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BEFORE THE ADDITIONAL FACILITY OF THE

INTERNATIONAL CENTRE FOR SETTLEMENT OF INVESTMENT DISPUTES

ICSID CASE NO. ABR (AF)/12/3

MERCER INTERNATIONAL, INC.,

CLAIMANT

v.

GOVERNMENT OF CANADA,

RESPONDENT

EXPERT REPORT OF
BRENT C. KACZMAREK, CFA

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I. Scope of Work and Qualifications

1. Navigant Consulting, Inc. has been asked by Arnold & Porter, LLP ("Counsel") to prepare this expert report in connection with the arbitration proceedings commenced by Mercer International, Inc., ("Mercer" or "Claimant") against the Government of Canada ("Canada" or "Respondent") pursuant to Chapter 11 of the North American Free Trade Agreement ("NAFTA"). Mercer's subject investment is its wholly-owned Canadian subsidiary, Zellstoff Celgar Ltd. and its interest in a Canadian limited partnership, Zellstoff Celgar Limited Partnership (collectively, "Celgar"). The limited partnership's general partner is Zellstoff Celgar Limited, which owns 0.1 percent of the partnership units, and its limited partner is Mercer, owning 99.9 percent of the partnership units.[1]

2. Celgar operates and owns the assets of the Celgar Mill, a northern bleached softwood kraft ("NBSK") pulp mill in Castlegar, British Columbia with a capacity of 520,000 air-dried metric tons ("AD MT") per year.[2] The Celgar Mill has the ability to self-generate "green energy" through its biomass-based cogeneration facility with nameplate generating capacity of 100 megawatts ("MW").[3] The Celgar Mill's generation capacity exceeds the mill's own electricity demand (its "load"). Since 2010, the Celgar Mill has been permitted to sell its self-generated electricity that is in excess of its load at "green energy rates," which historically have been higher than the spot price of conventionally generated electricity in British Columbia. Celgar also has sought to sell its below-load electricity, but has been prevented from doing so by acts of the BC Hydro and Power Authority ("BC Hydro"), a Crown corporation owned and controlled by the Province, and the British Columbia Utilities Commission ("BCUC"), the Province's public utility regulatory agency.

3. To facilitate the sale of all its biomass fueled green energy, in August 2008, Celgar signed a power supply agreement with its electric utility, FortisBC Inc. ("FortisBC"), under which Celgar would have been able to purchase embedded cost utility power to meet its entire load (the "FortisBC PSA").[4] In January 2009, Celgar secured an electricity purchase agreement with BC

[1] Zellstoff Celgar LP, 2013 Audited Financial Statements, p. 5 **(NAV-61)**
[2] Mercer 2013 10-K, p.5 **(NAV-01).**
[3] Although the Celgar Mill has 100 MW of nameplate generating capacity, it currently does not utilize its full generating capacity.
[4] Power Supply Agreement Between Zellstoff Celgar Limited Partnership and FortisBC Inc., 21 August 2008 ("FortisBC PSA") **(NAV-69)**

Hydro for the sale of a portion of its biomass-fueled green energy (the "BC Hydro EPA") – that portion being amounts in excess of its 2007 load.[5]

4. Through these arbitration proceedings, Mercer claims that Canada, through the Government of the Province of British Columbia ("British Columbia", "BC", or the "Province") and BC Hydro have acted in a discriminatory manner with regard to Celgar's ability to purchase electricity from its utility, FortisBC, at embedded cost rates. Mercer claims that the BCUC and BC Hydro have implemented a number of discriminatory measures against the Celgar Mill (the "Measures").

5. First, Mercer claims these Measures have frustrated the FortisBC PSA and have precluded Celgar from purchasing any electricity from FortisBC at traditional embedded cost rates while Celgar is selling self-generated electricity. Prior to 6 May 2009, there had been no restrictions on FortisBC's ability to supply power at embedded cost rates to self-generators in its service territory, including Celgar. On 6 May 2009, BCUC Order G-48-09 applied a "net of load" standard to Celgar and other self-generating customers of FortisBC that prevented Celgar from purchasing embedded cost utility power while it is selling self-generated power at higher prices. By restricting Celgar's access to embedded cost power to meet its mill load, the Measures have limited the volume of biomass-fueled green energy that Celgar can sell at higher prices. Under Order G-48-09, Celgar as a practical matter can sell only that portion of its self-generated electricity that is in excess of its own load, compelling Celgar first to use its self-generated electricity to meet its own load.

6. Second, BC Hydro and the Province (through the BCUC's approval of the BC Hydro EPA on 31 July 2009) also imposed a "net of load" standard on Celgar through the BC Hydro EPA. Through the BC Hydro EPA's "exclusivity" and generator baseline ("GBL") provisions, Celgar is restricted from selling any self-generated electricity below its GBL of 349 GWh per year. We understand that this GBL was set at the level of Celgar's 2007 load. We further understand that the BC Hydro EPA prevents Celgar from selling its below-load energy (i.e., self-generated electricity under the GBL) not only to BC Hydro but also to any third party.

7. Mercer claims that competing pulp mills have entered into arrangements with BC Hydro, including some approved by the BCUC, that allow those mills greater access to embedded cost

[5] BC Hydro and Zellstoff Celgar Limited Partnership, Electricity Purchase Agreement, Bioenergy Call for Power Phase I, 27 January 2009 ("BC Hydro EPA") **(NAV-71)**.

utility power while they are selling self-generated power at higher prices. As a result, Mercer claims competing pulp mills have the ability to divert self-generated electricity from servicing load requirements and can sell this self-generated electricity to BC Hydro (or others) at higher biomass-based green energy prices.

8. We further understand that there are parallel regulatory proceedings ongoing before the BCUC regarding the Measures. We were informed that in December 2012, BCUC Order G-202-12 theoretically would allow Celgar to purchase all of its electricity needs from FortisBC. However, this ruling requires FortisBC to procure incremental energy to supply Celgar (the "matching mechanism"), and the BCUC has not yet approved a rate for FortisBC to provide service under this matching mechanism. FortisBC has proposed a rate that would not provide Celgar with energy at traditional embedded cost rates of the sort BC Hydro provides to its self-generating pulp mills. Instead, FortisBC proposes to charge Celgar for the full incremental cost of all power it must purchase at market rates under the matching mechanism. Thus, Celgar still has no access to embedded cost utility power to meet its load while it is selling electricity as the Province makes available to all other pulp mills through BC Hydro. Celgar remains unable to sell any power below its 2007 load of 349 GWh per year, and thus has been denied the premium price at which Celgar and other pulp mills in the Province have sold biomass-based green energy.

9. We are informed by Counsel that Order G-48-09 is expected to remain in place indefinitely. Accordingly, Counsel has asked us to determine the diminution in value of Claimant's investment in Celgar as a result of the Measures.

10. Nothing in our conclusions or opinions stated herein is intended to address legal arguments formed by the parties in either this proceeding or in the regulatory proceedings before the BCUC. Accordingly, this report does not contain any opinions on matters of law that would require legal expertise.

11. We understand that there may be further document disclosures as part of this arbitration proceeding and that additional document disclosures and filings may be made in conjunction with ongoing BCUC regulatory proceedings. Therefore, we may revise or update our analyses based on new documents produced or new regulatory proceedings with the BCUC.

12. I, Brent C. Kaczmarek, am a Managing Director in the Washington, DC office of Navigant Consulting, Inc. I lead Navigant's International Arbitration practice and have served (or am

serving) as a financial, valuation, and damages expert in over 90 international arbitrations including more than 80 investor-state arbitrations. I have been appointed as an expert in investor-state arbitrations by both investors and states in a balanced proportion. I led a team of professionals at Navigant in preparing this report and I take responsibility for its contents. The team of professionals that assisted me includes Certified Public Accountants and persons with Masters of Business Administration degrees. All of our work performed in accordance with this assignment was done under my direction and supervision.

13. I hold the designation of Chartered Financial Analyst, a globally recognized designation held by professionals demonstrating competence in the valuation of investments and the investment decision-making process. I received this designation in 1998 from the Association for Investment Management and Research (now CFA Institute), the governing body of charter-holders. There are charter-holders and charter-holder candidates residing in more than 160 countries worldwide. My curriculum vitae is provided as Appendix 1 to this report.

14. The list of documents that we relied upon in preparing this report is provided as Appendix 2. If additional documents or facts come to our attention which might have a bearing on the quantum of any claim, we reserve the right to modify our independent calculations.

II. Executive Summary

15. Mercer completed its acquisition of the Celgar Mill in February 2005 for approximately US$ 210 million. Since then it has invested over C$ 100 million to modernize and improve the mill, including C$ 64.9 million in its Green Energy Project, with assistance from the Canadian federal government under a generally available pulp mill assistance program.

16. The Celgar Mill utilizes the kraft process to produce pulp. The modernized Celgar Mill produces exclusively NBSK pulp and principally markets its products to Asia and North America. As a consequence of its investments, the Celgar Mill now owns 100 MW of electricity generation capacity which is primarily fueled by black liquor as well as hog fuel, both byproducts of the NBSK production process.

17. A unique aspect of the kraft process is the recycling of the black liquor created during the pulp production process. Black liquor contains both chemicals used in the kraft process and wood chip residues (lignin) that retain a high energy content which can be used as a biofuel to produce energy in the form of both heat and electricity. Using a recovery boiler to burn the black liquor, the mill can recover the kraft chemicals for recycling back into the kraft process

and also generate steam that meets the pulp mill's thermal needs and runs a turbine to produce electricity. The electricity generated through this process is considered to be renewable and "green" as it originates from forest biomass. The black liquor burned for electricity production in the recovery boiler of the green energy system, as well as hog fuel burned in the power boiler, entail no incremental operating costs for pulp mills as these are by-products of the mill's pulp production.[6]

18. In 2007, the Province issued a new clean energy plan that, *inter alia*, set out to increase the Province's reliance on bioenergy and other sources of renewable energy. Accordingly, in February 2008, BC Hydro sought to utilize the forest product industry's biomass and residuals (such as sawmill residues, logging debris, etc.) for power production through its *Bioenergy Call for Power Phase I*. As a result of the Province's and other BC Hydro green power initiatives, by 2012, 98 percent of BC Hydro's production was from clean or renewable sources, including both its hydroelectric power plants and its green energy purchases.

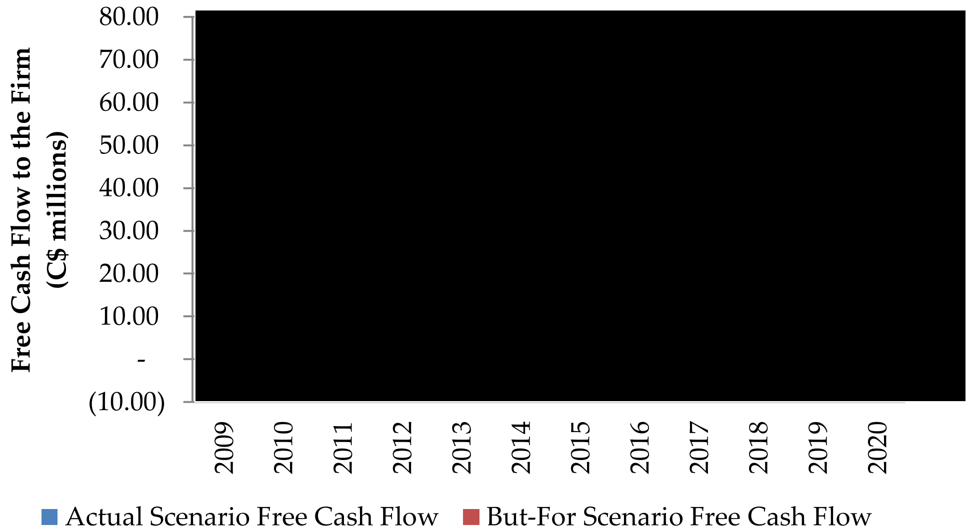
19. The Measures complained of in this matter commenced on 6 May 2009 with BCUC Order G-48-09 that precluded Celgar from accessing embedded cost power to supply the Celgar Mill's load. In turn, the Measures have precluded Celgar from selling its self-generated power at the higher-priced green energy rates paid by BC Hydro and others leading to lost cash flows for Celgar. Therefore, the Measures have, and will continue to, leave Celgar more susceptible to decreases in the commodity price of kraft pulp. But-for the Measures, Celgar would have (1) received higher cash flows from 6 May 2009 until today, and (2) would have been more valuable today than it actually is today.

20. To calculate the lost historical cash flows and the diminution in the value of Claimant's investments in the Celgar Mill caused by the Measures, we constructed two separate scenarios of financial performance of the Celgar Mill: 1) a scenario but-for the Measures (the "But-For Scenario") and 2) an actual scenario including the impact of the Measures (the "Actual Scenario"). Each scenario contains two discrete projection periods: (1) the Celgar Mill's historical operations from 6 May 2009 to 31 December 2013 ("historical period") and (2) its projected operations during the remainder of the BC Hydro EPA from 1 January 2014 to 31 December 2020 ("future period") as well as a terminal value representing Celgar's continuing

[6] The Celgar Mill may also purchase small amounts of hog fuel from third parties.

operations after 2020. Figure 1 below demonstrates that the two scenarios are largely the same with the exception of the revenues from electricity sales.

Figure 1 – Comparison of But-For and Actual Scenario Free Cash Flows (Assuming a Below Load Access Percentage of 100 Percent)



21. In constructing our But-For Scenario, Counsel asked us to evaluate different GBLs based on Celgar's assumed "Below Load Access Percentage" (i.e., the percentage of Celgar's load that can be supplied by embedded cost utility power while Celgar is selling electricity). Specifically, we were asked to assume the following potential scenarios in Table 1 below.

Table 1 – But-For Scenario Below Load Access Percentages

Below Load Access Percentage	GBL (GWh/year)	Scenario
100.0%	0.0	As contemplated in the FortisBC PSA
[redacted]		
46.7%	186.1	Celgar's 2001 self-generation consumption
[redacted]		
42.7%	200.0	Celgar's 2002 access to embedded cost power
22.3%	271.0	Celgar's 2005/2006 self-generation consumption

22. Utilizing these scenarios, we calculated that Celgar's total historical lost cash flows as a result of the Measures were C$ 17 million to C$ 79 million and its diminution in value was C$ 44 million to C$ 153 million as of 31 December 2013. As Table 2 below shows, as a result of the Measures, Celgar's damages are between C$ 61 million and C$ 232 million.

Table 2 – Total Lost Profits and Diminution in Value of Celgar as a Result of the Measures (C$ millions)

Below Load Access Percentage	Generator Baseline (GWh)	But-For Scenario FCFF	Actual Scenario FCFF	Historical Lost Cash Flow	But-For Scenario FMV	Actual Scenario FMV	Diminution in Value	Total Damages
[A}	[B]=349* (1-A)	[C]	[D]	[E] = C-D	[F]	[G]	[H] = F-G	[I]=E+H
100.0%	0.0	[redacted]	[redacted]	**79**	[redacted]	[redacted]	**153**	**232**
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
46.7%	186.1	[redacted]	[redacted]	**38**	[redacted]	[redacted]	**80**	**118**
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
42.7%	200.0	[redacted]	[redacted]	**34**	[redacted]	[redacted]	**74**	**109**
22.3%	271.0	[redacted]	[redacted]	**17**	[redacted]	[redacted]	**44**	**61**

23. We apply interest from the respective date of each period's lost cash flows to compensate Claimant for the time value and opportunity cost of money. We believe it would be appropriate for the tribunal to consider two different commercial rates of interest when calculating the interest due to Claimant. We discuss each rate in turn.

24. First, the tribunal could award the yield on Canada's sovereign bonds. Second, the tribunal could award the Canadian Prime Rate of interest plus 2 percent. Table 3 below summarizes the damages from Table 2 above, the interest accrued to 31 December 2013 on the lost cash flows, and the total damages including interest.

Table 3 – Total Damages with Interest (C$ millions)

Below Load Access Percentage	Generator Baseline (GWh)	Historical Lost Cash Flows	Diminution in Value	Damages Before Interest	Pre-Award Interest		Total Damages With Interest	
					20-Year	Prime + 2%	20-Year Bond	Prime + 2%
[A]	[B]=349* (1-A)	[C]	[D]	[E]=C+D	[F]	[G]	[H]=E+F	[I]=E+G
100.0%	0.0	79	153	**232**	6	11	**238**	**243**
[redacted]								
46.7%	186.1	38	80	**118**	3	5	**121**	**123**
[redacted]								
42.7%	200.0	34	74	**109**	3	5	**111**	**114**
22.3%	271.0	17	44	**61**	1	2	**62**	**63**

III. Overview of the Global Pulp Market and the British Columbia Pulp Market

25. In this section, we briefly describe the global pulp market as well as the Canadian and British Columbia markets in order to explain our assessment of the market demand for pulp and pulp products. This discussion also includes an analysis of the global and Canadian paper products industry, the sector which has the largest demand for pulp.

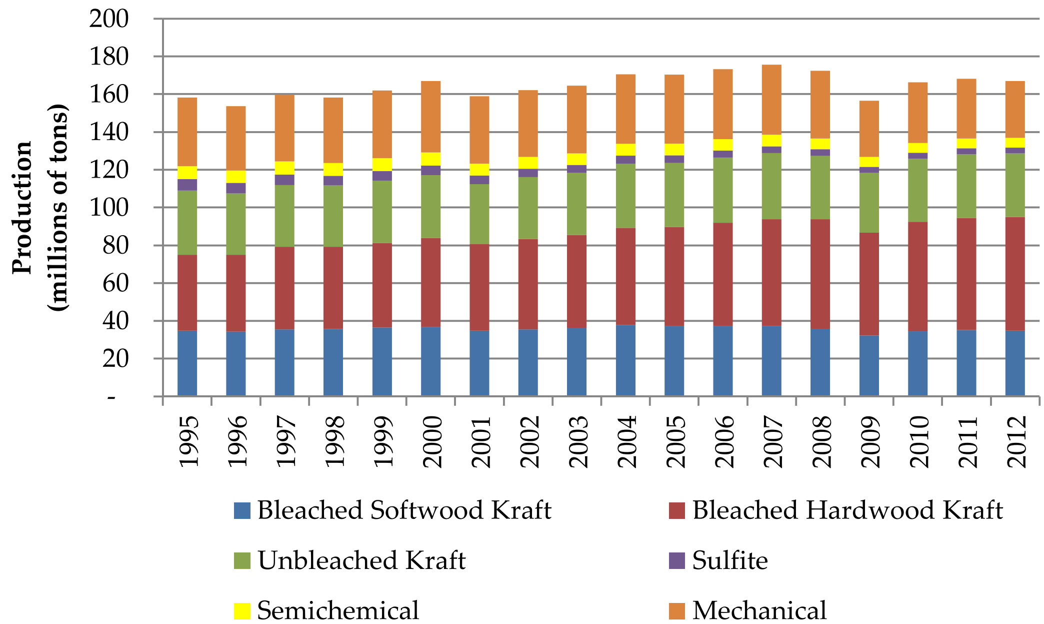
A. The Global Pulp Market

26. Pulp is a fibrous material primarily consisting of cellulose and commonly manufactured from wood – softwoods (conifers) and hardwoods (broad-leaved trees) – but can also be manufactured from plants such as flax and cotton. Pulp is produced by separating the cellulose fibers from the rest of the wood.[7] The cellulose is separated by destroying or softening the lignin that bind the cellulose fibers together.[8] There are two primary methods used to generate pulp: 1) mechanical pulping and 2) chemical pulping. Mechanical pulping uses machinery to separate the cellulose fibers from the lignin which binds them together. Mechanical pulping may also introduce heat, steam, or chemicals to assist in the softening of the lignin to free the cellulose fibers.[9] In contrast, chemical pulping produces pulp by dissolving the lignin that binds the cellulose through a chemical reaction.[10] The Celgar Mill is a chemical pulp mill.

27. Claimant is one of the largest pulp producers in the world. Other large global pulp and paper companies include Stora Enso, Sappi, Oji Paper, Domtar, Canfor Pulp, and Resolute Forest Products.[11] In 2012, the worldwide pulp market produced over 160 million tons of pulp.[12] Figure 2 below shows the global production of various types of pulp.

[7] Catalyst Paper, How We Make Kraft Pulp, September 2012 **(NAV-02).**
[8] Catalyst Paper, How We Make Kraft Pulp, September 2012 **(NAV-02).**
[9] European Paper & Packaging Industries, Types of Pulping Processes **(NAV-03).**
[10] European Paper & Packaging Industries, Types of Pulping Processes **(NAV-03).**
[11] RISI, The PPI Top 100, Most Companies in the Black, 30 August 2011 **(NAV-04).**
[12] RISI, World Pulp Annual Historical Data Excerpt, 2013, p.2 **(NAV-06).**

Figure 2 – Global Pulp Production, 1995-2012[13]



B. The Kraft Process

28. The Celgar Mill utilizes the kraft process to produce pulp. The kraft process is a chemical wood pulping process that involves the extraction of cellulose from wood. The Celgar Mill purchases softwood chips (or pulp logs that can then be chipped in Celgar's facilities on site) as the principal raw material for its operations.[14] The Celgar Mill uses a mix of around 25 percent Douglas Fir, 65 percent Spruce/Pine/Fir and 10 percent Cedar/Hemlock.[15]

29. The kraft process converts the wood chips into pulp through a multistep process. First, raw wood chips are preheated with steam and impregnated with a chemical solution of sodium hydroxide and sodium sulfide called "white liquor."[16] Next, the wood chips are cooked for several hours under pressure in a "digester" until the lignin is degraded.[17] The pulp is then separated from the chemical solution, now called "black liquor" (i.e., the mixture of lignin, spent white liquor, and other chemicals) and is washed and bleached.[18] The pulp is then pressed into

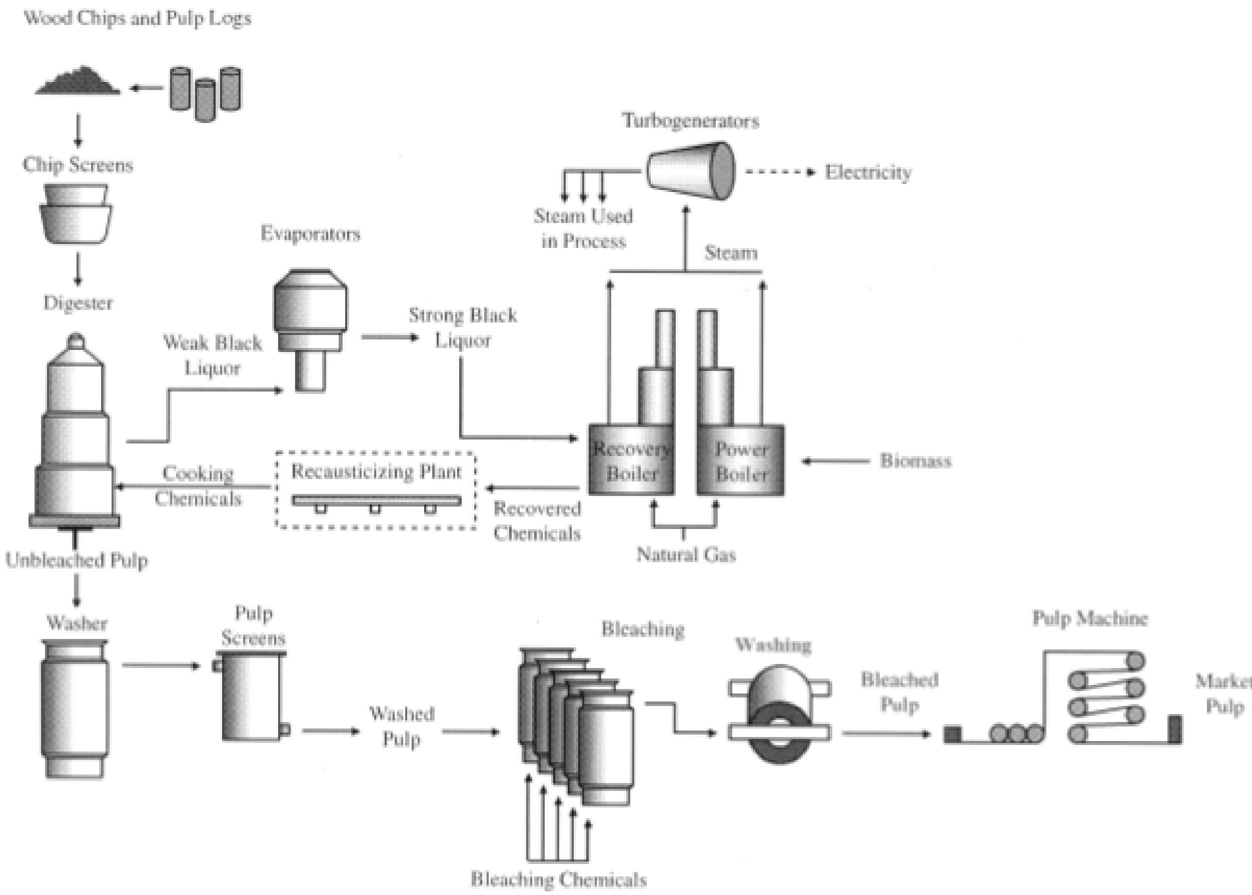
[13] RISI, World Pulp Annual Historical Data Excerpt, 2013, p.2 **(NAV-06).**
[14] Witness Statement of Brian Merwin, ¶ 63
[15] Mercer International Pulp Mills- Operations **(NAV-07).**
[16] EPA Compilation of Air Pollutant Emission Factors, Volume 1 Chapter 10, January 1995 **(NAV-08)**.
[17] Catalyst Paper, How We Make Kraft Pulp, September 2012, p.1 **(NAV-02).**
[18] European Paper & Packaging Industries, Types of Pulping Processes **(NAV-03).**

sheets and air dried and bundled in bales weighing approximately 500 to 600 pounds for shipment to customers.[19]

30. A unique aspect of the kraft process is the recycling of the black liquor. Black liquor retains a high energy content which can be used as a biofuel to produce energy in the form of both heat and electricity.[20] The black liquor is distilled and concentrated, then burned in the recovery boiler.[21] When the black liquor is burned in the recovery boiler, a chemical reaction occurs which allows for the recovery of the kraft chemicals.[22] In plants equipped with a green energy generation system, the steam produced through combustion powers turbines which generate electricity. In Figure 3 below, we illustrate a simplified diagram of the kraft process and the green energy system.

[19] Catalyst Paper, How We Make Kraft Pulp, September 2012 **(NAV-02).** We understand Celgar estimates its bale size for export average 550 pounds and its bale size for domestic shipments to customer average 615 pounds.
[20] EPA Compilation of Air Pollutant Emission Factors, Volume 1 Chapter 10, January 1995, p.1 **(NAV-08)**.
[21] EPA Compilation of Air Pollutant Emission Factors, Volume 1 Chapter 10, January 1995, p.1 **(NAV-08)**.
[22] EPA Compilation of Air Pollutant Emission Factors, Volume 1 Chapter 10, January 1995, p.1 **(NAV-08)**.

Figure 3 – The Kraft Pulp System and Green Energy System[23]



31. The electricity generated through the kraft process is considered to be renewable or "green".[24] Unlike other green and renewable electrical generation (such as hydroelectric or solar generation), the combustion of black liquor generates carbon dioxide emissions.[25] However, these emissions are absorbed by newly planted trees and are negated by sustainable wood harvesting practices.[26] It is important to note that the black liquor burned for electricity production in the recovery boiler of the green energy system, as well as the hog fuel burned in the power boiler, has no incremental operating costs for pulp mills.[27] As a consequence,

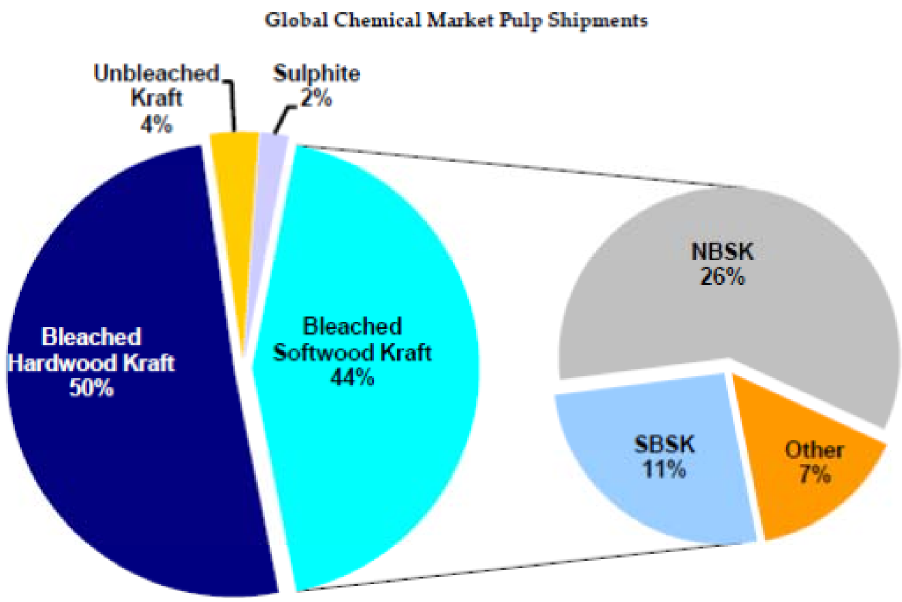
[23] Mercer 2013 10-K, p. 15 **(NAV-01).**
[24] Renewable Energy World, Bioenergy **(NAV-05).**
[25] Renewable Energy World, Bioenergy **(NAV-05).**
[26] Renewable Energy World, Bioenergy **(NAV-05).**
[27] There are incremental capital expenditures costs associated with the installation and maintenance of electricity generating turbines. Further, in certain circumstances small amounts of hog fuel may be purchased from third-parties. For example, in 2009, Celgar Mill made no purchases of hog fuel from third parties. [[[redacted]]] See 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.33 **(NAV-63);** 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.30 **(NAV-64).**

electricity production and pulp production are codependent. When pulp production increases the supply of black liquor increases, which can be burned to generate increased amounts of electricity. In order to increase electricity generation, pulp production must increase.

C. The Global NBSK Pulp Market

32. Softwood kraft pulps constitute 44 percent of the chemical pulp market and can be subdivided into "northern" or "southern" generally corresponding to the hemisphere in which the wood was grown. NBSK is more commonly produced from trees in Canada, Northern Europe, and Russia.[28] The Celgar Mill exclusively produces NBSK pulp.

Figure 4 – Global Chemical Pulp Shipments[29]



33. NBSK is a benchmark pulp and is recognized as a premium product, sought after for its strength. An independent study found that NBSK was stronger than Southern bleached softwood kraft ("SBSK") and that NBSK from British Columbia was the strongest of all the NBSK types.[30] Thus, NBSK from British Columbia typically sells at a premium and realizes the highest price of any paper grade pulp, which has followed the global trend of other industrial commodities over the past decade.[31]

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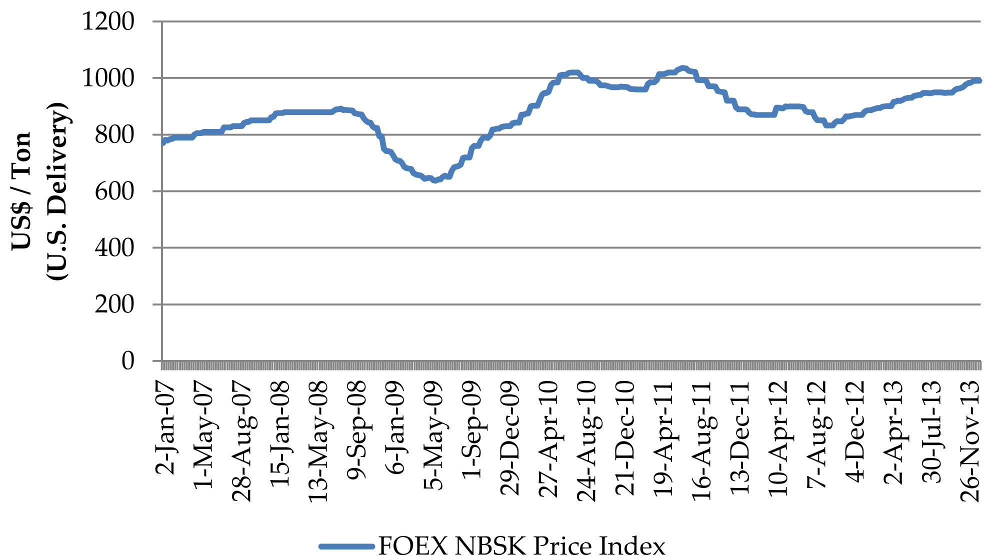
[28] Canfor Pulp Products Annual Information Form, 6 February 2012, p. 7 **(NAV-09).**
[29] Canfor Pulp Products Annual Information Form, 6 February 2012, p. 10 **(NAV-09).**
[30] Canfor Pulp Products Annual Information Form, 6 February 2012, pp. 17 **(NAV-09).**
[31] Canfor Pulp Products Annual Information Form, 6 February 2012, p. 17 **(NAV-09)**.

34. NBSK is a global commodity and NBSK supply is price elastic,[32] with pulp production closely correlated to pulp prices. During the global recession beginning in 2008, the price of pulp declined as demand for pulp and paper products decreased. Consequently, numerous higher-cost mills were forced to close throughout the world.[33] Pulp production capacity increases only began to rebound in 2011 as pulp consumption rebounded.[34] As can be seen in Figure 5 below, pulp list prices rebounded to pre-crisis levels in mid-2010 and have continued to climb through 2013.

Figure 5 – Historical Global NBSK Pulp Prices (FOEXUSNB Index), 2007-2013[35]



D. The Pulp Market in British Columbia

35. Within Canada, British Columbia is the largest exporter of pulp in terms of value.[36] British Columbia has maintained somewhat steady levels of pulp exports from 2001 through 2008, but saw a decrease in 2009 due to the global financial crisis.[37]

36. The Celgar Mill is one of 19 pulp mills in British Columbia that produce a variety of pulps, including mechanical pulp, dissolving pulp, and NBSK pulp.[38] The 19 pulp mills are operated

[32] Hawkins Wright, Market Pulp Outlook, May 2011, p. 8 **(NAV-10)**.
[33] Hawkins Wright, Market Pulp Outlook, May 2011, p. 6 **(NAV-10**.
[34] RISI, World Annual Historical Data Excerpt, 2013 **(NAV-06).**
[35] Bloomberg, FOEXUSNB Index **(NAV-11).**
[36] Midterm Outlook for Canadian Pulp and Paper Sector 2011-2020, p. 17 **(NAV-12).**
[37] Midterm Outlook for Canadian Pulp and Paper Sector 2011-2020, p. 17 **(NAV-12).**
[38] Pulp and Paper Mills, 2009 **(NAV-13).** Note that we have excluded Eurocan's Kitimat pulp mill as it closed in 2010.

by 11 manufacturers and seven of these 19 pulp mills are "integrated" (i.e., co-located) with paper mills that produce paper products.[39]

37. Since 1991, pulp capacity (of all grades) has decreased in British Columbia as mills have shut down operations.[40] These closures were hastened by the global financial crisis, beginning in late 2008. Indeed, Catalyst Paper shut down its Elk Falls pulp mill in 2008 while West Fraser closed its Eurocan facility in Kitimat in 2010.[41] British Columbia's pulp export levels are still below pre-2008 levels, as Canada recovers from the global financial crisis.[42]

38. As can be seen in Figure 6 below, in 2009 the overall pulp mill capacity (of all grades) in British Columbia was 6.028 million ADMT.

Figure 6 – Pulp mills in British Columbia, 2009[43]

Company	Mills	Pulp Capacity ('000 ADMT)
Canadian Forest Products Ltd.	4	[redacted]
Cariboo Pulp & Paper Co. Ltd.	1	
Catalyst Paper	5	
Domtar	1	
Howe Sound Pulp & Paper Ltd.	1	
Kruger Products Ltd.	1	
Nanaimo Forest Products	1	
Neucel Specialty Cellulose	1	
Quesnel River Pulp Company	1	
Tembec Industries Ltd.	2	
Zellstoff Celgar Limited Partnership	1	490
Total	**19**	**6,028**

39. The North American pulp and paper industry has experienced a divide between strong and weak firms and typically stability takes priority to growth.[44] In the long-term, increased demand for printing and writing grades (which consume about 75% of market pulp) and demand for tissue from Asia and other emerging markets offer the prospect for expansion of the global

[39] Pulp and Paper Mills, 2009 **(NAV-13).**
[40] Major Primary Timber Processing Facilities in British Columbia, 2009, pp.11-12 **(NAV-14).**
[41] Hawkins Wright, Market Pulp Outlook, May 2011, p. 6 **(NAV-10)**; CBC News, Kitimat Paper Mill Shuts Its Doors, 31 January 2010 **(NAV-15).**
[42] BC's Exports Moving Out of the Woods, March 2012, p.2 **(NAV-16).**
[43] Pulp and Paper Mills, 2009 **(NAV-13).** Note that we have excluded Eurocan's Kitimat pulp mill as it closed in 2010.
[44] Deloitte 2012 Global Forest, Paper, and Packaging Sector Outlook, p. 4 **(NAV-17)**.

demand for pulp.[45] As demand for pulp and its end products returns to pre-crisis levels and as pulp prices continue to increase, the outlook for firms that can maintain production while cutting costs remains strong.

IV. Overview of Power Production in British Columbia

40. When integrated with a green energy system, the kraft process allows NBSK mills to become cogeneration plants with the capability to produce thermal energy and electricity that can be used internally or sold into the wholesale market. As discussed, Claimant alleges that the Measures restricted Celgar's access to embedded cost utility power while selling electricity, in turn limiting the volume of self-generated electricity it can sell. Because Claimant's claims arise out of restrictions in the electricity market, in the following subsections, we provide an overview of electricity production and generation in British Columbia.

A. Power Production and Regulation in British Columbia

41. Pursuant to the Utilities Commission Act, British Columbia's electricity market is regulated through the BCUC.[46] The BCUC has the authority to regulate rates, tariffs, and charges, to regulate the provision of service within the province and to approve large capital expenditures for the Province's electricity system.[47] The BCUC seeks to ensure that ratepayers receive energy services at fair rates while allowing utilities to earn a fair rate of return on their invested capital.[48]

42. In British Columbia, the primary source of electricity generation is hydroelectric power. BC Electric, later known as BC Hydro, built the first major hydroelectric power plant in 1898 and hydroelectric power has been the dominant fuel source in British Columbia since the early 1900s.[49] In the 1960s through the 1980s, BC Hydro continued the rapid development of hydroelectric power, completing six large hydroelectric projects.[50]

[45] Market Pulp, Pulp Markets Hit Bump in Road as Prices Slip on Weaker Demand, December 2011 **(NAV-18);** Hawkins Wright, The Outlook for Market Pulp, Supply, Demand and Prices, July 2013, p.95 Figure 87**(NAV-19).**
[46] British Columbia Utilities Commission Website **(NAV-20)**
[47] Understanding Utility Regulation, A Participant's Guide to the British Columbia Utilities Commission, p. 9-10 at Table 2-3 **(NAV-21).**
[48] British Columbia Utilities Commission, Organization Profile **(NAV-22).**
[49] Center for Energy, Hydropower Timeline **(NAV-23).**
[50] BC Hydro, Projects **(NAV-24).**

43. British Columbia's electricity system encompasses over 18,000 kilometers of transmission lines and 55,000 kilometers of distribution lines across the Province.[51] BC Hydro, which merged with the British Columbia Transmission Corporation in July 2010, coordinates and controls the vast majority of the electric generation and transmission facilities in British Columbia.[52] Figure 7 below is a map of the British Columbia electrical transmission and distribution system.

Figure 7 – British Columbia Transmission Line Map[53]

51 BC Hydro Transmission Systems **(NAV-25);** BC Hydro Systems, Distributions **(NAV-26).**
52 BC Hydro Transmissions **(NAV-27).**
53 BC Bulk Transmission System **(NAV-28).**

44. British Columbia's electricity system forms part of the North American Grid, and has been linked to Alberta and the United States for over thirty years.[54] In particular, British Columbia has two 138 kV lines and one 500 kV line that connects with Alberta, as well as two 500 kV lines and two 230 kV lines that connect with the United States.[55] In total, British Columbia exported 6,922 gigawatt-hours ("GWh") and imported 8,473 GWh of electricity during 2013.[56]

45. The British Columbia and the Pacific Northwest region commonly trades excess electricity at the Mid-Columbia Trading Hub ("Mid-C"), an electricity trading hub located in the middle of the Columbia River in Washington State near several hydroelectric generating facilities.[57] The Mid-C is the second largest trading hub for electricity in the Western United States.[58] Accordingly, the spot market price of electricity for market participants is often quoted at Mid-C at "peak" prices (i.e., for delivery from 7 AM to 10 PM) and "off- peak" prices (i.e., for delivery from 10 PM to 6 AM).[59] In Figure 8 below, we show the day-ahead peak and off-peak price of power at Mid-C from 2007 to 2013. As can be seen in Figure 8, Mid-C peak and off-peak prices are cyclical, with higher prices during winter months and lower prices during summer months. Mid-C prices declined as a result of the global financial crisis in 2008 and 2009, and have yet to rebound to their pre-crisis levels.

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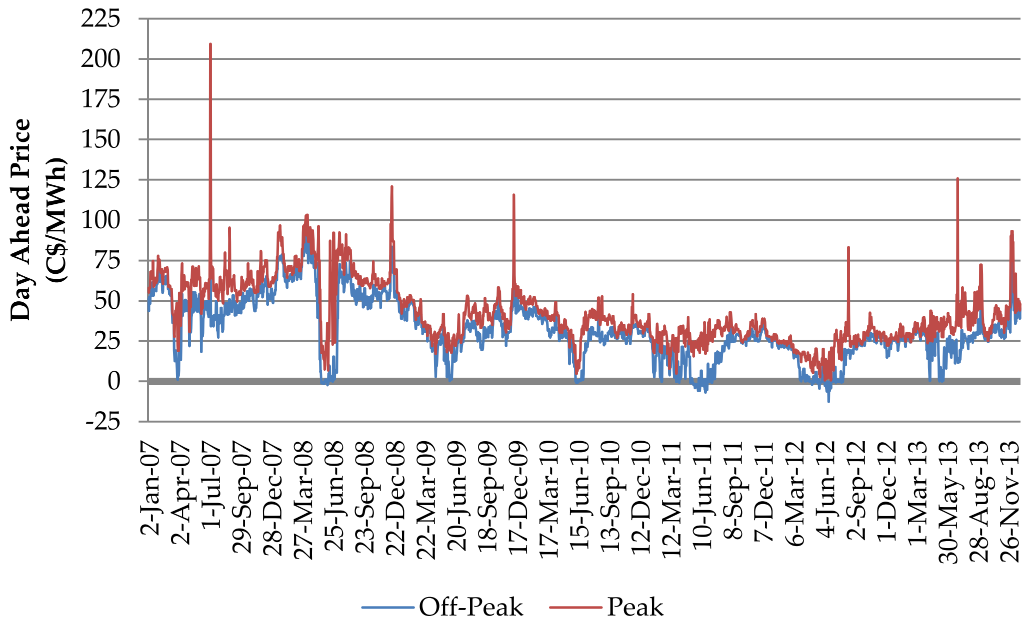
[54] BC Hydro Transmission Systems **(NAV-25).**
[55] BC Hydro Transmission Systems **(NAV-25).**
[56] NEB, Electricity Exports and Imports: Monthly Statistics for December 2013, Table 2.A p.2 & Table 2.B pp.1-2 **(NAV-29).**
[57] Chelan PUD, Columbia Grid Board, 22 July 2008, p. 3 **(NAV-30).**
[58] Chelan PUD, Columbia Grid Board, 22 July 2008, p. 8 **(NAV-30).**
[59] Bloomberg Mid-C Spot Prices, 2007-2014 **(NAV-31)**

Figure 8 – Mid-C Off-Peak and Peak Day-Ahead Spot Prices, 2007-2013[60]



46. As British Columbia's primary source of electricity is from hydroelectric generation, the Province has historically generated renewable or green energy. However, in 2007, British Columbia recognized that electricity demand was outstripping supply, resulting in the Province importing as much as 10 percent of its electricity.[61] In response, British Columbia introduced its *Clean Energy Plan* in 2007 which sought to reduce the Province's net greenhouse gas emissions to zero as well as make the Province electricity self-sufficient.[62] As of 2007, BC Hydro projected that electricity demand would increase 45 percent through 2027.[63] As we will discuss in Subsection B below, the Province's 2007 *Clean Energy Plan* resulted in various green energy initiatives and tenders solicited for green energy from various sources.

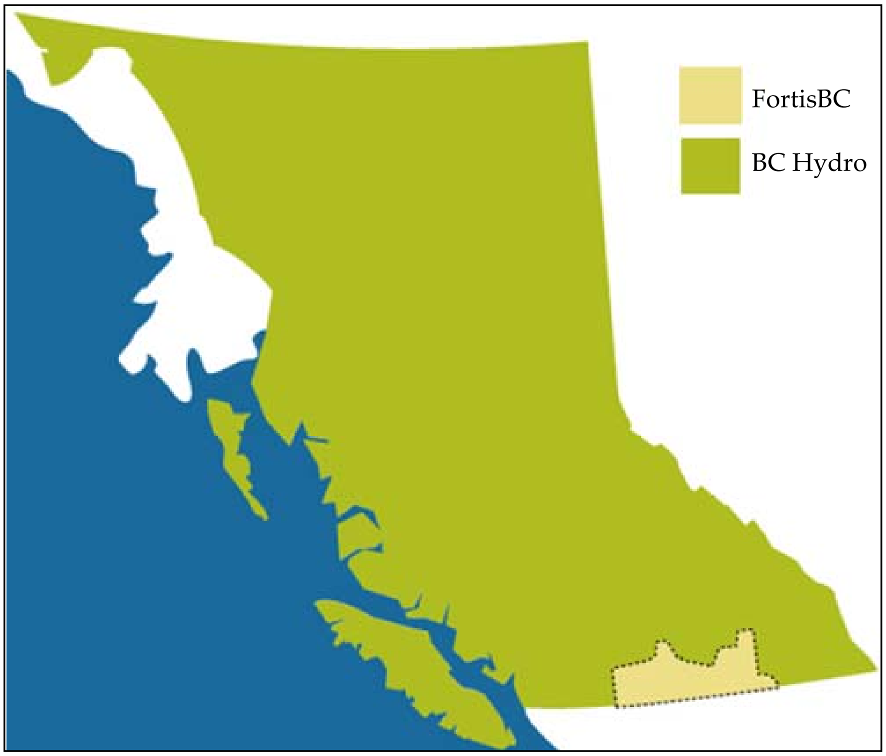
B. Electric Utilities in British Columbia

47. There are two principal geographic service territories in British Columbia for the retail distribution of electricity, as well as several small municipal distribution companies. The majority of British Columbia is in BC Hydro's service area. A smaller area, in which the Celgar Mill is located, is supplied by Fortis BC. As can be seen in Figure 9 below, BC Hydro's service

[60] Bloomberg Mid-C Spot Prices, 2007-2014 **(NAV-31).** Mid-C prices are quoted in US$, for consistency purposed we have converted the US$ prices to C$.
[61] The BC Energy Plan, A Vision for Clean Energy Leadership, p. 9 **(NAV-32).**
[62] The BC Energy Plan, A Vision for Clean Energy Leadership, pp. 9-10 **(NAV-32).**
[63] The BC Energy Plan, A Vision for Clean Energy Leadership, p. 9 **(NAV-32).**

area encompasses roughly 95 percent of British Columbia's population while FortisBC services a small area in southern British Columbia along the border with the United States.[64] FortisBC also provides wholesale supply to municipal distribution companies within its service area in the communities of Summerland, Penticton, Kelowna, Grand Forks, and Nelson.[65]

Figure 9 – BC Hydro & FortisBC Service Areas[66]



i. An Overview of BC Hydro

48. BC Hydro is a Crown corporation with shares wholly owned by the Province and reports to the Ministry of Energy, Mines, and Petroleum Resources.[67] BC Hydro generates between 43,000 and 56,000 GWh of hydroelectric electricity per year.[68] BC Hydro owns and operates most of the hydroelectric and traditional fossil fueled power plants in British Columbia. Specifically, BC Hydro operates 31 hydroelectric facilities with 10,923 MW of installed capacity, three natural gas fired thermal generating plants with 1,069 MW of installed capacity and 13 diesel generation

[64] BC Hydro, Our System **(NAV-33);** Fortis BC, Electricity Utility **(NAV-34).**
[65] Fortis BC, Electricity Utility **(NAV-34).**
[66] Fortis BC, Electricity Utility **(NAV-34).**
[67] BC Hydro 2013 Annual Report, p.20 **(NAV-35).**
[68] BC Hydro 2013 Annual Report, p.6 **(NAV-35).**

stations with 49 MW of installed capacity.[69] In 2013, 59.8 percent of the electricity supplied by BC Hydro was produced by its hydroelectric plants.[70] BC Hydro purchases 40 percent of its electricity supply, and generates less than 1 percent of its energy from its own thermal plants (i.e., conventional steam generation stations powered by fossil fuel).[71] BC Hydro uses its fossil fueled plants to supplement the hydroelectric system in periods where water inflows are low and to provide for supply security.[72] Figure 10 below illustrates BC Hydro's installed capacity.

[69] BC Hydro Quick Facts, 31 March 2013 **(NAV-36);** BC Hydro 2013 Annual Report, p.6 **(NAV-35).**
[70] BC Hydro 2013 Annual Report, p.121 **(NAV-35)**. We understand that BC Hydro optimizes its hydroelectric generation by producing power during peak periods and buying power during non-peak periods to allow its reservoirs to recharge.
[71] BC Hydro 2013 Annual Report, p.121 **(NAV-35).**
[72] BC Hydro, Thermal Generation Systems **(NAV-37).**

Figure 10 – BC Hydro's Installed Capacity[73]

49. In 2003, the Province passed *The BC Hydro Public Power Legacy and Heritage Contract Act*, which designated as "Heritage Resources" BC Hydro's electrical generation assets, storage reservoirs, transmission systems, and distribution systems ensuring their continuing public ownership.[74] These Heritage Resources, constructed in the 1950s-1970s, provide the public with low-cost electricity as BC Hydro is obligated to provide power to its rate payers at a price based

[73] BC Hydro 2012 Annual Report, p. 6 **(NAV-38)**. Square markers denote hydroelectric generating stations while triangle markers denote fossil fuel fired thermal generating stations.
[74] British Columbia Electricity Legislation **(NAV-39).**

on their embedded costs.[75] Due to the age of these hydroelectric facilities, their remaining non-depreciated fixed costs are very low.

50. As the *Clean Energy Plan* directed the Province to utilize the forest product industry's forest-based biomass and residuals (such as sawmill residues, logging debris, etc.) for power production capacity, BC Hydro issued its *Bioenergy Call for Power* in February 2008.[76] The *Bioenergy Call for Power Phase I* was a request for proposals ("RFP") from BC Hydro for biomass generated electricity. Under the *Bioenergy Call for Power*, generators would offer for sale generation from either new greenfield projects or new incremental projects to BC Hydro at a "green energy price."[77] Energy prices in the *Bioenergy Call for Power* were established through a competitive bidding process followed by negotiations between generators and BC Hydro.

51. Twenty companies responded to BC Hydro's *Bioenergy Call for Power* with levelized adjusted bid prices (to ensure comparability) varying between C$ 111 and C$ 395 per MWh.[78] BC Hydro ultimately accepted bids from four companies: Claimant, Canfor Pulp and Paper, PG Waste to Energy, Ltd. and Domtar Pulp and Paper. From late-2008 through mid-2009, BC Hydro negotiated and secured electricity purchase agreements ("EPAs") with the four winners.[79] Table 4 below reveals the energy amounts, terms, and "firmness" related to the awarded EPAs.

Table 4 – Summary of Awarded EPAs[80]

Bidder	Project	Location	Term (years)	Firm Energy (GWh/yr.)	Dependable Capacity (MW)	Seasonal or Hourly Firm Capacity
Zellstoff Celgar LP	Celgar Green Energy Project	Castlegar	10	238	26	[redacted]
Domtar Pulp & Paper Products Inc.	Kamloops Green Energy Project	Kamloops	8	201	18	
PG Interior Waste to Energy Ltd.	PGWE 2008	Prince George	15	70	8	
Canfor Pulp LP	PGP Bio Energy Project	Prince George	8	70	8	
Total				**579**	**60**	

52. The BCUC, BC Hydro, and the winning bidders did not disclose the green energy prices for the awarded EPAs because those prices were the result of confidential negotiations. For

[75] The BC Energy Plan, A Vision for Clean Energy Leadership, p. 14 **(NAV-32).**
[76] BC Hydro, Bioenergy Call for Power Phase 1, Request for Proposal, 6 February 2008, p. 1 **(NAV-40)**
[77] BC Hydro, Bioenergy Call for Power Phase 1, Request for Proposal, 6 February 2008, p. 7 **(NAV-40)**
[78] BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, Table 2-2 p. 15 **(NAV-41).**
[79] BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, Table 2-1 p.14 **(NAV-41).**
[80] BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, Table 2-1 & p. 21 **(NAV-41).**

public purposes, the BCUC and BC Hydro provided a generic overview of the green energy prices without any identifying bidder information. Table 5 below reveals the results of the final prices for the four accepted EPAs. Celgar can identify its bid. As can be seen in Table 5, Celgar's levelized plant gate price and levelized adjusted bid price was the second lowest price offered to BC Hydro.[81]

Table 5 – Final Prices in the Awarded EPAs[82]

Bidder	Firm Energy Price at Plant Gate (CA$/MWh)	Levelized Plant Gate Price (CA$/MWh)	Levelized Adjusted Bid Price (CA$/MWh)
Zellstoff Celgar LP	[redacted]		
[redacted]			
Average	[redacted]		
Median	[redacted]		

53. We understand that BC Hydro needed to justify these prices to the BCUC in order to secure approval of the four EPAs.[83] BC Hydro justified paying prices of over C$ 100 per MWh under the *Bioenergy Call for Power* as there were other bioenergy power acquisitions that took place in 2007 in California and the Midwestern United States that secured bioenergy for similar prices. Specifically, Southern California Edison secured green generation from plants sized below 20 MW for prices equivalent to between C$ 100 and C$ 111 per MWh.[84] BC Hydro also compared these prices against the price for power from a new "generic" (i.e., hypothetical) combined cycle gas turbine ("CCGT") power plant. BC Hydro concluded that the levelized energy cost from a 50 MW CCGT and a 250 MW CCGT would be between C$ 105 and C$ 149 per MWh and

[81] The levelized gate price and adjusted bid price were calculated by BC Hydro during the review of their offer (BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, p. 12 **(NAV-41)**). The levelized gate price was equal to the present value of the firm energy purchases in the proposal (assuming an 8 percent discount rate and a 2.1 percent inflation rate). The levelized adjusted bid price, in addition, accounts for the unique transmission losses and interconnection costs of the individual bidders. Different bidders proposed different inflation escalators, which explains the different relationships between the plant gate price and the levelized price.
[82] BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, Table 2-2, p. 15 **(NAV-41).**
[83] BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, Section 5 **(NAV-41).**
[84] BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, Table 5-1, p. 29 **(NAV-41).**

between C$ 79 and C$ 121 per MWh, respectively.[85] Accordingly, BC Hydro contended that its price for green energy was not only consistent with activity in the market, but also with new conventional energy generation.

54. After the issuance of the *Bioenergy Call for Power Phase I*, BC Hydro continued to seek to purchase green energy from various sources using several programs. In April 2008, BC Hydro unveiled the *Standing Offer Program*, to encourage small power producers (with nameplate capacities between 0.05 MW and 10 MW) with green energy generation capabilities (such as run-of-river, landfill gas, wind, solar, and industrial cogeneration).[86] Under the *Standing Offer Program,* BC Hydro offered between C$ 71 and C$ 84 per MWh, depending on location and whether environmental attributes were included.[87] In 2011, pricing was changed to utilize a base price in 2010 Canadian Dollars, subject to annual adjustment tied to changes in the CPI. The Base Price varied from C$ 95/MWh in the Peace Region to C$ 104/MWh in the Lower Mainland.[88]

55. In April 2010, the Province passed the *Clean Energy Act*, which established requirements for the Province to achieve electricity generation self-sufficiency by 2016. The *Clean Energy Act* increased the Province's target for clean or renewable electrical generation from green sources from 90 percent to at least 93 percent.[89]

56. Shortly after, in May 2010, BC Hydro issued a Phase II of the *Bioenergy Call for Power*, again seeking electrical generation from biomass based sources. Under Phase II of the *Bioenergy Call for Power,* two producers won a tender for four projects. Specifically, West Fraser Mills, Ltd. secured two contracts, each for 12 MW of capacity and 88 GWh of firm energy per year, one at its Chetwynd Forest Industries Biomass Project and one at its Fraser Lake Sawmill Biomass Project.[90] Western Bioenergy secured two contracts, each for 40 MW of capacity and 289 GWh of power generation per year, one at its Fort St. James Green Energy

[85] BC Hydro Report on the Bioenergy Call Phase 1, Request for Proposals, 17 February 2009, Table 5-6, p. 32 **(NAV-41).**
[86] Klean Industries - Market News BC Hydro Launches Standing Offer Program, 17 April 2008 **(NAV-42).**
[87] Klean Industries - Market News BC Hydro Launches Standing Offer Program, 17 April 2008 **(NAV-42).**
[88] BC Hydro, Standing Offer Program, Program Rules, Version 2.3 (October 2013), p. 8. **(NAV-43).**
[89] BC Hydro 2012 Annual Report, p. 25 **(NAV-38).**
[90] Bioenergy Phase 2 Call Request for Proposals, Report on the RFP Process, 10 February 2012, Annex A, p. 15 **(NAV-44).**

Project and one at its Merritt Green Energy Project.[91] According to BC Hydro, the winning bids had a weighted average levelized price of approximately C$ 115 per MWh.[92]

57. Finally, BC Hydro secured additional green energy through its *Clean Power Call* from March to August 2010. Under the *Clean Power Call*, BC Hydro secured 25 EPAs from 18 proponents and 27 projects.[93] Through the *Clean Power Call*, BC Hydro secured 1,168 MW of capacity and 3,266 GWh of firm energy generation from various waste heat, run-of-river, wind, and storage hydroelectric projects.[94] BC Hydro's weighted average levelized firm energy price under the EPAs was C$ 111 per MWh.[95]

58. As a result of BC Hydro's actions, for its fiscal years ending 31 March 2013 and 2012, 98 percent of BC Hydro's production was from clean or renewable sources.[96]

59. BC Hydro and the Province are not unique in their pursuit of energy from green alternative and renewable sources. Indeed, as of 21 October 2013, Hydro-Quebec (Quebec's public utility and also a Crown corporation) secured contracts for 189 MW of capacity from biomass fueled projects throughout Quebec at C$ 106 per MWh, including several with large forest products companies such as Tembec, Domtar, and Resolute Forest Products (formerly Abitibi Bowater).[97] Hydro-Quebec also secured contracts for wind generation, resulting in prices between C$ 93 and C$ 125 per MWh (in 2009 C$).[98] The Ontario Power Authority created a "feed-in-tariff" program in March 2009 that secured generation from hydro projects at prices between C$ 85 and C$ 111 per MWh and wind projects between C$ 115 to C$ 163 per MWh.[99]

60. In the United States, Portland General Electric ("PGE", the electric utility for Portland, Oregon) received bids for 225 MW of renewable energy (mostly wind) at levelized prices between C$ 91 and C$ 118 MWh in December 2008.[100] PGE issued an RFP for renewable

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[91] Bioenergy Phase 2 Call Request for Proposals, Report on the RFP Process, 10 February 2012, Appendix A, p. 15 **(NAV-44).**
[92] Bioenergy Phase 2 Call Request for Proposals, Report on the RFP Process, 10 February 2012, p. 1 **(NAV-44).**
[93] Clean Power Call Request for Proposals, Report on the RFP Process, 3 August 2010, pp. 1, 5 **(NAV-45).**
[94] Clean Power Call Request for Proposals, Report on the RFP Process, 3 August 2010, p. 1 **(NAV-45).**
[95] Clean Power Call Request for Proposals, Report on the RFP Process, 3 August 2010, p. 12 **(NAV-45).**
[96] BC Hydro 2013 Annual Report, p. 34 **(NAV-35).**
[97] Summary Table of Contracts Signed, 25 February 2014 **(NAV-46)**; See also, CNW, Fibrek signs historic contract with Hydro-Québec distribution, 4 May 2012 **(NAV-47)**; Tembec, Tembec announces first phase of $310-million investment to reinforce its position as a global leader in specialty cellulose, 16 March 2012 **(NAV-48)**
[98] Clean Power Call Request for Proposals, Report on the RFP Process, 3 August 2010, p. 22 **(NAV-45).**
[99] Clean Power Call Request for Proposals, Report on the RFP Process, 3 August 2010, p. 22 **(NAV-45).**
[100] Clean Power Call Request for Proposals, Report on the RFP Process, 3 August 2010, p. 22 **(NAV-45).**

resources in response to Oregon's Renewable Energy Standard which was issued in 2007.[101] Puget Sound Energy ("PSE"), a public utility in and around Seattle, Washington, received bids for 2,235 MW of capacity at between C$ 85 and 176 per MWh of hydro generation and between C$ 112 and C$166 per MWh of wind generation in July 2008.[102]

ii. An Overview of FortisBC

61. The second, smaller electrical utility in the Province is FortisBC, a subsidiary of Fortis, Inc., the largest investor-owned distribution utility in Canada.[103] Besides its investment in FortisBC, Fortis, Inc. owns a natural gas utility in British Columbia and electric utilities in Alberta, Newfoundland, Prince Edward Island, Ontario, Grand Cayman, and Turks and Caicos. Fortis also owns hydroelectric generation assets in Canada, Belize, and the United States, as well as hotels and commercial real estate in Canada.[104]

62. FortisBC is an integrated energy company in British Columbia, providing electricity generation, transmission, and distribution services as well as natural gas transmission and distribution services.[105] FortisBC directly provides electricity service to 111,500 customers and indirectly provides services through municipal suppliers to 48,500 customers.[106] FortisBC met a peak electricity demand of 737 MW and sold 3,144 GWh of electricity during 2012.[107]

63. FortisBC's generation portfolio is markedly smaller than that of BC Hydro. Specifically, FortisBC owns and operates four hydroelectric power plants with 223 MW of installed capacity which meets approximately 45 percent of its demand.[108] FortisBC meets 40 percent of its remaining energy and capacity requirements through a series of power purchase agreements ("PPAs") and 15 percent through spot market producers.[109] Moreover, FortisBC entered into an agreement to purchase capacity from a 335 MW expansion at the Waneta Dam which is expected to be completed by 2015.[110]

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[101] Portland General Electric, PGE Requests Proposals to Secure Future Renewable Power, 23 April 2008 **(NAV-49);** Oregon Renewable Portfolio Standard **(NAV-108).**
[102] Clean Power Call Request for Proposals, Report on the RFP Process, 3 August 2010, p. 22 **(NAV-45).**
[103] Fortis Inc., Fortis Companies, accessed 5 March 2014 **(NAV-50)**
[104] Fortis Inc., Fortis Companies, accessed 5 March 2014 **(NAV-50)**
[105] Fortis BC, About **(NAV-51).**
[106] Fortis BC, Electricity Utility **(NAV-34).**
[107] Fortis BC, Energy Solutions for Every Customer, Corporate Report 2012, p. 2 **(NAV-52).**
[108] Fortis BC, Annual Information Form for the year ended 31 December 2012, p. 9 **(NAV-53).**
[109] Fortis BC, Annual Information Form for the year ended 31 December 2012, pp. 10-11 **(NAV-53).**
[110] Fortis BC, Annual Information Form for the year ended 31 December 2012, p. 11 **(NAV-53).**

64. FortisBC's largest PPA is with the Brilliant Power Corporation ("Brilliant"), which provides for 27 percent of its demand.[111] FortisBC's PPA with Brilliant was secured in 1996 for a term of 30 years.[112] The Brilliant PPA entitles FortisBC to 149 MW of capacity and energy of 985 GWh per year.[113] The Brilliant PPA contains a "take or pay" structure, under which FortisBC is required to pay for the contractual electricity regardless of whether FortisBC offtakes it.[114] During 2012, FortisBC entered into an additional agreement to purchase power from Brilliant from 2013-2017, which was expected to provide an additional 2 percent of FortisBC's energy requirements.[115]

65. Twelve percent of FortisBC's energy requirement was met through a PPA with BC Hydro. FortisBC's PPA with BC Hydro (the "1993 FortisBC-BC Hydro PPA") was secured on 1 October 1993 by West Kootenay Power Ltd, a predecessor company of FortisBC. The 1993 FortisBC-BC Hydro PPA allowed FortisBC to purchase up to 200 MW of capacity and energy at BC Hydro embedded cost rates from BC Hydro through 30 September 2013. FortisBC would pay BC Hydro for electricity under the 1993 FortisBC-BC Hydro PPA according to Rate Schedule 3808 of BC Hydro's Electric Tariff.

66. In September 2008, BC Hydro filed an application to amend the 1993 FortisBC-BC Hydro PPA to prevent the resale by FortisBC of its embedded cost power to customers while they were self-generating, leading to the imposition of the Measures. On 6 May 2009, BCUC Order G-48-09 approved BC Hydro's amendment, preventing FortisBC from reselling any power purchased under the 1993 FortisBC-BC Hydro PPA to customers while they were selling self-generated electricity. Order G-48-09 also extended the same restriction on FortisBC's sales of its non BC Hydro sourced electricity. Because FortisBC's electricity is supplied by a variety of sources, it is impossible for it to separate BC Hydro's embedded cost power from its supply and thus deliveries to customers.

V. Historical Overview of the Celgar Mill

67. In this section we provide a brief overview of Mercer's investment in the Celgar Mill. This overview includes a historical overview of the Celgar Mill as well as a review of its operations

[111] Fortis BC, Annual Information Form for the year ended 31 December 2012, pp. 10, 11 **(NAV-53).**
[112] Fortis BC, Annual Information Form for the year ended 31 December 2012, p. 10 **(NAV-53).**
[113] Fortis BC, Annual Information Form for the year ended 31 December 2012, p. 10 **(NAV-53).**
[114] Fortis BC, Annual Information Form for the year ended 31 December 2012, p. 10 **(NAV-53).**
[115] Fortis BC, Annual Information Form for the year ended 31 December 2012, p. 11 **(NAV-53).**

under Mercer's ownership. We also provide a summary of the financial performance of the Celgar Mill since 2009, the period under which the Measures were in place.

A. The History and Operations of the Celgar Mill

68. The Celgar Mill is located along the Columbia River in Castlegar, BC, approximately 600 kilometers east of Vancouver, BC. The Celgar Mill was constructed during the late 1950s and began operations in 1961.[116] Beginning in 1993, at a cost of approximately C$850 million, new owners Stone Container Corporation and China International Trust and Investment Corporation ("CITIC") modernized the mill and installed a 52 MW generating turbine.[117] However, by 1998, the Celgar Mill had filed for bankruptcy due to the effects of weak pulp markets and the high debt associated with the modernization.[118] The two lenders, the Royal Bank of Canada and the National Westminster Bank of England appointed KPMG to operate the mill as both receiver and trustee.[119] The Celgar Mill was operated under receivership until February 2005, when Mercer completed its acquisition of the mill for approximately US$ 210 million.[120]

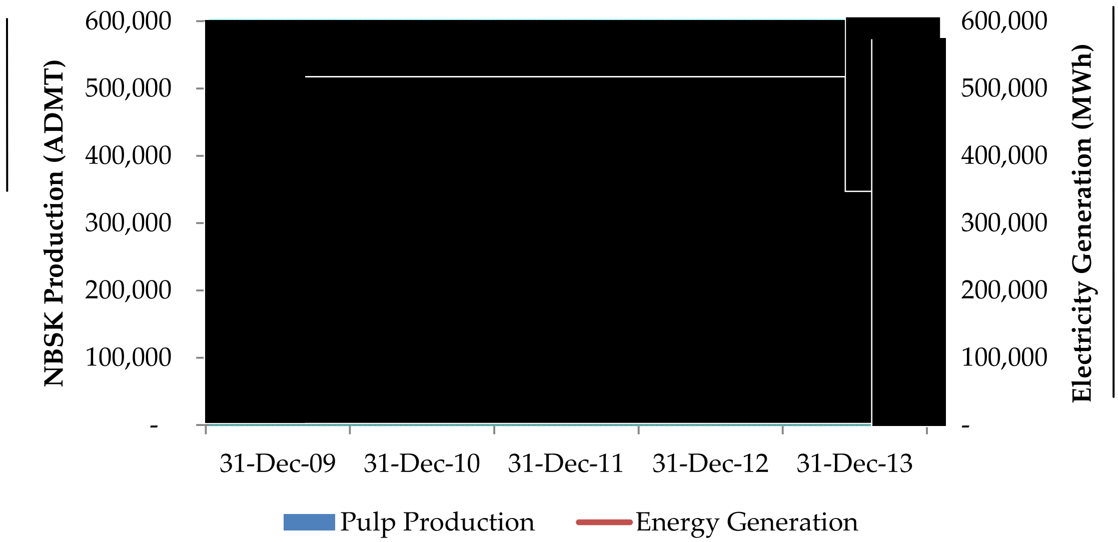
69. Since its acquisition of the Celgar Mill, Mercer has invested over C$ 100 million to modernize and improve the mill. From 2005-2006, Mercer invested C$ 28 million in its "Project Blue Goose", to increase pulp and energy production and reliability and to reduce operating costs.[121] From 2008-2010, Mercer invested C$ 64.9 million in its Green Energy Project (toward which Natural Resources Canada contributed C$ 46.8 million under its Pulp and Paper Green Transformation Program), which added a 48 MW turbine and upgraded the mill's power boiler and steam facilities.[122] Also in 2008, Mercer invested C$ 11 million to upgrade the wood chipping plant, allowing it to produce [[[redacted]]] percent of its wood chips on site.[123]

70. The modernized Celgar Mill produces exclusively NBSK pulp. The plant has an annual capacity of approximately 520,000 air dried metric tons ("ADMT") and principally markets its products to Asia and North America.[124] The Celgar Mill now has 100 MW of generation

[116] Celgar celebrates 50 years of operations in Castlegar, 13 July 2011 **(NAV-54).**
[117] Mercer to buy Celgar NBSK pulp mill for $210 million **(NAV-55).**
[118] Celgar celebrates 50 years of operations in Castlegar, 13 July 2011 **(NAV-54).**
[119] Mercer to buy Celgar NBSK pulp mill for $210 million **(NAV-55);** Celgar celebrates 50 years of operations in Castlegar, 13 July 2011 **(NAV-54).**
[120] Mercer to buy Celgar NBSK pulp mill for $210 million **(NAV-55).**
[121] Zellstoff Celgar Mill Website **(NAV-56).**
[122] Zellstoff Celgar Mill Website **(NAV-56).**
[123] Witness Statement of Brian Merwin, ¶ 63; Mercer 2009 Annual Report, PDF pp. 12,46 **(NAV-86).**
[124] Mercer International Pulp Mills- Operations **(NAV-07).**

capacity which is primarily fueled by black liquor as well as hog fuel, both byproducts of the NBSK production process.[125] Figure 11 below, shows the Celgar Mill's pulp production and electricity generation from 2009-2013.

Figure 11 – Celgar Mill's Pulp and Electricity Production, 2009-2013[126]



71. The Celgar Mill now generates more electricity than its load. Under the Measures, Celgar can sell any electricity it generates in excess of its 2007 load, which, since 2010, it has sold to BC Hydro under the BC Hydro EPA. Previously, Celgar had sold electricity to FortisBC at rates tied to its costs to purchase power from BC Hydro, and through power traders at higher prices.

B. Financial and Operational Performance of Celgar Since 2009

72. In this subsection, we provide a review of the Celgar's financial and operational performance from 1 January 2009 to 31 December 2013 as reported in the mill level financial statements of Zellstoff Celgar Limited Partnership (the direct owner and operator of the Celgar Mill).[127] As we will discuss in greater detail in Section IX below, the period from 1 January

[125] Mercer 2013 Annual Report, pp.19,20 **(NAV-01).**

[126] 2009 Zellstoff Celgar Mill Level Financial Report **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report **(NAV-63);** 2011 Zellstoff Celgar Mill Level Financial Report **(NAV-64);** 2012 Zellstoff Celgar Mill Level Financial Report **(NAV-65).**

[127] While Celgar has prepared separate audited financial statements **(NAV-57 – NAV-61),** we have relied on its mill level internal financial reports **(NAV-62- NAV-66)** as they provide a greater level of detail with regard to Celgar's operations. We note that the income statement and cash flows in Celgar's internal financial reports match Celgar's audited financial statements. There are slight variations in Celgar's balance sheet due to differences between US and Canadian generally accepted accounting principles ("GAAP").

2009 to 31 December 2013 forms the basis for NBSK sales and production in both the But-For and Actual Scenarios as well as the basis for electricity sales in the Actual Scenario.

73. In 2009, [[redacted]] Celgar sold approximately all its pulp produced, selling [[[redacted]]] ADMT[129] of NBSK pulp and producing 466,855 ADMT.[130] Celgar's primary sales markets were [[[redacted]]] of its sales volumes, respectively.[131] Celgar also generated 359,897 MWh of electricity of which 35,372 MWh was sold to customers at an average net price to Celgar of [[redacted]] per MWh, primarily through a combination of sales into Alberta at Alberta spot prices, to the Mid-C, and to FortisBC at a fixed price.[132] Celgar purchased 26,259 MWh of electricity from suppliers (i.e., FortisBC) and spent C$ 28.1 million on property plant and equipment, most of which was directed toward the Green Energy Project.[133]

74. In 2010, [[redacted]] With the beginning of the implementation of the BC Hydro EPA, electricity revenues increased to C$ 5.6 million in total revenues.[134] Again, Celgar's pulp sales volumes approximated its production, with Celgar selling [[[redacted]]] ADMT of pulp and producing 502,107 ADMT.[135] [[[redacted]]]

75. The Green Energy Project became operational in October 2010, allowing Celgar to generate and to sell increased volumes of electricity in 2010. Indeed, Celgar generated [[redacted]] As a consequence of

[128] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.19 **(NAV-62)**
[129] Air-dried metric tons ("ADMT") is an industry standard measure unit for the weight of pulp. Wood pulp will contain varying moisture content based on the humidity and temperature. ADMT is a standard measure which adjusts moisture content to 10 percent. Accordingly, 1 ADMT contains 900 kg of pulp and 100 kg of water. Weyerhaeuser Businesses - Cellulose Fibers Frequently Asked Questions **(NAV-67).**
[130] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p. 19 **(NAV-62).**
[131] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p. 28 **(NAV-62).**
[132] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p. 32 **(NAV-62).** See also Appendix 3A.
[133] 2009 Zellstoff Celgar Mill Level Financial Report, PDF pp. 25, 32 **(NAV-62).**
[134] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 20 **(NAV-63).**
[135] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 20 **(NAV-63).**
[136] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 29 **(NAV-63).**
[137] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 33 **(NAV-63);** 2009 Zellstoff Celgar Mill Level Financial Report, PDF p. 32 **(NAV-62).**

completing the Green Energy Project, sales of electricity could begin under the BC Hydro EPA. Accordingly, during 2010, Celgar sold 70,923 MWh to customers representing nearly a 100 percent increase over 2009 sales.[138] Celgar spent C$ 41.9 million on property plant and equipment, again the majority of which was directed toward the Green Energy Project.[139] The increase in production and sales was attributed to high demand from China as well as shortages of cotton fiber, for which NBSK can be substituted in small quantities.[140] The strong demand for pulp also contributed to an increase in list prices by 20 percent during the first six months of the year.[141] Prices ultimately settled [[[redacted]]] percent higher than they were at December 2009.[142] This increasing trend in pulp prices contributed to an increase in Celgar's profitability.

76. In 2011, Celgar reported net income of [[redacted]] and electricity revenues increased to C$ 14.5 million under the first full year of the BC Hydro EPA.[144] Celgar sold [[[redacted]]] ADMT of the 488,007 ADMT of pulp produced during the year to [[[redacted]]] The Green Energy Project was operational for the full year, providing Celgar with increased electricity generation capacity. Indeed, even though Celgar produced less pulp than in 2010, it was able to generate [[redacted]] percent more electricity than in 2010. Celgar generated [[redacted]] MWh in electricity, of which 140,069 MWh was sold to BC Hydro.[147]

77. In 2012, Celgar reported [[[redacted]]] Celgar sold [[[redacted]]] ADMT of the 490,018 ADMT of pulp produced during the year.[149] [[[redacted]

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[138] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 33 **(NAV-63).**
[139] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 26 **(NAV-63).**
[140] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 9 **(NAV-63).**
[141] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p. 29 **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 30 **(NAV-63)**
[142] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p. 29 **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report, PDF p. 30 **(NAV-63)**
[143] 2011 Zellstoff Celgar Mill Level Financial Report, PDF p. 19 **(NAV-64)**
[144] 2011 Zellstoff Celgar Mill Level Financial Report, PDF p. 19 **(NAV-64)**
[145] 2011 Zellstoff Celgar Mill Level Financial Report, PDF pp. 27, 30 **(NAV-64).**
[146] 2011 Zellstoff Celgar Mill Level Financial Report, PDF p. 27 **(NAV-64)**
[147] 2011 Zellstoff Celgar Mill Level Financial Report, PDF p. 30 **(NAV-64)**
[148] 2012 Zellstoff Celgar Mill Level Financial Report, PDF p. 12 **(NAV-65)**
[149] 2012 Zellstoff Celgar Mill Level Financial Report, PDF p. 12 **(NAV-65)**

[redacted]]] In 2012, the Mill generated [[redacted]] of electricity, of which 171,994 MWh was sold to BC Hydro under the EPA.[151]

78. In 2013, Celgar reported [[[redacted]]] of which electricity revenues were C $ 12.6 million.[153] Celgar sold [[[redacted]]] ADMT of pulp while producing 447,935 ADMT.[154] [[[redacted]]] Celgar generated [[redacted]] MWh of electricity and sold 127,729 MWh to BC Hydro.[156] Celgar's pulp production, electricity generation, and sales revenues were reduced due to a longer than expected shutdown of the mill during its annual maintenance period, as well as a longer than expected ramp up time.[157] Mercer estimates that approximately 30,300 ADMT of production was lost during that extended shutdown.[158]

VI. The Alleged Discriminatory Measures

79. As described in Section I, the Measures claimed by Mercer are twofold. First, Mercer claims that BCUC Order G-48-09 has applied a "net of load" standard to Celgar, preventing it from accessing embedded cost power to supply its load while it sells self-generated electricity. Second, Mercer claims that the GBL in the BC Hydro EPA was set at a level that reflected Celgar's 2007 load, which also prohibited Celgar from accessing embedded cost power from its utility below that load level. In contrast, we understand Mercer claims that competing mills have been applied GBL's based on their historical levels of self-generation used to meet their respective loads.

80. In the subsections below, we examine Celgar's agreements to buy and sell electricity (the FortisBC PSA and BC Hydro EPA specifically) as well as agreements of Celgar's competitors.

[150] 2012 Zellstoff Celgar Mill Level Financial Report, PDF p. 19 **(NAV-65)**
[151] 2012 Zellstoff Celgar Mill Level Financial Report, PDF p. 23 **(NAV-65)**
[152] 2013 Zellstoff Celgar Mill Level Financial Report, PDF p. 19 **(NAV-66)**
[153] 2013 Zellstoff Celgar Mill Level Financial Report, PDF p. 19 **(NAV-66)**
[154] 2013 Zellstoff Celgar Mill Level Financial Report, PDF p. 19 **(NAV-66)**
[155] 2013 Zellstoff Celgar Mill Level Financial Report, PDF p. 28 **(NAV-66)**
[156] 2013 Zellstoff Celgar Mill Level Financial Report, PDF p. 32 **(NAV-66)**
[157] GlobeNewsire, Mercer International Inc. Provides Maintenance Shutdown and Second Quarter Update, 7 June 2013 **(NAV-68)**
[158] GlobeNewsire, Mercer International Inc. Provides Maintenance Shutdown and Second Quarter Update, 7 June 2013 **(NAV-68)**

A. The Celgar Mill's Electricity Agreements

81. The Celgar Mill is located in FortisBC's service area and historically, Celgar had been treated by FortisBC as a typical industrial consumer of electricity. FortisBC allowed Celgar to purchase power for the Celgar Mill's internal needs at embedded cost rates, similar to other customers without generating capabilities.

82. On 21 August 2008, Celgar and FortisBC entered into a 30-year power supply agreement, the FortisBC PSA.[159] Under the FortisBC PSA, FortisBC agreed to supply Celgar with approximately 43 megavolt-ampere ("MVA"), (i.e., roughly 43 MW), an amount equal to the Celgar Mill's full internal requirements.[160]

> "43 MVA of electrical generation output, being the capacity level of electricity required by Celgar to allow Celgar to operate the Mill as a reasonable production levels in a reliable state."[161]

83. The FortisBC PSA stipulated that Celgar purchase the electricity per the "Large General Service Transmission" rates in FortisBC's Electric Tariff as approved by the BCUC, specifically Rate Schedules 31 and 33.[162]

> "FortisBC shall invoice Celgar for Actual Demand at the following rates:
>
> (a) for the first 36 MWh of electricity within an hour at the rate set out in Rate Schedule 31.
>
> (b) if the Actual Demand exceeds 36 MVA within an hour, then the demand set out in Rate Schedule 31 is billed at 36 MVA. However, if the Actual Demand does not exceed 36 MVA, then the demand set out in Rate Schedule 31 is billed at the Actual Demand.
>
> (c) for any electricity exceeding 36 MWh within an hour at the rate set out in Rate Schedule 33."[163]

84. Rate Schedules 31 and 33 both provide power to Celgar at embedded-cost rates. Rate Schedule 31 sets a demand charge per MVA (i.e., MW), as well as an energy charge for each

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[159] Fortis BC PSA, 26 August 2008 **(NAV-69).**
[160] Fortis BC PSA, 26 August 2008, p.3 **(NAV-69).**
[161] Fortis BC PSA, 26 August 2008, Section 1.1(s), p.3 **(NAV-69).**
[162] Fortis BC PSA, 26 August 2008, pp. 4, 7 **(NAV-69).**
[163] Fortis BC PSA, Section 3.3, p.7 **(NAV-69)**

MWh consumed.[164] The demand charge acts as a fixed cost based on the peak demand during the period or the peak demand over the previous 11 months.[165] The energy charge is a variable cost based on the electricity transmitted. Rate Schedule 33 provides a completely variable cost for electricity.[166] Rate Schedule 33 sets per MWh prices based on the hour (on-peak vs. off-peak), day (business day, weekend, holiday), and season (Winter, Summer, and Shoulder).[167]

85. By allowing Celgar to purchase the entirety of its electricity requirements, the FortisBC PSA was intended to allow Celgar to secure long-term electricity sales agreements with third parties for the output of all of its self-generation.

> "Celgar wishes to purchase all of its industrial electricity requirements from FortisBC in conjunction with the sale or sales by Celgar of its existing and proposed future self-generated electrical output to third party purchasers, in accordance with the terms and conditions set out herein…"[168]

86. With FortisBC offering to supply the Celgar Mill's load requirement (i.e., supply the Celgar Mill's electricity requirements through purchases, not self-generation), Celgar could sell substantially all of the Celgar Mill's electricity generation to third parties. We understand that Celgar intended to sell its full load upon signing the Fortis BC PSA.[169]

87. On 16 September 2008, shortly after Celgar signed the Fortis BC PSA, BC Hydro filed a request with the BCUC to unilaterally amend the 1993 FortisBC- BC Hydro PPA to prevent the resale of BC Hydro's power by FortisBC to FortisBC's customers while these customers are self-generating and simultaneously selling the output of this generation. In light of this proceeding, and until a decision was reached, the BCUC asked FortisBC to withdraw the FortisBC PSA, which it did.

88. On 27 January 2009, Celgar secured a 10-year agreement to sell biomass-based green energy to BC Hydro after a competitive bidding process under the *Bioenergy Call for Power*.[170]

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[164] See, for example, Fortis BC 2012 BCUC Tariff, PDF p. 99 **(NAV-70).** We note these prices are stated in kilowatts and kilovolt-amperes. As such, they must be multiplied by 1,000 to state in megawatts and megavolt-amperes.
[165] FortisBC Rate Schedule 31, 2009-2013 **(NAV-109)**.
[166] FortisBC Rate Schedule 33, 2009-2013 **(NAV-112)**.
[167] FortisBC Rate Schedule 33, 2009-2013 **(NAV-112)**.
[168] FortisBC PSA, Preamble, p. 1 **(NAV-69)**.
[169] Witness Statement of Brian Merwin, ¶¶ 68, 72-73.
[170] BC Hydro EPA, 27 January, 2009. We understand that the contract became effective on 31 July 2009 when it received regulatory approval with the BCUC.

BC Hydro committed to purchase from Celgar 238 GWh annually of incremental power generation.[171] This amount was equal to Celgar's expected electricity production in excess of its "seasonal generator baseline," which was set at 349 GWh per year, (i.e., Celgar's 2007 load).[172]

89. BC Hydro agreed to purchase 238 GWh of electricity generation on a firm basis, and the EPA also gave BC Hydro the exclusive right to purchase (on a non-firm basis) any additional electricity Celgar generated above the Celgar Mill's GBL and the firm energy commitment. The BC Hydro EPA also prevented Celgar from selling any electricity below its GBL to third parties.[173] In other words, even if Celgar could have secured sales of green energy below the demarcation point of power which BC Hydro wished to purchase (which was not sold under the BC Hydro EPA), we understand that the BC Hydro EPA prohibited Celgar from selling it. The BC Hydro EPA instead required Celgar to use its below-load power (i.e., its first 349 GWh generated) to meet its own load.

90. The BC Hydro EPA set two energy rates: (1) firm energy (i.e., electricity intended to be available at all times) for 238 GWh per year and (2) non-firm energy (i.e., electricity that is above the seasonally contracted amount of 238 GWh per year).[174] Firm energy was to be paid using the pricing formula in Figure 12 below. Non-firm energy was to be purchased based on a formula < [redacted] >[175]

< Figure 12 – BC Hydro EPA Pricing Formula[176] >

[redacted]

[171] BC Hydro EPA, 27 January 2009 – Appendix 2, Part I **(NAV-71).**
[172] BC Hydro EPA, 27 January 2009 – Appendix 2, Energy Profile, Part II **(NAV-71).**
[173] BC Hydro EPA, 27 January 2009, Article 7, **(NAV-71).**
[174] BC Hydro EPA, 27 January 2009, Appendix 3, Article 3 **(NAV-71).**
[175] BC Hydro EPA, 27 January 2009, Appendix 3, Article 3 **(NAV-71).**
[176] BC Hydro EPA, 27 January 2009, Appendix 3 **(NAV-71).**

91. Figure 12 above reveals that the base price for firm electricity ("FEP") under the BC Hydro EPA was <[[redacted]]> < [redacted] > [[redacted]] < [redacted] >[177]

92. Although Celgar's GBL is set at its 2007 load, Celgar's actual load has grown in recent years and can be higher than its GBL. <[[redacted]]>

B. An Overview of BC Hydro's Contracts with Mills in its Service Area

93. The mills in BC Hydro's service area also are restricted from purchasing embedded cost power from BC Hydro below their GBLs while selling power. However, we understand that under the historical usage standard, the GBLs assigned by BC Hydro to competing mills have allowed competing mills to access embedded cost power to supply a portion of their load while they are selling self-generated power. Order G-48-09 and Celgar's net-of-load based GBL precludes Celgar from doing likewise.

94. Two competing mills – Paper Excellence's Skookumchuck Mill and its Port Mellon Mill – have GBLs that we understand are based ostensibly on their historical usage. These GBLs allow Paper Excellence's mills to divert to market self-generated electricity that could be used to supply each mill's load. These GBLs are discussed in greater detail in the paragraphs below.

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[177] The Time of Delivery Factor ("TDF") increases or decreases the price of electricity based on the time of day (super-peak vs. peak vs. off-peak hours) and month (with higher prices from August – March and lower prices during April – July). However, if sales are made in line with the EPA's Seasonal Firm Energy profile, the TDF factor will average to 1 over the course of the year. Accordingly, we have assumed that a TDF factor of 1 in our calculation. See BC Hydro EPA, 27 January 2009, Appendix 2 and Appendix 3, Schedule A **(NAV-71)** for the Seasonal Firm Energy Profile and applicable TDF factors.

[178] Witness Statement of Brian Merwin, Footnote 62

95. The Skookumchuck Mill is a NBSK mill located in Skookumchuck, BC, approximately 1,000 km northeast of Vancouver and was acquired by Paper Excellence in March 2013. Previously, it had been owned and operated by Tembec, Inc., a Canadian pulp and paper company.[179] Tembec purchased the Skookumchuck Mill in 1999 and installed a 43.5 MW nameplate generating turbine in 2001.[180] Like Celgar, the Skookumchuck Mill's generation is biomass-based.

96. We understand that the Skookumchuck Mill had several EPAs with BC Hydro dating back to 1997. The Skookumchuck Mill's most recent EPA was secured in 2009 and that year Tembec had a load of roughly 26 MW and a GBL which, on average, equaled 14 MW.[181] In other words, Tembec was required to self-supply 53.8 percent of its load from self-generation.[182] Equally, Tembec could access embedded cost utility power to supply << [redacted] >> of its load (i.e., its Below Load Access Percentage).[183] Accordingly, we understand that the Skookumchuck Mill could effectively arbitrage << [redacted] >> of its baseload by purchasing electricity from BC Hydro and selling its self-generation at biomass-based green energy prices. We further understand that Tembec benefits from skewed seasonal GBLs unrelated to its historical generation profile.[184] We have been advised that if the impact of this preferential seasonal GBL is considered, the Skookumchuck Mill's Below Load Access Percentage is at << [redacted] >>[185]

97. The Port Mellon Mill ("Howe Sound") is located in Port Mellon, BC, approximately 50 kilometers northwest of Vancouver, and was acquired by Paper Excellence in 2010.[186] Previously, it was known as Howe Sound Pulp & Paper, LP, and was jointly owned by Canfor Corp. and Oji Paper Co. Ltd. of Japan.[187]

98. Like the Skookumchuck Mill, Howe Sound had entered into several agreements with BC Hydro beginning with a Generation Agreement in 1989.[188] Howe Sound's most recent EPA was

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[179] Tembec, Tembec to sell its NBSK Pulp Mill in Skookumchuck, British Columbia **(NAV-72)**
[180] Witness Statement of Elroy Switlishoff, ¶144.
[181] Witness Statement of Elroy Switlishoff, ¶161.
[182] Witness Statement of Elroy Switlishoff, ¶162.
[183] Witness Statement of Elroy Switlishoff, ¶162.
[184] Witness Statement of Elroy Switlishoff, ¶163.
[185] Witness Statement of Elroy Switlishoff, ¶163.
[186] Reuters, UPDATE 1-Paper Excellence buys struggling Howe Sound, 15 June 2010 **(NAV-73)**.
[187] Reuters, UPDATE 1-Paper Excellence buys struggling Howe Sound, 15 June 2010 **(NAV-73).**
[188] Witness Statement of Elroy Switlishoff, ¶135.

secured in September 2010 under BC Hydro's *Integrated Power Offer* program.[189] Under the terms of this agreement, BC Hydro agreed to offtake << [redacted] >> from Howe Sound at a price between << [redacted] >> and applied an effective GBL of << [redacted] >>.[190] Accordingly, Howe Sound was required to utilize only << [redacted] >> percent of its self-generation to supply its load, resulting in a Below Load Access Percentage of << [redacted] >> percent.[191] In other words, Howe Sound's GBL requires it to dedicate only << [redacted] >> percent of its self-generation toward meeting its mill load and Howe Sound may sell the remaining << [redacted] >> percent while purchasing replacement power from BC Hydro. Celgar, on the other hand, is afforded no access to embedded cost utility power below its load while it is selling power. Celgar's Below Load Access Percentage thus is zero percent.

99. We understand that in several instances BC Hydro has provided compensation to other pulp mills with self-generating capabilities in exchange for their agreement to meet a portion of their load with self-generation output. For example, in 2004, BC Hydro entered into a load displacement agreement with Canfor Corp.'s Prince George and Intercontinental Mills. Under the load displacement agreement, BC Hydro committed to fund C$ 49 million of the C$ 81 million cost of purchasing and installing a new 48 MW turbine generator.[192] In exchange for BC Hydro's contribution, Canfor agreed to supply 390 GWh of its energy requirements from self-generation for 15 years.[193] We also understand that Howe Sound received a << [redacted] >> interest-free loan to install a generating turbine in exchange for Howe Sound self-supplying a similar amount of electricity.[194] Accordingly, both Canfor and Howe Sound agreed to displace their electrical loads in exchange for funding from BC Hydro, whereas Celgar did not.

VII. The Impact of the Measures on Celgar

100. The Measures have prevented Celgar from accessing embedded-cost utility power to supply any portion of the Celgar Mill's electricity requirements below the level of its 2007 load (349 GWh per year). The Measures had two primary impacts on Celgar: (1) Celgar was unable

[189] Witness Statement of Elroy Switlishoff, ¶¶ 104, 125.
[190] Witness Statement of Elroy Switlishoff, ¶¶125,130. << [redacted] >>
Witness Statement of Elroy Switlishoff, ¶130.
[192] Canfor Pulp Website – Sustainability **(NAV-75).** See also Witness Statement of Elroy Switlishoff, ¶136.
[193] Witness Statement of Elroy Switlishoff, ¶136.
[194] Witness Statement of Elroy Switlishoff, ¶ 20

to secure additional contracts to sell some or all of its self-generated green energy below its load, and (2) Celgar's position on the cost curve of pulp mills is adversely affected because it cannot use the profits from additional energy sales to offset its pulp production costs.

101. First, BCUC Order G-48-09 and the net-of-load GBL provisions in the BC Hydro EPA frustrated the implementation of the Fortis BC PSA, preventing Celgar from negotiating long-term firm energy contracts in 2009-2010 for the sale of all of its biomass-based green energy at a time when a market for such power existed. To date, Celgar still remains unable to purchase utility power at embedded cost rates while selling power.

102. Since the mid-2000s, there has been a drive to increase the volumes of electricity generated by green and renewable sources in the Pacific Northwest, in both Canada and the United States, as well as in California. Indeed, the green energy mandates were passed in British Columbia in 2007 (the *Clean Energy Plan*) requiring 90 percent of the Province's total generation to be green;[195] in Washington State in 2006 for 15 percent;[196] in Oregon in 2007 for 5 percent, increasing to 25 percent in 2025;[197] and California in 2002 for 20 percent, increasing to 33 percent by 2008.[198] The increased demand for green energy in the Pacific Northwest and California resulted in various competitive tenders for green energy being issued by utility companies to comply with these mandates.

103. Had Celgar been afforded access to embedded cost utility power to service some or all of its load, as BC Hydro and the Province have afforded pulp mills, Mercer claims that Celgar could have pursued opportunities to sell more of its below-load green energy to BC Hydro or elsewhere.[199] As discussed in Section IV.B above, the prices for green energy (both for biomass-based and other renewable sources) were consistent among utilities in the Pacific Northwest and California, as well as with utilities in Ontario and Quebec. Accordingly, Mercer claims damages from its inability to sell Celgar's self-generated electricity below its GBL.

104. Second, Celgar is more exposed to fluctuations in pulp prices than would be the case absent the Measures. Higher cost pulp producers commonly idle or close high-cost pulp mills in

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[195] The BC Energy Plan, A Vision for Clean Energy Leadership, p.3 **(NAV-32).**
[196] Federal Energy Management Program, Washington State Voters Mandate Efficiency and Renewable Energy, 15 November 2006 **(NAV-77).**
[197] Oregon Renewable Portfolio Standard **(NAV-108).**
[198] Office of the Governor, Executive Order, 17 November 2008 **(NAV-78).**
[199] Indeed, we understand that Celgar had begun preliminary discussions with Puget Sound Energy for the sale of its self-generated green energy in 2008. (Witness Statement of Brian Merwin, ¶ 82).

periods of decreasing prices, decreasing demand, or increasing costs. Thus, green energy sales act as an offset to costs, allowing a mill to remain viable and operational in periods of low demand. Indeed, from 2005-2010, 4.5 million ADMT of capacity shut down worldwide during a period of increasing costs.[200] In British Columbia, during the global economic crisis of 2008-2009, several mills were shut down, including the Skookumchuck Mill, due to adverse conditions in the international pulp market.[201] Increased profitability from electricity sales would serve to delay the point at which a mill becomes uneconomical. As pulp is a commodity, lower cost mills are more competitive than higher cost mills.

105. As regards Celgar, from 2009 to 2013, between [[redacted]] percent of its revenue was generated from the sale of electricity. Conversely, between [[redacted]] percent of Celgar's revenues were subject to fluctuations in the price of NBSK.[202] For instance, Celgar's 2012 revenues [[redacted]] slightly.[203] Consequently, the Measures have unduly increased Celgar's risk.

106. While Celgar would still continue to be heavily exposed to the NBSK commodity market, it would be partially hedged against drops in NBSK prices because of the profits from additional green energy contracts. The guaranteed profit arising from green energy sales would serve as an offset to Celgar's production costs, allowing it to move lower on the cost curve.

107. Although Celgar has been exposed to increased risk, Claimant makes no additional claim for damages as Celgar's claim related to the inability to sell its historical power production will compensate Celgar for this increased risk exposure.

VIII. The Framework Utilized to Determine the Impact of the Measures on Mercer's Investment

108. The Measures have impaired Celgar's ability to purchase below-load electricity from FortisBC, eliminating its ability to sell its below-load biomass-based green energy. As a result, Claimant claims that its loss is equivalent to the diminution in the fair market value of Claimant's investment in Celgar since the first of the Measures were imposed on 6 May 2009. In other words, had Celgar been entitled to access embedded cost power and been allowed to sell

[200] Hawkins Wright, May 2011 Report, p.6 **(NAV-10)**
[201] CNW Newswire, Tembec takes downtime to adjust to market conditions, 3 February 2009 **(NAV-79).**
[202] Zellstoff Celgar 2009-2013 Mill Level Financial Reports, **(NAV-62 - NAV-66).**
[203] Zellstoff Celgar 2012 Mill Level Financial Report, PDF p. 10 **(NAV-65)** and Zellstoff Celgar 2011 Mill Level Financial Report, PDF p. 17 **(NAV-64)**

some portion of its below-load self-generated electricity at biomass-based green energy rates, Mercer's investment in Celgar would have a higher fair market value.

109. As Claimant maintains its ownership and operations of Celgar, the damages associated with the Measures are ongoing. Accordingly, the appropriate valuation date is the date of the award issued by the Tribunal. In this report, we have prepared an *ex-post* valuation of Celgar to calculate this loss as of 31 December 2013 (the "Valuation Date"), a date reasonably close to the filing of this report. This *ex-post* analysis contains two components. The first component calculates the lost profits that Celgar could have expected to receive from 2009 to 2013 without the Measures in place. The second component calculates the diminution of the fair market value of Celgar as of 31 December 2013. As our valuation is *ex-post* (i.e., current), we will provide updates to our damages calculation to reflect Celgar's actual financial and operating results through the date of the hearing.

A. The Appropriate Standard of Value

110. The word "value" has different meanings to different people. Therefore, we must begin by establishing a common understanding of the term "value."

> "Without carefully defining the term value, the conclusions reached in the valuation report have no meaning. Is the objective of the valuation to estimate fair market value, market value, fair value, true value, investment value, intrinsic value, fundamental value, insurance value, book value, use value, collateral value, ad valorem value, or some other value? Clients rarely give it much thought. Many don't have enough technical background in business valuation to raise the right questions. One of the professional appraiser's most important tasks is to work carefully and thoroughly with the client and/or attorney to arrive at a definition of value that is appropriate to the specific purpose of the valuation engagement."[204]

111. In the nomenclature of business valuation, these different definitions of value are called "standards of value." It is important for the valuation practitioner to establish the appropriate standard of value prior to conducting a valuation assignment so that the valuation conclusion can be properly understood.

[204] Valuing a Business: The Analysis and Appraisal of Closely Held Companies – Fourth Edition, Pratt, Reilly & Schweihs, McGraw-Hill, 2000, p. 28 (**NAV-81).**

112. We note that NAFTA Chapter 11 references "fair market value" as the appropriate standard of value for compensation. Fair market value is an objective and impersonal standard of value based upon a hypothetical transaction between two hypothetical and informed parties. The American Society of Appraisers defines fair market value as:

> "the price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open and unrestricted market, when neither is acting under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts."[205]

113. Valuation practitioners interpret this definition as follows:

> "Fair market value assumes conditions as they actually exist and a hypothetical buyer and seller, with no special, unique motivations or circumstances."[206]

114. Thus, the exercise is a hypothetical one in which it is assumed that neither the buyer nor the seller is under any compulsion, the transaction is at arm's-length, there are no market restrictions, and both parties are informed of the relevant facts. Notably, both the buyer and the seller are presumed to be hypothetical which means that the standard is an impersonal standard of value. As such, in implementing the fair market value standard, the object of the analysis is not to determine the price that the actual owner of the investment could achieve from the investment. Rather, the object of the analysis is to determine the price at which two hypothetical parties would agree to sell and purchase the investment.

115. In cases such as this that seek to make a Claimant whole through monetary recovery for alleged wrongful acts, the object is not to value the investment under conditions as they actually existed, but to value the investment under conditions that would have existed in the absence of the disputed acts. As such, the valuation analysis should not consider any of the Measures but should consider, for example, the same macroeconomic conditions.

B. The Subject of the Valuation

116. Claimant's investment does not have a readily observable price in the marketplace such as the price per share of common stock traded on a public exchange. As a result, Claimant's alleged investment must be valued using recognized valuation methods and any other valuation

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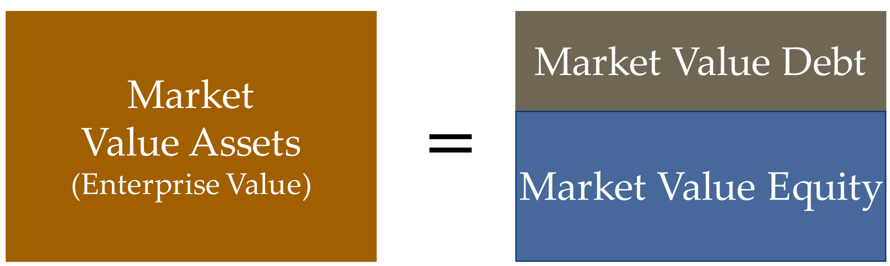
[205] Business Valuation Standards, *American Society of Appraisers*, p. 27. (**NAV-82)**.
[206] Pratt, Shannon, Market Approach to Valuing a Business, John Wiley & Sons, Inc. 2001, p. 141. (**NAV-83).**

evidence that is available. Valuation methods require the valuation practitioner to conduct numerous analyses which may include forecasts of the future revenues, expenses, profitability, and cash flow generation of the subject investment. Such analyses almost always will involve the use of assumptions and prudent professional judgment. However, if accepted valuation methodologies are implemented and basic valuation principles are adhered to, greater confidence in the valuation conclusions can be achieved.

117. Before one begins a business valuation, one must clearly define the subject of the valuation. One can value an entire business (i.e., all its assets) or one can value investment interests in the business. The investment interests in the business can consist of common shares (i.e., equity capital), debt securities, unsecured loans, or preferred shares. The market value of all of a company's assets is typically referred to as the "enterprise value" of the business. The market value of an enterprise is therefore the present value of all future cash flows produced by the assets of the business. The enterprise value of a business will always equal the sum of all investment interests in the business. This valuation relationship is expressed in Figure 13 below.

Figure 13 – Fundamental Corporate Valuation Model



118. In the present case, Claimant (Mercer) directly owns 100 percent of Celgar through its interests in the Celgar Partnership and Zellstoff Celgar Ltd. As of 31 December 2013, the partnership has no financial debt outstanding.[207] Consequently, Claimant is effectively entitled to the ownership benefits represented by the "Market Value Assets" or Enterprise Value (i.e., the sum of the "Market Value of Debt" and "Market Value of Equity").

C. Accepted Methods for Determining Fair Market Value

119. There are three commonly accepted valuation methods for determining the fair market value of a business or an investment interest in a business: 1) the Discounted Cash Flow ("DCF") Approach; 2) Comparable Transaction Approach; and 3) Comparable Publicly Traded Company

[207] Zellstoff Celgar LP 2013 Audited Financial Statements, pp. 2, 10 **(NAV-61)**.

Approach. In some cases, methods 2 and 3 are collectively considered to be one valuation approach called the "Market Approach." In addition, one should also consider arms-length transactions or offers made by third parties (if any) for the shares or assets of the subject company itself, since such information can often provide an objective and reliable indication of value.

120. The DCF Approach stems directly from the fundamental financial principle that the value of a company is equal to the future cash flows produced by the company, discounted to present value at a rate that reflects the risks of generating the future cash flow. Thus, the valuation practitioner should attempt to implement all three valuation approaches when it is feasible to do so. If the necessary data do not exist to perform one or more of the valuation methods, the valuation practitioner should identify the deficiencies and acknowledge that the approach could not be conducted in a manner that would yield a reliable result. Likewise, a valuation practitioner should consider other indicators of value. In the following three subsections, we provide a brief overview of each of the three basic valuation approaches.

i. The Discounted Cash Flow Approach to Valuation

121. The DCF Approach is a practical implementation of the theoretical financial concept that an income-producing asset's value is equal to the present value of the expected future cash flows produced by the asset. The DCF approach requires the valuation practitioner to develop pro-forma financial statements for the subject business, compute the relevant cash flows using those statements, determine an appropriate discount rate, and discount the estimated cash flows to present value as of the relevant date.

122. In a DCF valuation, the cash flows produced by the business are calculated after deducting all necessary expenses and taxes that must be paid to run the business. Valuation practitioners typically refer to this cash flow measure as "free cash flow" as it represents the cash flow available to be paid to lenders or shareholders after all expenditures have been met.

123. After the proper measure of cash flow is computed, the discount rate should be developed. The discount rate represents the financial return that investors would require from an investment in the company. Generally, the riskier the investment that is being contemplated, the greater the return that will be required by an investor in order to participate in the investment. The discount rate is adjusted, therefore, for various types of risk, such as the risk of investing in equities versus risk-free bonds, industry-specific risk, country-specific risk, etc.

124. The appropriate discount rate to apply in a DCF analysis is the weighted average cost of capital ("WACC"). This is because a DCF analysis involves measuring the enterprise value of the relevant assets by discounting free cash flows available for distribution to debt and equity holders. (If we were valuing equity shares, the appropriate discount rate to use would be the cost of equity to discount free cash flow to just equity holders.) The WACC is the weighted average of the cost of equity and the cost of debt capital used to finance a business or asset. The cost of the debt and equity capital are averaged (or more specifically, "weighted") in proportion to the relative contribution of debt and equity to the total capital of the business. The WACC is then used to discount the free cash flow that is produced by the assets, which is commonly referred to as "free cash flow to the firm" ("FCFF") or "free cash flow to the enterprise" ("FCFE").

ii. Comparable Publicly Traded Company Approach to Valuation

125. The second approach that can be used to determine the fair market value of a company or asset is the Comparable Publicly Traded Company approach. The basic concept employed in this approach is that a value for the subject company can be established by analyzing the value of other, similar, publicly traded companies. Because the share capital of publicly traded companies can be readily observed by multiplying the trading price per share by the number of shares outstanding (also known as "Market Capitalization"), and because the debt value either can be observed or usually can be accurately estimated based on public information, this approach requires fewer assumptions than the DCF Approach. It requires careful consideration in determining which publicly traded companies are truly comparable to the subject company.

126. Implementing the Comparable Publicly Traded Company Approach generally requires compiling a list of potentially comparable companies, comparing financial and operational statistics for the subject company and the comparable companies, determining which companies are most comparable to the subject company and eliminating those that are not comparable, using the market capitalization on the date of valuation (potentially adjusted for discounts and premiums) to calculate value ratios for each of the comparable companies, determining which of these ratios is most appropriate to apply to the subject company and weighting the ratios based

on the results of the comparability analysis,[208] and lastly, calculating the final valuation conclusion.

iii. Comparable Transaction Approach to Valuation

127. The third approach that can be used to determine the fair market value of a company is the Comparable Transaction Approach.[209] The basic concept employed in the Comparable Transaction Approach is that when a company comparable to the subject company has recently been purchased, either partially or in total, the purchase price of the comparable company may be useful in determining the fair market value of the subject company.[210] The analytical steps for the Comparable Transaction Approach are similar to the steps outlined for the Comparable Publicly Traded Company Approach above, except that the comparable companies are not companies that have been bought or sold via a public stock exchange, but rather via a privately negotiated transaction.

iv. Reconciling the Methods and Arriving at a Valuation Conclusion

128. After implementing each of the applicable valuation methods and incorporating valuation data concerning historical transactions or offers for the subject company or asset, the valuation practitioner should review any deviation among the valuation conclusions that have been reached. If the deviation is small, it is likely that the valuation conclusion is accurate and reliable. If the deviation is large, two general diagnoses exist.

129. First, one or more errors may exist in the approaches that has caused the valuation conclusions to deviate. In that event, each approach should be reviewed and the assumptions re-evaluated. If poor assumptions have been made or an error detected, corrections should be made and a new valuation conclusion determined.

130. Second, the quality or depth of the data used in one or more of the approaches may be suspect. In that event, the valuation practitioner need not assign equal confidence to each

[208] In other words, if one company is clearly more comparable than another, the value and ratios of the more comparable company should be given more weight.

[209] Note that we use the term "company." The approach can be used to value projects, parts of companies or assets as long as the relevant subject company or project is comparable to the public company.

[210] The more time that has elapsed between the transaction date and the valuation date, the less reliable the transaction may be in assessing the value of the subject company unless it can be demonstrated that significant changes have not occurred in the subject company and in the general level of valuations in the relevant market since the transaction date.

approach and may consider one or more approaches more heavily than others. Indeed, the practitioner may even completely discount one of the approaches. In other words, the valuation practitioner should assign weights to each approach based upon the quality of the data utilized and should not take a simple arithmetic average of the various results. While the assignment of weights to each approach requires an exercise of judgment, this is common practice:

> "As with the selection of which valuation method to use, there are no scientific formulas or specific rules to use with regard to the weighting of the results of two or more valuation methods…. An intuitively appealing method of concluding the value estimate is for the analyst: (1) to use subjective but informed judgment and decide on a percentage weight to assign to the indications of each meaningful valuation approach or method and (2) to base the final value estimate on a weighted average of the indications of the various methods."[211]

v. Valuation Methods that can be Applied in this Case

131. In the present case, given the unique nature of the Measures at issue, the primary method available to us to determine the fair market value of Mercer's investment is the DCF Approach. The purpose of our valuation exercise is to determine the impact of the Measures, which have limited the amount of below-load electricity that Celgar can sell at green energy rates to third parties and simultaneously purchase from its utility at low embedded-cost prices. In performing this exercise, the use of comparable publicly traded companies or transactions would not be helpful to determine the diminution in the value of the Claimant's investment in Celgar for three reasons. First, many of the comparable publicly traded companies are not "pure play" NBSK pulp manufacturers like Celgar. Indeed, many of the comparable publicly traded companies are vertically integrated and engage in the manufacture of paper products and/or forests products. Consequently, Celgar is more exposed to the global pulp market and shifts in commodity prices than comparable companies. Second, the Measures impacted an opportunity unique to Celgar, preventing it from purchasing embedded cost utility power to supply its entire load while selling its self-generated electricity. Third, in instances where comparable companies self-generated their own electricity, it is not possible to ascertain the volumes and prices at which they were able to sell at green energy rates, as these operations are not material to their financial results.

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[211] Valuing a Business: The Analysis and Appraisal of Closely Held Companies – Fourth Edition, Pratt, Reilly & Schweihs, McGraw-Hill, 2000, pp. 443,445, (**NAV – 81).**

132. The use of the comparable transactions method is also not helpful in determining the diminution in the value of Claimant's investment in the Celgar Mill for the same reasons. Moreover, while there has been transaction activity in the BC forest products sector, the purchasers were commonly non-public, limiting the availability of public information surrounding the transaction. Many comparable transactions were also for mills purchased out of bankruptcy, from an idle state, or for the purpose of overhauling the type of pulp produced. Accordingly, these transactions should not be used to imply value under the fair market value standard as both the buyers and sellers have unique motivations and circumstances surrounding the sales.

133. However, even though a valuation cannot be prepared using the comparable publicly traded company and comparable transaction approaches, the information derived from our attempt to apply these approaches can be used to inform the DCF Approach. For example, profit margins could be considered to determine whether the conclusion under our DCF Approach is consistent with industry averages. Thus, we have relied upon the information derived from the comparable approaches to test the results of our DCF Approach for reasonableness.

IX. Quantification of the Impact of the Alleged Discriminatory Measures on the Celgar Mill and the Appropriate Level of Compensation

134. In Section VIII above we explained that the DCF Approach requires the construction of a set of projections of the financial performance of the business that is being valued. To calculate the diminution in the fair market value of the Celgar Mill caused by the Measures, it is necessary to construct two separate scenarios of financial performance. Each scenario contains two discrete projection periods: (1) the Celgar Mill's historical operations from 1 January 2009 to 31 December 2013 (historical period) and (2) its projected operations during the remainder of the BC Hydro EPA from 1 January 2014 to 31 December 2020 (future period) as well as a terminal value representing Celgar's continuing operations after 2020.

135. The first scenario (the "Actual Scenario") of financial projections quantifies the cash flows that Celgar actually generated between 2009 and 2013 as well as Celgar's future projected cash flows under the Measures. The second scenario (the "But-For Scenario") of financial projections quantifies the cash flows the Celgar Mill would have generated absent the Measures between 1 January 2009 and 31 December 2013, as well as Celgar's future projected cash flows. The difference between the But-For and Actual Scenarios is the damages suffered by Claimant.

136. As the Measures serve to limit the amount of self-generated electricity that Celgar can sell at green energy rates, the primary difference between the But-For and Actual Scenario stems from the volume of electricity sold and purchased. Accordingly, we have assumed that the cash flows from the sale and manufacture of NBSK will be the same in both the Actual and But-For Scenarios. Moreover, since electricity generation is correlated with NBSK production, we have assumed that Celgar will generate the same volume of electricity in both the Actual and But-For Scenarios.

137. In the following subsections we set forth our quantification of the impact of the Measures on Mercer's investment. In subsection A, we provide an overview of Celgar's Actual Scenario. In subsection B, we outline the key assumptions applied and quantified in the But-For Scenario. In subsection C, we discuss the reasonableness of our Actual and But-For Scenarios. Finally, in subsection D, we compute the damages suffered by Mercer as a result of the Measures and apply the appropriate rate of interest.

A. Celgar's Historical and Projected Performance Under the Measures

138. In the Actual Scenario's historical period, we have assumed that Celgar will achieve the same cash flows as it actually earned as reported in its 2009-2013 financial statements. We have relied upon Celgar's internal financial reports from 2009-2013 as they include operational data such as the volumes of pulp produced and sold, the volumes of electricity produced and sold, and more detailed information surrounding Celgar's costs. We note that Celgar has prepared separate audited financial statements and that the income statement and cash flows in Celgar's internal financial reports match Celgar's audited financial statements.[212]

139. In the Actual Scenario's future period, we have assumed that Celgar will continue to produce NBSK pulp and generate electricity at historical levels, with some improvements for operational efficiency. Naturally, the Actual Scenario also includes the effects of the Measures. As such, we have projected that the Measures (i.e., the restriction on access to embedded cost utility power and the GBL of 349 GWh per year) will continue to remain in place.

140. To develop our projections in the Actual Scenario, we examined Celgar's 2009-2013 full year financial statements. In the subsections below, we explain our Actual Scenario's

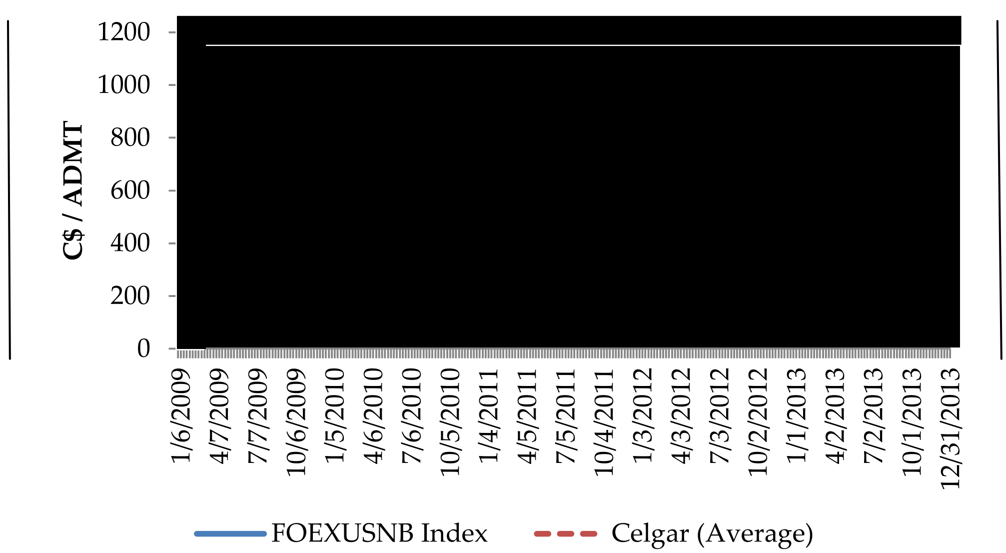
[212] The balance sheet in Celgar's internal financial reports is slightly different from Celgar's audited financial statements due to the accounting standards under which they are prepared. Celgar's internal financial statements are prepared under Canadian generally accepted accounting principles ("GAAP") while its audited financial statements are prepared under US GAAP. See Celgar's Audited Financial Statements, 2009-2013 **(NAV-57-NAV-61)**

assumptions used in calculating Celgar's historical and future pulp revenues, pulp production costs, energy generation, energy purchases, income taxes, and working capital requirements.

i. Pulp Production Revenues

141. We assume that Celgar's 2009-2013 NBSK pulp production revenue will remain the same as in its financial statements. We examined Celgar's historical NBSK pulp production, NBSK sales volumes, and the NBSK unit prices to develop our Actual Scenario projections. From 2009 to 2013, we observed that Celgar's list prices for pulp were comparable to list prices in the market. While NBSK is a global commodity with readily observable prices, unlike many global commodities such as oil, NBSK is not traded on an exchange, such as the Chicago Mercantile Exchange (the "CME"). Accordingly, market prices for NBSK for delivery in the United States are commonly defined as those provided by FOEX Indexes, Ltd., a company that tracks the average sales price of NBSK pulp by large market participants for delivery in both the United States and Europe.[213] Figure 14 below illustrates that Celgar's United States-based list prices for NBSK production have been closely correlated with FOEX Indices.

Figure 14 – NBSK Pulp Index and Celgar List Prices for U.S. Delivery, 2009-2013[214]



[redacted]

[213] We note that the NBSK Pulp Index is based on list prices rather than the actual price paid net of volume or other discounts.

[214] Bloomberg, FOEX US NBSK Index **(NAV-11).** We note that the FOEX Index quotes NBSK prices in US$. For consistency, we have translated the list price to C$ at the daily US$-C$ exchange rate. See Bloomberg, CAD:USD FX Rates, 2007-2013 **(NAV-110).**

142. We observed that Celgar's realized prices were lower than its list prices. The difference between the realized price of NBSK and the list price of NBSK is primarily due to standard industry practice customer-specific volume and payment discounts; however, it also is impacted by changes in the price between the date the NBSK is ordered and the date on which it is shipped.[215] As can be seen in Table 6 below, Celgar's realized prices were between [[[redacted]]] percent and [[[redacted]]] percent lower than the FOEX Index NBSK list price of pulp for delivery in the United States.

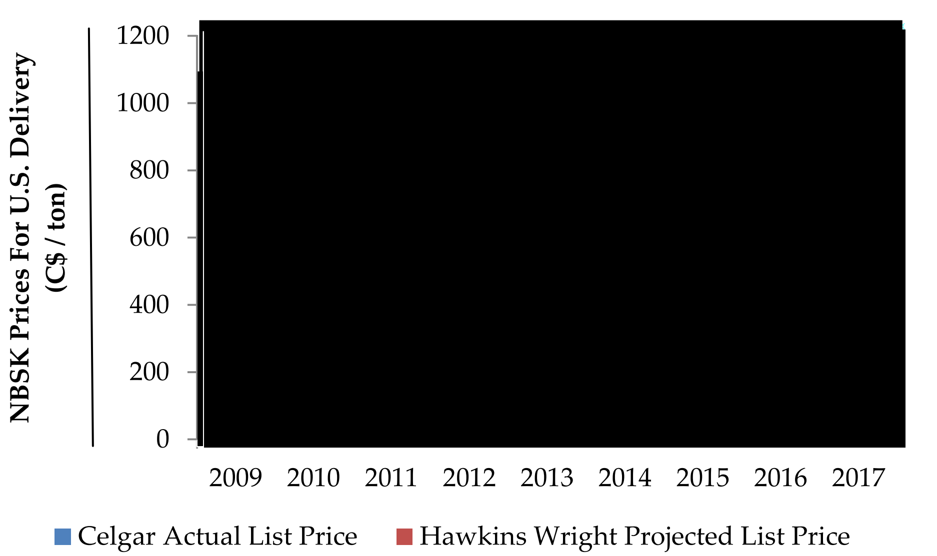
Table 6 – Celgar Average Pulp Prices, 2009-2013[216]

(in C$/ton)	FOEXUSNB Index	Celgar Realized Net Price	Discount Percentage to FOEX List
2009	812.45	[redacted]	[redacted]
2010	984.78	[redacted]	[redacted]
2011	966.37	[redacted]	[redacted]
2012	871.35	[redacted]	[redacted]
2013	963.26	[redacted]	[redacted]

143. To estimate the future expectations for Celgar's pulp list prices, we first looked for NBSK futures prices, as futures contracts represent the collective expectation of all market participants of the future prices of the traded commodity. NBSK futures contracts had been traded on the CME, however, in late 2012, the CME suspended their trading.[217] In the absence of futures contracts, we have turned to a projection of future list prices of pulp prepared in July 2013 by Hawkins Wright, Ltd. ("Hawkins Wright"), a forest product industry competitive intelligence company. In Figure 15 below, we show Celgar's historical list price of NBSK for United States deliveries and Hawkins Wright's projection of United States pulp list prices. As can be seen, Hawkins Wright expects pulp list prices largely to remain stable through 2017.[218]

[215] Mercer 2013 10-K, p. 50 **(NAV-01).**
[216] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-62)**; 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-63)**; 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-64)**; 2012 Celgar Mill Level Financial Report, PDF p.4 **(NAV-65)**; 2013 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-66);** Bloomberg FOEX data **(NAV-11).**
[217] CME Group, Letter to Commodity Futures Trading Commission, 25 January 2013 **(NAV-84)**
[218] We also note that TD Securities, Inc. projected US list prices of pulp in 2013, 2014, and 2014 to be US$940, US$965, and US$935, generally in line (but higher) with Hawkins Wright's projections. See, TD Securities, North American Paper & Forest Products, 3 December 2013, p. 1 **(NAV-85)**

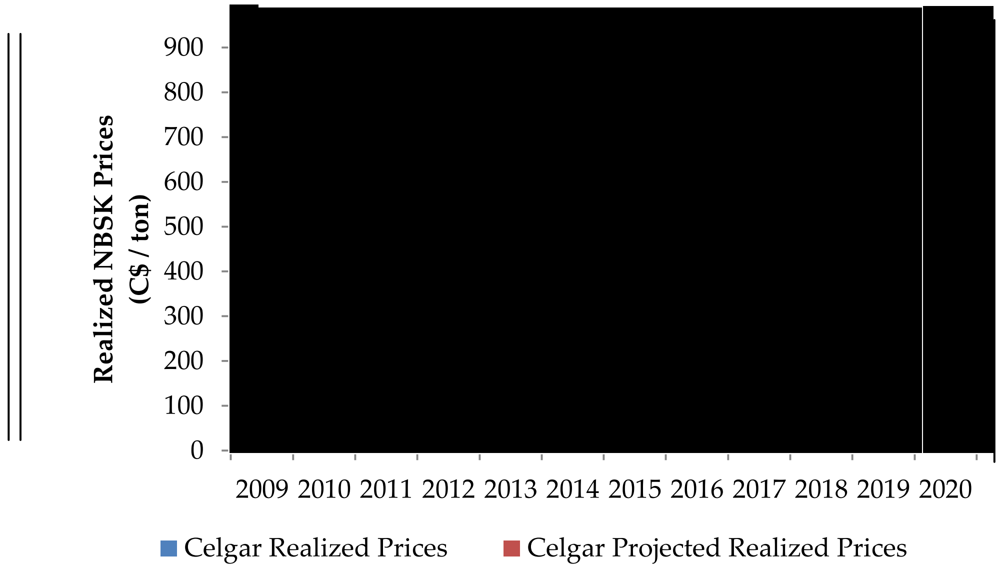
Figure 15 – Celgar's Historic NBSK List Prices for U.S. Delivery (2009-2013) and Hawkins Wright's Projected List Price (2013-2017)[219]



144. To project Celgar's future realized pulp prices, we reduced Hawkins Wright's projected NBSK list prices by [[[redacted]]] percent, comparable to Celgar's historical discounts in 2012 and 2013.[220] In Figure 16 below, we compare Celgar's historical realized NBSK prices from 2009 to 2013 with our projected NBSK prices through 2020.

[219] Hawkins Wright projects its prices in US$. We have converted its projections to C$ at the average C$-US$ exchange rate during July 2013 (the date of its report). See Bloomberg, CAD:USD FX Rates, 2007-2013 **(NAV-110)**. Hawkins Wright, The Outlook for Market Pulp, Supply, Demand and Prices, July 2013 **(NAV-19).**
[220] Appendix 3.A, Net Prices as a Percentage of US List Price

Figure 16 – Actual (2009-2013) and Projected (2014-2020) Realized NBSK Prices for US Delivery[221]



145. For Celgar's historical period NBSK production and sales volumes, we again relied on its financial statements. To develop our projections of future NBSK production and sales volumes, we considered three factors: (1) the historical volume of pulp produced, (2) Celgar's installed capacity utilization, and (3) the amount of operating days. We discuss these three factors below.

146. First, from 2009-2012, the Celgar Mill produced 466,855; 502,107; 488,007; and 490,018 ADMT of pulp respectively.[222] Accordingly, Celgar's growth in production increased by a compound annual growth rate ("CAGR") of 1 percent during 2009-2012.[223]

147. Second, we considered the utilization of Celgar's installed capacity. In 2009, the Celgar Mill had an installed production capacity of 500,000 ADMT which we understand was increased to 520,000 ADMT in 2010.[224] From 2009 to 2012, the Celgar Mill utilized 93 percent to 97

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[221] Appendix 3.A, Net Sales Price of NBSK (after volume discounts)

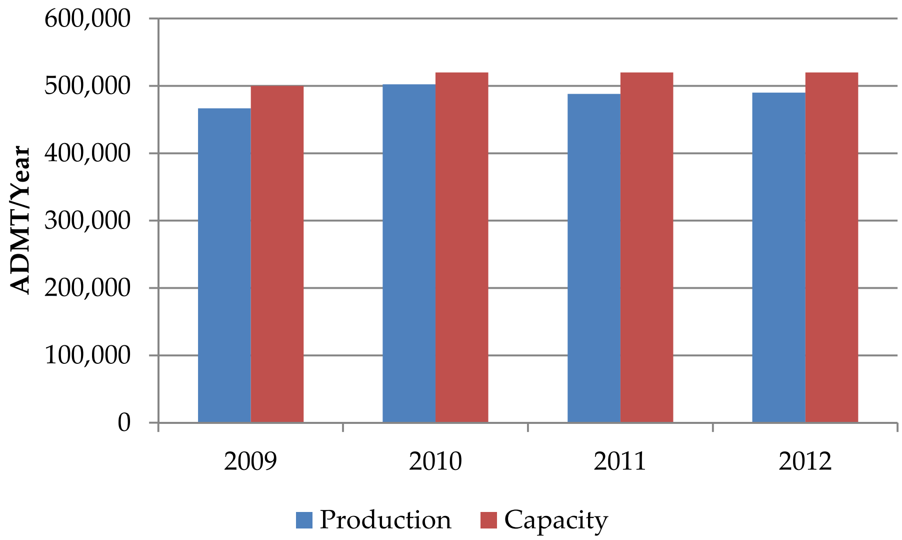
[222] During 2013, the Celgar Mill produced 447,935 ADMT. 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-62)**; 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-63)**; 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-64)**; 2012 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-65);** 2013 Zellstoff Celgar Mill Level Financial Report, PDF p. 4 **(NAV-66).**

[223] We have not considered Celgar's 2013 production (447,935 ADMT) as the Celgar Mill suffered from a greater than expected annual scheduled maintenance shutdown, as well as a slower than budgeted restart of the mill. As a result, the Celgar Mill produced approximately 30,300 fewer ADMT of NBSK. See GlobeNewswire, Mercer Provides Maintenance Shutdown and Second Quarter Update, 7 June 2013 **(NAV-68)**

[224] Mercer 2009 Annual Report, p.13 (**NAV-86)**; Mercer 2010 Annual Report, p.11 **(NAV-87)**

percent of its installed production capacity.[225] Figure 17 illustrates the Celgar Mill's production and installed production capacity.

Figure 17 – Celgar Mill NBSK Production and Capacity, 2009-2012[226]



148. Third, we considered the Celgar Mill's historical days of operation. In 2009, the mill operated for [[redacted]]

149. Based on the three factors above, we project that Celgar will operate for [[redacted]] days a year. We assume that Celgar's production volumes will increase by 1 percent a year through 2017, after which no growth is assumed, resulting in a mill utilization rate of 98%. As Celgar's historical sales volumes were equal to approximately 100 percent of its NBSK production, we have assumed that it will sell 100 percent of its production after 2017.

150. In Figure 18 below, we show Celgar's Actual Scenario historical and projected pulp sales revenues.

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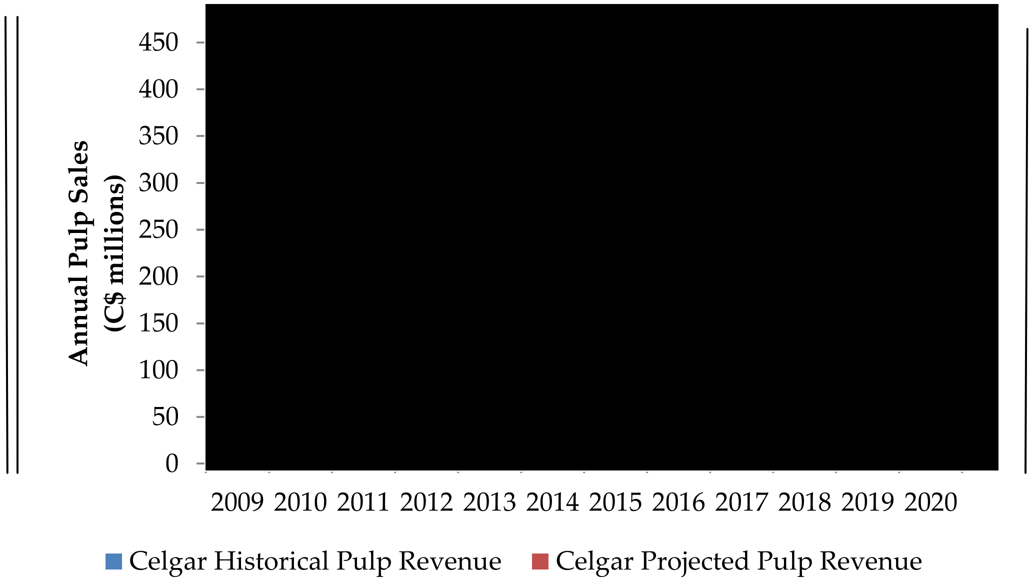
[225] Again, we have excluded 2013 from this analysis as the Celgar Mill suffered from a greater than expected annual scheduled maintenance shutdown, as well as a slower than budgeted restart of the mill. As a result, the Celgar Mill produced approximately 30,300 fewer ADMT of NBSK. See GlobeNewswire, Mercer Provides Maintenance Shutdown and Second Quarter Update, 7 June 2013 **(NAV-68)**.

[226] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-62)**; 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-63)**; 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-64)**; 2012 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-65)**; Mercer 2009 Annual Report, PDF p.15 **(NAV-86)**; Mercer 2010 Annual Report, PDF p.12 **(NAV-87).**

[227] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-62)**; 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-63)**; 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-64)**; 2012 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-65)**.

Figure 18 – Celgar's Historical (2009-2013) and Projected (2014-2020) NBSK Sales Revenues[228]



151. We note that Hawkins Wright assumed that demand for NBSK will increase in China and other emerging Asian markets through 2017 despite flat growth or decreases in demand in established markets.[229] Celgar's location on the west coast of North America makes it a competitive supplier to China and other Asian emerging markets. Indeed, from 2009 to 2013, Celgar's sales volumes to China [[[redacted]]] Thus, we believe that as Celgar continues to serve the growing Chinese and Asian emerging markets, its sales will increase modestly. In our view, when Celgar's sales growth is coupled with Hawkins Wright's increased pulp prices, the projection of Celgar's NBSK production volumes and sales revenues are reasonable.

ii. Electricity generation and sales

152. As discussed in Section III above, the Celgar Mill's electricity generation is codependent on the kraft process. Accordingly, Celgar's electrical generation volumes are correlated with the

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[228] Appendix 3.A, Pulp Sales
[229] Hawkins Wright, The Outlook for Market Pulp, Supply, Demand and Prices, July 2013, Figures 80-88 **(NAV-19).**
[230] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.29 **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report **(NAV-63);** 2011 Zellstoff Mill Level Financial Report **(NAV-64);** 2012 Zellstoff Celgar Mill Level Financial Report **(NAV-65);** 2013 Zellstoff Celgar Mill Level Financial Report, PDF p.29 **(NAV-66).**

volumes of NBSK produced. Besides the capital expenditures to purchase and maintain generation assets, Celgar is able to generate electricity at no incremental operational cost.[231]

153. In the Actual Scenario, we have assumed that Celgar will generate and consume the same volumes of electricity as reported in its financial statements from 2009 to 2013. To develop our projected electricity generation, we considered its historical period electrical generation. During 2009 and 2010, the Celgar Mill produced [[[redacted]]] (respectively) for each ADMT of NBSK produced.[232] From 2011-2013, the Green Energy Project (which came online on 27 September 2010) increased Celgar's production to [[[redacted]]] MWh per ADMT of NBSK produced, respectively.[233] We understand that management anticipates further operational efficiencies and that the Celgar Mill can realistically expect to increase electricity production to 1.14 MWh per ADMT of NBSK produced.[234] Accordingly, for 2014-2015 electricity generation volumes, we have assumed that the Celgar Mill will increase its generation efficiencies by approximately [[[redacted]]] percent per year from 2013 levels, to [[[redacted]]] MWh per ADMT, respectively, which is in line with Celgar's compound annual growth rate in generation efficiency between 2011 and 2013. After 2015, we assume that generation efficiencies increase by [[[redacted]]] percent per year.[235] Figure 19 below illustrates Celgar's historical electricity generation and our projected electricity generation volumes.

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[231] In certain circumstances small amounts of hog fuel may be purchased from third-parties. For example, in 2009 the Celgar Mill did not require any purchase of hog fuel from third parties and in 2010 it purchased C$ 127,000 worth of hog fuel. 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.33 **(NAV-63).**

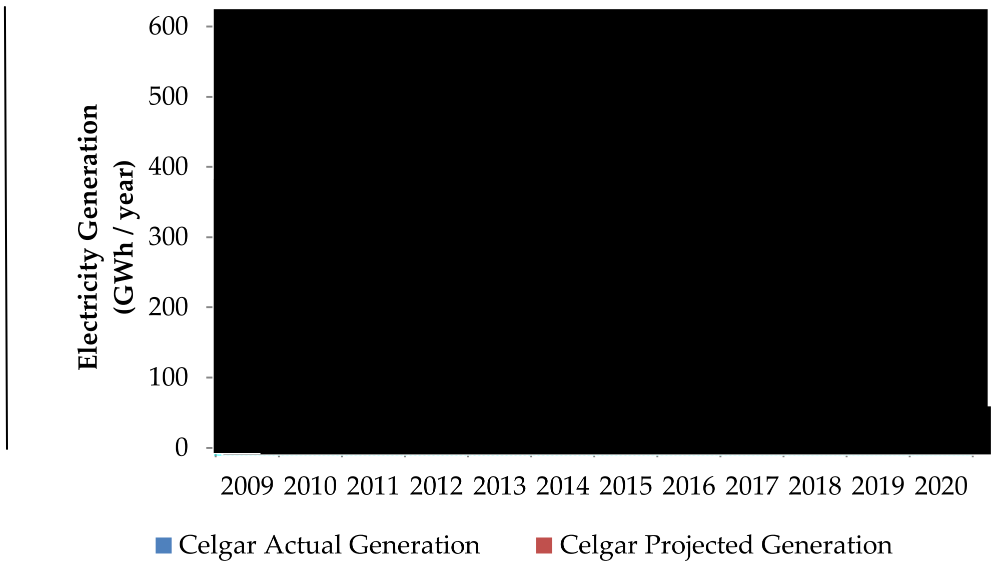
[232] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.32 **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.33 **(NAV-63);**

[233] 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.30 **(NAV-64);** 2012 Zellstoff Celgar Mill Level Financial Report, PDF p.23 **(NAV-65);** 2013 Zellstoff Celgar Mill Level Financial Report, PDF p.32 **(NAV-66).**

[234] Witness Statement of Brian Merwin, ¶ 29

[235] Appendix 3.A, Electricity Generated per AMDT pulp produced

Figure 19 – Celgar's Historical (2009-2013) and Projected (2014-2020) Electricity Generation[236]



154. Under the Measures, Celgar regularly sells surplus electricity generation to third parties (namely BC Hydro) but its GBL has limited it to sales of self-generation in excess of its 349 GWh GBL per year. However, Celgar sold surplus electricity volumes below its load and this GBL level prior to the Green Energy Project's completion on 27 September 2010, as the EPA was not yet in effect. Indeed, during 2009, Celgar generated 359.9 GWh yet sold 35.4 GWh into the market.[237] Similarly, in 2010, Celgar generated [[redacted]] GWh yet sold 70.9 GWh.[238] However, since the EPA took effect in October 2010, Celgar's energy sales have been limited to its generation over its GBL.

155. From 2009-2012, Celgar consumed between [[redacted]] for each ADMT produced.[239] In calculating Celgar's projected load, we have assumed that Celgar will continue to consume [[redacted]] MWh per ADMT produced. We have assumed that Celgar will sell all self-generated electricity above its GBL into the market. Under the BC Hydro EPA, Celgar incurs line losses (i.e., transmission losses) of [[redacted]] percent. In Figure 20 below, we show Celgar's historical and projected electricity sales volumes net of line losses in the Actual Scenario.

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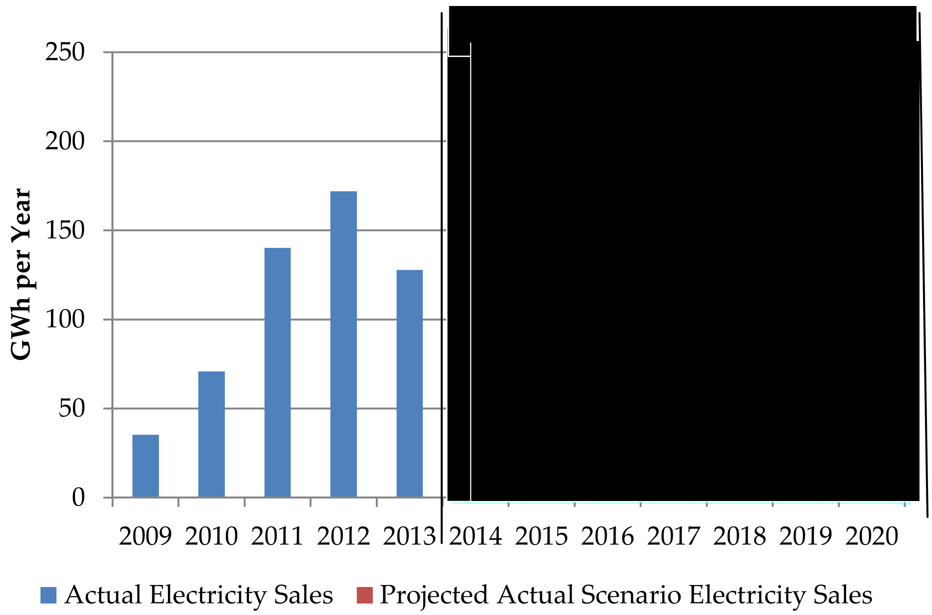
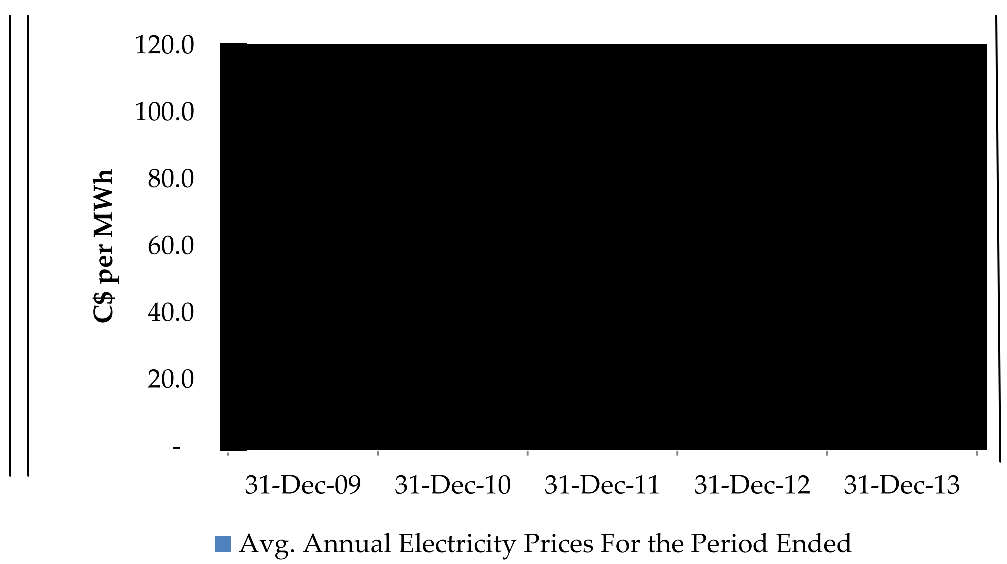
[236] Appendix 3.A, Self-generated electricity
[237] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.32 **(NAV-62).**
[238] 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.33 **(NAV-63).**
[239] See Appendix 3.A, Energy Required to Produce 1 ADMT pulp. Celgar's electricity intensity increased during 2013 to 0.83 MWh per ADMT produced due to the extended maintenance shutdown.

Figure 20 – Actual Scenario Electricity Sales Volumes[240]



156. We based our projected electricity sales price on Celgar's actual realized prices from 2009-2013, as well as the prices under the BC Hydro EPA. Figure 21 below reveals that Celgar's actual realized sales prices varied from [[[redacted]]] per MWh in 2009 (before sales commenced under the BC Hydro EPA) to [[redacted]] in 2013.

Figure 21 – Celgar's Average Annual Realized Sales Prices for Electricity[241]



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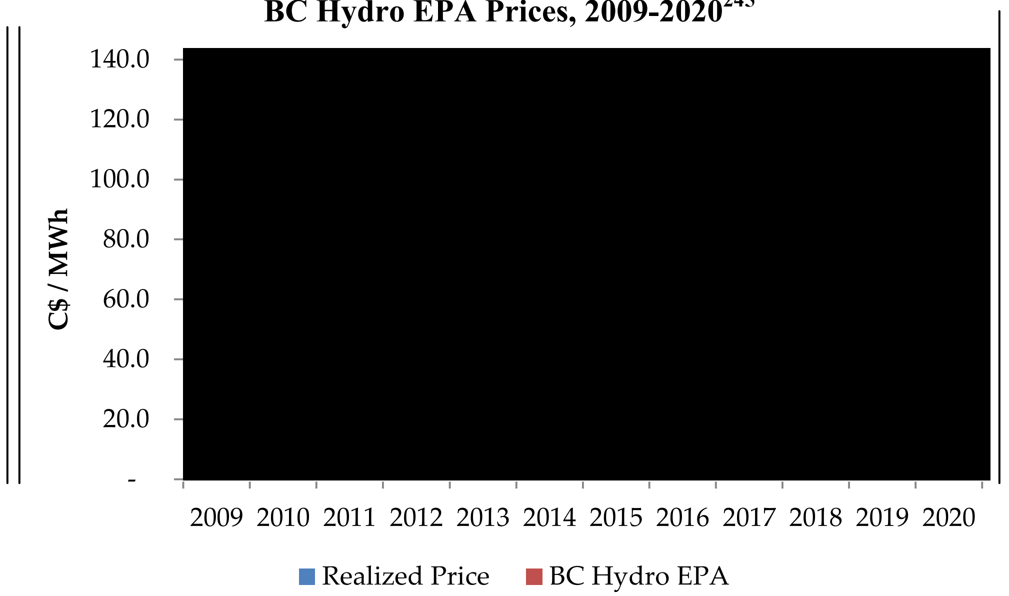
240 Appendix 3.A, Self-Generation Sold Under the Measures

241 Appendix 3.A, Realized Electricity Prices

157. We calculated the price under the BC Hydro EPA from 2009-2014 using 50 percent of the change in the BC CPI through 2013 as per the EPA's pricing terms.[242] After 2014, we projected the BC Hydro EPA price using the International Monetary Fund's ("IMF") projections of Canadian inflation (1.745 percent during 2014, and 2.022 percent for 2015-2018).[243] As Figure 22 below reveals, Celgar's average realized electricity price was below the BC Hydro EPA price in 2009 and 2010 since sales under the EPA did not commence until 27 September 2010 when the Green Energy Project was completed.[244] We have assumed that the sales prices under the BC Hydro EPA would be <[[redacted]]> < [redacted] >

Figure 22 – Celgar's Realized Price of Electricity vs. BC Hydro EPA Prices, 2009-2020[245]



158. As Figure 22 above also reveals, when selling under the BC Hydro EPA (i.e., after 27 September 2010), < [redacted] > Under the BC Hydro EPA, Celgar committed to supply (and BC Hydro

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[242] As the pricing formula considers the CPI at the beginning of the period, we can project the price under the BC Hydro EPA for 2014. Thus in 2014, the CPI for December 2013 will be used to set the 2014 price.

[243] Current year BC Hydro EPA prices are set using the CPI as of 1 January (i.e., 31 December of the previous year). See IMF Projected Canadian Inflation **(NAV-111).** As actual inflation figures were available through 31 December 2013, we are able to calculate 2014's actual electricity prices.

[244] BC Hydro EPA, 27 January 2009, Section 7.1 **(NAV-71).** For example, during 2009, the average price of electricity sold by Celgar was C$ 28/MWh, comparable to the average spot price at Mid-C. See 2009 Zellstoff Celgar Mill Lever Financial Report, p. 31 **(NAV-62)** and Bloomberg, Mid-C prices, 2009-2013 **(NAV-31)**

[245] Appendix 3.A, Realized Electricity Sales Price and BC Hydro EPA Price Electricity Price

committed to purchase) 238.186 GWh per year.[246] < [redacted] > [[redacted]] < [redacted] >

159. < [redacted] > [[redacted]] < [redacted] >

iii. Pulp Production Costs

160. Celgar has two primary types of production costs: (1) variable production costs (i.e., the cost of raw materials) and (2) fixed production costs. We address each primary cost type in the paragraphs below.

161. Celgar's largest variable cost is the raw materials, or "fiber" (i.e., wood chips or pulp logs), that it transforms into NBSK pulp. Because kraft mills run continuously, there is a constant demand for fiber.[250] Accordingly, pulp producers have limited price sensitivity toward fiber costs and are willing to pay the prevailing market prices for fiber (within reason) in order to sustain production.[251] Consequently, forecasting fiber prices is challenging, as fiber prices are poorly correlated with pulp demand and pulp prices due to pulp producers' limited sensitivity toward fiber prices.[252] Fiber is somewhat inversely correlated with lumber demand. As fiber is largely a byproduct of the lumber industry, any decreases in lumber supply would cause a decrease in the fiber supply, thus increasing prices.[253] Lumber supply from Canada is highly

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246 BC Hydro EPA, 27 January 2009, Appendix 2 **(NAV-71)**
247 BC Hydro EPA, 27 January 2009, Section 13.2 **(NAV-71)**
248 Witness Statement of Brian Merwin, Footnote 59
249 Appendix 3.A, Undelivered Volumes
250 Forest Research Notes, Paper, Pulp and Logs, Volume 6 Number 1, First Quarter 2009, p. 2 **(NAV-88).**
251 Forest Research Notes, Paper, Pulp and Logs, Volume 6 Number 1, First Quarter 2009, p. 2 **(NAV-88).**
252 Forest Research Notes, Paper, Pulp and Logs, Volume 6 Number 1, First Quarter 2009, p. 4 **(NAV-88).**
253 Forest Research Notes, Paper, Pulp and Logs, Volume 6 Number 1, First Quarter 2009, p. 4 **(NAV-88).**

correlated with United States' housing starts.[254] Thus, we have reviewed historical and projected housing starts to assist in forecasting fiber prices.

162. As a result of the financial crisis (driven by the burst of the housing bubble in 2008), United States housing starts from 2009 to 2011 were historically low, from 7.0 million to 7.5 million per year, respectively.[255] Before the financial crisis, from 2001 to 2007, United States housing starts were between 16.7 million and 25.9 million per year.[256] As a result of low lumber demand, chip prices were at unusually high levels in 2011 and in early 2012.[257] For example, Celgar's fiber costs increased from [[[redacted]]] in 2011 and 2012, respectively.[258]

163. As the economy improves and housing starts increase, we expect the supply of wood chips to increase due to increased lumber supply, resulting in falling fiber prices. Indeed, the recovery in the housing market can already be seen as housing starts have increased to 9.9 million in 2012 and 11.6 million in 2013.[259] Accordingly, we have assumed that Celgar's pulpwood prices will decline modestly, from 2013's [[[redacted]]] per thousand cubic meters.[260]

164. Celgar's second largest variable cost is the cost of chemicals. Celgar's chemical costs have remained relatively constant, between [[[redacted]]] per year between 2009-2013, which has equated to a cost per ADMT of between [[[redacted]]] per ADMT of pulp produced.[261] Thus, in both the But-For and Actual Scenarios, we have assumed this cost will be the average of this range, or [[[redacted]]] per ADMT of pulp produced.

165. Celgar's third largest variable cost is energy. The Celgar Mill largely relies upon natural gas and self-generated electricity to power the mill. We understand that natural gas is used to

[254] Forest Research Notes, Housing, Lumber and Logs, Volume 5 Number 4, Fourth Quarter 2008 **(NAV-89).**
[255] In comparison, housing starts were averaging over 1.5 million per month from 2001-2006. See US Census Bureau, Housing Starts, 2001-2013 **(NAV-90)**
[256] US Census Bureau, Housing Starts, 2001-2013 **(NAV-90).**
[257] The Campbell Group LLC, Timber Trends, June 2013 **(NAV-91).**
[258] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.30 **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.31 **(NAV-63);** 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.28 **(NAV-64);** 2012 Zellstoff Celgar Mill Level Financial Report, PDF p.21 **(NAV-65).**
[259] US Census Bureau, Housing Starts, 2011-2013 **(NAV-90).**
[260] Appendix 3.A, Average Cost of Wood Inventory
[261] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-63);** 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-64);** 2012 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-65);** 2013 Zellstoff Celgar Mill Level Financial Report, PDF p.4 **(NAV-66)**. See also, Appendix 3.A, Chemcials

fuel the kiln on a primary basis and the power boiler and recovery boiler in periods where black liquor is unavailable (usually upon starting the mill). Historically, Celgar purchased between [[[redacted]]] MWh of natural gas from 2009-2012, averaging approximately [[[redacted]]] MWh of natural gas purchased per ADMT of production.[262] Accordingly, we assumed a similar relationship between natural gas purchases and production from 2014-2019. We also assumed that future natural gas prices will reflect the futures price of natural gas. As of 31 December 2013, the North American (i.e., Henry Hub) natural gas futures curve indicated that natural gas prices were expected to increase by approximately 3 percent per year through 2020.[263] Accordingly, we assumed that natural gas prices will increase from C$ 21 per MWh in 2013 to C$ 26 per MWh in 2020.

166. Besides natural gas, Celgar also regularly purchased electricity from FortisBC in order to supplement self-generated electricity. Celgar makes regular purchases of electricity during times of upset conditions (i.e., during maintenance shutdowns, etc.). Typically, Celgar has purchased between [[redacted]] of its annual load requirements from FortisBC during upset conditions.[264] Accordingly, we have assumed that in the Actual Scenario Celgar will purchase from FortisBC [[redacted]] of its load requirements (the average percentage of load purchased during 2011-2013 from Fortis BC after the BC Hydro EPA became effective), during 2014-2020.[265]

167. Celgar had historically purchased its electricity under FortisBC Rate Schedules 31 and 33. Prior to BCUC Order G-156-10, Celgar purchased its electricity from FortisBC under Rate Schedule 33, a "time-of-use" rate. Under BCUC Order G-156-10, effective January 2011, Celgar was ordered to purchase electricity under Rate Schedule 31. Rate Schedule 31 consists of two components: a fixed demand charge (billed as a "wires charge" and a "power supply charge") based on the maximum purchases during a month and an energy charge that varies with

[262] 2009 Zellstoff Celgar Mill Level Financial Report, PDF p.32 **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report, PDF p.33 **(NAV-63);** 2011 Zellstoff Celgar Mill Level Financial Report, PDF p.30 **(NAV-64);** 2012 Zellstoff Celgar Mill Level Financial Report, PDF p.23 **(NAV-65).** See also, Appendix 3.A. We note that in 2013, Celgar purchased 490,883 MWh of natural gas due to the extended maintenance shutdown during the year (2013 Zellstoff Celgar Mill Level Financial Report, PDF p.32 **(NAV-66)**). Due to Celgar's extended maintenance downtime, we excluded its natural gas purchases from our analysis.
[263] Bloomberg, Natural Gas Spot and Futures Prices, **(NAV-92).**
[264] Appendix 3.A, Mill Load Purchased From FortisBC During Upset Conditions
[265] Appendix 3.A, Mill Load Purchased From FortisBC During Upset Conditions

the actual amount of electricity used.[266] Since Rate Schedule 31's demand charge is based on the higher of the contract demand, the peak purchase during a period, or the peak purchases during the prior eleven months, Celgar is essentially forced to purchase the capacity to service its entire load for the entire month even though Celgar only purchases its entire load for hours or days during the month. Indeed, during 2012 and 2013, Celgar's monthly demand charges were based on [[redacted]],[267] respectively, which would allow Celgar to purchase [[redacted]] at Rate Schedule 31 during the year. Yet, Celgar only purchased [[redacted]] GWh from FortisBC during 2012 and 2013, respectively.[268] We understand that BCUC Order G-156-10 set Rate Schedule 31 as an interim rate until a "standby" rate could be established. As a "standby" rate has yet to be established, we have assumed that Celgar will continue to purchase electricity from FortisBC at Rate Schedule 31 and its average annual demand charges will be based on 40 MW of monthly load.[269] In Table 7 below, we display the components of FortisBC Rate Schedule 31 effective on 1 January 2013.

Table 7 – FortisBC Rate Schedule 31[270]

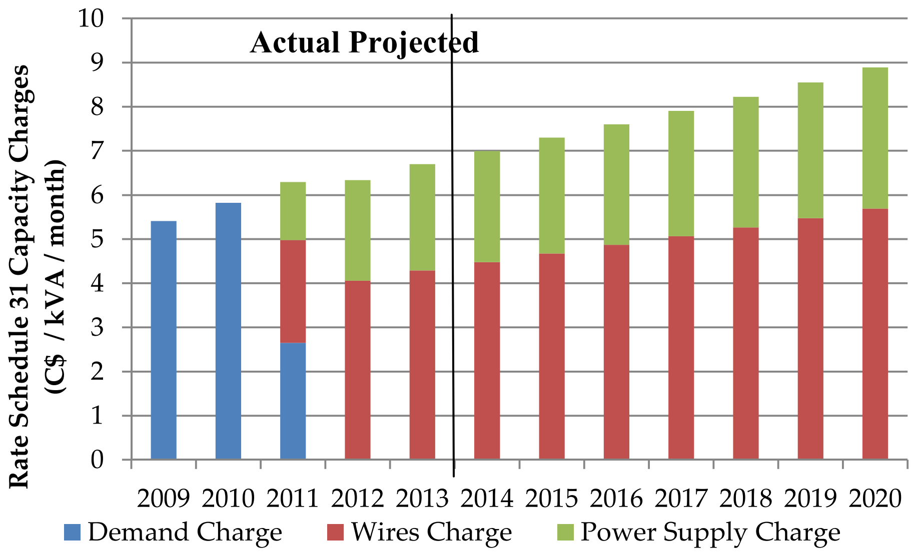
Effective Date	**1-Jan-13**
Customer Charge (C$/mo.)	2,711.28
Demand Charge (C$ / kVA)	-
Wires Charge (C$/kVA)	4.290
Power Supply Charge (C$/kVA)	2.410
Energy Charge (C¢ / kWh)	4.800

168. To project FortisBC's future prices, we considered its recent regulatory filings with the BCUC. Specifically, on 18 October 2013, FortisBC requested from the BCUC a rate increase of 3.3 percent in 2014 and 3.6 percent from 2015-2018.[271] After FortisBC announced its proposed

[266] FortisBC Rate Schedule 31, 2009-2013 **(NAV-109)**. Before 4 May 2011, Rate Schedule 31's fixed component was simply called a "demand charge."
[267] Witness Statement of Brian Merwin, ¶ 133.
[268] Witness Statement of Brian Merwin, Annex A.
[269] Although Celgar's load is expected to be between 43 MW and 44 MW, we have conservatively assumed that Celgar would be subject to an average monthly demand of 40 MW, consistent with its 2013 demand charges. Celgar's average monthly demand charges are below its load because Rate Schedule 31 bases its demand charge on the greater of actual demand or 80 percent of the highest monthly demand over the last 11 months. See, Fortis BC Rate Schedule 31 **(NAV-109).**
[270] Fortis BC Rate Schedule 31 **(NAV-109).**
[271] Letter from FortisBC to BCUC, 18 October 2013, p. 2 **(NAV-93).**

rate increases, on 26 November 2013, BC Hydro announced price tariff increases of 9 percent in 2014, 6 percent in 2015, 4 percent in 2016, 3.5 percent in 2017, and 3 percent in 2018.[272] Since BC Hydro supplies nearly an eighth of FortisBC's electricity, there will likely be a knock-on effect on FortisBC's requested rate increases. In fact, FortisBC stated that its rates will rise by C$ 1/MWh for every C$ 8/MWh that BC Hydro's rates increase.[273] Based on FortisBC's and BC Hydro's requested and announced rate increases, we have forecast that FortisBC's electric tariffs will rise between 4.4 percent and 4.0 percent from 2014-2018.[274] We have further assumed an additional 4.0 percent increase in 2019 and 2020. We have applied these rate increases to both the fixed and variable components of FortisBC's Rate Schedule 31 charges. In Figure 23 below, we show FortisBC's Rate Schedule 31 monthly demand charges from 2009-2013, as well as our projected demand charges for 2014-2020. We have assumed demand charges of 40 MW per month.[275]

Figure 23 – Actual and Projected FortisBC Rate Schedule 31 Tariffs[276]



169. In addition to Celgar's regular electricity purchases from FortisBC, < [redacted]

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[272] BC Ministry of Energy and Mines, 10-Year Plan for BC Hydro, 26 November 2013, p. 23 **(NAV-94).**
[273] Letter from FortisBC to BCUC, 13 August 2013, pp. 47, 48 **(NAV-95).**
[274] Appendix 3.D
[275] Witness Statement of Brian Merwin, ¶ 133
[276] Appendix 3.D

[redacted] > We have projected that BC Hydro's Rate Schedule 1823 will grow by BC Hydro's requested tariff increases.[277]

170. Celgar's final variable costs are selling, general, and administrative costs. These costs consist of freight charges as well as fees and commissions associated with the sale of NBSK pulp. From 2010 to 2013, freight costs have been equal to between [[[redacted]]] percent of Celgar's list price for United States' deliveries of NBSK pulp while commissions were equal to [[redacted]] percent of list price.[278] Accordingly, we have projected that future freight costs and commissions on NBSK volumes sold would be equal to [[[redacted]]] percent of Celgar's list price, respectively.[279] Celgar historically had other selling costs of [[[redacted]]] per ADMT of NBSK sold, which we have assumed will increase by inflation.[280] [[[redacted]]] due primarily to costs arising from the Measures.[281] Accordingly, we have assumed the future general and administrative expenses would be equal to [[[redacted]]] per ton and grow by inflation.[282]

171. Celgar's fixed pulp production costs consist of costs that largely do not change based on the volumes of pulp produced. These fixed costs consist primarily of personnel and maintenance as noted in the Celgar Mill's financial reports. We have assumed that total 2013 fixed costs will grow by projected inflation from 2014-2020.[283] In July 2013, Mercer announced a workforce reduction of 85 employees at the Celgar Mill (19 percent of its workforce).[284] This workforce reduction is expected to take place over five years and is expected to result in a cost savings of between [[[redacted]]]

[277] Appendix 3.D
[278] Appendix 3.A, Commission Cost per ton.
[279] Appendix 3.A, Freight Cost per ton.
[280] Appendix 3.A. Other selling costs per ton.
[281] Appendix 3.A, General & administrative expenses.
[282] Appendix 3.A, General & administrative expenses.
[283] Appendix 3.A, Total fixed costs
[284] GlobeNewswire, Mercer International Inc. Announces Workforce Reduction at Celgar Mill in Order to Improve Competitiveness, 9 July 2013 **(NAV-96).**

percent of the cost savings realized in 2014.[285] We have not incorporated these cost savings into our model. However, we will evaluate the impact of these cost savings on Celgar in the future and will update our calculations accordingly if needed.

iv. Income Taxes

172. The Celgar Mill is owned by the Celgar Partnership, with Zellstoff Celgar, Ltd. as its general partner and Mercer as its limited partner. Under Canadian law, the Celgar Partnership itself has historically not paid taxes on its earnings in Canada or in British Columbia. Rather, the partners (i.e., Zellstoff Celgar, Ltd. and Mercer) are directly taxed for their share of the Celgar Partnership's profits.[286] Indeed, Celgar states in its audited financial statements:

> "These financial statements include only the assets, liabilities and results of operations of the Partnership together with the capital contributed by the Partners. Under Canadian law, each member of a partnership is responsible for the payment of tax in respect of its share of taxable income, if any, and capital of the partnership."[287]

173. As Celgar historically has not recognized any income tax liability, we have not incorporated any provision for income taxes into the historical lost profits portion of our damages analysis (i.e., the portion of damages calculated prior to the valuation date). However, in our calculation of Celgar's fair market value (i.e., the future period), we have incorporated a provision for the 26 percent Canadian corporate income tax. We have incorporated income taxes in the future period to reflect that, by definition, the fair market value of Celgar should be determined from the perspective of a hypothetical buyer and seller and should not necessarily reflect Celgar's current ownership structure. In our view, a hypothetical buyer would consider the income taxes that would be incurred on Celgar's future cash flows either paid on Celgar's behalf by the partner (if structured as a partnership) or by Celgar directly (if structured as a corporation).

174. We note that as of 31 December 2013, Mercer had Canadian tax loss carryforwards of US$ 43.8 million.[288] It is unclear whether these carryforwards could be transferred to a hypothetical buyer to offset any of the income taxes we project in our calculation of Celgar's fair market

[285] Mercer 2013 Annual Report, p. 53 **(NAV-01).**
[286] In contrast, a corporation would directly pay corporate income tax on its earnings.
[287] Zellstoff Celgar LP Audited Financial Statements, 2009-2013 **(NAV-57-NAV-61).**
[288] Mercer 2013 10-K, p. 110 **(NAV-01)**.

value. If these tax loss carryforwards were able to be transferred to and used by a hypothetical buyer, they would likely result in an increase Celgar's fair market value.

175. We also understand that any award issued by the Tribunal may be taxable to Mercer in Canada or in the United States. Mercer's policy is to indefinitely reinvest its undistributed earnings in its foreign subsidiaries, preventing their taxation in the United States.[289] To the extent an award is subject to income taxes in the United States, Mercer would be subjected to unanticipated United States taxes.

v. Capital expenditures and depreciation

176. During 2009-2010, Celgar had significant capital expenditures due to its investment in the Green Energy Project.[290] In 2011, Celgar invested in projects to improve the Celgar Mill's fiber line, oxygen delignification process, and to improve in its chemical recovery/recycling process.[291] After 2011, no significant capital expenditures were anticipated. Accordingly, we have assumed that future capital expenditures will remain at 2012 and 2013 levels, adjusted for future inflation. We have assumed that depreciation will remain at 2013 levels.

vi. Working capital

177. Historically, Celgar's year-end working capital assets (i.e., accounts receivables and inventories) have been equal to between [[[redacted]]] percent of sales while working capital liabilities (i.e., accounts payables) have been equal to between [[[redacted]]] percent of its total costs of sales.[292] Accordingly, we have assumed that Celgar's 2014-2020 year-end working capital assets and liabilities will be equal to [[[redacted]]] percent of sales and [[[redacted]]] percent of costs, respectively.

vii. Discount rate

178. Based on the assumptions described above, the undiscounted historical profits and projected free cash flow to the firm ("FCFF") of Celgar are shown in Figure 24 below.

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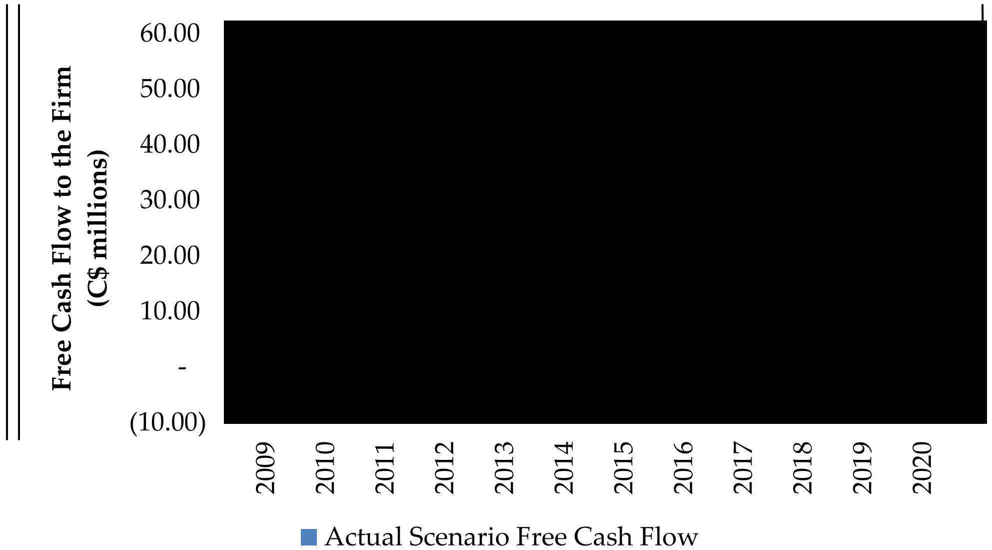
[289] Mercer 2013 10-K, p. 110 **(NAV-01)**.
[290] Mercer 2011 Annual Report, p. 21 **(NAV-97).**
[291] Mercer 2011 Annual Report, p. 21 **(NAV-97).**
[292] 2009 Zellstoff Celgar Mill Level Financial Report **(NAV-62);** 2010 Zellstoff Celgar Mill Level Financial Report **(NAV-63);** 2011 Zellstoff Celgar Mill Level Financial Report **(NAV-64);** 2012 Zellstoff Celgar Mill Level Financial Report **(NAV-65);** 2013 Zellstoff Celgar Mill Level Financial Report **(NAV-66)**; Appendix 3.A, Current assets as a percentage of sales; Appendix 3.A, Current liabilities as a percentage of costs

Figure 24 – Actual Scenario Cash Flows[293]



179. In order to arrive at the fair market value of Celgar under the Measures, we discount the projected cash flows to our Valuation Date (31 December 2013). Since we are calculating the enterprise value of Celgar, the appropriate discount rate is the WACC. Below, we discuss the components and conclusion of our WACC calculation including the cost of equity, cost of debt, and capital structure.

<u>Cost of Equity</u>

180. The cost of equity reflects the rate of return equity investors require in order to invest in the share capital of a company. The most widely utilized method for estimating the cost of equity is the Capital Asset Pricing Model ("CAPM"). The basic CAPM formula is as follows:

Figure 25 – CAPM Formula

CAPM = Rf + β * EMRP + CRP

Where:

R_f = Risk Free Rate of Return

β = Beta

EMRP = Equity Market Risk Premium

CRP = Country Risk Premium

[293] Appendix 3.A, Free Cash Flow to Firm

181. The first component of the CAPM formula is the risk free rate of return. The risk free rate is typically measured as the nominal yields on US government bonds (or other AAA-rated sovereign bonds, such as Canada's). In this case, we have used 4.47 percent, equal to the average yield on a 20-year Canadian government bond over the past fifteen years.[294] The use of an average yield over that period serves to eliminate the downward bias that current monetary policy is creating on Canadian government bond yields. Well-regarded valuation practitioners have identified the use of spot yields during periods of economic turmoil as a common valuation error.[295]

182. The second component of the CAPM formula is beta. Beta measures the systematic risk, or volatility, of an equity security in relation to the overall market. In other words, it represents the relative volatility of the security measured against the volatility of the market. A beta of 1.0 indicates that a security's price has historically moved in parallel with the market; a beta greater than 1.0 indicates that a security's price has historically been more volatile than the market; and a beta less than 1.0 indicates that a security's price has historically been less volatile than the market.

183. Because Celgar is not a publicly traded company, it is not possible to directly observe its beta. A common solution to this issue is to examine betas for other companies within the industry that are publicly traded so as to determine a beta estimate for the subject asset or company. We considered the betas of comparable publicly traded Canadian pulp and paper producers. We searched Bloomberg for companies with the Global Industrial Classification Standard ("GICS") codes for paper product (15105020) and forest products (15105010) domiciled in Canada. This identified 10 and 12 companies, respectively. We excluded from the population of paper product companies five companies that were primarily engaged in the manufacture of paper or paper products and excluded from the forest product twelve companies that were not engaged in the production of pulp or generated a small portion of their revenues from NBSK.[296] Our review found 6 comparable publicly traded companies: Canfor Pulp

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[294] Bloomberg, Canadian 20-year Bond Yields, 1999-2013 **(NAV-98).**
[295] Grabowski, Roger J., *Mid-2011 Risk-Free Update and ERP Update*, 28 July 2011, p.5 **(NAV-99)**.
[296] Specifically, we excluded Canfor Corp. (lumber), Catalyst Paper Corp. (paper manufacturing), Domtar Canada Paper (paper manufacturing), Fortress Paper Ltd. (paper manufacturing), Supremex Inc. (office supply company), and Westbond Enterprises Corp. (medical supply company) from the Paper Product sector. We also excluded Stella-Jones, Inc. (lumber, wood products), Norbord Inc. (wood panels), International Forest Products Ltd. (lumber, wood products), Western Forest Products (wood products, forest management), Ainsworth Lumber Co. Ltd.
(con't)

Products, Inc. (a subsidiary of Canfor Corp.), Domtar Corp., Resolute Forest Product, Inc., Tembec, Inc., West Fraser Co. Ltd., and Claimant (Mercer International Inc.). The betas for these companies and their median is shown in Table 8 below.

Table 8 – Representative Company and Industry Betas[297]

Company	Unlevered Beta
Canfor Pulp Products Inc.	1.065
Domtar Corp.	0.624
Mercer International	0.482
Resolute Forest Products Inc.	1.195
Tembec Inc.	0.647
West Fraser Co. Limited	0.744
Median	**0.695**

184. The betas listed in Table 8 above are all "unlevered" betas. An unlevered beta is a beta that ignores the amount of debt financing relied upon by the company to finance its operations. A "levered" beta is a beta that incorporates the amount of debt financing relied upon by the company to finance its operations. The appropriate beta to utilize in the CAPM is the levered beta. Accordingly, to compute a levered beta for Celgar, we considered the amount of debt financing a hypothetical buyer would anticipate utilizing to execute the project. In Table 9 below, we show the capital structures of the comparable companies listed above.

Table 9 – Capital Structures of Comparable Companies[298]

Company	Market Cap 31 Dec 2013 (C$ mln)	Total Debt (C$ mln)	Debt to Equity Ratio
Canfor Pulp Products Inc.	729	50	0.07
Domtar Corp.	3,247	1,625	0.50
Mercer International	576	1,003	1.74
Resolute Forest Products Inc.	1,617	637	0.39
Tembec Inc.	290	491	1.69
West Fraser Co. Limited	4,462	317	0.07

(lumber, wood products), Acadian Timber Corp. (wood products, forest management), Conifex Timber (lumber, wood products), Magindustries Corp. (potash, operations in Republic of Congo), Baikal Forest Corp. (lumber, operations in Russia), Prima Colombia Hardwood Inc. (hardwood timber development, operations in Colombia).

297 Appendix 4.B

298 Appendix 4.B

185. Table 9 above reveals that Mercer and Tembec have capital structures that are significantly more levered (i.e., contain more debt) than those of other comparable companies. Mercer's debt levels are higher as a result of its Stendal Mill greenfield development. The Stendal Mill was developed at a cost of US$ 1.1 billion and was project financed with debt.[299] Indeed, as of 2013, Mercer's outstanding loan balance related to the Stendal Mill is US$ 568.9 million, however, the debt related to the Stendal Mill is 80 percent non-recourse to Mercer.[300] Accordingly, Mercer's recourse debt as a percentage of capital structure is much lower. As regards Tembec, its debt as a percentage of capital structure is high due to a large amount of debt financed capital investments to upgrade one of its mills.[301] Accordingly, excluding Mercer and Tembec, we have assumed a capital structure of 25 percent debt and 75 percent equity (a D/E ratio of 0.33), resulting in a levered beta for Celgar of 0.867.

186. The third component of the CAPM formula is the equity risk premium. The equity risk premium represents the premium above the risk-free rate that investors require for taking the increased risk associated with investments in equity securities rather than risk-free US treasuries. We considered equity risk premiums recommended by academics (Professor Damodaran of the New York University's Stern School of Business and Professors Dimson, Staunton & Marsh of the London Business School), as well as a broader survey of practitioners.[302] These sources suggest an equity risk premium in the general range of 5 – 6 percent.[303] As such, we adopted an equity risk premium of 5.5 percent based on the central tendency of these estimates.

187. The fourth component of the CAPM formula is the country risk premium. Country risk is comprised of the macroeconomic, currency, market, political, social, regulatory, and legal risks associated with doing business in a particular country. As our three previous components of the CAPM have been developed using data from the Canadian market and no incremental country risks are expected to be borne by operating in Canada, we have not applied any country risk premium.

[299] Mercer 2013 10-K, pp. 6,31 **(NAV-01).**
[300] Mercer 2013 10-K, pp. 31, 32 **(NAV-01).**
[301] Tembec 2013 Annual Report, p. 33 **(NAV-100)**
[302] See Professor Damodaran, Annual Returns on Stock, T.Bonds and T.Bills: 1928 – Current, 5 January 2013 **(NAV-101);** Professor Damodaran, Annual Returns on Stock, T.Bonds and T.Bills: 1928- 2012, 5 January 2012 **(NAV-102);** Ibbotson 2012 Valuation Yearbook **(NAV-103);** Shannon Pratt and Roger Grabowski, Cost of Capital: Applications and Examples, 19 October 2010, pp. 155-158 **(NAV-104)).**
[303] Fernandez, Pablo, et al., Market Risk Premium Used in 56 Countries in 2011, May 2011, p.6 **(NAV-105).**

188. Therefore, using a risk free rate of 4.47 percent, a beta of 0.867, and an equity risk premium of 5.50 percent, we calculate the nominal cost of equity for Celgar to be 9.23 percent as shown in Table 10 below.

Table 10 – Celgar Cost of Equity[304]

Calc.	Components	
	Cost of Equity	
[A]	Risk Free Rate	4.47%
[B]	Equity Risk Premium	5.50%
[C]	Beta (against SPTSX Index)	0.867
[D] = B*C	Adjusted Equity Risk Premium	4.77%
[E] =A+D	**Cost of Equity**	**9.23%**

Cost of Debt

189. The second component of our WACC calculation is the cost of debt. We examined the cost of debt reported by the comparable companies identified above to determine Celgar's cost of debt. As seen in Table 11 below, we have calculated the median pre-tax cost of debt for Celgar as 6.84 percent. After considering the Canadian corporate tax rate of 26 percent,[305] the after-tax cost of debt is 5.06 percent.

Table 11 – Celgar Cost of Debt[306]

Calc.	Company	Cost of Debt
	Canfor Pulp Products Inc.	6.41%
	Domtar Corp.	4.42%
	Mercer International Inc.	7.27%
	Tembec Corp.	8.77%
	Resolute Forest Products	7.44%
	West Fraser Timber Co. Ltd.	5.20%
[A]	**Median**	**6.84%**
[B]	Canadian Tax Rate	26%
[C]=A*(1-B)	**Cost of Debt**	**5.06%**

Weighted Average Cost of Capital

190. In order to compute the WACC, the cost of equity (9.23 percent) and the after tax cost of debt (5.06 percent) must each be assigned a weight. We discussed our determination of the

304 Appendix 4.A
305 KPMG, Corporate Tax Rate Survey, 2012, p.6 **(NAV-106).**
306 Appendix 4.C.

weighting in paragraph 185 above. Using this average capital structure of 75 percent equity and 25 percent debt, the resulting WACC for Celgar is 8.19 percent as summarized in Table 12 below.

Table 12 – Celgar Weighted Average Cost of Capital[307]

Calc.	Components	
	WACC Calculation	
[A]	Cost of Equity	9.23%
[B]	% of Equity	0.75
[C]	Cost of Debt	5.06%
[D]	% of Debt	0.25
[E]=A*B+C*D	**WACC**	**8.19%**

191. We applied our WACC to discount the Actual Scenario cash flows to the Valuation Date value in order to arrive at Enterprise Fair Market Value of Celgar.

viii. Celgar's terminal value under the Measures

192. In order to capture the remaining value of a company beyond the forecast period, valuation practitioners typically calculate a terminal value. The terminal value represents the continuing value of the company after the discrete forecast period to perpetuity. The total enterprise value of the company is equal to the discounted terminal value plus the discounted FCFF during our discrete forecast period.

193. We calculated the terminal value of Celgar using the perpetuity growth formula. The perpetuity growth formula is the standard terminal value formula used by valuation practitioners. It is based on the premise that cash flows will grow at a constant rate to perpetuity. The perpetuity growth formula and the variables used in the formula to calculate the terminal value are set forth below:

Terminal Value = [FCFFt (1+g) / (r – g)]
Where:
FCFFt = Free Cash Flow to the Firm in 2020
g = Perpetuity growth rate (0.0%)
r = Discount rate (8.19%)

194. As our projection assumed that Celgar is not expected to increase pulp production beyond 2017, we have applied a long-term growth rate of 0.0. A growth rate of 0.0 percent implies that

[307] Appendix 4.A.

Celgar's pulp and electricity sales and production will remain in a flat, steady state in the future. Using the FCFF we project in 2020, our discount rate of 8.19 percent and a growth rate of 0.0 percent, we calculated the terminal value of Celgar to be [[[redacted]]] million under the Measures.

ix. DCF Results

195. Having determined Celgar's FCFF in the future period, the discount rate, and the terminal value, we discounted the cash flow projections and terminal value to 31 December 2013 using Celgar's WACC. The resulting fair market value of Celgar under the Measures at 31 December 2013 is [[[redacted]]] million, as show in Table 13 below.

Table 13 – Fair Market Value of Celgar Under the Measures at 31 December 2013 (C$ millions)[308]

Description	Amount
Free Cash Flow to Firm (2014-2020)	[redacted]
Terminal Value	[redacted]
Fair Market Value at 30 Dec 2013	[redacted]

B. Celgar's Historical and Future Performance But-For the Measures

196. In this section, we discuss our calculation of Celgar's fair market value absent the Measures (i.e., the But-For Scenario). Accordingly, we have assumed that Celgar would have been able to begin purchasing embedded cost utility power to supply its load (or a portion of its load) while it is selling self-generated electricity on 6 May 2009, the date that the Measures were implemented. Also on 6 May 2009, we assume that Celgar would have been able to begin selling its self-generated electricity at biomass-based green energy prices. We also assume that Celgar is able to purchase and sell below load energy into perpetuity (i.e., beyond the expiration of the BC Hydro EPA). In other words, we assume that the Measures will continue to remain in place through 2020 and beyond.

197. We have been asked by Counsel to assess Celgar's fair market value assuming a variety of restrictions on Celgar's ability to purchase below load embedded cost utility power from FortisBC. Under the Actual Scenario, Celgar is unable to access any embedded cost utility power while selling power not in excess of its 2007 load -- its Below Load Access Percentage is

[308] Appendix 3.A, Sum Present Value of Free Cash Flow to the Firm at 31 Dec 2013 for 2014-2020 & Terminal Period

zero and its GBL is 349 GWh per year. Under alternative but-for scenarios, we assume lower GBLs. These lower GBLs are derived from Celgar's historical usage of its self-generation as well as the levels of embedded cost power access afforded to the Skookumchuck and Howe Sound Mills. In turn, these lower GBLs increase the volumes of self-generated electricity that Celgar can sell at biomass based green energy prices. Counsel has asked us to quantify the fair market value of Celgar assuming that it has a variety of Below Load Access Percentage's based on the percentages observed by comparable mills. Specifically, Counsel instructed us to assume the following Below Load Access Percentages and resulting GBLs:

Table 14 – But-For Scenario Below Load Access Percentages

Below Load Access Percentage	GBL (GWh/year)	Scenario
100.0%	0.0	As contemplated in the FortisBC PSA
[redacted]		
46.7%	186.1	Celgar's 2001 self-generation consumption
[redacted]		
42.7%	200.0	Celgar's 2002 access to embedded cost power
22.3%	271.0	Celgar's 2005/2006 self-generation consumption

198. Since the Measures only serve to limit the volumes of embedded cost utility power that Celgar can purchase and, correspondingly, limit the amount that Celgar can sell at green energy rates, we have assumed that the Celgar Mill will produce the same volumes of NBSK pulp assuming the same cost structure as in the Actual Scenario. Similarly, since Celgar's electricity generation volumes are tied to its NBSK production volumes, we have assumed that Celgar will generate the same volumes of electricity but-for the Measures. The only difference between the cash flows of the But-For and Actual Scenario are those related to the sale of the Celgar Mill's self-generated electricity below its GBL under the Measures (i.e., 349 GWh per year) as well as the related purchase of replacement electricity from FortisBC. In the subsections below, we explain the changes in the volumes of electricity sold at green energy prices and the changes in the volumes of replacement electricity purchased but-for the Measures. Unless otherwise explained below, the assumptions used in the Actual Scenario also apply to the But-For Scenario.

i. Electricity sales volumes and prices

199. In our But-For Scenario, we assume that Celgar would have had access to below-load embedded-cost utility power as of 6 May 2009, allowing it to sell self-generation in excess of its 349 GWh per year GBL. BC Hydro had sought the purchase of green energy (specifically biomass-based green energy) in August 2008 when it solicited bids under the *Bioenergy Call for Power*. Moreover, BC Hydro continually sought the purchase of green energy through various other initiatives and tenders after the *Bioenergy Call for Power*. BC Hydro met a significant portion of its power generation demands from independent power producers ("IPPs"). Indeed, with BC Hydro purchasing between 40 percent and 51 percent of its generation requirements from 2009-2013, it is reasonable to assume that BC Hydro would have purchased Celgar's increased generation volumes.[309] If BC Hydro were to have purchased Celgar's entire load, it would be less than or equal to 1 percent of BC Hydro's total purchases from 2009-2013.[310] As a significant purchaser of green energy and in light of the Province's directive to increase renewable electricity generation, in our view, it is reasonable to assume that BC Hydro would have agreed to purchase Celgar's below load generation as of 6 May 2009.[311]

200. Since there is no commodity exchange or spot market where only green energy is traded at "green energy rates," to determine the price that Celgar would sell its below load generation we have considered the prices that BC Hydro paid through tenders and other competitive offers for green energy. As discussed above, tenders and other competitive offers for green energy have resulted in prices for green energy generation consistent with those in the BC Hydro EPA. Consequently, we have relied on the BC Hydro EPA as the price under which Celgar would have sold its below load self-generation to BC Hydro. Accordingly, in our But-For Scenario, we project that from 6 May 2009 to 31 December 2020, all self-generation above the Below Load Access Percentage or GBL imposed will be sold by Celgar at green energy prices under the terms in the BC Hydro EPA.

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309 BC Hydro 2013 Annual Report, p. 121 **(NAV-35)**.

310 BC Hydro's 2013 annual report shows that 34,861 GWh; 33,957 GWh; 41,635GWh; 40,620 GWh; and 45,596 GWh were purchased through PPAs in 2013-2009, respectively. Celgar's maximum incremental sales of 349 GWh (assuming a BLAP of 100 percent) would be no more than 1 percent of BC Hydro's total purchases in any given period. BC Hydro 2013 Annual Report, p. 121 **(NAV-35).**

311 We understand that Celgar had also engaged in preliminary discussions with Puget Sound Energy to sell its self-generation. (See Witness Statement of Brian Merwin, ¶ 82)

201. Similar to the Actual Scenario, to the extent that Celgar is unable to supply BC Hydro with its required offtake of 238.186 GWh, we have assumed that Celgar will be subject to liquidated damages penalties of <[[redacted]]> per under-delivered MWh. To the extent that Celgar is able to supply BC Hydro with its required offtake of 238.186 GWh, we have assumed that no penalties will be incurred in the But-For Scenario.

ii. Celgar's But-For electricity purchases and prices

202. In the But-For Scenario, we assume that Celgar will purchase the maximum amount of embedded cost utility power to supply its internal power requirements as its GBL (and related Below Load Access Percentage) will allow. Moreover, all of the Celgar Mill's load in excess of the prescribed GBL will be supplied through purchases from FortisBC.

203. We have assumed that all purchases of electricity will be made under the pricing formula and rate schedules incorporated in the FortisBC PSA. Pursuant to the FortisBC PSA, Celgar will purchase the first [[redacted]] MW of demand under Rate Schedule 31.[312] Any additional energy purchases above [[redacted]] MW of demand will be purchased under Rate Schedule 33.[313] We have relied on FortisBC's actual 2009-2013 tariffs as well as our projected tariffs in calculating electricity prices.[314]

204. As Counsel has requested that we assume a variety of Below Load Access Percentages (and, in turn, GBLs) but-for the Measures, we have assumed that Celgar will incur fixed charges based on a variety of different demands under Rate Schedule 31. We understand that Celgar will seek to purchase as much power as possible under Rate Schedule 31 due to its preferential rates when fully utilized. Thus, in our But-For Scenario, we assume that as Celgar's Below Load Access Percentage decreases (i.e., Celgar has less access to embedded cost utility power), it would seek to purchase up to its entire load at Rate Schedule 31. For example, if a Below Load Access Percentage of 50 percent is employed (resulting in a GBL of 174.5 GWh/year), Celgar would seek to purchase [[redacted]] MW of electricity under Rate Schedule 31, allowing Celgar to

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[312] Fortis BC PSA, 26 August 2008 **(NAV-69)**. We understand that Celgar sought to purchase only [[redacted]] of electricity under Rate Schedule 31 rather than Celgar's [[redacted]] because it anticipated performing additional capital expenditures to increase its generation capability. However, due to the Measures, Celgar has not pursued this opportunity.
[313] Fortis BC PSA, 26 August 2008 **(NAV-69).**
[314] Appendix 3.D

purchase up to 175.2 GWh per year (20 MW * 24 hours * 365 days).[315] Any volumes over the reserved capacity will be purchased at Rate Schedule 33.

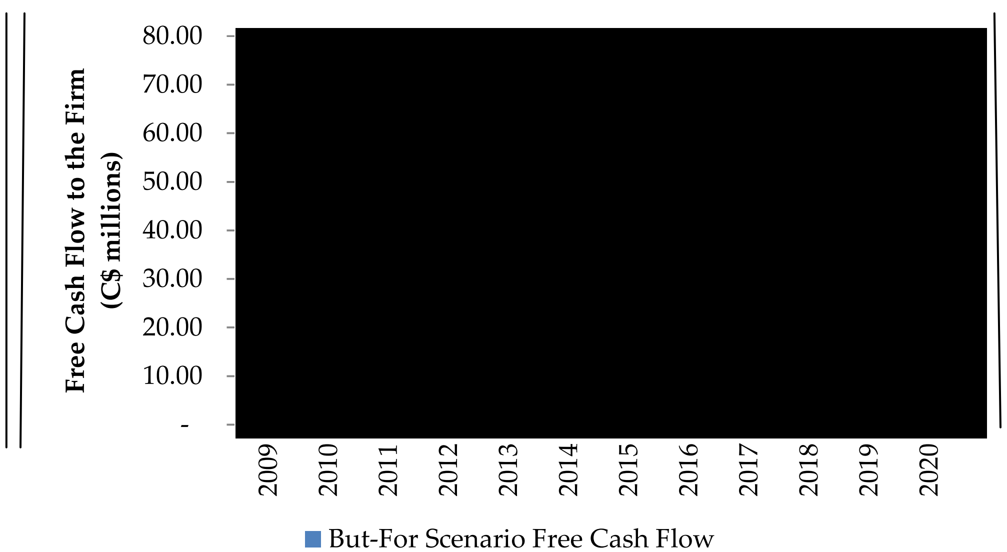
iii. Income Taxes

205. As in the Actual Scenario, we have not incorporated any provision for income taxes in the historical lost profits portion of our damages analysis. We have incorporated a provision for income taxes at the 26 percent Canadian corporate tax rate in the future period as, in our view, a hypothetical buyer of Celgar in the But-For Scenario would consider the income taxes that would be incurred on Celgar's future cash flows.

iv. Discount rate

206. Based on the assumptions above, the undiscounted FCFF of the But-For Scenario, assuming a Below Load Access Percentage of 100 percent (i.e., a GBL of 0 MWh per year) is as shown in Figure 26 below.

Figure 26 – But-for Scenario Historical (2009-2013) and Projected (2014-2020) Undiscounted FCFF[316]



207. As in the Actual Scenario, we have applied Celgar's WACC in order to discount the FCFF to 31 December 2013. Conservatively, we have applied the same discount rate – 8.19 percent –

[315] 1 GWh is equal to 1,000 MWh.
[316] Appendix 3.B, Free Cash Flow to Firm

as was applied in the Actual Scenario even though but-for the Measures, Celgar would likely have had a lower discount rate due to its lower position on the cost curve vis-à-vis its peers.

v. Terminal value

208. As in the Actual Scenario, we have calculated the terminal value of the But-For Scenario which represents the continuing value of the company after the discrete forecast period. As we consider that the Measures are expected to remain in effect indefinitely, the terminal value in the But-For Scenario does not consider any impact of the Measures after 2020. That is to say, we assume that Celgar will continue to purchase embedded cost utility power under the FortisBC PSA and sell its self-generated electricity (subject to the GBL restrictions) at green energy rates indefinitely. As in the Actual Scenario, we assume the 2020 cash flows will grow by Canadian inflation of 0.0 percent and apply our discount rate of 8.19 percent. As shown in Table 15 below, depending on the Below Load Access Percentages employed, our undiscounted terminal value in the But-For Scenario varies between [[[redacted]]] (assuming a Below Load Access Percentage of 22.3 percent) and [[[redacted]]] (assuming a Below Load Access Percentage of 100 percent).

Table 15 – Celgar's Terminal Value But-For the Measures (C$ millions)[317]

Below Load Access Percentage	Generator Baseline (GWh)	Terminal Value
100.0%	0.0	[redacted]
[redacted]		
46.7%	186.1	
[redacted]		
42.7%	200.0	
22.3%	271.0	

vi. DCF Results

209. Having determined Celgar's FCFF in the future period, the discount rate, and the terminal value, we discounted the cash flow projections and terminal value to 31 December 2013 using

[317] Appendix 3.B, Terminal Value

Celgar's WACC. The resulting fair market value of Celgar but-for the Measures at 31 December 2013 is between [[[redacted]]] million, as show in Table 16 below.

Table 16 – Fair Market Value of Celgar But-For the Measures (C$ millions)[318]

Below Load Access Percentage	Generator Baseline (GWh)	FCFF (2014-2020)	Terminal Value	Fair Market Value
[A]	[B]=349* (1-A)	[C]	[D]	[E]=C+D
100.0%	0.0	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
46.7%	186.1	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
42.7%	200.0	[redacted]	[redacted]	[redacted]
22.3%	271.0	[redacted]	[redacted]	[redacted]

C. The Reasonableness of Our Actual and But-For Scenarios

210. In order to check the reasonableness of our Actual and But-For Scenarios' valuation conclusions, we compared the Actual and But-For Scenarios' historical and future period earnings before interest, taxes, depreciation, and amortization ("EBITDA") margins (i.e., EBITDA/sales) to other comparable North American pulp producers. Since EBITDA margins exclude interest, taxes, depreciation, and amortization, they allow the comparison of operational profitability across companies regardless of the capital structure and accounting policies employed. These margins reflect the interplay of prices, volumes, and operating costs that are key assumptions in the But-For and Actual Scenarios.

211. In a December 2013 industry analyst report by TD Securities, an equity analyst following the pulp industry reviewed historical EBITDA margins for North American pulp producers considered comparable. Figure 27 below is an excerpt of the analyst's report comparing the EBITDA margins for Mercer ("MERC"), West Fraser Timber ("WFT"), Canfor Pulp Products ("CFX"), Tembec ("TMB"), and Resolute Forest Products ("RFP").[319]

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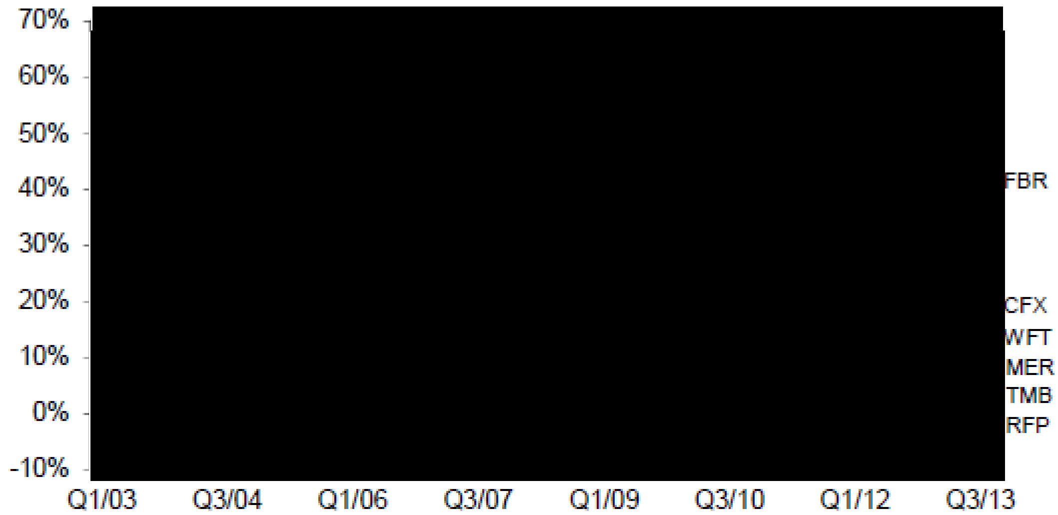
[318] Appendix 3.B, Sum Present Value of Free Cash Flow to the Firm at 31 Dec 2013 for 2014-2020 & Terminal Period

[319] TD Securities, North American Paper & Forest Products, 3 Dec 2013, p. 2 **(NAV-85).**

Figure 27 – Segmented Pulp EBITDA Margins (4-qtr moving average)[320]

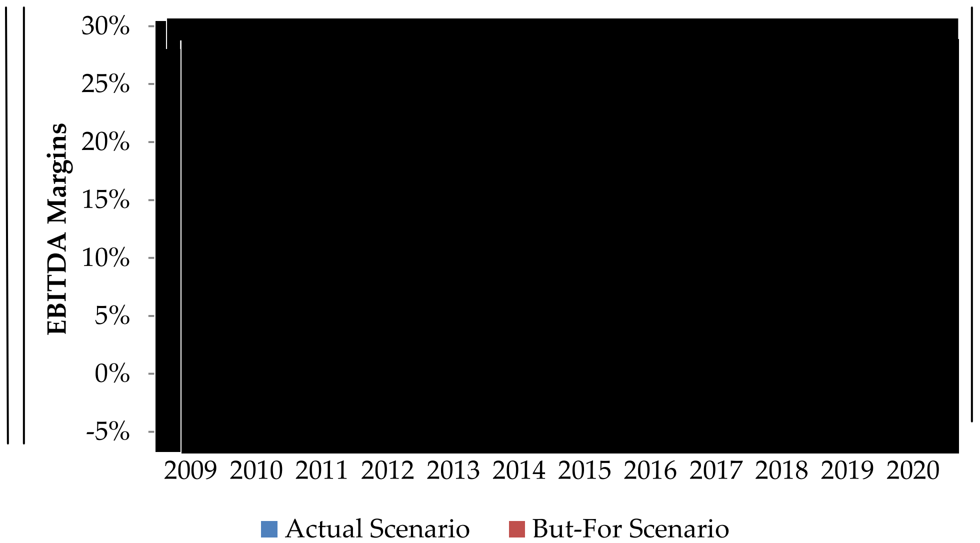


212. Figure 27 above demonstrates that the industry margins for five of the six companies generally ranges between 10 and 20 percent.[321] The only noticeable variation in this trend surrounds the financial crisis in 2008/2009 and the subsequent rebound from this crisis in 2010/2011. Mercer as a whole (i.e., including its operations outside of the Province) generally fell in the middle of this group of five companies.

213. As can be seen in Figure 28 below, from 2009-2013 Celgar's actual EBITDA margins varied from a low of [[redacted]] percent. Figure 28 also shows that the Actual Scenario EBITDA margins we have projected fall between [[redacted]] percent until 2020. But-for the Measures, we project that Celgar's 2009 to 2013 EBITDA margins would have varied between [[redacted]] percent and the projected margins are between [[redacted]] percent from 2014-2020. Thus, the EBITDA margins inherent in our DCF analyses are consistent with those demonstrated for North American pulp producers.

[320] TD Securities, North American Paper & Forest Products, 3 Dec 2013, p. 2 **(NAV-85).**
[321] The sixth company, Fibria Celulosa ("FBR"), while listed on a North American exchange operates in Brazil and produces eucalyptus pulp.

Figure 28 – Celgar's But-For and Actual Scenario Margins[322]

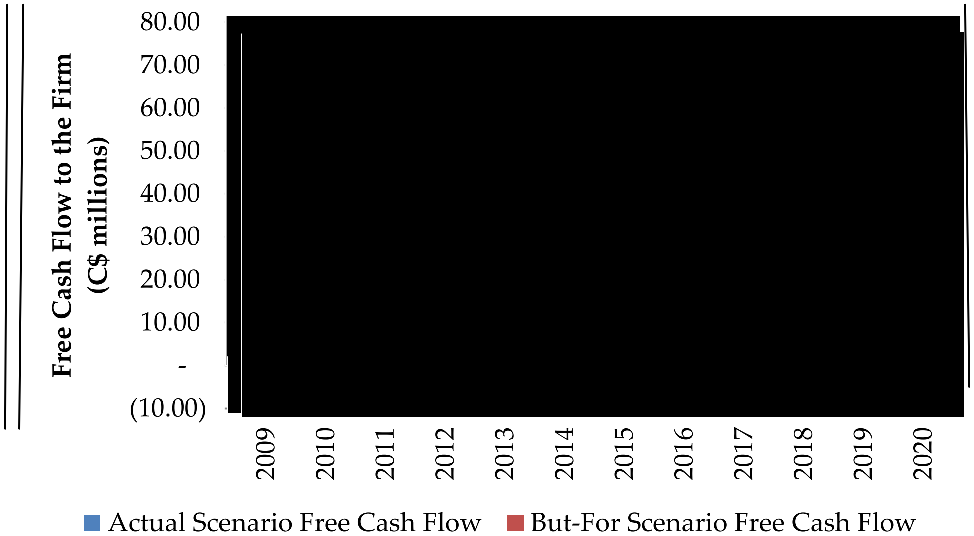


D. Damages Resulting from the Measures

214. Having determined reasonable conclusions as to the cash flows arising from both the Actual and But-For Scenarios, we then quantify the impact of the Measures on the fair market value of Claimant's investment in the Celgar Mill. To do so, we quantify this impact by taking the difference between the fair market value of Celgar in the But-For Scenario and the Actual Scenario at 31 December 2013. As Figure 29 below illustrates, from 2009 to 2013, assuming a Below Load Access Percentage of 100 percent (equivalent to a GBL of zero), the Celgar Mill's cash flow would have historically been approximately between C$ 7 million to C$ 20 million higher each year had the Measures not been in place. We project that Celgar's cash flows would have been between C$ 12 million and C$ 14 million higher each year from 2014 to 2020.[323] Of course, as the Below Load Access Percentage is reduced, and the corresponding GBL increased, these figures will also be reduced.

[322] See Appendix 3.A & 3.B, EBITDA Margins
[323] We note that these figures are lower than in the historical period due to the application of income taxes in the projected period.

Figure 29 – Celgar's But-For and Actual Scenario Undiscounted FCFF (Assuming a Below Load Access Percentage of 100 percent)[324]



215. After discounting, Table 17 below reveals that the actual fair market value of Celgar is between C$ 44 million and C$ 153 million lower (i.e., [[[redacted]]] percent) than the fair market value of Celgar but-for the Measures (depending upon the Below Load Access Percentages applied) as a result of the Measures.

Table 17 – Diminution in the Fair Market Value of Celgar (C$ millions)[325]

Below Load Access Percentage	Generator Baseline (GWh)	But-For Scenario FMV	Actual Scenario FMV	Diminution in Value
[A}	[B]=349* (1-A)	[C]	[D]	[E] = C-D
100.0%	0.0	[redacted]	[redacted]	**153**
[redacted]				[redacted]
46.7%	186.1			**80**
[redacted]				[redacted]
42.7%	200.0			**74**
22.3%	271.0			**44**

[324] Appendix 3.A & 3.B, Free Cash Flow to Firm
[325] Appendix 3.A & 3.B, Fair Market Value of Celgar at 31 December 2013

216. Celgar also has suffered from reduced profits from 6 May 2009 to 31 December 2013 as a result of the Measures. As shown in Table 18 below, depending upon the Below Load Access Percentage applied, Celgar's historical FCFF has been between C$ 17 million and C$ 79 million lower, due to the Measures.

Table 18 – Celgar's Historical Period (2009-2013) But-For and Actual Scenario Lost Cash Flows (C$ millions)[326]

Below Load Access Percentage	Generator Baseline (GWh)	But-For Scenario FCFF	Actual Scenario FCFF	Historical Lost Cash Flow
[A}	[B]=349* (1-A)	[C]	[D]	[E] = C-D
100.0%	0.0	[redacted]	[redacted]	**79**
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
46.7%	186.1	[redacted]	[redacted]	**38**
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
42.7%	200.0	[redacted]	[redacted]	**34**
22.3%	271.0	[redacted]	[redacted]	**17**

217. We apply interest from the respective date of each period's cash flows to the valuation date of 31 December 2013 to compensate Claimant for the time value and opportunity cost of money. NAFTA Article 1110 states with regard to interest:

> "If payment is made in a G7 currency, compensation shall include interest at a commercially reasonable rate for that currency from the date of expropriation until the date of actual payment."[327]

218. We believe it would be appropriate for the tribunal to consider two different commercial rates of interest when calculating the interest payable to Claimant. We discuss each rate in turn.[328]

219. First, the tribunal could award the yield on Canada's sovereign bonds issued. This rate is the cost of raising money for the Canadian government. This rate is a reasonable commercial rate of interest because the Measures have effectively turned Claimant into unwilling lenders to

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[326] Appendix 3.A & 3.B, Sum of Free Cash Flow to Firm

[327] North American Free Trade Agreement, Article 1110, ¶ 4.

[328] We note that it would also be appropriate for the tribunal to apply "post-award" interest on any award to compensate Claimant for the time value of money from the date of the award until payment is received. We would recommend the below rates for post-award interest as well.

Canada. As such, Claimant should be entitled to the same rate of interest that Canada pays to willing lenders. We note, however, that the yields on sovereign debt have been at historic lows since the global financial crisis began in 2009. Thus, while this represents a commercial rate of interest for Canada, it is not a commercial rate of interest that could be secured by Claimant.

220. Second, the tribunal could award the Canadian Prime Rate of interest plus 2 percent. The Canadian Prime Rate is the rate that banks charge their most creditworthy customers. Thus, the Canadian Prime Rate is not widely available in the market. As such, we recommend a 2 percent premium to the Canadian Prime Rate to reflect a rate that would be more broadly available to the market.

221. In Table 19 below, we summarize Claimant's historical period damages after applying the two possible commercial lending rates. In each case, interest was compounded annually, as is the practice in the market, based upon the effective annual interest rate applicable for each instrument. Table 19 below indicates Claimant's historical period damages range from C$ 18 million to C$ 91 million.

Table 19 – Celgar's Historical Period Lost Cash Flows But-For the Measures[329]

Below Load Access Percentage	Generator Baseline (GWh)	Historical Lost Cash Flows	Pre-Award Interest		Lost Cash Flow with Interest	
			20-Year Bond	Prime + 2%	20-Year	Prime + 2%
[A]	[B]=349*(1-A)	[C]	[D]	[E]	[F]=C+D	[G]=C+E
100.0%	0.0	79	6	11	**86**	**91**
[redacted]						
46.7%	186.1	38	3	5	**41**	**43**
[redacted]						
42.7%	200.0	34	3	5	**37**	**39**
22.3%	271.0	17	1	2	**18**	**19**

222. As can be seen in Table 20 below, the total lost cash flows and diminution in value of Celgar as a result of the Measures plus interest determines that Claimant's damages are between

[329] Historical lost cash flows are calculated as Appendix 3.B, Sum of Free Cash Flow to Firm less Appendix 3.A, Sum of Free Cash Flow to Firm. Lost Cash Flow with Interest is Calculated as Appendix 3.B NPV of historical period lost free cash flow to the firm at 31 December 2013 less Appendix 3.A, NPV of historical period lost free cash flow to the firm at 31 December 2013.

C$ 62 million and C$ 243 million, depending on the Below Load Access Percentage (or GBL) and pre-award interest rates applied.

Table 20 – Total Lost Cash Flows and Diminution in Value of Celgar as a Result of the Measures[330]

Below Load Access Percentage	Generator Baseline (GWh)	Historical Lost Cash Flows	Diminution in Value	Damages Before Interest	Pre-Award Interest		Total Damages With Interest	
					20-Year	Prime + 2%	20-Year Bond	Prime + 2%
[A]	[B]=349*(1-A)	[C]	[D]	[E]=C+D	[F]	[G]	[H]=E+F	[I]=E+G
100.0%	0.0	79	153	**232**	6	11	**238**	**243**
[redacted]								
46.7%	186.1	38	80	**118**	3	5	**121**	**123**
[redacted]								
42.7%	200.0	34	74	**109**	3	5	**111**	**114**
22.3%	271.0	17	44	**61**	1	2	**62**	**63**

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31 March 2014

[330] See Appendix 3.B, Damages