Elexicon Energy
EB-2022-0024
2023 IRM Distribution Rate Application

Interrogatories of Environmental Defence

Interrogatory # 1-ED-1

Reference: Appendix B – Incremental Capital Module Whitby Smart Grid & Sustainable Brooklin

Preamble: Per page 11:

Table 1: WSG Net Benefits

Customer Annual Benefit Summary		
(All Dollars Listed in Thousands CAD)		
Cost of Power (WRZ)	$	108,526
Projected % Energy Savings from WSG		3.00%
Total Purchased Power Savings from WSG (A)	$	3,256
ICM Additional Revenue (B)	$	4,120
Additional OM&A Expenses (C)	$	324
Operating Efficiencies from WSG (D)	$	41
Sub-Total of Savings (E = A-B-C+D)	$	(1,147)
Projected VoLL Benefit from Reliability (F)	$	1,820
Annual Net Benefit to WSG Customers (G = E+F)	$	673

Questions:

(a) Please provide the net savings/costs from the WSG project expressed as a net present value and calculated over a 20 or 40 year period.
(b) Please provide an estimate of how much of the $26.6 million for the Sustainable Brooklin Project will be paid for by incremental distribution rates over the next 40 years. For instance, please provide a standard discounted cash flow and NPV analysis over 40 years that includes the forecast costs and distribution revenue from the forecast growth expected in this area. To help us understand the numbers, it would be helpful to file the excel spreadsheet that is used. If Elexicon believes a longer period is appropriate (e.g. because these are longer-lived assets), please use that period.
(c) Please provide the net savings/costs from the WSG and Sustainable Brooklin projects combined, expressed as a net present value and calculated over a 20 or 40 year period.
(d) Please confirm that the net benefits figures and table on pages 9 to 11 do not include:
    i. For the Sustainable Brooklin Project:

A. For customers that would have purchased a DER or EV regardless of the investments, the incremental cost of having to retrofit their building to do so;
B. For customers who would not have purchased a DER or EV but for the investments, the incremental net benefits from the DER/EV (i.e. the net of the cost and the benefits, including reliability benefits from a battery or bi-directional EV charger; savings from the DER arising from peak shaving, generation revenue, substitution of electricity for gasoline, etc.);

ii. For the Whitby Smart Grid:
A. The specific value of transmission losses reductions being highest when demand and electricity costs are highest;
B. Customer benefits arising from DERs that are enabled by the project (e.g. by allowing greater DER penetration);

iii. For both:
A. Avoided costs of province-wide non-emitting generation capacity;
B. Contribution to potential future avoidance of transmission or distribution infrastructure;
C. Benefits to the economy (e.g. DER spending, and its contribution to the local economy); and
D. Greenhouse gas reductions, including the marginal cost of making equivalent reductions through other means.

(e) For each of the items listed in (d) above, please provide a rough estimate of the value of the benefit, or if that is not possible, please provide some commentary on the magnitude of the value.
(f) How did Elexicon value the reliability benefits in Table 1? Please explain and provide underlying calculations.
(g) Do the reliability benefits in Table 1 include the customer specific benefits from, for example, installing a bi-directional electric vehicle charger that can provide backup to a home?
(h) How did Elexicon value the energy benefits in Table 1? Please explain and provide underlying calculations. For instance, did Elexicon use the average wholesale price including HOEP and GA, or another method?
(i) Page 9 states: "The WSG and Sustainable Brooklin Projects are anticipated to provide an annual benefit to WRZ customers of $0.673MM", which refers to the table on page 11 itemizing the benefit of the WSG only. Please confirm if the $0.673 million accounts for the costs and benefits of both the WSG and Sustainable Brooklin Projects, or just the WSG.

Interrogatory # 1-ED-2

Reference: Appendix B – Incremental Capital Module Whitby Smart Grid & Sustainable Brooklin

Questions:

(a) Per page 47: "Homeowners that are not able to purchase DER-and-EV-Ready homes are forced to undergo expensive retrofits to accommodate the installation of Solar PV, battery storage, or electric vehicle charging infrastructure." Please provide a rough estimate of the number of customers that will avoid those retrofits, the approximate cost of those retrofits, and the total savings (over 20 years). We understand that this will involve significant uncertainty – please provide caveats and or a range of outcomes if that assists in addressing the uncertainty.
(b) Per page 47: "This will result in greater costs for customers, and lower uptake of DERs and EVs, resulting in lost opportunities". Please provide a rough estimate of the number of incremental customer uptake for DERs and EVs due to this project and the value to them of (i) backup, (ii) net electricity savings, and (iii) net energy savings by substituting electricity for gasoline. We understand that this will involve significant uncertainty – please provide caveats and or a range of outcomes if that assists in addressing the uncertainty.
(c) Rate riders are discussed on page 53. Please provide the average incremental monthly cost to residential ratepayers in 2023, 2024, and 2025 accounting for all the proposed ICM spending.
(d) When will the proposed ICM investments be fully paid-for via rates?

Interrogatory # 1-ED-3

Reference: Appendix B-1 - Whitby Smart Grid Business Case

Questions:

(a) How many residential customers are in the area that will be served by the Whitby Smart Grid? Approximately how many and what percent of those are on a constrained feeder such that they cannot install a distributed energy resource? Of those, how many are restricted due to a distribution feeder versus a transmission feeder?
(b) Will the Whitby Smart Grid project help to mitigate short circuit capacity constraints and therefore allow more customers to connect DERs to the distribution system? Please explain.
(c) Will Elexicon be investing in dynamic control systems that would allow customers to connect to constrained feeders by ensuring, for instance, that neighbouring DERs do not operate at the same time to avoid short circuit constraint issues?
(d) Per page 24: "IEEE 1547 now recommends detailed engineering take place if the total DER on a feeder exceeds 33% of minimum load." What is the basis for this? Is it meant to ensure that the grid can balance load and generation without hitting thermal limits? Will the proposed project eliminate this 33% constraint, and if yes, how?
(e) On page 31, Elexicon describes having a DERMS to control distributed energy resources. What is Elexicon's current DERMS? How much does it (or will it) cost for a below 10 kW DER to be connected to and controlled by Elexicon's DERMS? Please address any Elexicon charges and estimated customer costs.
(f) How much does it (or will it) cost for an above 50 kW DER to be connected to and controlled by Elexicon's DERMS? Please address any Elexicon charges and estimated customer costs.

(g) Per page 43: "Elexicon will not bring forward detailed relief requests for its CDM proposal or Local Capacity Market proposal within its ICM application." Can Elexicon provide a rough approximate time period expected for this application?
(h) The DER connections working group is considering recommendations for residential connections that may include allowing 20 kW and below to be processed as a micro connection, and, alternatively, allowing 20 kW and below (nameplate) to be processed as a micro connection if export to the grid is controlled to 10 kW and below. These changes are motivated in part by the higher capacity needs for multi-DER residential installations (e.g. solar plus bi-directional EV charger). Would these potential changes assist Elexicon in enabling DERs?

Interrogatory # 1-ED-4

Reference: Appendix B-2 Sustainable Brooklin Business Case

Questions:

(a) Will the feeders and other distribution equipment be sufficiently sized for customers in the development to implement cold-climate heat pumps instead of fossil-fuel-based heating? If not, what would the limitation be and what would the cost be to eliminate the limitation? Also, what percent of homes would be able to electrify their heating without hitting that distribution system limitation?
(b) The charges in s. 3.2 of the DSC provide an incentive for developers to propose denser developments that will have lower per-house distribution capital contribution costs when the additional distribution revenue from the denser housing is accounted for. Is Elexicon willing to provide a revenue-neutral incentive for developers to build denser housing to increase the distribution revenue that could offset capital costs (e.g. a modest capital contribution levied only for less-dense housing types)?
(c) Per page 14: "Where the roof size and orientation are suitable, the Brooklin Developers will offer customers the option to purchase and install solar panels and related inverter and controls." What percent of homes will have a roof size and orientation suitable for solar? Is Elexicon willing to seek a specific commitment that developments will be designed such that, say, 95% of homes have a roof that is suitable for solar in order to maximize the benefits of this project?
(d) For the new developments, will Elexicon be installing bi-directional meters to avoid the cost of having to switch out a meter for customers who seek net metering? If not, what would the cost be per meter to install bi-directional meters from the outset (i.e. the incremental equipment cost) versus the cost to switch out the meter after-the-fact (i.e. the additional labour and the meter-related cost).
(e) What recourse does Elexicon have if a developer declines to fulfil one of the specific undertakings described on page 14-15? Are those undertakings contained in a formal agreement? If yes, please provide a copy.

Interrogatory # 1-ED-5

Reference: APPENDIX B-3 DER Enabling Program and Local Capacity Market

Questions:

(a) Per page 3, Elexicon is considering on-bill financing. Has it explored options for facilitating government funded 0% interest on-bill financing, such as a partnership with the Greener Homes Grant and its 0% interest green loans? Please discuss.
(b) With on-bill financing, would the cost of the financed investment (e.g. solar) be passed to the new owner in the event of a home sale? Please discuss.