Q: Re: Brattle Group Report, pages 3, 8 and 33, and p. 7 (Fig. 1, last row)

Citation 1 (page 8):

> **Cryptocurrency customers are relatively unique in their demand density (i.e., small facility with high electrical loads) combined with potential impermanence.**

Citation 2 (page 3):

> **The Hydro-Québec, Washington PUDs, and New York rate classes include rate increases relative to similarly-sized customers in non-cryptocurrency rate classes.**

Citation 3 (page 33):

> **Requiring customers to be responsible for the cost[s] their actions and decisions cause ensures that the customer makes correct economic decisions. Under cost causation principles, decisions to connect to Hydro's network or to increase demand are based on whether the value and the benefits the customer receives exceeds the costs that Hydro incurs to provide the connection and the needed upgrades. This calculus is necessary to ensure the proper allocation of scarce economic resources. In this particular case with the emergence of data centers/cryptocurrency mining sites to the region, customers must be exposed to the costs that their decisions impose on the Hydro network. Key characteristics of data centers/cryptocurrency customers are that they have large energy demand requirements, have uncertain permanency given their mobility, lack sunk costs into the local economy, and have the mobility to enter and exit geographic markets that are served by different electricity companies with different tariffs and NAPs. Electricity supply is a crucial input for these customers, and they are vulnerable to the "boom and bust" cycles of global cryptocurrency market conditions and prices. <u>Serving these customer types is risky and requires economically efficient costing and price signals to ensure the attainment of appropriate decision-making and economic efficiency.</u>**

A corollary of the cost causation principle, and one that we believe is good regulatory policy, is protecting existing customers from costs that they did not cause and that are caused by new customers. This is sometimes known as a "hold harmless" policy and is the basis of the FERC generation interconnection policy discussed previously. Two other regulatory principles and general regulatory practices that play a role in guiding our overall analysis and recommendation on this topic are the practice—and in most cases requirement—that whatever policy is implemented should not be unduly discriminatory and should not result in significant and dramatic changes in customer rates, i.e., rate stability and prevention of "rate shock".

The current NAP, as it pertains to directly assigned facilities, is generally consistent with cost causation principles, as the customer causing the facilities that are dedicated to it is responsible for the full costs. As it pertains to network upgrades related to new customer connections, however, or increases in existing customer load, the current NAP fails to reflect cost causation principles. Existing customers who do not cause the network upgrades pay the vast majority of the network upgrade costs, as the cost causer is assigned a relatively small share of the costs, a share that is in proportion to its demand requirement relative to the entire system demand. Existing customers are particularly vulnerable to being responsible for 100% of the network upgrade if the cost-causing customer leaves Hydro's territory and locates somewhere else or shuts down operations entirely.

Concerning undue discrimination, the current NAP fares well in this regard. While we believe the policy fares poorly in respect of cost causation, the current policy applies to all customer classes equally; there is no special treatment or consideration given for any particular group of customers. As it pertains to rate stability and rate shock considerations, the current NAP fares poorly as the potential impact on customer rates from the increased load growth is significant. Load growth that is "primarily due to the arrival of data centers/cryptocurrency mining sites to the region" is the reason for proposing a new NAP. (underlining added)

Citation 4 (Brattle Group, page 7, Fig. 1, last row):

> **Guiding Principle: Separate Cryptocurrency Class in NAP**
>
> **Recommendations: Not at this time, possibly appropriate pending experience with new NAP**

a) Citation 3 makes reference to "undue" discrimination. Where significant distinctions exist between customer groups, does differential treatment necessarily constitute "undue" discrimination?

b) In the Brattle Group's view, given the unique characteristics of cryptocurrency customers (Citation 1), does the application to them of certain conditions — such as those described in the Appendices of the Brattle Group's report and in Citation 2 ("rate increases relative to similarly-sized customers in non-cryptocurrency rate classes") — necessarily constitute undue discrimination?

c) The recommendation in Citation 4 states with respect to a cryptocurrency class within the NAP: "Not at this time, possibly appropriate pending experience with new NAP". Please explain the reasoning underlying this recommendation.

d) Please confirm that the recommendation in Citation 4 is limited to the possibility of adding a separate cryptocurrency class within the NAP, and does not address the possibility of adding a separate cryptocurrency class in general. In either case, please specify:

- **i. What other conditions would need to be in place before Brattle would recommend a cryptocurrency class within the NAP?**
- **ii. What other conditions would need to be in place before Brattle would recommend a cryptocurrency rate class?**
- **iii. How long should the Board wait before revisiting this issue?**
- **iv. What experience with the new NAP would Brattle be looking for either measure would be appropriate?**

e) In the Brattle Group's view, does Hydro's proposed NAP provide sufficient protection to existing customers from risks resulting from serving additional cryptocurrency loads in Labrador?

f) In the Brattle Group's view, would adopting The Brattle Group's recommendations with respect to the NAP provide sufficient protection to existing customers from risks resulting from serving additional cryptocurrency loads in Labrador?

g) How should the Board:

i. determine whether or not the NAP it eventually adopts in fact provides sufficient protection to existing customers from risks resulting from serving additional cryptocurrency loads in Labrador, and

ii. in the event that it does not provide sufficient protection, determine what other measures may be appropriate?

A. a) The answer depends on the specifics of the case under consideration. Underlying cost characteristics play an important role in determining whether there is undue discrimination. By undue discrimination, we mean treating two customers differently from a policy or rate perspective that are otherwise generally equal with regard to the cost to serve them.

b) If the relatively unique customer characteristics of cryptocurrency customers do not give rise to significant cost differences, then it may well be the case that the conditions are unduly discriminatory. Reaching conclusions on this would require a thorough analysis of underlying costs to serve these and similar customers.

c) The NAP recommendations proposed by Brattle should apply to all customer types subject to the size threshold. The text referenced in Citation 4 refers to the development of a rate class for cryptocurrency customers. Our recommendation to apply the NAP to all customer types subject to size threshold captures the network upgrade costs caused by all types of customers and there is no need to signal out different types of customers for the NAP. Our NAP recommendation is consistent with cost causation principles and the application to all customers ensures that the policy is not unduly discriminatory among different types of customer.

d) As referenced in part c of this question, Citation 4 refers to the development of a separate rate class for cryptocurrency customers.

i) Brattle does not recommend the adoption of any customer class within the NAP; please refer to the response in part c.

ii) In general, the establishment of a new rate class requires careful consideration and analysis of the underlying characteristics of the customer class and importantly the costs to serve those customers compared to others that are similar. In this case, we would look at the underlying cost characteristics of cryptocurrency customers compared to customers of similar size, similar voltage level, and usage to name a few. Typically, this type of analysis would be done on a standalone basis or for a group of similar customers when developing an overall rate design.

iii) We interpret this question as referring to adding a separate cryptocurrency class within the NAP. See response to i) as that is not our recommendation.

iv) We are not recommending creating a customer class within the NAP for cryptocurrency customers. Please refer to the response in part c.

We are not recommending creating a rate class for cryptocurrency customers, as this would require economic analyses as described in our response to part ii.

e) The Brattle Report finds that Hydro's proposed NAP does not adequately reflect cost causation principles. The report discusses concerns related to customer protection under the NAP proposed by Hydro in section IV.D "Potential Risks to Existing Load in the Proposed NAP" and Section V.A "Analysis of current and proposed NAP." Our proposal provides greater protection to existing customers from risks resulting from serving additional cryptocurrency loads in Labrador. Whether Hydro's proposed NAP provides <u>sufficient</u> protection is a policy conclusion to be made by the Board.

f) Brattle's recommendations provide protections to existing customers through the application of the cost causation principle. The evaluation of protection to existing customers must consider all four principles of cost causation, holding existing customers harmless, undue discrimination, and rate stability and avoidance of rate shock. As stated in response to part e, if the proposed NAP provides sufficient protection is a determination to be made by the Board.

g)

i) The Board should consider the four principles identified in part f of this question. The Board will need to develop a working definition of the term "sufficient." We would anticipate that this definition would reflect, in part, that cost-causing customers are allocated the cost of the investments that would not be required but for the customer and that non-cost causing customers are being protected.

ii) In the event that the policy does not provide sufficient protection, the appropriate measures would necessarily be responsive to the issues identified by the Board and the parties. It would be speculative to identify potential measures at this point.