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Before the
ADDITIONAL FACILITY OF THE
INTERNATIONAL CENTRE FOR SETTLEMENT OF INVESTMENT DISPUTES

Mercer International Inc.,

Claimant,

v.

Government of Canada,

Respondent.

ICSID Case No. ARB(AF)/12/3

EXPERT REPORT

OF

DR. PETER FOX-PENNER

THE BRATTLE GROUP

December 16, 2014

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EXPERT REPORT OF DR. PETER FOX-PENNER
THE BRATTLE GROUP

I, Peter Fox-Penner, declare as follows:

I. INTRODUCTION AND PURPOSE OF STATEMENT

A. EDUCATION AND PROFESSIONAL BACKGROUND

1. I am a Principal, Director, and past Chairman of The Brattle Group, an economic and management consulting firm with offices in Cambridge, MA; Washington, D.C., San Francisco, CA; New York, New York, London, England; Rome, Italy; and Madrid, Spain. My business address is 1850 M Street, NW, Suite 1200, Washington, DC 20036. My date of birth is [ ] and my home address is [ ].

2. I am an economist with an engineering education and more than 40 years of experience in regulated industries, energy policy, and environmental issues. I began my career at the University of Illinois Energy Research Group, one of the first academic energy research centers, (1977). I then worked in the Illinois Governor's Office monitoring Illinois utilities and participated in regulatory proceedings (1980-1983). After receiving a doctorate in economics at the University of Chicago, I worked as a utility consultant (1987-1993) and then served in the U.S. Department of Energy as Principal Deputy in Energy Efficiency and Renewable Energy (1993-1995) and as a senior advisor in the White House Office of Science and Technology Policy (1995-1996). Since leaving federal service I have been a Principal, Director, and Chairman of the Brattle Group, working on energy and utility economics and policy issues.

3. I received my B.S. in Electrical Engineering (1976) and M.S. in Mechanical Engineering (Energy Policy, 1978) from the University of Illinois, and my Ph.D. in Economics from the Graduate School of Business, University of Chicago (1989).

4. I have been studying the economics and regulation of co-generators over the entire period of my career. My 1989 doctoral dissertation examining the U.S. regulation of co-generators was later published as three academic papers. In the U.S. Department of

Energy, cogeneration research was within my business unit, and I served as a frequent liaison to state utility Commissions and the U.S. Federal Energy Regulatory Commission ("FERC").

5. In addition to my consulting activities, I am a frequent speaker and writer on energy topics. My 1997 book, *Electric Utility Restructuring*, examined industry structure and regulation in detail and was cited in a Supreme Court opinion *New York vs. Federal Energy Regulatory Commission*, Nos. 00-568 and 00-809, March 4, 2002 and many other forums. My 2010 book, *Smart Power*, explores the future of today's power industry and is used as a textbook in many college courses. My full CV is attached to this report as Appendix A.

6. I have previously filed testimony and declarations in various proceedings, including those related to utility regulation and self-generators. Appendix A lists all public testimony I have given in the past ten years.

B. PURPOSE OF TESTIMONY

7. I have been asked by Mercer International, Inc., ("Mercer") and its counsel to evaluate the rationales provided by the Government of British Columbia ("BC") or Canada for the self-supply requirements and net-of-load electricity sales restrictions (collectively "restrictions") that BC Hydro and Power Authority ("BC Hydro") and the British Columbia Utilities Commission ("BCUC" or the "Commission") imposed on Mercer's BC investment, the Zellstoff Celgar kraft pulp mill, ("Celgar"), as well as restrictions imposed on other self-generators. Specifically, I was asked to evaluate:

- Whether the policy rationales offered by the Government of BC towards self-generation are consistent with the related regulatory actions taken by the Commission, BC Hydro, and the Ministry of Energy and Mines (MEM);
- Whether the regulatory processes followed by the BCUC and BC Hydro were appropriate;

- Whether economic efficiency was a primary objective of these policies and regulatory orders, and whether the policies and orders were designed to achieve economic efficiency; and
- Whether the policy objectives of the BCUC and BC Hydro could have been achieved in a more transparent and non-discriminatory manner.

8. The basis I have used to analyze these questions and reach my conclusions is as follows:

First, I draw on more than four decades of experience in utility regulatory and self-generation economics and my training as a professional economist, which I detailed above;

Second, I have reviewed extensive documents and expert statements submitted in this proceeding. These include both the Memorial and Counter-Memorial, exhibits submitted by both the Respondent and the Claimant including relevant decisions and orders issued by the BCUC impacting self-generators in the Province, and witness statements on behalf of the Respondent or the Claimant.

Third, I have assembled and examined additional economic and regulatory data regarding BC electric regulatory and market conditions during this period. I analyzed all this data and information using traditional quantitative and qualitative methods of microeconomics, as exemplified by the analysis in Section II B below.

II. POLICY OBJECTIVES AND RATIONALES OF THE GOVERNMENT OF BC – 1990-2013

A. STATED POLICY OBJECTIVES AND RATIONALES

9. Across the many Orders and policy statements I have reviewed, three somewhat related stated policy objectives stand out. The first and foremost stated policy objective is the prevention of what BC labels "harmful arbitrage." BC and the BCUC define "harmful arbitrage," as *selling self-generated power at some price higher than the current electricity rate being paid and simultaneously purchasing under that same rate so as to*

replace self-generated power that would otherwise be used to serve own-load. This definition becomes clear starting in Order G-38-01[1] and M-22-0101[2] and continues to the present.

10. In other words, the BCUC definition of arbitrage embeds the implicit assumption that customers with self-generation should normally use their self-generated power to serve their own load; if that self-generation was instead sold and replaced with purchases of embedded cost power from the local utility, what the Respondent refers to as "harmful arbitrage" has occurred. As I show below "harmful" has a very particular meaning in this context: harmful means only that BC Hydro's profits go down or its rates must go up *relative to a status quo*, in which all self-generators supply a somewhat ill-defined portion of their load with self-generation at the time the *status quo* is defined. Relative to conditions at that moment in time, arbitrage that increases self-suppliers' power sales to third parties at prices above an embedded cost rate is harmful.

11. It must be recognized that the prevention of "harmful arbitrage" is not an end itself; rather, it is motivated by the underlying policy objective of keeping electricity costs to electric customers *other than self-generators* lower than they would be if more of such arbitrage were allowed. < [redacted] >[3] As a result, I refer to the twin objectives of 'preventing harmful arbitrage' and 'keeping BC rates as low as possible' as synonymous – they are two sides of the same coin.

12. The second stated policy rationale is "incentivizing" greater production of self-generated biomass power (*e.g.*, power generated using waste from sawmills and pulp mills, among others), so long as the incentives apply only to idle or "new and incremental" resources.

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1 Exhibit C-5.

2 Attachment 1 of Exhibit C-170.

3 Exhibit C-158, p. 2.

These objectives were advanced in the BC Province's 2002 and 2007 Energy Plans,[4] among other places. As further explained below, the proviso that these incentives applied only to "new and incremental" resources is closely tied to the first objective, minimizing BC electric rates.

13. The third objective, that BC should achieve "energy security" and/or "Energy Independence," was also stated in the 1990,[5] 2002, and 2007 BC Energy Plans. This policy objective has two major aspects as regards electric power. First, the province should be self-sufficient in electric capacity, *i.e.*, net imports of electric power should be kept to a level consistent with "security" or "independence." Second, energy security implies that the fuel sources upon which the province relies for electric generation should also be secure from interruptions and threats. Additionally, the 2007 BC Energy Plan established clean energy targets that include zero net greenhouse gas emission for all new electricity generation projects and new investments in innovation.[6] Specifically, the MEM created the $25 million Innovative Clean Energy Fund, which was designed to accelerate the new, clean and renewable energy technologies. The MEM also implemented the Bioenergy Strategy to take full advantage of B.C.'s abundant sources of renewable energy, and turning wood waste into energy.[7]

14. I note that Dr. Michael Rosenzweig, an expert for Canada, has filed testimony claiming that economic efficiency was one of the policy rationales for the government's actions.[8] I cannot find much discussion of this stated rationale in the BC policy documents I have seen. Instead, BC passed legislation in 2002 that BC electric rates would be based on

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4 *Energy for Our future: A Plan for BC*, Ministry of Energy, Mines and Petroleum Resources, 2002. (Hereafter "2002 Energy Plan") Exhibit R-21; *The BC Energy Plan: A Vision for Clean Energy Leadership*, Ministry of Energy, Mines and Petroleum Resources, 2007, (Hereafter "2007 Energy Plan"), Exhibit C-62.

5 British Columbia Energy Policy: New Directions for the 1990s, Ministry of Energy, Mines and Petroleum Resources, 1990, Exhibit R-98.

6 Exhibit C-62, pp. 3-4.

7 Exhibit C-62, p. 4.

8 Rosenzweig Expert Report, paragraphs 7, 23, 35 n. 40, 45, 52, 63, 64, 66, and 69.

average embedded cost principles.[9] Moreover, in Section IV below I refute Dr. Rosenzweig's claim that BC's actions were predicated on economic efficiency. In other words, even if Dr. Rosenzweig were correct and efficiency was a rationale, the government's actions have been almost uniformly unrelated to, or in contradiction of, this purported objective.

15. Dr. Rosenzweig suggests that BC's policy against "harmful arbitrage" also is justified by what he refers to as ratemaking cost-causality principles.[10] According to Dr. Rosenzweig, BC Hydro's actions regarding Celgar are justified because BC Hydro needed to protect customers from bearing costs due to Celgar's actions. I address this point in paragraph 41 below.

16. As shown in the remainder of this section of my statement, the actions of the BCUC were extremely inconsistent in their alignment with the three stated objectives I discuss. The BCUC did not carefully or consistently apply its stated policy of preventing "harmful arbitrage" or the objective of encouraging added self-generator capacity. In fact, it did the reverse: its various specific determinations regarding self-generators do not show an absolute prohibition against "harmful arbitrage" -- except in the case of Celgar. The amounts of "harmful arbitrage" that were permitted do not appear to follow any consistent principles for exceptions or policies and are not supported with analyses. (The fact that there is so little transparency and documentation of the implementation is itself a serious infirmity in regulatory practice, a topic I discuss more fully in Section III.) Measures were taken to limit the amount of "harmful arbitrage," but not prevent it entirely, with of Celgar being the primary exception, and the limits imposed on a case-by-case basis do not follow from any common analytic framework or principles.

17. The third objective – achieving greater energy security – is somewhat a derivative of the policy of encouraging new biomass self-generation, as the latter is new capacity within

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9 *See* Exhibit C-6 and Exhibit C-320 HERITAGE SPECIAL DIRECTION NO. HC2 TO THE BRITISH COLUMBIA UTILITIES COMMISSION Schedule A.

10 Rosenzweig Expert Report, paragraphs 45, 94.

BC that uses an indigenous fuel source. To the extent that a significant amount of self-generator capacity is built in BC, it is more electricity self-sufficient; to the extent that self-generator capacity uses native biomass, it is more energy-secure.[11] Because BC's policies towards self-generation were inconsistent, it follows that the promotion of this third objective was necessarily inconsistent. Because this third objective is a derivative of the second, I do not discuss it further as a separate topic.

B. STYLIZED ILLUSTRATION OF ORDER G-38-01 POLICIES

18. Order G-38-01 was issued by the BCUC on April 5, 2001 and relates specifically to BC Hydro and self-generators on its Rate Schedule 1821/1823. The stated rationale of this Order was to prevent "harmful arbitrage" while allowing customers with self-generation that would otherwise be idle to export their power.[12] Another insight into the Order's rationales comes from the "whereas" section of the Order: "the Commission concludes that it must act to meet the complementary objectives of creating conditions which allow BC Hydro to safeguard its own supply to British Columbians at lowest cost, assisting British Columbia industries with idle self-generation capability to capitalize on current market opportunities, and helping to mitigate the potential energy shortages in the Pacific Northwest and California."[13]

19. To illustrate the true effects of the G-38-01 idle self-generation policy, it is useful to analyze a simplified and illustrative version of the internal and external markets shown in Figure 1. In this figure the internal (or BC) power market's supply curve is shown at left and the external (or export) market is shown at right with the market demand and supply curves. In the left-hand figure the supply curve is only the gross supply of self-generators

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[11] In the 2007 Energy Plan, this is referred to as: "Ensure self-sufficiency to meet electricity needs including 'insurance'." *See* Exhibit C-62, p. 9.

[12] Exhibit C-5, p. 2: The order states: "The Commission directs BC Hydro to allow Rate Schedule 1821 customers with idle self-generation capability to sell excess BC self-generated electricity, provided the self-generating customers do not arbitrage between embedded cost utility service and market prices."

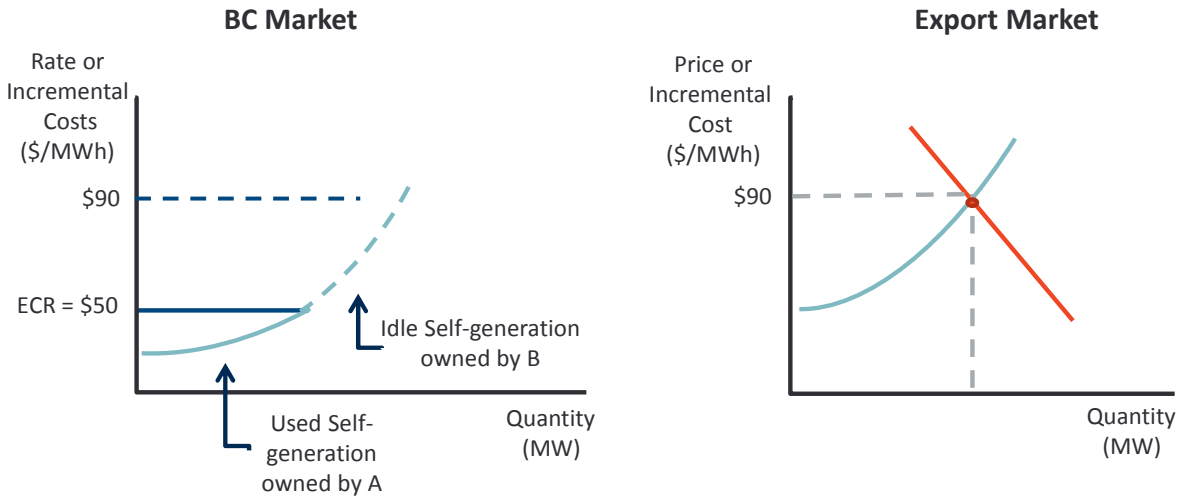
[13] Exhibit C-5, p. 1.

at each self-generator's marginal cost. In this illustration, to keep the arithmetic and units as simple as possible, I treat MW and MWh the same, as if the market has only one hour.

20. For simplicity, I assume the entire province has one single average embedded cost rate ("ECR") for power sales to industrial self-generators of $50/MWh. This means that absent some outside financial support, all self-generation that is cheaper than $50/MWh will at a minimum be used to self-supply; any self-generation that costs above $50/MWh is left idle.[14] Thus, the regions of the self-generator supply curve below and above the $50/MWh rate are labeled on Figure 1 "used" and "idle", respectively.

Figure 1

Illustrative BC and Export Power Markets



21. The external market, such as California, is vastly larger than the BC self-generator supply.[15] The right side of Figure 1 shows an illustrative total supply and demand curves

[14] As explained below, existing co-generators will compare the short-run marginal cost of generation to this rate; those contemplating new construction will use the long-run marginal cost, or the per-unit cost of recouping capital outlays plus the projected short-run marginal cost.

[15] In 2001, the California market alone has a peak demand of approximately 50,000 MW, whereas, all self-generators that were customers of BC Hydro have a total supply of about 850 MW. *See* Exhibit C-119 and http://energyalmanac.ca.gov/electricity/historic_peak_demand.html.

for the California power market, indicating a price where the California power market clears. This price, $90/MWh, is well above the BC $50/MWh embedded cost rate.

22. Under these simple conditions, idle supply-generators whose costs are below $90/MWh could now self-generate to sell the external market at a profit – external arbitrage as I label it.

23. In this simple example, suppose there are only two owners of self-generation, A and B. Suppose further that A owns all of the self-generating capacity with an incremental cost that is cheaper than $50/MWh; and B owns everything whose cost is between $50/MWh and $90/MWh.[16] Self-Generator A owns capacity exactly equal to its load of 100 MW, and B also owns 100 MW of self-generating capacity. However, B's capacity is presently sitting idle because its costs are too high to make it economical to run without financial support. Since B's pulp mill is still operating, all of B's load is being supplied by BC Hydro at embedded cost rates ($50/MWh).

24. Under the Order G-38-01 policy, A would self-supply entirely and export nothing to the $90 market, as none of its generation is idle. Its short-run financial gains from self-generation would be its self-generation output times the difference between the $50/MWh embedded cost rate ("ECR") and its average short-run generation costs. Suppose the latter is $40/MWh, so it gains $10 per self-generated MWh instead of buying from BC Hydro at ECR of $50/MWh.

25. Under the Order G-38-01 policy, B's self-generation is now no longer idle because it is now allowed to sell to California for $90/MWh while simultaneously purchasing ECR electricity from BC Hydro. For this export, its profits per MWh sold are $90 less its incremental costs of self-generation. Suppose B's incremental cost is $70/MWh, half way from $50 to $90. In this example, B earns higher profits on each unit of self-made power ($20/MWh, equal to $90-$70) in spite of the fact that its costs are much higher

[16] These costs include all incremental costs of self-generating, including the pro-rata incremental costs of backup power.

than A's. B sells 100 MW of power to the export market and A exports nothing because it is required to use its self-generation to meet its own load.

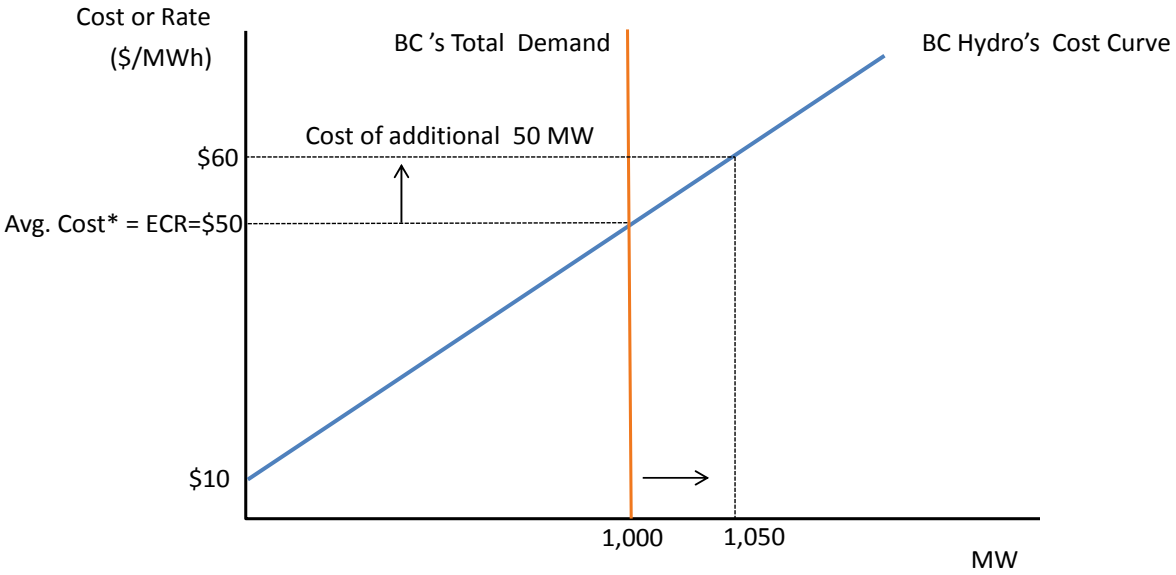
26. To complete this example I examine what the local utility, BC Hydro, is providing. BC Hydro's illustrative average cost curve is shown in Figure 2. This curve shows both the average cost of BC Hydro as computed for ratemaking purpose, which includes depreciation, amortization and any required return on capital. Suppose for simplicity that the required return is $10/MWh. Because average costs should equal average rates, the chart shows both BC Hydro's average costs and embedded cost rate; the rate includes the $10/MWh return.

27. Suppose BC Hydro is not exporting or importing anything on its own and is the sole supplier of power in the province other than A and B. Suppose total demand in the province is 1,100 MW excluding any load from A, but including B's load.[17] In this example, BC Hydro will have to supply 1,000 MW, none of which goes to A. At this level of total supply, BC Hydro's ECR is $50/MWh, the same as in Figure 1.

[17] This is correct because A is fully-self supplying in this scenario.

Figure 2

Simplified Illustrative BC Hydro Embedded Cost Curve



* On this diagram, average cost (for regulatory purposes) includes an assumed $10/MWh of profits (investor returns). Average Costs Excluding Profits are therefore $40/MWh

28. BC Hydro's cost/rate curve also shows the impact on average cost if an additional 50 MW of supply must be provided. Suppose that to increase its quantity supply from 1,000 MW to 1,050 MW, BC Hydro must spend $60/MWh on the additional 50 MW supply.

29. Table 1 shows a tally of costs and revenues for this example under the Order G-38-01 policy whereby only B can do external arbitrage. As shown in Column {2} of Table 1, the total province-wide generation from BC Hydro (BCH), A, and B's export from its idle generation is 1,200 MW (instead of 1,100 MW when B left its generation idle). The total province-wide cost amounts to $51,000, as shown in Column {9}. When compared with the gains prior to the G-38-01 policy, self-generator B gains $2,000 from the new policy of allowing idle generation to be sold, but A gains nothing and BC Hydro appears to be neutral. Effectively, this policy rewards the less efficient generators relative to the more efficient generator. A earns a profit of only $1,000, while the less efficient B earns a profit of $2,000.

Table 1
G-38-01 Policy Applied Only to Self-Generator B
("Idle" Self-Generator)

Entity	MW Total	External Price ($/MWh)	BCH Average Rate ($/MWh)	External Sales	External Sales Revenue	BCH Sales Revenue	Saved Electric Payments from Self-Supply ($)	Cost of Generation ($)	Gains (Losses)
{1}	{2}	{3}	{4}	{5}	{6} = {3}x{5}	{7} = {2}x{4}	{8}	{9}	{10} = {6}+{7}+ {8}-{9}
A	100	$90	$50	0	0	N/A	$50*100= 5,000	$40*100=4,000	$1,000
B	100	$90	$50	100	$9,000	N/A	0	$70*100=7,000	$2,000
BCH	1,000	$90	$50	0	0	$50,000	N/A	$40,000[1]	$10,000
Total	**1,200**							**$51,000**	**$13,000**

[1] This is calculated by noting that the example assumed $10/MWh profits. Thus, profits in the rightmost column must be $10*1000 MW = $10,000. Since revenues are $50,000, costs excluding profits must be $40,000.

30. The reason why this particular form of arbitrage is not considered "harmful" by BC Hydro is simply that, prior to the policy being in existence, BC Hydro's costs and rates were set with the expectation that they were serving all of B's load, because B's generators were idle. Thus, when B sells its self-generated power while purchasing from BC Hydro at ECR, it does not have a negative effect on BC Hydro's rates or costs. But if BC Hydro really wanted to minimize the rate impact of B's self-generation, it would have allowed B to keep only enough of its sales profit to induce B's self-generation and collected the rest from B to credit it against its own costs. (In fact, this is what BC Hydro attempted to do. Powerex entered into an agreement with Howe Sound to buy "B's" self-generating power at prices below the market levels, with Powerex earning an unusually high percentage of the new sales profit.)[18]

31. The point is that BC Hydro's decision as to whether B could engage in sales and continue to be supplied at ECRs was seemingly based solely on a desire to keep rates as they were, neither to minimize them nor to seek economic efficiency. It was simply a judgment call

[18] See *infra* paragraphs 47-49 for further discussion.

on the part of BCUC and BC Hydro as to which *status quo* to preserve, and thereby determining who gets to sell and who gets to keep the profits and who does not, influenced entirely by a desire to not disturb rate levels one way or another.

32. Put another way, the fundamental self-generator regulatory issue confronting the BCUC was how to allocate the arbitrage profit that could be earned by selling electricity generated in BC at relatively low cost into higher-priced export or domestic markets.[19] Most of this electricity was generated by BC Hydro, but some was produced by self-generators operating in the Province. These profitable sales were going to occur; the only question was who would reap the benefits. The actions and policies of BC and BC Hydro did not allocate all such profit opportunities to BC Hydro; they afforded some profit opportunities to certain self-generators, but only to the extent BC Hydro was protected against additional costs. This result was not guided or even influenced by any considerations of economic efficiency or fairness among self-generators; rather, the allocation was motivated principally by a desire to preserve electricity rates in the Province as they were alongside *ad hoc* circumstances.

To demonstrate that the BCUC decision is not the most efficient outcome, nor the policy most equitable between A and B, consider an alternative policy where A and B each is given the right to external arbitrage on a *pro-rata* basis, *i.e.*, export 50 MW each. Instead of completely self-supplying, A would self-supply all but 50 MW of its load (100 MW). Unlike in the previous example, when A was not entirely self-supplying, BC Hydro would have to provide 50 MW supply to A, increasing BC Hydro's total load to 1,050 MW. Idle self-generator B would also export 50 MW rather than the 100 MW previously. A and B each equally earns $4,500 from their 50 MW exports at $90/MWh. Columns {2} to {4} of Table 2

33. show this alternative policy.

[19] Note that this arbitrage could be "harmful arbitrage" as defined in paragraph 9 above or it could be another type of arbitrage that does not have the same "harmful" effects.

Table 2

Export Sales Opportunities Apportioned Equally to A and B with Rate Freeze

Entity	Total Load (MW)	Exp. Sales (MW)	Export Revenue ($)	Int. BC Sales Revenue ($)	Saved Elec. Payments ($)	Cost ($/MWh)	Cost of Generation ($)	Gains (Losses) ($)
{1}	{2}	{3}	{4} = {3}x$90	{5} = {2}x$50	{6} = {2}-{3}x$50	{7}	{8}	{9} ={4}+ {5}+{6}-{8}
A	100	50	$4,500	N/A	$2,500	40	$4,000	$3,000
B	100	50	$4,500	N/A	0	70	$3,500	$1,000
BCH	1,050	0	0	$50*1050 = $52,500	N/A	1st 1,000 MW = 40 Additional 50 MW = 60	$40,000+ $60*50 = $43,000	$9,500
Total	**1,250**						**$50,500**	**$13,500**

34. Columns {4} to {9} of Table 2

35. show the financial gains of the two self-generators from this alternative policy. Self-generator A self-supplies half of its own load at a per-MW savings of $10/MWh but gains more from the remaining 50 MW, which are now sold at $90, yielding a profit of $50/MWh ($90/MWh-$40/MWh) times 50 MW, or $2,500. In total, A gains by $3,000. Self-generator B simply reduces its output to 50 MW, sells it at $90/MWh for resulting in a profit of $1,000 {50MW x $20/MWh, where the latter amount is determined as $90/MWh-$70/MWh}.

36. When BCH must generate an additional 50 MW of power, I assume that the incremental cost of this added 50 MW is $60/MWh. This implies that BCH's embedded cost rate for serving 1,050 MW is higher than $50/MWh. However, during 2001, BC Hydro's retail electricity rates were frozen. Thus, I assume that BCH's ECR remains at $50/MWh.

37. BCH's total cost excluding profits reported in Column {8} of Table 2 is $43,000, which is the sum of the cost of generating the first 1,000 MW at $40/MWh ($40,000) and the cost of generating the additional 50 MW at $60/MWh ($3,000). The province-wide total cost amounts to $50,500. BCH's revenue from selling 1,050 MW at $50/MWh is

$52,500 (Column {5}). The total bill saving for A shown in Column {6} is $2,500. Column {9} presents the gains of $3,000 for A, $1,000 for B, and $9,500 in profits for BCH. In this instance, BCH's profits diminish by $500 relative to those in Table 1.

This example illustrates BC's true rationale for a policy that prevents A from selling self-generated power. If A can sell equally with B, as in Table 2

38. (without BCH's rate increase):

- Both A and B gain profits; B is not the only self-generator to realize sales profits. B's sales profits go down relative to the first case (Table 1) while A's profits rise significantly.
- If there is no rate increase, BCH's profits (final column of Table 2) go down from $10,000 to $9,500. If it raises rates, it can increase (or maintain) its profits.

Thus, to protect against having to make a choice between lower profits and higher rates in the second scenario, BC awards all sales opportunities to B, even though this is neither equitable nor economically efficient. Instead, it rewards the inefficient self-generator relative to the efficient self-generator.

There is another important point illustrated by this example. Note that the total load supplied in the second alternative (Table 2) is 1,250 MW, higher than the 1,200 MW in Table 2

39. by 50 MW– yet total costs of supply (counting all costs from A, B, and BC Hydro) are $50,500 – *lower* than $51,000 shown in Table 1. The alternative scenario produces more total electric power at a lower total cost to society than the first, more unequal scenario, and is therefore more economically efficient. In addition, it induces a more efficient self-generator like A to invest more as it receives higher awards from the alternative policy. By making its choice to limit market sales opportunities only to B, BC's policy stands in the way of an increase in overall resource efficiency – greater output of electricity at

lower costs.[20] It certainly is not designed to enhance economic efficiency, and in fact, it has the opposite effect. It favors inefficient producers over the most efficient producers.

40. In summary, this simple example illustrates four important facets of the instant proceeding:

A. The decision as to whom opportunities to sell self-generated electricity at market prices should be awarded is a discretionary call of the BCUC and BC Hydro. It is not based on maximizing overall economic efficiency; in fact, efficiency is increased in the second scenario because total output rises and total costs decline.

B. Awarding external sales opportunities only to B, based on a rationale that this avoids "harmful arbitrage," simply reflects a view that harm is relative to the *status quo*, in which A is presumed to be entirely self-supplying and B is not generating at all. It is not the least "harmful" scenario in the sense that it does not lower rates as much as they could be lowered, it is just not worse than the *status quo* prior to the policy.

C. Another aspect of the *status quo* worth noting is that an implicit or explicit policy of requiring self-generators to self-supply is that the gains and losses from self-generator investments are allocated in a certain way. The gains of the pre-existing, self-supplying self-generator (A) are limited to the savings versus self-supply. In the Table 1 scenario, not only is BCH neutral versus not allowing idle self-generators to sell, BCH also is better off from A's self-supply, because otherwise BCH and its ratepayers would incur higher overall costs. In other words, requiring A to self-supply saves BCH from having to build, and charge all its customers for, its own capacity to serve A, or otherwise to procure that incremental electricity at marginal costs higher than BC Hydro's average cost. While this is obviously one way to divide the benefits of A's self-generation between BCH and A, it is (as

[20] These electric costs do not include externalities, but the inclusion of externalities is unlikely to affect the changes in cost.

noted) less equitable and less economically efficient overall than the second alternative.

D. The real motivation for not going to the second scenario shown in Table 2, where both A and B have external sales opportunities, is that the profits of BC Hydro go down slightly – or, to offset the decline in profits, BC Hydro must raise its rates slightly for everyone.

41. This example reveals that the policy rationale for the Order G-38-01 "only let idle or new generation arbitrage" policy is motivated by BC Hydro protecting its profits and/or its rates at the expense of a more equitable and more economically efficient self-generator sales policy. The BCUC simply took a snapshot of the *status quo* prior to the policy and declared that any existing self-supply should continue; new sales of self-generated electricity at market prices could occur so long as self-generator's demand for embedded cost power was not increased by the sale.[21]

42. This example also illustrates another important point about so-called cost causality, a term Dr. Rosenzweig raises in his Expert Report.[22] Dr Rosenzweig asserts that "BCH needed to protect customers from bearing costs due to the actions of other customers."[23] Formally speaking, a cost is something that causes an economic actor's wealth to decline from their pre-transaction *status quo*. In a purchase and sale transaction, a cost is paid in exchange for something of value. Costs can also be imposed without any corresponding benefit. The point, however, is that cost is always relative to one's pre-transaction property rights and economic assets. If I own a piece of property, and you do something that lowers its value, you have imposed a cost on me.

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[21] In the Decision accompanying Order G-191-13 the Commission states: "Further, the notion of arbitrage, as used in relation to GBLs, was in, fact the preservation of the *status quo*, such that BC Hydro's obligation to serve was limited to the load served at a particular time, and self-generators were required to continue to serve that portion of their own load which they had served in the past." *See* Exhibit C-21, p. 12.

[22] Rosenzweig Expert Report, paragraphs 35 and 45.

[23] *Id.*, paragraph 45.

43. Dr. Rosenzweig asserts that any sale of power by a self-generator that is replaced with ECR power to serve its own load imposes a cost on other customers. This assertion embeds the implicit assumption regarding property rights that all power produced by self-generations is not really owned by the self-generator—if it was, it could be freely sold to others without affecting their entitlement to ECR power. Rather, it has a special status that requires it to be used only for self-supply. The benefits of off-system sale of that generation are held by the Province, which can decide through its public utility policies and ratemaking how the benefits of that generation are to be allocated. Dr. Rosenzweig's particular definition of the *status quo* then allows him to label as a "cost" any deviation from this *status quo* that reduces the allocation of the benefits of self-generation to the total system and raises them to the self-generator.

44. Where the allocation of property rates is straightforward or well-understood, which is true in many economic transactions routinely entered into, the labeling of costs is also straightforward. In the present case of entitlements to the benefits of self-generation, the allocation of this property right is made entirely through the setting of somewhat complex regulatory and rate policies for self-generators. As shown in the remainder of this section, this was done on an *ad hoc* basis that allowed different amounts of the benefits of self-generation to be realized by different mills. In this situation, the property rights of self-generators was never clearly established, and labeling a change in that allocation a cost risks becoming a circular exercise.

45. The illustrative example is obviously highly stylized, but its essential ingredients contrast the treatment of Howe Sound Pulp and Paper ("HSPP" or "Howe Sound") with the G-38-01 policy. On February 23, 2001, BC Hydro wrote to the BCUC requesting that it review BC Hydro's obligation to serve customers with self-generation who wanted to sell its power at market prices.[24] On February 27, 2001, HSPP wrote to the Commission "to identify that any self-generation which would be used by HSPP for market sales would not require BC Hydro to deliver any *additional* electricity to HSPP pursuant to BC

[24] Exhibit C-5, p. 3.

Hydro's then Rate Schedule ("RS") 1821 for industrial customers. High natural gas prices had idled some of HSPP's self-generation capacity, although this generation would be profitable at market prices for electricity available outside of British Columbia."[25] This led to Order G-38-01, which directed BC Hydro to set baselines (GBLs) for their self-generating customers. Shortly after, on April 12, 2001, BC Hydro consented to an enabling agreement between Powerex and Howe Sound. The agreement allowed Howe Sound to sell << [redacted] >> MW (that it generated in excess of its << [redacted] >> MW Generator Baseline or "GBL") to Powerex << [redacted] >>[26]

46. Comparing its situation to the stylized example, Celgar is much like supplier A because it was primarily self-supplying prior to its 2009 EPA with BC Hydro. It bought power from Fortis BC only on a contingency basis for self-use, when its self-generation was inadequate.[27] Celgar's total annual load of 349 GWh was slightly below its total generation of 350 GWh in 2007.[28] BC Hydro used this 2007 total load to set Celgar's GBL for the EPA. The GBL of 349 GWh set by BC Hydro would provide Celgar with no access to arbitrage, consistent with the net-of-load standard imposed by the BCUC in Order G-48-09.[29]

47. Moreover, under Order G-48-09, Celgar, an eligible customer of Fortis BC, was not allowed to use FortisBC power sourced from the BC Hydro 1993 PPA to replace any

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[25] Exhibit C-5, p. 3 (emphasis added).

[26] Exhibit C-122.

[27] Exhibit C-193.

[28] Exhibit C-221, p. 51; Counter-Memorial paragraph 232.

[29] Exhibit C-7.

export sales, in order to avoid BCH either raising its rates or lowering its profits. As a practical matter, the Commission denied the right of Celgar to share in *any* benefits of its below-load self-generation beyond its own savings on its own supply costs vs. purchase at ECRs. All other benefits, relative to Celgar not building its below-load self-generation at all, including the ability to earn high profits on export sales, accrue to BCH. As the example and other ideas in Section V below demonstrate, there are other more equitable and efficient ways to allocate the benefits of Celgar's self-generation.

48. Howe Sound's idle capacity is akin to Supplier B's in my example above. Howe Sound is a self-generator and customer of BC Hydro. Prior to Order G-38-01, Howe Sound had idle capacity because the cost of that portion of its self-generation requiring it to burn natural gas was not economical unless it were to export the power to a highly lucrative market. It therefore relied on BC Hydro's embedded cost power to serve some of its load even when it was exporting power for sale in other markets.

49. By Order G-38-01, the Province allowed Howe Sound simultaneously to buy electricity from BC Hydro and sell, into the high-priced California power market via Powerex, any self-generated power above << [redacted] >> MW of approximately << [redacted] >> MW capacity. This is precisely the treatment illustrated in the example 1 above: Howe Sound made arbitrage profits on previously idle self-generator capacity above 45 MW, but ostensibly did not increase its use of embedded cost power that it has purchased from BC Hydro, preserving the *status quo* of BC Hydro[30] and presumably increasing BC Hydro's excess generation that Powerex could sell at higher prices in an external market. As shown in Table 1, a less efficient cogenerator (HSPP vs. Celgar) was allowed to sell relatively

[30] Mr. Switlishoff (paragraph 118) notes that the selection of the 45 MW as the dividing line between what was previously idle and therefore eligible for arbitrage was "undocumented and arbitrary." Without disagreeing with his conclusion, I make a separate point here, *i.e.*, that the BCUC's policy was not motivated by equity or efficiency but rather simply by a desire to least disrupt the status quo, thus benefitting only Howe Sound.

expensive power into a highly lucrative market, << [redacted] >>[31]

50. As BC Hydro implemented Order G-38-01, it actually made the outcome slightly more favorable for itself and less favorable for Howe Sound than the first scenario in the illustration above. In Table 1 only self-generator B gains from the sale of its idle capacity to the external market. In the case of Howe Sound, BC Hydro entered into an agreement that gave BC Hydro and its Powerex affiliate the ability to purchase power from Howe Sound at << [redacted] >> price indices or potentially << [redacted] >> of the revenues earned on exporting Howe Sound's generation.[32] However, the framework was still one in which the *status quo* as of the Order determined who gained from external sales and who did not.

51. As explained following, Order G-38-01 began an era in which arbitrage profits were not forbidden, but rather were selectively awarded to individual self-generators on a case-by-case basis in a manner not consistent with good regulatory policies or principles. Although BC Hydro clearly attempted to put bounds for each self-generator on the amount of arbitrage permitted, the bounds were inconsistent and never based on any consistent application of well-defined and transparent principles.[33] This is because BC Hydro neither had any written, transparent GBL calculation guidelines in place nor did the BCUC ensure that BC Hydro had one, until recently. I discuss BC Hydro GBL calculations in the sections below.

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[31] Howe Sound actually received *better* treatment than this because, in 1989, it received financial assistance from BC Hydro in the form of an interest-free loan for C$ << [redacted] >> I discuss this further in subsection D below.

[32] Exhibit C-122.

[33] See further discussion in Section III.

C. REVEALED RATIONALES IN THE POLICIES TOWARD OTHER SELF-GENERATOR CUSTOMERS WERE NOT CONSISTENT WITH ORDER G-38-01, BUT WERE CONSISTENT WITH BC AND BC HYDRO ARBITRARILY DECIDING HOW MUCH ACCESS TO ARBITRAGE IS PERMITTED

52. Order G-38-01 provided only broad guidance that GBLs should be set "based either on the historical energy consumption of the customer or the historical output of the generator."[34] The BCUC did not determine which historical year should be utilized. BC Hydro at its own discretion claims to have interpreted this as a self-generator's "current normal operating conditions," but did not visibly articulate any rules or framework for how this condition should be defined until 2012. As explained below, self-generators' equipment, such as boilers, wear out and fuel prices such as hog fuel or natural gas fluctuates. When these fuels are expensive, some self-generators may temporarily shut off their hog boilers or power boilers as they become uneconomic. For more than a decade, BC Hydro had no well-defined, transparent standard in place as to how it would handle these and other types of situations, but rather treated each mill on a case-by-case basis, with little in the way of pre-defined guidance or procedures.

53. In this subsection, I review the actual implementation of BC self-generator policies for the Tolko/Riverside, Tembec, Howe Sound, and Celgar mills. This review shows that the implementation of the Order G-38-01 was *ad hoc*, conformed to the revealed rationale, and was discriminatory toward Celgar.

1. Tolko/Riverside

54. In October 2001, only months after Order G-38-01 was issued, the BCUC granted Tolko's Kelowna sawmill,[35] a City of Kelowna customer with self-generation, an authorization to sell ostensibly incremental power to the City of Kelowna, Powerex, or West Kootenay Power ("WKP") at market prices.[36] The BCUC set Tolko's energy

[35] It was known at that point as Riverside Forest Products Limited ("Riverside").

[36] Exhibit C-130, p.1.

baseline for Tolko's self-supply at 2 MW per hour, allowing Tolko to sell up to 8 MW per hour of additional power.[37] The baseline thus functioned as a BC Hydro GBL. The 2 MW per hour baseline set by the BCUC was lower than the actual historical energy generation of Tolko during the previous two years. As a result, Tolko was able to sell all electricity generated in excess of 2 MW per hour while simultaneously purchasing replacement power from its utility at embedded cost rates.[38] This is what the BCUC has defined "harmful arbitrage."

55. It is clear from my review of Tolko's information submitted in the G-113-01 proceeding that the BCUC did not set the 2 MW baseline using Tolko's recent historical generation even though in Order G-38-01 the Commission directed BC Hydro to use such information for setting a GBL. Tolko's average generation per hour stayed close to 3 MW in the two years prior to 2000.[39] The amount was clearly higher than 2 MW, which was also pointed out to Tolko by the BCUC Staff.[40]

56. It is inexplicable that the BCUC chose to protect WKP's customers from Tolko's "harmful arbitrage" for *only* the first 2 MW of Tolko's generation.[41] This decision would have been consistent with the principles set out in Order G-38-01 if Tolko's historical average load was 2 MW. But this is not the case. Its mill load was close to 5 MW,[42] well exceeding the 2 MW baseline. With an authorization to sell the incremental power in excess of the first 2 MW, Tolko could use its utility embedded cost power while exporting power to third parties. In short, Tolko was given subjectively selected harmful arbitrage opportunities denied to Celgar.

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[37] The 8 MW is calculated based on the difference between the new upgraded capacity of 10 MW and the 2 MW baseline. The turbine was brought into service in May 2000.

[38] Item 4, Riverside Load Demand, Exhibit C-207, p. 1.

[39] Schedule B of Exhibit C-207. During 1996-1999 Tolko's generation rose from 1.23 MW in 1996 to 3.15 MW in 1999.

[40] The BCUC Staff calculated the October 1997-October 1999 average generation of Tolko to be 3.03 MW. *See* Exhibit C-208, p 5.

[41] Exhibit C-103, p. 1. WKP supplied power to City of Kelowna who served Tolko.

[42] Exhibit C-207, p. 1.

57. The Commission did not attempt to correct this inconsistent and discriminatory policy even when Tolko requested that the BCUC reaffirm its ability to sell its generation in excess of the first 2 MW after Order G-48-09 was issued. The Commission upheld the 2 MW baseline and claimed that the Order G-48-09 was irrelevant because Tolko was not a direct customer of FortisBC (Order G-198-11).[43] But whether or not Tolko was a direct customer of FortisBC should not have affected the BCUC's policy towards self-generators in the province.[44] By passing Order G-198-11, the Commission was inconsistent with their prior policy and inconsistent and discriminatory in its treatment of two mills. It paid no heed to the fact that it was permitting for Tolko the same "harmful arbitrage" it had prohibited for Celgar.[45]

2. Tembec/Skookumchuck

58. The treatment of Tembec's self-generator capacity in 2009 reflects similar revealed rationales: while officially declaring that "harmful arbitrage" was prohibited so as to keep non-self-generator electricity rates low, allowing self-generation sales at below-load levels, with no consideration of consistency or fairness between self-generators or overall economic efficiency.

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[43] Exhibit C-18, p. 2.

[44] The Ministry argued for a consistent policy across the province and not just by service area in its letter to the BCUC RE: FortisBC Inc. Guidelines for Establishing Entitlement to Non-PPA Embedded Cost Power and Matching Methodology (Compliance Filing to Order G-188-11). *See* Exhibit R-49, pp. 3-5.

[45] In the BCUC's 2013 Order G-191-13, the Commission rescinded its Order G-113-01 when Tolko became FortisBC's direct customer. It prohibited Tolko from arbitraging its any below-load generation. In this order the Commission acknowledged that the inconsistent treatment of the Tolko and Celgar two mills would be discriminatory.

"The Panel finds that a utility offering one self-generating customer service on the basis of a GBL which is less than load and offering another self-generating customer service on a net of load basis will create a situation of 'undue discrimination, preference, prejudice or disadvantage in respect of a rate or service,' within the meaning of section 59(4)(b) of the Utilities Commission Act."

Although Order G-191-13 attempts to correct this discriminatory treatment, it does not change the fact that the previous treatment of Celgar was discriminatory and less favorable as compared to Tolko.

59. BC Hydro and Tembec entered into the 2009 Electricity Purchase Agreement ("2009 EPA") as a result of their renegotiation of their 1997 EPA and 2001 Electricity Supply Agreement. They agreed to incorporate the terms and conditions of the Bioenergy Call Phase I RFP into the 2009 EPA. This includes setting up Tembec's GBL.

60. When setting up Tembec's GBL, unlike the methodology used for Howe Sound and Celgar, BC Hydro did not use historical metered generation. << [redacted] >>[46] Instead, BC Hydro adopted a << [redacted] >> approach proposed by Tembec. It calculated Tembec's GBL based on a << [redacted] >>[47] << [redacted] >> in a GBL for Tembec of 14 MW per hour or 122.64 GWh per year, far below its average self-generation of << [redacted] >> MW per hour and Tembec's pulp mill average load of approximately << [redacted] >> MW per hour.[48] This GBL bears no reasonable relationship to Tembec's actual levels of generation-to-load and thus reflects a substantially different methodology that BC Hydro used for Celgar.

61. The main reason for Tembec's low GBL appears to be << [redacted] >>[49] BC Hydro claimed that << [redacted]

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[46] Dyck Statement, paragraph 106.

[47] STG2 began operating in 2001 to replace STG1 and to serve the 1997 EPA. Exhibit C-116, p. 4. << [redacted] >> *See* Exhibit C-113. << [redacted] >>

[48] The numbers were respectively based on the 2006-2008 average self-generation and self-generation to meet load derived from Exhibit C-163. *See* also Exhibit C-116, p. 5 << [redacted] >>

[49] Dyck Statement, paragraphs 107-109. Tembec's engineer stated in its memo to BC Hydro that << [redacted] >> Exhibit C-113, p. 2-3.

[redacted] >>[50]

62. I also note that BC Hydro cited << [redacted] >> as one basis for setting a relatively low GBL for the mill. To the extent that Tembec has its own captive sources of hog fuel that could be burned in its own hog fuel boilers, its internal generation operations were insulated from hog fuel price changes.

63. BC Hydro's reasoning is at odds with several economic principles. In general, a power plant continues to generate power even with high fuel prices as long as its revenue can recover its fuel cost. Mr. Dyck produced neither calculation nor evidence to support his claim that Tembec's revenue received under its 2009 EPA was insufficient to recover its << [redacted] >> Indeed, the mill's monthly generation data for the period May-July 2009 indicates that, << [redacted] >> the 14MW Tembec was telling BC Hydro it would produce. Thus, removing Tembec's hog boiler output from the GBL calculation made Tembec's GBL calculation essentially a modeled projection of unrealistic operating conditions and a different plant configuration than was actually in place.

64. In sum, I see no justification for BC Hydro's abandonment of actual generation data in favor of a hypothetical model (and no established criteria for doing so). No historical generation or load data supports the 14 MW average GBL BC Hydro established for Tembec. I also see no justification for a model that ignored a hog boiler that had been installed and was in use under the conventions established in Order G-38-01.

3. Howe Sound

65. In subsection B above I explained how Howe Sound's 2001 treatment was akin to Supplier A in my illustrative example; this treatment was purportedly enshrined in Order

[50] Dyck Statement, paragraph 106.

G-38-01 and the loose application of the "current normal" convention. In the case of Howe Sound's 2010 EPA, BC Hydro decided << [redacted] >> Instead, it calculated Howe Sound's GBL as << [redacted] >>[51] Specifically, to derive the annual GBL BC Hydro << [redacted] >>[52]

66. The use of << [redacted] >> was not applied to any other mill; the selection of a << [redacted] >> was completely *ad hoc.* Mr. Dyck states that the year << [redacted] >> was not used for setting Howe Sound's GBL << [redacted] >>[53] If << [redacted] >> was not a normal operating year, then it is not clear why it was included << [redacted] >>. Indeed, it seems possible that << [redacted] >>[54] The following statement from Mr. Dyck suggests that there is really no operative definition of normal against which to even judge the period chosen:

<< [redacted]

[51] Dyck Statement, paragraph 129.

[52] << [redacted] >> *See* Exhibit R-70.

[53] Dyck Statement, paragraph 128.

[54] Dyck Statement, paragraph 124.

[redacted] >>[55]

Mr. Dyck thus casts doubt on the very concept of "current normal operating conditions," as it suggests there really was no such thing as a "normal" level of self-generation, at least in the case of Howe Sound.

67. Although << [redacted] >> to create the GBL for Howe Sound can be a reasonable method, Mr. Dyke explains neither why BC Hydro chose to use a << [redacted] >> nor why this method and assumption was superior to a << [redacted] >>, and how the sample criteria are determined. Also, as noted above, this method was not used either for Celgar or Tembec. If indeed it is a superior method for establishing average normal conditions, it should be applied to all GBLs unless there is an offsetting consideration. Otherwise, the use of a << [redacted] >> is arbitrary.

4. Celgar

68. On February 14, 2005, Mercer purchased the Celgar Mill.[56] In July 2006, FortisBC granted Celgar's request for short-term firm point-to-point transmission.[57] In July 2006, Celgar also signed a brokerage agreement with Northpoint Energy Solutions to sell Celgar's electricity in excess of load [[redacted]][58] In June 2007, FortisBC and Celgar engaged in emails about Celgar becoming a full load customer of FortisBC.[59] It is clear from these events that at this time Celgar was interested in selling their self-generation, both above-load and below-load.

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55 Dyck Statement, paragraph 129.

56 Claimant's Memorial, paragraph 275.

57 Exhibit C-212.

58 Exhibit C-213.

59 Exhibit C-214.

69. In July 2007, Celgar completed Project Blue Goose, which improved pulp production to over 500,000 Air-Dried Metric Ton ("ADMT") per year and increased electricity generation by over 20 percent, from 290.4 GWh in 2006 to 350.6 GWh in 2007.[60]

70. In August 2008, FortisBC and Celgar executed a 30-year Power Supply agreement which would have allowed Celgar to purchase all of the electricity it required for its pulp mill at embedded cost rates, and sell all its self-generated electricity at market prices.[61] On September 16, 2008, BC Hydro filed an application with BCUC to amend the 1993 Power Purchase Agreement ("PPA") between BC Hydro and Fortis BC (hereafter, "1993 PPA"). The amendment stated that FortisBC could only service self-generators on a net-of-load basis with electricity from the BC Hydro PPA, and could not provide them access to any PPA power if they were selling self-generated electricity.[62] If this amendment was approved, it would block the agreement between FortisBC and Celgar.

71. While the Commission was deliberating on this matter, BC Hydro and Celgar were negotiating an EPA in response to BC Hydro's Bioenergy Phase I Call for Power, which the parties ultimately entered into on January 27, 2009. In the EPA, BC Hydro established a GBL for Celgar of 349 GWh per year.[63]

72. BC Hydro calculated the GBL based on the load of the Celgar Mill in 2007.[64] BC Hydro's calculation of the GBL is entirely inconsistent with the treatment of the other mills I described in this subsection. In addition to inconsistencies in the years selected as the basis of the GBL, the treatment of ECR power purchases during the period of GBL determination was dissimilar. Power purchased from FortisBC by Celgar was included in the calculation of Celgar's GBL, as Celgar relied upon electricity purchases from FortisBC to help meet its load, while the purchases by Howe Sound and Tembec of BC

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60 Claimant's Memorial, paragraph 287.

61 Claimant's Memorial, paragraphs 294-295.

62 Exhibit C-7.

63 Exhibit C-221, p. 51.

64 Counter-Memorial, paragraph 232.

Hydro's embedded cost power were excluded in the calculation of their GBLs. In addition, BC Hydro's incorporation of the improvements made by Blue Goose to the Celgar mill into the GBL calculation was not consistent with the BCUC's treatment of Tolko. Tolko's 2 MW baseline was based on 1996 and 1997 generation levels, even though it generated an average of 5.2 MW per hour after it had installed a 10 MW generator in May 2000.[65]

73. I also note that there is no formal basis for using intent to sell self-made power to third parties at the time of investment as a basis to distinguish between generator treatments. The Commission noted in Order G-113-01 that Tolko had reached out to West Kootenay to sell their excess generation in 1998. Similar to Tolko, Celgar increased its generation prior to signing any agreement for sales or receiving any upfront BC Hydro or BC Government incentives. Also similar to Tolko, Celgar demonstrated its intent to sell prior to and during construction as shown by the events I discussed previously. Additionally, Celgar's intent to sell was noted in the Pöyry expert report produced by Respondent. Project Blue Goose's productivity and efficiency improvements for the mill were recommended by Pöyry's Due Diligence Report. One of the critical elements of the project justification given [ ][66] Even though both Tolko and Celgar demonstrated intent to sell their self-generation, before obtaining a GBL, Celgar received very different treatment than the treatment Tolko received.

74. The contrast between the 2009 EPA between BC Hydro and Celgar that set Celgar's GBL at 349 GWh and BC Hydro's treatments towards other self-generators illustrates the haphazard and inconsistent application of the policies outlined in G-38-01 and portrayed in the Counter-Memorial. Although the Counter-Memorial attempts to argue that the uniqueness of each mill drives the discrepancies among GBL methodologies, it is evident that there is no consistent approach to setting the GBL across the various self-generators. Instead, what is evident is that BC Hydro arbitrarily assigned GBLs and granted whatever amount of access to arbitrage they deemed acceptable.

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[65] 5.2 MW per hour was based on the average generation from May 2000 to December 2000.

[66] Pöyry Expert Report, paragraphs 73-74.

75. In summary, I find that:

i. The policies towards other self-generators are not consistent with BC's policy objectives. More concretely, while officially declaring that "harmful arbitrage" was prohibited so as to keep non-self-generator electricity rates low, the BCUC and BC Hydro allowed self-generators other than Celgar increased access to ECR electricity, at levels in excess of historical circumstances, with no apparent consideration of consistency or fairness between self-generators or overall economic efficiency;

ii. Order G-38-01 provided only broad guidance that GBLs should be set "based either on the historical energy consumption of the customer or the historical output of the generator." Because there was no specific guidance from the BCUC, nor written methodology established by BC Hydro, BC Hydro over-exercised significant discretion to choose (1) the historical GBL period and (2) GBL methodology; and

iii. BC and BC Hydro policies towards Celgar were inconsistent and less favorable relative to the treatment allowed to other pulp mills.

D. DIRECT SUBSIDIZATION OF SELF-GENERATORS, COMBINED WITH SUBSEQUENT TREATMENT OF SELF-GENERATORS' ABILITY TO SELL SELF-GENERATED POWER, WAS CONTRADICTORY AND INCONSISTENT WITH POLICY OBJECTIVES

76. My discussion thus far has focused on BC Hydro and BCUC's treatment of existing self-generation with respect to the setting of GBLs. In this section, I discuss the unfair treatment from an economic perspective as a result of the actions the BCUC and BC Hydro took to subsidize additional self-generation capacity via direct loans or other measures. If BC Hydro subsidized additional generation and then set the GBL to allow the self-generator to arbitrage power, but did not allow self-generators who built additional generation on their own to arbitrage, then the actions of BC Hydro are neither fair nor efficient. Yet, that is what occurred.

1. Howe Sound

77. On October 1, 1989 BC Hydro and Howe Sound signed a Generation Agreement in which BC Hydro agreed to make an interest free loan to Howe Sound with a maximum sum of << [redacted] >> and, in exchange, Howe Sound agreed to construct a facility that generates << [redacted] >>[67] BC Hydro thus gave Howe Sound a financial incentive to construct capacity to serve its own load, and Howe Sound committed contractually to do so.

78. As discussed above, in April 2001, right after the passing of Order G-38-01, Powerex and Howe Sound executed an agreement that enabled Howe Sound to sell generation in excess of << [redacted] >> MW to Powerex while Howe Sound was purchasing power at embedded cost rates from BC Hydro to supply its load.[68] The term of this agreement was << [redacted] >>[69] It is also important to note that the 1989 Generation Agreement between BC Hydro and Howe Sound that required Howe Sound to use all << [redacted] >> per year for its own load was still in place, and yet this agreement allowed Howe Sound to sell some of that generation to BC Hydro's affiliate.

79. In 2010, Howe Sound and BC Hydro terminated the 1989 Generation Agreement. On the same date, Howe Sound and BC Hydro entered into an EPA.[70] The EPA set Howe Sound's annual GBL at << [redacted] >>, or << [redacted] >>[71] This works out to be considerably less than the 45 MW GBL Howe Sound had been held to previously.

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67 Exhibit C-103.

68 I've detailed this agreement above in Section II.C.

69 Exhibits C-122 – C-128.

70 Exhibit C-23.

71 << [redacted] >> *See* Exhibit C-117.

80. In summary, BC Hydro first incentivized Howe Sound to increase their self-generation through an interest free loan, then BC Hydro allowed Howe Sound to use that self-generation for sales back to Powerex and allowed Howe Sound to arbitrage some of that power. Put differently, Howe Sound was essentially paid by BC Hydro to use its self-generator capacity to supply its own load. When it was unable to do this for economic reasons, BC Hydro gave it ECR power to supply its own load. Celgar was not given any financial assistance by BC Hydro or the Province to supply its own load and has been prevented from receiving any ECR power to replace any below-load power it economically generates on its own.

2. Canfor

81. BC Hydro had exercised its discretion to allow Canfor Pulp Limited Partnership ("Canfor") to << [redacted] >> Canfor's self-supply commitment from << [redacted] >> to << [redacted] >> per year so that Canfor could sell excess power to BC Hydro under a BioEnergy Phase I Project.[72] Canada's witness claimed that the << [redacted] >> "GBL is consistent with the principles of protecting ratepayers from detrimental arbitrage and incentivizing incremental generation."[73] This statement is misleading.

82. In 2004, BC Hydro provided 60 percent funding to Canadian Forest Products Ltd. to install a new 48-MW turbo-generator at Prince George Mills.[74] The Prince George Mills were expected to generate 1.07 GWh per day or at least 390 GWh per year. This output was intended to displace BC Hydro's electricity supply to Prince George Mills.[75] Canfor

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[72] In a letter dated August 12, 2008 (Exhibit R-166), Canfor's General Manager (Brett Robinson) told its General Counsel (David Calabrigo) that << [redacted] >>

[73] Pöyry Expert Report, paragraph 154.

[74] Exhibit C-160. << [redacted] >> Also *see* Pöyry Expert Report, paragraph 140. The final cost was about << [redacted] >> Exhibit R-167.

[75] *Id.*, Section 6.

could only meet this output level << [redacted] >>[76] Pursuant to the 2004 load displacement agreement, Canfor << [redacted] >>[77] From an economic perspective, this pricing term protected BC Hydro's ratepayers from higher costs, as Canfor was responsible for paying the shortfalls at BC Hydro's incremental costs.

83. By << [redacted] >> Canfor's contractual self-supply commitments to << [redacted] >>[78] and paying Canfor for any excess power, concomitantly increasing their arbitrage opportunities, BC Hydro caused the sort of "harm to ratepayers" that BC purported to disallow. Instead of having Canfor pay for its shortfalls, BC Hydro's ratepayers end up paying for Canfor.

84. BC tolerates this "harm" by allowing BC Hydro to renege on this contractual commitment, but it does not tolerate the identical "harm" caused by Celgar wanting to lower its GBL and engage in the same type of arbitrage activities, even though Celgar has no contractual commitment with its utility to self-supply.

85. In this and other respects, the harm-to-ratepayers rationale advanced by Canada is arbitrary and inequitable in its application. BC tolerates and indeed encourages many actions that cause "harm" to BC Hydro ratepayers relative to a *status quo* that excludes those actions. For example, it encourages new industrial investment, and residential development, all of which add load to the system and increase BC Hydro's average costs. As just noted, it lets self-generators out of load displacement commitments and changes their GBL. So, BC does not prohibit all activities that cause "harm" to ratepayers, relative to the pre-activity status quo, only some. This reinforces my earlier point that prevention of harm to ratepayers is not a policy consistently applied to self-generators.

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[76] << [redacted] >> *See* Exhibit R-167.

[77] Exhibit C-160, Section 6.6.

[78] Exhibit C-238. << [redacted] >>

III. THE REGULATORY PROCESSES FOLLOWED BY BCUC AND BC HYDRO DID NOT ADHERE TO REGULATORY BEST PRACTICE

86. Dr. Rosenzweig asserts that Claimant's criticism of the regulatory process of the BCUC that was carried out by BC Hydro in procuring generation resources from BC pulp mills was unfounded.[79] He claims that the BCUC regulatory process followed by BC Hydro conformed to sound regulatory principles, which he referred to as cost of service ratemaking, fair returns on investment, and economic efficiency principles.[80] Moreover he claims that, BC Hydro followed a consistent *process* and *methodology* for setting GBLs for Celgar and other BC pulp mills. I could not disagree more with this claim. I find that the BCUC and BC Hydro's regulatory process with respect to the treatment of self-generators did not follow a consistent process, and failed to apply a consistent method. It therefore does not meet the standards of good regulatory practice.

87. A good regulatory process involves procedural principles beyond those described by Dr. Rosenzweig. These other principles include the following:

1. The process provides effective guidance to relevant regulated parties in order to ensure that the policy intent and expected compliance requirements of the regulation are clear, and that the parties have the proper incentives to implement plans to further the policy intent.
2. The process is fair, accessible, and transparent. The fairness and openness of the process is necessary to promote accountability and participation of stakeholders and public interests.
3. The process adopts the option that generates the greatest net benefit for the province.
4. The regulation remains consistent and effective over time, unless there is a change in the regulatory policy.[81]

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79 Rosenzweig Expert Report, pp. 16-48.

80 *Id.*, pp. 17-18.

81 Exhibit C-310, Baldwin, Robert, Martin Cave, and Martin Lodge, Chapter 3 What is 'Good' Regulation?, *Understanding Regulation Theory, Strategy, and Practice*, 2012, Oxford

Continued on next page

88. I find that the BCUC regulatory process and BC Hydro's actions were inconsistent to these principles, resulting in unfair and less favorable treatment for Celgar.

A. BCUC'S REGULATORY PROCESS WAS INSUFFICIENTLY PROACTIVE AND LACKED PROVINCE-WIDE POLICY IMPLEMENTATION

89. The BCUC is responsible for implementing key BC energy policies. However, its strategies and actions lacked the requisite framework for province-wide implementation. Since 1988, BC Energy Policies[82] have focused on finding new sources of supply and encouraging the private sector to develop energy resources across BC to stimulate economic growth. The implementation of this policy by BC utilities was done primarily at their own discretion. For instance, in 1988, BC Hydro issued Requests for Proposals to procure firm power from independent power producers.[83] In the 1990s, it initiated a program to buy power from co-generators and private generation projects to serve both domestic and export markets on a longer-term basis.[84] WKP took no similar actions.[85] The BCUC itself was silent on this policy implementation. There was no notice of proposed rulemaking, nor any policy statement to govern self-generators in the province that was issued by the BCUC.[86] In short, the BCUC remained passive rather than taking a proactive stance towards implementing this energy policy.

Continued from previous page

University Press, 2nd Ed.; Exhibit C-311, Best Practice Regulation, *A Guide for Ministerial Councils and National Standard Setting Bodies,* October 2007.

82 Exhibit C-312, 1988 Annual Report, British Columbia Utilities Commission, April 1989, at (v). (Hereafter "BCUC 1988 BCUC Annual Report"); Exhibit R-98, New Direction for the 1990s (1990); Exhibit R-21, Energy for Our Future: A Plan for BC (2002) (hereinafter "2002 Energy Plan"); and Exhibit C-62, The BC Energy Plan: A Vision for Clean Energy Leadership (Updated of the 2002 Energy Plan, February 27, 2007).

83 Exhibit C-312, 1988 BCUC Annual Report, p. (v).

84 Exhibit R-98, p. 17.

85 Instead, WKP offered energy efficiency programs to their customers. Exhibit R-98, p. 8.

86 In 2012, the MEM even commented that the BCUC needed to issue consistent regulatory principles for governing customers with self-generation throughout BC. *See* Exhibit R-49, the letter of Ministry of Energy and Mines dated June 22, 2012, Re: Fortis BC Inc. Guidelines for Establishing Entitlement to Non-PPA Embedded Cost Power and Matching Methodology (Compliance Filing to Order G-188-11).

90. As stated by the BCUC, its "…regulatory 'tool kit'" for implementing provincial policy includes oral and written public hearings, Alternative Dispute Resolution, incentive mechanisms, workshops and information publications."[87] These are all regulatory procedures that the BCUC can use to develop and to implement its decisions. This tool kit has merit as long as the procedures in the kit are fair, accessible, transparent, and not unduly discriminatory. However, as just noted, the BCUC did not use any of these tools to set province-wide self-generator policies or guidance; the tools were used exclusively case-by-case.[88]

91. A relevant example of the BCUC's passivity and excessive conferral of discretion on BC Hydro occurred during the Howe Sound (2001) proceedings subsequent to Order G-38-01. To prevent "harmful" arbitrage, but continue supporting power sales by customers with idle self-generation, the BCUC directed BC Hydro to allow BC Hydro's customers with self-generation to sell its excess generation at market prices while they purchase power from BC Hydro at ECRs as long as the amount purchased from BC Hydro did not exceed a to-be-determined customer baseline (GBL). The procedural deficiency was that the level of the GBL would simply be mutually agreed upon by both parties. The only guidance the BCUC provided concerning the GBL determination was that it should be "based on" either the historical energy consumption of the customer or the historical output of the generator.

92. This is extremely general and vague guidance, and leaves BC Hydro with far too much discretion to choose who and how much it would allow to arbitrage. BC Hydro itself did not even attempt to put in place any written, mandatory guidelines or procedures after Order G-38-01 was issued to ensure its employees' fair and non-discriminatory

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[87] Exhibit C-313, 2002/2003 Annual Service Plan Report, British Columbia Utilities Commission, August 2003, p. 1. Also see Exhibit R-209, Understanding Utility Regulation A Participant's Guide to British Columbia Utilities Commission, October 1996 (Revised July 2002).

[88] In February 2001 BC Hydro produced a draft briefing note urging the BCUC to hold a public workshop on self-generation policies (Exhibit C-70, p. 4). It is evident that the essence of BCH's own recommendation was not followed, as neither the BCUC nor BCH developed a consistent, transparent GBL framework or process following this draft recommendation.

implementation. The result is that BC Hydro was governed by only a non-specific "high level" principle, incapable of ensuring non-discriminatory implementation.

93. For example, historical energy consumption or output can be determined in a number of ways, such as an X number of years (*e.g.*, three or five years) average of historical consumption, a fixed base year, or a previous year average that varies by month, on-peak or off-peak periods. The BCUC allowed BC Hydro arbitrarily to use different baseline periods for different self-generators.

94. Moreover, the BCUC provided no guidance or framework to determine how the GBL should be determined when a self-generator has modified its generation capacity level. Formal Commission procedures as to how the GBL should be determined were not even begun until almost ten years later (2009), when the Commission first asked BC Hydro to file its GBL Guidelines, and remain incomplete to this date.[89] None of the treatment at issue was governed by any BCUC-approved rules, regulations, or guidelines. The regulator left the decision-making in the hands of the regulated utility, and provided no binding or well-defined, detailed guidance. The BCUC allowed BC Hydro to act at its own discretion.[90] And, in the absence of any monitoring, compliance, and transparency rules, this order allowed for and gave rise to discriminatory treatment.

95. Although one may view this lack of BCUC GBL guidance as providing flexibility to the parties that could yield an efficient outcome, a negotiation process without sufficient direction and independent monitoring can, and in this case did, give rise to discriminatory treatment across self-generators. In this instance, to ensure a fair, transparent, and consistent process the BCUC should have standardized the GBL calculation methodology for customers with self-generation so that it could be applied consistently to both BC

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89 Exhibit C-288, BC Hydro letter to the BCUC dated October 31, 2014, Re: British Columbia Utilities Commission (BCUC or Commission) British Columbia Hydro and Power Authority (BC Hydro) Contracted Generator Baseline (GBL) Guidelines and Rate Schedule 3808 New Power Purchase Agreement (PPA) Section 2.5 Guidelines. (hereafter "BCH October 2014 GBL Letter") (seeking an extension of time to complete and file its GBL guidelines).

90 *See infra* Section III.B for further discussion.

Hydro and other utilities within the BC province. Instead, the BCUC perceived this as a short-term issue, affecting only BC Hydro, as Order G-38-01 was directed only to BC Hydro and expected to expire in March 2002. The BCUC later granted BC Hydro's request to extend the deadline of the order "until such time as future circumstances warrant further review."[91]

96. After Order G-38-01, the BCUC faced similar issues in other BC service areas, as it dealt with Tolko Kelowna, City of Nelson, and Celgar.[92] Instead of adopting a single province-wide implementation policy, the BCUC proceeded on a case-by-case basis. Comments on the issues relating to GBLs and CBLs should have been sought through a province-wide review process.[93] As explained more fully below, in Order G-48-09, the BCUC, itself, admitted that:

> a more global solution to the issue of reselling or "arbitrage" of power would be preferable and that a Commission "rule" or "regulation" might have been a viable way to proceed. However, in the end, the Commission Panel decided that the record in this proceeding and the limited number of parties participating, did not permit or support a more general solution or remedy[94]

97. Even though it recognized that the issue of power sales of customers with self-generator could and should have been dealt with more broadly at the province-wide level, the BCUC relied solely on the limited record and number of parties in the G-48-09 proceeding to depart from its past decisions.[95] This is a remarkable admission by a regulator, because any regulator should have all the necessary authority to build precisely

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91 Exhibit C-131, BCUC, Order G-17-02 (14 March 2002). Also *see* Exhibit R-319 Errata.

92 Exhibit C-130 and Exhibit C-7.

93 CBLs (Customer Baseline Load) refers to a customer's historical energy consumption served by its utility.

94 *See* BCUC Decision in the Matter of British Columbia Hydro and Power Authority and Application to Amend Section 2.1 of Rate Schedule 3808 Power Purchase Agreement, May 2009, p. 22, (hereinafter "Reason for Decision G-48-09."), (Exhibit C-8)

95 I describe the Commission's tendency to avoid developing a consistent, multi-party record further in Section III C.

the record it needs to decide issues of policy and implementation on a non-discriminatory basis. Indeed, this is their traditional duty.

98. Here, the BCUC seems not to want even to inquire into BC Hydro's individual GBL determinations, much less exercise the control and oversight necessary to monitor that BC Hydro is acting fairly and in a nondiscriminatory manner. Despite being invited by parties to do so, the BCUC steadfastly has refused to compare GBL treatment across self-generators. Prior to 2009, I see no evidence that the BCUC, or any other BC governmental entity, has taken any responsibility for ensuring that GBLs for self-generators across the province are set in a consistent and non-discriminatory manner.

99. I also have been asked to comment on Canada's argument, that, in establishing GBLs for individual self-generators, BC Hydro was acting purely in a commercial capacity and not exercising delegated governmental authority.[96] Based on my understanding as a regulatory practitioner rather than a lawyer, I do not agree. The power to establish GBLs is an essential part of a process designed to determine generation policies and province-wide rates. These all are regulatory, and thus governmental functions that private parties do not otherwise possess. As shown above, BC Hydro was afforded great discretion in the exercise of these powers through both explicit and implicit (through exclusion from review and inaction of review) delegations of authority from the BCUC.

B. BC HYDRO'S PROCESS IN ESTABLISHING GBL LACKED TIMELINES AND TRANSPARENCY

100. In my experience, it is quite unusual for a regulatory policy to be administered entirely on a case-by-case basis, with wide discretion afforded the utility implementing the policy, especially when there are repeated requests by stakeholders to adopt a consistent policy. However, the documents I reviewed suggest that it was not until November 2009, eight years after G-38-01, that the BCUC recognized that BC Hydro might not even have written guidelines for determining GBLs, and only then because BC Hydro admitted to

[96] Counter-Memorial, paragraphs 329-335.

the BCUC that it determined GBLs on a case-by-case basis for its customers with self-generation.[97]

101. The BCUC at that time then requested that BC Hydro develop and file official guidelines for establishing GBLs for EPAs.[98] In its letter addressed to BC Hydro, the BCUC stated that it would be helpful and timely to have the GBL guidelines for long-term EPAs. The BCUC also requested that BC Hydro respond to certain information requests related to BC Hydro's determination of a GBL.

102. BC Hydro did not reply to the BCUC's information requests until June 2012.[99] This is an extremely long period of time for a regulated entity that had been setting GBLs and CBLs for over a decade to develop guidelines, and the BCUC obviously did not use its powers to compel BC Hydro to act more promptly. A BC Hydro official involved in setting GBLs for self-generators admitted in an April 2009 internal e-mail that << [redacted] >>[100] The untimely response of BC Hydro suggests that it had no written guideline in place, and had to develop them laboriously from scratch, or that it simply delayed providing its work to the BCUC. Either of these outcomes is not consistent with good regulatory practice.[101]

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97 BCUC Letter L-106-09, Re: British Columbia Hydro and Power Authority Electricity Purchase Agreements – Generator Baselines, November 27, 2009, p. 2 (Exhibit C-132). Also *See* Exhibit C-26. In addition, a March, 2009 letter from Chris Lague, an engineer at Tembec, << [redacted] >> (Exhibit C-113, p.3). Also *see* Exhibit C-34, p. 1.

98 Exhibit C-132.

99 This fact was also noted by Ministry of Energy and Mines. *See* Exhibit C-227, p. 5.

100 Exhibit C-116, p. 3.

101 The BCUC also noted that the principles for determining a GBL are not included anywhere as part of any filed tariff, but rather are contained in a non-reviewable "Information Report" BC Hydro filed with the BCUC in 2012. *See* BCUC, *Decision: Application to Amend Tariff Supplement No. 74 Customer Baseline Load Determination Guidelines for RS 1823 Customers With Self Generations*, February 17, 2014 (Exhibit C-168, p. ii.).

103. To provide the sort of transparency that is consistent with good practice, the BCUC only recently ordered BC Hydro to file GBL guidelines with the Commission and only recently decided that GBLs should be subject to review as rates,[102] thus requiring GBLs to meet a standard under the UCA of being fair and reasonable and not unduly discriminatory. And BC Hydro responded by the Commission's October 31, 2014 deadline by requesting yet further delay, to mid-December 2014.[103] No reasonable regulator willingly establishes a general policy that necessarily requires further implementation rules and guidelines, and waits 14 years to approve such rules and guidelines.

C. THE PROCESS THAT DETERMINED CELGAR'S SELF-GENERATION POLICY WAS DEFICIENT IN SEVERAL RESPECTS

104. The process by which the BCUC ended up applying a different self-generator regulatory standard in FortisBC's service territory than the one it established in BC Hydro's service territory illustrates -- in the Commission's own words – how haphazard its procedures were for setting self-generation policies. The BCUC issued Order G-48-09 on May 6, 2009, wherein it approved BC Hydro's application.[104] Specifically, the decision held that the electricity FortisBC purchased under its 1993 PPA with BC Hydro cannot be sold to any FortisBC customer that is selling self-generation electricity which is not in excess of its load.[105] By prohibiting self-generators in FortisBC's service area any access to electricity supplied by BC Hydro under the 1993 PPA while selling self-generation, the order effectively put Celgar on a net-of-load standard because FortisBC could not separate out their own resources from PPA power. This Order is inconsistent with the historical usage access standard afforded to BC Hydro self-generating customers under both Order G-38-01 and Order G-113-01, which the Commission discusses in the decision attached to Order G-48-09.

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[102] *Id.*, pp. ii, iii.

[103] Exhibit C-288, BCH October 2014 GBL Letter.

[104] Exhibit C-7.

[105] Exhibit C-8, p. 31.

105. The Commission itself notes in its decision accompanying Order G-48-09 that it is "prudent to examine relevant past decisions to assess the historical context of such decisions, the degree of congruence with new factual situations addressed, and whether or not there are good reasons to depart from the policy enunciations that led to the past decisions. In general, it is advantageous both for the Commission and those regulated companies that fall within its jurisdiction, to have a consistent and predictable body of decisions that will support informed decision-making in the future."[106] The Decision then goes on and – remarkably – ends up admitting that it is unable to use the process it deems best.

106. The Decision begins by re-examining Order G-38-01, which (discussed in Section II) allowed BC Hydro to set baselines for self-generators with great discretion and inconsistency based loosely on historical generation and load data for judgmentally-selected periods. The discussion surrounding Order G-38-01 is especially relevant to this proceeding because the Commission admits that perhaps BC Hydro has made arrangements that are inconsistent with Order G-38-01 and the Commission should examine whether the agreements BC Hydro "made condition the background of the principles enunciated in Order G-38-01 in such a way as to make it unfair to apply the same principles to self-generating industrial customers of FortisBC."[107] The Commission even wonders if it should try to establish a "level playing field" (*i.e.*, non-discriminatory rules), but in the next sentence decides it cannot do so.[108] These words illustrate the Commission's own awareness of the inconsistent and potentially discriminatory implementation of its policies. Had the Commission examined the history of setting GBLs, as I have done in my report, it would have seen that these agreements were inconsistent with Order G-38-01, with each other, and with other stated objectives of the

[106] *Id.*, p. 12.
[107] *Id.*, p. 14.
[108] *Id.*

province. Instead, the Commission cites Order G-38-01 as support for Order G-48-09, without even explaining why it chose to impose a different access standard.[109]

107. It is thus painfully evident that the Commission was aware of the potential inconsistencies across policies, felt that it was preferable and viable to have a general rule applicable province-wide, but nevertheless allowed an overly discretionary and inconsistent process to continue indefinitely. In addition, in the section where it describes the "Future Operations of Self-Generators and Prescribed Relief" the Commission explores how to handle new and incremental generation capacity added by a self-generator. Yet again, instead of making a general rule, the Commission makes no determination and states that "{t}his issue can be dealt with in the future on a case by case basis."[110]

108. In Order G-48-09, the BCUC explained, in part, its reasons for prohibiting FortisBC from using PPA electricity to supply its self-generating customers, other than on a net-of-load basis.[111] The BCUC asserted that the use of BC Hydro Heritage Assets to serve the 1993 PPA should not be permitted to benefit Celgar unduly at the expense of other customers of BC Hydro.[112] It then weighed the public interest against the financial impact of BC Hydro and its ratepayers.[113] Among the BC Hydro ratepayers benefitting were many of the above-described mills with which Celgar competes, which themselves were being permitted to engage in and benefit from varying levels of arbitrage while receiving service under favorable embedded cost rates. Holding Celgar to a net-of-load standard thus benefited other pulp mills whose own self-generation was not held to a net-of-load access standard.

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[109] *Id.*, p. 28.
[110] *Id.*, p. 30.
[111] *Id.*
[112] *Id.*, p. 25.
[113] *Id.*, p. 27.

109. By considering only the cost to BC Hydro and its ratepayers, the BCUC ignored the potential economic benefits that FortisBC industrial customers may receive and bring to the province as a whole. There was no discussion by the BCUC in its Decision accompanying Order G-48-09 that suggested that the financial impact analysis took into account a net benefit analysis for the entire province. Neither did the Commission order FortisBC to perform such calculation.

110. The issue with which the Commission was faced at its core involved how to allocate the benefits created by self-generation of various types. The Commission failed to examine in any sort of refined or categorical manner the different kinds of benefits, and it failed even to give consideration to whether its allocation of these benefits was fair. Among the issues the Commission should have considered, but did not, are: (1) whether self-generators should be treated differently depending on whether other ratepayers contributed to the cost of their self-generation through grants and no-interest loans from BC Hydro; (2) whether policies should depend on the specific service area or customer arrangement; and (3) how to equitably share the benefits between the self-generator and other ratepayers. Regulation and ratemaking almost always involve distributional choices -- the allocation of benefits and burdens. In Order G-38-01, the Commission punted on these issues and simply preserved the *status quo* without any consideration of the fairness or distributional impact of such an approach. In Order G-48-09 it disturbed the *status quo*, by holding Celgar and the City of Nelson to an access standard that was even more restrictive than the *status quo*, eliminating any and all possible harmful arbitrage. The Commission was not consistent; its inconsistent policies for BC Hydro and FortisBC self-generators were overtly discriminatory. This too is deeply contrary to basic principles of consistency, fairness, and non-discrimination.

111. I also conclude that the restrictions the BCUC and BC Hydro imposed upon Celgar cannot be justified by any of the ostensible governmental policy rationales discussed above. First, the policy of avoiding "harmful arbitrage" requires that a self-generator not be afforded increased access to embedded cost power to meet its own load. Necessarily then the GBL must be set based on the levels of generation historically used to meet load. This was not done for Celgar, as BC Hydro based Celgar's GBL on its load (including

purchases *from Fortis B*C) rather than self-generation applied to load. Celgar's ability to access embedded cost power to meet its load thus was reduced *instead o*f maintained at *status-quo ante* levels, as the "harmful arbitrage" policy contemplates.

112. Second, the restrictions imposed upon Celgar cannot be justified by the BC policy of incentivizing only new and incremental generation. BC and BC Hydro could have subsidized new and incremental generation all they wanted, without restricting Celgar's ability to sell its self-generated electricity. The restrictions thus cannot be justified by the incentivization policy alone.

113. Third, the restrictions imposed upon Celgar cannot be justified by BC's goal of achieving energy security. If it was important for BC to retain Celgar's below-load power in the Province, then it could have contracted for it, through an LDA or an EPA, as it did, for example, with Canfor. As I observed above, BC's actions here were simply aimed at saving ratepayers and BC Hydro money.

IV. THE REGULATORY POLICIES AND ORDERS OF THE BCUC AND BC HYDRO WERE NOT DIRECTED PRIMARILY TOWARDS ECONOMIC EFFICIENCY

A. POLICIES WERE NOT DIRECTED AT ECONOMIC EFFICIENCY

114. Economic efficiency is a condition in which every person within an economic system cannot achieve higher utility without lowering the utility of someone else, a condition referred to as Pareto optimality.[114] More generally, as is also pointed out by Dr.

[114] Exhibit C-314, Edwin, Mansfield, Chapter 16 Welfare Economics, *Microeconomics Theory and Applications*, 1982, W.W. Norton and Company, 4th Ed. (p. 440); Exhibit C-315,Vickrey, William, Chapter 5 The General Competitive Equilibrium, *Mictrostatics*, 1964, Harcourt, Brace & World, Inc. (p. 209). Pareto optimality is defined by Vickrey (p. 209) as "it will not be possible to modify the result in any way so as to make some people better off without at the same time making others worse off." Mansfield also states (p. 440) that "society should make any change that harms no one and improves the lot of some people. If all such changes are carried out – and thus no opportunity to make such changes remains – the situation is termed Pareto-optimal or Pareto-efficient." These definitions of efficiency encompass the idea that a system is efficient if nothing more can be achieved given the resources available.

Rosenzweig,[115] economic efficiency means that all resources are being put to their highest level use.

115. I find that the actions of BCUC and BCH clearly were explicitly and consciously NOT directed towards putting resources to their highest use. They were instead directed at a much narrower objective, minimizing the cost of electric service to BC Hydro customers other than self-generators. This is a cost minimization objective, not an efficiency objective. Achieving objectives at minimum cost to those pursuing the objective is "efficient" only in the sense that it minimizes one particular entities' use of its own scarce resources to allow the rest of that entity's resources to be used elsewhere. It is no guarantee whatsoever that all resources are being put to their highest and best social utility. When the prices at which goods are traded are not uniformly based on marginal costs and there are public goods and externalities, it can also result in policies that are discriminatory.

116. Obviously, Dr. Rosenzweig does not analyze whether BC Hydro's efforts to reduce its costs of achieving one particular policy achieve the broader objective of promoting province-wide or economy-wide efficiency. First, this is an extremely broad and difficult calculation to do, including many difficult assumptions regarding the future. Second, government policies are much more complex than the maximization of economic efficiency; they seek to attain many public policy objectives (formally, public goods) as well as maximize private goods.

117. BCH's policy, as argued by Dr. Rosenzweig**,** is not even well-formulated as an effort to keep BCH rates as low as possible. It is better described as a policy to purchase the largest amount of biomass-based electricity possible subject to the rate impact on non-pulp-mill customers being limited to the amount of subsidy devoted to inducing a chosen set of biomass producers to expand their supply.

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[115] Rosenzweig Expert Report, n.40, p. 18: "Market forces produce economically efficient outcomes which are those in which resources are put to their highest-value uses by all economic actors."

118. There is no demonstration that BCH even adhered to this policy which Dr. Rosenzweig erroneously calls economically efficient. There are no calculations comparing the size of capital assistance (such as interest free loans) to the benefits provided and virtually no other cost-benefit calculations of any kind. As explained in the previous section, this is poor regulatory practice. As this section has shown, the outcomes are not consistent with any evenly-administered policy rationale. In fact, Dr. Rosenzweig stresses that all sorts of individual considerations were taken into account for each mill's GBL.

119. In the remainder of this section I discuss four ways in which the Provinces' policies regarding self-generation cannot be shown to be globally economically efficient:

i. Because electric rates were set at embedded rather than marginal costs, and there were significant public goods and externalities that were not priced, no conclusions regarding efficiency can be reached;

ii. To achieve the larger objective of economic efficiency the geographic and sectoral boundaries over which efficiency is measured must include the entire BC or Canadian economy, not just the electric sector;

iii. While Canada argues that sunk capital projects do not deserve any incentives because they cannot produce added capacity, it overlooks the longer term issues of time consistency in government policies; and

iv. The prevention of arbitrage is not consistent with efficiency, because arbitrage directs resources to their highest-value use.

I examine each of these issues in the following four subsections.

B. IMPERFECT PRICING MAKES IT IMPOSSIBLE TO DRAW EFFICIENCY CONCLUSIONS

120. Neoclassical economics long ago established that the fundamental theorem of welfare economics, in which maximum economic efficiency (or, more properly, maximum social welfare) is equated with Pareto optimality, occurs only when all goods are priced at marginal cost, there are no significant unpriced externalities, and public goods are

provided at their optimal levels. None of these conditions apply to the BC province during the time period of this proceeding, rendering it impossible to reach conclusions regarding the level of economic efficiency achieved.

121. In the electric sector alone, the BCUC's rate regulation of BC Hydro ensured that electric prices were not set at marginal costs for all customers, but rather at average costs (*i.e.*, ECRs). While this pricing solves the problem of controlling the natural monopoly attributes of electric supply, it sends the wrong price signals to all electric consumers regarding the true economic value of their power. Like many but not nearly all jurisdictions, BC chose to implement utility regulation rather than deregulate its power sector, which would allow prices to rise closer to, and even above, marginal cost, thus sending more efficient price signals. While BC may have concluded that overall social welfare was higher with utility regulation than without it, no conclusions regarding economic efficiency can be drawn when prices are regulated as they were in BC.

122. In addition, during the period of this case, there were many unpriced public goods and externalities associated with power supplies. The positive externalities of power supply include the creation of economic activity and jobs, greater public health and safety, and other similar goods. The negative externalities of power supply include air and water pollution and other source and plant-specific impacts. Many air and water emissions are regulated, in which case it is possible that these emissions bear a shadow price, but there is no evidence that this price was correct or that it is reflected in a marginally-priced ultimate product. In at least one instance, carbon dioxide pollution linked to global climate change was not regulated or priced at all during this period, rendering electric price signals certainly inaccurate.

123. I have found no evidence that any of these pricing inaccuracies were analyzed in any significant manner in the development or implementation of the BCUC's policies towards self-generators. It is correct that the Province adopted policies to promote green, carbon-free energy, and these policies moved electric prices and costs in the correct direction, but I can find no quantification of the extent to which this corrected well-recognized and very large externalities.

124. In an economy with some uncorrectable market failure in one sector, actions to correct market failures in another related sector with the intent of increasing economic efficiency may actually decrease overall economic efficiency. In theory, at least, it may be better to let two market imperfections cancel each other out rather than making an effort to fix either one. Thus, it may be optimal for the government to intervene in a way that is contrary to usual policy. This suggests that economists need to study the details of the situation before jumping to the theory-based conclusion that an improvement in market perfection in one area implies a global improvement in efficiency.[116]

C. THE BCUC'S POLICIES WERE NOT ECONOMICALLY EFFICIENT FROM ENTIRE BC PERSPECTIVE

125. The self-generator policies of the BCUC and BC Hydro have never been shown to be economically efficient for the entire British Columbia province. "Global" economic efficiency requires an expanded view that encompasses not just the BC electric power system (policies do not maximize the economic efficiency even in the narrow BC power system boundary), but also includes all industries and customers served by this power, adjacent power markets and their customers, and so on. If the goal of BC was to maximize overall economic efficiency, the government would need to expand its view to encompass the total cost of providing electric power, pulp and paper products, jobs and economic development, and all of the other outcomes it wishes to provide. In other words, the geographic or system boundaries of the area in which efficiency is maximized are not simply the BC electric power system, but also all industries and customers served by this power, adjacent power markets, their customers, and so on. There is no demonstration of global economic efficiency that shows that the collective policies BCH has pursued towards Celgar and the other paper mills in British Columbia together produce an economic outcome superior to any real alternative.

126. I refer to "global" economic efficiency as an arbitrary *geographic* system boundary implicit in Dr. Rosenzweig's argument, though it is not really a geophysical boundary.

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[116] Exhibit C-316, Lipsey, R. G. and Kelvin Lancaster, "The General Theory of Second Best," *The Review of Economic Studies*, Vol. 24, No. 1. (1956 - 1957), pp. 11-32.

Economic theory points out that a policy which might be economic efficient within a specific *geographic* system boundary might no longer be economically efficient when the system boundary is expanded or altered.

127. The BC self-generator policies show no demonstration of global economic efficiency. Furthermore, BC's self-generator policies did not encourage efficient investment decisions. Were BC Hydro to have pursued a global efficiency policy, the principles of economic efficiency would have required that lower-cost self-generators in BCH's area be expanded and higher-cost mills be closed. As Celgar is reportedly low-cost, a globally efficient solution might have Celgar expand and other, less efficient producers, contract. BC's policies have instead caused Mercer to refrain from making increased investments in Celgar, as they penalize rather than reward efficiency. This is discussed further in subsection D below.

D. THE PROVINCE'S "NEW AND INCREMENTAL ONLY" POLICY IS NOT ECONOMICALLY INEFFICIENT FROM LONG-TERM PERSPECTIVE

128. Other than vague references to "selling surplus power back to the utility" in the 1990 BC Second Policy Statement,[117] the original formulation of BC's self-generation policy, as articulated in G-38-01, was to encourage "idle" self-generation to produce power for export. By 2007, the policy had broadened out to encouraging "new and incremental self-generation."[118] Canada repeatedly notes that BC's policy was to grant favorable regulatory treatment – in the form of direct contributions to capital projects or to ongoing support via favorable rate arrangements – only to "new and incremental" sources of self-generation. Lester Dyck's Statement makes this point clearly:

> "BC Hydro has no interest in paying a customer for electricity that it already self-generates under normal operating conditions. Payment for such "existing" electricity would add nothing to BC Hydro's resource base, and would merely

[117] Exhibit R-98, British Columbia Ministry of Energy, Mines and Petroleum Resources, British Columbia Energy Policy: New Directions for the 1990s (November 1990) at p. 17, cited in paragraph102 of Counter-Memorial.

[118] *The BC Energy Plan: A Vision for Clean Energy Leadership*, Ministry of Energy, Mines and Petroleum Resources, 2007. Exhibit C-62.

> transfer wealth from BC Hydro and its customers to one self-generator in exchange for nothing."[119]

129. Parsing this statement carefully, it indicates at least three separate elements of BC Hydro's policy. First, a determination of "normal operating conditions" is necessary. The subjectivity and shifting nature of this determination is discussed in Section II above. Second, if under such normal conditions a self-generator is generating at level *X* without receiving any form of support from BC Hydro, then the only benefit that self-generator is entitled to the savings on its own electricity costs under whatever rate structure it is served. Third, if BC Hydro wants to encourage the self-generator to increase self-generation from *X* (which might be 0) to *Y*, then financial assistance in some form is not ruled out. Elsewhere, Mr. Dyck indicates that the two main mechanisms for financial assistance are EPAs, which of course reflect GBL determinations, and LDAs, which reflect a similar baseline.

130. In brief, this single statement explains why Respondent does not feel that Celgar should receive any of the financial supports that other self-generators in BC received. In effect, Canada argues that, under "normal conditions," Celgar would self-supply generation equal to its entire load (putting aside the fact that as of the time its GBL was set it had never actually done so), and that for this effort it is entitled only to the savings on its power bill, *i.e.,* its embedded-cost average rate less it self-generator costs times its self-supplied (in this case, total) load.

131. As noted in Section II, the initial determination of what is normal is likely to be quite subjective; and the BCUC's lack of process consistency contributed to the discriminatory outcomes under this exceedingly vague and shifting standard. However, there is another aspect of this policy that is less about the latitude for discrimination and more about the time-consistency of benefits for some self-generators over others.

132. To discuss this issue, it first is necessary to distinguish between two sorts of time periods that repeat in cycles. In the first or investment period, the firm makes a largely

[119] Dyck Statement, paragraph 43 (emphasis supplied).

irrevocable decision to expend capital - in this case, add a cogeneration turbine. In the second or operating period, the turbine operates under whatever pricing and rules apply to it.

133. Modern economics treats these periods quite differently. At the start of period one, no decision as to whether to invest in cogeneration has been made. When a prospective self-generator evaluates whether to make a turbine investment in period one, it weighs the cost of installing the turbine with the benefits. As noted above, as a practical matter these benefits are whatever the relevant utility's policies allow.

What Mr. Dyck in essence is saying is that if you are evaluating whether to add or expand a generator, you should begin by assuming that your only benefit is your savings on your electric bill from your self-generation up to your load. When you compute your own private cost-benefit ratio for adding the generator, that's what you should count as your benefit. If you do add the generator with this as your expectation of benefit, then your costs for adding the generator must be less than your bill savings only, so you must be financially better off by building the generator with your bill savings as your sole benefit. However, if after doing this evaluation you'd like to add or expand a generator but the benefits are not sufficient if they amount only to your bill savings, then come to us. We might contribute in some way that lowers your cost and/or increases your revenues to the point where you're willing to add the generator. In other words, we will give you financial assistance only if it is necessary to induce you to add the generator.

134. Respondent defends this policy as "efficient," which I explained above is more correctly described as a policy that attempts to allow BCH to pay out as little as possible to self-generators to achieve any given level of self-generation -- *i.e.*, a form of cost-minimization by BCH, given the particular self-generator opportunities presented to it (its "choice set"). This in turn leads to the lowest average rates for everyone but self-generators, again contingent on its choice set. In fact, if one broadly defines efficient market outcomes as providing the highest profits and expansion opportunities to the lowest-cost producers, then BCH's policies are the converse of efficiency in this sense. As is evident from the italicized reformulation above, BC self-generator policy broadly

stands for the proposition that financial assistance is given only to less economical self-generators whose own cost savings are insufficient to motivate them to build a new turbine or otherwise to expand practical generation capacity.[120]

135. Canada argues that Celgar wants retroactive subsidies that it did not need and that therefore it would be wasteful to give it financial support. Once Celgar expends the capital to build the turbine with no assurance of provincial financial support, its decision calculus shifts into the second or operating time frame – in economic terms the investment has become an irreversible or sunk cost. The policies of the BC government towards investment in other self-generators subsequent to Celgar's investment cannot change what Celgar invested, so that if these policies do not seem fair to Celgar, or discourage it from making further future investments, this has no impact the policy objective of getting more operable cogeneration capacity built.

136. This is an overly narrow view of what is efficient and fair over the long term. It may sound wasteful to give any support to Celgar because it acted without any assurance of support, and has demonstrated the ability to generate without it – but capital investment is a repeated process. If Celgar was treated in a discriminatory fashion, then this treatment rationally will discourage its next decision to invest in BC. Celgar is not blind to the financial support given to its competitors following its decision to invest. If Celgar has additional investment opportunities in BC, but believes it will not be treated fairly if it does, then BC's policy has not been "efficient" in the long term – it may have discouraged investment that would increase global efficiency and also provide other benefits.

137. It is thus necessary to specify a time frame for evaluating economic efficiency, for what is efficient in a short-term or static framework can be highly inefficient in the long run ("penny-wise and pound-foolish"). When Dr. Rosenzweig's analysis and conclusion that BCH was efficient is examined from a longer-term perspective, it no longer meets even his test of efficiency.

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[120] The policy has a similar effect for self-generation capacity that is currently idle.

138. The economics literature pioneered by the Nobel Prize winning work by Kydland and Prescott[121] refers to this as the *credibility problem* in government policymaking. Policy actions that are made considering only the current and short-term situation are unlikely to be optimal in the long-term because of the dynamic nature of government policymaking. Government policymaking involves repeated interactions between the policymaker and the 'private agents', and so it is sometimes optimal for the policymaker to forgo short-term benefits to maintain its credibility or reputation and thus secure the gain over the long-term.[122]

139. The most-discussed example of this sort of reputation capital involves inflation and central bank authorities. Central banks can issue money and increase inflation and thereby temporarily reduce the cost of repaying debts. In the same narrow sense as BC uses the term, this is "efficient," because in the short term it achieves the objective of financing the government at the lowest short-term cost to the economy (because government debt, which funds government operations, is temporarily cheaper). However, once this has happened, future government bond investors anticipate that this may happen again, and therefore raise their future interest costs, and the cost of financing the government rises in the long term.[123] Hesitation to engage in this sort of behavior has discouraged central banks from "inflation shocks" for many decades. Another example is the disincentives for a government to default on its debt even though it might be "efficient" in the short-term. If a government was one-time borrower it would be efficient to default on its debt, but because borrowing involves repeated interaction with the bond

[121] Exhibit C-317, Kydland, Finn and Edward Prescott, "Rules Rather than Discretion: The Inconsistency of Optimal Plans," *The Journal of Political Economy*, Vol. 85, No. 3, 1977, pp. 473-492.

[122] Exhibit C-318, Barro, Robert J. and David B. Gordon, "Rules, Discretion and Reputation in A Model of Monetary Policy," *Journal of Monetary Economics*, Vol. 12, No. 1, 1983, pp. 101-121.

[123] *Id.*

market, the threat of future exclusion or loss of reputation makes it efficient to repay to gain long-term benefits.[124]

140. In the instant proceeding, this analysis suggests that the BC government cannot rest simply and solely on the fact that Celgar made its investment decision without *ex-ante* BC financial support. Instead, it should be mindful of the tradeoffs between unequal treatment of self-generators and the long-term impact of such inequities. It is not per se irrational or inadvisable to offer support to an efficient self-generator if such support is equitable and thereby encourages added investment in the future.

E. PREVENTING ARBITRAGE RUNS COUNTER TO ECONOMIC EFFICIENCY

141. Order G-38-01 restricts the arbitrage of embedded cost power and the stated rationale for restricting arbitrage as mentioned in the Counter-Memorial is, "BCUC had prohibited the arbitrage of BC Hydro's low cost electricity in Order G-38-01 as it could harm BC Hydro's ratepayers."[125] Dr. Rosenzweig incorrectly states the purpose of Order G-38-01 as promoting economic efficiency. He contends the arbitrage of embedded cost power would be economically inefficient as it would lead to increase in the customer rates and Celgar (through arbitrage) would be pocketing an incentive without providing any societal benefit.[126]

142. One elementary facet of economic efficiency is that private goods are sold at their highest possible price, so that consumers who value them most highly receive them.[127] In the more general context of neoclassical economics, arbitrage is the mechanism by which resources find the purchaser willing to pay the highest cost for them. If there are external

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[124] Exhibit C-319, Eaton, Jonathan and Mark Gersovitz, "Debt with Potential Repudiation: Theoretical and Empirical Analysis," *The Review of Economic Studies*, Vol. 48, No. 2, 1981, pp. 289-309

[125] Counter-Memorial, paragraph 5.

[126] Rosenzweig Expert Report, at n. 23 n. 63, n. 69.

[127] Exhibit C-314, Mansfield, Edwin, Chapter 2 Demand and Supply, *Microeconomics Theory and Applications*, 1982, W.W. Norton and Company, 4th Ed.

arbitrage opportunities as I use the term, it must be possible to buy or make a good for one price/cost and then sell or resell it to another customer or market for a higher price. Indeed, it is this profit motive for arbitrage that is the engine by which economic efficiency is achieved.

143. BC's policies clearly prevented generators like Celgar from selling their self-generated power into markets such as California's, where prices were frequently higher. While this policy helped keep electric prices lower in BC than they would otherwise have been, they run directly counter to the economy-wide achievement of economic efficiency. If buyers in California value Celgar's power more than any buyer in BC, it is consistent with economic efficiency to sell the power to those California buyers. There is no disputing that this could raise electricity prices in BC, but such an increase would be consistent with increased efficiency because it would signal to BC electric consumers that the product they were buying (power) was more valuable overall than previously assumed.

V. BC'S STATED OBJECTIVES COULD HAVE BEEN ACHIEVED WITHOUT DISCRIMINATION AGAINST CELGAR

A. THE ACTIONS TAKEN BY BC HYDRO AND BCUC ARE NEITHER EFFICIENT NOR FAIR

144. As I demonstrated above, the actions taken by BCUC and BC Hydro towards Celgar were inefficient, discriminatory, and non-transparent, given the province-wide consideration.

i. Various actions taken by BC Hydro purportedly to prevent self-generators from "harmful" arbitrage were made at its discretion and did not maximize overall economic efficiency of the province. My examples in Section II have demonstrated that maintaining the *status quo* does not necessarily yield the optimal outcome.

ii. The BCUC's regulatory process itself was ineffective, resulting in unfair and discriminatory treatment against self-generators across BC's electric service territories. The Commission remained passive when it should have been proactive. It solved the self-generator arbitrage concerns on a case-by-case basis

to maintain the *status quo* for BC Hydro rather than develop a province-wide policy and implementation plan. By its admission, the Commission's case-by-case approach prevented it from receiving sufficient information to create a consistent province-wide policy.[128] As a result, the BCUC's and BC Hydro's decisions on self-generators' arbitrage issues were inconsistent.

iii. The BCUC's regulatory process delegated to BC Hydro enormous discretion in setting a key variable used for determining whether a self-generator can arbitrage and if so how much.[129] At its own discretion, BC Hydro set GBLs with no transparency or consistency in the process. The BCUC itself did not consistently and timely monitor BC Hydro's process, nor did it set any province-wide standard.

145. There are a variety of ways in which the BC government could have achieved its stated policy objectives without discriminating against Celgar. Sales from self-generators could have been procured by BC Hydro in a non-discriminatory manner. The degree to which each of these plants was allowed to sell self-generated power while serving its own load with embedded cost rates could have been established via several alternatives to the course of actions taken by BC and BC Hydro. I provide some examples below.

146. To ensure that BC's Energy Policy objectives and implementation plans were consistent across the province, BC could have required that the BCUC improve the quality of its regulatory approach to self-generation, steering away from relying entirely on case-by-case actions, particularly those that involve BC's Energy Plans. Instead, the BCUC could have established BC-wide power procurement guidelines for all utilities in BC. The guidelines would create a standard for soliciting offers, scoring and selecting methods and monitoring the procurement process to ensure non-discriminatory treatment and least

[128] Exhibit C-14, p. 26.

[129] Exhibit C-5.

cost objectives. Many U.S. regulators such as California have issued guidelines for their regulated utilities to follow for similar procurement processes.[130]

147. To ensure transparency and accountability in the BCUC's regulation, the BCUC should have clearly and regularly stated its goals, strategies, and activities. Between 2001 and 2005, the BCUC Annual Reports provided the Commission's Goals, Strategies and Activities, Outputs and Outcomes, and Target and Quality Indicators. As examples, Figures 3 and 4 provide excerpts of the 2004/2005 Annual Service Plan Report for "GOAL 1: Implement the policy actions of B.C.'s new Energy Plan" and "GOAL 5: Enhance Provincial Competitiveness Through Non-Discriminatory Services," respectively.[131]

Figure 3

GOAL 1: Implement the policy actions of B.C.'s Energy Plan

2003/04 Service Plan			2004/05 Performance	
Strategies and Activities	**Output, Outcome**	**Target or Quality Indicator**	**Results, Implications or Comments**	**Rating**
Amend Utilities Commission Act in 2003 for purposes of Energy Policy implementation and related procedural efficiency initiatives.	Amend Act to enable: •direct natural gas sales (Policy Action #19) •Heritage Contract (possibly separate legislation) (Policy Action #1) •removal of disincentives for distributors to invest in conservation and efficiency (Policy Action #23) •least-cost resource acquisition processes of B.C. Hydro, FortisBC and other investor-owned utilities (Policy Action #9). •performance-based and results-based regulation (Policy Action #12)	Amendments to Utilities Commission Act in force by June 2003.	Outcome complete. Target and quality indicator attained.	●
		Terasen Gas and Terasen Gas Vancouver Island Resource plans reviewed. BC Hydro Resource Expenditure and Acquisition Plan review underway.	Ongoing	●
		Revise Commission's Negotiated Settlement Process Guidelines by Fall 2003.	Postponed.	◉
The re-regulation of B.C. Hydro rates (Policy Action #5).	Phased Oral Public Hearings into generation, transmission and distribution revenue requirements for 2003/04, following Heritage Contract Cabinet Decision in Winter 2003/04 (Policy Action #5): •possibly separate review of wholesale transmission rates and participation in RTO West (Policy Action #16) • Multi-Year Performance-Based Ratemaking using Negotiated Settlement Process in 2004 • hearing to develop new stepped and time-of-use pricing for B.C. Hydro Large Volume customers in 2004 (Policy Action #21).	Timely, well articulated Decisions with Reasons, in response to each Application. Approval of new Transmission tariffs	Decision on BC Hydro revenue requirements for 2004/05 and 2005/06 and BCTC Application for Deferral Accounts issued on October 29,2004. BCTC Transmission Tariff hearing complete and Decision pending. BC Hydro Revenue Requirements determined through 2005/06 (see above) Transmission Services and Time of Use Application filed in March 2005 with Negotiated Settlement Process scheduled for May 2005.	●

Satisfactory ●
Needs Improvement ◉
Unsatisfactory ○

[130] Exhibit C-300, Energy Division, California Public Utilities Commission AB57, AB380, and SB1078 Procurement Policy Manual, California Public Utilities Commission, June 2010.

[131] *See* Exhibit C-301, British Columbia Utilities Commission 2004/05Annual Service Plan Report.

Figure 4

GOAL 5: Enhance Provincial Competitiveness Through Non-Discriminatory Services

2003/04 Service Plan			2004/05 Performance	
Strategies and Activities	**Output, Outcome**	**Target or Quality Indicator**	**Results, Implications or Comments**	**Rating**
Undertake periodic rate design reviews to apportion the revenue requirement fairly to different customer classes, while ensuring there is no undue discrimination in the rate structures of the utilities.	B.C. Hydro – Rate Design Application expected in late 2004 or early 2005.	Rates that are fair to each customer group as set out in timely Commission Decisions. BC Hydro Application deferred until late 2005.	n/a	n/a
	ICBC Application for a approval of a financial allocation methodology for allocating costs between the basic and optional lines of automobile insurance and a filing on road safety and collection of data relating to age, sex and marital status	An appropriate allocation of costs between the basic and optional lines of automobile insurance and appropriate use of data collected with respect to age, sex and marital status	A Decision on the ICBC Application and filing was issued on January 15, 2005	●
Review utility tariffs to ensure that they will apply equally to all customers in similar circumstances.	Fair and non-discriminatory tariffs for approved utility programs and services.	Tariffs that provide the same services to different customers at a cost that is fair and non-discriminatory under the circumstances.	Ongoing. Consistent with its mandate, the Commission continues to ensure the provision of non-discriminatory service at fair rates.	●
Monitor and respond to customer complaints that tariffs are not fair or utilities are not following their tariffs.	A resolution to each complaint based on the particular circumstances and following due process.	Decisions from the Commission that provide well-articulated and well-reasoned resolutions to the complaints.	The Commission handled 376 complaints about utility rates, bill estimates, disconnections, and other tariff issues in 2004/05. See also Goal 8. Customer satisfaction with the Commission's management of their complaints as evaluated by periodic surveys of complaints.	●
Restructure the regulation of electricity transmission operators consistent with provincial electricity policies, including fair and non-discriminatory access.	Workshops, hearings, and other processes resulting in transmission rates and access provisions which are fair and non-discriminatory and reflect the restructuring mandated in the Energy Policy. BCTC Open Access Transmission Tariff (OATT)	By 2004, operation of an efficient electricity transmission grid, consistent with provincial policy and the principles of fair and non-discriminatory access. BCTC must have a Transmission Tariff in place by April 1, 2005.	By Order G-25-05, the Commission gave interim approval to a BCTC tariff based on the BC Hydro transmission tariff effective April 1, 2005. A hearing into BCTC's OATT Application for a permanent transmission tariff was held in February and March 2005. A decision is pending.	●

Satisfactory ●
Needs Improvement ◎
Unsatisfactory ○

148. In these reports, the Commission listed the strategies to accomplish each of its goals in each period. In GOAL 5, for instance, the Commission listed one of its strategies as "Review utility tariffs to ensure that they will apply equally to all customers in similar circumstance," noting that "Tariffs that provide the same services to different customers at a cost that is fair and non-discriminatory under the circumstances" in the "Target or Quality Indicator" column, and commenting in the "Results, Implications or Comments" column as "Ongoing Consistent with its mandate, the Commission continues to ensure the provision of non-discriminatory service at fair rates." Unfortunately, this information was abandoned starting in the 2005/2006 Annual Report, thereby making it difficult to evaluate whether BC's identified policy goals were achieved in an effective manner and whether each policy's implementation was consistent and did not create conflict to another policy. [132]

[132] *See* Exhibit C-278, British Columbia Utilities Commission 2005/06 Annual Service Plan Report.

149. With respect to the issue of direct financial support, a more efficient approach would have been to award those with subsidized generation a higher GBL and those who built their own generation a lower GBL. This would be a more efficient alternative than what occurred. In the proceeding attached to Order G-48-09, FortisBC makes a similar point. "FortisBC points out that BC Hydro had made substantial subsidies to the financing of the HSPP generators, whereas neither BC Hydro nor FortisBC have made any monetary contributions to the construction of the City of Nelson's self-generating capability . . .. FortisBC argues that this fact distinguishes this proceeding from the Howe Sound Pulp and Paper case and that therefore the principles enunciated in Order G-38-01 are not necessarily applicable as a result."[133]

150. The BCUC could have explored plausible alternatives, such as a rate design, that would allow FortisBC's self-generating customers to benefit from the embedded cost power of the 1993 PPA as they are eligible customers of the utility. The Commission had already done this in Order G-27-93. In that order, the BCUC did not deny FortisBC (or WKP at the time) access to BC Hydro's low-cost power because the Commission viewed FortisBC as BC Hydro's customer with a "hybrid" relationship.[134] Instead, the Commission balanced FortisBC's potential "harmful" use of the 1993 PPA and BC Hydro's obligation to serve other British Columbians by limiting FortisBC's first block of FortisBC low-cost purchase to 200 MW. The BCUC further required that any quantity purchased in excess of the first 200 MW would be negotiated on a utility to utility basis to reflect fair market arrangements.[135] It, in fact, suggested that the block 2 rate would be based on BC Hydro's opportunity cost.[136]

151. Thus, instead of denying Celgar's right to have access to the 1993 PPA while selling its self-generated electricity, the BCUC could have required FortisBC to redesign its rates to

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[133] Exhibit C-8, p. 13

[134] Exhibit C-165, BCUC, Order Number G-27-93 and Accompanying Decision (22 April 1993), p. 23.

[135] *Id.*, § 3.3.5 at 31.

[136] *Id.*

allow these self-generators the same access as other BC customers. The rate design could fix the amount of low-cost power based on a fair and non-discriminatory standard. If a self-generator customer consumes more than its allowed amount, it could pay FortisBC an incremental cost of power, which could be based on a cost of entry or long-run marginal cost.

152. The objective of Order G-38-01 was to freeze the *status quo,* and prevent harm to ratepayers by preventing self-generators from increasing their takes of embedded cost power and thereby driving rates up. The arbitrage of this block of power would not be permitted, so as to keep rates the same, but future generation increases could be arbitraged, as this would not change current rates. This leaves two blocks of power to be allocated -- the aggregate quantum of embedded cost power serving self-generators, and the amount of self-generation that can be arbitraged. BCUC chose to allocate based on existing usage during judgmentally derived periods that varied case-by-case, but any number of other fairer and more equitable mechanisms exist:

i. Allowing all self-generators a *pro rata* share of embedded cost power, and *pro rata* arbitrage opportunities, rather than allocating these benefits based on historical usage.

ii. Allowing all self-generation to be sold at market rates, and then taxing the proceeds so as to mitigate the impact on ratepayers.

iii. Banning all arbitrage by self-generators, but require BC Hydro to share the profits it earns on its own export sales with self-generators, whose investments helped to provide BC utilities, and eventually BC Hydro, with the surplus power.

iv. Developing transparent public interest principles for allocating these two quantum (the amount of arbitrage profits and the amount of self-generation arbitrage permitted) and allowing each self-generators to make their case.

153. This completes my report.

Washington, D.C.

11 December 2014

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Peter Fox-Penner