Interrogatories of Environmental Defence

EB-2020-0059 – Waterloo North Hydro Inc. – 2021 Distribution Rates

Transmission Losses

1. Reference: Exhibit 2, Attachment 2-2, DSP, s. 1.3.6

Preamble: In a recent undertaking response, Hydro Ottawa stated as follows:

> Hydro Ottawa continues to review new and emerging technologies and potential Conservation Voltage Reduction ("CVR") options. In 2019, Hydro Ottawa partnered with a vendor to pilot a Grid Edge Volt/VAr Control ("VVC") solution. The units were deployed on feeders in the Kanata North area at predetermined pole mounted transformer locations as a non-wires alternative to assist with capacity constraints in this area. The primary focus of the project is to reduce energy demand to deliver energy savings and improve power quality at the secondary voltage locations. The units have been fully deployed and six-week voltage reduction testing in the Kanata North area commenced in early July 2020. The pilot project is expected to be completed by the end of 2020.[1]

Questions:

a) Is WNH familiar with this technology?
b) Is WNH willing to commit to explore whether this technology could cost-effectively reduce losses in its system and thus reduce energy bills?
c) If the outcomes of Hydro Ottawa's pilot project are positive and it decides to invest in this technology, is WNH willing to invest in this technology to the extent that it would cost-effectively reduce losses in its system and thus reduce energy bills?

2. Reference: Exhibit 2, Attachment 2-2, DSP, s. 1.3.6

Preamble: Hydro Ottawa's Conservation and Demand Management Annual Reports for 2006 and 2007 describe a project relating to Distribution Loss Reduction as follows:

> Description:
>
> The Distribution Loss Reduction Program is a broad network based initiative to drive greater efficiencies within the distribution grid. This program will identify opportunities for system enhancements. Next steps will be to complete the engineering analysis and feasibility studies. Items to be addressed may include the following:
>
> > Power Factor Correction - A power factor assessment will be completed which will identify locations for the installation of power factor correction capacitor banks.

[1] EB-2019-0261, Technical Conference Undertakings, Undertaking TC-JT 3.10

Voltage Conversion - Voltage upgrades can save up to 90% of the losses associated with a feeder as higher voltages and lower current results in lower losses. This study will ascertain the locations and value of voltage conversions.

Power System Load Balancing - This program is designed to ascertain where load shifting can occur to improve system efficiency. It is estimated that approximately 5% - 10% of system losses could be saved.

Voltage Profile Management - Changing voltage profiles at the distribution station level can result in a peak reduction at the controllable distribution stations.

Line Loss Reductions - Replacement of conductors can reduce line losses. An evaluation of where such opportunities exist may be undertaken.

Target users

The results of this program will positively impact all of Hydro Ottawa's customers.

Benefits

Reducing electricity distribution system delivery losses will have a number of positive impacts including reducing system demand, relieving network capacity to accommodate growth and reducing the requirement for new generating capacity in the Province. Costs associated with distribution system delivery losses are recovered through electricity distribution charges. Reductions in these costs will therefore benefit all customers

The plan can be found here: EB-2019-0261, Technical Conference Undertakings, Undertaking TC-JT 3.15, Attachment A

The most recent update can be found here: EB-2019-0261, Interrogatory Response, IRR ED-1, Attachment A

Questions:

a) Please review the work completed by Hydro Ottawa with respect to losses and create a chart detailing which items WNH has and has not also completed. Please separately include each of the following areas:
    a. Power Factor Correction
    b. Voltage Conversion
    c. Power System Load Balancing
    d. Voltage Profile Management
    e. Line Loss Reductions
b) If there were three areas that WNH could explore to find the most cost-effective opportunities to reduce losses, what would those be?

3. Reference: Exhibit 2, Attachment 2-2, DSP, s. 1.3.6

Question:

a) Please provide a table comparing WNH's losses (%) to those of all other Ontario LDC's over the past 5 years.

4. Reference: Exhibit 2, Attachment 2-2, DSP, s. 1.3.6

Questions:

a) What are the most important steps that WNH has taken in the past 20 years specifically to reduce distribution system energy losses? Please exclude measures for which loss reductions were merely a side-benefit that did not drive the decision to proceed.
b) Where does WNH believe the greatest opportunities are to make additional reductions in distribution losses in the next 20 years? Please exclude measures for which loss reductions are merely a side-benefit that did not drive the decision to proceed.
c) Does WNH quantify and consider the potential value of distribution loss reductions for different options when procuring equipment (e.g. transformers) and deciding on the details of demand-driven capital projects (e.g. the type and sizing of conductors)? If yes, please explain how and provide documentation detailing the methodology used.
d) If WNH is considering the value to its customers of distribution loss reductions for planning purposes, how does it calculate the dollar value ($) of said loss reductions (kWh)? Is the value calculated based only on the HOEP or on all-in cost of electricity (e.g. including the GA)?
e) Please list and describe the operational measures that WNH takes to cost-effectively reduce distribution losses.
f) Please provide a table listing the technically available measures to cost-effectively reduce distribution losses and describe for each the respective responsibilities of WNH, the IESO, and Hydro One.

5. Reference: Exhibit 2, Attachment 2-2, DSP, s. 1.3.6

a) Please complete the below table.

Value of WNH's Distribution System Energy Losses - Historic						
	2015	2016	2017	2018	2019	Total
Electricity Purchases (MWh)						
Electricity Sales (MWh)						
Losses (MWh)						
Losses %						
All-In Cost of Electricity in						

WNH ($/Mwh) – Annual Average						
Cost of Losses ($)						

b) Does WNH anticipate the value of losses on its system to be materially higher or lower over the next five years?
c) Please complete the following table:

Cost and GHG's from Distribution System Energy Losses						
	2015	2016	2017	2018	2019	Total
Forecast Losses (MWh)						
Cost of Losses ($)						
Carbon Intensity of Electricity[2] (CO2e/MWh)						
GHGs (CO2e)						

d) Please complete the following table:

Cost and GHG's from Forecast Distribution System Energy Losses						
	2021	2022	2023	2024	2025	Total
Forecast Losses (MWh)[3]						
Cost of Losses ($)						
Carbon Intensity of Electricity[4] (CO2e/MWh)						
GHGs (CO2e)						

e) Is WNH willing to review its operational measures, investment planning, and other practices to consider whether it could be taking additional measures to cost-effectively reduce the energy losses occurring in its distribution system?

[2] Please base this figure on the IESO's January 2020 Annual Planning Outlook - http://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Annual-Planning-Outlook-Jan2020.pdf?la=en; see also the data tables at http://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Annual-Planning-Outlook-Data-Tables-Jan2020.xlsx?la=en.
[3] If no better numbers are available, the losses from 2019 or the average over 2015 to 2019 could be used for the purpose of this row of this response.
[4] Please base this figure on the IESO's January 2020 Annual Planning Outlook - http://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Annual-Planning-Outlook-Jan2020.pdf?la=en; see also the data tables at http://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Annual-Planning-Outlook-Data-Tables-Jan2020.xlsx?la=en.

Fixed Versus Variable Charges

6. Reference: Exhibit 8, p. 8

Preamble: Table 8-5 - Monthly Service Charge Comparison

Rate Class	Current 2020 Monthly Service Charge	Proposed 2021 Monthly Service Charge	Minimum System with PLCC Adjustment (Ceiling Fixed Charge from Cost Allocation Model)	Customer Unit Cost per Month - Avoided Cost (Floor Fixed Charge from Cost Allocation Model)
Residential	$ 32.05	$ 34.34	$ 23.32	$ 6.19
GS < 50 kW	$ 33.71	$ 36.12	$ 26.74	$ 11.13
GS > 50 kW	$ 125.96	$ 134.98	$ 78.02	$ 43.27
Large User	$ 7,359.96	$ 7,886.68	$ 429.78	$ 210.79
Unmetered Scattered Load	$ 11.20	$ 11.88	$ 11.72	$ 0.53
Street Lighting	$ 0.35	$ 0.38	$ 6.89	$ 0.54
Embedded Distributor	$ -	$ -	$ 114.38	$ 29.14

Question:

a) Does WNH agree that shifting costs for commercial and industrial customers from fixed charges to variable charges would incentivize positive customer behaviour such as shifting load off the peak, installing distributed energy, and implementing energy efficiency? Please explain.
b) Does WNH agree that setting the fixed monthly charges for commercial and industrial customers at the level of avoided cost would represent a shift of costs from fixed charges to variable charges?
c) Does WNH agree with Board Staff that setting fixed monthly charges at the level of avoided costs has benefits, including that avoided costs "are easiest to determine, are subject to minimal judgment and thus more accurate"?[5]
d) Would WNH agree to set its commercial and industrial fixed monthly charges to equal avoided costs going forward? If not, would WNH agree to study and consider this issue for potential implementation in its next annual rate application?
e) Please confirm that WNH has proposed fixed monthly charges for commercial and industrial customers that is above the maximum level.
f) Please explain why WNH is proposing fixed monthly charges for commercial and industrial customers that are above the maximum level. Please include a detailed breakdown quantifying and explaining for each rate class the difference between the proposed fixed charges and the maximum fixed charges.

[5] EB-2007-0667, Board Staff Discussion Paper: On the implications arising from a review of the electricity distributors' cost allocation filings, June 28, 2007, pp. 26-27.

g) Please provide the methodology, calculations, and any underlying documentation showing how WNH calculates the fixed monthly charge for its commercial and industrial customers.
h) Please confirm which year WNH first used the OEB's 2006 Cost Allocation model in setting its rates.
i) Please provide a table showing WNH's fixed monthly charges for each commercial and industrial rate class from 2005 (actual) through to 2025 (proposed).
j) Please provide the percent difference between the proposed monthly fixed charge for commercial and industrial customers and the Board minimum and maximum figures (i.e. Customer Unit Cost per month - Avoided Cost; Customer Unit Cost per month - Directly Related; and Customer Unit Cost per month - Minimum System with PLCC Adjustment). Please calculate the percentage based on an average weighted by the number of customers in each class.
k) For the most recent year available, please provide the number of customers in each of the commercial and industrial rate classes.
l) Please complete the following table calculating the total annual amount of fixed charges by customer class (actual and forecast).

Total Fixed Charge Revenue Historic and Forecast				
	GS <50 kW	GS >50 kW	Large User	Total
2018 (actual)				
2019 (actual)				
2020 (forecast)				
2021 (forecast)				
2021-2025 (forecast)				

m) Please complete the following table calculating the total fixed charge revenue per the proposed fixed charges versus the OEB floor and ceiling.

Total Fixed Charge Revenue per Proposed Fixed Charges vs. OEB Floor and Ceiling				
	GS <50 kW	GS >50 kW	Large User	Total
Customers in Class[6]				

[6] Please provide a best estimate. The actuals from 2019 would be sufficient.

OEB fixed charge floor				
OEB fixed charge floor ($)[7]				
Total fixed charge revenue (2021-2025) ($)[8]				
OEB fixed charge ceiling				
OEB fixed charge ceiling ($)[9]				
Total fixed charge revenue (2021-2025) ($)				
Proposed fixed charges				
Proposed fixed charges ($)				
Total fixed charge revenue (2021-2025) ($)				
Difference in revenue between fixed rate amounts				
Proposed versus OEB floor (%)				
Proposed versus OEB ceiling (%)				
Proposed versus halfway between floor and ceiling (%)				

7. Reference: Exhibit 8, p. 8

Preamble: Table 8-5 - Monthly Service Charge Comparison

We note that shifting costs from fixed rates to variable rates would expose WNH to the risk that a portion of those costs may not be recovered if actual demand is below forecast demand. However, shifting costs from fixed to variable rates would also send positive price signals to customers to encourage efficiency and shifting load off the peak. These questions relate only to commercial and industrial rates.

Questions:

[7] Customer Unit Cost per Month - Avoided Cost (Floor Fixed Charge from Cost Allocation Model)
[8] (customers) * (fixed monthly charge) * 12 * 5
[9] Minimum System with PLCC Adjustment (Ceiling Fixed Charge from Cost Allocation Model)

(a) If the OEB were to order WNH to drop its fixed charges for commercial and industrial customers to below the OEB ceiling, what rate design or other changes could WNH make or seek to make to offset the modest amount of increased demand forecast risk that would be associated with this change?
(b) If intervenors were to ask WNH to drop its fixed charges for commercial and industrial customers to halfway between the OEB floor and ceiling, what rate design or other changes could WNH seek to offset the modest amount of increased demand forecast risk that would be associated with this change?
(c) Please discuss other ways in which WNH could ensure revenue recovery and protect itself from demand forecast risk aside from reliance on fixed rates.
(d) Please discuss the possibility of a true up as a way to insulate WNH from increased demand forecast risk as an alternative to fixed commercial and industrial rates above the OEB ceiling.
(e) Would WNH be open to other ways to protect itself from demand forecast risk aside from reliance on fixed rates?

Integrated Resource Planning

8. Reference: Exhibit 2, Attachment 2-2, DSP

Questions:

a) Please describe the processes at WNH to implement Integrated Resource Planning, with a particular focus on the consideration of non-wires solutions to system needs. Please file any internal documentation outlining said processes.
b) How does WNH ensure that non-wires options are identified and considered early enough in the planning process to ensure that they can be implemented in lieu of supply-side solutions where cost effective?
c) How does WNH calculate the net costs/benefits of non-wires solutions when comparing them to supply-side option? Please include all kinds of distributed energy resources in your answer, including energy efficiency, demand response, storage, and distributed generation. Please include a description of how avoided energy costs (e.g. the value of future energy savings from energy efficiency) are considered when comparing wires and non-wires solutions.
d) Does WNH always study potential non-wires solutions to system needs in its capital planning processes? If not, please explain the screening criteria that WNH uses to determine whether an assessment of non-wires solutions is warranted.
e) Does WNH agree that it is appropriate in certain circumstances for an LDC to procure or contract for distributed energy resources where doing so would be a more cost-effective alternative in comparison to a traditional supply-wide investment?
f) Does WNH agree that it is appropriate for it to earn a return if it is able to avoid a capital investment in wires or transformers through distributed energy resources such as energy efficiency, demand response, or storage?
g) Does WNH agree that it is important to give LDCs an incentive to adopt non-wires solutions to system needs where those solutions are more cost-effective?

h) Does WNH agree that the difference between the financial returns from wires and non-wires solutions creates a disincentive to implement non-wires solutions?
i) Has WNH sought approval to earn a return for avoiding a capital investment in wires or transformers through distributed energy resources such as energy efficiency, demand response, or storage?
j) How does WNH believe a financial return should be calculated for avoiding a capital investment in traditional supply-side infrastructure through distributed energy resources such as energy efficiency, demand response, or storage?

9. Reference: Exhibit 2, Attachment 2-2, DSP, p. 233
See also Appendix F - KWCG IRRP Scoping Assessment Outcome Report (2019), p. 9-10

> "Both Waterloo North Hydro (WNH) and Energy+ have identified the need for new capacity in the next five to 10 years, tied, in part, to demand from development of the "East Side Development Lands." The two new potential stations for each LDC, as well as Preston TS (if expansion is possible) are all theoretically positioned to service future load growth. New capacity in the area could be optimized to address the growth needs of both LDCs. The integration exercise will also consider Preston TS end-of-life replacement plans and potential optimization with incremental capacity needs. This capacity study will consider whether the Preston TS can be expanded to supply future load growth rather than deferring the end-of-life transformer replacement plans slated to be in service for 2025-2026. The study group recommends that need for new capacity for WNH and Energy+ be addressed in the IRRP in consideration of capacity at Preston TS."

Questions:

a) Please provide a high-level estimate of the costs for WNH to build or upgrade facilities to meet the above-referenced need.
b) Please provide any studies or internal documents that WNH possesses regarding the above-referenced need.
c) Please discuss the possibility of meeting the above-referenced need via (i) renewable generation or storage situated in or around the East Side Development Lands; (ii) geothermal heating and cooling, (iii) targeted energy efficiency measures; and/or (iv) other non-wires alternatives.
d) Please discuss what role WNH could play with respect to the non-wires solutions mentioned in (c) as a means to cost-effectively reduce distribution costs. Please include the possibility of providing financial contributions or incentives that would make a cost-effective non-wires solution possible.
e) Please discuss the lead time that would be associated with the following non-wires solutions to distribution constraints: (i) local renewable generation; (ii) local energy storage; (iii) geothermal heating/cooling; and (iv) targeted energy efficiency measures.
f) If WNH were to pursue one of the non-wires solutions noted above, what OEB approvals would be required? Could WNH seek pre-approval in this proceeding for one of those non-wires solutions on the condition that the cost be less than the distribution investment in question?

10. Reference: Exhibit 2, Attachment 2-2, DSP, Appendix H

Question:

a) Please provide a breakdown of the generators connected to the WNH system by type of fuel (gas, solar, wind, etc.), including the total kW of each type.

Community Energy Investment Strategy

11. Reference: Exhibit 2, Attachment 2-2, DSP

Questions:

a) Please file a copy of Waterloo Region's Community Energy Investment Strategy.
b) Please discuss WNH's role, if any, with respect to each of the energy opportunities outlined in Appendix A of Waterloo Region's Community Energy Investment Strategy.
c) Please discuss any commitments that WNH has made (e.g. to Waterloo Region) in relation to its Community Energy Investment Strategy. Please file any associated correspondence.
d) Please file a copy of Waterloo and Waterloo Region's climate commitments.
e) Please discuss WNH's anticipated role in achieving these commitments, if any.
f) Please complete the following table:

WNH Service Area Electricity Demand and GHGs					
	2020	2021	…	2049	2050
Annual Electricity Demand (kWh)					
Carbon Intensity of Electricity (CO2e/kWh)[10]					
GHGs from Electricity Use (CO2e)					

Please make assumptions as necessary and state all assumptions. If the calculations are a challenge, please answer the question on a best-efforts basis and with any caveats as necessary. If certain parts of the answer cannot be estimated, please explain why and complete as much of the answer as possible. If an answer cannot be provided for the complete period, please provide an answer for as far into the future as feasible. If the electricity demand cannot be forecast beyond a certain year (e.g. 2030), please assume that demand remains at that year's levels going forward. With respect to the carbon

[10] Per the IESO's January 2020 Annual Planning Outlook.

intensity of electricity, please assume that it remains constant for years beyond the last year for which an estimate is available.

g) Please discuss whether the figures in the above table are consistent with Canada's and Waterloo Regions' GHG emissions reductions targets. If not, please discuss what steps WNH could take to ensure the gap is addressed as cost-effectively as possible, and whether efforts in that regard should occur over 2021-2025.

Heat Pumps

12. Reference: Exhibit 2, Attachment 2-2, DSP

Preamble: An expert report filed in EB-2016-0004 by Dr. Stanley Reitsma, P. Eng., outlined significant benefits to the electricity system in reducing peak demand.[11] See page 5 to 13. For example, Dr. Reitsma concludes:

> "Though geothermal relies on electricity as an input (to power the pump), geothermal system actually reduces electricity demand in the summer, and increases it in the winter, relative to traditional methods of heating and cooling (heating with fossil fuels and cooling with traditional AC systems). For Ontario, a summer peaking jurisdiction, a greater reliance on geothermal would reduce peaking power needs and also reduce surplus baseload generation. Coincidentally, the load profile of a geo system is similar to the production profiles of Ontario wind energy facilities."[12]
>
> "For the cooling of buildings, Geo HP's use about half the electricity to operate compared to air source heat pumps and AC systems, and, geo's electrical demand doesn't spike as it gets hot outside, since the ground loop temperature remains relatively unchanged. They can reduce the "heat wave" electricity system demand spikes by up to 75%."[13]

Questions:

a) Does WNH agree with the comments in the above-referenced report regarding the benefits that geothermal systems can provide to the electricity system, including a reduction of peak demand? Please explain.
b) Does WNH agree that the expansion of geothermal systems would reduce peak demand on WNH's system, on which distribution system capacity is based?
c) Does WNH agree that geothermal systems have the capacity to provide important benefits to the electricity distribution system, especially in comparison to traditional baseboard heating?

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[11] Dr. Stanley Reitsma, P. Eng., *Ontario's Low Carbon Future: Geothermal Heat Pumps*, March 21, 2016 (http://www.rds.oeb.ca/HPECMWebDrawer/Record/521626/File/document).
[12] *Ibid*. p. 5.
[13] *Ibid*. p. 6.

d) Does WNH agree that the benefits of geothermal systems are not reflected in the distribution costs paid by residential consumers because those charges do not vary based on coincident peak demand?
e) Does WNH agree that increases in heat pumps would assist Waterloo Region in achieving its GHG reduction targets?
f) Would WNH agree to study the possibility of offering customers with geothermal systems a reduction in their distribution charges that would approximately reflect the benefits those customers provide to the distribution system? Assume the overall rate structure would continue to make WNH whole for its revenue requirement.
g) Please provide WNH's best information on the number and proportion of its customers with (i) electrical, (ii) natural gas, (iii) propane, (iv) oil, (v) wood, and (vi) other kind of space heating.

13. Reference: Exhibit 2, Attachment 2-2, DSP

Questions:

a) Please confirm the percent of greenhouse gas emissions in Waterloo Region (or the WNH service territory) that are from the consumption of natural gas.
b) Please describe potential roles that WNH could play in relation to the implementation of electric heat pumps as an alternative to natural gas heating.
c) How many new homes and businesses are forecast to be built in WNH's coverage area in the next 10 years? If available, please provide an annual breakdown.
d) How many new customers does WNH expect to hook up in the next 10 years? If available, please provide an annual breakdown.
e) What assistance could WNH provide to developers to promote the installation of electric heat pumps instead of natural gas furnaces in new construction?
f) Would WNH benefit from regulatory changes in order to play a greater role in promoting the expansion of electric heat pumps in lieu of natural gas? If yes, what are those potential changes?
g) Please comment on the report by Ralph Torrie estimating that electricity demand could decline if all heating was converted to electric heat pumps and energy retrofits were increased: https://www.corporateknights.com/channels/built-environment/recovering-stronger-building-low-carbon-future-green-renovation-wave-15875463/.

14. Reference: Exhibit 2, Attachment 2-2, DSP, Appendix J, p. 7

Questions:

a) Would WNH have sufficient capacity over 2021-2025 if (i) 2% or (b) 5% of its customers converted from natural gas to an air-source heat pump for home heating each year? Please make and state any assumptions needed to answer this question.
b) If not, would WNH ensure that sufficient capacity is put in place?
c) Please comment generally on WNH's readiness for the possibility of a shift in heating from natural gas to electric heat pumps (e.g. driven by federal decarbonization subsidies).

Electric Vehicles

15. Reference: Exhibit 2, Attachment 2-2, DSP, Appendix J, p. 7

Preamble:

"WNH forecasts sufficient capacity in its population of distribution transformers over the 2021- 2025 forecast period to serve the growing load, including the connection of electric vehicles. Some localized constraints may occur over time and will be addressed on a case by case basis."

Questions:

(a) Please elaborate on the above statement.
(b) If localized constraints occur, please discuss how long it might take to address them on a case by case basis.
(c) Would WNH commit to ensure that none of its customers are prevented or delayed in installing electric vehicle charging stations due to distribution system constraints? If not, what commitments would it be willing to make in this regard?

16. Reference: Exhibit 2, Attachment 2-2, DSP, Appendix J, p. 7

Questions:

a) How many electric vehicle charging stations are installed by WNH customers now and how many are forecast for each year from 2021 to 2025? Please provide a high-end and low-end estimate.
b) Is WNH confident that it is making all the investments needed to facilitate increases in electric vehicles and electric vehicle charging stations even if its high-end forecasts come to fruition?
c) Have any WNH customers been unable to install an electric vehicle charging station (e.g. a level 3 station) due to constraints on WNH's distribution system? If yes, how many customers each year?
d) Have any WNH customers been *delayed* in installing an electric vehicle charging station (e.g. a level 3 station) due to constraints on WNH's distribution system? If yes, how many customers each year?
e) Is it WNH's goal that all customers will be able to install and use electric vehicle charging stations if they wish to do so? If not, please detail WNH's targets in this regard.
f) Please list and describe the investments that WNH intends to make over 2021-2025 to ensure readiness for electric vehicles.
g) Please list and describe the ways in which WNH is *currently* able to use the battery in electric vehicles as a distributed energy resource to provide a service that benefits the distribution system.
h) Please list and describe the ways in which it is possible to use the battery in electric vehicles as a distributed energy resource to provide a service that benefits the distribution system, *focusing only on those which WNH is not yet capable of undertaking*.

i) Is WNH able to capitalize on the storage capacity of electric vehicles to reduce distribution system costs by: (i) communicating directly with charging stations to reduce load during peak periods; (ii) communicating directly with charging stations to allow power to be drawn from batteries during peak periods; (iii) drawing energy from car batteries connected to charging stations during peak periods; and (iv) communicating directly with charging stations to ensure energy is drawn from the LDC's system at the optimal times? If not, please explain what additional steps WNH is willing to commit to take to explore and implement these things.
j) Is WNH willing to offer customers special rates to encourage the expansion of electric vehicles?
k) Is WNH willing to further explore steps it can take to speed up the implementation of charging stations in hard-to-service locations, such as for on-street parking in Waterloo?

Standby Charges

Reference: Exhibit 7, p. 13

Preamble:

Staff Discussion Paper, EB-2015-0043, Rate Design for Commercial and Industrial Electricity Customers: Aligning the Interests of Customers and Distributors, March 31, 2016, p. 12:

> "Current OEB staff thinking is that the underlying rate design should be readily understandable to the traditional customer and reward the active customer for reducing one of the primary cost drivers i.e. peak capacity. Reducing peak capacity will lower the distributor's investment needs to meet peak capacity and save money over time. Building this driver into the rates will align the interests of the customer and the distributor. The expectation is that a rate design that addresses underlying cost drivers will lead to each customer paying their fair share of the system. The intention is to avoid creating specialized rate classes for load displacement generation and net metered customers and charges like standby rates that can be a barrier to customer choice."

Questions:

(a) Please comment on WNH's proposed standby rates in relation to the Board Staff's statement that standby rates "can be a barrier to customer choice."
(b) Please confirm that WNH's standby rates mean that customers who assist in reducing peak demand are not fully compensated for the full benefit to the distribution system they provide. If WNH disagrees, please explain.
(c) Please confirm that less than $1/5^{th}$ of Ontario's LDCs have standby rate classes.[14]
(d) Please provide a reference to the most recent occasion on which the OEB approved a *new* LDC standby charge for an LDC that previously had no standby charges.

[14] February 21, 2019, Staff Report to the Board Rate Design for Commercial and Industrial Electricity Customers Rates to Support an Evolving Energy Sector, EB-2015-0043, p. 35.

(e) WNH's proposed standby charge would be based on a contracted level every month. Please discuss an alternative option that would recover the capacity payment on average over the year.

Reference: Exhibit 7, p. 13

Preamble:

> "…WNH has determined that there will be ten load displacement customers within its service territory who from time to time require power from WNH, and will require capacity to exist for their load when their generation is off."

Questions:

(a) Please complete the following table (i) for the ten customers referenced above and again for (ii) the customers that WNH forecasts will install load displacement over 2021-2025 if such a forecast exists.

Load Displacement Customers – Impact on System Peak Demand					
	2015 (actual)	2016	…		2025 (forecast)
Peak Demand (kW)					
Coincident Peak Demand (kW)					
Installed Load Displacement Capacity (kW)					

(b) Please provide a breakdown of the total load displacement capacity (kW) of the ten customers referenced above by type (storage, solar, gas, etc.).
(c) If it differs from (b), please provide a breakdown by of the total load displacement capacity by type (storage, solar, gas, etc.) forecast to be connected to the WNH system by 2025.
(d) Please provide quantify and discuss the degree to which WNH's load displacement customers have reduced the peak demand on WNH's system in the past and are forecast to do so in the future when considered in the aggregate.
(e) Please provide a forecast of the revenue that WNH believes it will be unable to recover if it does not receive approval for its proposed standby changes. Please make and state all assumptions as necessary. Please provide an estimate for each year from 2021 to 2025 and in total.

(f) Please provide copies of the communication from and to customers referred to on page 15 with identifying information redacted.
(g) How many WNH customers are considering investments in load displacement via batteries or renewable resources over 2021 to 2025?
(h) What impact will WNH's standby charges have on the economics of distributed energy resources?
(i) Board Staff has noted that coincident peak demand charges eliminate the need for specialized charges for distributed generation.[15] Would WNH consider implementing a coincident peak demand charges in lieu of standby charges?
(j) Please discuss whether WNH could ensure it recovers its revenue requirement by addressing load displacement in its load forecast.
(k) Please discuss other options for WNH to recover its revenue requirement while still fully incentivizing customers for the benefits they provide the distribution system by reducing peak demand.
(l) If a load displacement customer is able to commit that it will not draw from the system at the time of the system peak (e.g. by scheduling maintenance appropriately), would WNH agree that the customer need not pay a standby charge?
(m) Although a single load displacement customer may require electricity from time to time, it is presumably unlikely that this demand would occur from all load displacement customers at the same time. Please discuss whether and how this would impact the capacity requirements associated with load displacement at an aggregate level.

[15] EB-2015-0043, Staff Discussion Paper, March 31, 2016, p. 25.