

Before the

ADDITIONAL FACILITY OF THE
INTERNATIONAL CENTER FOR SETTLEMENT OF INVESTMENT
DISPUTES

Mercer International Inc.,

Claimant,

v.

Government of Canada,

Respondent.

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

EXPERT STATEMENT OF
ELROY SWITLISHOFF, P.ENG., M.ENG

27 MARCH 2014

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Expert Statement of Elroy Switlishoff, P.Eng., M.Eng.

I. Introduction and Purpose of Testimony

1. My name is Elroy Switlishoff. I was born on [REDACTED] and currently reside at 3569 14th Avenue, Castlegar, British Columbia, Canada.

2. This examination includes an evaluation and comparison of the treatment afforded to other pulp mills in BC that also generate electricity, and are in direct competition with Celgar.

3. I have been provided with access to previously publically unavailable confidential information produced by Canada to Mercer as part of this proceeding pertaining to the Province's and BC Hydro's treatment of electricity self-generators seeking to purchase utility embedded cost electricity while selling self-generated electricity. I have found that the treatment afforded to Celgar with respect to its access to embedded cost utility electricity while itself selling self-generated electricity has been arbitrary, unfair and discriminatory in comparison to comparator pulp mills, which I identified and selected as being the closest to Celgar in circumstance and timing with respect to self-generation.

4. In this analysis, I provide a detailed description of the treatment afforded to the comparator pulp mills, followed by a comparison with the less favourable treatment experienced by Celgar. The results of my analysis are clear: Celgar has received less favourable treatment than that of the comparator pulp mills for at least three specific issues concerning self-generators access to utility embedded cost electricity while selling self-generated electricity. These three issues are (1) the treatment associated with load displacement services, (2) the regulatory treatment for access to embedded cost utility power while selling self-generated electricity, and,

relatedly (3) the determination of the amount of self-generated electricity a self-generator must self-supply prior to being permitted to sell any self-generated electricity.

II. Education, Background and Experience

5. I am the president and principal engineer of Jetson Consulting Engineers Ltd. (“JCEL”), a company which I founded as a sole proprietor in 2003 and incorporated in 2006. JCEL’s registered business address is 3569 14th Avenue, Castlegar, BC. JCEL provides engineering, regulatory and economic analysis services, primarily to organizations in BC’s energy sector or connected directly to the electricity transmission grid. I have been a practicing and registered Professional Engineer in BC continuously since 1990, and was employed in industry and electrical utilities prior to founding JCEL.

6. I consider myself to be an expert in the fields of electric utility systems, electricity contracts (including electricity purchase agreements, electricity supply agreements, and interconnection agreements), cogeneration, electricity ratemaking and rate design, electricity markets, and certain regulatory issues associated with the purchase and sale of electric power, with a focus on BC.

7. I graduated with a diploma in Electronics Engineering Technology (honours) from Selkirk College in Castlegar, BC in 1981. After working in the petrochemical industry for a year, I returned to university and completed several streams of study. I was conferred degrees of a Bachelor of Applied Science in Electrical Engineering from the University of British Columbia in 1986, and a Master of Engineering in Electrical Engineering (Power Systems) from the University of Idaho in 2000.

8. Prior to founding JCEL, I worked in industrial operations that both generated and used large amounts of electricity, and in an electrical utility that had generation, transmission and distribution operations.

9. From 1988 to 1998, I was employed by Cominco, Ltd. (“Cominco”) or its subsidiaries, now known as Teck Metals Ltd. in Trail, BC. Cominco owned and operated a 400 megawatt (“MW”) hydroelectric generating station, a metal refinery with a load of 200 MW, and electrical transmission lines interconnecting its facilities to the local electrical utility and across the international Canada-U.S. border to electrical utilities in Washington State. My responsibilities included the operation of the electricity generating and transmission facilities, and the management of electricity agreements. The electricity agreements ranged from long-term specialized energy sharing agreements to agreements governing the sale of electricity that was surplus to the needs of the metal refinery to the local electric utility and across the international boundary. Electricity sales were conducted using both standardized and specialized contracts into prescheduled and real-time markets.

10. From 1998 to 2003, I was employed by West Kootenay Power and Light Company, Limited (“WKP”) and its successor companies, now known as FortisBC, Inc. (“FortisBC”). This company is an investor-owned electrical utility with generation, transmission and distribution assets with monopoly access to about 10 percent of BC’s electrical load and customers in the Okanagan and Kootenay regions of south-central BC. The positions I held included Manager of Generation Engineering, Transmission Planning Manager, and Transmission Asset Manager. I was responsible for planning major capital upgrades and rehabilitations to the generating stations, generating units and the transmission system, which required analysis of the transmission energy flows and identification and mitigation of the

transmission constraints. An integral part of this responsibility included the preparation of applications to the BCUC for approval of large capital projects and participation in revenue requirements annual reviews before the BCUC and stakeholders.

11. Since 2003, I have been consulting to the BC industrial and energy sectors through JCEL. Between 2004 and 2013, I was engaged by the BCUC for engineering, technical, and economic analysis on more than 30 regulatory applications submitted BC Hydro, FortisBC, the British Columbia Transmission Corporation (“BCTC”) and various Independent Power Producers (“IPPs”). These applications included capital projects, revenue requirements proceedings, and electricity purchase agreements. I also was involved in several proceedings related to the development of energy and transmission policy in BC. I have negotiated electricity supply agreements with BC Hydro on behalf of clients adding large new generators interconnected to the BC Hydro system, and acted on behalf of several IPPs in completing interconnection agreements with both BC Hydro and FortisBC.

12. I have prepared expert testimony for a proceeding in front of the BCUC concerning the sale of WKP’s hydroelectric generation assets and the long term effect on rates. I also have prepared expert testimony for an independent inquiry into the role of the electrical system operation during an environmental incident at an industrial facility in BC. That inquiry is on-going and subject to confidentiality provisions preventing further disclosure.

13. Celgar has engaged JCEL for various engineering, technical, and regulatory tasks since 2006. In 2006, I performed a transmission line analysis to evaluate the feasibility and routing of an independent interconnection to the BC electric transmission grid. Throughout 2007, 2008, 2009, and 2010, I worked on the technical and contractual arrangements with FortisBC that were necessary before Celgar could add a new 48 MW generator at its Castlegar,

BC facility that was the subject of Celgar's Green Energy Project ("GEP"). Also in 2009, I was engaged to prepare an independent invoicing model for the Electricity Purchase Agreement ("EPA") with BC Hydro. The invoicing model is still in use, and work on various aspects of the model has continued since 2009. Celgar continues to engage JCEL for various engineering and technical functions at its pulp mill in Castlegar, BC.

14. In 2009, Celgar's parent, Mercer International Inc. ("Mercer"), engaged JCEL for the first time for assistance with regulatory initiatives. The first of these was FortisBC's cost of services analysis application to the BCUC. Since then, JCEL has been engaged on Mercer's behalf in FortisBC's 2011 and 2012-2014 revenue requirements applications to the BCUC, in Celgar's complaint to the BCUC regarding FortisBC's failure to complete a General Service Agreement, in FortisBC's Transmission Stepped Rate and Standby Rate application to the BCUC, in FortisBC's 2014-2018 Performance Based Ratemaking application to the BCUC, in BC Hydro's and FortisBC joint application to the BCUC for a New Power Purchase Agreement, as well as several other regulatory proceedings.

III. Independent Power Production, Cogeneration, and Self-Generation in British Columbia

15. I have reviewed Mercer's depiction of the market for its biomass-based green energy, contained in Section II.B.5 of its Memorial, and I fully agree with the description and information Mercer has presented. I highlight certain key developments below, focusing on the development of self-generator policies in BC, based on my personal knowledge of the industry and market, background gained from my involvement in other proceedings, including prior work for Celgar, and my review both of publicly available documents, including BCUC decisions and documents produced by Canada to Mercer for this proceeding.

A. The Lack of Any Activity or Policy Prior to 1989

16. In my review of the evolution of provincial self-generation policy in British Columbia, I found there was an absence of either information or policy prior to 1988-1989. This was likely attributable to the commissioning of BC Hydro's Revelstoke hydroelectric generating station in 1984, which left British Columbia and BC Hydro in a significant surplus position with respect to electricity supply in the province. Until about 1989, this surplus not only contributed to a very low embedded cost of electricity, but also eliminated any incentive for BC Hydro to seek independently produced electricity, and thus for independent power producers to build new generation.

17. As 1990 approached, BC Hydro was forecasting the end of the surplus electricity supply, and was actively looking at building new generation resources. One such project was the Site C hydroelectric generating station, which was rejected by the BCUC in 1989. (Currently, BC Hydro is again actively developing the Site C hydroelectric project, and the provincial government has exempted the project from BCUC regulatory oversight.)

18. The late 1980's also brought higher energy efficiency awareness, especially in jurisdictions facing high marginal costs for additional electricity supply, or with high embedded cost rates. This awareness contributed to the development and implementation of electricity generation facilities co-located with heat intensive industrial processes. In a process called "co-generation", steam produced by an industrial process is used to generate electricity as well as to provide residual heat back to the industrial process.

19. British Columbian industrial facilities were relatively late adopters of co-generation because of the historically low embedded cost of electricity in the province. As a result, when BC Hydro was faced with the prospect of relatively high costs for additional

electricity supply in the late 1980's, it identified the relatively low penetration of co-generation in the province's pulp mill sector as an ideal opportunity to exploit in order to provide additional electricity supply resources.

B. First Efforts to Encourage Self-Generation

20. BC Hydro's first effort to encourage the development of customer-owned electricity generation was the 1989 Generation Agreement with Howe Sound Pulp and Paper Ltd. ("Howe Sound") in which BC Hydro provided Howe Sound with a << [REDACTED] >> interest free loan to install electricity co-generation equipment in exchange for a commitment from Howe Sound to generate a certain amount of electricity to offset the amount of electricity it purchased from BC Hydro. This type of arrangement is known as a load displacement agreement. Howe Sound agreed to increase its generation to displace electric load that BC Hydro otherwise would have to supply. This in turn would free-up existing BC Hydro resources to supply the normal service territory load growth without BC Hydro having to acquire additional electricity generation resources.

21. Load displacement agreements are relatively common in the electric utility industry, and authorized by public utility regulators, as they provide utilities with a cost-effective means to solve certain supply shortfalls. A utility has two options when faced with increasing demand for its electricity. It may either construct new power plants or otherwise contract for additional supply, or it may seek to reduce demand. Demand Side Management involves reducing electricity use through activities or programs, including load displacement arrangements, that promote electric energy efficiency or conservation or otherwise reduce load, or more efficient management of electric energy loads (so as to reduce peak loads). As long as the price paid by the utility for load displacement services is less than the cost (net of revenue) of

building new generation or purchasing incremental energy from alternative sources, such arrangements make economic sense both for the utility and the customer.

22. Howe Sound is not the only pulp mill to have executed a load displacement agreement with BC Hydro. BC Hydro has continued to enter into load displacement agreements with BC pulp mills in its service territory. For example, on March 15, 2004, BC Hydro concluded a load displacement agreement with Canfor Corporation (“Canfor”) for its Prince George and Intercon mills. The agreement provided that BC Hydro would pay Canfor C\$49 million toward a new generation project with an estimated total cost of C\$81.4 million, << [REDACTED] >> In exchange, Canfor agreed that for the 15-year term of the agreement, it would use reasonable efforts to operate the project so as to generate an average of at least 390 gigawatt-hours (“GW.h”) annually, and to use that 390 GW.h/yr to meet the plant’s own load.

23. The 1989 Generation Agreement with Howe Sound did not trigger a need for a provincial policy on market access for self-generators, because Howe Sound was required to offset its own electricity purchases (“load”) from BC Hydro, which still far exceeded the amount of electricity Howe Sound could generate even with the new co-generation equipment.

24. In 1992, the provincial government issued policy objectives to BC Hydro, directing BC Hydro to pursue additional electricity resources through electricity contracts with Independent Power Producers (“IPPs”) selected in a competitive “request for proposals” (“RFP”) process. This policy was focussed on encouraging the development of stand-alone electricity generators selling electricity directly to BC Hydro rather than the development of generation at customer locations with large, usually industrial, loads. Several projects were initiated under this policy direction, but still none triggered the need for a provincial policy on market access for

self-generators. For instance, even when proposed new electricity generators were located adjacent to existing industrial facilities, the generator developer was a separate entity, from both a physical and legal perspective, from the owner and operator of the industrial facility.

C. The Circumstances of NBSK Pulp Mills

25. Around this same time, Celgar was completely rebuilding and modernizing the pulp mill near Castlegar, BC. Celgar was not eligible to participate in the BC Hydro load displacement programs or RFP endeavours because it was a customer of FortisBC, which at the time was operating under the name of WKP. Celgar replaced its existing 3 MW generator with a much larger 52 MW generator, and, because it had no access to external electricity markets at the time (there was no open transmission access to FortisBC's system until March 1999, when the BCUC approved the Access Principles Application), Celgar used the new generation to offset its own electricity purchases from WKP, with WKP purchasing any generation in excess of Celgar's pulp mill load.

26. In 1996, the BC Government announced that two IPP respondents to BC Hydro's December 1994 request for proposals had been given approval to proceed with final negotiations, those being a << [REDACTED] >> MW facility in Prince George, BC, and a << [REDACTED] >> MW facility in Skookumchuck, BC, located adjacent to an existing pulp mill.¹ This was a clear indication from the government of its intent to allow independently produced electricity to be sold into the BC marketplace, specifically to BC Hydro.

27. Both IPPs proposed to install power boilers to burn wood residue to create steam and drive a steam turbine and electrical generator. Another common characteristic of

¹ See C-205, Report of the Independent Power Producers Review Panel (27 August 1996) at 3.

these two IPPs was that each proposed a stand-alone facility adjacent to an existing industry that could both supply fuel (wood processing residue) to the IPP and also consume a by-product of the power generation process, namely steam produced in the power boiler. Most power boilers are also capable of burning other fuels such as natural gas or oil, but it has rarely been economic to do so since around 2001 because the cost of the natural gas exceeds the value of the electricity produced. The capability is nonetheless important for start-up and other short duration events.

28. Power boilers can be operated on a stand-alone basis provided there is an adequate supply of wood residue fuel at a price that allows for the profitable operation of the facility. The opportunity to sell the steam by-product to an adjacent facility simply adds another revenue stream, and allows the IPP profitably to operate at higher wood residue prices than an IPP without that additional revenue stream. Thus, IPPs based on wood residue power boilers are sensitive to wood residue prices when the demand for wood residue exceeds supply, or other markets for wood residue create increased competition for the supply.

29. In comparison, most Northern Bleached Softwood Kraft (“NBSK”) pulp mills can use two types of boilers, namely a recovery boiler as well as a power boiler. The wood chips used to make NBSK pulp contain approximately equal parts of wood fibre (the pulp) and lignins that bind together the wood fibres in their natural state. In the NBSK pulp process, the wood fibre is separated from the lignins using chemicals, heat, and time. The lignin and chemical residue, called “black liquor” is very combustible and has high heat content when burned. The black liquor is burned in a recovery boiler, which is specially designed to allow for the recovery of the process chemicals from the NBSK pulp process, while burning off all the lignins and creating large amounts of steam, usually enough for the “front end” of the NBSK pulp process.

30. A power boiler in an NBSK pulp mill is not integral to the pulping process in the same way as a recovery boiler, but is frequently installed at an NBSK pulp mill for several reasons. These reasons include providing a source of supplemental steam if there are problems with the recovery boiler, providing disposal of wood residue that may not be economic to ship to other locations, and creating incremental steam when it is economic to do so, for instance, when the mill has excess steam-driven electricity generators installed and the cost of wood residue or other fuel (e.g. natural gas) is lower than the value of the electricity produced.

31. The steam created by both power boilers and recovery boilers is at a high pressure, but the NBSK pulp process requires relatively lower pressure steam. The steam pressure can be reduced using either a relatively inexpensive and simple pressure reducing valve, or an expensive and complicated extraction steam turbine. The kinetic energy of high pressure steam is wasted when low pressure steam is derived from a pressure reducing valve. The kinetic energy of high pressure steam can alternatively be used to spin a steam turbine that has specially designed extraction ports to extract low pressure steam for the NBSK pulp process. The extraction steam turbine then spins an electrical generator to produce electricity.

32. A fundamental decision in the design of an NBSK pulp mill is whether to reduce the high pressure steam created in the recovery boiler using a pressure reducing valve or an extraction steam turbine. The decision is driven by comparing the higher cost of the extraction steam turbine with the value of the electricity that it is able to generate. When the price of electricity is very low, and no market exists for self-generated electricity, NBSK pulp mills would invariably install pressure reducing valves. In such situations, the NBSK pulp mill may choose not to install a power boiler because the recovery boiler can produce enough steam

for the NBSK pulp process, and there would be no economic reason to create steam in the power boiler, except perhaps for process upsets or to dispose of unwanted wood residue.

33. However, if either the cost of electricity is high or sufficiently-priced market opportunities exist, it is usually economic to install a steam turbine to reduce the high pressure steam and also to generate electricity. The specific economic conditions may also allow for the installation of two steam turbines, one an extraction steam turbine to produce low pressure steam for the NBSK pulp process, and a second condensing steam turbine that uses all the energy in the remaining steam to produce electricity. Condensing steam turbines are used because they are more efficient than extraction steam turbines. A power boiler frequently is installed in such configurations to create additional steam to generate electricity.

34. In simplified terms, the amount of electricity that physically can be produced by an NBSK pulp mill with self-generation is a function of the generation capacity of the turbine generator or generators the mill has installed and the amount of high-pressure steam the mill can produce for use by such turbines. The capacity of a generator typically is specified in megawatts (“MW”), and the manufacture’s specified capacity for a particular generator is referred to as its “rated” or “nameplate” capacity. A pulp mill turbine generator can produce electricity at its rated capacity, however, only to the extent its recovery boiler and/or power boiler can generate sufficient high pressure steam to run the turbine or turbines at maximum output level.

35. Steam production is a function of the size and efficiency of the boilers and associated equipment, the number and duration of mill or generator outages, and the steam needs of the pulp mill’s industrial processes (“process steam”). Only kinetic energy not used as process steam is available to power the turbines.

36. Additional production constraints may also exist due to the need to maintain the pulp mill's thermal balance, such that all of the thermal energy produced by the pulp mill is consumed. These steam-related constraints can determine a pulp mill's "practical" electricity generation capacity.

37. An NBSK pulp mill achieves a "thermal balance" when the steam created by burning black liquor in the recovery boiler is completely utilized in the NBSK pulp process and for generating electricity. The electricity generated in this thermal balance condition varies from season to season because more steam is required to provide heat to the NBSK pulp process in the winter because of the cold temperatures, and there is consequently less steam available to generate electricity. If additional electricity is desired, the power boiler is used to create additional steam above what is available at the pulp mill's thermal balance.

38. Modern NBSK pulp mills invest in both pulp production and electricity "cogeneration" because they realize significant synergies in producing both in a highly interdependent, joint production process. An NBSK pulp mill installs generation capacity not as an independent business line but precisely to take advantage of the synergies provided by the simultaneous production of both pulp and electricity. Cogeneration allows for the efficient use of steam produced in the pulp-making process. Through cogeneration, the Celgar Mill achieves energy efficiencies, and reduces total fuel consumption by some 30-40 percent and greenhouse gas emissions by up to 50 percent over conventional separate generation facilities. Utilizing one integrated production process, the pulp mill produces two products.

39. The amount of electricity an NBSK pulp mill actually produces is a function of its economics. The economics of pulp mill generation reflect factors of supply and demand. With respect to supply, to generate electricity a pulp mill must first make fixed capital cost

investments to enable electricity generation. Such capital investments fall into three categories. A pulp mill must invest in generation equipment -- acquiring and installing one or more steam turbine generators, and associated control equipment, piping, valves, and connectors. A pulp mill can also invest in electricity generation by increasing steam generation, through boiler improvements, improved recovery of black liquor, and the like. Finally, a pulp mill can invest in generation through capital projects that improve steam utilization in the pulp mill's pulp processes. Reducing certain process steam needs means more kinetic energy can be used in electricity generation. These investments can be made most efficiently when the pulp mill is first constructed, but can also be retrofitted in existing pulp mills.

40. Fixed cost investments in steam and electricity generation at an NBSK pulp mill are subject to the law of diminishing returns. At some point, the investment costs necessary to produce an incremental megawatt of electricity exceed the value of electricity produced, due to turbine efficiency issues and the increasing costs of incremental steam generation and optimization improvements. A pulp mill's owner will incur capital costs to add or incrementally increase electricity generation to the extent it can earn a sufficient rate of return on its capital investment, and the level of investment will determine the pulp mill's rated generation capacity as well as its practical generation capacity.

41. Once made, an investment to add or incrementally increase generation capacity is a sunk cost that plays little role in determining whether or to what extent a pulp mill runs its generators on a day-to-day basis. In general, a pulp mill with self-generating capability will generate whenever the pulp mill is operational (and not shut down for planned maintenance outages or for unplanned outages), its generator is operational, and, perhaps most relevant here, the economic benefits it receives from electricity production exceed the pulp mill's cash costs of

production. Such benefits can include not only the net revenues received from electricity sales (when self-generated electricity is sold) but also the avoided costs of purchasing electricity to run the pulp mill (when self-generated electricity is used to meet some or all of the pulp mill's own load). Cash (variable) operating costs include the costs of any fuel used to generate steam to power the turbines, maintenance costs, and labor. These variable costs do not include the depreciation expenses associated with purchasing and installing the turbine generators, boilers, and other equipment, or their financing costs, as such costs are fixed and the same irrespective of whether or to what extent the mill generates electricity.

42. In an environment where the cost of wood processing residues makes it uneconomic for a power boiler based IPP to generate electricity, an NBSK pulp mill that has made the appropriate investments would usually continue generating electricity by virtue of the black liquor co-product of the NBSK pulp process.² In such a situation, an NBSK pulp mill also is better positioned than a power boiler based IPP to take advantage in short term dips in fuel costs or spikes in electricity prices because the facility is continually running. An idled power boiler based IPP is faced with start-up and shut-down costs in addition to uncertain market conditions. It is this economic situation which has resulted in the proliferation of power boiler assisted generation at NBSK pulp mills as compared to relatively few IPPs based purely on power boiler operation.

43. An NBSK pulp mill with installed self-generation capacity that exceeds the steam creation capability of its recovery boiler is well-positioned to generate additional

² A pulp mill will burn all its black liquor to generate electricity as long as it is not closed because of low pulp prices.

electricity by burning wood processing residues either to offset its electricity purchases (load displacement) or take advantage of market sales opportunities.

44. It is exactly this dynamic that led to the next government policy pronouncement that involved the issue of self-generators selling into the BC marketplace. Leading up to 2001, it became apparent that Howe Sound was unable to live up to its obligation to generate the amount of electricity that it was required to under the 1989 Generation Agreement. << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

45. However, electricity market disruptions in California in 2000 and 2001 had caused the price of both hog fuel and natural gas to rise in price to such a << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >> Howe Sound approached BC Hydro and the BCUC with a request to be

allowed to use this idled generation capacity to generate electricity to sell to the California market, access to which had been implemented in the 1998 through BC Hydro's adoption of a Federal Energy Regulatory Commission ("FERC") compliant Open Access Transmission Tariff ("OATT") as approved by BCUC Order G-43-98. High prices in the California electricity market made it economic for Howe Sound to purchase and burn either hog fuel or natural gas to

generate electricity to sell to California, but not to offset its own purchases of electricity from BC Hydro.

46. By regulating a pulp mill's access to embedded cost utility power, and thus the amount of below-load electricity a pulp mill can sell at market prices when higher than embedded cost utility rates, the Province can directly affect a pulp mill's cost curve and relative competitiveness. The Province can make a less competitive pulp mill more competitive, and can even enable an idled pulp mill to reopen, by permitting it to sell more electricity at market prices relative to its competitors. Conversely, it can render a more competitive pulp mill less competitive, (and more likely to shut down when pulp prices decline), by restricting its ability to sell its self-generated electricity at market prices while purchasing embedded cost electricity.

IV. The Ad Hoc Development of BC Self-Generator Policy, and the Province's Application of A Regulatory Standard to Celgar Different Than that Applied to All Other BC Pulp Mills

A. The Development of a Highly Discretionary Regulatory Standard For BC Hydro Self-Generators

47. Howe Sound's request to the BCUC marked the first time a policy emerged regarding market access for self-generators, including both access to "embedded cost"³ utility electricity and the ability to sell self-generated electricity at market prices. The policy came out in BCUC Order G-38-01, in early 2001, which the BCUC identified as a temporary measure. In that Order, the BCUC directed BC Hydro to facilitate sales of idle or surplus generation from its self-generating customers, provided that such customers would not be afforded any *increased*

³ "Embedded cost" utility electricity refers to the total cost of all a utility's electricity resources, divided by the total electricity volume, which yields an overall average unit cost of electricity. For a utility such as BC Hydro, where the vast majority of the electricity comes from hydroelectric projects that were installed many decades ago and have relatively low fuel costs, the embedded cost of power is significantly lower than that of a utility that uses higher cost fuels (such as coal or natural gas) or has recently invested in expensive generating stations.

access to BC Hydro embedded cost electricity. The BCUC permitted BC Hydro's self-generating customers to continue their historical level of access to BC Hydro electricity at embedded cost rates, and to engage in a new form of arbitrage by selling incremental electricity to the market at high prices instead of using that incremental electricity to displace less expensive embedded cost electricity. Order G-38-01 thus embodied an "historical usage" standard to govern access by a self-generator to embedded cost utility power while selling power.

48. The BCUC expected BC Hydro to negotiate with its self-generating customers a "customer baseline", which was either the historical level of electricity purchased by the customer from BC Hydro or the historical electricity generated by the customer. At the time, no BC Hydro self-generator had been openly selling electricity, so the BCUC had not considered the possibility of existing sales. The intent was to set a threshold of the amount of self-generated electricity the self-generator had historically been using to meet its own load against which the customer's electricity purchases from BC Hydro could be compared to before and after the customer went to market with its generation.

49. BC Hydro implemented the BCUC's directive by adopting the term "generator baseline" (GBL) in place of the BCUC's "customer baseline", computing GBLs for its self-generating customers when they sought to sell electricity, and implementing GBL provisions in its (and Powerex's) power contracts with self-generators. A GBL is the determined value of the historical electricity generated by a customer and used to meet its own load.

50. By its terms, the Order and policy were limited to BC Hydro, and did not purport to apply to FortisBC and its customers, including Celgar. It vested BC Hydro with enormous discretion, as it did not define how "idle" or "surplus" generation was to be identified,

the time period that should serve in determining a baseline, or its duration, and it did not establish any specific methodology for computing a GBL.

51. The amount of self-generation used to meet load can be highly variable, and change significantly over time. The load and generation at a self-generating NBSK pulp mill are continually changing based on volume of pulp produced, the heat required for the pulping process, the steam being created by the burning of black liquor in the recovery boiler, and the variability of electrical loads in the pulp mill. External variables such as the price of hog fuel and natural gas, the avoided cost of utility electricity, and the market price available for sales of self-generation affect the economics of electricity production and also all fluctuate. The historical time frame used for the baseline thus would be expected to have an enormous impact on any resulting GBL, whatever the computation methodology, and it would be critical to evaluate and compensate for such different conditions to ensure that different pulp mills were treated equitably and evaluated under as similar conditions as could reasonably be compensated for.

52. In light of the lack of guidance provided by the BCUC, I would have expected BC Hydro to issue written procedures and policies governing its establishment of GBLs, and setting the parameters for its computations.

53. I searched both public records and documents produced by Canada for this case for evidence of written policies, procedures or guidelines, but found nothing in existence in the 2001-2010 time frame in which BC Hydro was establishing GBL's for NBSK pulp mills such as Celgar, Tembec Inc. ("Tembec"), Howe Sound, and others. I was provided with unfettered access to the database of documents produced by Canada in this proceeding. I both searched for documents myself, and also reviewed documents identified to me by counsel. I found no

evidence of any written policies, procedures or guidelines governing the establishment of GBLs by BC Hydro, or of any other internal controls to assure uniformity of treatment.

54. Instead, BC Hydro appears to have proceeded to set GBLs on an entirely *ad hoc* basis, making case-by-case determinations unguided and unfettered by any written process or methodology.

55. I did review the June 2012 Information Report and GBL Guidelines (the “2012 GBL Guidelines”) provided by BC Hydro to the BCUC. These documents purport to define not only the GBL methodology BC Hydro would use in the future, but also the methodology it has applied in the past.

56. As an engineer, I have a fundamental problem with the notion that written guidelines that did not exist prior to 2012 somehow guided determinations made from 2001-2011. They could not have. It is like buying a house from a builder who has the architectural plans drawn up after the house is constructed, and then tries to assure the buyer that the house was built according to that plan.

57. Guidelines issued after-the-fact defeat the very purpose of guidelines. The very purpose of written policies and procedures is to ensure consistency and uniform treatment, so that each new case can be handled under the same rules and the results tested against those rules. The existence of written rules, policies, and procedures constrains the discretion of the decision-maker. This narrowing of discretion simply is not possible, and does not occur, with unwritten policies and procedures.

58. In any event, the 2012 information report and GBL guidelines do not fill the void, or even constrain BC Hydro’s discretion to any significant extent. They are too vague and

general to enable the calculation of any new GBL based on actual data, or the validation of any GBL BC Hydro previously computed. They still do not define “idle” or “surplus” generation. They do not require the use of any particular historical baseline period, or any point in time, of any particular duration, and do not take into account the significant external influences that could affect generation in any given window in time. They consist of little more than a non-exclusive list of factors that BC Hydro, in the exercise of its discretion, “may” consider. They provide no uniform methodology that any two engineers, lawyers, accountants, or any other professional could apply to a given set of facts and arrive at the same resulting GBL. They still vest enormous discretion in BC Hydro, which it can exercise favourably for some and unfavourably for others.

59. I fully agree with the BCUC’s characterization of the guidelines as “fairly general, subject to considerable interpretation, {and} not necessarily transparent.”⁴ I also note that, on February 17, 2014, the BCUC ruled that GBLs constitute a “rate” within the meaning of the Utilities Commission Act, and directed BC Hydro to submit GBL guidelines within six months for BCUC approval.⁵ Plainly, the BCUC does not consider the 2012 GBL Guidelines to be adequate.

⁴ C-229, Letter from Erica Hamilton, Commission Secretary, BCUC, to Janet Fraser, Chief Regulatory Officer, BC Hydro (13 December 2013) at 1.

⁵ C-168, BCUC, Order Number G-19-14 and Accompanying Decision (17 February 2014) at ii-iii, 27.

B. **The Development of a Different, More Restrictive Regulatory Standard for Celgar and its Impact**

60. Even after developing the highly discretionary “historical usage” standard contained in Order G-38-01 for use by BC Hydro in its service territory, the BCUC applied a different standard to Celgar.

61. The first significant BCUC decision related to Celgar as a self-generator was Order G-48-09, issued in May 2009. In that proceeding, the BCUC reviewed an application by BC Hydro to amend the 1993 Power Purchase Agreement (“1993 PPA”) between BC Hydro and FortisBC. BC Hydro submitted its application to amend the 1993 PPA in response both to an agreement filed with the BCUC in 2008 between FortisBC and the Corporation of the City of Nelson, a customer of FortisBC, to begin exports of its self-generated electricity, and actions taken around the same time by Celgar to replace self-generated electricity with additional purchased electricity from FortisBC.

62. The proposed power supply agreement between FortisBC and Celgar, concluded in 2008, would have allowed Celgar to purchase all the electricity required to operate its NBSK pulp mill from FortisBC, and thereby enabled it to sell all its self-generated electricity. BC Hydro feared that these undertakings would have resulted in increased purchases of electricity by FortisBC from BC Hydro under the 1993 PPA, which it viewed as improper even though such increased purchases were permitted by the 1993 PPA (hence the need for BC Hydro to seek to amend the 1993 PPA).

63. The 1993 PPA as originally accepted by the BCUC contained no restrictions on FortisBC's use of PPA energy to supply self-generators in its service territory. Indeed, the

BCUC expressly rejected BC Hydro's argument that its request was a "clarification" rather than an outright modification.

64. BC Hydro claimed that revisions to the 1993 PPA were necessary to prevent harm to BC Hydro customers in the event that a self-generator of FortisBC was to sell any self-generation output at the same time the self-generator was servicing all or a portion of its load requirement from FortisBC while FortisBC was purchasing 1993 PPA electricity from BC Hydro. BC Hydro requested the BCUC to approve restrictions whereby FortisBC could provide no 1993 PPA electricity to a self-generator while the self-generator was selling electricity.

65. In my review of Order G-48-09, I found that the BCUC granted BC Hydro's request to amend the 1993 PPA, and modified the contract that BC Hydro and FortisBC had negotiated in the precise manner BC Hydro had requested. In its decision, the BCUC put structure to the outcome which had been implicit in BC Hydro's request, established and defined a "net-of-load" regulatory standard, and applied it to FortisBC self-generators. This new standard effectively prohibited self-generators in FortisBC's service territory from accessing embedded cost utility electricity, whether from BC Hydro or from FortisBC, while also selling electricity, even though the BCUC had, in Order G-38-01, allowed such access, and the simultaneous purchase and sale of electricity by a self-generator in BC Hydro's service territory, under a less restrictive "historical usage" regulatory standard. The BCUC stated specifically:

"What will not be permitted is the supply of embedded cost power to service the domestic load, at any time when the self-generator is selling power into the market."⁶

⁶ C-8, BCUC, Decision Accompanying Order Number G-48-09 (6 May 2009) at 29.

66. In establishing a net-of-load access standard for Celgar and other self-generators in FortisBC's service territory, the BCUC put structure to the outcome which had been implicit in BC Hydro's request. Although BC Hydro had purported to seek only a restriction on FortisBC's resale of PPA power, such a restriction was intended to prevent an increase in power purchased from BC Hydro in response to a self-generator taking its generation to market rather than using it to serve its own load. The restriction BC Hydro had requested would have been ineffective and, indeed, meaningless unless the same restriction also was applied to FortisBC's sales of its own generated power. Whether FortisBC nominally supplied Celgar's load from PPA power or from its own resource stack, the overall effect on BC Hydro's system would have been the same. FortisBC would need additional power to supply Celgar's load, and diverting power to Celgar from its own resources would still have left a gap to fill for the customers previously served by those resources.

67. Order G-48-09 muddled the dividing line between the types of self-generator activities the BCUC would permit and the types that it regarded to be impermissible. Seemingly, the BCUC had prohibited conduct in FortisBC's service territory that it had permitted in both BC Hydro's service territory and in the City of Kelowna's service territory, with regard to Riverside Forest Products/Tolko under BCUC Order G-113-01 in 2001.

68. The "net-of-load" standard that the BCUC adopted for FortisBC self-generators in Order G-48-09 was never mentioned in Order G-38-01, and it is clear that the standard is much more restrictive than the GBL-based restrictions contemplated by Order G-38-01. The GBL historical usage standard contained in Order G-38-01 allows a self-generator to continue its purchases of embedded cost utility electricity at historical levels, when selling self-generated electricity. The "net-of-load" standard bars all purchases of embedded cost utility electricity

while the self-generator also is selling electricity, regardless of historical electricity generation levels in 2001 or any other time.

69. Because Celgar is the only pulp mill located in FortisBC's service territory, the effect of Order G-48-09 was to treat Celgar more restrictively than any other pulp mill in BC selling self-generated electricity, in terms of access to embedded cost utility electricity to meet its load, and the ability to sell below-load self-generated electricity. Among pulp mills, the BCUC applied the "net-of-load" standard only to Celgar.

70. < [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
>

⁷ C-232, MEM and Ministry of Environment, Briefing Note for Information, 10:15 am November 24 Meeting with Honourable Pat Bell, Minister of Forests and Range, and Representatives of Mercer International Group Regarding Mercer's Self Generation at its Celgar Pulp and Paper Mill (23 November 2009), CAN Bates 011810 at 011811-12.

⁸ C-228, MEM and Ministry of Environment, Briefing Note for Decision, Mercer International Group's request to establish a new, low generation baseline and increase electricity sales (6 January 2010), CAN Bates C017435.

⁹ C-233, MEM, Briefing Note for Decision, Mercer International Group's request to establish a new, low generation baseline and increase electricity sales (11 January 2010), CAN Bates 009136.

71. At the time of the proceeding that resulted in Order G-48-09, Celgar was in the process of negotiating an Electricity Purchase Agreement (“EPA”) with BC Hydro, under the terms of a competitive bidding process initiated by BC Hydro for biomass-based green energy known as the “Bioenergy Call for Power - Phase I” (“Bioenergy Phase I”). Consistent with the “net-of load” standard, BC Hydro determined that Celgar’s GBL for the purposes of the EPA that was being negotiated, which was eventually executed (the “2009 EPA”), was fixed for the term of the EPA at the level of Celgar’s 2007 load of 349 GW.h/yr. The terms of the 2009 EPA prohibit Celgar from selling any self-generated electricity below its 2007 load not only to BC Hydro but also to anyone. The BCUC approved the 2009 EPA on July 31, 2009, in Order E-08-09.

72. The 2009 EPA’s GBL provisions and Order G-48-09 thus operate separately and independently, but both effectively deny Celgar access to embedded cost utility electricity while selling its below-load electricity, and otherwise prohibit Celgar from selling its below-load electricity to anyone.

73. Celgar did not agree with BC Hydro’s computation of its GBL, or the 2009 EPA restriction on below-load sales to third-parties. It negotiated a side letter with BC Hydro that would invalidate the 2009 EPA restriction in the event that the BCUC ruled in any proceeding that FortisBC could supply electricity to Celgar while Celgar was selling electricity diverted from serving mill load (that is, while it was selling electricity below its 2007 load). However, the BCUC’s ruling in Order G-48-09 approving and adopting a net-of-load standard for Celgar mooted the side letter until such time as the BCUC changed this policy.

74. The BCUC again reviewed Celgar’s status as a self-generator seeking access to utility embedded cost electricity while selling its self-generated electricity during the hearing into

FortisBC's 2009 Rate Design and Cost of Service Analysis application ("COSA Hearing"), which culminated in BCUC Order G-156-10 and the accompanying decision, issued in 2010¹⁰. During that proceeding, Celgar had requested the BCUC to establish a non-net-of-load GBL for Celgar, and thereby also allow Celgar to sell its self-generated electricity above the new GBL and purchase the electricity required to serve the pulp mill load above the GBL from FortisBC. The BCUC refused Celgar's request and declined to set a new GBL for Celgar. The BCUC referenced Order G-48-09, and reaffirmed that FortisBC would be unable to buy any electricity from BC Hydro under the 1993 PPA for sale to Celgar when Celgar is exporting electricity from the pulp mill.

75. In the three years prior to the COSA Hearing, Celgar had been purchasing electricity from FortisBC under a time-of-use rate in FortisBC's tariff structure (Rate Schedule 33 or "RS33"). Electricity taken under RS33 varied in price depending on the time of day, the day, and the season the electricity was taken. The price was "all-in" and included both capacity and energy components, and did not have any "ratchet charges"¹¹ that extended beyond the period in which the electricity was actually consumed. This characteristic was valuable to Celgar in light of the fact that it was using its self-generation largely to meet its own load. Under RS33, Celgar was able to receive electricity from FortisBC to run the pulp mill's

¹⁰ C-9, BCUC, Order Number G-156-10 (19 October 2010); C-10, BCUC, Decision Accompanying Order Number G-156-10 (19 October 2010).

¹¹ "Ratchet charges" are charges related to the use of electricity in one billing period, that extend into future billing periods. For instance, a common feature of utility industrial electricity tariffs is a "ratchet" demand charge, whereby the maximum demand in any hour in the current billing creates the billing determinant for not only the current month, but also for the future 11 months. If the maximum demand in any hour of the future 11 months exceeds this amount, it then becomes the billing determinant for the future 11 months from the time when the new maximum demand was experienced, and so on. Most utility industrial electricity tariffs employ one charge for the amount of energy consumed in a billing period (the energy charge) and second separate charge for the maximum amount of energy used in any given hour in that billing period (the demand charge). The demand charge commonly has a ratchet provision as described.

industrial processes during those periods when the generator or recovery boiler experienced interruptions and self-generated electricity was not available, without creating a high ratchet charge or “demand” charge.

76. In the Order G-156-10 decision, the BCUC also ruled that Celgar was ineligible to take service under RS33, and directed FortisBC to provide service to Celgar under Rate Schedule 31 (“RS31”). Electricity taken under RS31 was split into two components, an energy charge and a capacity, or “demand” charge. The energy charge was a “flat” amount applied to each unit of energy that Celgar consumed as it was consumed. The demand charge however contained a special clause with a ratchet mechanism. The demand charge clause in RS31 required the customer to make a one-time nomination of a maximum amount of energy it would take in any 15-minute portion of any hour (“contract demand”), and the customer would then be billed a minimum of 80 percent of this contract demand each month regardless of whether any energy was actually taken in that month. This forced move from RS33 to RS31 caused Celgar’s annual electricity bills to more than triple, from around C\$1 million annually to over C\$3 million.

77. In the context of forcing Celgar to self-supply its own load, this high demand charge is particularly unfair and, indeed, punitive. The BCUC is not permitting Celgar to use its electricity generation as Celgar wants -- to sell at market prices. Instead, by regulatory action applied to no other pulp mill, it has forced Celgar to self-supply its own load before it can sell *any* electricity. As a result, the BCUC has prohibited Celgar from using FortisBC electricity as it wants -- to supply its pulp mill load on a continuous, firm basis. If Celgar were afforded such access, the demand charge would be perfectly appropriate, as Celgar would be paying for the

firm service it wanted, and it would have access to such electricity on a 24x7 basis, and actually use it on that basis.

78. But the BCUC (and BC Hydro through the 2009 EPA) have afforded Celgar access to utility embedded cost electricity only during plant outages or generation upsets when the pulp mill cannot generate enough electricity to supply its load. Celgar thus is allowed to purchase electricity only on an occasional basis, but it must frequently do so at its full load amount, triggering the high demand charge. Instead of paying a high demand charge for a peak demand it would use regularly, it must pay the same high demand charge for a demand it imposes on the system rarely.

79. This punishes Celgar for having to provide load displacement services for free. Put another way, BC Hydro's customers receive the full benefit of the load displacement service provided by Celgar, without any payment to Celgar, and then present Celgar with the full bill for the capacity charge when Celgar has a problem and cannot meet its own load. Celgar is paying for FortisBC capacity it cannot use as it wishes, and which benefits BC Hydro's ratepayers.

80. The BCUC appeared to offer some relief to this outcome, because FortisBC was directed to implement a "standby rate", and the BCUC suggested that the BC Hydro standby rate might be a useful model. The BC Hydro standby rate allows that maximum demands set during short term periods when a customer's generator is not generating (for instance, during process upsets or equipment malfunctions) would not be included in the demand ratchet mechanism, and could exceed the contract demand, provided that BC Hydro was not obligated to supply such standby electricity if transmission system or power supply constraints were present. FortisBC has to this day not yet implemented a standby rate, and the standby rate it has proposed to the BCUC requires a customer to have a contract demand that exceeds the maximum demand it

might take during short term periods when a customer's generator is not generating. This proposed standby rate offers little relief to Celgar, as its annual energy charges with the combined RS31 and proposed standby rate would still be almost double than what Celgar would be billed under the BC Hydro standby rate model.

81. Celgar next filed a complaint with the BCUC in March 2011 relating to its inability to conclude a general service agreement with FortisBC, and to the punitive nature of the demand charges associated with RS31 because FortisBC still had not developed a proposal for a standby rate. The BCUC dismissed Celgar's complaint, and the resulting decision¹² made the situation in FortisBC's service territory even more complicated and uncertain for a customer seeking access to electricity from its utility while it was selling self-generated electricity.

82. The BCUC ruled that Celgar had an entitlement to "some" embedded cost electricity, while it was selling self-generated electricity, from FortisBC's own resource stack. Among other things, the BCUC directed FortisBC to develop a rate for self-generators that reflected FortisBC's resource stack excluding 1993 PPA electricity, to be used in place of RS31, and again directed FortisBC to design a standby rate to address Celgar's circumstances. The BCUC directed FortisBC to submit both rates for approval by May 31, 2012. The BCUC also ruled that RS31 would continue to apply to Celgar on an interim basis, until the replacement and standby rates were approved, but that the billing would be retroactively adjusted using the new rates to the date of Celgar's complaint, and the difference either recovered or refunded. As of March 2014, the BCUC has still not approved any new rates, and Celgar remains taking service and paying monthly bills under the punitive RS31 and its associated terms and conditions.

¹² C-13, BCUC, Order Number G-188-11 (14 November 2011).

83. In Order G-188-11, the BCUC also directed FortisBC to submit a report by March 31, 2012 (“Compliance Filing”), establishing a methodology for notionally matching sales to Celgar in service of its load when Celgar is selling electricity, to FortisBC’s resource stack, excluding 1993 PPA electricity. As noted, Order G-48-09 had prohibited FortisBC from providing *any* embedded cost electricity to Celgar while Celgar was selling electricity. Order G-188-11, on the other hand, permitted FortisBC to provide *its own* electricity to Celgar, provided that FortisBC could establish that it was not supplying PPA power to Celgar. To prove that it was not providing any BC Hydro electricity to Celgar, as required by Order G-48-09, FortisBC proposed that it would purchase from third-parties *all* electricity needed to supply Celgar, and, by matching these purchases to its sales to Celgar, it could demonstrate notionally that it was not supplying BC Hydro electricity to Celgar.

84. FortisBC finally submitted the Compliance Filing on April 13, 2012. The methodology proposed by FortisBC was both complex and not precise in its application, which caused numerous parties to file comments. In fact, the provincial Ministry of Energy and Mines requested the comment period be extended because it claimed the proposed methodology raised significant public policy issues which the Ministry required more time to consider. Seven parties, including BC Hydro, the Ministry of Energy and Mines, and Celgar, submitted comments to the BCUC. In response, FortisBC made changes to the proposed methodology, which attracted another round of comments from four parties, including again BC Hydro, the Ministry of Energy and Mines, and Celgar.

85. The BCUC accepted FortisBC’s Compliance Filing by Order G-202-12, issued on December 27, 2012, and concluded that entitlement to embedded cost electricity (with 1993 PPA electricity removed from the resource stack) with appropriate rate design was one of three

mechanisms that the BCUC could use to satisfy its regulatory principle that self-generators should not arbitrage embedded cost power. The BCUC accepted FortisBC's determination that Celgar should be able to have 100 percent of its load requirements served by the FortisBC resource stack less the 1993 PPA electricity, and accepted FortisBC's proposed notional matching methodology for hiving off all 1993 PPA electricity from the resource stack as applied to Celgar by notionally matching all electricity sold to Celgar with a corresponding purchase from a third party. The BCUC again directed FortisBC to file a replacement rate for RS31, this time as a two-tier transmission stepped rate, and the standby rate by March 31, 2013.

86. On March 28, 2013, FortisBC finally filed an application with the BCUC for approval of a transmission stepped rate and a standby rate, but no decision has yet been reached by the BCUC on these proposed rates. FortisBC has proposed to charge Celgar for the full incremental cost of all electricity it must purchase from third-parties for purposes of the matching requirement necessitated by Order G-48-09. It called this special charge an "NECP Rate Rider". If approved, it would mean that Celgar gets its own unique "Made-For-Celgar" electricity rate, in which it still is not afforded any access to utility embedded cost electricity of the sort BC Hydro customers get while selling self-generated electricity. Celgar's rate would exclude all low-cost BC Hydro electricity. It would also exclude all electricity FortisBC generates from its own low-cost generation resources, which resources thus would benefit all FortisBC ratepayers except Celgar. All Celgar gets is market-priced electricity produced by third-parties, the potentially high cost of which is borne exclusively by Celgar, and not shared with any other BC Hydro or FortisBC ratepayer.

87. Celgar has objected to this Made-For-Celgar rate methodology that as a practical matter would affect no one in the province other than Celgar. While that proceeding is

pending, Celgar has no choice but to continue to supply its own load, and take service and pay monthly bills under the punitive RS31 and its associated terms and conditions. Until it knows the rate it must pay for access to utility electricity while selling self-generated electricity, Celgar cannot determine whether or not it even is economical for it to sell its own electricity.

88. Self-generators in BC Hydro's service territory, including all other NBSK pulp mills, have not been subjected to any such regulatory uncertainty, net-of-load standard, notional matching mechanisms, market pricing for all notionally matched prices borne exclusively by one customer, or demand ratchet charges for standby service. They all get a GBL based on historical usage, and have access to BC Hydro's Rate Schedule 1821 or 1823 electricity, both based on embedded costs shared by all customers receiving that level service, for the difference between their load and their GBL, and do not experience demand ratchets for standby service that exceeds contract demand.

89. Because the Province has applied a net-of-load standard to Celgar, and a less restrictive historical usage standard to all other pulp mills in the province selling electricity, and in light of Celgar's net-of-load GBL and all of the unfavourable effects and still unresolved uncertainty the net-of-load standard has visited upon Celgar, I conclude that the Province has afforded less favourable treatment to Celgar than it has provided to any other pulp mill in BC that also is selling self-generated electricity.

**V. The More Favourable Regulatory Treatment
Afforded to Other BC NBSK Pulp Mills**

90. To test this conclusion, and to quantify the impact of the differential treatment, I also compared the impacts of the Province's regulatory treatment of Celgar to the impacts of its regulatory treatment of other NBSK pulp mills in the province that have sought to sell self-

generated electricity. This analysis confirms that the application of different regulatory standards resulted in different impacts, and less favourable treatment of Celgar.

A. Selection of Appropriate Comparators

91. I selected Tembec's Skookumchuck mill and Howe Sound's Port Mellon mill as appropriate comparators, based on the legal factors for "like circumstances" that I was provided by Mercer's counsel,¹³ and my own sense of which self-generators would provide a fair comparison. In my judgment, both these pulp mills share identical circumstances to Mercer's Celgar investment in the following respects. All three pulp mills produce NBSK market pulp, produce biomass-based self-generated electricity, and sell such green electricity. All three pulp mills are in British Columbia and thus subject to the same provincial legal regime, including the Province's regime governing self-generated electricity. All three pulp mills have negotiated EPA's with BC Hydro containing GBL provisions restricting access to embedded cost utility electricity. All three pulp mills invested in substantial new generation capacity in the decade prior to the BCUC's issuance of Order G-38-01 in 2001, and thus provide appropriate comparators with respect to the Province's treatment of investors who began to invest in significant generation capacity prior to the issuance of that order. Counsel has further advised me that, at the relevant times, Tembec was Canadian-owned and Howe Sound partly Japanese-owned, such that they meet the requirements for assessing Canada's national treatment and most-favoured nation obligations.

¹³ They advised me that tribunals have considered whether the comparators (1) operate in the same business or economic sector, (2) produce competing goods or services, and (3) are subject to a comparable legal regime or requirements.

92. Given the interdependencies between pulp production and electricity generation in an NBSK pulp mill, it makes little sense to compare BC's regulatory treatment of Celgar to a sawmill with self-generation, such as Tolko's sawmill in Kelowna.

93. In addition to Howe Sound and Tembec, I also examined one aspect of the regulatory treatment afforded to Canfor's Prince George and Intercon pulp mills, co-located at a site in Prince George, BC. As detailed above, BC Hydro entered into a load displacement agreement with Canfor in 2004. This agreement is illustrative of a different type of special treatment BC Hydro and the Province have afforded to certain pulp mills that they have not afforded to Celgar.

B. Basis for Comparisons

94. In examining how the Province's treatment of Celgar compared to its treatment of Tembec and Howe Sound, with respect to the degree of access afforded to embedded cost electricity while selling electricity, thus determining the amount of below-load electricity the self-generator can sell, I determined it was appropriate to analyze the following questions:

1. What standard was applied in determining the degree of access?
2. What degree of access was afforded?
3. What methodology/calculations were used?
4. Did the Province or BC Hydro provide the pulp mill with any compensation for agreeing to meet some or all of its own load?
5. Was the approach, and any explanations or justifications provided at the time, consistent with the Order G-38-01 policy the BCUC had put into effect?
6. What was the extent of the Province's or BC Hydro's discretion, and did it exercise that discretion less favourably for Celgar than for others?

95. There is no regulatory issue at all concerning a self-generator's ability to sell electricity it generates in excess of its own load, because a self-generator does not need access to utility-supplied firm electricity to meet its load while making such sales. The only regulatory issue in this case concerns the self-generator's access to embedded cost utility electricity while selling self-generated electricity, which, by definition, occurs only with respect to below-load sales.

96. Accordingly, in analyzing the Province's treatment of either Howe Sound or Tembec, the proper focus is on the percentage of the pulp mill's electric load that could be met by self-generation that the pulp mill is permitted to meet with embedded cost utility electricity while it is selling self-generated electricity. I will refer to this variable as the "Below-Load Access Percentage". The relevant degree of access is at the time the BC Hydro and/or the BCUC made the determination based on the information available at the time. The percentage of access actually provided from year to year is likely to fluctuate based on changes in actual generation, plant outages, pulp mill load, etc., but these variations are caused by mill events and behaviors, and not BC Hydro's or BCUC's regulatory determination.

97. For pulp mills that do not generate more than their own load, this factor is calculated using the following formula:

$$\text{(total self-generation - GBL) / (total self-generation)}$$

It reflects the percentage of the pulp mill's below-load generation that it is permitted to sell and replace with utility embedded cost electricity simultaneously. For pulp mills that do generate more than their load, the formula must be adjusted to use load rather than total generation, as

follows¹⁴:

$$(\text{load} - \text{GBL}) / \text{load}$$

This Below-Load Access Percentage reflects the degree of access (as a percentage of the lower of load or generation) the pulp mill has to embedded cost utility electricity while it is selling its self-generated electricity. For instance, if a pulp mill received a GBL of 50 GW.h/yr and had a load of 150 GW.h/yr, then for an expected annual generation of 100 GW.h/yr, the pulp mill's Below Load Access Percentage would be 50 percent $((100 \text{ total generation} - 50 \text{ GBL}) / (100 \text{ total generation}))$.

98. It is appropriate to compare below-load access among pulp mills on a *percentage* basis rather than an *absolute* basis because the Celgar, Tembec, and Howe Sound pulp mills represent pulp mills of very different size and very different levels of investment in generation. An absolute measurement of below-load access would reflect these size and investment variables rather than the practical impact of the Province's regulatory treatment. Comparisons of Below-Load Access Percentages, on the other hand, place all three pulp mills on the same scale.

99. The benchmark for comparison is Celgar's Below-Load Access Percentage of zero. Both by virtue of Order G-48-09, which by its terms denies Celgar access to any utility-supplied embedded cost electricity while it is selling electricity, and the restrictions imposed by BC Hydro in Celgar's 2009 EPA, fixing Celgar's GBL at the level of its 2007 load, the Province has not allowed Celgar access to any utility embedded cost electricity while selling electricity. Celgar's Below-Load Access Percentage thus is zero.

¹⁴ Mills generating above their load require access to power to meet their load only in the amount of their load, so load is used in the calculation instead of total generation whenever it is less.

C. Lack of Transparency

100. My analysis of the Province's treatment of Tembec and Howe Sound necessarily is based on confidential and restricted documents Canada provided to counsel for Mercer for this case. There is a complete lack of transparency in BC Hydro's establishment of GBLs. They are embodied in contracts between BC Hydro and the self-generator that are kept confidential. As a result, there is no publicly available information whatsoever concerning the GBLs under which particular self-generators are operating.

101. This in itself creates a problem of one-sided information and a tilted playing field when a self-generator goes to "negotiate" a GBL with BC Hydro. Only BC Hydro knows how it has computed GBLs for others. Only BC Hydro knows the data on which it relied. Only BC Hydro knows the discretionary decisions it made. It therefore is impossible for any self-generator to argue effectively for treatment similar to that afforded to one or more other pulp mills. BC Hydro alone holds all the information, and thus all the playing cards.

102. While I was provided access to the contracts, and thus could identify the GBL used, it frequently was difficult to ascertain how the GBL was computed. I could find no evidence that BC Hydro used any uniform format or template for analyzing the generation, load, purchase, and electricity sales data used in its GBL calculation, or memorializing the bases for its GBL decisions. I had to search for needles in a haystack, and in at least one instance, could find nothing.

D. Treatment Afforded to Comparator Pulp Mills

103. The comparison of the treatment with respect to the ability to sell self-generated electricity afforded to both Tembec's Skookumchuck NBSK pulp mill and Howe Sound's Port Mellon NBSK pulp mill as compared to the treatment afforded to Celgar's Castlegar pulp mill is made more difficult to analyze because of the time differences between the various agreements between BC Hydro and each of the three pulp mills. However, although the analysis is more difficult, the inconsistency in treatment and the unfavourable treatment to Celgar is even more obvious in that context because the switches between favourable treatment to others and unfavourable treatment to Celgar are easier to detect and more difficult to explain as a consistent application of policy or other mechanism.

1. Treatment Afforded to Howe Sound

104. There are three significant events that I analyzed to determine the treatment afforded to Howe Sound. The first was the 1989 Generation Agreement, the second was the process that resulted in Order G-38-01 and how that was subsequently applied to Howe Sound, and the third was the series of agreements associated with BC Hydro's 2010 Integrated Power Offer ("2010 IPO").

105. As discussed earlier in my Testimony, the 1989 Generation Agreement did not trigger any need to define how access to embedded cost electricity while selling self-generated electricity would be determined or in what quantity, because the contract was designed as a load displacement contract only. It was never intended or envisioned that Howe Sound would generate electricity in excess of its load, nor that it would attempt to sell any of its generation, so the issues addressed in Order G-38-01 which came later were not of concern.

BC Hydro would have lost in the procurement of the additional << [REDACTED] >> and subsequent re-sale to Howe Sound. BC Hydro had earlier valued the amount it would lose on the procurement and subsequent re-sale of a smaller amount of electricity, << [REDACTED] >> GW.h, at << [REDACTED] >>¹⁸.

109. Although I could find no record of an order or a process that was adjudicated by the BCUC regarding the 1989 Generation Agreement, the BCUC did provide BC Hydro with advice on the form of the application to the BCUC¹⁹. The BCUC must have approved the 1989 Generation Agreement, because the agreement did go into effect.

110. As it turned out, the equipment installed by Howe Sound under the 1989 Generation Agreement was << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

111. << [REDACTED] >>, electricity market disruptions in California in 2000 and 2001 had caused the price of both hog fuel and natural gas to rise in price to such a degree that it made economic sense for Howe Sound << [REDACTED]

[REDACTED]

¹⁸ C-255, Memo from J.P. Sheehan to H. Abell, F.J. Klassen, and K. Miyazaki, attaching draft letter re: proposed cogeneration facility for HSPP (12 July 1988), CAN Bates 022175 022180.

¹⁹ C-256, Interoffice Memo from H. Abell to D. Barnett, K. Peterson, and W. Morgan re: HSPP Generation Agreement (10 November 1989), CAN Bates 021509.

[REDACTED]

[REDACTED] >> Howe Sound approached BC Hydro and the BCUC with a request to be allowed to use this idled generation capacity to generate electricity to sell to the California market, access to which had been implemented in the 1990's through BC Hydro's adoption of a FERC-compliant OATT as approved by BCUC Order G-43-98²⁰. In fact, Howe Sound urged the BCUC to direct BC Hydro to facilitate such sales.

112. High prices in the California electricity market made it economic for Howe Sound to purchase either hog fuel or natural gas and generate electricity to sell to California, << [REDACTED] >> In its request to the BCUC, Howe Sound explained that about 35 MW was all that could be generated without using natural gas, and that "35 megawatts is all the power that is currently being generated by Howe Sound for internal use and all the power that it is anticipated will be generated in the foreseeable future."

113. BC Hydro objected to Howe Sound's request and specifically advised the BCUC, that subject to the 1989 Generation Agreement, "it is inappropriate for Howe Sound in particular to seek market opportunities for its idle generation when it is contractually obligated to be using that generation now to meet its own energy needs."²¹

114. As a comparison to Celgar's situation, Celgar had installed generation in 1992-1993 entirely at its own cost, and never received any compensation from any party for the load

²⁰ C-118, Letter from Brian Wallace, Bull, Housser & Tupper, to Robert Pellatt, BCUC (27 February 2001), CAN Bates 144039.

²¹ C-157, Letter from Ray Aldegue, Senior Vice-President Legal Regulatory Affairs and General Counsel, BC Hydro, to Robert J. Pellatt, Commission Secretary, BCUC (28 February 2001), CAN Bates 021966 at 021967.

displacement that it produced by operating its generation. As a result, Celgar was not under any obligation to operate its generation at any level or for any purpose.

115. Nevertheless, after a holding a workshop and considering submissions from interested parties, including BC Hydro and the provincial Ministry of Employment and Investment, the BCUC issued Order G-38-01, which directed as follows:

“The Commission directs B.C. Hydro to allow Rate Schedule 1821 customers with idle self-generation capability to sell excess self-generated electricity, provided the self-generating customers do not arbitrage between embedded cost utility service and market prices. This means that B.C. Hydro is not required to supply any increased embedded cost of service to a RS 1821 customer selling its self-generation output to market. The Commission recognizes that considerable debate may ensue over whether a self-generator has met this principle, but the Commission expects B.C. Hydro to make every effort to agree on a customer baseline, based either on the historical energy consumption of the customer or the historical output of the generator. In instances where the parties cannot agree on an appropriate baseline, an affidavit may be required from the self-generator that it will not adjust its consumption of electricity under Rate Schedule 1821 to take advantage of market sales from its self-generation.”

116. On April 12, 2001, one week after the BCUC issued Order G-38-01, BC Hydro, Powerex Corp. (“Powerex”, the wholly-owned electricity marketing subsidiary of BC Hydro) and Howe Sound jointly agreed to allow Howe Sound to provide electricity it generated above << [REDACTED] >> in any hour to Powerex for sale to the market (the “Consent Agreement”). On the same day, Howe Sound and Powerex executed an agreement (the “Enabling Agreement”) that governed how the parties shared in the proceeds of the sale by Powerex of the electricity generated and provided to Powerex by Howe Sound.²² The Consent Agreement required that the

²² The terms were << [REDACTED]

Footnote continued on next page

first << [REDACTED] >> generated by Howe Sound in any hour must be used to service its own load before any electricity could be provided to Powerex for resale. If Howe Sound should generate less than << [REDACTED] >> in a given hour, then no electricity could be provided to Powerex.

117. This was the first instance of a GBL with respect to a self-generator's degree of access afforded to embedded cost electricity while selling electricity. Howe Sound was allowed to purchase all electricity above << [REDACTED] >> in any hour from BC Hydro to service its own load, while being able to sell all electricity it generated above << [REDACTED] >> in any hour.

118. Returning to the six questions which I asked to determine a self-generator's degree of access afforded to embedded cost electricity while selling electricity, I found that Howe Sound was not held to the "net-of-load" standard, but rather, was assigned an undocumented, arbitrary amount of electricity it must first generate, far below its own load, above which it was free to sell to Powerex. In light of Howe Sound's commitment to produce << [REDACTED] >> per year to service its own load in the 1989 Generation Agreement, it was now only required to generate << [REDACTED] >> to service its own load, and could now sell << [REDACTED] >> of its generated electricity to Powerex, and more importantly, purchase that << [REDACTED] >> from BC Hydro to service its own load. The Below-Load Access Percentage afforded to Howe Sound was << [REDACTED] >> percent.

119. Turning to the question of the methodology used to determine Howe Sound's << [REDACTED] >> GBL in the Consent Agreement, I could find no evidence in the materials to which I had access regarding any formal process used by BC Hydro to determine Howe Sound's

[REDACTED] >>

GBL. In fact, the information provided by Howe Sound in the original request that resulted in Order G-38-01 specifically said that “35 megawatts is all the power that is currently being generated by Howe Sound for internal use and all the power that it is anticipated will be generated in the foreseeable future.”

120. In my opinion, the determination of Howe Sound’s GBL at << [REDACTED] >> demonstrates that BC Hydro is able to assign a GBL arbitrarily, without apparent regard to information supplied by the self-generator. It is also apparent that BC Hydro had access to Howe Sound’s generation data for prior years²³, but there is no evidence to support that these data were in any way used in the determination of Howe Sound’s GBL. For example, for the three years prior to the Consent Agreement, namely 1998, 1999 and 2000, the Howe Sound generation appears to have been << [REDACTED] >> respectively, or stated in average values << [REDACTED] >>, respectively. To the extent BC Hydro used Howe Sound actual generation data in arriving at a GBL, it could only have used a very short-term baseline of far less than one year.

121. With respect to the question regarding whether the Province or BC Hydro provided Howe Sound with any compensation for agreeing to meet some or all of its own load, as described earlier, Howe Sound had been compensated under the 1989 Generation Agreement for the generation now being re-deployed in the Consent Agreement.

122. The approach taken by BC Hydro appears to be generally consistent with the broad direction provided by the BCUC in Order G-38-01, but there were no data provided for Howe Sound’s purchases from BC Hydro prior to 2004, so I was unable to confirm that the

²³ C-96, Email from Wendy Guilbault to Lester Dyck and Gerard Kho (11 April 2008) CAN Bates 021905.

Consent Agreement and Enabling Agreement resulted in no increased purchases of embedded cost electricity by Howe Sound. Furthermore, the GBL determined for Howe Sound in the Consent Agreement is not based on the prior year's generation or the generation level of any greater period, and the GBL is significantly lower than the actual generation in any of the prior three years. Despite the average amount of the electricity generated by Howe Sound in 1998, 1999 and 2000, of << [REDACTED] >>, and all used to meet its own load, in April, 2001, BC Hydro apparently determined all generation above << [REDACTED] >> MW/h to be "idle" for the purposes of Order G-38-01.

123. I note that on June 21, 2006, << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

124. << [REDACTED]

[REDACTED]

[REDACTED]

²⁴ C-257, Letter from Pierre Lamarche to Lester Dyck re: Surplus Electricity Volume - Impact on Future CBL (21 June 2006), CAN Bates 021745.

[REDACTED]

[REDACTED]

[REDACTED]

>> This ability appears to be a fundamental contravention of Order G-38-01 which directs that BC Hydro allow “customers with idle self-generation capability to sell excess self-generated electricity, provided the self-generating customers do not arbitrage between embedded cost utility service and market prices.” << [REDACTED]

[REDACTED] >> which is exactly the arbitrage between embedded cost utility service and market prices not allowed in Order G-38-01.

125. The next opportunity to examine the treatment afforded to Howe Sound with respect to its access to embedded cost electricity while being able to sell self-generated electricity which could be used to serve its own load was triggered by a << [REDACTED]

[REDACTED] >> and which finally resulted in an Electricity Purchase Agreement²⁷ (“Howe Sound 2010 EPA”) on September 7, 2010 within the umbrella of BC Hydro’s 2010 IPO. In its proposal, << [REDACTED]

²⁵ C-150, Letter from Lester Dyck, Senior Key Account Manager, BC Hydro, to Pierre Lamarche, Energy Manager, Howe Sound Pulp and Paper (31 October 2006), CAN Bates 019133 at 019134.

²⁶ C-25, Letter from HSPP to BC Hydro (16 June 2009), CAN Bates 022474.

²⁷ C-23, BC and HSPP, Electricity Purchase Agreement: Integrated Power Offer (7 September 2010), CAN Bates 016362.

>>

126. Several agreements were required to implement Howe Sound's proposal, namely a Termination Agreement, an Assignment, Assumption, Consent and Amendment Agreement an Umbrella Agreement and the Howe Sound 2010 EPA. The Termination Agreement allowed for the termination of the 1989 Generation Agreement, << [REDACTED]

[REDACTED] >> The Howe Sound 2010 EPA allowed for Howe Sound to sell << [REDACTED]

[REDACTED] >>

127. However, the Howe Sound 2010 EPA contains a provision that << [REDACTED]

[REDACTED]

²⁸ C-133, Letter from David Cunningham, Industrial Rates Manager, BC Hydro, to Fred Fominoff, General Manager, Fibre and Energy, HSPP (5 March 2012), CAN Bates 022231 at 022235.

[REDACTED]

[REDACTED] >>

128. Examination of the << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

129. BC Hydro appears to be able to change its GBL determination methodology from an arbitrary << [REDACTED]

[REDACTED] >> without any justification.

130. Again returning to the six questions which I asked to determine a self-generator's degree of access afforded to embedded cost electricity while selling electricity, I found that again Howe Sound was not held to a "net-of-load" standard as Celgar was, but rather, was assigned an amount of electricity it must first generate, << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

131. Turning next to the question of the methodology used to determine Howe Sound's GBL in the Howe Sound 2010 EPA, I could find no evidence to support the value of <<

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

132. It bears emphasis that the GBL methodology BC Hydro employed focused not on Howe Sound's total load, and << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

²⁹ C-250, HSPP Generation Baseline Calculations (28 October 2009), CAN Bates 022183 at 022186.

133. Second, it means that the GBL established in the Howe Sound 2010 EPA was not written on a clean slate, but instead << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

134. With the Howe Sound 2010 EPA, BC Hydro was consistent with the broad direction provided in Order G-38-01 to consider the historical output of the self-generator, but the rationale for both the duration and the period BC Hydro considered is not apparent.

Furthermore, BC Hydro appears to have switched the interpretation of what it considered to be “idle” generation with respect to Howe Sound from generation above a value of << [REDACTED]

[REDACTED]

[REDACTED] >> It is difficult to determine how this change of interpretation is consistent with Order G-38-01, especially in light of the fact the Howe Sound was contractually bound by the 1989 Generation Agreement to use that generation in the supply of its own load. Interestingly, the Province exempted all EPA’s awarded under the 2010 IPO from BCUC regulatory review, so the BCUC was never asked to consider if and to what extent the Howe Sound 2010 EPA was consistent with Order G-38-01.

2. Treatment Afforded to Canfor

135. Before addressing Tembec, it is useful to examine another load displacement type agreement, like BC Hydro’s 1989 Generation Agreement with Howe Sound. For this

purpose, Canfor Prince George provides a useful comparator. The Canfor Intercon and Prince George pulp mills are Canadian owned.

136. As mentioned above, BC Hydro, on March 15, 2004, entered into a Load Displacement Agreement with Canfor, covering its Prince George and Intercontinental NBSK pulp mills. BC Hydro executed this load displacement agreement some three years after Order G-38-01. The agreement provided that BC Hydro would pay Canfor C\$49 million toward a new generation project's estimated total cost of C\$81.4 million.³⁰ In exchange, Canfor agreed that it would install a 60 MW double extraction condensing turbine generator, and, for the 15-year term of the agreement, it would use reasonable efforts to operate the project so as to generate an average of at least 390 GW.h annually (45 MW/h), and to use 390 GW.h/yr to meet the plant's own load.³¹

137. Prior to the load displacement agreement, the mill had no installed generation capacity. Like Howe Sound, BC Hydro paid Canfor to install generation equipment and to provide load displacement services.

138. << [REDACTED]

³⁰ C-160, Power Smart Incentive Program Agreement, Industrial Load Displacement Projects, between BC Hydro and Canadian Forest Products Ltd. (15 March 2004), §§ 3.1, 4.5, CAN Bates 017407 at 017408, 017411.

³¹ C-160, Power Smart Incentive Program Agreement, Industrial Load Displacement Projects, between BC Hydro and Canadian Forest Products Ltd. (15 March 2004), § 6, CAN Bates 017407 at 017411. << [REDACTED]

>> *Id.* at § 6.4, CAN Bates 017407 at 017413.

[REDACTED]

[REDACTED] >>

139. On the same date, BC Hydro and Canfor entered into a 10-year EPA (entered into after Canfor was one of the four successful bidders in Bioenergy Phase I, along with Celgar). The EPA provides for an hourly GBL of << [REDACTED] >>, which, at << [REDACTED]

[REDACTED] >> is equivalent to an annual GBL of << [REDACTED] >> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >> The BCUC approved the Canfor EPA in the same order approving the Celgar EPA.

140. In sum, when BC Hydro set a GBL for Canfor in its 2009 EPA, and for Howe Sound in its 2010 EPA, it was requiring those pulp mills to meet load with generation equipment BC Hydro and its ratepayers had helped to pay for, and which both pulp mills already had committed contractually to use to meet load.

141. This treatment is fundamentally at odds with the far less favourable treatment afforded to Celgar. The Province recognizes that load displacement is a valuable service. It enters into binding contractual arrangements with some pulp mills to provide that service, paying at least two pulp mills << [REDACTED] >> each. And then by regulatory action it orders

³² C-238, Power Smart Incentive Program Amending Agreement No. 2 between BC Hydro and Canfor Pulp Limited Partnership (4 February 2009), CAN Bates 017435.

³³ C-239, Electricity Purchase Agreement between BC Hydro and Canfor Pulp Limited Partnership app. 2 (4 February 2009), CAN Bates 015196 at 01564-65.

Celgar to provide the same service without any compensation. In my view, this taking from Celgar that which BC Hydro paid others to provide constitutes less favourable treatment.

3. Treatment Afforded to Tembec

142. There are two significant events that I analyzed to determine the treatment afforded to Tembec. The first event was Tembec's assumption, apparently in September 14, 2001, of an EPA³⁴ ("1997 Purcell EPA") dated September 5, 1997 between BC Hydro and the Purcell Power Corp. ("Purcell"), and the second was an EPA ("2009 Skookumchuck EPA") between BC Hydro and Tembec dated August 13, 2009.³⁵

143. In my review of the evidence, I could not find any agreement between BC Hydro and Tembec that actually put the 1997 Purcell EPA in motion, but there is reference in the 2009 Skookumchuck EPA of an EPA between BC Hydro and Tembec Industries, Inc. made as of September 14, 2001 ("2001 Skookumchuck EPA"). Mercer's counsel have advised me that they have confirmed with counsel for Canada that the 2001 Skookumchuck EPA referenced in the 2009 Skookumchuck EPA is identical to the 1997 Purcell EPA in all material ways. Documents prepared by both Tembec³⁶ and BC Hydro³⁷ ("Keir Analysis") in 2009 confirm that the details of the 2001 Skookumchuck EPA were the same as the 1997 Purcell EPA.

144. For the purpose of delivering electricity under the 2001 Skookumchuck EPA, and also to replace an existing 15 MW/18.75 MVA turbine-generator set ("STG1"), Tembec

³⁴ C-107, Electricity Purchase Agreement Between Purcell Power Corp. and BC Hydro (5 September 1997), CAN Bates 016965.

³⁵ C-145, BC Hydro and Tembec Electricity Purchase Agreement (13 August 2009) accompanying Letter from Joanna Sofield, Chief Regulatory Officer, BC Hydro, to Erica M. Hamilton, Commission Secretary, BCUC (28 October 2009), CAN Bates 139676 at 139714.

³⁶ C-113, Email from Chris Lague, Project Engineer and Energy Coordinator, Tembec, to Matt Steele (10 March 2009), CAN Bates 020980.

³⁷ C-112, Tembec Skookumchuck CBL/GBL Analysis (6 April 2009), CAN Bates 020991.

system. The Keir Analysis describes the 2001 Skookumchuck EPA as follows: “{i}n essence, the EPA was designed as a load displacement agreement, whereby electrical power generation would be first used to displace 100 % of internal mill load. BCH would then purchase net exports to the grid.”

148. Reviewing the 2001 Skookumchuck EPA against the six questions which I asked to determine a self-generator’s degree of access afforded to embedded cost electricity while selling electricity yielded startling results. The degree of access was not net-of-load (even though Tembec had sufficient steam and generation capacity to meet its own load), nor was Tembec required to use any of its self-generation to service its pulp mill load. Indeed, the agreement contained no GBL at all. Instead, Tembec was allowed to sell its first 10.8 MW to BC Hydro before having to self-supply, and there was no requirement to generate any more than that, or indeed, any amount of electricity.

149. In this case, the Below-Load Access Percentage for the 2001 Skookumchuck EPA was << [REDACTED] >> provided it generated 10.8 MW per hour or less.

150. In effect, the 2001 Skookumchuck EPA had a GBL of 0 MW. There was no amount of generation that Tembec was required to use to supply its own pulp mill load before it could start to sell its self-generation. There appears to have been no consideration or evaluation by BC Hydro of the amount of STG1 generation Tembec self-generated and consumed prior to the 2001 Skookumchuck EPA.

151. It is noteworthy that Section 3 of the 2001 Skookumchuck EPA specifies that the EPA was conditional on BCUC approval. Although I could not find any record on the BCUC website of the BCUC’s approval of the EPA, it did go into effect, suggesting it had been reviewed and approved by the BCUC sometime prior to 2001, in which year the BCUC issued

Order G-38-01. If so, a particularly startling aspect of the 2001 Skookumchuck EPA is that it appears to be completely inconsistent with the direction shortly thereafter provided by the BCUC in Order G-38-01.

152. The effective date of the 2001 Skookumchuck EPA has been provided as September 14, 2001, over 5 months after Order G-38-01 was issued, but BCUC approval must have been received much earlier in order for the installation of STG2 to proceed. Nevertheless, the BCUC does not appear to have required anything in the 2001 Skookumchuck EPA that defined a baseline of either historical purchases or historical generation in order to determine whether Tembec was taking increased amounts of embedded cost from BC Hydro in order to facilitate its sales of self-generation output to BC Hydro. No data have been provided for Tembec's electricity purchases from BC Hydro prior to 2005, so it was not possible to do an independent analysis of Tembec's electricity purchase before and after the 2001 Skookumchuck EPA.

153. I also have not been able to find any BCUC approval or acknowledgement of the 2001 Skookumchuck EPA, even though such approval was described in, and required by, the 1997 Purcell EPA. At best, the BCUC in Order G-38-01 adopted a standard inconsistent with that which it had approved for Tembec, without requiring any changes for Tembec. At worst, to the extent the BCUC acted on the 2001 Skookumchuck EPA after Order G-38-01, it approved an EPA that cannot be reconciled with that order.

154. In response to Tembec's registration in BC Hydro's Bioenergy Phase 1 process, BC Hydro assigned Tembec an annual GBL of << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

155. I note that the difference between the referenced << [REDACTED]
[REDACTED] >> the annual GBL is 10.8 MW, which is the same as the
first tranche of power generated by Tembec and sold to BC Hydro under the 2001

Skookumchuck EPA. << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

156. Tembec was unsuccessful in its bid into BC Hydro's Bioenergy Phase 1
process, and was not awarded an EPA. Tembec's bid was ranked << [REDACTED] >> and only the top
four bids were awarded an EPA.

157. Following its unsuccessful bid in the Bioenergy Phase 1 process, Tembec
continued discussions with BC Hydro related to the sale of self-generated electricity and
proposed that its GBL should be << [REDACTED]

[REDACTED]

³⁸ C-143, Letter from BC Hydro RFP Administrator to Christian Lague, Tembec Enterprises Inc.,
BC Hydro Bioenergy Call for Power (Phase I) (2 May 2008), CAN Bates 033367 at 033370.

[REDACTED] >> It should be noted that the 2001 Skookumchuck EPA contained no electricity delivery obligations on the part of Tembec, but rather BC Hydro was obligated to purchase the first 10.8 MW of Tembec's self-generation. The Keir Analysis confirmed that Tembec had already communicated to BC Hydro its intent to terminate the 2001 Skookumchuck EPA as soon as it was able to, that being September 2011.

158. Faced with the prospect of Tembec terminating the 2001 Skookumchuck EPA as early as September 2011, BC Hydro elected to enter into the new 2009 Skookumchuck EPA with Tembec on August 13, 2009, absent any formal process for resource acquisition. That is, BC Hydro concluded its new EPA with Tembec outside of any established channel for electricity purchases, and without competitive bidding. In its application to the BCUC, BC Hydro defended its decision to enter into a new EPA with Tembec because it was << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

>>⁴⁰

159. The terms in the 2009 Skookumchuck EPA appear highly favourable to Tembec. First, the << [REDACTED]

³⁹ C-113, Email from Chris Lague, Project Engineer and Energy Coordinator, Tembec, to Matt Steele (10 March 2009), CAN Bates 020980.

⁴⁰ C-99, Justification Report: Tembec EPA Replacement for Incremental Energy Sales from Purcell Power Plant accompanying Letter from Joanna Sofield, Chief Regulatory Officer, BC Hydro, to Erica M. Hamilton, Commission Secretary, BCUC (28 October 2009), CAN Bates 139676 at 139677 (hereinafter "Tembec Justification Report").

[REDACTED]

>>⁴¹

160. The annual average of the skewed hourly GBL was << [REDACTED]

[REDACTED]

[REDACTED] >> I could find no basis for such a skewed GBL in any of the documentation Canada made available for review.

⁴¹ As with most of BC Hydro EPA's at issue in this proceeding, << [REDACTED]

[REDACTED] >>

161. The annual energy total associated with the << [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] >>

Notwithstanding the fact that the 2009 Skookumchuck EPA was executed after BCUC Order G-48-09 was issued, which Order imposed a “net-of-load” GBL on Celgar, Tembec’s GBL was set far below the “net-of-load” standard even though, as discussed above, Tembec was generating far in excess of its pulp mill load.

162. The Below-Load Access Percentage afforded by Tembec’s annual GBL of << [REDACTED] >>, based on the << [REDACTED] >> average hourly load as reported in the Justification Report and the << [REDACTED] >>.⁴³ In this case, it is more appropriate to use the hourly GBL result because that represents the potential Below-Load Access Percentage that Tembec is allowed to achieve. Any reduced access is likely the result of production shortfalls that decrease the pulp mill load. Indeed, as the pulp mill strives to achieve increased production, any increase in load will also result in a corresponding increase in the Below-Load Access Percentage, not only for Tembec but also for Celgar and any other pulp mill.

163. As discussed above, the << [REDACTED]
[REDACTED]
[REDACTED]

⁴² C-99, Tembec Justification Report, CAN Bates 139676 at 139677, 139685.

⁴³ << [REDACTED] >>

[REDACTED]

[REDACTED] >>

164. BC Hydro did not appear to use any historical load and generation data in determining Tembec's << [REDACTED] >> BC Hydro instead negotiated Tembec's GBL in 2009 based on a completely hypothetical analysis of how much electricity the pulp mill might have generated in 2001 absent the 2001 Skookumchuck EPA, but with the more efficient STG2 as a replacement for the then-ageing STG1. << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

165. Perhaps the greatest anomaly of the 2009 Skookumchuck EPA is its structure and effect with respect to the directions in Order G-38-01. The 2009 Skookumchuck EPA allowed Tembec to increase sales from the first 10.8 MW/h it generated under the 2001 Skookumchuck EPA, to an average of << [REDACTED] >> of firm energy after it satisfied its GBL under the 2009 Skookumchuck EPA << [REDACTED] >> Moreover, Tembec was able to do this without any additional investment to yield incremental generation or without bringing an additional << [REDACTED] >> of idle generation back into production (the difference

⁴⁴ C-113, Email from Chris Lague, Project Engineer and Energy Coordinator, Tembec, to Matt Steele (10 March 2009), CAN Bates 020980.

between << [REDACTED] >>. Indeed, << [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] >>

166. The question then arises, if the increased firm energy sales are not coming from the re-activation of idle generation, or from incremental new generation, then how are the increased sales being accomplished? I found the answer in the examination of Tembec's 2006 to 2012 hourly generation, purchase, sales, and load data as provided by BC Hydro. These data indicate that Tembec purchased firm energy from BC Hydro under RS1821/1823 in the amounts of << [REDACTED] >> Thus, in the three years before the 2009 Skookumchuck EPA took effect, Tembec was purchasing an average of << [REDACTED] >> of firm energy from BC Hydro.

167. However, in 2010, after implementation of the 2009 Skookumchuck EPA, the volume of BC Hydro firm energy purchased by Tembec << [REDACTED]
[REDACTED] >> Thus, the GBL BC Hydro determined for Tembec enabled Tembec to make *increased* purchases of firm energy from BC Hydro to facilitate its increased energy sales volumes to BC Hydro. This *increased* arbitrage is in direct contravention with the directive in Order G-38-01, which prohibits increased access to BC Hydro embedded cost electricity to facilitate sales by a self-generating customer.

168. The increase in Tembec's average firm energy purchases in 2010 and 2011 over 2006, 2007 and 2008 was << [REDACTED]
[REDACTED]
[REDACTED]

E. Treatment Afforded to Celgar in Comparison to Comparator Pulp Mills

169. Celgar's first interaction with the BCUC concerning the sale of its self-generated electricity while it was also purchasing utility electricity arose in August 2008, when FortisBC filed with the BCUC the signed Power Supply Agreement between it and Celgar. Earlier in 2008, FortisBC had filed with the BCUC similar agreements between it and the Corporation of the City of Nelson ("Nelson Agreements"). The BCUC requested BC Hydro to comment on the Nelson Agreements, to which BC Hydro responded that the Nelson Agreements were not in the interest of BC Hydro's ratepayers. Concurrently, on September 16, 2008, BC Hydro filed an application with the BCUC to amend the 1993 PPA between BC Hydro and FortisBC. BC Hydro sought to prohibit FortisBC from accessing any electricity under the 1993 PPA while FortisBC was simultaneously selling electricity to self-generating customers that were in turn selling self-generated electricity. In response to BC Hydro's application, FortisBC withdrew the Power Supply Agreement between it and Celgar and the Nelson Agreements from BCUC review, pending the outcome of BC Hydro's application.

170. The original 1993 PPA contained no restrictions on FortisBC's use of power purchases from BC Hydro to supply self-generators in its service territory. Although not explicitly stating so, BC Hydro sought to prohibit all simultaneous purchases and sales by FortisBC self-generating customers, and achieved this result by requesting the BCUC to prohibit FortisBC from accessing any 1993 PPA electricity while selling electricity to a self-generator that in turn was selling electricity. The BCUC granted BC Hydro's request and amended the

1993 PPA as requested by BC Hydro. The BCUC established and defined a "net-of-load" access standard, applicable only to self-generators in FortisBC's service territory.

171. The "net-of-load" standard prohibited self-generators in FortisBC's service territory from accessing embedded cost utility electricity while also selling electricity, even though the BCUC had, in Order G-38-01, allowed such access, and the simultaneous purchase and sale of electricity by a self-generator in BC Hydro's service territory, under a less restrictive "historical usage" regulatory standard. The application of the "net-of-load" standard only to Celgar among pulp mills prevented Celgar from using its self-generation in the same manner as either Tembec or Howe Sound, and, as a result, the BCUC prevented Celgar from realizing the value of its self-generation to the same extent as either Tembec or Howe Sound.

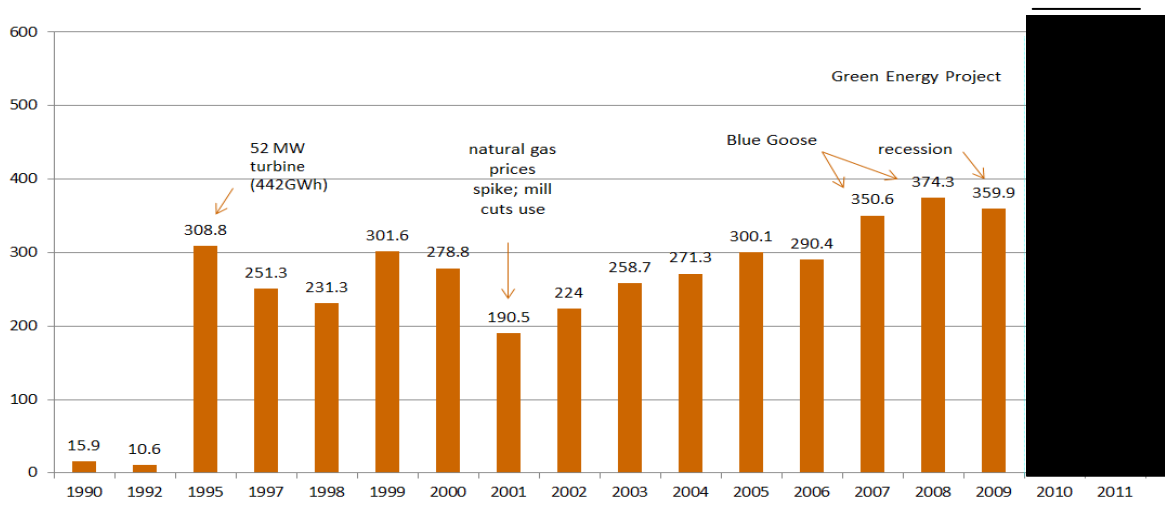
172. The stark difference in treatment is even more striking when one considers that the agreements governing both Tembec's and Howe Sound's use of self-generation were made both before and after Order G-48-09. There does not seem to be any temporal consistency regarding the policy for access by a self-generator to embedded cost utility electricity while selling self-generated electricity. Specifically, Howe Sound was allowed to sell below-load self-generation while still buying electricity from BC Hydro in at least three instances: 1) the Consent Agreement of 2001, 2) << [REDACTED] >>, and 3) the Howe Sound 2010 EPA. Similarly, Tembec was allowed to sell below-load self-generated electricity while still buying electricity from BC Hydro in at least two instances: 1) the 2001 Skookumchuck EPA, and 2) the 2009 Skookumchuck EPA.

173. The next opportunity for the comparison of the treatment of Celgar with respect to access to embedded cost utility energy while selling its self-generated electricity, was in BC

Hydro's Bioenergy Phase 1 call process which culminated in the 2009 EPA. In response to Celgar's application in the Bioenergy Phase 1 call process, BC Hydro advised Celgar that it had determined Celgar's GBL to be 349 GW.h/yr.⁴⁵

174. Prior to its application in the Bioenergy Phase 1 call process, Celgar had been making process and production improvements to increase both pulp production and electricity generation following the acquisition of the Celgar pulp mill by Mercer in 2005. These improvements required capital investments, the most significant of which was the Blue Goose Project in 2006 and 2007 at a cost of over C\$25 million. The results of the Blue Goose Project included increased annual pulp production, increased process reliability (fewer upsets), and, most relevant here, increased electricity generation. The increase in electricity generation is shown in the chart that follows:

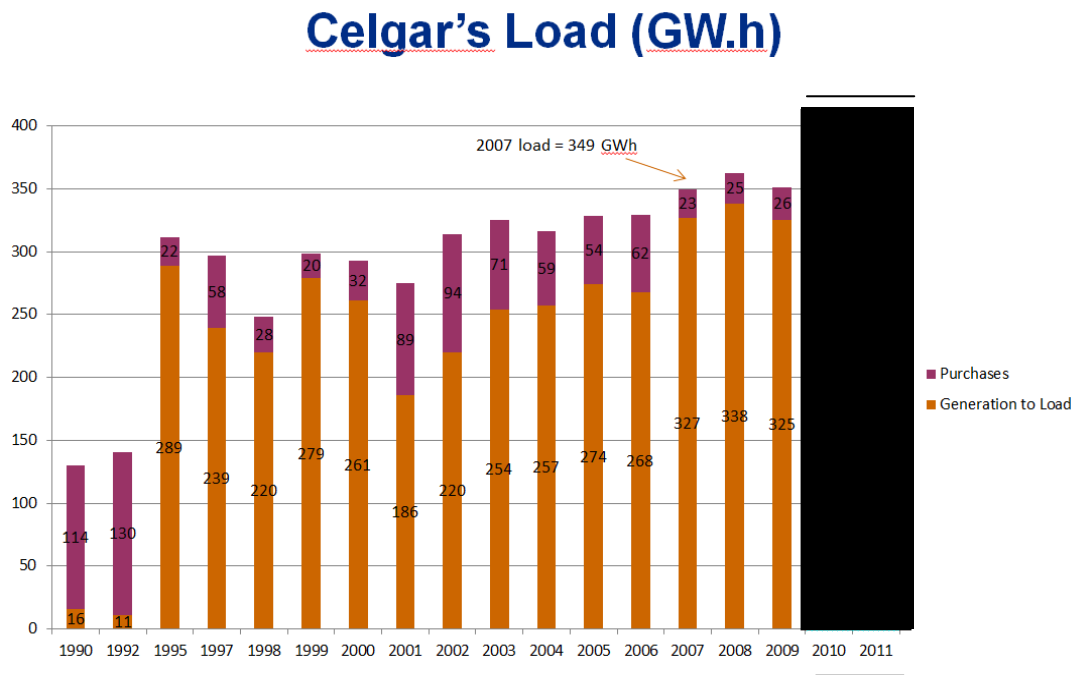
Celgar's Generation History (GW.h)



⁴⁵ C-248, Letter from BC Hydro RFP Administrator to Brian Merwin (30 May 2008), CAN Bates 028582.

175. In the three years prior to the Blue Goose Project, specifically 2004 to 2006, the Celgar Mill's average annual electricity generation was 287.3 GW.h, with a maximum of 300.1 GW.h in 2005. Following the implementation of the Blue Goose Project, the electricity generation increased to 350.6 GW.h in 2007, and Celgar has generated at least that much electricity every year since. In my opinion, it is evident that Celgar's Blue Goose Project investment resulted in incremental electricity generation that would not have been realized absent that investment.

176. As mentioned, the Blue Goose Project also resulted in increased pulp production, which caused a corresponding increase in the pulp mill's electricity consumption, or load, as shown in the chart that follows:



177. Again, in the three years prior to the Blue Goose Project, specifically 2004 to 2006, the average annual load was 325 GW.h, with a maximum of 330 GW.h in 2006. Following the implementation of the Blue Goose Project, the pulp mill load increased to 349 GW.h in 2007,

and has exceeded that amount every year since. As with Celgar's electricity generation, it is evident that Celgar's Blue Goose Project investment resulted in incremental load.

178. An undated description of the methodology behind Celgar's GBL determination, presumably prepared by BC Hydro, states that BC Hydro's first response to Celgar's application in the Bioenergy Phase 1 call process was that < [REDACTED] >⁴⁶ This position was communicated to Celgar in a letter dated May 2, 2008.⁴⁷ Celgar objected, and provided BC Hydro with what BC Hydro describes as "significant data and operating history information from Celgar including 2002 – 2007 production data, generation data, power sales data, mill electric load data, natural gas/fuel consumption data etc."

179. BC Hydro describes that its sole consideration in determining a GBL for Celgar was "from answering the question; 'how did Celgar operate in the absence of an EPA?'" BC Hydro then goes on to acknowledge that Celgar had made significant investments to improve productivity between 2005 and 2007, and, despite being provided the substantial operational data from that period, BC Hydro decided only to consider two factors in determining Celgar's GBL. The first factor was the total load in 2007 at 349 GW.h, and the second factor was the total generation in 2007 at 350.6 GW.h.

180. In so limiting its evaluation, BC Hydro chose the highest annual load ever consumed at the Celgar pulp mill, corresponding to a peak in the global business cycle, and the highest annual electricity generation by Celgar, without even considering how much of that

⁴⁶ C-259, Celgar's GBL Determination.

⁴⁷ C-246, Letter from BC Hydro RFP Administrator to B. Merwin (2 May 2008), CAN Bates 019826.

electricity was actually used by Celgar to self-supply in 2007. From these two factors alone, BC Hydro decided that Celgar's GBL should be set at 349 GW.h. This was a net-of-load GBL, as BC Hydro considered only Celgar's 2007 load. Furthermore, BC Hydro appears to have given no weight to the fact that even though Celgar's 2007 annual electricity generation was greater than the annual load, Celgar still had to purchase 23 GW.h of electricity to satisfy its annual load, because in real-time, its generation was often less than load.

181. BC Hydro appears not to have made any adjustments or averaging for electricity generation or load over a period of time longer than one year, nor did it make any adjustment for incremental generation arising from investments immediately prior to 2007, nor did it consider how electricity sales or purchases in 2007 impacted the amount of self-generated electricity that was used to service the pulp mill load. As will be described in the examples that follow, in each instance where it had the opportunity to do so, BC Hydro considered at least one of those factors when determining the GBL for the comparator pulp mills. Simply put, BC Hydro chose to use a combination of conditions which created the worst possible opportunity for Celgar to realize the benefit of its investment in self-generation, and did not use that combination of conditions for either Tembec or Howe Sound.

182. Using the 2007 and earlier pulp mill data that were available to it when establishing Celgar's GBL in 2008, BC Hydro applied to Celgar the highest possible GBL. In other words, once it settled on applying a fixed GBL for Celgar, as it had in its other EPAs, BC Hydro made a series of decisions in computing that GBL, and all of them were adverse to Celgar. Moreover, none of these decisions is compelled by the principles the BCUC articulated in Order G-38-01, or the intent underlying that order.

183. Returning to the sixth question I set out to analyze -- what was the extent of the Province's or BC Hydro's discretion, and did it exercise that discretion less favourably for Celgar than for others -- the answer is plain. BC Hydro exercised nearly unfettered discretion in establishing GBLs for Celgar, Tembec, and Howe Sound, and it exercised that discretion less favourably for Celgar than for the others. Nothing in Order G-38-01 or any BC Hydro written policies or procedures would have prevented BC Hydro from utilizing a << [REDACTED] >> baseline period for Celgar, as it did for << [REDACTED] >>. Nothing would have prohibited BC Hydro from using an earlier baseline period, such as 2001 (the time of Order G-38-01), or 2004 to 2006 (prior to Celgar's Blue Goose investments), as it did for << [REDACTED] >>. Nothing would have prohibited BC Hydro from utilizing Celgar's net generation applied to load rather than its total load as the basis for its GBL, as it did for << [REDACTED] >>. Each decision adverse to Celgar is a decision BC Hydro made in the exercise of its discretion, and each was unfavourable to Celgar. I conclude that BC Hydro treated Celgar less favourably than Tembec and Howe Sound, that such less favourable treatment was not compelled by or even consistent with any written rule or policy in effect, including BCUC Order G-38-01, but rather the less favourable treatment resulted from discretionary decisions BC Hydro made.

184. Indeed, BC Hydro's discretionary choices would suggest that it in fact applied to Celgar the net-of-load standard defined by the BCUC in Order G-48-09, issued in response to BC Hydro's request to amend the 1993 PPA. BC Hydro's overall methodology was not consistent with the intent or purpose of the historical usage standard adopted by the BCUC in Order G-38-01. Among other inconsistencies, the GBL did not permit Celgar even to maintain the level of access to utility embedded cost power on which it had relied in the baseline year of 2007 (because the GBL was set at Celgar's load and not the level of self-generation used to

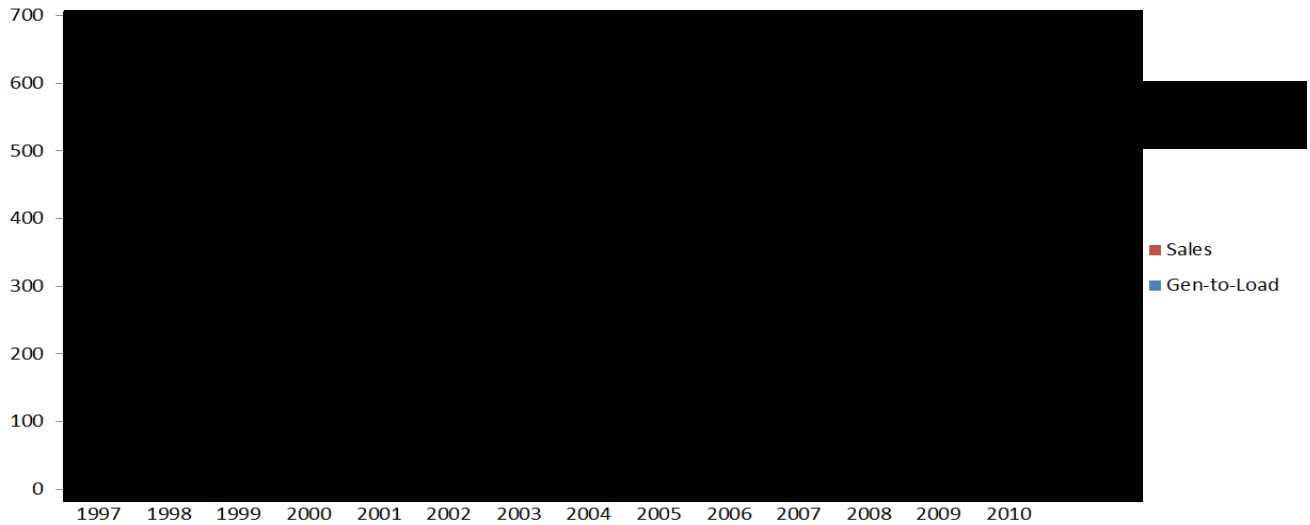
supply that load), and it did not treat Celgar's post-Order G-38-01 investments in improving generation as new or incremental generation that could be sold to market, as Order G-38-01 expressly contemplates.

185. From a procedural and practical standpoint, moreover, it is difficult to conceive that BC Hydro *could* have computed a GBL for Celgar using anything other than the net-of-load standard defined by the BCUC in Order G-48-09. With that proceeding ongoing, BC Hydro would have undercut its position before the BCUC if it had agreed to a less than load GBL for Celgar, as Celgar would have pointed that out to the BCUC. Correspondingly, if BC Hydro had adopted a below-load GBL for Celgar, and then prevailed before the BCUC in the proceedings the resulted in Order G-48-09, it would not have been able to implement such GBL. BC Hydro had little choice but to apply a net-of-load GBL to Celgar, which is exactly what it did. And even to the extent it had left itself a choice, BC Hydro chose the outcome most unfavourable for Celgar.

186. BC Hydro's inconsistencies and unfavourable discretionary decisions become apparent when the treatment BC Hydro afforded to Celgar is compared to the treatment it afforded to Tembec and Howe Sound.

187. Going back to the Howe Sound Consent Agreement of 2001, BC Hydro provided Howe Sound with a GBL of << [REDACTED] >>, which was far less than any single year's electricity generation in the previous four years as shown in the << [REDACTED] >>

HSPP's Generation History (GW.h)



188. Furthermore, << [REDACTED]

[REDACTED]

[REDACTED] >>, and was effectively lower by the accumulated amount of electricity below << [REDACTED]

[REDACTED] >> that was actually generated by Howe Sound. In other words, whenever Howe

Sound was generating less than << [REDACTED] >>, its GBL was being reduced by the amount of

the shortfall. In comparison, BC Hydro provided no consideration to analogous situations when

Celgar was generating less than its pulp mill load or equivalent hourly GBL and was required to

purchase electricity to service its pulp mill load. BC Hydro simply “backfilled” periods of

generation shortfall with periods when electricity generation exceeded the average hourly GBL.

It is apparent that BC Hydro did not use any historical period of one-year or more for

determining Howe Sound’s GBL for the 2001 Consent Agreement, and Howe Sound had no

sales of electricity to consider prior to 2001.

189. Next, << [REDACTED]

[REDACTED] >>, Howe Sound not only retained the <<

[REDACTED] >>, but it gained the ability to apply the generation above the << [REDACTED]

[REDACTED] >>. Significantly, Howe Sound's choice << [REDACTED]
[REDACTED] >> did not create any obligation for it to continue to do so. In comparison, Celgar had no such choice, and was required to fully "backfill" all generation shortfalls below its assigned GBL before it was allowed to sell any energy.

190. Additionally, for the Howe Sound 2010 EPA, BC Hydro considered only the amount of the electricity that Howe Sound generated << [REDACTED] >> and used for serving its load in determining Howe Sound's GBL. BC Hydro did not count the electricity Howe Sound generated << [REDACTED] [REDACTED] >>. In comparison, BC Hydro failed to recognize the electricity purchases made by Celgar to serve its load, and effectively reassigned almost all sales made by Celgar in 2007, when electricity generation exceeded the pulp mill load, to Celgar's GBL. This was the impact of BC Hydro using load rather than generation to load to determine the GBL.⁴⁸

191. Finally, BC Hydro << [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] >> In comparison, for Celgar, BC Hydro chose only a single year period of generation, that also being Celgar's highest level of generation in its history.

192. Turning to Tembec, the 2001 Skookumchuck EPA allowed Tembec to sell the first 10.8 MW it generated in any hour, thus there was no minimum GBL that it was required to

⁴⁸ A pulp mill's load is equal to its electricity generation plus electricity purchases, less electricity sales. Fundamentally, all generated electricity should be able to be used for two purposes, serving load, or sales. Any load not served by self-generation must come from purchases. Thus Load equals Electricity Generation plus Electricity Purchases minus Electricity Sales. Electricity Generation to Load can be computed either as Electricity Generation minus Electricity Sales, or, equally, Load minus Electricity Purchases. In Celgar's case, BC Hydro completely ignored both Celgar's Electricity Sales and its Electricity Purchases in its analysis.

self-supply, nor were there any sales prior to the 2001 Skookumchuck EPA to be applied to the self-generation amount. Interestingly, Tembec's investment in new generation equipment associated with the 2001 Skookumchuck EPA apparently entirely eliminated any requirement for Tembec to apply any previous level of self-generation to its own load prior to being able to purchase electricity from its utility while selling self-generated electricity. Tembec had been generating prior to the EPA, and had been using that generation to meet its own load. The 2001 EPA imposed no obligation on Tembec to continue such historical usage. In comparison, Celgar was required to use not only all its pre-Order G-38-01 generation, but also the incremental generation associated with the Blue Goose investment completed in 2007 (the year just prior to negotiating the 2009 EPA) to self-supply its entire load before being able to sell any self-generated electricity.

193. In the 2009 Skookumchuck EPA, Tembec received a GBL with an average hourly value of 14 MW, or an annual amount of 122.7 GW.h. This was far below both its pulp mill load of approximately 26 MW expressed on an hourly basis (227.8 GW.h on an annual basis), and its annual electricity generation in each of the three years that preceded the 2009 Skookumchuck EPA (2006 to 2008). In other words, although Tembec generated more than enough electricity to self-supply its own load in each of the three years prior to the 2009 Skookumchuck EPA, the GBL it was assigned required it to only supply just over half of its pulp mill load, which in turn allowed Tembec to purchase the remainder of the electricity to supply its pulp mill load from BC Hydro at embedded cost rates. In comparison, BC Hydro selected the first and only year in Celgar's history prior to the Bioenergy Phase 1 call where its total annual electricity generation exceeded its annual plant load to determine Celgar's GBL, and then, on top of that, BC Hydro required Celgar to self-supply its entire plant load prior to being able to sell

any self-generated electricity, not just that part of the plant load that actually was supplied by self-generation in 2007. As shown in the charts above, Celgar needed to purchase 23 GW.h to service its pulp mill load in 2007 because its generation was lower than its load during some periods in the year.

194. Notwithstanding the stark differences described in the preceding paragraphs in the treatment afforded to Celgar as compared to the treatment afforded to both Howe Sound and Tembec with respect to the purchase of electricity from its utility while selling self-generated electricity, the most compelling comparison is that of the Below-Load Access Percentage. Although the process the resulted in Order G-48-09 and the Bioenergy Phase 1 call process overlapped one another, at least in part, the processes were supposedly independent of one another. However, both processes delivered the same result to Celgar, and only to Celgar, amongst its NBSK pulp mill peers in British Columbia: the “net-of-load” standard with respect to sales of self-generated electricity while purchasing electricity from its utility. Both processes resulted in a Below-Load Access Percentage of zero. In comparison, as described earlier, Howe Sound’s Below Load Access Percentage afforded in the Howe Sound 2010 EPA was << [REDACTED] >> percent, and Tembec’s Below Load Access Percentage afforded in the 2009 Skookumchuck EPA was << [REDACTED] >> percent. This comparison with Howe Sound and Tembec demonstrates the incontrovertible discriminatory treatment afforded to Celgar with respect to the use of its self-generated electricity while purchasing electricity from its utility.

F. Summary of Findings and Conclusions

195. I have classified the findings and conclusions of my review and analysis of the treatment of Celgar with respect to its access to embedded cost utility electricity while itself selling self-generated electricity, as compared to the treatment of several comparator pulp mills

into three categories. The first category is the treatment associated with load displacement services, the second category is the regulatory treatment for access to embedded cost utility power while selling self-generated electricity, and the third category is the determination of the GBL. Celgar has received the least favourable treatment in each category when compared to the comparator pulp mills, to point of being arbitrary, discriminatory and unfair.

1. The Province By Regulatory Action and Without Compensation Compelled Celgar to Use its Self-Generation to Self-Supply and Displace its Utility's Obligation to Serve Its Load, Whereas it Paid Other Mills to Provide Such Load Displacement Services

196. The first category of comparison was that of load displacement services. In the three comparator cases, namely Howe Sound, Tembec, and Canfor, each self-generator received some form of compensation from BC Hydro to install and operate electricity generation equipment. Celgar not only did not receive any compensation from BC Hydro or the Province to install its electricity generation equipment, but, as will be discussed more fully in the second category, it has borne the brunt of the most restrictive conditions amongst the comparators regarding the use its self-generation.

197. BC Hydro provided Howe Sound with an interest free loan in 1989 to install two new turbine-generators to meet its own electrical load, << [REDACTED] >> BC Hydro estimated the value of the foregone interest foregone at << [REDACTED] >> Later, Howe Sound would claim it could not operate the generation equipment to supply electricity at a lower cost than BC Hydro's embedded cost, and was allowed to sell << [REDACTED] >> and replace that amount with BC Hydro embedded cost electricity. BC Hydro and its ratepayers thus contributed substantially to the total cost incurred by Howe Sound in installing its electricity generation capacity. BC Hydro and its ratepayers did not contribute at all to the total cost incurred by

Celgar in installing its electricity generation capacity, and BC Hydro did not provide consideration to Celgar in exchange for an agreement to displace load.

198. Canfor entered into a Load Displacement Agreement with BC Hydro in 2004, for its Prince George and Intercontinental NBSK pulp mills. BC Hydro paid Canfor C\$49 million toward a new electricity generation project with an estimated total cost of C\$81.4 million. In exchange, Canfor agreed that, for the 15-year term of the agreement, it would use reasonable efforts to generate an average of at least 390 GW.h annually, and to use 390 GW.h/yr to meet the pulp mill's own load.

199. << [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] >>

200. Celgar has installed all its generation equipment with no assistance from BC Hydro or the Province. When Celgar sought to take its generation to market in 2008, BC Hydro intervened in the process, and consistent with the views advanced by the Province during the process, the BCUC issued a decision that effectively restricted Celgar to use its self-funded generation equipment to fully service its own load before being able to sell any electricity. None of the other comparator self-generators have such a restriction. To reiterate, this taking from Celgar through regulatory action that which BC Hydro paid others to provide constitutes less favourable treatment.

2. The Province Subjected Celgar to a Different Regulatory Standard

201. The second category of comparison is the regulatory treatment for access to embedded cost utility power while selling self-generated electricity. The Province applied a

different regulatory standard to Celgar than it did to all other pulp mills. Celgar, unlike any of the comparators, has been subjected to a “net-of-load” standard that prohibits Celgar from buying any utility embedded cost electricity while it is selling self-generated electricity.

202. This standard has been applied to Celgar by both the BCUC, through Order G-48-09, and by BC Hydro, through the GBL-related provisions of Celgar’s 2009 EPA. This unfair and discriminatory treatment is especially egregious in the presence of a far more lenient historical usage standard being applied to the comparators both before and after Celgar’s treatment.

203. By applying different regulatory standards, the BCUC authorized different outcomes. Under just the most recent EPAs, Celgar’s Below Load Access Percentage is zero percent, whereas Howe Sound’s is << [REDACTED] >> percent, and Tembec’s is << [REDACTED] >> percent, considering the special seasonal shaping afforded to Tembec, and << [REDACTED] >> percent absent such impact. Tembec’s Below Load Access Percentage under its 1997 EPA was << [REDACTED] >> percent.

204. Perhaps more accurately, Tembec’s higher access percentage results not so much from the application of a different regulatory standard, but rather from the abandonment of *any* regulatory standard.

205. Tembec’s 2009 EPA GBL is inconsistent with Order G-38-01’s historical usage standard, because it allows Tembec increased access to embedded cost utility electricity to enable increased arbitrage and sales to market of Tembec’s self-generated electricity. Order G-38-01 ostensibly prohibited this outcome.

3. The Province Provided Celgar Less Favorable Access to Embedded Cost Utility Power While Selling Power Than Other Pulp Mills

206. Perhaps the most apparent demonstration of less favourable, arbitrary, and just plain unfair treatment is found in the third category of comparison, that being BC Hydro's determination of the GBL.

207. BC Hydro determined GBLs for Celgar, Tembec, and Howe Sound without any written laws, regulations, policies, procedures, or guidelines. Accordingly, its choice of baseline periods, duration, and computation methodologies all were discretionary. None was required by any written document.

208. In the exercise of its discretion, BC Hydro assigned to Celgar the highest possible GBL. Once it determined to apply a static GBL, BC Hydro's every choice was adverse to Celgar, including decisions:

- To use a one-year baseline period,
- To use 2007 as the baseline year,
- To measure load, rather than generation applied to load, and,
- To count in Celgar's GBL the incremental generation output resulting from Celgar's Blue Goose Project investments made in 2005 and 2006.

209. Each of these decisions is consistent with the application of a net-of-load access standard for Celgar. None is consistent with treatment BC Hydro afforded its own self-generators, applying the historical usage access standard.

210. The BC Hydro and/or the BCUC treated Howe Sound and Tembec more favorably in each of the following respects:

- The BCUC in Order G-38-01 afforded Howe Sound access to embedded cost utility electricity to facilitate new arbitrage, as Howe Sound had not previously sold any self-generated electricity. Howe Sound was

afforded such access, << [REDACTED]

>> Celgar never committed to use its self-generated electricity to meet its own load; nevertheless, BC Hydro and the BCUC did not permit Celgar to access embedded cost utility power at all while selling electricity.

- Following Order G-38-01, BC Hydro established a GBL for Howe Sound of << [REDACTED] >> MW, based upon an unknown baseline period but which is unrelated to its actual generation used to meet load in any annual or multi-year period. It appears instead that BC Hydro based the GBL on Howe Sound's generation at some undisclosed point in time, but it is unclear whether or how the historical usage standard was applied.
- BC Hydro used a one-year, calendar year, baseline period in determining Celgar's GBL. It did << [REDACTED] >>
- After stepped rates were introduced, BC Hydro also permitted << [REDACTED] >> BC Hydro and the Province have not afforded Celgar the same flexibility. Instead, Celgar has been required under Order G-48-09 and its 2009 EPA always to meet its own load before it can sell any self-generated electricity.
- Although Celgar's EPA was negotiated in 2008, and Tembec's in 2009, BC Hydro utilized a calendar year 2007 baseline period for Celgar, whereas it used an earlier, << [REDACTED] >> For Howe Sound, << [REDACTED] >> For Celgar, BC Hydro captured only its highest ever generation and load years to date. For Howe Sound, << [REDACTED] >>
- Within those divergent baseline periods, BC Hydro measured Celgar's pulp mill load, rather than the amount of self-generation Celgar had used to serve load, which was less. For Tembec, BC Hydro purported to measure << [REDACTED] >>

- BC Hydro used actual generation and/or load levels in computing its GBL for Celgar. BC Hydro did not base its GBL for Tembec << [REDACTED] >>
>>
- BC Hydro determined Celgar's seasonal GBL by converting its annual GBL (*i.e.*, its 2007 load) to an average daily amount, and then multiplying that daily average by the number of days in each season. The seasonal shaping << [REDACTED] >>
>>
- Celgar's Below-Load Access Percentage of zero percent reflects the worst available GBL determination, that being effectively "net-of-load". In contrast, Howe Sound's current Below Load Access Percentage in the Howe Sound 2010 EPA is << [REDACTED] >> percent, and Tembec's Below Load Access Percentage in the 2009 Skookumchuck EPA is << [REDACTED] >> percent, with peculiarities in the EPA increasing the economic equivalent to << [REDACTED] >> percent. The 2001 Skookumchuck EPA provided Tembec with a Below Load Access Percentage of << [REDACTED] >> percent.
- BC Hydro permitted Howe Sound to capture the full benefit of its investments in self-generation made following Order G-38-01. It did so by affording Howe Sound access to embedded cost utility electricity to arbitrage the new or incremental generation capacity it added in 2010. BC Hydro and the BCUC refused to allow Celgar to capture the full benefit of all its post-Order G-38-01 investments in increasing generation output, treating in particular the benefits of its 2005-07 Project Blue Goose investments as belonging in part to BC Hydro and FortisBC ratepayers.

211. BC Hydro appears to have ignored an abundant list of factors in the determination of Celgar's GBL that it considered for the comparators, any of which would have provided a more favourable GBL determination for Celgar than the one it received.

212. The list of the factors that BC Hydro apparently provided no weight to in determining Celgar's GBL include the following: 1) Celgar's Blue Goose Project which increased pulp mill load and also added incremental electricity generation potentially in excess of the load increase, 2) 2007 was the peak in the economic cycle which contributed to increased

levels of pulp mill load in that year compared to previous years, 3) 2007 was the first year in which total electricity generation exceeded total pulp mill load; in each prior year, total pulp mill load was greater than total electricity self-generation, 4) Celgar purchased utility embedded cost electricity in 2007 to supply its pulp mill load because the self-generation was occasionally less than the total load, 5) only a portion of 2007 electricity self-generation was used to supply 2007 pulp mill load as there were some market sales when self-generation was occasionally greater than the total load, and 6) the 2005 to 2007 three year average total pulp mill load exceeded the three year average electricity self-generation.

213. The discussion in Order G-38-01 lacked any prescriptive methodology, and BC Hydro had unfettered discretion to apply its unwritten GBL determination methodology in any way it chose.

214. The consideration of any of the listed factors would have provided Celgar with a more favourable GBL. In fact, when the 2012 GBL Guidelines were finally submitted by BC Hydro, it was apparent that all of the listed factors were indeed appropriate factors to consider in determining a GBL. BC Hydro simply chose not to consider any of these factors in determining Celgar's GBL.

215. In my professional opinion, if Celgar had been assigned a GBL consistent with the best treatment BC Hydro has afforded to any other NBSK pulp mill, its GBL should have been zero, in line with BC Hydro's treatment of Tembec in the 2001 Skookumchuck EPA. That agreement had no GBL, and allowed Tembec to sell its first 10.8 MW of electricity produced by its generators without any obligation to self-supply. If Celgar had been assigned a GBL consistent with the best treatment BC Hydro currently affords another NBSK pulp mill, then Celgar would have a GBL of << [REDACTED] >> per year, which would provide Celgar access to

below-load embedded cost utility electricity equivalent to Howe Sound's Below-Load Access percentage of << [REDACTED] >> (I note however, that even this reduced GBL would not account for the difference in treatment resulting from BC Hydro's interest-free financing of Howe Sound's generation equipment and installation.)

216. Finally, in my opinion, if Celgar had been assigned an historical usage-based GBL, based upon a fair and reasonable application of the principles in BCUC Order G-38-01, and the BCUC's intent to preserve the *status quo*, then Celgar's GBL should be << [REDACTED] >> equal to the level of self-generated electricity Celgar actually applied to meet its load in 2001, the year in which the BCUC issued Order G-38-01.

VI. Technical Issues

217. I also was asked by Mercer's counsel to provide advice and explanations regarding various technical issues they desired to address in their Memorial. I provided the information that follows, which is referenced in the Memorial.

218. The Celgar Mill is interconnected with the FortisBC electric system through high voltage transmission at an electric substation located adjacent to its plant. Celgar owns the substation, and FortisBC owns the transmission lines. Celgar receives electricity from FortisBC at this point of interconnection, and transmits electricity it sells over the same lines and at the same point of interconnection. The Celgar pulp mill is not directly interconnected with the BC Hydro electric system.

219. The Celgar pulp mill has electricity meters on both of its turbine generators as well as at its point of interconnection with FortisBC. It thus maintains data both on the amount of electricity it generates, as well as the net electricity flows into or out of the pulp mill.

220. Celgar, and other pulp mills, generally fall within a class of large industrial customers known as Transmission Service Rate (“TSR”) customers because they draw electricity from their local utilities at transmission-level voltage -- *i.e.*, over transmission lines at voltages of 60,000 volts or higher. BC Hydro generally provides electricity to its NBSK pulp mill and other TSR customers under Rate Schedules 1823, 1825, and/or 1880 (“RS1823”, “RS1825”, and “RS1880”, respectively) (and their predecessors). Rate Schedule 1823 provides for “firm” service. Firm service means BC Hydro guarantees that the energy always will be available (except in the case of system failures), and BC Hydro prices this firm service at a rate that does not vary by time of use. Pulp mills in the BC Hydro service area purchase energy under RS1823 to meet their normal operating needs not served by their own self-generation.

221. Firm service can be thought of as encompassing a capacity component and an energy component. The utility must ensure that it has the resources available to meet the customer’s highest or “peak” energy demand, which is the capacity component. The energy component is the actual flow of electricity, which will fluctuate with the customer’s demand.

222. Its current energy charge for new customers is 3.724 cents per kW.h for all kW.h per Billing Period. Pre-existing RS1823 customers currently are subject to a “stepped rate” tariff for energy, whereby 90 percent of historical purchase amounts are billed at 3.32 cents per kW.h and the remaining 10 percent at 7.36 cents per kW.h. A Billing Period typically is a month.

223. The blended rate for both the demand and energy charges in 1995 (under Rate Schedule 1821, which was the predecessor to RS1823) was C\$0.0320 per kW.h, comprised of a demand charge C\$4.411 per kVA and an energy charge of C\$0.02599 per kW.h.

224. NBSK pulp mills also can obtain backup electricity service from BC Hydro under RS1880, which provides for transmission-level service for standby and maintenance service. This is “non-firm” service, which BC Hydro provides only to the extent it has energy and capacity to do so, but there is no demand charge associated with RS1880 usage. Standby service enables a pulp mill that uses its generation to meet its own load in whole or in part to obtain replacement electricity, for example, during generator outages in which it is not operating one or more generators but still is consuming electricity it normally would self-generate and use internally.

225. FortisBC does not have any approved rate schedule in effect for backup service, such as BC Hydro provides under RS1880, but it does for time-of-use service, namely RS33. Under RS33, FortisBC had provided time-of-use rates to Celgar and others, until the BCUC ruled that Celgar was ineligible to take service under RS33 in Order G-156-10 (October 19, 2010).

226. A kVA refers to one kilovolt-ampere, and it is a measure of capacity rather than energy. It refers to the rate at which the customer is taking power rather than the amount of power it is taking. The relationship between capacity and energy depends on the power factor. The power factor of an AC electrical power system is defined as the ratio of the real power flowing to the load, to the apparent power in the circuit. For simple electric devices like an incandescent light bulb, the power factor is close to 1. At a power factor of 1, watts = volts x amperes. However, certain electric devices including induction motors have low power factors because they require an out of phase current component. In such cases, the “apparent power” (volts x amperes) yields a greater number than the real power (watts) that is actually used to perform work. In an electric power system, a load with a low power factor draws more current

than a load with a high power factor for the same amount of useful power transferred. The higher currents increase the energy lost in the distribution system, and require larger wires and other equipment. Because of the costs of larger equipment and energy losses, electric utilities will usually charge a higher cost to industrial or commercial customers where there is a low power factor.

227. Pulp mills have a high energy-intensity because they tend to operate year-round, 24-hours per day. In light of a pulp mill's continuous electricity usage, the energy component of the billing under BC Hydro's Rate Schedule 1823 would normally be much more significant than the demand charge. Typically, the billing ratio for an NBSK pulp mill would be roughly 80-90 percent for the energy charge and 10-20 percent for the demand charge. In light of the predominant importance of the energy rate to pulp mills, FortisBC's TSR rates are considered to be significantly higher for pulp mills than BC Hydro's TSR rates.

228. The overwhelming majority of BC Hydro's electricity is obtained from its own hydroelectric generating stations. Water flows used to power these stations vary from year-to-year based on precipitation (there are "high water" years and "low water" years), and they can vary based on the time of year. Flows normally would be lowest during the winter months when snow accumulates, and highest in the spring when the snow is melting. However, BC Hydro has several large reservoirs in which it can capture water and modulate water flows.

229. A gigajoule ("GJ") is equal to one billion (10^9) joules. A joule is a unit of energy, work, and heat. It is the amount of work required to produce one watt of power for one second. A barrel of oil contains about six gigajoules of potential energy.

230. Pulp mills generally have fairly level production levels, with some modest seasonal variability. All other things being equal, generation would be expected to drop slightly

in the winter months as more steam is needed to meet the thermal needs of the pulp operations; correspondingly, pulp mills tend to use more electricity in the winter months due to increased lighting and heating needs.

231. To sell electricity at the wholesale level, a power producer needs access to the transmission grid, and then it must pay for transmission service as well as what the industry refers to as “line loss.” Due to the resistance of the transmission lines, there is power loss as electricity moves from one point to another. The greater the distance, the greater the line loss. If a contractual sale involves transmission over a distance that will entail a 10 percent line loss, for example, then the supplier must actually generate 110 percent of the contractual amount in order to deliver that amount, in addition to paying for transmission service which also increases in cost with distance. There is thus a strong incentive to sell electricity locally when possible.

232. Until around 2000, as a result of the absence of a market for independently-produced energy, and the low prices for purchased electricity, there was little incentive for BC NBSK pulp mills to invest in significant self-generation capacity, and poor prospects for an acceptable return on investment.

233. The California energy crisis helped to create an attractive market for self-generated electricity produced in BC that had not existed previously, with prices much, much higher than the avoided costs of utility-supplied embedded cost electricity.

234. The benchmark electricity export price for the BC market is the Mid-Columbia hub (“Mid-C”). A hub is a notional trading location -- a defined location at which electricity can be purchased or delivered. Mid-C refers to the area near the middle of the Columbia River, and in the middle of Washington State, in which there are located multiple hydroelectric generating stations, electrical substations, a high capacity 100-mile network of high voltage transmission

lines and interconnections, and substantial electric load. This cluster provides a robust and liquid market hub for electricity purchases and sales.

235. Mid-C prices are reported in authoritative energy market publications such as Platts and in the Wall Street Journal. There are a variety of “products” for which prices are reported, including firm and non-firm transactions, spot transactions, and short- and long-term contract prices. However, the spot market is the most robust and most frequently referenced and the Mid-C spot price index is an average price for daily transactions.

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In Castlegar, British Columbia, on the 27th day of March, 2014.

Elroy Switlishoff