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February 16, 2022

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Via Electronic Mail

Newfoundland and Labrador Board of Commissioners of Public Utilities
120 Torbay Road
P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Ms. G. Cheryl Blundon, Director of Corporate Services and Board Secretary

Dear Ms. Blundon:

Re: Electrification Technical Conference – Requests for Information of the Island Industrial Customer Group

Further to the above, enclosed please find the Island Industrial Customers Group Requests for Information TC-IC-NLH-001 – TC-IC-NLH-025 dated February 16, 2022.

We trust this is in order.

Yours truly,

Stewart McKelvey

Paul L. Coxworthy

PLC/tas

Enclosures

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IN THE MATTER OF the *Electrical Power Control Act, 1994, SNL 1994, Chapter E-5.1 (the "EPCA")* and the *Public Utilities Act,* RSNL1990, Chapter P-47 (the "Act"), as amended, and regulations thereunder; and

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro ("Hydro"), pursuant to Sections 58, 71 and 80 of the *Act*, for the approval of an economic test and deferral of Electrification, Conservation and Demand Management ("ECDM") program costs in the proposed ECDM Cost Deferral Account for future recovery through the proposed ECDM Cost Recovery Adjustment;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro ("Hydro"), pursuant to Sections 41(3) of the *Act*, for the approval of supplemental 2021 capital expenditures related to the construction of an electric vehicle "EV") charging network

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ISLAND INDUSTRIAL CUSTOMER GROUP
REQUESTS FOR INFORMATION

TC-IC-NLH-001 – TC-IC-NLH-025

Issued February 16, 2022

TC-IC-NLH-001. **With reference to Technical Workshop presentation slide 24 (pdf page 24 of 37):**

Please provide the 2021 Marginal Cost Study update completed for Hydro by CA Energy, as referenced in the Technical Workshop presentation slide 24.

TC-IC-NLH-002. **With reference to Hydro's response to IIC-NLH-017**:

Please confirm the schedule shows no benefit from marginal cost of capacity.

TC-IC-NLH-003. **With reference to Hydro's responses to IIC-NLH-017 and IIC-NLH-034**:

Please provide a table indicating the following for each year, by each program. In presenting the annual numbers, please cover the years in the CDM potential study (i.e., to 2034, if the program is relevant to that duration) and exclude results from savings arising from DSM actions that were taken before 2022:

(a) Saved Energy (kW.h)

(b) Saved Capacity (kW)

(c) Average Electricity Rate ($/kW.h, inclusive of demand and energy charges)

(d) Marginal Cost of Energy ($/kW.h)

(e) Marginal Cost of Capacity ($/kW)

(f) Energy Supply Cost Savings (a x d)

(g) Capacity Supply Cost Savings (b x e)

(h) Lost Revenue (a x c)

(i) Program Costs ($ - Actual spend per year, not the deferred costs amortization)

(j) Incentives Provided to Customers

(k) Annual Impact on Utilities (f + g – j – i – h)

(l) Cumulative NPV of column k

The above table should be completed from the consolidated perspective of Hydro and Newfoundland Power (NP), i.e., what happens to the combined finances of the utilities.

If Hydro is unable to produce an independent estimate of rates, please use estimated unmitigated post-Muskrat rates escalated by 2.25%/year as per IIC-NLH-026.

TC-IC-NLH-004. **With reference to Hydro's responses to IIC-NLH-017 and IIC-NLH-034:**

Please provide a table presenting the same information as requested by TC-IC-NLH-003 but focused only on the Hydro perspective. In this regard, any program costs or incentives not provided by Hydro (i.e, provided by NP from their utility Revenue Requirement) should be excluded, and the incremental energy rate should reflect that paid by NP when programs affect wholesales.

TC-IC-NLH-005. **With reference to Technical Workshop presentation slide 21 (pdf page 21 of 37):**

Please reconcile the values from Application Tables L-1 and L-2 (pdf page 495 of 509) with the values shown in the Technical Workshop presentation slide 21 (pdf page 21 of 37).

TC-IC-NLH-006. **With reference to Technical Workshop presentation slide 21 (pdf page 21 of 37):**

Please provide a version of the Technical Workshop table slide 21 that shows (a) kW.h, (b) kW, (c) average rate assumed, (d) the calculation of loads times marginal costs to derive the "incremental system costs", and (e) a breakdown of program administration costs versus incentives. Please also show the number of vehicles by type by year that are considered incremental to that which would arise without the program, and the consumption in both kW.h and peak kW for each type, by year.

TC-IC-NLH-007. Please provide all inputs and calculations to derive the Participant Cost Test (PC) for the EV program, separately noting incentive costs, equipment costs, and bill savings, by year.

TC-IC-NLH-008. **With reference to Technical Workshop presentation slide 8 (pdf page 8 of 37)**

Please provide all backup data to derive the table from slide 8 of the Technical Workshop presentation, including

(a) Number of vehicles, by type, by year

(b) All marginal costs unit values, by year, and consumption by vehicle type, by year.

(c) All utility revenue numbers, including unit costs and volume, by year.

(d) Any other inputs required, e.g., program and incentive costs (by unit, and total).

(e) Any other data required to derive the noted lines.

In preparing the above, please provide a detailed description of the impact of load management systems, and the amount of peak that is required to be displaced by these systems to derive the noted capacity benefits.

TC-IC-NLH-009. **With reference to Hydro's response to IIC-NLH-014:**

Please provide the requested table (the "detailed calculation by demand versus energy and by program"), which adds up to $113 million (alternatively, please indicate where in IIC-NLH-034 or other RFI response the full derivation of this number can be found). Ensure it includes all relevant inputs on both capacity and energy volumes and marginal or unit costs.

TC-IC-NLH-010. **With reference to Hydro's response to IIC-NLH-027:**

Please provide a detailed assessment of the Dunsky conclusion that "little to no oil to electric conversions of heating in both residential and commercial sectors" will occur "due to poor economics for the customer",

(a) including all assumptions in terms of oil prices by year, efficiency of installed oil furnaces, potential displaced btu (by customer type), capital cost of mini split heat pumps, average efficiency of mini-split heat pumps, amount of individual heating load (btu) that could be shifted by customer and by customer type, and customer rates; and

(b) indicating the assumptions regarding the impact of varying levels of potential incentives;

(c) including both kW.h and kW impacts of the assumed mini-split load and the related marginal costs;

(d) ensuring all data is provided in tables, by year and by customer type, demonstrating the "poor economics; and

(e) discussing the potential for load controllers that would drop heat pump loads at peak times (e.g., when outside temperatures drop below a certain cutoff).

TC-IC-NLH-011. **With reference to Hydro's response to IIC-NLH-027:**

Please indicate if Hydro or NP contacted Synapse (or other alternative source of assessment other than Dunsky) to reconcile or find potential reasons for the significant difference in assumptions on customer behavior re: mini split heat pumps.

TC-IC-NLH-012. Please indicate any consultation that Hydro/NP undertook with customers and/or heating suppliers regarding the potential for greater market adoption of mini-split heat pumps.

TC-IC-NLH-013. **With reference to Application Schedule C page 302 to 313 of 325, and page 119 of 325**:

Please provide a detailed quantification, with supporting data, for the conclusion that 5% of residential households and 3.5% of commercial floor space will adopt Air Source Heat Pumps, as concluded by Dunsky at page 119 of 325 of the Application, Schedule 3, Schedule C (and page 303). Please ensure all values in support of the conclusion (and as presented in Tables F-19, F-24, F-30, and F-33) are referenced to available or public source materials or other verifiable data.

TC-IC-NLH-014. **With reference to Application Schedule C page 302 to 313 of 325:**

Please provide all calculations in support of Table F-34 and F-35, including adoption percentages and units, and peak load contribution. Please confirm that demand increases in Table F-35 include an assumption that heat pumps are installed in combination with new resistance heating and not as a supplement to the existing oil system.

TC-IC-NLH-015. **With reference to Application Schedule C page 302 to 313 of 325:**

Please provide an updated Table F-34 and F-35, along with calculations of PAC, NPV and TRC (showing the results by year), for the UPPER scenario, assuming the customers retain their oil heating systems and do not adopt new electric resistance hearing to supplement the heat pump.

TC-IC-NLH-016. Please supplement the response to TC-IC-NLH-015 combining heat pump adoption under the Social Cost of Carbon and UPPER level program support (incentives) but assuming demand response is included in the unit adoption. Please include the calculation of PAC, NPV and TRC (showing the results by year) for this scenario.

TC-IC-NLH-017. **With reference to Hydro's response to IIC-NLH-032, and page 119 of 325 of the Application, Schedule 3, Schedule C:**

Please confirm that the updated $170/tonne cost of carbon for Federal Government carbon levy is closer to the Social cost of Carbon sensitivity than to the base case for the purposes of the fuel switching analyses.

TC-IC-NLH-018. **With reference to Application Schedule C page 302 to 313 of 325 and Technical Workshop presentation, slide 6:**

Please confirm that the energy sold for the purposes of mini split heat pump under the UPPER incentives and Social Cost of Carbon exceeds the potential electrification benefit of EVs (per Technical Workshop presentation, slide 6) through at least 2029.

TC-IC-NLH-019. **With reference to Application, Schedule 3, Schedule C**:

Please explain why addition of an air source heat pump to an oil heated home would result in resistance electric heat use, if the primary system for heat remains oil? Please provide the scenario for an incentivized heat

pump program to supplement but not replace oil fired heat systems, with demand controllers on the heat pump.

Also please provide all data behind Figure 5-11 and Figure 5-12, and the revised scenarios noted above (min split heat pump as supplement to oil fired heating system) indicating the assumed adoption, the hours of energy use and the assumptions re: use during peak times, load factor, and off-peak usage.

TC-IC-NLH-020. Please provide a summary, for an individual customer, of all direct incentives intended to be provided toward EV purchase and home charger (in dollars).

TC-IC-NLH-021. **With reference to Hydro's response to IIC-NLH-023:**

Please explain the difference between Hydro's Application, Schedule 1, Appendix A, and the Workshop Presentation Slide 21, which both purport to show EV program NPVs. Which of these (if either) is associated with Table 1, Page 12 of Schedule 3 of the Application?

TC-IC-NLH-022. Please provide a detailed NPV calculation, by year and with all assumptions for units (# of vehicles by type, kW.h, kW, marginal costs, etc.) as well as dollars (for example, in the form of Technical Presentation slide 21) associated with each of the 4 scenarios shown on Table 1, Page 12 of Schedule 3 of the Application.

TC-IC-NLH-023. **With reference to Hydro's response to IIC-NLH-021:**

Please provide a sensitivity analysis where the baseline EV uptake is increased such that the NPV for the EV program over (a) 10 years and (b) 15 years becomes zero. Please provide the sales figures which would yield these updated NPVs. (i.e., how much does the assumption about baseline sales have to increase organically before the economic justification for the EV purchase incentives is zero).

Please comment on the ongoing needed role of the Demand-Response individual EV charge controller investment in light of the above potential changes to the baseline EV uptake.

TC-IC-NLH-024. **With reference to Application, Schedule C, page 117 of 325**:

Please provide a detailed assessment of the loads of supplemental DMSHPs and the energy and peak profile in relation to system load. In particular, if IIS system loads peak primarily in concert with low temperatures, at times when the heat pumps are least efficient and the COP (Coefficient of Performance) is low or approaching 1, why would there be "a greater proportional impact on demand due to the larger contribution of residential heating load to system-wide peak demand relative to its contribution to system-wide electricity consumption". Specifically, if the DMSHP is only slightly more efficient than resistance heating (COP of 1) at system peak times, how is this a material peak demand savings?

TC-IC-NLH-025. Further to TC-IC-NLH-024, if peak demand savings from DMSHP are low, how does incenting a high efficiency DMSHP make economic sense, when the lost energy supply (significant lost revenue, low marginal energy cost savings) is only slightly offset due to limited peak capacity benefits?

DATED at St. John's, in the Province of Newfoundland and Labrador, this 16th day of February, 2022.

POOLE ALTHOUSE

Per: _____
Dean A. Porter

COX & PALMER

Per: _____
Denis J. Fleming

STEWART MCKELVEY

Per: _____
Paul L. Coxworthy

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