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January 6, 2020

The Board of Commissioners of Public Utilities Prince Charles Building 120 Torbay Road, P.O. Box 21040 St. John's, NL A1A 5B2

Attention: Ms. Cheryl Blundon

Director Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Network Additions Policy and Labrador Interconnected System Expansion Study – The Brattle Group Expert Report – Requests for Information

Enclosed please find the original plus eight copies of Newfoundland and Labrador Hydro's Requests for Information NLH-PUB-001 to NLH-PUB-015 in relation to the expert report provide by The Brattle Group on November 19, 2019, regarding Newfoundland and Labrador Hydro's proposed Network Additions Policy.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Shirley A. Walsh

Senior Legal Counsel, Regulatory

SAW/las

Encl.

cc: Newfoundland Power

Mr. Gerard M. Hayes

Consumer Advocate

Mr. Dennis M. Browne, Q.C, Browne Fitzgerald Morgan & Avis

Industrial Customer Group

Mr. Paul L. Coxworthy, Stewart McKelvey Mr. Denis J. Fleming, Cox & Palmer Mr. Dean A. Porter, Poole Althouse

ecc: Board of Commissioners of Public Utilities

Ms. Jacqui Glynn PUB Official Email

Newfoundland Power

Ms. Kelly C. Hopkins Regulatory Email

Consumer Advocate

Mr. Stephen F. Fitzgerald, Browne Fitzgerald Morgan & Avis Ms. Sarah G. Fitzgerald, Browne Fitzgerald Morgan & Avis Ms. Bernice Bailey, Browne Fitzgerald Morgan & Avis

Iron Ore Company of Canada

Mr. Gregory A.C. Moores, Stewart McKelvey

Labrador Interconnected Group

Mr. Senwung Luk, Olthuis Kleer Townshend LLP Ms. Julia Brown, Olthuis Kleer Townshend LLP IN THE MATTER OF the Electrical Power Control Act, 1994, SNL 1994, Chapter E-5.1 ("EPCA") and the Public Utilities Act, RSN 1990, Chapter P-47 ("Act");

AND IN THE MATTER OF Board Order No. P.U. 43(2017) in relation to Newfoundland and Labrador Hydro's ("Hydro") 2018 Capital Budget Application;

AND IN THE MATTER OF the Network Additions Policy Review, dated October 1, 2018; the Labrador Interconnected System — Network Additions Policy dated December 14, 2018; the Labrador Interconnected System Transmission Expansion Study dated October 31, 2018; the Labrador Interconnected System Transmission Expansion Study Revision 1 dated November 5, 2018; and the Labrador Interconnected System Transmission Expansion Study Revision 2 dated April 3, 2019, filed by Hydro.

NEWFOUNDLAND AND LABRADOR HYDRO

Requests for Information

NLH-PUB-001 to NLH-PUB-015

January 6, 2020

NLH-PUB-001 Reference: "Review of Existing and Proposed Network Additions Policies for Newfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, Executive Summary, Background, p. 2.

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Typically, it is the immediate or near-term investments prompted by a customer's request that serves as the basis of the costs the requesting customer is responsible for paying—i.e., the investment that "but for" the customer's request would not be required. Following the cost causation principle ensures its corollary holds—the protection of existing customers from costs caused by new customers. A customer that pays for the costs that its actions have caused ensures that other customers are protected.

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24 25 Consider This Context Situation: The completion of a transmission project in Labrador East in 2020 will provide 27 MW of additional transmission capacity to Labrador East (increasing transmission capacity from 77 MW to 104 MW). Hydro anticipates that this 27 MW of additional capacity would be sufficient for at least the next 25 years with no additional transmission network additions required. Hydro faces a 2021 service request from a large rural customer on the Labrador Interconnected System of 20 MW of additional load ("Customer A"). Complying with this load request would prompt transmission network additions substantially earlier than the 25 years plus Hydro had anticipated, but no immediate build to supply the load for the requested customer. Using the "but for" approach, at least as it is characterized by The Brattle Group ("Brattle"), please explain how customer contributions would be determined under the following scenarios for Labrador East:

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a) Assume Customer A was the sole customer requesting new service, please confirm Customer A would not be required to pay a contribution for new service in 2021. If Customer A would be required to pay a contribution, please provide the basis for the calculation of the contribution including a demonstration of the calculation.

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b) Assume Customer A was connected in 2021 and then Customer B requests service in the amount of an addition 6 MW peak load in 2022, leaving 1 MW of available transmission capacity in Labrador East. Would Customer B be required to pay a

1			contribution to be connected in 2022? If yes, please provide the basis for the
2			calculation of the contribution for Customer B, including a demonstration of the
3			calculation.
4			
5		c)	Assume Customer A was connected in 2021 and Customer B requested service in
6			2022, leaving 1 MW of available capacity. Assume Customer C requested service in
7			2023 requiring 1,500 kW of peak demand and the transmission upgrade required to
8			serve Customer C would cost \$5 million in capital costs. Would Customer C be
9			required to pay a contribution to obtain service and provide recovery of revenue
10			shortfall resulting from the \$5 million transmission investment? Please provide the
11			basis for the calculation of the contribution for Customer C.
12	NLH-PUB-002	Re	ference: "Review of Existing and Proposed Network Additions Policies for
13		Ne	wfoundland and Labrador Hydro," The Brattle Group, November 19, 2019,
14		Exe	ecutive Summary, Background, p. 2.
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16 17 18 19 20 21 22 23 24			Typically, it is the immediate or near-term investments prompted by a customer's request that serves as the basis of the costs the requesting customer is responsible for paying—i.e., the investment that "but for" the customer's request would not be required. Following the cost causation principle ensures its corollary holds—the protection of existing customers from costs caused by new customers. A customer that pays for the costs that its actions have caused ensures that other customers are protected.
25		a)	Please explain if Brattle is recommending that the "but for" contribution
26			approach should be applied to transmission customers only for recovery of
27			common transmission costs. Note: Hydro only has two customers served at
28			transmission voltage on the Labrador Interconnected System.
29			
30		b)	Please explain if Brattle is recommending that the "but for" contribution
31			approach should also be applied to distribution customers for recovery of
32			common transmission expansion costs.

1		c)	Please explain if Brattle is recommending that the "but for" contribution
2			approach should also be applied for recovery of common distribution
3			expansion costs incurred to meet peak demand growth.
4			
5		d)	Please confirm whether the "but for" contribution approach would involve
6			the analysis of the present-day transmission system with existing loads or if
7			the following should be included:
8			i) The normal load forecast of retail customer growth;
9			ii) Approved future customer interconnections; and
10			iii) Approved future capital upgrades.
11	NLH-PUB-003	Re	ference: "Review of Existing and Proposed Network Additions Policies for
12		Ne	ewfoundland and Labrador Hydro," The Brattle Group, November 19, 2019,
13		Ex	ecutive Summary, Background, p. 3.
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15 16 17 18 19 20			Regarding the treatment of data centers and cryptocurrency loads that are a driving force behind load growth in Labrador, other jurisdictions that have dealt with an influx of these customer types have developed specific rate classes for them that require a combination of interruptible tariffs and financing or full cost responsibility of network upgrades.
21		a)	Do most utilities in Canada include cryptocurrency customers in their
22			existing rate classes or treat cryptocurrency customers as a separate class?
23			
24		b)	Please confirm that Government direction supported the development of a
25			specific cryptocurrency rate in Quebec.
26			
27		c)	Has Brattle reviewed provincial legislation to determine if a specific rate for
28			cryptocurrency customers would be considered unjustly discriminatory?
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30		d)	Is it Brattle's opinion that an industry-specific rate design is essential for
31			cryptocurrency mining operations or merely a plausible approach? If
32			customer-specific fees for cost recovery are utilized, is there a need for a
33			special rate?

1		e) Are industry-specific rates in common use in North America? If so, what
2		makes such a rate desirable generally, and do those characteristics apply
3		here?
4	NLH-PUB-004	Reference: "Review of Existing and Proposed Network Additions Policies for
5		Newfoundland and Labrador Hydro," The Brattle Group, November 19, 2019,
6		Executive Summary, Current and Proposed NAP, p. 5.
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8 9 10 11 12 13 14 15 16 17		In this sense, the policy generally fails to reflect cost causation principles adequately. It distorts the price signal that the requesting customer receives and biases that customer's decision-making, as the customer may be asked to pay for costs that its decision did not cause under a "but for" criterion. This policy could result in some potential customers deciding not to request service even though the value they would obtain from the service would be greater than the cost of the request. Other customers would have been better off having the customer take service from Hydro as Hydro's common costs would be shared among a larger group of customers.
19		a) Does Brattle believe the "but for" contribution approach could result in
20		some potential customers deciding not to request service due to the
21		potential high cost of the service request?
22		
23		b) Has Brattle considered how the "but for" contribution approach would
24		impact economic investment by Industrial customers in Labrador?
25		
26		c) It is the power policy of the province that the rates to be charged for the
27		supply of power within the province "should promote the development of
28		industrial activity in Labrador". Would the "but for" contribution approach be
29		consistent with the promotion of industrial development in Labrador?
30	NLH-PUB-005	Reference: "Review of Existing and Proposed Network Additions Policies for
31		Newfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, Executive
32		Summary, Current and Proposed NAP, p. 6.
33 34 35		Specifically, Hydro's NAP proposal requires the payment of, at most, the full cost of advancing the investment rather than the full cost of the investment.

1		a)	Please illustrate the difference between the "but for" contribution approach
2			the approach proposed by Hydro.
3			
4		b)	From a perspective of fairness among existing and new customers, please
5			evaluate the "but for" contribution approach rather than Hydro's proposed
6			approach which provides for the recovery of the advancement cost of the
7			transmission investment less the value of the benefits to existing customers.
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9		c)	Please explain why it would not be reasonable for a portion of the cost of
		C)	
10			transmission system upgrades to be recovered from existing customers if the
11			transmission upgrades provide reliability benefits to existing customers.
12	NLH-PUB-006	Ref	erence: "Review of Existing and Proposed Network Additions Policies for
13		Nev	wfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, Executive
14		Sun	nmary, Summary of Recommendations and Comparisons, p. 6.
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16			We recommend modifying the NAP to reflect more completely the goal
17			of cost causation. We recommend that new and requesting load over a
18			size threshold be given a choice to either pay for the necessary
19			network upgrades or choose an interruptible rate. Specifically, we
20			recommend the following high-level choices:
21			
22			 Option A: Be financially responsible for the network upgrades that
23			exceed the customers' anticipated revenues over some fixed
24			period and providing security equal to the anticipated revenues;
25			or
26			Ontion D. Adout as intermedials note which avaids these
27 28			 Option B: Adopt an interruptible rate, which avoids those transmission costs. This choice requires assessing the appropriate
20 29			level of curtailability/interruptibility to ensure that existing
30			customers do not experience any reduction in the current
			•
31			reliability level.
31		a)	
		a)	

1		b)	If two individual customers requesting service are each below the
2			recommended threshold but the combined load request is above the
3			threshold and a transmission upgrade is required, please explain how the
4			cost of the transmission investment would be recovered.
5			
6		c)	Response to PUB-NLH-085 indicated that due to the extended periods of extremely
7			cold weather in Labrador, there are material challenges to standardize
8			interruptible/curtailment rate terms that would meet system reliability
9			requirements to ensure the rate would achieve its objective as a reliable substitute
10			for transmission capacity additions. How does Brattle propose to overcome this
11			challenge given Option B is provided as an option to serve requests for increased
12			capacity?
13			
14		d)	Response to PUB-NLH-085 also indicated that due to the extended periods of
15			extremely cold weather in Labrador, there are material challenges to standardize
16			interruptible/curtailment rate terms that would provide a level of service to
17			interruptible/curtailable customers that would be considered reasonable given the
18			material number of curtailment hours that could be required. Did Brattle consider
19			this system attribute relevant in proposing Option B as an option to serve requests
20			for increased capacity? Please explain your response.
21			
22		e)	What level of security deposit does Brattle recommend (i.e., how many
23			months of average bills)?
24	NLH-PUB-007	Ro	ference: "Review of Existing and Proposed Network Additions Policies for
25	NLII-POD-007		wfoundland and Labrador Hydro," The Brattle Group, November 19, 2019,
26 27		EXC	ecutive Summary, Summary of Recommendations and Comparisons, p. 6.
28			For customers that select Option A (accepting financial responsibility for
29			network upgrades), we recommend a policy of holding existing
30			customers fully harmless from the effects of the new load on Hydro's
31			costs.

1		a)	In the experience of Brattle in reviewing policies from other jurisdictions, is
2			it common for regulators to adopt " a policy of holding existing customers
3			fully harmless from the effects of the new load"? If so, is such policy made
4			explicit?
5			
6		b)	The current purchase cost to supply generation to Hydro's rural customers
7			on the Labrador Interconnected System is 0.2 cents per kWh for up to
8			approximately 300 MW of generation capacity and approximately 2.4 cents
9			per kWh for 239 MW of generation capacity available to Labrador industrial
10			customers. The average embedded cost for transmission demand for the
11			2019 Test Year is \$1.08 per kW per month. The major contributing factor to
12			the lower embedded cost of transmission in Labrador is past funding; the
13			original transmission line from Churchill Falls to Labrador West was funded
14			by Labrador's mining companies. Given that customer rates on the Labrador
15			Interconnected System are among the lowest in North America and there is
16			limited transmission capacity and generation capacity currently available to
17			serve load growth (i.e., embedded costs being materially less than marginal
18			costs), why is it a desirable policy to hold existing customers fully harmless
19			from the effects of the new load on Hydro's costs?
20	NLH-PUB-008	Re	ference: "Review of Existing and Proposed Network Additions Policies for
21		Ne	wfoundland and Labrador Hydro," The Brattle Group, November 19, 2019,
22		Exe	ecutive Summary, Summary of Recommendations and Comparisons, p. 7.
23 24			For customers that select Option A, these customers paying for network upgrades should be eligible for additional refunds as additional
25			customers join the system over a pre-determined time horizon.
26		a)	Please describe the methodology that Brattle proposes for computation of
27			refunds.
28		b)	What term of refund eligibility does Brattle propose for the customer that
29			paid the original contribution?

1 2		c) What considerations are relevant for the definition of an appropriate time horizon?
3	NLH-PUB-009	Please explain the recommended Network Additions Policy based on the "but
4		for" contribution approach in the context of future upgrades that may be
5		identified as part of Hydro's annual transmission system assessments in
6		consideration of the following:
7		a) If a customer interconnection would result in an advancement of
8		transmission system expansion from Year 10 in the future to Year 2 in the
9		future, would the customer be allocated any cost for the advancement? If
10		not, why not?
11		
12		b) If a customer interconnection would result in an advancement of
13		transmission system expansion from Year 10 in the future to the current
14		year, would the customer be allocated the full project cost (net of projected
15		revenue recovery)?
16		
17 18		c) Please explain the rationale for the difference in the customer contribution required between the response to a) and b).
19	NLH-PUB-010	Reference: "Review of Existing and Proposed Network Additions Policies for
20		Newfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, p. 22,
21		paragraph 1.
22		Concerning network upgrades, the beneficiary pays concept is not well defined and is
23		lacking clear foundational rules, implementation methodologies, and proposed
24		calculations and formulas. Its application within the context of network upgrades and
25		additions would be problematic, challenging, and unduly subjective.
26		a) What is Brattle's definition of the beneficiary pays approach? Please
27		elaborate.
28		
29		b) What are the boundaries that determine when cost allocation procedures
30		adhere to the cost causation principle and when they do not? Doesn't the

1			beneficiary pays approach permit Hydro to bifurcate transmission costs
2			between interconnection costs and common network costs?
3			
4		c)	Does Hydro's proposed approach not assign to the initiating customer the
5			change in costs (incremental costs associated with system-wide upgrades),
6			as determined by the system expansion study?
7			
8		d)	Does Brattle's proposed approach account for capital indivisibility—a
9			characterization of the lumpy nature of transmission facility additions?
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11		e)	In Brattle's understanding, doesn't Hydro's use of the term "beneficiary
12			pays" define a means of assignment of a sizable share of incremental costs
13			to the initiating customer, as opposed to assignment of the total costs to
14			the initiating customers or customers (with the exact allocation to class not
15			yet specified)?
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17		f)	Does Brattle agree that the essence of the cost assignment issue, applicable
18			to network facilities on the margin, is a matter of socialization of
19			incremental costs through rolled-in pricing; new loads paying for the full
20			cost; and some rule for the sharing of incremental costs? Please elaborate.
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22		g)	Does Brattle agree that transmission facilities, often, constitute highly
23			indivisible capital facilities wherein the full capability of new facilities may
24			not be fully utilized by utilities for a number of years? If yes, does this not
25			suggest that charging incremental loads the full cost—as Brattle suggests—
26			will provide improperly high transmission charges—paying for facilities that
27			cannot be fully employed, and thus deterring the location of new
28			customers?
29	NLH-PUB-011	Re	ference: "Review of Existing and Proposed Network Additions Policies for
30		Ne	ewfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, p. 22
31			ragraph 1.

1 2 3 4 5 6		Concerning network upgrades, the beneficiary pays concept is not well defined and is lacking clear foundational rules, implementation methodologies, and proposed calculations and formulas. Its application within the context of network upgrades and additions would be problematic, challenging, and unduly subjective.
7		In 2017 the Ontario Energy Board ("OEB") completed a comprehensive review of cost
8		responsibility for network additions and released a "Notice of Proposal to amend its
9		Transmission System Code and Distribution System Code." On October 1, 2018, Hydro
10		provided the OEB review and the proposals resulting from their policy review as
11		Attachment 1, Appendix B to its "Network Additions Policy Review".
12		a) Please confirm that the OEB accepted Beneficiary Pays as a guiding principle to be
13		used in determining the appropriate approach to allocating the costs associated
14		with distribution and transmission connection investments based on the following
15		definition:
16		Beneficiary Pays – Beneficiaries of an infrastructure investment will contribute to
17		the cost of an investment. Cost allocation will be determined based on the
18		customer's proportional use of the connection asset set out in a regional plan. Costs
19		should not be allocated to any load customer (consumer or distributor) or generator
20		that will not benefit from the investment.
21		
22		b) What are Brattle's views of the rules implemented by the OEB, in consideration of
23		Brattle's conclusion that the application of the Beneficiary Pays concept within the
24		context of network upgrades and additions would be problematic, challenging, and
25		unduly subjective?
26		
27		c) Does Brattle believe that the proposed Labrador Interconnected System Network
28		Additions Policy rules are problematic and unduly subjective? If yes, please highlight
29		the sections of the policy that create these concerns.
30	NLH-PUB-012	Reference: "Review of Existing and Proposed Network Additions Policies for
31		Newfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, p. 32,
32		paragraph 4.

1 2 3 4 5 6 7 8 9 10 11 12 13 14		While the proposed NAP provides greater protections to existing load than the current policy, existing customers will likely continue to be responsible for the majority of immediate network upgrade costs caused by new load customers. For new customers with 1,500 kW of demand that require immediate network upgrades, the new customers will pay for the advancement of that infrastructure rather than the total cost. Consider the hypothetical example where a new customer comes online in 2020 and requires the advancement of a network upgrade previously scheduled for 2025. The new customers would be responsible for advancing the network from 2025 to 2020, which will only be a fraction of the total asset cost. Does Brattle believe this costing outcome is improper? If so, why should a customer who advances transmission expansion plans from 2025 to 2020 be required to pay the entire cost of the new transmission investment, rather than the advancement costs?
16		the advancement costs?
17	NLH-PUB-013	Reference: "Review of Existing and Proposed Network Additions Policies for
18		Newfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, p. 32.
19		
20 21 22 23 24		If the Board finds it appropriate to measure customer benefits due to increased reliability, a standard measure is the value of lost load ("VOLL"). VOLLs estimate the monetary value that customers would pay to avoid an outage in the face of an impending outage event.
25		Does Brattle agree that the electricity outage cost literature includes studies
26		that measure the implied outage costs, as incurred by consumers, as the costs
27		of on-site generation? If yes, why is it unreasonable for Hydro to use capacity-
28		related fuel costs as a proxy for the customer value of reliability pending further
29		study and analyses?
30	NLH-PUB-014	Reference: "Review of Existing and Proposed Network Additions Policies for
31		Newfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, p. 22.
32 33 34		We agree with Mr. Raphals that the beneficiary pays concept is less applicable to network upgrade policies carried out by a jurisdictional utility applying its own FERC-compliant OATT."

1	a)	Please confirm that In the case of the Federal Energy Regulatory Commission's
2		("FERC") Order 1000 regarding transmission expansion planning and cost allocation,
3		the FERC identifies the following cost allocation principles as relevant to
4		transmission cost allocation.
5		
6 7 8 9		(i) "[] the cost causation principle also requires the Commission to ensure that the costs allocated to a beneficiary under a cost allocation method are at least roughly commensurate with the benefits that are expected to accrue to that entity." (p. 83; p. 91)
10 11 12		(ii) "Those that receive no benefit from transmission facilities, either at present or in a likely future scenario, must not be involuntarily allocated the costs of those facilities." (p. 91)
13 14 15 16		(iii) "The costs of a new interregional facility must be allocated to each transmission planning region in which that facility is located in a manner that is at least roughly commensurate with the estimated benefits of that facility in each of the transmission planning regions. (p. 97)
17 18 19 20		(iv) "If a benefit-cost threshold ratio is used to determine whether an interregional transmission facility has sufficient net benefits to qualify for interregional cost allocation, this ratio must not be so large as to exclude a facility with significant positive net benefits from cost allocation." (p. 98)
21 22 23 24		(v) "The cost allocation method and data requirements for determining benefits and identifying beneficiaries for an interregional facility must be transparent with adequate documentation to allow a stakeholder to determine how they were applied to a proposed transmission facility." (p. 99)
25 26	b)	Does Brattle agree that the FERC believes it is important to consider both costs and
	b)	·
27 28		benefits in determining a reasonable approach to transmission cost allocation? If no why not?
29	NLH-PUB-0015 Ref	erence: "Review of Existing and Proposed Network Additions Policies for
30		wfoundland and Labrador Hydro," The Brattle Group, November 19, 2019, p. 23.
31		,
32 33 34 35		Finally, based on our review of network addition policies, in our opinion, the beneficiary pays approach applied to network additions policy is not a best practice and is not widely or commonly used in the United States or Canada to allocate the costs of transmission network investments
36		made in response to a new or expanded interconnection request.

1	Christensen Associates Energy Consulting ("CA Energy Consulting") provided a
2	Memorandum to Hydro on May 31, 2019, that was subsequently filed with the Board of
3	commissioners of Public Utilities on June 4, 2019. The Memorandum stated:
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5	Most importantly, our report discusses at length the beneficiary pays
6	approach now gaining currency in both the United States and Canada
7	and points out the usefulness of the approach in the case of the
8	potentially large new loads in Labrador that would result in accelerated
9	transmission investment.
10	
11	Please confirm that Brattle does not agree with the conclusion of CA Energy Consulting
12	with respect to the evolution of the use of the beneficiary pays approach. If not
13	confirmed, please explain.