed a method for making panoramic movies of the interior of maintenance holes. New images are taken with each inspection or whenever changes are made to the cable arrangements. The GIS system contains a hyperlink to the video files, which are useful for confirming existing feeder routes, planning new routes, or obtaining a general view of the structure."

London Hydro states in the ASP 9.1.1 Age and Life Expectancy, p 147 that "The average lifespan of underground secondary service cable is considered to be 60 years, which means that the cable supplying approximately 14,000 services (installed between 1960 and 1969) will begin to approach end of life in the last ten years of this planning horizon (between 2020 and 2029). This assumption suggests that as

many as 1,400 services may potentially require replacement every year, from 2020 onwards."

London Hydro states (Section 6, p53 of **Reference 2**) that "the Asset Sustainment Plans are reviewed annually and updated as required (at least once every 5 years)", that the ASP is "reviewed on an annual basis to ensure that it continues to meet London Hydro's strategic objectives and that all of the processes and procedures described in them are followed". Furthermore, "The Asset Sustainment Plan is distributed to all Engineering and Operations management staff after each annual review to ensure that information related to age and condition and the associated assessment of risk for each asset is transparently communicated throughout the organization"

In carrying out regular updates to the ASP report, measures may need to be taken to ensure inconsistencies between and amongst Asset Classes do not creep in: London Hydro states on p.121 of the ASP below Figure 5-6 that "all the air insulating switching enclosures are proposed to be taken out of service within the next 5 years". The levelized replacement rate is shown as 4/a

London Hydro states on p. 81, Line 29 of **Reference 1** "The inspection cycles, inspection results, and details on repairs are presently stored in GIS (for most distribution assets) or in various databases maintained by different departments in a shared network location referred to as EIAM. Plans are in place to migrate these various databases to a central software package in the near future to make it easier to analyze and track the assets, when they are due for inspection, and detect trends in failures or condition assessment.

a) Please clarify the following points concerning ASP Methodology:
   i. Is information regarding *each* asset stored and evaluated, including in particular that necessary to determine its condition?
   ii. In responding to 1a, please refer to the Asset Analysis Methodology on p. 20 of the ASP and clarify if the condition of *each* individual asset is being referred to in the sentence "The life expectancy of each asset is also estimated and the method used to estimate the life expectancy is described".
   iii. When removing an asset for reasons other than "end of life" is the age and condition of the asset recorded in the Asset Management database? If this is already being done, please point to relevant examples in the ASP.
b) The ASP text on p18-20 discusses the various types of maintenance employed and the Asset Analysis Methodology.
   i. Please indicate (e.g. in a table) the degree to which each form of preventative maintenance is applied for each Asset Class discussed in the ASP, in particular please indicate to which Asset Classes and to what extent Reliability Centred

Maintenance (RCM) is being applied – as intended by LH- and the timeframe for applying it to all relevant Asset Classes if this is not yet the case.

ii. By way of providing a specific illustration of the above, is the RCM prioritization of portions of underground cable for silicone injection based on overall condition, or only on age? If the former, please describe if any field inspections are performed

iii. It is noted in the ASP (p70) that there was a "sudden spate of failures" of residential cable failures "before 2010 when silicone injection was re-introduced". What is the basis for confidence that the levelized replacement rate of 46 km/a over the next 15 y is sufficient to avoid another such occurrence?

iv. Figure 2-7 (p72) suggests that the cable replacement rate will not keep pace with the number of km due for replacement until after 2020. Between 2020 and 2029 as many as 1400 services may potentially require replacement every year.

v. Are lightning strikes (as discussed in **Reference 2** above), along with increased summer heat and storm activity associated with climate change, foreseen to increase the rate of cable failures?

vi. Is London Hydro concerned that the pace of replacement is adequate?

c) Does the statement that cables inside ducts cannot be inspected take into account current technical advances in inspection, for example:

   i. Would it be feasible to introduce small diameter cameras with articulated heads on a cable into cable ducts for cable inspection insertion during the vault inspections

   ii. If so, would it be advisable to develop and test this form of inspection of buried cables via a pilot program? Such a pilot project could position London Hydro to implement a formal testing program more quickly if failure rates begin to rise.

d) In Figure 8 (IT investment Cycle) of **Reference 1** (DSP): each of the major "modules" of the IT system are represented, however the location of the AM records (e.g. inspection results) is not apparent. Please explain how AM data fits into the overall IT configuration.

e) The process of recording digital images of the contents of maintenance holes discussed on p134 of the ASP is an excellent practice.

   i. Are the panoramic movies shot of sufficient resolution to permit changes in structural cracks to be observed from one inspection to the next?

   ii. Are high-definition photo records used generally in recording the condition of Assets? If so, are these linked to the Asset's condition records?

f) Concerning the ASP reviews and updates, please clarify the following:

   i. Is the data collected from inspections together with age and experience with asset performance reviewed every year for each Asset Class, or is this generally done less frequently? If the latter, please provide a table of the review frequencies by Asset Class and describe (or point to) how the review frequency

(ies) were selected. In the reply, please confirm that these review frequencies are consistent with OEB requirements.

ii. Please clarify if the "levelized replacement rate" of ~4/y for air-insulated switchgear shown in Figure 5-6 is consistent with the target stated to remove these within the next 5 years?

iii. If so, please explain the purpose of showing the levelized replacement rate for these Assets extending out to 2030

iv. In general, please explain the rationale for indicating levelized replacements over long periods (e.g. out to 2030) when the expected failure rates of assets can be expected to rise exponentially towards the end of Asset Life. In particular, are the "levelized" rates of replacement sufficient to maintain the population of each Asset Class within its expected Total Useful Life?

g) Concerning London Hydro plans are in place to migrate the various databases to a central software package, what are the planned dates to have such migration of databases started and completed?

2-Staff-29

Costs and cost derivation

Ref: E2/T3/S1 DSP Appendix G ASP 7.1.4 Risk Assessment Page and 7.1.6 Asset Sustainment Strategy Pages135 and 136

Ref: "Asset Depreciation Study for the Ontario Energy Board", Kinectrics Inc. Report No.; K-418033-RA-001, July 2010

London Hydro states: "In theory, a maintenance hole in good condition would be less likely to collapse under the pressure of a watermain break than a *fully depreciated maintenance hole*" (emphasis added)

London Hydro states: "For the purpose of this ASP, it is assumed that large-scale duct replacement due to depreciation will not be required. However, as the ducts age, replacement plans will eventually be required, and some of these will be very costly at approximately $300 per meter".

a) The expression "fully depreciated" is used at several places in the ASP.

i. Please explain what is meant by this. Please clarify if this term is intended to reflect the accounting status of the asset or is intended to reflect the age of the asset in relation to its TUL (Typical Useful Life).

ii. Please indicate if the values for TUL used here and elsewhere in this ASP are based on general industry values such as those in Ref 2.

b) Please provide the number and length of encased ducts and provide data on their age distribution

i. What is the Typical Useful Life (TUL) of these Assets?

ii. Does the data permit differentiation between data for ducts and holes?

c) What is the basis for the assumption that large scale replacement will not be required? Please comment on the consistency of this assumption with the generally adopted strategy to plan for replacement of assets when they reach their TUL.

2-Staff-30
Costs and cost derivation
Ref: E2/T3/S1 DSP Appendix G**,** Tables 2 and 3 of Appendix B of the Electric Distribution Asset Sustainment Plan 2015-2029 Annex Cost Projections , Page 11

In the tables presented for various planned replacements it is unclear whether it is being suggested that the "End of Life Today" was to be replaced in 2014, since the replacement cost is listed and added to the total. 2015 spend is also unclear. Reference the following categories:

Category	Table Ref.	Page Ref.	PDF
Residential/Commercial Aging Cable rehabilitation	2	10	503
PILC and Egress Aging Cable Rehabilitation	3	11	504
End of Life Single-Phase Padmounted Transformer Replacement	4	14	507
End of Life Three-Phase Padmounted Transformers	5	15	508
Switchgear Replacement	6	16	509
Network Transformers and Protectors Replacement	7	17	510
Customer-Owned Vault Transformers Replacement	8	19	512

a) Please confirm actual replacements and spend in 2014.
b) Please confirm actual replacements and spend in 2015, and whether these are reflected in the Forecasted Capital Expenditures Table (PDF 515)
c) Please confirm whether either 2014 or 2015 replacements have been deferred into the test year or forecasted period.

2-Staff-31
Costs and cost derivation
Ref: E2/T3/S1 DSP Appendix G ASP, Section 9.1

"The age of primary cable and transformers is readily available in the current GIS system, similar information regarding the secondary cables exists on drawings, which are gradually being converted to an electronic format. By the end of 2015, London Hydro is expecting to have determined the most probable number, length and age of the entire population of secondary service cables, according to the stages of

development…. Using the information gathered, London Hydro will develop a strategy to maximize the life cycle of secondary cables while minimizing risk and will formulate a projection of related capital expenditures."

a) Please advise whether London Hydro has determined the most probable number, length and age of the entire population of secondary service cables, according to the stages of development, as described above. If so, please provide a table summarizing these results.
b) Please confirm whether the determination in (1) impacted the forecasted period's expenditures, and if so, please provide a summary of impact.
c) Has London Hydro developed the strategy to maximise the secondary cables' life cycle, and if not, when is this strategy expected, what is the expected impact, and is in reflected in the forecasted period?

2-Staff-32
Costs and Cost Derivation
Ref: E2/T3/S1 DSP Appendix L Detailed Project Descriptions

a) For projects where historical cost estimates are provided (i.e. 16A1, etc.), please confirm whether these are actuals. Also, please provide the budgeted figures for historical years.
b) The Capital Project Summary Sheets do not provide the impact to O&M costs. Are these available, and if so, can they be provided for each project?
c) The Capital Summary Project Sheets do not provide the costs of alternatives considered. Are these available, and if so, can they be provided for each project?
d) Projects 16B1, 16B2, 16E1, 16E3, 16E4, 16E5, 16F1, 16F3, 16G3, 16G4, 17B1, 17B2, 17B9, 17C2, 17C3, 17D1, 17E1, 17E3, 17E4, 17E5, 17F1, 17F3, 17G3, 17G4, 17G5 (PDF page 550) all list Resource availability as a project risk, and outsourcing is listed as an alternative.
    i. What is the impact to project cost in the period being evaluated if these projects have to be outsourced?
    ii. What is the impact to customers and project timelines?
    iii. Given that resourcing is listed as a risk for so many projects, has London Hydro developed a comprehensive resourcing plan for these projects?
e) What is the impact of the resource constraint outlined above for other projects, from a cost and customer service perspective?

2-Staff-33
Link to asset management
Ref: E2/T3/S1 DSP ASP
Ref: *ibid* Annex Cost Projections

The Electric Distribution System Asset Sustainment Plan, completed in 2014, presents a long term view of London Hydro's asset sustainment plan. As a result of the long-term view provided, some asset are presented from a long-term capital planning perspective, rather than focusing on the test year and forecasted period. The focus on a 15 year horizon masks immediate requirements and makes it difficult to assess how much of the work for a particular asset class needs to be done in the period under review for this rate application.

Specifically, certain asset classes provided a year-by-year breakdown for the forecast period whereas others provided averages for a 15 year period. Where costs were provided on an average basis (i.e. page 501 of the PDF "It is projected that London Hydro will need to, for the next 15 years, allocate a minimum of $6M per year on average to replace its depreciating overhead plant."). it is unclear how much is actually anticipated to be spent in the forecast period. While it appears that this information is in the submission, it is appears to be fragmented across different sections, and is consequently difficult to piece together.

a) Please provide a breakdown of costs for the forecast period for all items in the Electric Distribution Asset Sustainment Plan (i.e. where items are priced in averages over the period).
    i. Substation Transformers (PDF 416)
    ii. Maintenance holes and vaults (PDF 467,469)
b) The Electric Distribution System Asset Sustainment Plan 2015-2029 report was completed in 2014 and several items are presented as having immediate urgency. It is unclear whether these items have already been addressed (i.e. in 2014-2016), or if they are expected to be addressed during the forecasted period. Please advise whether the following matters have been addressed or are scheduled for the forecasted period.
    i. Replacement of 150 poles with cross arm framing (PDF 371)
    ii. Replacement of suspect insulators (PDF 379)
    iii. #6 solid copper conductor (PDF 389)
    iv. Maintenance holes and vaults (PDF 467, 469, 471)

2-Staff-34
Power Quality
Ref: E2T3S1Appendix 6 London Hydro DSP Appendices – Appendix E 2014 Power Supply Quality Report
Ref: London Hydro Conditions of Service
Ref: Distribution System Code

DSC 4.1.2 “A distributor shall maintain a voltage variance standard in accordance with the standards of the Canadian Standards Association CAN3-235. A distributor shall practice reasonable diligence in maintaining voltage levels, but is not responsible for variations in voltage from external forces, such as operating contingencies, exceptionally high loads and low voltage supply from the transmitter or host distributor.”

DSC 4.1.5 “A distributor shall take appropriate actions to control harmonic distortions found to be detrimental to consumers connected to the distribution system.”

DSC Appendix A Conditions of Service

“2.3.2 Power Quality

This section should outline the guidelines and policies to which the distributor will endeavor to adhere to in conveying electricity supply, such as service voltage guidelines and outage notification processes. This section also should indicate the process the distributor uses for handling voltage disturbances and power quality testing and remedial action.”

London Hydro COS

“2.3.2 When a customer has a concern about the operation of their electrical equipment related to transient or steady state voltage levels, flicker, harmonic distortion, farm stray (or tingle) voltage, etc., London Hydro will deal with the concerns as follows..”

a) **Reference 1** confines the discussion of quality of supply to reliability. Please provide London Hydro’s experience with power quality issues as described in the DSC and London Hydro’s Conditions of Service in the DSC.
b) Please explain why this experience is not considered material to the DSP.

2-Staff-35
Safety
Ref: E2/T3/S1 DSP Page 68, line 4

In 2015 a safety issue was addressed, whereby up until 2015, many employees parked their vehicles in the lower yard, and this caused safety and security concerns.

a) Please confirm when the issue was first identified and why it was only addressed in 2015.
b) Are there any other such safety or security issues awaiting resolution?

2-Staff-36
Customer engagement supporting DSP
Ref: E2/T3/S1 Appendix A, Customer Engagement, Page A-19
Ref: E2/T3/S1 DSP App. E, 2014 Quality of Supply Report, Page iv
Ref: Ibid Page 5

In various benchmark comparisons and Customer Satisfaction Survey Trends, London Hydro significantly exceeds Ontario peer organization and OEB targets in virtually all categories. Exceeding targets could potentially signify that London Hydro is spending at higher than required levels in order to achieve its service levels.

a) Please advise whether London Hydro targets meeting or exceeding OEB.
b) If so, has London Hydro undertaken an assessment of the cost of exceeding OEB benchmarks (i.e. what is the premium that London Hydro customers pay for a higher level of service vs. a) OEB benchmarks; and b) peer organizations)?
c) Please provide London Hydro's SAIFI and SAIDI targets over forecast period under review vs. OEB requirements.

2-Staff-37
Customer engagement supporting DSP
Ref: E2/T3/S1 DSP Appendix A, Customer Engagement Page A-3
Ref: Ibid Page A-10
Ref: Ibid Page A-11

London Hydro launched an effective partnership with Aeroplan to help transition its customers to paperless billing. Customers receive Aeroplan rewards for registering for paperless billing and additional rewards for each subsequent bill. London Hydro indicates that the program has already paid for itself and these results would translate to a cumulative net savings of over $80,000 by the end of 2017.

a) Please provide a breakdown of the anticipated $80,000 savings, showing the cost of the registration rewards vs. the cost of the per statement rewards (i.e. acquisition vs. maintenance cost).
b) Please confirm that all costs of the program (including advertising and marketing) are included in this cost-benefit analysis. If not confirmed, please redo the analysis including all costs, and advise where these costs are presently included.
c) Does the benefit change when London Hydro moves to monthly billing? If so, please advise how.
d) Please provide the anticipated per customer cost over the 5 year period, for customers registered in the program (i.e. acquisition + maintenance)?
e) Have customers been surveyed to see if they would revert to paper-billing if the per-statement rewards were eliminated? Specifically, please provide an analysis of the benefit for paying on-going rewards?

f) Is the Aeroplan reward program expected to be in place for the duration of the forecasted period?

2-Staff-38
Nelson TS capital contribution
Ref: DSP, Appendix J, p. 4-5

London Hydro describes significant variance in the capital contribution required by Hydro One for the Nelson TS. The most recent information is that Hydro One is offering a $24M credit towards rebuilding Nelson TS.

a) Please provide any available calculations use to derive the $24M credit.
b) In the event that the actual cost for Nelson TS exceeds the estimated cost, does London Hydro make up the difference because the credit is unchanged?
c) Is the calculated credit subject to change?

2-Staff-39
Nelson TS Project
Ref: DSP, Appendix J, p. 16-17

At the reference, London Hydro compares the costs of the two options to supply downtown London: (1) the 27.6 kV option, and (2) the 13.8 kV option.

a) Please explain why the 27.6 kV option has a lower cost for cables and switchgear in the core than the 13.8 kV option.
b) Please provide the calculation of the $20M PV for the new 27.6 kV within 10 years.
c) Please explain what is meant by “re-establish alternate supply”.
d) How long has the 13.8 kV system operated as an “island”? Please provide reliability statistics for this part of the system as compared to the 27.6 kV system.

2-Staff-40
Regulatory IT capital costs
Ref: DSP, Appendix L, RS2016-01, RS2017-01

London Hydro is forecasting that it will spend $140,000 on IT changes to support regulatory changes such as fixed distribution rates and debt reduction.

a) Please explain what IT changes are required to accommodate fixed distribution rates.

b) Please provide the amount of capital invested in the IT changes required to accommodate fixed distribution rates.

c) Please explain why regulatory changes in 2017 will require $250,000 while those in 2016 require $140,000. Please provide a list of regulatory changes and the approximate capital costs required to accommodate each regulatory change.

Exhibit 3 – Operating Revenue

3-Staff-41
Load Forecast
Ref: E3/1/2, p. 1

London Hydro indicates that it has updated its analysis for actual power consumed by each customer class up to December 2015.

Please update the load forecast to include the most recent data (to October 2016) and indicate how the load and customer forecast for 2016 and 2017 may be affected.

3-Staff-42
Load Forecast
Ref: E3/1/2, p. 1

a) How did London Hydro determine that the 2013 model was still appropriate for use in this application?

b) Has London Hydro tested the forecast results against actuals over the past years since 2013? If yes, what were the results? If not, why not?

Exhibit 4 – Operating Expenses

4-Staff-43
Inflation and O&M budget estimates
Ref: Exhibit 4, p. 5
Ref: Exhibit 4, p. 10-12

At **Reference 1**, London Hydro states that price increases are only implicitly considered for non-labour expenditures in the Bridge and Test Years.

At **Reference 2**, London Hydro explains that budgets for materials, supplies, vehicles, etc. are developed by analyzing historical activity and considering future objectives and obligations.

Please explain how London Hydro estimates the future cost of materials, supplies, vehicles, etc. without explicitly using an inflation factor. Please include an example in the response.

4-Staff-44
Cloud computing project and O&M costs
Ref: Exhibit 4, p. 18, Table 4-5
Ref: Exhibit 4, p. 21, Table 4-8
Ref: Exhibit 4, p. 28, Table 4-13
Ref: EB-2012-0146, Application Volume 1 updated September 28, 2012, Exhibit 2, p. 102

At **Reference 1**, London Hydro explains that starting in 2013 there was a shift away from depreciation expense to O&M costs associated with the increased use of Cloud services.

At **Reference 2,** Table 4-8 shows that there has been a $217,580 savings in the depreciation expense for computer hardware and software between 2013 and 2017 due to the use of Cloud services.

Reference 3 shows that there has been $1,307,236 increase (an increase of 121%) in O&M costs for computer hardware and software between 2013 and 2017 factoring in a 2% inflation rate on the 2013 amount.

Reference 4 states, “To achieve success with its corporate strategy, London Hydro is continuing to drive toward an agile, scalable, utility infrastructure or “Internal Cloud”, in order to efficiently and cost effectively support mission critical business processes.”

a) What portion of the increase in hardware and software O&M costs is attributable to London Hydro’s adoption of Cloud services?
b) What factors contributed to the portion of the increase in hardware and software O&M costs not attributable to the adoption of Cloud services?
c) Did London Hydro develop a business case for adopting Cloud services? If so, please file a copy of that business case.
d) What alternatives did London Hydro consider to achieve the same goals?
e) How many vendors and systems did London Hydro consider to develop Cloud services? What was the range of the quotes London Hydro received?
f) Why did London Hydro choose to develop an internal set of Cloud services?
g) Are there savings other than the reduced depreciation expense that can be attributed to the adoption of Cloud services? If so, please list them, provide an estimate of the magnitude of the savings and an explanation of the basis for determining those savings.

4-Staff-45
Increases in Technology and Communications Costs
Ref: Exhibit 4, p. 29, Table 4-14

The referenced table shows a significant increase in Technology and Communication costs for Customer Service and Collections (+1538%), Human Resources, Health and Safety (+880%) and Corporate Services (+302%) between 2013 and 2017 after taking into account a 2% inflation rate.

Please explain the significant increase in Technology and Communication costs for each of these three areas.

4-Staff-46
O&M costs for customer engagement
Ref: Exhibit 4, p. 41, Table 4-41

Advertising and promotional expenditures have increased by almost 70% between 2013 and 2017. London Hydro states that this is to keep customers informed about London Hydro's activities and new initiatives.

a) Please explain why initiatives such as the Aeroplan program receive widespread advertisement and promotion but the specific projects included in this rate application did not.
b) Please estimate the approximate cost to send a bill insert to London Hydro's customers and the number of customers that would receive a bill insert.

4-Staff-47
Contractor services
Ref: Exhibit 4, p. 65, Table 4-17

Contractor services costs for asset management have increased at a high rate (41% annual rate) between 2013 and 2017.

What is the growth rate in the number of hours worked by contractors on asset management between 2013 and 2017?

4-Staff-48
Retiree Life Insurance Deferral Account
Ref: E4/T1/S5, p. 351-354 and Appendix 4-8 Buyout Listing
Ref: E9/T1/S10, p. 1-2

London Hydro is requesting for the establishment of a Retiree Life Insurance deferral account where the account will record all premiums and potential buyout paid regarding life insurance benefits, offset by the annual amount recovered through rates.

a) Please confirm that the request is actually for a variance account
b) London Hydro had asked for this account in EB-2014-0196:
    i. In the EB-2014-0196, it was indicated that the term of the program with LH's current insurance provider ends December 31, 2014. Please explain the details of the re-negotiated program.
    ii. As the OEB denied London Hydro's request for the account, please explain why London Hydro is requesting for the account again.
    iii. Please also explain what has transpired or changed since the EB-2014-0196 application.
c) Please explain what the "refund accounting underwriting arrangement" is as indicated in Exhibit 4 and how that would result in cost savings.
d) From Appendix 4-8, the buyout amount has increased from $3.5M in 2014 to $3.9M in 2017. Please explain when London Hydro will decide and implement a course of action and whether there has been any consideration with regards to the timing of this as a result of the increasing cost of the payout.
e) In Exhibit 4, London Hydro indicated that without the requested account, it would under-recover by $486k from 2017 to 2021. This is an average of $97k per year. The number of retirees who will accept a potential buyout is unknown. London Hydro's materiality for this 2017 test year is $365k. Please explain how the request for the account would meet the materiality criteria.

4-Staff-49
Retiree Benefits
Ref: E4/T5/S5, p. 348-354, Tables 4-70 and 4-71, and Appendix 4-7 Actuarial Report, Chapter 2 Appendix 2-KA

a) Please confirm that amounts in Appendix 2-KA and the 2015 actuarial report include retiree benefits (i.e. the components listed in Table 4-71).
b) Please explain why the "Paid benefit amounts" row in Appendix 2-KA is equal to the "Retiree benefits" in Table 4-70. Please explain whether any payments were made for other post-employment benefits.
c) Please explain how the "Paid benefit amounts" row of $823k for 2015 in Appendix 2-KA reconciles to the "Benefit payments from employer" of $668k on page 12 of the 2015 actuarial report.
d) Please explain how the "OM&A included in rates" row in Appendix 2-KA reconciles to the Retirees section of Table 4-70. Please confirm the OPEB amounts requested to be recovered in rates and confirm that this is on an accrual basis.
e) Please explain how the "Employee future benefits cost" row for 2015 and 2016 in Table 4-70 is derived from the actuarial report.

4-Staff-50
Asset amortization
Ref: E4/T1/S5, p. 391

London Hydro amortizes spare transformers and electric meters from the date of acquisition. Please explain the specific facts and circumstances that led London Hydro to conclude that amortization for these spare assets should commence from the date of acquisition.

4-Staff-51
Labour and Contractor Services in CCA Additions and SR&ED Claims
Ref: E4/T2/S5, p. 406 and Appendix 4-5 CCA Schedules

London Hydro has removed labour and contractor services from CCA additions used in the calculation of the SR&ED claim and has deducted these as an expense for income tax purposes only. This adjustment has been forecasted to be $1.3M for both 2016 and 2017.

a) Please explain whether or not London Hydro has a choice to include the amount as CCA additions or an expense for income tax purposes.
b) Please confirm that there is no impact to PILS whether this amount is included as a CCA addition, deductible at a rate of 100% or as an expense.
    i. If not, please quantify the impact to PILS if the $1.3M is included as a CCA addition in 2017.
    ii. Please explain the nature of the $1.3M and why it was originally classified under Class 12 and not another Class.
c) Has the balance of capital additions pertaining to the SR&ED amounts been included in rate base?

Exhibit 7 – Cost Allocation

7-Staff-52
Engagement with unmetered load, street and sentinel lighting customers
Ref: E7/1/4, p. 1

London Hydro stated that it notified unmetered load, street lighting load and sentinel lighting load customers about changes to the allocation of costs to these customers in accordance with the OEB's filing requirements.

Did London Hydro receive any correspondence from these customers in response to the notification? Please provide the number of responses and a summary of comments received.

Exhibit 8 – Rate Design

8-Staff-53
Rate design for microFIT and FIT customers
Ref: E8/T1/S1, p.5-8

London Hydro is proposing to allocate microFIT and FIT customers to the GS < 50 kW and GS > 50 kW based on the generator's nameplate capacity.

a) Please explain whether the costs of serving the microFIT customers are being allocated to the GS < 50 kW class.
b) Please explain whether the costs of serving the FIT customers are being removed from the GS < 50 kW class and added to the GS > 50 kW class.
c) Do microFIT and FIT generation on London Hydro's system reduce costs, such as reducing peak demand and therefore RTSR costs? Please detail any calculations.
d) Did London Hydro discuss these proposals with its microFIT and FIT customers? If so, please provide a summary of feedback received.
e) Please provide a breakdown of the costs composing the estimated $200k to serve both microFIT and FIT customers.
f) Please provide an estimate of the revenue from microFIT and FIT customers in 2017 both with and without the proposed customer re-allocation. Assume that the microFIT rate would have been unchanged.

Exhibit 9 – Deferral and Variance Accounts

9-Staff-54
LRAM VA
Ref: Tab "4. 2011-14 LRAM" of LRAMVA work form

a) Please file a copy of the 2014 CDM Annual Report, which includes the OPA's final verified results for London Hydro.
b) Please provide the 2014 initiative level net savings results and adjustments, which were verified by the OPA, in excel format. *Note:* The 2014 savings report will include the final OPA verified 2011-2014 net incremental results and savings adjustments by initiative and program.

9-Staff-55
LRAM VA
Ref: Tab "2. CDM Allocation" of LRAMVA work form

The approved 2013 LRAMVA threshold confirmed in Table 2 below are consistent with the approved LRAMVA threshold levels in the Settlement Agreement (EB-2012-

0146/EB-2012-0380). However, the LRAMVA threshold (45,191,286 kWh) applied in the LRAMVA calculation only pertained to the 2013 year. This is confirmed in Tables 3A of the LRAMVA work form.

Table 2. Amount used for CDM Threshold for LRAMVA

Forecast Year	kWh	kW	kWh (check)
2011	21,134,911	-62,262	-45,191,286
2012	33,090,805	-62,262	-45,191,286
2013	45,191,286	-62,262	-45,191,286
2014	57,222,998	-62,262	-45,191,286
2015	35,386,333	-62,262	-45,191,286
2016	65,172,667	-62,262	-45,191,286
2017	94,959,000	-62,262	-45,191,286

a) Please confirm the LRAMVA threshold applied against the 2013 load forecast.
b) Please provide rationale for the CDM threshold used for comparison purposes against actual savings in the LRAMVA calculation.

9-Staff-56
DVA Continuity Schedules
Ref: E9/T1/S2, p.2
Ref: E9/T1/S8, p.4
Ref: DVA Continuity Schedule
Ref: DVA Additional Calculations

In Exhibit 9, it's indicated that the $766k difference for Account 1589 between the DVA Continuity Schedule and the RRR for 2015 is mainly due to new Class A customers. However, in Tab 2 of the DVA Additional Calculations spreadsheet, the portion of Account 1589 that was allocated to new Class A customers is calculated to be a credit of $16k, based on an Account 1589 credit balance of $533k. It's also indicated that the amount allocated to new Class A customers should be a debit of $279k based on analysis of actual transactions.

a) Please explain how the variance of $766k reconciles with the $279k that London Hydro is requesting to allocate to new Class A customers.
b) Please confirm the total Account 1589 balance requested for disposition and the split between the amounts allocated to new Class A customers and remaining Class B customers.
c) Please explain the nature of the amounts in the "Adjustments during 2015" column in the DVA Continuity Schedule.
d) From the chart of Class A customers who participated in the ICI in Tab 2 of the DVA Additional Calculations spreadsheet, it does not appear that any Class A customers became Class B in 2015. Please confirm this.

i. If this is not the case, please propose the appropriate allocation of the Account 1589 balance to these Class B customers that exited Class A in 2015.

9-Staff-57
Transfers Between Class A and Class B Customers
Ref: DVA Additional Calculations

The rate riders for Account 1580, sub-account CBR Class B is calculated in Tab 2 of the DVA Additional Calculations spreadsheet.

a) Please propose an allocation of the balance in this sub-account pertaining to April to June 2015 for Class B customers that became Class A customers in 2015.
b) If London Hydro has any Class A customers that became Class B in 2015, please propose the appropriate allocation of the sub-account balance to these Class B customers that exited Class A.

9-Staff-58
WMS Transactions
Ref: DVA Continuity Schedule

a) Account 1580 WMS transactions in 2015 was a credit of $7M. Please explain why the variance recorded in this account is so high.
b) Please explain how interest has been forecasted for the periods of Jan. 1-Dec. 31, 2016 and Jan. 1-April 30, 2017 and why it results in interest that is in different directions (e.g. positive in the first period, negative in the second period) for some accounts.

9-Staff-59
Annual Amounts in Accounts 1518 and 1548
Ref: E9/T4/S1, p. 10
Ref: DVA Continuity Schedule

The total principal for Account 1518 and Account 1548 in Exhibit 9 agree to that in the DVA Continuity Schedule. However, the amount recorded in each year is different between Exhibit 9 and the DVA Continuity Schedule as seen in the table below.

a) Please explain the difference.
b) If the amounts in the DVA Continuity Schedule are correct, please explain the fluctuations year over year.

		2012	2013	2014	2015	Total
Account 1518	E9-T1-S4-Page 10	$22,668	$ 304	$22,625	$ 40,626	$ 86,223
	DVA Continuity Schedule	-$8,898	-$9,104	$4,247	$ 99,977	$ 86,222

		$ 31,566	$ 9,408	$ 18,378	-$ 59,351	$	1
Account 1548	E9-T1-S4-Page 10	-$1,781	-$ 285	$1,207	$ 769	-$90	
	DVA Continuity Schedule	$31,007	$32,235	$34,601	-$97,933	-$ 90	
		-$32,788	-$32,520	-$33,394	$98,702	$ -	

9-Staff-60
Disposition of Account 1592
Ref: E9/T4/S1, p. 12

London Hydro is requesting disposition of Account 1592, sub-account HST/OVAT ITCs for ($163k). London Hydro disposed of this account in its 2013 cost of service application. Per the Filing Requirements dated June 28, 2012, this sub-account was to include balances up to the effective date of the rate order. Please confirm that London Hydro only disposed of balances up to Dec. 31, 2011 and did not include a forecasted balance up to April 30, 2013in its 2013 cost of service application.

9-Staff-61
Cap and Trade Deferral Account
Ref: E1/T2/S1, p. 21

London Hydro is requesting a Cap and Trade deferral account as requested by Brantford Power Inc. in EB-2016-0058. Brantford Power Inc. agreed to not establish the deferral account as part of the settlement agreement in its proceeding.

a) Please explain how the account would meet the eligibility criteria of the establishment of a new account, those being causation, materiality and prudence as per the Filing Requirements.
b) Please confirm that no costs related to cap and trade have been included in this application. If not, please indicate where these costs have been included and how much has been included.
c) Please explain how London Hydro is planning to distinguish costs solely attributable to the cap and trade program (as compared to other cost pressures that may arise from year to year).

9-Staff-62
Climate Change Action Plan Deferral Account
Ref: E9/T10/S1, p. 4-5

London Hydro is requesting a Climate Change Action Plan Deferral Account to record unplanned infrastructure transformer upgrades, electrical system upgrades and other such costs incurred when directly related to the Climate Change Action Plan and not directly reimbursed in full by customer contributions or other subsidies.

a) Per the Filing Requirements, in the event an applicant seeks an accounting order to establish a new deferral/variance account, the eligibility criteria of causation, materiality and prudence must be met. Please discuss how the requested account meets the eligibility criteria.
b) London Hydro indicates that if the request for the account is denied, London Hydro would herein request to have its Electricity Distribution Licence amended to affect the application of customer contributions on residential service changes as a result of activities directly related to the Climate Change Action Plan.
   i. Is London Hydro requesting to amend its license in this application if the account is denied?
   ii. Please explain what is meant by "affect the application of customer contributions on residential service changes" in the amendment London Hydro referenced.

9-Staff-63
Burden Reduction Bill Deferral Account
Ref: E9/T10/S1, p. 5-6
Ref: E4/T1/S5, p. 39

London Hydro is requesting for a Burden Reduction Bill Deferral Account to record the excess of one and a half times the average bad debt write-off amounts experienced in the preceding three years should Bill 218 be enacted and should the OEB exercise the elongation of disconnection periods in excess of currently prescribed periods.

a) Per the Filing Requirements, in the event an applicant seeks an accounting order to establish a new deferral/variance account, the eligibility criteria of causation, materiality and prudence must be met. Please discuss how the requested account meets the eligibility criteria.
b) London Hydro has included $700k in OM&A for bad debt expenses in the 2017 revenue requirement. Please explain whether this amount included in rates will be included as an offset in the requested deferral account.

9-Staff-64
Draft Accounting Order for Requested DVAs
Ref: E9/T10/S1

Per the Filing requirements, please provide a draft accounting order for the four requested DVAs: Retiree Life Insurance, Pension & Other Post-Employment Benefits, Cap and Trade Deferral Account, Climate Change Action Plan Deferral Account, and Burden Reduction Deferral Account.

Reference for Interrogatory

2-Staff-21 part c):