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May 9, 2024

VIA E-MAIL

Ms. Nancy Marconi  
Registrar (registrar@oeb.ca)  
Ontario Energy Board  
Toronto, ON

Dear Ms. Marconi:

**Re: EB-2023-0195**  
**Toronto Hydro-Electric System Limited CIR Application for rates beginning January 1, 2025**  
**Intervenor Evidence Interrogatories – M2 BOMA**

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Please find attached the interrogatories of VECC in the above-noted proceeding. We have also directed a copy of the same to the Applicant and BOMA.

Yours truly,

A handwritten signature in black ink, appearing to read 'M. Garner', is written over a light blue horizontal line.

Mark Garner  
Consultant for VECC/PIAC

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For interrogatory clarifications please contact Mr. Bill Harper at [bharper.consultant@bell.net](mailto:bharper.consultant@bell.net)

**REQUESTOR NAME**      **VECC**  
**TO:**                      **Building Owners and Managers Association (BOMA)**  
**DATE:**                    **April 9, 2024**  
**CASE NO:**              **EB-2023-0195**  
**APPLICATION NAME**    **2025 Custom Rate Application**

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**M2 – VECC -1**

**Reference:** **Enerlife Consulting Evidence (Enerlife), page 3**  
**THES Exhibit 8, Tab 3, Schedule 2**

**Preamble:** The Evidence states:  
*“Considering Toronto Hydro’s General Service rate classes (GS <50kW, GS 50–999kW, GS 1,000–4,999kW and Large Users) include both CRE and institutional buildings (such as hospitals, government buildings, schools and colleges/university), it is estimated that BOMA Toronto members represent about 60% of Toronto Hydro’s General Service and CSMUR rate classes.”*

Exhibit 8, Tab 3, Schedule 2 defines the CSMUR rate class as:  
*“This classification is applicable to an account where electricity is used exclusively for residential purposes in a multi- unit residential building, where unit metering is provided using technology that is substantially similar to that employed by competitive sector sub-metering providers. Use of electricity in non-residential units of multi-unit buildings does not qualify for this classification and will instead be subject to the applicable commercial classification.”*

- a) Please clarify what the 60% represents (i.e., is it 60% of the customers in the referenced classes, 60% of the kWh usage by the referenced classes, or some other basis)?
- b) Please explain how Enerlife determined that “BOMA Toronto members represent about 60% of Toronto Hydro’s General Service and CSMUR rate classes”.
- c) For each of the General Service (i.e., GS<50, GS 50-999 and GS 1,000-4,999 classes) and the Large Use class, what percentage is represented by BOMA Toronto members?
- d) Given that the CSMUR class is consists of separately metered residential units in multi-residential buildings, please explain how BOMA members account for usage by the CSMUR class.

## M2 – VECC -2

**Reference:** Enerlife Evidence, pages 3, 4-5 and 11

**Preamble:** The Evidence states:

*“Electrification of existing and new buildings is already beginning, with planning and installation of heat recovery chillers in large commercial and institutional buildings and air source heat pumps in smaller buildings.”* (page 3)

And

*“In commercial buildings, almost all current electrification installations and planning use “hybrid” solutions (with natural gas backup), and Enerlife expects this trend to continue during the 2025-2029 period (discussed in Section 2).”* (pages 4-5)

And

*“Electrification in commercial buildings has already started. A growing number of new buildings including CIBC Square and Humber River Hospital have heat recovery chillers and other heat pump technology.”* (page 11)

- a) By “electrification” is Enerlife referring specifically to the use of heat recovery chillers and air source heat pumps?
  - i. If not, what else does Enerlife consider to be “electricification” activities?
- b) Please provide any additional information Enerlife has regarding the extent to which: i) heat recovery chillers are currently (i.e., as of 2023) used in large commercial and industrial buildings and ii) air source heat pumps are currently used in smaller buildings.

## M2 – VECC - 3

**Reference:** Enerlife Evidence, pages 4 & 5

**Preamble:** The Evidence states:

*“Traditional load forecasting methodologies relying primarily on historical trends may not be well suited to project the individual or cumulative effect of these new emerging trends.”* (page 4)

And

*“In its prefiled evidence, and further confirmed in the Technical Conference, Toronto Hydro indicated that the potential load impacts of electrification in commercial buildings, such as heat pumps, installation of heat recovery chillers and connection to district energy, are not incorporated in its 2025 – 2029 load forecast.”* (page 5)

- a) Is it reasonable to assume that THES’ multivariate forecast regression models will implicitly capture historic trends in the use of technologies such as heat recovery chillers and air source heat pumps and the resulting forecasts will implicitly project a continuation of the same trends into the future?
  - i. If not, why not?

## M2 – VECC - 4

**Reference:** Enerlife Evidence, page 6

**Preamble:** The Evidence states:

*“New regulations can be expected similar to EU Directive 2023/1791, requiring data centres over 1MW to recover their waste heat, and New York City’s local law 97 putting carbon caps on buildings. Enerlife believes district energy is likely to be an important part of the low carbon future, enabling large-scale solutions which are impractical at the individual building level.”*

- a) At what government level does Enerlife expect these new regulations to be implemented (e.g., provincial, municipal, other)?
- b) Please provide any specific evidence Enerlife has that such regulations impacting THES customers can be expected to be implemented during the 2025-2029 period.

## M2 – VECC - 5

**Reference:** Enerlife Evidence, pages 5 & 7-8

**Preamble:** The Evidence states:

*“Enerlife believes that significant electrification of commercial buildings will occur during this period and recommends that Toronto Hydro should review the analysis provided in this report and assess its potential impact on the proposed load forecast, capital investment plan and revenue requirement in Toronto Hydro’s current and future rate applications.”* (page 5)  
And

*“Figure 2-1 below presents electricity intensity data in kWh/sqft for over 700 K-12 (Kindergarten to 12th Grade) schools in Toronto. This dataset (2020-2021 school year) was constructed from publicly available Top Boards Report<sup>4</sup> and has been weather normalized to Toronto City weather station. All these buildings provide similar functions, yet their electricity intensity varies by more than 3:1. There is little correlation with age – a few recently built schools are at the top of the chart, while other new schools are below the median, and many older schools are found in the top quartile. Adjustments for electrically heated portable classrooms, heating system types and air conditioning account for only a small part of the differences.”* (page 7)  
And

*“The main differences between the high performers and the rest are operational – equipment condition, scheduling and controls – and cost-effective lighting and motor drive retrofits which are supported by current CDM programs. While absolute electricity intensities vary, this story can be found repeated across all commercial building types.” (page 8)*

- a) Please provide the basis for the comment (page 7) that “Adjustments for electrically heated portable classrooms, heating system types and air conditioning account for only a small part of the differences”.
- b) The evidence on pages 7 and 8 appears to suggest that “electrification” has a minimal impact on electricity use. Please reconcile this with Enerlife’s comment on page 5 that THES needs to account for the potential impact of electrification on its load forecast.

## **M2 – VECC - 6**

**Reference: Enerlife Evidence, page 8 and Appendix A**

**Preamble:** The Evidence states:

“Enerlife applies data-driven performance-based conservation to estimate achievable electricity savings potential for individual buildings, portfolios and sectors. Empirical targets are set, typically at the top-quartile level of the benchmark charts. Target adjustments are applied to account for material differences between individual buildings, including weather and heating/cooling system types. Achievable savings are then determined for each building as the difference between its actual and target electricity use.” (page 8)

And

“Table 2-1 presents top quartile target electricity consumption savings potential for a range of commercial building types derived from a number of data sources.” (page 8)

- a) Please explain how the “potential savings” percentages set out in Table 2-1 were derived from the data presented in Appendix A. As part of the response please provide the calculations supporting the 38% savings cited for Lodging.
  - i. If data sources other Appendix A were used, please provide and indicate how the associated data was used in calculating the Table 2-1 values.

## M2 – VECC – 7

**Reference:** Enerlife Evidence, pages 9 & 10 and Appendix A

**Preamble:** The Evidence states:

*“Drawing from this direct experience with many commercial building owners/managers, Enerlife forecasts that, in the Toronto Hydro service area, 50% of this electricity consumption savings potential shown in Table 2-1 will be achieved by the end of this proceeding’s period (i.e. by the end of 2029).”* (page 9)

And

*“The expected CDM electricity consumption cumulative savings during the 2024 to 2029 period are listed in Table 2-2 below, based on 50% of the potential savings shown in Table 2-1 being achieved by 2029.”* (page 10)

- a) It is noted that for the majority of the commercial building types the data set out in Appendix A is based on 2019 while for the remaining types it is 2020 or 2020/21. Enerlife does not appear to have factored into the derivation of the savings for 2024-2029 (per Table 2-2) the fact that some of the potential savings are likely to be achieved prior to 2024 and, therefore, embedded in actual usage data used by THES to develop its forecast models. Please comment on why no such adjustments have been made and whether, in Enerlife’s view, an adjustment should be made to remove pre-2024 savings.

## M2 – VECC – 8

**Reference:** Enerlife Evidence, page 9

**Preamble:** The Evidence states:

*“All public sector building owners are preparing their 5-year ECDM Plans which are required by regulation to be posted by July 1st, 2024.”*

- a) Please provide a copy of the referenced regulation.

## M2 – VECC – 9

**Reference:** Enerlife Evidence, page 11

- a) The footnote to Table 2-2 indicates that the Average Commercial CDM Savings were calculated based on a weighted average using the kWh share by building type. Please explain source/basis for the kWh shares given the comment on page 3 regarding THES’ inability to provide details by building type.

## M2 – VECC – 10

**Reference:** Enerlife Evidence, pages 4 and 11

**Preamble:** The Evidence states:

*“Both Enerlife and Toronto Hydro’s projected CDM savings are generally consistent with the Independent Electricity System Operator’s (IESO) 2019 Achievable Potential Study (2019 APS), its subsequent 2022 APS Refresh and the 2024 Annual Planning Outlook.”* (page 4)

And

*“This adoption rate is largely consistent with the Independent Electricity System Operator’s (IESO) 2019 Achievable Potential Study (2019 APS), its subsequent 2022 APS Refresh and the 2024 Annual Planning Outlook.”* (page 10)

And

*“Enerlife’s projected average commercial sector CDM savings of 1.7% (annual reduction) is generally consistent with what was included in the Toronto Hydro load forecast and the APS targets.”* (page 10)

- a) Please provide the Enerlife’s projected commercial CDM savings (kWh) savings for each of the years 2024 to 2029 along with the supporting calculations.
- b) Please provide the basis (e.g. supporting calculations and comparisons) for Enerlife’s conclusion that Enerlife’s projected average commercial sector CDM savings are consistent with the 2022 APS targets. As part of the response, please provide Enerlife’s calculation of the average commercial savings over the 2024-2029 period based on the 2022 APS target values, including references as to the sources of the data used.
- c) Please provide the basis (e.g. supporting calculations and comparisons) for Enerlife’s conclusion that Enerlife’s projected average commercial sector CDM savings are consistent with the IESO’s 2024 Annual Planning Outlook (APO). As part of the response, please provide Enerlife’s calculation of the average commercial savings over the 2024-2029 period based on the 2024 APO, including references as to the sources of the data used.

**Reference:** Enerlife Evidence, pages 17, 20

**THES Exhibit 3, Tab 1, Schedule 1, Appendix C**

**Preamble:** The Evidence states:

*“Alternative Load Forecast Scenario One - In this scenario, the estimated impact of commercial sector CDM impact included in the original Toronto Hydro load forecast is replaced by the expected commercial sector CDM impact based on Enerlife’s analysis.”*

(page 17)

And

*“In this scenario, the estimated impact of commercial sector CDM activities included in the original Toronto Hydro load forecast is replaced by the expected commercial sector CDM impact based on Enerlife’s analysis.*

*Generating this scenario requires three steps:*

*1. Remove the expected commercial CDM impact incorporated in the original Toronto Hydro load forecast from all the GS rate classes - The Business CDM variable used in Toronto Hydro’s multivariate regression includes impacts of both commercial and industrial CDM programs. Only the impact from commercial CDM programs have been removed.*

*2. Align Enerlife’s expected CDM impact as listed in Table 2-2 (2024 to 2029 CDM impact by building type) to two rate class categories: i) CSMUR and ii) Total GS rate classes (which include GS<50kW, GS 50 to 999 kW, GS 1,000 to 4,999 kW and the Large User Rate Classes).*

*3. Incorporate Enerlife’s expected CDM impact by rate class to the CSMUR, GS<50kW, GS 50 to 999 kW, GS 1,000 to 4,999 kW and the Large User Rate Classes.”* (page 20)

- a) With respect to Step #1 (page 20), please provide the detailed calculations setting out how the expected commercial CDM impacts were removed from the original THES load forecast for each of the GS rate classes.
- i. As part of the response please clarify whether it was only the impact of CDM initiatives implemented in 2024-2029 (THES Exhibit 3, Tab 1, Schedule 1, Appendix C) that were removed.
  - ii. As part of the response, please indicate how Enerlife determined the commercial vs. industrial CDM program impact of the THES forecast CDM for 2024-2029 per THES Exhibit 3, Tab 1, Schedule 1, Appendix C.
  - iii. As part of the response, please provide the resulting load forecast for each GS class and the Large Use class, with these savings removed.



- b) With respect to Step #2, please set out Enerlife's calculation of the annual CDM impact (kWh) over the 2024-2029 period for: i) the CSMUR class and ii) the GS & Large Use classes in total using the percentage savings in Table 2-2.
- c) With respect to Step #3, please set out how Enerlife assigned the total GS & Large Use classes' savings to the individual customer classes and the resulting values by class for each of the years 2024-2029.

## M2 – VECC – 12

**Reference:** Enerlife Evidence, pages 11 and 16

**Preamble:** The Evidence states:

*“Electrification in commercial buildings has already started. A growing number of new buildings including CIBC Square and Humber River Hospital have heat recovery chillers and other heat pump technology.”* (page 11)

And

*“Based on discussions with a number of clients, Enerlife expects a steady increase in market penetration over the 2024-2029 period, averaging 2% per year, for commercial buildings in Toronto, predominantly “hybrid” electrification with existing fossil-fuel-fired heating continuing in use during peak demand periods. By this estimate, 12% of commercial buildings in Toronto would have adopted electrification by the end of 2029 as described above.”* (page 16)

- a) The statement on page 16 that increased market penetration of 2% per year will result in an overall penetration of 12% by 2029 suggests that the penetration rate in 2023 was zero. However, the statement on page 11 indicates that some market penetration has already taken place. Please reconcile.

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