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August 13, 2013

**Via Email**  
**Original via Mail**

Industrial Customers Group  
c/o #301 – 2298 McBain Avenue  
Vancouver, BC V6L 3B1

Attention: Mr. Robert Hobbs

Dear Mr. Hobbs:

**Re: British Columbia Utilities Commission (the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2**  
**FortisBC Inc. Response to the Industrial Customers Group (ICG) Information Request (IR) No. 1**

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In accordance with the Regulatory Timetable set out for Stage 2 of the GCOC proceeding by Commission Order G-77-13, FortisBC Inc. respectfully submits the attached response to ICG IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

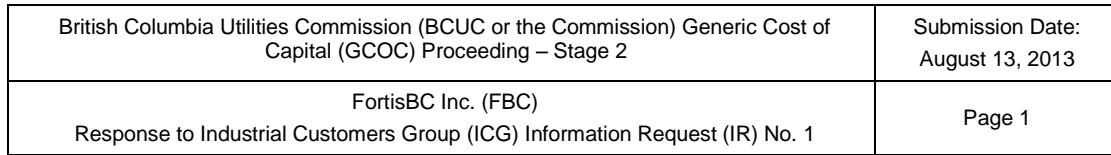
**FORTISBC INC.**

***Original signed:***

Dennis Swanson

Attachments

cc (email only): Commission Secretary  
Registered Parties



Rationale: FBC writes that “FBC’s supply risk has been slightly mitigated through long-term capacity agreements; however, price risk has increased due to uncertainty with respect to future rate increases related to FBC’s Power Purchase Agreement (PPA) with BC Hydro, and prices on the open market.”

**Rationale:** FBC states that “FBC owns and operates generation assets, as well as transmission and distribution assets, which, given the age and physical characteristics, exposes the Company to additional risk related to

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 2

infrastructure maintenance and integrity and the potential impact on power supply costs due to failure of any of its generation assets.”

Request: ICG would like to better understand FBC’s maintenance costs.

(a) What are FBC’s average annual maintenance costs?

**Response:**

The Table below provides FortisBC’s 5-year historical and average Generation and Transmission & Distribution asset maintenance costs.

<b>FBC (Electric) Historical Operating &amp; Maintenance Expense</b>							
<u>Acct. #</u>	<u>Generation</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>Average</u>
(\$000s)							
542	Structures	596	637	651	697	642	<b>645</b>
543	Dams & Waterways	168	117	204	270	308	<b>213</b>
544	Electric Plant	504	443	627	534	574	<b>536</b>
545	Other Plant	254	211	134	271	224	<b>219</b>
<b>Total - Generation</b>		<b>1,522</b>	<b>1,408</b>	<b>1,616</b>	<b>1,772</b>	<b>1,748</b>	<b>1,613</b>
<u>Acct. #</u>	<u>Transmission &amp; Distribution</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>Average</u>
(\$000s)							
562	Transmission Station	713	782	658	902	1,230	<b>857</b>
563R-1	Transmission Line	296	127	179	570	738	<b>382</b>
583R-1	Distribution Line	3,294	3,263	2,926	3,304	3,377	<b>3,233</b>
592	Distribution Station	1,153	1,304	1,273	1,313	1,150	<b>1,239</b>
586	Meters	922	999	986	1,030	918	<b>971</b>
596	Street Lighting	85	96	81	78	74	<b>83</b>
598	Other Plant	273	353	297	249	255	<b>285</b>
<b>Total - Transmission &amp; Distribution</b>		<b>6,736</b>	<b>6,924</b>	<b>6,400</b>	<b>7,446</b>	<b>7,742</b>	<b>7,050</b>

(b) What are its average annual maintenance costs related solely to asset failure?

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOG) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 3

1    **Response:**

2    FBC does not track costs specific to Transmission and Distribution asset failure separately and  
3    therefore cannot provide the average annual maintenance costs related solely to asset failure  
4    for its transmission and distribution assets.

5    With respect to generation asset failures, although they occur infrequently, they typically have  
6    high costs in order to maintain and rectify. In 2006, two generation failures occurred, which in  
7    total cost just under \$1 million to repair (not including insurance recoveries of approximately  
8    \$0.5 million or any power replacement costs incurred). FBC notes that a generation failure  
9    occurred again in 2013, the costs for which are currently unknown but will likely be in the same  
10   magnitude as the generation failures that occurred in 2006.

11  
12

13                   (c)       How do costs differ for newer versus older equipment?

14

15    **Response:**

16    Maintenance costs for an asset depends on asset condition, type, complexity and various other  
17    factors, and not necessarily on the asset's age.

18  
19

20    4.    **Reference:**    **FortisBC Inc Evidence, Appendix A, Business Risk, p. 7**

21           Rationale:    FBC states, "A less diverse and/or smaller customer base concentrated in  
22                               a small geographic area translates into higher business risks, other things  
23                               being equal."

24                   (a)       Please provide a reference that supports this claim.

25

26    **Response:**

27    The above statement is supported by the evidence of FBC's expert witness Ms. Kathy  
28    McShane, in particular in Exhibit B1-72, Appendix B, page 3 (lines 77-78), page 15 (lines 413-  
29    415), and pages 32-35.

30  
31

32                   (b)       Has FBC, or its expert, conducted any analysis to quantify or  
33                               measure the degree of diversity and link it to any measures of  
34                               risk? If so, please provide copies of any such analyses.

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 4

**Response:**

Neither FBC, nor Kathy McShane has conducted any analysis to quantify or measure diversity and link it to any measures of risk.

**5. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 8**

Rationale: FBC states that “FBC’s Wholesale customers have a number of options that would allow them to discontinue taking service from FBC. FBC’s Wholesale customers can build generation to serve some or all of their load, purchase electricity on the open market or take service from BC Hydro through its Open Access Transmission Tariff (OATT). FBC’s Wholesale customers qualify as Eligible Customers under both FBC’s OATT and BC Hydro’s OATT, and therefore can purchase electricity from the open market or from BC Hydro and wheel over FBC and BC Hydro transmission infrastructure. There is generally available transmission capacity on the transmission system, so access to transmission capacity is not a barrier to FBC’s Wholesale customers discontinuing service.”

Request: ICG would like to better understand the market alternatives for FBC’s customers.

- (a) What are the barriers to FBC’s Wholesale customers discontinuing service?

**Response:**

Please refer to the response to BCUC FBC IR 1.9.4.

- (b) Why do FBC’s Wholesale customers choose to continue taking service from FBC when they have the above-referenced options?

**Response:**

Please refer to the response to BCUC FBC IR 1.9.4.

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 5

1 (c) Have there been any Wholesale customers of FBC who left the  
2 utility in the past year? Past 3 years? Past 5 years? Past 10  
3 years? If so, please explain the circumstances.  
4

5 **Response:**

6 No Wholesale customers of FBC have left utility service in the past.  
7  
8

9 (d) Have any new Wholesale customers signed on with FBC in the  
10 past year? Past 3 years? Past 5 years? Past 10 years? If so,  
11 please explain the circumstances.  
12

13 **Response:**

14 At present, no new Wholesale customer has signed on for service from FBC, nor in the past 10  
15 years.  
16  
17

18 **6. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 9**

19 **Rationale:** FBC states, "The forestry industry is sensitive to world commodity prices,  
20 to the strength of the U.S. and Pacific Rim economies, and to the strength  
21 of the Canadian dollar."

22 **Request:** Please provide any studies or references that support this claim.  
23

24 **Response:**

25 Please refer to Attachment 6 which is an excerpt for the Conference Board of Canada's  
26 Provincial Outlook for 2013.  
27  
28

29 **7. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 9**

30 **Rationale:** "FBC's top 20 Industrial customers in 2012 (who accounted for 88% of  
31 FBC's total industrial load and eight percent of total load) 11 operated in  
32 the forestry and related industries. In 2005, of FBC's top 20 Industrial  
33 customers (who accounted for 92 percent of FBC's total Industrial load  
34 and 12 percent of total load) 14 operated in forestry and related

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 6

industries. The comparison shows that since 2005, FBC's Industrial sector has not only seen reduced total load (as shown in Figure 2), but also reduced forestry-specific load."

Request: Does this mean that FBC's Industrial customer base is more diversified in 2012 than in 2005? Please explain.

**Response:**

FBC's forestry-specific Industrial load has declined to a slightly greater extent than total Industrial load has declined, and therefore, FBC's Industrial customer base is slightly more diversified than in 2005. However, given the total declines in sector specific and overall industrial load, the overall diversity of FBC's Industrial customer base is still broadly similar to what it was in 2005. Further, the small increase in diversity in industrial load should still be viewed in the context that industrial load declines since 2005 – whether in the forestry sector or otherwise – represents a challenge for the utility.

Please also refer to the response to BCPSO FBC IR 1.7.2.

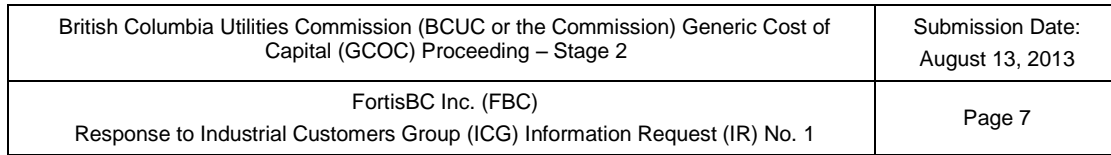
**8. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 19**

Rationale: FBC argues that "as FBC's rates increase and due to the introduction of the RCR, the cost of heating a home with electricity may cause many of FBC's customers to explore alternatives, including natural gas, to a greater extent than would be the case in the remainder of FEI's service area where BC Hydro operates."

Request: Please quantify the effect of the introduction of RCR on FBC's rates and customer demand, and provide any supporting graphs and spreadsheets in electronic form.

**Response:**

FBC does not know what is meant by "...quantify the effect of the introduction of RCR on FBC's rates...". The RCR is a structural change to the manner in which FBC collects revenues from residential customers which have, prior to the introduction of the RCR, been billed on a flat rate. FBC has forecast a slight drop in demand due to the RCR but has not yet completed any analysis to confirm how much conservation, if any, has occurred. This analysis will form part of the report that is currently due to the Commission in early 2014.



2        Rationale:    FBC states that “in addition, FBC recently put in place a long-term  
3        capacity agreement with the Waneta Expansion Limited Partnership  
4        beginning upon completion of the Waneta Expansion (WAX) project  
5        expected in 2015.”

8  
9 **Response:**

12  
13

15           Rationale:   FBC discusses details of long term capacity agreements, stating “The  
16                           costs of power supply related to FBC’s own generation and long-term  
17                           Brilliant and WAX contracts are either directly linked to the costs of  
18                           owning and operating the facilities or are formula driven and increases  
19                           are generally reflective of the rate of inflation.”

22  
23 **Response:**

26 The WAX capacity agreement is a confidential document, as confirmed by the Commission in  
27 Orders G-29-10 and E-15-12.

28 With respect to the Brilliant and WAX contracts supply risk, both contracts are long term  
29 contracts for generation. These plants are part of the Canal Plant Agreement and therefore are  
30 allocated fixed energy and capacity entitlements based upon long-term average water flows.  
31 However, they must be available to generate in order to receive the entitlements. Under the  
32 Brilliant contract, FBC receives both energy and capacity entitlements while under the WAX  
33 agreement FBC receives only capacity. The capacity entitlements under WAX CAPA become  
34 available upon commissioning of the WAX generating units in 2015.



British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 8

1  
2

3 **11. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 21**

4 Rationale: FBC states, “In recent years BC Hydro’s rate increases have outpaced  
5 the general rate of inflation and it is generally understood that there  
6 continues to be significant upward pressure on BC Hydro costs.”

7 Request: ICG would like to know more about BC Hydro’s rate increases compared  
8 to changes in FBC’s rates.

9

10 (a) How do FBC’s rate changes compare with the general rate of  
11 inflation?

12

13 **Response:**

14 FBC’s rate increases have typically exceeded the general rate of inflation due to the need for  
15 capital infrastructure upgrades and increasing power supply costs.

16

17

18 (b) Do increases in BC Hydro’s rates reduce competitive pressures  
19 faced by FBC? Please explain.

20

21 **Response:**

22 Please refer to the responses to BCUC FBC IRs 1.14.1 and 1.14.4.

23

24

25 **12. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 23**

26 Rationale: FBC writes, “several of the transmission lines in FBC’s system,  
27 particularly in the Kootenays, are a vintage of 50 to 70+ years.”

28 Request: What is the average lifespan of a transmission line? What is the  
29 maximum lifespan?

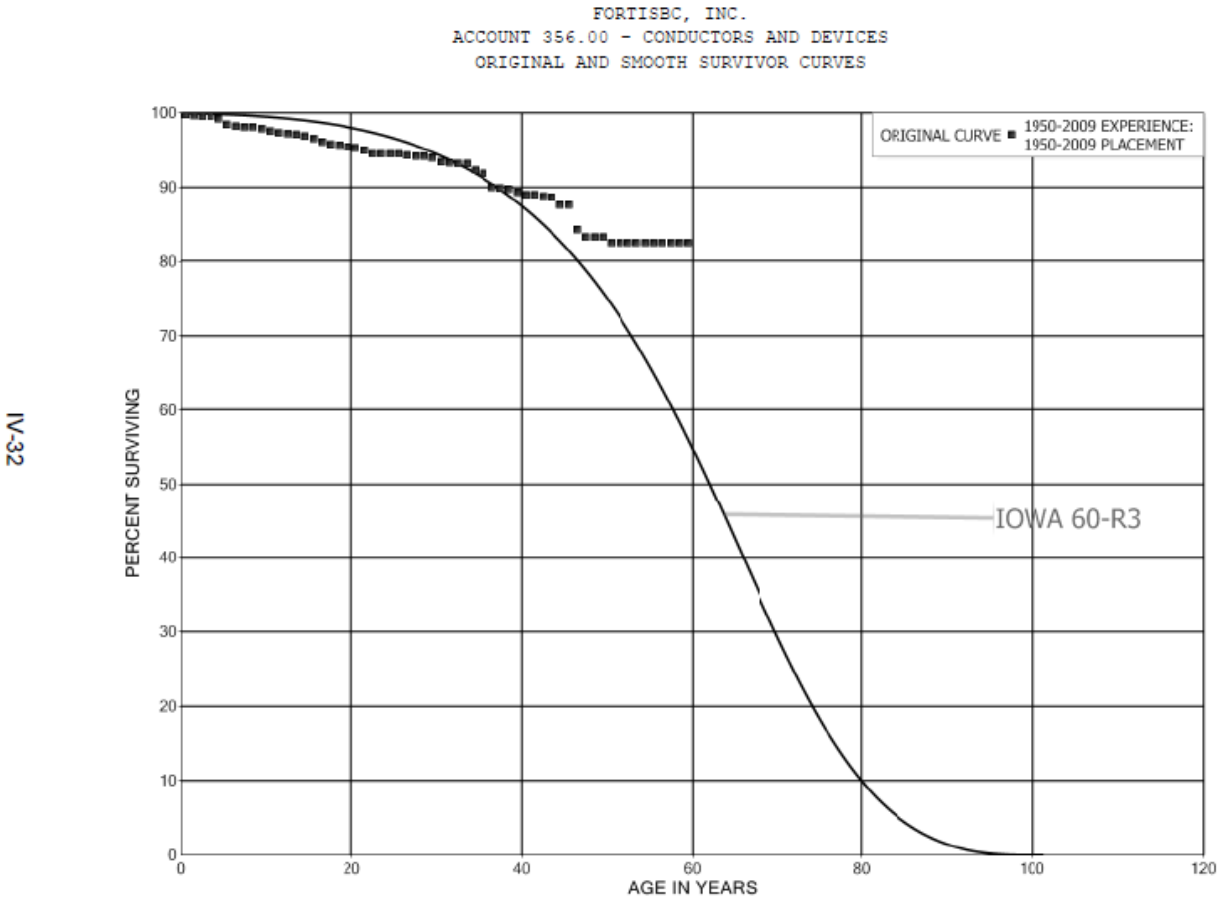
30

31 **Response:**

32 Based on the most recent Depreciation Study, as prepared by the independent professional  
33 services firm Gannett Fleming and filed in Appendix J of FBC’s 2012-2013 RRA, the “expected”  
34 useful life of transmission line conductors is 60 years (as designated by the Survivor Curve 60-

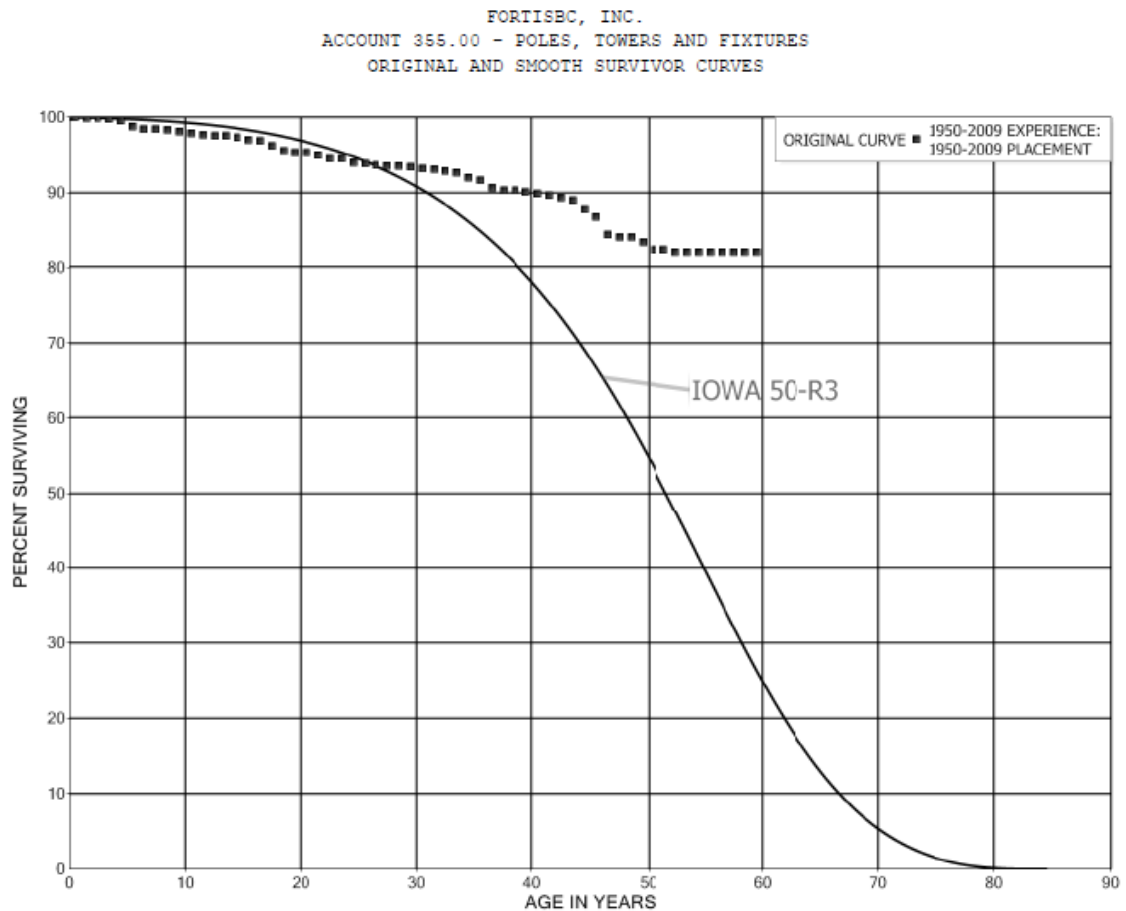
British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 9

- 1 R3 assigned to Account 356.00 in Schedule 1, Part III-4 of the Study) and of transmission poles  
2 is 50 years (as designated by the Survivor Curve 50-R3 assigned to Account 355.00 in  
3 Schedule 1, Part III-4 of the Study). The “expected” useful life, as represented by the chosen  
4 Survivor Curve in the study, can be loosely interpreted as the “average” lifespan.
- 5 There is no defined maximum lifespan for transmission lines since the effectiveness of  
6 maintenance programs, the environment the line is located in, and forces of retirement (i.e. load  
7 growth, forest fires, major storm damage, etc.) can alter the lifespan. However, the Survivor  
8 Curves for both transmission conductors and poles as chosen by Gannett Fleming do  
9 contemplate asset lives that extend to 80-100 years. The Survivor Curves for both Account  
10 356.00 and 355.0, as filed in the most recent Depreciation Study, is provided below.



British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCO) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 10

IV-29



13. **Reference:** FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C. McShane, p. 6

**Rationale:** Ms. McShane argues that “A reasonable capital structure for FBC, in conjunction with the returns allowed on the various sources of capital, should permit the utility to attract capital on reasonable terms and conditions and to maintain its financial integrity.”

**Request:** Please define and further explain what is meant by “reasonable terms and conditions” on which to attract capital.

**Response:**

The attraction of capital on reasonable terms and conditions is one of the key components of the fair return standard, and has been endorsed by the BCUC. Although Ms. McShane is not aware of any precise definitions of “Reasonable terms and conditions”, in Ms. McShane’s view,

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 11

the expression means that the utility should be able to attract capital at relatively low cost, commensurate with the cost that would pertain to its similar business risk peers, for terms that recognize the relatively long life of its assets, and without overly burdensome conditions attached.

**14. Reference: FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C. McShane, p. 8**

Rationale: Ms. McShane states that “institutional investors continue to face limits on the proportion of Baa/BBB rated debt they are allowed to hold in their portfolios or are precluded from investing in Baa/BBB rated debt.”

Request: Please provide any references or studies that support this claim.

**Response:**

Ms. McShane provides the following response.

The conclusion is based on the following.

In 2006, as reported in “Back to Basics” by Marlene K. Puffer, *Canadian Investment Review*, Fall 2006, Canadian pension plans were “increasingly allowing BBB-rated bonds since corporate credit analysis by money managers has improved.” (Please refer to Attachment 14A) However, as the author noted then, the size of the market for lower rated credits was small. In 2006, Puffer noted that the BBB sector as a whole represented only 4% of the market with the majority of these issues being under 10 years. As I stated in my testimony at footnote 7, although the market for lower rated credits has been growing, it still represented less than 20% of the January 2010 to June 2010 market, and that, of the 168 issues rated in the BBB rating category or lower during that period, only nine were for terms in excess of 10 years.

The following citations from various pension funds’ statements of investment policy indicate that some funds limit the proportion of BBB rated bonds permitted to be held in the pension funds.

**University Funds Investment Policy, University of Alberta, June 23, 2013**

(Please refer to Attachment 14B)

**“Mid-Term Funds**

Bonds and debentures are limited to publicly traded debt securities denominated in Canadian dollars. A maximum of 20% of bonds and debentures may be maintained in

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 12

assets maturing beyond five years. Bonds and debentures in actively managed mandates shall have a rating of at least “BBB” as measured by a recognized debt rating agency. The maximum “BBB” exposure will be 10% of fixed income in each actively managed portfolio. Where passive investments are made in major fixed income indices, eligibility of an index will be determined by its suitability as an investment vehicle regardless of the rating of individual bonds and debentures within the index.

There are no limitations on the amount that can be invested in bonds and debentures issued by governments or their guaranteed corporations or agencies. A maximum of 10% can be invested in bonds and debentures issued by any single municipality, non-governmental issuer, or Canadian-dollar denominated foreign-issuer.”

# **Workers’ Compensation Board of Nova Scotia, Statement of Investment Policies and Objectives, January 2013**

(Please refer to Attachment 14C)

## **“Debt**

Defined As: Bonds and debentures.

The weighted average credit rating of the bond portfolio will be maintained at or above A+”. The minimum quality standard for individual bonds and debentures at the time of purchase is “BBB”, as rated by the Canadian Bond Rating Service, and/or by the Dominion Bond Rating Service. For purposes of this Section, all debt ratings refer to the ratings of Dominion Bond Rating Service (DBRS) unless otherwise indicated, however, equivalent ratings by another major credit rating agency can be used.

Holdings of “BBB” bonds are permitted to a maximum of 10 percent of the bond portfolio. If a bonds credit rating falls below “BBB” after the purchase date, the Manager shall remove it from the portfolio as soon as practical, but taking care not to unduly impair performance. Debt rated below “BBB” at the time of purchase is not permitted.

The DBRS defines the bond and long-term debt ratings as:

AAA-Bonds which are rated AAA are of the highest credit quality. The degree of protection afforded principal and interest is of the highest order. Earnings are relatively stable, the structure of the industry in which the entity operates is very strong, and the outlook for future profitability is extremely favourable. There are few qualifying factors present which would detract from the performance of the entity, and the strength of liquidity and coverage ratios is unquestioned.

AA-Bonds rated AA are of superior credit quality, and protection of interest, and principal is considered high. In many cases, they differ from bonds rated AAA to a small degree.

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 13

A-Bonds rated "A" are of upper medium grade credit quality. Protection of interest and principal is still substantial, but the degree of strength is less than with AA rated entities. Entities in the "A" category may be more susceptible to adverse economic conditions and have greater cyclical tendencies.

Canadian bonds denominated in foreign currencies (foreign pay bonds) are permissible to a maximum of 20 percent (market value) of the bond portfolio.

All foreign bonds, whether in Canadian currency or native currency, require Committee approval prior to purchase.

Corporate debt obligations will not exceed 50 percent (market value) of the bond portfolio. No individual corporate issuer will exceed 5 percent (market value) of the bond portfolio.

Private placement bonds and debentures will not exceed 10 percent (market value) of the bond portfolio and all unrated bonds will be assigned a rating by the Committee (based on discussions with the fund managers) prior to purchase."

## **Statement of Investment Policies and Goals, Saskatchewan Pension Plan Contribution Fund, January 2012**

(Please refer to Attachment 14D)

### **"3.03 Minimum Quality Requirements**

#### **3.03.1 Balanced Fund**

##### **(a) Quality Standards**

Within the investment restrictions for individual manager portfolios, including pooled funds, all portfolios should hold a prudently diversified exposure to the intended market.

(i) The investment manager is expected to maintain relatively high quality portfolios. In general, equity investments should be limited to stocks that are publicly traded on a recognized securities market.

(ii) The minimum quality standard for individual bonds and debentures is 'BBB' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase (includes all sub-rating levels within the overall 'BBB' rating).

(iii) The minimum quality standard for individual short-term investments is 'R-1' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase.

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 14

- (iv) All investments shall be reasonably liquid (i.e., in normal circumstances they should be capable of liquidation within 1 month), except for real estate and mortgage investments.
- (v) Unrated bonds should be assigned a rating by the investment manager before purchase.
- (vi) The minimum quality standard for individual preferred shares is 'P-1' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase.
- (vii) Asset-backed securities must have ratings from at least two Recognized Bond Rating Agencies.

#### (b) Split Ratings

In cases where the Recognized Bond Rating Agencies do not agree on the credit rating for a bond, preferred share or asset-backed security, the security will be classified according to the following methodology:

- (i) If two agencies rate a security, use the lower of the two ratings;
- (ii) If three agencies rate a security, use the most common; and
- (iii) If all three agencies disagree, use the middle rating.

#### (c) Downgrades in Credit Quality

The Investment Manager will take the following steps in the event of a downgrade in the credit rating of a portfolio asset by a recognized bond rating agency to below the purchase standards set out in Section 3.03(a) Quality Standards:

- (i) The General Manager will be notified of the downgrade by telephone at the earliest possible opportunity;
- (ii) Within ten business days of the downgrade, the Investment Manager will advise the General Manager in writing of the course of action taken or to be taken by the Investment Manager, and its rationale; and
- (iii) The Investment Manager will provide regular reporting on the status of the asset until such time as it matures, is sold or is upgraded to a level consistent with the purchase quality standards as expressed in the above guidelines.

#### 3.04 Maximum Quantity Restrictions

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 15

### 3.04.1 Balanced Fund

#### (a) Combined Fund Level

The combined equity and debt holdings of a single corporation and its associated or affiliated companies shall not represent more than 10% of the total book value of the assets of the Fund.

#### (b) Individual Investment Manager Level

The Investment Manager shall adhere to the following restrictions:.....

##### *(iii) Bonds and Short-Term*

(A) Except for federal and provincial bonds (including government guaranteed bonds), no more than 10% of the market value of an Investment Manager's bond portfolio may be invested in the bonds of a single issuer and its related companies.

(B) Except for federal and provincial bonds, no one bond holding shall represent more than 10% of the market value of the total outstanding for that bond issue.

(C) 'BBB' bonds may not be purchased if the purchase would raise the 'BBB' holdings to more than 20% of the market value of the bond portfolio.

### **Simon Fraser University Academic Pension Plan, Investment Governance Policy, May 2011**

(Please refer to Attachment 14E)

#### Approved Categories of Investments...

- Debt securities of Canadian and non-Canadian issuers, issued in Canadian or non-Canadian currencies, including sovereign, provincial, municipal and corporate bonds, debentures, mortgages, mortgage-backed securities, asset-backed securities, notes and other debt instruments; All investments in fixed income securities shall be in securities that are the subject of regular price quotations by recognized investment dealers and for which ratings are available for the borrower or the debt issuer. The corporate and government bond and debenture portfolio in aggregate shall be maintained within the following ranges according to the credit ratings of the Dominion Bond Rating Service ("DBRS") or equivalent service:



British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 16

Credit Rating	Percent (Market Value)
above A	50%-100%
A or below	0%-50%
BBB	0%-10%
below BBB	0%

**Statement of Investment Policies and Procedures for the Canadian Council of Christian Charities Employees Pension Plan, April 2010**

(Please refer to Attachment 14F)

**“Minimum Quality**

1. The minimum average quality of the Bond portfolio shall be A.
2. Up to 10% of the market value of the Bond portfolio may be invested in issues that are rated BBB.”

**Statement of Investment Policies and Procedures Contributory Pension Plan for Hourly-Rated Employees, McMaster University, March 2007**

(Please refer to Attachment 14G)

**“3.03 Minimum Quality Requirements**

**(a) Quality Standards**

Within the investment restrictions for individual portfolios, all portfolios should hold a prudently diversified exposure to the intended market.

- (i) The minimum quality standard for individual bonds and debentures is ‘BBB’ or equivalent as rated by a recognised bond rating agency, at the time of purchase.
- (ii) The minimum average rating of the overall bond portfolio must be ‘A’, or better.
- (iii) The minimum quality standard for individual short term investments is ‘R-1’ or equivalent as rated by a recognised bond rating agency, at the time of purchase.

**(b) Rating Agencies**

For purposes of this Policy, the following shall be considered ‘Recognized Bond Rating Agencies’:

- (i) Dominion Bond Rating Agency;

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 17

- (ii) Standard & Poor's; and,
- (iii) Moody's Investors Services.

Should the rating on a short-term or bond investment fall below the minimum standards outlined above, the Investment Manager must immediately notify the Assistant Vice-President (Administration) and make recommendations as to what action should be taken. The Assistant Vice President (Administration) must report all such occurrences and action undertaken to remedy the situation to the Committee.

### 3.04 Maximum Quantity Restrictions

The following restrictions are to be respected: .....

#### (b) Bonds and Short Term Securities

- (i) Except for federal and provincial bonds, no more than 10% of a manager's bond portfolio may be invested in the bonds of a single issuer and its related companies;
- (ii) Except for federal and provincial bonds, no one bond holding shall represent more than 10% of the market value of the total outstanding for that bond issue;
- (iii) No more than 10% of the market value of a manager's bond portfolio shall be invested in bonds rated 'BBB' or equivalent;
- (iv) No more than 20% of the market value of a manager's bond portfolio shall be invested in bonds denominated in a currency other than Canadian dollars; and,
- (iv) Private placements and asset-backed securities can be held to a maximum of 20% of the bond portfolio. The investment manager will advise the Committee when this category exceeds 10% of the bond portfolio."

**15. Reference: FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C. McShane, p. 12**

Rationale: Ms. McShane notes that "municipal customers have the ability to exit FBC's service by providing notice. They can take power from an alternative source (e.g., BC Hydro, from the open market or their own generation) should they choose to do so."

Request: ICG would like to better understand the competition FBC faces.

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 18

- 1
- 2 (a) How easy is it for FBC's municipal customers to take power from
- 3 an alternative source? Please explain the process by which
- 4 municipal customers would switch suppliers.
- 5

6 **Response:**

7 A discussion of the barriers to the exit from utility supply is contained in the response to BCUC

8 FBC IR 1.9.4.

9 The Proposed Settlement Agreement (PSA) with respect to WKP's 1998 Access Principles

10 Application exists specifically to provide to those customers that choose to obtain some or all

11 supply from non-Utility resources a means to do so.

12 Once a Municipal Customer decides to leave utility service it is not difficult to do so. A municipal

13 customer can leave utility based supply for all or a part of its load by providing notice of a

14 removal of load under either the conditions of the PSA or the Company's Commission approved

15 Tariff.

- 16
- 17
- 18 (b) Why don't FBC's customers choose to purchase power from an
- 19 alternative source?
- 20

21 **Response:**

22 FBC does not have specific knowledge of the sentiments of its municipal customers and cannot

23 respond with any certainty on their behalf. Generally, the Company assumes that the decision

24 would be made in consideration of the factors described in the response to BCUC FBC IR 1.9.4.

- 25
- 26
- 27 (c) Are BC Hydro rates more or less costly than FBC's rates. Please
- 28 explain and provide data, in electronic form, to substantiate the
- 29 answer.
- 30

31 **Response:**

32 The extent to which the Wholesale rates of BC Hydro and FBC differ is based on a particular

33 wholesale customer's usage. The current wholesale rates of BC Hydro and FBC are provided

34 below:

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 19

BC Hydro Rate Schedule 1827	FBC Rate Schedule 41
<u>Monthly Minimum Charge</u> : \$6.353 per kVA of Billing Demand <u>Demand Charge</u> : \$6.353 per kVA of Billing Demand per Billing Period <u>Energy Charge</u> : 3.724 ¢ per kWh for all kWh in a Billing Period  Rate Schedule 1901 – Deferral Account Rate Rider of 5 percent of the amounts otherwise payable.	<u>Customer Charge</u> : \$5,198.43 per Billing Period <u>Wires Charge</u> : \$5.52 per kVA of Billing Demand <u>Power Supply Charge</u> : \$4.15 per kVA of maximum Demand in current billing month <u>Energy Charge</u> : 3.916 ¢ per kWh

1

2 As an example, based on customer demand of 30,000 kVA and load of 15 GWh, an FBC  
3 Wholesale Transmission customer will pay approximately 15 percent more than a BC Hydro  
4 Wholesale Transmission customer at April 1, 2013.

5

6

7 **16. Reference: FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C.**  
8 **McShane, p. 13**

9 Rationale: Ms. McShane notes that “In FBC’s case, its supply risk is relatively low,  
10 as it has been historically, as the majority of its requirements have  
11 continued to be met through a combination of owned hydroelectric  
12 generation and long-term purchased power arrangements. The latter  
13 include the Brilliant Power Purchase Agreement, the BC Hydro PPA and  
14 the Waneta expansion capacity purchase agreement.”

15 Request: ICG wishes to understand more about FBC’s long term purchased power  
16 arrangements.

17  
18 (a) Please provide a copy of the Brilliant Power Purchase Agreement.  
19

20 **Response:**

21 Please refer to the response to ICG FBC IR 1.10.

22

23

24 (b) Please provide a copy of the Waneta expansion capacity  
25 purchase agreement.  
26

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 20

1 **Response:**

2 The WAX CAPA is a confidential document, as confirmed by the Commission in Orders G-29-10  
3 7 and E-15-12.

4  
5

6 **17. Reference: FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C.**  
7 **McShane, p. 13**

8 **Rationale:** Ms. McShane writes, “As regards operating risks, as a vertically  
9 integrated electric utility, FBC faces higher risks than the benchmark  
10 utility, FEI, as it operates generating facilities, which must be available for  
11 dispatch in order for FBC to receive its capacity and energy entitlements  
12 as provided for under the Canal Plant Agreement.”

13 **Request:**

14  
15 (a) Please provide a copy of the Canal Plant Agreement.  
16

17 **Response:**

18 Please refer to Attachment 17A for a copy of the Second Amended and Restated 2005 Canal  
19 Plant Agreement dated November 15, 2011.

20  
21

22 (b) In what way does that fact that FBC is vertically integrated affect  
23 the risks faced by the utility? Please explain and provide any  
24 documentation that supports your answer.  
25

26 **Response:**

27 As stated in FBC’s Business Risk Evidence (Appendix A to Exhibit B1-72), FBC is exposed to  
28 higher risk as a result of owning and operating generation assets, as well as transmission and  
29 distribution assets. Given the age and physical characteristics of its generation assets, FBC is  
30 exposed to additional risk related to infrastructure maintenance and integrity and the potential  
31 impact on power supply costs due to failure of any of its generation assets. The power supply  
32 risks associated with the risk of its generation assets failing is discussed in section 6 of  
33 Appendix A and the operational risks associated with FBC’s generation, transmission and  
34 distribution assets is explained in detail in Section 7 of Appendix A.

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 21

Please also see Ms. McShane's discussion on this point on pages 14 and 15 of her Evidence (Appendix B).

**18. Reference: FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C. McShane, p. 17**

Rationale: Ms. McShane claims that "since bond investors are more likely to focus on the lowest rating, it is appropriate to focus on the Moody's rating, which is in the Baa rating category (equivalent to the BBB category on the DBRS/S&P rating scales)."

Request: Please provide any studies or references that support the claim that bond investors are more likely to focus on the lowest rating.

**Response:**

Please refer to the response to BCUC FBC IR 1.6.4.

**19. Reference: FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C. McShane, p. 32**

Rationale: Ms. McShane writes that, "By comparison, if FBC were publicly traded, its market capitalization would be much smaller, likely in the approximate range of \$725 to \$775 million."

Request: Please explain how the market capitalization estimate of \$725 to \$775 million was calculated, and provide any supporting work in electronic form.

**Response:**

A likely range of market capitalizations was estimated by Ms. McShane by applying a range of Price/Earnings (P/E) ratios to a range of earnings (net income). The range of earnings was based on the book value of the equity component of rate base, estimated using the actual 2012 mid-year rate base (\$1089) multiplied by the 40% currently allowed and proposed common equity ratio (\$435 million). A range of earnings rates (ROEs) was applied to the equity base, ranging from 8.75% to 9.75%, which produced a range of earnings, from approximately \$38 to \$42.5 million.

British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2	Submission Date: August 13, 2013
FortisBC Inc. (FBC) Response to Industrial Customers Group (ICG) Information Request (IR) No. 1	Page 22

As regards the price/earnings ratios to be applied to the range of earnings, the recent (past two years, from mid-2011 to mid-2013) price/earnings ratios of the electric utilities contained in my Stage 1 benchmark low risk U.S. utility sample were reviewed, along with the corresponding price/earnings ratios of the two relatively pure-play publicly-traded Canadian utilities, Emera and Fortis. The data indicated likely P/E ratios ranging from 15 to 21. The range of estimated earnings was multiplied by the range of P/E ratios to arrive at a range of market capitalizations (\$575 to \$900 million) with the central tendency in the approximate range of \$725 to \$775.

Please refer to Attachment 19 for the Calculations and the P/E data.

**20.     Reference:     FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen C. McShane.**

**Rationale:     Ms. McShane attaches several schedules to her evidence. Please provide electronic copies (Excel spreadsheets) of her attached schedules.**

**Response:**

Electronic copies of Ms. McShane's schedules are provided as Attachment 20.





Further dampening the prospects for the fishing industry are tight margins, market uncertainty, and youth out-migration from coastal communities.

In addition, there are concerns about Canada's tuna fishing industry. The federal Department of Fisheries and Oceans (DFO) is weighing the decision whether Atlantic bluefin tuna should be listed as endangered under Canada's *Species at Risk Act*. If Atlantic bluefin tuna are listed under the federal act, it would mean the closing of the bluefin tuna fishery while a recovery strategy is put in place. Bluefin tuna—a key ingredient in sushi—is highly popular with Japanese and U.S. buyers. If the DFO lists bluefin tuna as endangered and fishing of the species is banned, the fishing industry would see a reduction in fishing output and exports.

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**Demand for aquaculture products is expected to grow over the next decade, leading to rising prices and new export opportunities for Canadian producers.**

---

The West Coast salmon fishery has gone through dramatic volatility over the past few seasons. The Fraser River sockeye run is perhaps the best example. After several poor years, barely 1 million sockeye returned to spawn in the Fraser in 2009, less than 10 per cent of the expected level. The return was so poor that a judicial inquiry was appointed to investigate its causes. Then, in 2010, over 30 million sockeye returned, raising an equally large number of questions. Last year, an estimated 4.5 million sockeye returned. (This is considered to be a healthy number because sockeye run on a four-year cycle.) The causes of these large fluctuations are the subject of much debate, and possible explanations put forward range from sea lice to volcanic activity. Overall, the industry's potential contribution to long-term growth in British Columbia is limited.

In contrast, the aquaculture industry (which is classified under agriculture) has a more positive outlook but still faces challenges. The recent disease-induced collapse of Chile's salmon industry spurred investment in Canadian-farmed salmon. However, this was only a short-run situation as the troubles in Chile's industry were not permanent and are now being overcome. Also, the

decision by the United States International Trade Commission to drop a decade-old anti-dumping duty (estimated at roughly 24 per cent) on imports of Norwegian salmon will lead to increased competition for farmed salmon exports to the United States. Still, demand for aquaculture products is expected to grow over the next decade, leading to rising prices and new export opportunities for Canadian producers.

Environmental concerns continue to pose a serious challenge for the industry. For example, allegations that sea lice from salmon farms contributed to B.C.'s disastrous sockeye run in 2009 reinforced public concerns about aquaculture's impact on local ecosystems. Yet the overall outlook for aquaculture is positive, and new investments are expected to generate higher volumes of farmed seafood.

The outlook for the fishing industry is not bright in the long run. The industry is forecast to decline an average of 0.3 per cent over 2012–35. The combination of depleted stocks, environmental impacts, financial pressures, and reduced labour supply will curtail growth. Although governments have shown determination by applying strict catch restrictions and quota reductions in order to rebuild stocks, there is a high level of uncertainty in the industry and little hope of any dramatic recovery. The contraction is expected to be more severe on the West Coast than on the East Coast, due to the increasingly threatened state of British Columbia's salmon stocks. The federal government recently announced its intention to modernize commercial fisheries in Canada—with the goal of making Canada's fishery management practices more scientifically sound—and to align them with those in peer countries. A more sustainable commercial fishery should be the result.

## FORESTRY

The forestry industry will continue to face supply and demand challenges in the medium term but will improve over the long term. Forestry accounted for 1.7 per cent of total real output in the goods sector over the past 10 years but will account for a mere 1.2 per cent by 2035. Overall, the sector is forecast to experience average annual compound growth of just 0.6 per cent from 2012 to 2035. The industry is expected to experience strong growth until 2015 when the impact of the mountain

pine beetle devastation affects the supply of lumber. Forestry output will contract for several years as a result. The industry will resume its growth over the long term, beginning in 2021, and will expand moderately over the remainder of the forecast period.

Right now, the Canadian forestry industry feeds two main types of production, wood products (used primarily for North American housing markets), and pulp and paper. The former will experience rapid growth in the coming years, as it recovers from record lows. U.S. housing starts are currently sitting at a four-year high. Housing starts remain several hundred thousands of units below household formation requirements, strengthening continued growth prospects for the industry. Lumber prices climbed 30 per cent in the first half of 2012 as a result of the increased demand and decreased capacity of the industry following the recession. Meanwhile, the Canadian housing market is experiencing a soft landing, but increasing strength in the U.S. housing market will mitigate any drop in demand here at home. Demand for pulp and paper is also at a record low right now but, unlike wood products, a strong recovery is not in the outlook. Newspaper distribution has seen steady declines, and the world has made a permanent shift into the digital age.

After the U.S. housing market recovers, the forestry industry will face supply-side problems. In British Columbia, the forestry industry continues to face a natural disaster in the form of the mountain pine beetle infestation. Since the late 1990s, the beetles have destroyed 53 per cent of the province's most commercially valuable timber. It is estimated that, by 2021, the insects will have killed 58 per cent of the province's mature lodgepole pine, which accounts for 28 per cent of British Columbia's timber supply. The infestation has spread to Alberta where aggressive industry and government action, as well as a more hostile environment, has been more successful at controlling the outbreak. Nevertheless, 4.2 million lodgepole pine have died in Alberta over the last decade, and the forests remain threatened. In the outer years of the forecast, the industry will begin to recover from the infestation as new species are harvested and young pine continues to mature. Furthermore, new lumber markets in Asia are being nurtured and this is expected to contribute to the long-term growth of the industry.

Unconventional uses for forestry products are being developed. The potential for an emerging biomass fuel industry will lead to increased demand over the long term. Prices for oil and other commodities are expected to be higher than historical levels over the long term, and this will fuel demand for alternative sources of energy. Demand for biomass was a saviour for many contractors and sawmillers during the 2008–09 recession, and the demand will continue even after the U.S. housing market picks up again. Wood pellet plants are already producing pellets for domestic and foreign markets. Political pressure to use more environmentally friendly sources of energy may also favour development of the biomass industry over the long term. Not only is it a renewable source of energy, but residual wood is a material that would not otherwise be used.

---

**Demand for biomass was a saviour for many contractors and sawmillers during the 2008–09 recession, and the demand will continue.**

---

From 2012 to 2015, with the U.S. housing market recovering from record lows, forestry output will grow at an average annual compound rate of 1.7 per cent. From 2016 to 2021, the industry will contract by 0.4 per cent a year on average (compounded annually) due to the pine beetle infestation. In the outer years of the forecast, from 2022 to 2030, the industry will experience 0.7 per cent compound annual growth as forests are diversified, global demand strengthens, and prices increase due to wood shortages resulting from the mountain pine beetle devastation.

## **MINING**

The mining sector is expected to post decent growth over the long term, outpacing national GDP growth over the majority of the forecast period. Among the four industry subgroupings (metals, non-metallic minerals, mineral fuels, and services incidental to mining), metal mining will expand the fastest, while mineral fuels will remain the largest sector. Overall, the mining sector will grow at an average annual compound rate of 2.3 per cent from 2012 to 2035.



## BRILLIANT POWER PURCHASE AGREEMENT

This agreement is made as of the 4th day of April, 1996.

AMONG:

COLUMBIA POWER CORPORATION, a corporation established under the laws of British Columbia and having an office at 712 Yates Street, Victoria, British Columbia, V8V 1X4

("CPC")

CBT POWER CORP., a corporation established under the laws of British Columbia and having an office at 601 Vernon Street, Nelson, British Columbia, V1L 4E9.

("CBT")

(CPC and CBT are hereafter collectively referred to as "CPC/GBT")

AND:

WEST KOOTENAY POWER LTD., a corporation established by a Special Act of the Legislature of the Province of British Columbia and having its registered office at 1290 Esplanade, Trail, British Columbia, V1R 4L4

("WKP")

WHEREAS:

A. By an agreement made as of February 9, 1996 (the "Brilliant Dam Sale Agreement"), CPC and CBT agreed to purchase the Brilliant Plant and related rights, including the Entitlement, from Cominco and it is a condition of the obligations of CPC and CBT under such agreement that CPC and CBT shall have entered into electricity sales agreements satisfactory to CPC and CBT.

B. WKP's generating capacity is insufficient to meet its core load requirements and WKP wishes to acquire an additional long term supply of capacity and energy to replace that which it currently purchases from Cominco under contracts expiring in 1999 and 2005.

(d960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No. E-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

C. CPC/CBT is willing to sell, and WKP is willing to purchase, the Entitlement or Power at such rates and under such terms and conditions as are specified herein.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the mutual covenants herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby conclusively acknowledged by each of the Parties hereto, the Parties hereto agree as follows:

## PART 1

### DEFINITIONS

1.1 Defined Terms. In this Agreement (including the recitals), unless the context otherwise requires, the defined terms herein shall have the meanings set out in Schedule 1.

## PART 2

### TERM

2.1 Term of Agreement. This Agreement shall become effective upon satisfaction or waiver of the conditions set out in Part 15 hereto and, unless earlier terminated pursuant to Part 3, shall have a term which shall expire sixty (60) years after the Plant Purchase Date.

## PART 3

### TERMINATION

3.1 WKP Termination. WKP may terminate this Agreement by thirty (30) days prior notice in writing to CPC/CBT if

- (a) for more than six (6) consecutive months CPC/CBT makes available to WKP less than 10% of the Entitlement or Power normally made available hereunder, as a result of an Event of Force Majeure relating to, or a Forced Outage, Forced Derating or Maintenance Outage of, the Brilliant Plant; or
- (b) a Default on the part of CPC/CBT shall have occurred and be continuing


provided that this Agreement will not be terminated by the notice of termination if, within fourteen (14) days of receipt of the notice, CPC/CBT gives notice to WKP objecting to the termination, reasonable and diligent efforts are being made by CPC/CBT to cure such cause for

(dt960820177)

Accepted for filing: MAY 3 1996

Effective: MAY 3 1996

Order No. 1

  
SECRETARY  
B.C. UTILITIES COMMISSION

termination and such cause is capable of being cured within a reasonable period of time. Such right to terminate is without prejudice to any other rights WKP may have in respect of this Agreement, whether at law or in equity.

3.2 **CPC/GBT Termination.** CPC/GBT may terminate this Agreement by thirty (30) days prior notice in writing to WKP if

- (a) for more than eighteen (18) consecutive months CPC/GBT makes available to WKP less than 10% of the Entitlement or Power normally made available hereunder, as a result of an Event of Force Majeure relating to, or a Forced Outage, Forced Derating or Maintenance Outage of, the Brilliant Plant and such Event of Force Majeure or Forced Outage is not reasonably capable of being cured within a reasonable period of time; or
- (b) a Default on the part of WKP shall have occurred and be continuing

provided that this Agreement will not be terminated in the case of Section 3.2(b) above by the notice of termination if, within fourteen (14) days of receipt of the notice, WKP gives notice to CPC/GBT objecting to the termination, reasonable and diligent efforts are being made by WKP to cure such cause for termination and such cause is capable of being cured within a reasonable period of time. Such right to terminate is without prejudice to any other rights CPC/GBT may have in respect of this Agreement, whether at law or in equity.

3.3 **Restriction on CPC-GBT Termination.** For greater certainty, neither CPC nor GBT shall have any right of termination in respect of this Agreement by reason of a Default by either CPC or GBT.

3.4 **Continued Liability.** Termination of this Agreement shall not relieve any Party from any liability in respect of matters arising prior to the date of such termination.

## PART 4

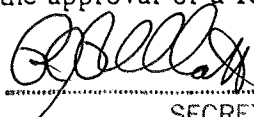
### SALE AND PURCHASE OF ENTITLEMENT OR POWER

4.1 **Sale and Purchase of Entitlement or Power.** Subject to and in accordance with this Agreement, CPC/GBT shall sell and make available to WKP, and WKP will purchase and take, the Entitlement or Power and WKP shall pay to CPC/GBT, whether or not WKP takes, the Operation and Maintenance Costs and Return on Capital for each year of the Term.

4.2 **Regulator Approval of Brilliant Upgrade.** Entitlement and Power sold hereunder shall include that resulting from any Brilliant Upgrade except that if the approval of a Regulator is

(d960820177)

Accepted for filing: **MAY 3 1996**  
 Effective: **MAY 3 1996**  
 Order No.: **E-7-96**

  
 SECRETARY  
**B.C. UTILITIES COMMISSION**

required by WKP in connection with the purchase of Entitlement or Power resulting from a Brilliant Upgrade for whatever reason, including permitting WKP to pass the cost thereof on to its customers, and if such approval is not given by such Regulator in a reasonable period of time, the Entitlement or Power sold hereunder shall not include that resulting from that Brilliant Upgrade and

- (a) CPC/CBT may sell such Entitlement or Power to any Person at a price no less than that which WKP would have been required to pay hereunder;
- (b) CPC/CBT may sell such Entitlement or Power to any Person at a price less than that which WKP would have been required to pay hereunder if CPC/CBT first offers such Entitlement or Power to WKP at such price and WKP does not accept the offer within ninety (90) days or such longer period as may be reasonably required to obtain the approval of the Regulator in connection therewith; and
- (c) if CPC/CBT sells such Entitlement or Power to a Person other than WKP, WKP shall not be required to pay any Upgrade Capital Charge related to such Brilliant Upgrade or any net increase in Operating and Maintenance Costs or net increase in Sustaining Capital Charge caused solely by such Brilliant Upgrade.

4.3 **Payment Restriction.** Notwithstanding Sections 4.1 and 4.5, if a notice of termination pursuant to Section 3.1(a) is delivered by WKP but this Agreement is not terminated, WKP shall not, after 30 days after the giving of notice of termination, be obligated to pay for any of the Entitlement or Power not delivered.

4.4 **Disallowed Costs.** WKP shall not be obligated to pay in any Year that part of the Operation and Maintenance Costs or Sustaining Capital Charge in respect of that part of Sustaining Capital for that Year, the recovery of which was, before that part was spent or committed, specifically disallowed by an order of a Regulator for the purposes of determining the revenue requirement for rate setting purposes of WKP for that Year. If WKP is not the manager of the Brilliant Plant, CPC/CBT shall give WKP reasonable advance notice of the Operation and Maintenance Costs or Sustaining Capital to be spent, or committed to, in respect of each Year.

4.5 **Increases and Decreases to Entitlement or Power.** All increases and decreases to the Entitlement or Power (including decreases in connection with Forced Outages, Maintenance Outages, Forced Derating and Planned Outages), other than that which WKP does not purchase pursuant to Section 4.2, shall be at the risk and for the benefit of WKP except that:

- (a) increases in the Entitlement or Power as a result of:
  - (i) CPC/CBT, or any related party, becoming the authority designated under

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Accepted for filing: **MAY 3 1996**  
 Effective: **MAY 3 1996**  
 Order No.: **E-7-96**

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

the Columbia River Treaty to receive the benefit of the regulation of water flows resulting from the implementation of and pursuant to the Columbia River Treaty; and

- (ii) the Expansion, including any coordination benefits related thereto;

shall not be to the benefit of WKP unless otherwise mutually agreed to by the Parties. The Dispatch of Entitlement or Power to any Person other than WKP, including in respect of a Brilliant Upgrade, shall not adversely affect WKP.

- (b) decreases in the Entitlement or Power as a result of:

- (i) CPC/CBT, or any related party, becoming the authority designated under the Columbia River Treaty to receive the benefit of the regulation of water flows resulting from the implementation of and pursuant to the Columbia River Treaty;
- (ii) Forced Outages, Forced Deratings or Maintenance Outages caused by perils against which CPC/CBT is obligated to insure pursuant to Part 11;
- (iii) the installation or construction of any Brilliant Upgrade, the Expansion or other improvements to the Brilliant Plant; and
- (iv) any decision, act, omission or agreement (other than a CPC/Cominco Coordination Agreement) of CPC/CBT or its affiliates, directors, officers, employees, agents and other parties under its direction or control (other than WKP);

shall be at the risk of CPC/CBT and any such decrease in the Entitlement or Power shall result in a Pro Rata Reduction in the Operation and Maintenance Costs and Return on Capital. CPC/CBT shall indemnify WKP for all costs and losses WKP may incur as a result of such decreases in the Entitlement or Power in the case of Section 4.5(b)(iii) above. Subject to Section 4.2, the cost of any such indemnity will form part of the Operation and Maintenance Costs and Return on Capital of a Brilliant Upgrade, the Expansion or other improvements to the Brilliant Plant.

No Event of Force Majeure shall affect WKP's right to a Pro Rata Reduction in the Operation and Maintenance Costs and Return on Capital set out in this Agreement nor shall anything in this Section 4.5 limit any claim which WKP may have against CPC/CBT for breach of any provision of this Agreement except to the extent of the mitigation of damages resulting from the Pro Rata Reduction and the indemnity provided in this Section 4.5.

(d960820177)

Accepted for filing: **MAY 3 1996**

Effective: **MAY 3 1996**

Order No.: **E-7-96**

  
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4.6 **Post Management Agreement.** After the termination of the Management Agreement the Parties will negotiate in good faith an agreement with respect to a fair and reasonable formula for the adjustment of Operation and Maintenance Costs and Return on Capital payable hereunder if from time to time the Entitlement or Power made available to WKP is materially different from the Entitlement or Power made available to WKP while the Management Agreement was in effect. If within three (3) months of the first invitation to negotiate the agreement, an agreement is not executed and delivered by the Parties, either CPC/CBT or WKP may refer the matter to arbitration under Part 16 of this Agreement and the arbitrators shall determine the terms of the agreement and such agreement will be binding on the Parties.

4.7 **Water Reductions.** CPC/CBT shall have the right, on the thirtieth anniversary of this Agreement, to reduce the volume of water used to produce electricity at the Brilliant Plant (which for greater certainty does not mean alter the actual volume of water flowing to the Brilliant Plant), and accordingly the Entitlement or Power available to WKP, for the remainder of the Term by up to 1/3 of the volume of water authorized to be diverted for power generation purposes by water licenses related to the Brilliant Plant for the operation of a fish ladder at the Brilliant Plant for the natural migration of anadromous fish species or for fish preservation and enhancement pursuant to the provisions of the Columbia Basin Plan under the Columbia Basin Trust Act. CPC/CBT may exercise such right by giving WKP at least five years prior written notice and any resulting decrease in the Entitlement or Power available to WKP shall result in a Pro Rata Reduction in the Operation and Maintenance Costs and Return on Capital.

4.8 **Non-WKP Sales.** CPC/CBT shall not, during the Term, sell or make available to any Person or consume any part of the Entitlement or Power except

- (a) as expressly permitted in this Agreement;
- (b) the station service power consumed by the Brilliant Plant; and
- (c) to Cominco as required by the CPC/Cominco Coordination Agreement.

## PART 5

### OPERATIONS

5.1 **Point of Supply.** CPC/CBT will make available the Entitlement, and custody and control of the Entitlement will pass, to WKP at the delivery point under the Entitlement Agreements or at the points of interconnection at the Brilliant Switching Station or both, but the Entitlement will nevertheless be deemed to be made available at, and the passing of custody and control will be deemed to be passed to WKP at, the points of interconnection at the Brilliant Switching Station. After the expiration of the Entitlement Agreements, CPC/CBT will make available the Power,

(d960820177)

Accepted for filing: **MAY 3 1996**  
 Effective: **MAY 3 1996**  
 Order No.: **E-7-96**

  
 SECRETARY  
**B.C. UTILITIES COMMISSION**

and custody and control of the Power will pass to WKP, at the points of interconnection at the Brilliant Switching Station.

5.2 Points of Interconnection. CPC/CBT shall interconnect with the WKP system at WKP's line terminations at the Brilliant Switching Station. CPC/CBT and WKP shall have the right to interrupt the supply at the points of interconnection at any time to the extent necessary to safeguard life or property or for the purpose of construction, maintenance, operation, repair, replacement or extension of their equipment or works provided that they shall limit the duration of such interruptions as much as practicable and, except in emergencies, shall give to the other Party adequate warning of its intention to interrupt the supply.

5.3 Access. To the extent that it may be necessary, CPC/CBT hereby irrevocably and generally grants, for the Term, access at all times to WKP and its servants or agents to the Brilliant Plant for all matters related to metering in this Agreement.

5.4 Station Service. WKP will bear the cost of and be responsible for station service power requirements for the Brilliant Plant, including losses from the generator terminals up to the Brilliant Switching Station.

5.5 Entitlement Agreements Rights and Obligations. As of the effective date of this Agreement until the expiry, or earlier termination, of the Entitlement Agreements, CPC/CBT hereby authorizes and directs WKP to exercise on its behalf, and WKP agrees to observe and perform, all the rights and obligations of CPC/CBT under the Entitlement Agreements, including without limitation its rights under the Flexibility Accounts, as they relate to the Brilliant Plant except:

- (a) rights with respect to the Technical Committee under the Canal Plant Agreement and its decisions; and
- (b) rights with respect to arbitration.

5.6 Right to Dispatch Upon Termination of the Entitlement Agreements. Effective immediately upon the expiry or earlier termination of the Entitlement Agreements until the expiry or termination of this Agreement, and subject to compliance with the CPC/Cominco Coordination Agreement and to any agreement selling Entitlement or Power from a Brilliant Upgrade to a Person other than WKP, WKP shall have the right to Dispatch the Power at the Brilliant Plant at its sole discretion, subject to Water License Volumes, Prudent Utility Practice, and the Operating Characteristics, including the right to determine releases of storage out of Kootenay Lake as available under the Kootenay Lake storage license attributable to the Brilliant Plant.

5.7 Unit Outages. The following procedures shall apply in respect of Forced Outages,

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

## Maintenance Outages, and Planned Outages:

## (a) Planned Outages

(i) The Parties shall jointly agree on the Planned Outage requirements for the Brilliant Plant no later than ninety (90) days before the start of each Year and on the Planned Outage Schedule thirty (30) days before the start of each Year. In establishing the Planned Outage Schedule the Parties shall consider the requirements of WKP, the requirements under the CPC/Cominco Coordination Agreement and the requirements of purchasers of Entitlement or Power from a Brilliant Upgrade other than WKP;

(ii) Actual Planned Outages shall be performed:

A. as close as reasonably practicable to the Planned Outage Schedule but subject to modification to meet the foregoing requirements, and

B. subject to carrying out maintenance at the Brilliant Plant as might be requested by B.C. Hydro under the Canal Plant Agreement.

(b) Maintenance Outages. When the need arises for a Maintenance Outage, then the Parties will agree on the most appropriate time for the outage taking into consideration the events leading to and requirements resulting in the need for the outage and the requirements of WKP, the requirements under the CPC/Cominco Coordination Agreement and the requirements of purchasers of Entitlement or Power from a Brilliant Upgrade other than WKP.

(c) Forced Outages and Forced Deratings. Forced Outage and Forced Derating reductions shall be determined as provided for in the Entitlement Agreements prior to the expiry of such agreements and thereafter as actually incurred. CPC/CBT shall take all reasonable actions to minimize Forced Outage and Forced Derating occurrences and to minimize the duration of a Forced Outage or Forced Derating when it occurs, subject to Prudent Utility Practice.

5.8 Control and Protection of the Brilliant Plant. CPC/CBT shall provide:

(a) to WKP access to remote operational control equipment at the Brilliant Plant through provision of the necessary communication and control circuits within the Brilliant Plant and shall maintain such equipment in good operating order; and

(dc960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No. E-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

- (b) the Brilliant Plant with the necessary electrical protection equipment so as not to cause unnecessary disturbances or fluctuations on the interconnected system of WKP in accordance with Prudent Utility Practice.

WKP will provide its transmission facilities with necessary electrical protection equipment to protect the Brilliant Plant and CPC/CBT and WKP will coordinate such protection with each other in accordance with Prudent Utility Practice.

5.9 Reserves. WKP shall be responsible for carrying the necessary Capacity and other reserves related to Entitlement or Power for the Brilliant Plant including those required by the Entitlement Agreements as such requirements may be modified from time to time.

#### 5.10 Metering.

- (a) The energy and capacity purchased or deemed to be purchased under this Agreement shall be measured and recorded at the Brilliant Plant generator terminals by energy and demand meters having one hour integrating intervals, which meters, including current transformers and potential transformers, shall be types approved for revenue metering by Industry Canada and shall comply with the provisions of the *Electricity and Gas Inspection Act* (the "Act"), as amended from time to time. Metering shall provide pulse outputs, data logging capabilities, be insensitive to harmonic currents, and have telephone communications access or other capabilities as may be required or available.
- (b) CPC/CBT shall, if possible, make available to WKP the second set of secondaries of the metering transformers owned by it for the purpose of installing Backup Metering, telemetering and control equipment as may be mutually agreed by the Parties and shall provide space for the location of such equipment.
- (c) CPC/CBT shall test its metering components associated with this Agreement as provided by the Act and field test the metering installation as required by the Act. If requested to do so by WKP, CPC/CBT shall make additional tests or inspections of such installations, the expense of which shall be paid by WKP unless such additional tests or inspections show the measurements of such installations to be registering outside the prescribed limit of error. CPC/CBT shall give reasonable notice, of the time when any such test or inspection is to be made, to WKP who may have representatives present at such test or inspection. Any component of such installations found to be defective or inaccurate shall be adjusted, repaired, or replaced to provide accurate metering.
- (d) If a meter is found not to be functioning within the prescribed limit of error, the energy and capacity purchased shall be determined as provided for in the Act.
- (e) WKP may at its cost and expense install a Backup Metering system to check the

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

CPC/CBT's metering system performance and, if so, WKP shall own, operate and maintain this system.

- (f) All costs and expenses incurred by CPC/CBT in complying with its obligations under this Section 5.10 shall be included in Operation and Maintenance Costs.

#### 5.11 Technical Committee.

- (a) There shall be established and maintained throughout the Term, a Technical Committee consisting of one representative of each of CPC/CBT and WKP each of whom shall serve until notice has been given to the other of the selection of a successor.
- (b) Each of CPC/CBT and WKP may give notice to the other of an alternate who shall serve during the inability or absence of the representative of the one giving notice.
- (c) The Technical Committee shall determine all technical matters relating to this Agreement and shall decide questions that arise in operations under this Agreement.
- (d) In reaching decisions the Technical Committee shall attempt to achieve a just and equitable resolution of disagreements based upon Prudent Utility Practice and shall not vary or extend in any way the provisions of the Agreement. The decisions of the Technical Committee will not be binding on the Parties, unless otherwise mutually agreed in writing.
- (e) The Technical Committee shall keep a written record of its decisions and shall promptly forward to each of the Parties a copy of the written record.

## PART 6

### CPC/COMINCO COORDINATION AGREEMENT

6.1 Future Negotiations. In the event an agreement with B.C. Hydro as contemplated in paragraph B. of the definition of the B.C. Hydro Cooperation Letter is not entered into, the Parties will endeavor to negotiate a mutually satisfactory coordination agreement with Cominco for the purposes of obtaining benefits of coordinating the hydro-electric facilities owned by the Parties and Cominco.

6.2 CPC/Cominco Coordination Agreement. In the event no mutually satisfactory coordination agreement is entered into as contemplated in Section 6.1 and the CPC/Cominco Coordination Agreement is entered into between CPC/CBT and Cominco for the purposes of obtaining the benefits of coordinating the hydro-electric facilities owned by CPC/CBT and

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

Cominco, then:

- (a) if there is an increase in amount or quality (which for greater certainty includes the time that the Power is available) of Power in any Year available to CPC/GBT, as owners of the Brilliant Plant, for sale to WKP under this Agreement that would not have arisen but for such agreement, such increase shall be paid for from time to time by WKP at a charge that reflects the fair market value thereof; and
- (b) if there is a decrease in amount or quality (which for greater certainty includes the time that the Power is available) of Power in any Year available to CPC/GBT, as owners of the Brilliant Plant, for sale to WKP under this Agreement that would not have arisen but for such agreement, WKP shall be indemnified and made whole from time to time for its costs and losses in connection therewith.

6.3 **Guidelines for Arbitrators.** If the Parties cannot agree on the payments to be made from time to time pursuant to Section 6.2 and the matter is referred to arbitration, the arbitrators shall determine the difference, if any, between (i) the value to WKP of the Power in a particular Year available under the CPC/Cominco Coordination Agreement and (ii) the value to WKP of the Entitlement available on average over the last five years before termination of the Entitlement Agreements and

- (a) if the value determined under (i) exceeds the value determined under (ii), the arbitrator shall order WKP to make an additional annual payment to CPC/GBT equal to the excess; and
- (b) if the value determined under (ii) exceeds the value determined under (i), the arbitrator shall order CPC/GBT to give an annual credit against Operation and Maintenance Costs and Return on Capital to WKP equal to the excess.

The determination and order of the arbitrators under this Section 6.3 shall replace the obligation of a Party under Section 6.2.

## PART 7

### UNDERTAKINGS

7.1 **CPC/GBT Undertakings.** CPC/GBT hereby covenants and agrees with WKP to:

- (a) work with and cooperate in good faith with WKP with respect to all of WKP's obligations and rights hereunder;

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

- (b) operate and maintain the Brilliant Plant in accordance with the Operating Characteristics and Prudent Utility Practice;
- (c) make reasonable efforts to minimize Operation and Maintenance Costs and the expenditures under its control on which Return on Capital is calculated and to avoid unnecessary duplication of costs between CPC/CBT and WKP;
- (d) obtain for the benefit of WKP the benefit of any reduced water rental rates available to CPC/CBT for the first 250,000 megawatt-hours under the "General Power Use" category;
- (e) operate and maintain the Brilliant Plant in a good workman-like manner and in such a manner as to provide a reasonable likelihood that the useful life of the Brilliant Plant will be at least equal to the Term;
- (f) provide all reasonable cooperation and assistance at the cost and expense of WKP in connection with the public offering of any of WKP's securities (in Canada or elsewhere) and the listing of WKP's securities on any public stock exchange;
- (g) at the request of WKP at any time during the first year of the Term, demonstrate to WKP how it determined the Powerex Backstop Fee included in Operation and Maintenance Costs and provide WKP with evidence of the interest rate reduction applicable to the Return on Capital;
- (h) make reasonable efforts to oppose, and take reasonable action to prevent, any reduction in the Entitlement or Power;
- (i) not permit a reduction to the Entitlement or Power as a result of any decision, act, omission or agreement (other than the CPC/Cominco Coordination Agreement and in connection with Section 4.7) of CPC/CBT or their respective Affiliates, directors, officers, employees, agents and other parties under their direction or control;
- (j) upon termination of the Entitlement Agreements and subject to the Cominco/CPC Coordination Agreement, make reasonable efforts to make Power available to WKP in the amounts from time to time and manner which the Entitlement was made available to WKP during the period immediately before such termination;
- (k) if CPC/CBT elects not to pursue a claim against Cominco under the Brilliant Dam Sale Agreement which may result in an adjustment to the Return on Capital referred to in Schedule 2, permit WKP to pursue a claim in CPC/CBT's name at WKP's expense against Cominco under the Brilliant Dam Sale Agreement,

(dt960320177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

provided that WKP has first given CPC/CBT an appropriate indemnity and security for such indemnity;

- (l) reimburse WKP for its reasonable legal fees and advisor costs directly or indirectly related to the negotiation and entering into of this Agreement, to the extent included in the Original Cost ;
- (m) not surrender or waive any rights it may have under the Entitlement Agreements.

For greater certainty, no damages paid by CPC/CBT in respect of breach of any covenant or term in this Agreement shall be included in Operation and Maintenance Costs and Return on Capital payable by WKP hereunder.

7.2 WKP Undertakings. WKP hereby covenants and agrees with CPC/CBT to:

- (a) provide all reasonable cooperation and assistance to CPC/CBT in connection with CPC/CBT's negotiation and execution of financing documents for the purchase of the Brilliant Plant, provided that such cooperation and assistance shall not require WKP to incur any financial obligations or vary any of its legal rights hereunder or otherwise;
- (b) work with and cooperate in good faith with CPC/CBT with respect to all of CPC/CBT's obligations and rights hereunder;
- (c) provide all reasonable cooperation and assistance at the cost and expense of CPC or CBT in connection with the public offering of any of CPC's, CBT's or CPC/CBT's securities (in Canada or elsewhere) and the listing of such securities on any public stock exchange; and
- (d) exercise in respect of rights of CPC/CBT and obligations of CPC/CBT under the Entitlement Agreements, the same care, skill and diligence as would a reasonable and prudent owner of the Brilliant Plant subject to the Entitlement Agreements.

7.3 Benefit of Customers. WKP and CPC/CBT confirm and acknowledge that it is their mutual intention that WKP's customers receive the benefit of this Agreement and in connection therewith agree that:

- (a) if WKP ceases to be a regulated utility and the price for Entitlement or Power hereunder is less than the market price for equivalent quantities of energy and capacity delivered at the Brilliant Plant, WKP will cause the benefit of that differential to accrue to the benefit of WKP's customers in British Columbia

(dr960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION



(except WKP shall be entitled to receive a reasonable margin on its electricity sales); and

- (b) if WKP does not cause the said benefits to accrue to its customers, WKP shall either
  - (i) immediately reduce the prices payable for electricity by its customers in British Columbia so as to pass on over a reasonable period of time the benefits not so passed on in the past (with interest compounded quarterly at the Prime Rate) and so as to pass on the benefit of the differential in the future; or
  - (ii) pay on demand to CPC/CBT from time to time an amount equal to the benefit not passed on (with interest compounded quarterly at the Prime Rate).

7.4 Taxes. Each Party shall duly pay all rents, taxes, fees, revenues, assessments, duties, other outgoings and other amounts ongoing by it, shall observe all the rules and regulations pertaining to the same and shall not do or omit to do or suffer to be done anything which could reasonably be expected to adversely affect or prejudice the interest and rights of any other Party in any manner whatsoever. CPC/CBT will not include in Operation and Maintenance Costs to be paid by WKP any taxes, governmental charges or grants in lieu thereof which it is not obligated by law to pay, other than grants in lieu of taxes or government charges paid by CPC/CBT to the extent it can demonstrate that such grants are for an amount which is not more than would have otherwise been paid in respect of taxes or government charges which would otherwise have been included in Operation and Maintenance Costs.

## PART 8

### PERMITS, LICENSES AND APPROVALS

8.1 Governmental Approvals. CPC/CBT shall use reasonable and proper efforts to obtain and renew all Government Approvals that are required to be obtained by CPC/CBT in connection with the operation of the Brilliant Plant and sale of the Entitlement or Power to WKP. WKP shall use reasonable and proper efforts to obtain and renew all Government Approvals required to be obtained by WKP and WKP shall use reasonable and proper efforts to cooperate with and support CPC/CBT's efforts to obtain and renew all necessary Governmental Approvals.

(dr960820177)

Accepted for filing: **MAY 3 1996**  
 Effective: **MAY 3 1996**  
 Order No.: **E-7-96**

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

## PART 9

## MAINTENANCE OF OPERATING RECORDS

9.1 Operating Records. Each Party shall keep complete and accurate records and all other data required by each of them for the purposes of proper administration of this Agreement including, but not limited to, in the case of CPC/GBT, an accurate and up-to-date operating log with records of:

- (a) energy production for each month;
- (b) changes in operating status, Planned Outages, Maintenance Outages, Forced Outages and Forced Deratings; and
- (c) any unusual conditions found during inspections.

All such records shall be maintained for a minimum of sixty (60) Months after the creation of such record or data provided, however, that the Parties shall not dispose of or destroy any such records after such sixty (60) Month period without thirty (30) Days' prior written notice to the other Parties.

9.2 Audit of CPC/GBT's Accounts and Records. WKP may on reasonable notice and at its own cost at all reasonable times audit CPC/GBT's accounts and records relating to Operation and Maintenance Costs and Return on Capital and all other accounts and records kept pursuant to Section 9.1 WKP and its servants and agents shall have the right to examine and verify all books of account, accounting entries, material records and inventories, vouchers, payrolls, invoices, detail of accounts allocated to the Brilliant Plant and this Agreement including the basis for allocation, and any other documents, correspondences and records necessary to audit and verify charges and credits relating to this Agreement and CPC/GBT shall give such explanations thereof as shall reasonably be required by the person conducting the audit.

## PART 10

## PAYMENT

10.1 Payment for Entitlement or Power. WKP will pay to CPC/GBT the amount of Operation and Maintenance Costs and Return on Capital from time to time owing hereunder in accordance with this Part 10.

10.2 Form of Invoice. Each invoice shall list the components of the Operation and

(dt960820177)

Accepted for filing: **MAY 3 1996**  
 Effective: **MAY 3 1996**  
 Order No.: **E-7-96**

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

Maintenance Costs and/or Return on Capital in respect of which it was rendered and give detailed calculations showing determination of the invoiced charge.

10.3 Invoicing and Payment of Operation and Maintenance Costs. Operation and Maintenance Costs, other than costs and fees payable by CPC/CBT under the Management Agreement, for each Month will be invoiced by CPC/CBT within ten (10) business days of the end of the Month.

10.4 Invoicing and Payment of Return on Capital. Return on Capital will be invoiced by CPC/CBT in two equal semi-annual amounts at least twenty-five (25) days prior to the date of each semi-annual debt service payment made by CPC/CBT. Failure to render an invoice strictly in accordance with the said time periods in this Agreement shall not limit CPC/CBT's right to receive payment of Operation and Maintenance Costs and Return on Capital.

10.5 Payment of Invoice. WKP shall pay each invoice in respect of Operation and Maintenance Costs under Section 10.3 and Return on Capital within 20 days of receipt. Interest shall be payable by WKP on amounts not paid when due at the Prime Rate from the date due until the date of payment in full.

10.6 Payment of Balance. WKP will pay the balance of the Operation and Maintenance Costs for such Month by treating the obligation of CPC/CBT to pay costs and fees under the Management Agreement for the Month (other than costs and fees, if any, that are not included in Operation and Maintenance Costs) as fully paid and satisfied by way of set-off.

10.7 Disputes. If WKP disagrees with the calculation or determination of the Operation and Maintenance Costs and Return on Capital in respect of which an invoice was issued, the following shall apply:

- (a) notwithstanding the dispute, the invoice shall be paid on or before the due date;
- (b) CPC/CBT shall provide all relevant background information, working papers and other such evidence upon which the invoiced charge was determined;
- (c) CPC/CBT and WKP shall make reasonable efforts to settle the dispute failing which the matter shall be settled by arbitration pursuant to Part 16; and
- (d) if it was determined that the invoiced charge was in fact excessive, CPC/CBT shall forthwith repay to WKP such excess together with interest at the Prime Rate on such excess for the period held by CPC/CBT.

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No. E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

## PART 11

## INSURANCE

11.1 Maintenance of Insurance Policies. CPC/CBT shall from and after the Plant Purchase Date and during the Term obtain and maintain insurance with respect to the Brilliant Plant with reputable and responsible insurers on such property, against such risks, in such amounts and subject to such deductible and other terms, including without limitation, business interruption and liability insurance, as is customarily maintained by responsible, similarly situated corporations owning similar assets.

11.2 Certificates of Insurance. CPC/CBT shall forthwith after the Plant Purchase Date and once each Year thereafter provide WKP with certificates of insurance evidencing the policies required under Section 11.1. Failure by CPC/CBT to obtain the insurance coverage or certificates of insurance required by this Part shall not relieve CPC/CBT of the insurance requirements set forth herein or in any way relieve or limit CPC/CBT's obligations and liabilities under any other provision of this Agreement. If CPC/CBT shall fail to procure or maintain any insurance required pursuant to this Part, then WKP shall have the right, upon delivering thirty (30) days prior written notice to CPC/CBT, to procure such insurance in accordance with the requirements of this Part at the full expense of CPC/CBT.

11.3 Application of Proceeds from All Risk Property and Boiler and Machinery Insurance. Insurance proceeds from all risk property and boiler and machinery insurance shall be applied to repair of the Brilliant Plant.

11.4 Compensation WKP shall not be liable under this Agreement for any loss to the extent that insurance proceeds are payable to CPC/CBT in respect thereof.

## PART 12

## FORCE MAJEURE

12.1 Time Extended. If performance of any obligation under or arising out of this Agreement, except an obligation to pay money (including, without limitation, the obligation to pay Operation and Maintenance Costs and Return on Capital), is delayed or prevented by an Event of Force Majeure, the time for performance shall be extended by the period of the delay, but no longer than the continuance thereof and no Party shall be liable in damages or otherwise to any other Party nor shall any action, claim or demand be taken or made against that Party by reason solely of such delay or default in the performance of such obligation.

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 D.C. UTILITIES COMMISSION

12.2 **Reasonable Diligence.** The Party responsible for the performance of any such obligation shall use all reasonable diligence to remove the Event of Force Majeure as soon as is reasonably practicable after notice of the same shall have come to its attention except that the settlement of any strike, lockout or other industrial dispute shall be entirely within the discretion of any Party directly concerned therewith and nothing herein shall require the settlement thereof by acceding to the demands of the other Party to the dispute where such course is considered inadvisable in the absolute discretion of the Party so concerned.

12.3 **Keep Informed.** Each Party shall keep the other promptly informed of any delay or prevention of the performance of any obligation on its part under this Agreement where such delay or prevention is caused by an Event of Force Majeure and, of the likely duration of such delay or prevention, and of the cessation of such circumstances.

## PART 13

### LIABILITY AND INDEMNIFICATION

13.1 **Limitation of Liability.** No Party shall be liable to the other Parties in contract, tort, warranty, strict liability or any other legal theory for any indirect, consequential, incidental, punitive or exemplary damages arising under or in connection with this Agreement or in connection with the failure to perform or observe obligations under this Agreement. No Party shall have any liability to any other Party except pursuant to, or for breach of, this Agreement provided, however, that this provision is not intended to constitute a waiver of any rights of one Party against any other with regard to matters which are unrelated to this Agreement or to any activity contemplated by this Agreement.

#### 13.2 Indemnification.

- (a) WKP shall indemnify and save CPC/CBT harmless in respect of any loss or damage to property, death or injury to persons (or any claim against CPC/CBT in respect thereof) and all expenses relating thereto (including without limitation reasonable legal fees) suffered or incurred by CPC/CBT in connection with the Brilliant Plant resulting from any negligent act or omission of WKP in connection with the performance of its obligations under this Agreement or a breach by WKP of its obligations under this Agreement. The indemnity shall not extend to any loss, damage, death or injury (or any claim in respect thereof) or any expenses relating thereto to the extent that it was caused by the negligence or wilful misconduct of CPC/CBT or the failure of CPC/CBT to take reasonable steps in mitigation thereof. Notwithstanding anything to the contrary contained in the preceding sentence, nothing in this Section 13.2(a) shall apply to any loss, damage, cost or expense in respect to which, and to the extent that, CPC/CBT is compensated pursuant to the term of any insurance, agreement or through any other

(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

means.

- (b) CPC/CBT shall indemnify and save WKP harmless in respect of any loss of or damage to property, death or injury to person (or any claim against WKP in respect thereof) and all expenses relating thereto (including without limitation reasonable legal fees) suffered or incurred by WKP in connection with the Brilliant Plant resulting from any negligent act or omission of CPC/CBT in connection with the performance of its obligations under this Agreement or a breach by CPC/CBT of its obligations under this Agreement. The indemnity shall not extend to any loss, damage, death or injury (or any claim in respect thereof) or any expenses relating thereto to the extent that it was caused by the negligence or wilful misconduct of WKP or the failure of WKP to take reasonable steps in mitigation thereof. Notwithstanding anything to the contrary contained in the preceding sentence, nothing in this Section 13.2(b) shall apply to any loss, damage, cost or expense in respect of which, and to the extent that, WKP is compensated pursuant to the terms of any insurance, agreement or through any other means.
- (c) In the event such injury or damage results from the joint or concurrent negligent or intentional acts of the Parties each shall be liable under this indemnification in proportion to its relative degree of fault.

13.3 **Assertion of Claims.** Neither Party shall be entitled to assert any claim for indemnification until such time as all claims of such Party for indemnification under this Agreement exceed an amount equal to \$50,000, in the aggregate, at which time all claims of such Party for indemnification under this Agreement may be asserted; provided, however, that when such claims have been asserted the same rule shall apply in respect of future claims. Notwithstanding the preceding sentence, either Party may assert a claim for indemnification regardless of amount upon the expiry or earlier termination of this Agreement or if such claim would otherwise be barred by the applicable statute of limitations.

13.4 **Defense of Claims.** The indemnified Party or Parties shall have the right, but not the obligation, to contest, defend, and litigate any claim, action, suit or proceeding by any Person alleged or asserted against such Party or Parties in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and the reasonable costs and expenses thereof shall be subject to the indemnification obligations of the indemnifying Party hereunder provided, however, that if the indemnifying Party acknowledges in writing its obligations to indemnify the indemnified Party or Parties in respect of loss to the full extent provided by Section 13.2, the indemnifying Party shall be entitled, at its option, to assume and control the defense of such claim, action, suit or proceeding at its expense and through counsel of its choice if it gives prompt notice of its intention to do so to the indemnified Party or Parties and, reimburses the indemnified Party or Parties for the reasonable costs and expenses incurred by the indemnified Party or Parties prior to the assumption by the indemnifying Party of such defense, and provides reasonably adequate security for any judgement for costs that might be

(dt960820177)

Accepted for filing: MAY 3 1996

Effective: MAY 3 1996

Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

imposed on the indemnified Party or Parties. The indemnified Party or Parties shall not be entitled to settle or compromise any such claim, action, suit or proceeding without the prior written consent of the indemnifying Party, which consent shall not be unreasonably withheld or delayed. The indemnified Party or Parties shall have the right to employ its own counsel and such counsel may participate in such action (but the fees and expenses of such counsel shall be at the expense of such indemnified Party or Parties), provided that:

- (a) the employment of counsel by such indemnified Party or Parties has been authorized in writing by the indemnifying Party;
- (b) the indemnified Party or Parties shall have reasonably concluded that there may be a conflict of interest between the indemnifying Party and the indemnified Party or Parties in the conduct of the defense of such action;
- (c) the indemnifying Party shall not in fact have employed independent counsel reasonably satisfactory to the indemnified Party or Parties to assume the defense of such action and shall have been so notified by the indemnified Party or Parties; or
- (d) the indemnified Party or Parties shall have reasonably concluded and specifically notified and the indemnifying Party either that there may be specific defenses available to it which are different from or additional to those available to the indemnifying Party or that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement.

If clause (a), (c) or (d) above shall be applicable, then counsel for the indemnified Party or Parties shall have the right to direct the defense of such claim, action, suit or proceeding on behalf of the indemnified Party or Parties and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

## PART 14

### DEFAULT

14.1 **Default.** The occurrence of any one or more of the following events by or in respect of a Party shall constitute a "Default" by such Party under this Agreement:

- (a) if an order shall be made or a resolution passed for the winding-up of a Party or a petition shall be filed for the winding-up of a Party unless the same is being contested in good faith and in connection therewith, dismissed, stayed or

(dt960820177)

Accepted for filing: MAY 3 1996

Effective: MAY 3 1996

Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

withdrawn within 60 days of such Party receiving notice or otherwise having knowledge of the institution thereof;

- (b) if a Party shall commit any act of bankruptcy or shall become insolvent or shall make an assignment or proposal under the bankruptcy legislation of any jurisdiction or a general assignment in favor of its creditors or a bulk sale of its assets;
- (c) if any application is made by or with respect to a Party under the *Companies' Creditors Arrangement Act* (Canada) or similar legislation or if a proceeding is instituted for the winding up of a Party or a petition in bankruptcy is filed or presented against a Party under a bankruptcy or similar act and if in any such case such application, proceeding or petition is not dismissed, stayed or withdrawn within 60 days of such Party receiving notice or otherwise having knowledge of the institution thereof, or a receiver or receiver-manager is appointed of any part of the assets of a Party; or
- (d) if a Party is in breach of any material obligation hereunder and such breach has not been cured within sixty (60) days of receipt of notice specifying the breach, or if an arbitration under Part 16 is commenced with respect to the breach alleged in the notice, within thirty (30) days of the determination by the arbitrators that the Party is in breach of a material obligation hereunder which has not been cured.

## PART 15

### CONDITIONS

15.1 Conditions Precedent. The respective obligations of CPC/CBT and WKP hereunder are subject to the satisfaction or waiver of their respective conditions set out in Schedule 3.

15.2 Deadline for Conditions. This Agreement shall be null and void and of no legal effect if the conditions set out in Schedule 3 are not satisfied or waived prior to September 1, 1996.

## PART 16

### ARBITRATION

16.1 Disputes to be Arbitrated. Any dispute between CPC/CBT and WKP, will be

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: F-2-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION



submitted to arbitration under the provisions of the *Commercial Arbitration Act* (British Columbia) in accordance with this Part 16.

16.2 Procedure. If a dispute arises to which this Part applies, CPC/CBT and/or WKP will submit the matter to arbitration in accordance with the following:

- (a) unless otherwise agreed, the matter will be referred to three arbitrators with at least two of whom will have expertise in the matter being arbitrated;
- (b) if the Parties cannot agree upon the arbitrators, then CPC/CBT and WKP shall each appoint an arbitrator with expertise in the matter being arbitrated and such appointees shall in turn appoint the third arbitrator provided that if such appointees cannot agree upon a third arbitrator, either CPC/CBT or WKP may apply to the Supreme Court of British Columbia to have it select such arbitrator;
- (c) the arbitrators so appointed will hand down a decision within 30 days after completion of submissions by CPC/CBT and WKP;
- (d) if the arbitrators do not hand down a decision within that 30 day period, then either CPC/CBT or WKP may, by giving notice to the other, cancel the appointment of the arbitrators, and initiate new arbitration proceedings by a new request and appointment.

16.3 Binding Decision. The decision of the arbitrators shall, for all purposes of this Agreement, be binding on CPC/CBT and WKP.

## PART 17

### CONFIDENTIALITY

17.1 Keep Confidential. Each Party shall, except with the prior consent of the other Parties, keep confidential the terms and conditions of this Agreement and all other agreements related to the Brilliant Plant and any reports, records and data studies made, opinions furnished, decisions of the Management Committee and other information obtained in the course of managing and operating the Brilliant Plant (other than information that has already been made public or that is of a non-confidential nature) ("Confidential Information") and shall not disclose the same except:


- (a) to its shareholders (including in the case of CPC, departments of government and Crown corporations), directors, employees or consultants and in the case of CBT, municipal councillors or members of regional boards;

(dt960820177)

Accepted for filing: MAY 3 1996

Effective: MAY 3 1996

Order No.: E-7-96



SECRETARY

B.C. UTILITIES COMMISSION

- (b) as may be required by the Regulator or any Stock Exchange on which the securities of such Party or of any related party may then be listed;
- (c) as may in the opinion of any solicitor or counsel for any Party or for any related party be required by law or for the reasonable protection of such Party or related party or their respective directors or other officers;
- (d) to any lender or financier; and
- (e) as required by the *Freedom of Information and Protection of Privacy Act* (British Columbia).

17.2 Prior Notification of disclosure to Stock Exchange. A Party required or wishing to disclose Confidential Information in accordance with Section 17.1(b) shall notify the other Parties of the proposed disclosure as far in advance as reasonably possible.

17.3 Rights and Obligations Continue. The rights and obligations of a Party under Section 17.1 with respect to confidentiality shall continue to apply to that Party after termination of this Agreement.

## PART 18

### NOTICES

18.1 Notices. All notices, directions and other instruments required or permitted to be given under this Agreement shall be in writing, and shall be sufficient in all respects if delivered, or if sent by facsimile, or if sent by prepaid registered post mailed in British Columbia to the Parties at the following addresses respectively:

- (a) to West Kootenay Power Ltd.:

West Kootenay Power Ltd.  
1290 Esplanade  
Trail, B.C.  
V1R 4L4

Attention: Secretary  
Facsimile Number: (604) 364-1270

- (b) to CBT Power Corp.:

(d960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No.: E-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

CBT Power Corp.  
601 Vernon Street  
Nelson, B.C.  
V1L 4E9.

Attention: Secretary  
Facsimile Number: (604) 354-1682

(c) to Columbia Power Corporation:

Columbia Power Corporation  
712 Yates Street, 2nd Floor  
Victoria, British Columbia  
Canada, V8V 1X4

Attention: Secretary  
Facsimile Number: (604) 356-2819

Any Party shall have the right at any time to change its address by notice in writing sent to the other Parties at the address in effect hereunder.

18.2 Time of Delivery. Any notice, direction or other instrument shall be deemed to have been received on the following dates:

- (a) if sent by facsimile, on the business day next following the date of transmission;
- (b) if delivered, on the business day next following the date of delivery; or
- (c) if sent by registered mail, on the seventh day following its mailing, provided that if there is at the time of mailing or within seven days thereafter a mail strike, slowdown, lockout or other labour dispute which might affect the delivery, then any notice, direction or other instrument, shall only be effective upon actual delivery or if delivered or sent by facsimile.

## PART 19

### MISCELLANEOUS PROVISIONS

19.1 Coordination of Communications. Each Party agrees to cooperate with the other Parties in order to coordinate all press, news, or other releases to private or public media groups in connection with this Agreement. Each Party will use all reasonable efforts to allow the other

(d960820177)

Accepted for filing MAY 3 1996  
Effective: MAY 3 1996  
Order No. E-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

Parties to review such releases in advance of release and will comply with all reasonable requests from the other Parties as to the content or manner of publication of such releases.

19.2 Conduct on Termination. Upon termination of this Agreement the following shall apply:

- (a) CPC/CBT and WKP shall cooperate to ensure:
  - (i) disruption of operations and affect on personnel of both CPC/CBT and WKP is minimized; and
  - (ii) costs to CPC/CBT and WKP arising from the termination and the transition will be minimized;
- (b) all accounts shall be settled, and CPC/CBT shall assume all unpaid or unsatisfied obligations, commitments, expenses and costs, which WKP may have undertaken or incurred in good faith and which would be chargeable to CPC/CBT under this Agreement had it not been terminated;
- (c) WKP shall release to CPC/CBT the Brilliant Plant, and will deliver to CPC/CBT all documents and records relating to the management thereof, and all other property of CPC/CBT which is in the control of WKP pursuant to this Agreement; and
- (d) WKP shall ensure insofar as possible and practical, that all contracts entered into by WKP with Persons in connection with this Agreement shall be completely performed on the termination of this Agreement or as soon thereafter as possible, and that such contracts shall not be accompanied by other or further liabilities continuing after termination.

Provided that if the Agreement terminates as a result of a Default of a Party, Sections 19.2 (a)(i) and 19.2(a)(ii) do not apply.

19.3 Amendment. This Agreement shall not be amended except by written agreement among the Parties.

19.4 Third Parties. This Agreement is intended solely for the benefit of the Parties hereto. Nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any Person not a Party.

19.5 No Waiver. No waiver by any Party of any Default or default by any other Party in the performance of any of the provisions of this Agreement:

(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No. E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

- (a) shall operate or be construed as a waiver of any other or further Default or default whether of a like or different character, or
- (b) shall be effective unless in writing duly executed by a duly authorized representative of such Party.

19.6 Survival. All provisions of this Agreement which are expressly or by implication to come into or continue in force and effect after the expiration or termination of this Agreement shall remain in effect and be enforceable following such expiration or termination.

19.7 No Set-Off. The amounts payable under this Agreement by WKP to CPC/CBT in respect of Operation and Maintenance Costs and Return on Capital will not be subject to any set-off, counter-claim or other deduction or withholding except as expressly provided for in this Agreement and except for Operation and Maintenance Costs in respect of which WKP is entitled to concurrent reimbursement under the Management Agreement.

19.8 Entirety. This Agreement and the Schedules attached hereto are intended by the Parties as the final expression of their agreement and are intended also as a complete and exclusive statement of the terms of their agreement. All prior written or oral understandings, offers or other communications of every kind, including for greater certainty the Memorandum of Understanding dated March 10, 1996, pertaining to the sale or purchase of the Entitlement or Power to WKP by CPC/CBT are hereby abrogated and withdrawn.

19.9 Assignment. A Party to this Agreement shall not assign its rights hereunder or any part thereof except that:

- (a) any Party may assign its rights under this Agreement:
  - (i) with the consent of each other Party, which consent will not be unreasonably withheld; or
  - (ii) to an Affiliate that agrees in writing with the Parties to this Agreement to be bound by the terms of this Agreement and to re-assign this Agreement if and when it ceases to be an Affiliate of the assigning Party;
- (b) CPC and CBT may each assign its rights under this Agreement to the other;
- (c) CPC/CBT may from time to time assign its rights under this Agreement or any part thereof as security for borrowed money provided that the secured party agrees to
  - (i) be bound by the Right of First Refusal; and

(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

- (ii) give WKP the right to purchase its loan and security at the applicable redemption price, if any, or otherwise on terms that will keep the secured party whole if CPC/CBT is in default and the secured party is realizing on its security.

WKP will give such acknowledgement or consent or enter into such agreement as the grantee of a security interest in this Agreement may reasonably require and is usual in the circumstances.

A Party who assigns as permitted by this Section 19.9 will not thereby be released from its obligations.

19.10 Severability. Each provision of this Agreement is intended to be severable and accordingly:

- (a) the unenforceability or invalidity of any particular provision under any applicable law as determined by a court or Regulator or the arbitrators under Part 16 will not affect the validity of any other provision, except that if, on the reasonable construction of this Agreement as a whole, the other provision is expressly stated, or is by reasonable implication intended by the Parties, to be dependent on the validity and enforceability of the particular provision, the other provision will be deemed also to be invalid or unenforceable;
- (b) if any provision of this Agreement is determined to be invalid or unenforceable as aforesaid or is invalid or unenforceable pursuant to subparagraph (a), the balance of this Agreement will be construed and enforced as if all invalid or unenforceable provisions and all provisions so deemed to be invalid or unenforceable were not contained herein; and
- (c) if, as a result of a determination by a court or Regulator or the arbitrators under Part 16 that any part of this Agreement is unenforceable or invalid, and as a result of any application of this Section 19.10, the basic intentions of the Parties, as evidenced by this Agreement, are substantially frustrated, the Parties will negotiate in good faith reasonable amendments, supplements or otherwise vary this Agreement in order that it more closely conforms with their mutual intentions in entering into this Agreement or with the requirements of the Regulator.

19.11 Joint and Several Liability. The obligations of CPC and CBT hereunder shall be joint and several.

19.12 Further Assurances. CPC/CBT and WKP shall do, execute and deliver, or shall cause to be done, executed and delivered, all such further acts, documents (including certificates,

(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

declarations, affidavits, reports and opinions) and things any Party may reasonably request for the purpose of giving effect to this Agreement.

19.13 No Partnership. Nothing contained in this Agreement nor any action taken pursuant hereto or thereto shall be deemed to constitute CPC/CBT and WKP a partnership, joint venture or any other similar such entity.

19.14 Governing Law. This agreement and all the terms and conditions contained in it are governed by and interpreted under the laws of and applicable in British Columbia.

19.15 Enurement. This Agreement shall be binding upon and shall enure to the benefit of the Parties and their respective successors and permitted assigns.

19.16 Legislation. In this Agreement, except as otherwise specifically provided, any reference to legislation includes a reference to the legislation and to any regulations made under that legislation as that legislation or those regulations may be amended or re-enacted from time to time.

19.17 Schedules. The schedules hereto and the terms set out therein shall be deemed fully a part of this Agreement. The following are the Schedules:

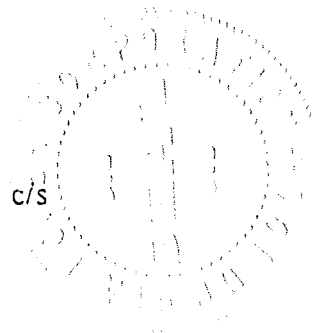
Schedule 1	Definitions
Schedule 2	Determination of Return on Capital
Schedule 3	Conditions Precedent
Schedule 4	Representations and Warranties
Schedule 5	Operating Characteristics
Schedule 6	Right of First Refusal
Schedule 7	Pro Rata Reduction

IN WITNESS WHEREOF the Parties hereto have executed this Agreement as of the 4th day of April, 1996.

COLUMBIA POWER CORPORATION

*John E. Swinton*  
Per:

Authorized Signatory



(dr960820177)

Accepted for filing: **MAY 3 1996**  
Effective: **MAY 3 1996**  
Order No.: **E-7-96**

*[Signature]*  
SECRETARY  
B.C. UTILITIES COMMISSION

CBT POWER CORP.

Per:

Authorized Signatory

c/s

WEST KOOTENAY POWER LTD.

Per:

Authorized Signatory

c/s



(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION



## SCHEDULE 1

## DEFINITIONS

The terms set forth below shall have the following meanings:

"Actual Planned Outages" means an outage pursuant to a Planned Outage Schedule as might be modified by B.C. Hydro or as modified by WKP due to changed maintenance requirements.

"Affiliate" shall have the meaning set out in the *Company Act* (British Columbia) as at the date of this Agreement..

"Agreement" means this Brilliant Power Purchase Agreement.

"Backup Metering" means any measurement device or system installed, owned and maintained by WKP to check the measurements and calculations carried out by the metering system referred to in Section 5.10.

"B.C. Hydro" means British Columbia Hydro and Power Authority and its successors.

"B.C. Hydro Cooperation Letter" shall have the meaning set out in Section A4.(iv) of Schedule 3.

"Brilliant Dam Sale Agreement" shall have the meaning set out in Recital A.

"Brilliant Plant" means the dam located on the Kootenay River together with the spillways and headworks, the power house and hydroelectric facilities, the reservoir created by the dam, and the lands occupied by, or required for the operation of, the dam and hydroelectric facilities, including foreshore and lands covered by water and any Brilliant Upgrade but does not include the Expansion.

"Brilliant Switching Station" means the electrical equipment, bus work, breakers, transformers, disconnects and associated communication and protection equipment located at the Brilliant Plant which provides the electrical interconnection and switching capability between the Brilliant Plant generation and the transmission system that will be owned by WKP after the Plant Purchase Date.

"Brilliant Upgrade" means any of the replacement of some or all of the four existing turbines, generators, windings, main transformers and ancillary electrical equipment at the Brilliant Plant as part of a capital project to increase capacity and energy outputs by means of efficiency improvement or the use of increased volumes of water and any other capital project (other than

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96



SECRETARY  
 B.C. UTILITIES COMMISSION

the Expansion) which results in an increase in the Entitlement or Power.

"Canal Plant Agreement" means the agreement made as of August 1, 1972 between B.C. Hydro, Cominco and WKP as amended, extended or supplemented from time to time and includes decisions of the technical committee and operating procedures established thereunder and includes an agreement that replaces the original agreement to include additional Parties.

"Canal Plant Benefit Extension Agreement" means the agreement so named made as of the 18th day of May, 1994 between the Province and Cominco.

"Canal Plant Subagreement" means the agreement so named made as of August 1, 1972 between WKP and Cominco.

"Capacity" means the rate of delivery of electricity measured in megawatts (MW), on an hourly basis.

"Columbia Basin Plan" means the long term Columbia Basin Management Plan contemplated in section 15 of the Columbia Basin Trust Act.

"Columbia Basin Trust Act" means the Columbia Basin Trust Act, S.B.C. 1995, c. 49.

"Columbia River Treaty" means the treaty entered into between the governments of Canada and the United States dated January 17, 1961.

"Cominco" means Cominco Ltd., a corporation established under the laws of British Columbia.

"CPC/Cominco Coordination Agreement" shall mean the "Post Canal Agreement" as defined in the Brilliant Dam Sale Agreement or other similar such agreement.

"Default" shall have the meaning set out in Section 14.1.

"Dispatch" means the determination of the instantaneous use of the Entitlement or the determination of the instantaneous loading of the generators at the Brilliant Plant.

"Energy" means amounts of electricity measured in megawatt hours (MW.h.)

"Entitlement" means the monthly capacity and energy entitlement of the Brilliant Plant pursuant to the Entitlement Agreements, including the Flexibility Accounts, but excluding the monthly capacity and energy entitlements of a Brilliant Upgrade not purchased by WKP.

"Entitlement Agreements" means the Canal Plant Agreement, the 1996 Canal Plant Sub-Agreement, the Canal Plant Benefit Extension Agreement, various technical committee decisions

(d960820177)

Accepted for filing: MAY 3 1996

Effective: MAY 3 1996

Order No. 1 E-7-96



SECRETARY

B.C. UTILITIES COMMISSION

and operating procedures made pursuant thereto, and any successor agreements among B.C. Hydro, Cominco, CPC/CBT and WKP.

"Event of Force Majeure" means an act of God, earthquake, flood, storm, tempest, washaway, explosion, fire, act of war, act of public enemies, riot, civil commotion, strike, lockout, ban, "go-slow" or "work to rule" activity, work stoppage, restraint of labour or other similar acts (whether partial or entire), shortage of labour or essential materials, reasonable inability to obtain contractors, delays of contractors, inability or delay in obtaining any Governmental Approval, any change in any Requirement of Law or any other event or circumstance (whether or not of a kind specifically enumerated above) which is not within the reasonable control of a Party.

"Expansion" means hydro-electric facilities (except any Brilliant Upgrade) to be constructed at or near the Brilliant Plant using the hydraulic head created by the dam which is part of the Brilliant Plant.

"Flexibility Accounts" means the monthly energy variations provided for in the Entitlement Agreements and, more specifically, in Part "D" Section 4 of the Canal Plant Agreement.

"Forced Derating" means a reduction (below MCR) of Unit capacity in excess of 2% of its MCR resulting from a component failure or other condition which requires that the Unit be derated.

"Forced Outage" means the occurrence of a component failure or other condition which requires that a Unit or Units be removed from service immediately or up to and including the very next weekend.

"Future Action Letter Agreement" shall have the meaning set out in Section A5. of Schedule 3.

"GAAP" means generally accepted accounting principles in Canada.

"Governmental Approvals" means all licenses, permits, consents, authorizations or approvals from, withholding of objection on the part of, or filing, registration or qualification with, any and all Governmental Authorities required for any particular decision, act or event.

"Governmental Authority" means the government of Canada, the government of any province, municipality or other political subdivision thereof, and any entity exercising executive, legislative, judicial, regulatory or administrative functions.

"Initial Year Capex Program" means capital expenditures amounting to approximately \$1,900,000 in respect of Sustaining Capital for 1996.

(dt960820177)

Accepted for filing:

MAY 3 1996

Effective:

MAY 3 1996

Order No.1

E-7-96

SECRETARY  
B.C. UTILITIES COMMISSION

"Maintenance Outage" means the removal of a Unit from service to perform work on specific components which could have been postponed past the very next weekend, done to prevent a potential Forced Outage and which could not be postponed from season to season.

"Management Agreement" means the agreement to be entered into between CPC/CBT and WKP for the operation and maintenance of the Brilliant Plant.

"Material Agreements" means the agreements (as amended) to which CPC/CBT is a party which are material to the operation of the Brilliant Plant.

"Maximum Continuous Rating" or "MCR" means the gross maximum electrical output (in megawatts) which a generating unit has been shown to be capable of producing continuously.

"Month" means a calendar month.

"1996 Canal Plant Sub-Agreement" shall have the meaning set out in Section A4.(iii) of Schedule 3.

"1996 Facilities Sharing Agreement" shall have the meaning set out in Section A4.(v) of Schedule 3.

"1996 Interconnection Agreement" shall have the meaning set out in Section A4.(ii) of Schedule 3.

"Operating Characteristics" means characteristics as set forth in Schedule 5.

"Operation and Maintenance Costs" means for any year, all operating and maintenance costs (other than in respect of the fish ladder referred to in Section 4.7 and Sustaining Capital for such year) directly related to the Brilliant Plant including without limitation, all reimbursements and fees payable under a management agreement, all major non-routine maintenance costs which are not capital in nature, all capital tax, property, and other business related taxes (other than income tax or similar taxes), water rentals, insurance premiums and deductibles, the Powerex Backstop Fee and Overhead and Administration, but excluding any net increase in such Operation and Maintenance caused solely by a Brilliant Upgrade in respect of which WKP is not purchasing Entitlement or Power.

"Original Cost" shall have the meaning set out in Schedule 2.

"Overhead and Administration" means the actual overhead, administration and monitoring costs reasonably and necessarily incurred by CPC/CBT in connection with the ownership and operation of the Brilliant Plant and the administration of this Agreement and Management Agreement (such costs not to exceed those which a prudent owner of the Brilliant Plant would

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

otherwise incur) allocated on a fair and reasonable basis in accordance with GAAP, but not exceeding in any year the aggregate of 100% of the first \$200,000 and 50% of the next \$100,00 of Overhead and Administration costs incurred by CPC/GBT (the amounts are in 1996 dollars and will be subject to adjustment to current dollars in later years in accordance with changes in the Consumer Price Index for British Columbia).

"Party" means any of WKP, CPC, GBT or CPC/GBT and "Parties" means all of the foregoing.

"Person" means an individual, a partnership, a corporation, a trust, an unincorporated organization, a government or any department, political subdivision or agency thereof and the heirs, executors, administrators or other legal representatives of an individual.

"Planned Outage Schedule" means the time schedule established by WKP for the Scheduled Maintenance.

"Planned Outage" means the scheduled removal of a Unit from service for inspection and/or general overhaul of one or more major equipment groups.

"Plant Purchase Date" means the date that the ownership of the Brilliant Plant transfers from Cominco to CPC/GBT pursuant to the Brilliant Dam Sale Agreement.

"Point of Supply" means the point described in Section 5.1.

"Power" means actual Capacity and Energy of the Brilliant Plant, including any Brilliant Upgrade in respect of which WKP is purchasing Capacity and Energy, after termination of the Entitlement Agreements.

"Powerex Backstop Fee" means any fee paid to British Columbia Power Exchange Corporation or other person in respect of its agreement to purchase and pay for the Entitlement or Power if WKP fails to do so, to the extent that:

- (a) the existence of the agreement can reasonably be shown to have reduced the actual debt interest rate used in calculating Return on Capital; and
- (b) such fee does not exceed 1/3 of such reduction.

"Prime Rate" means the annual rate of interest designated by the Bank of Montreal as its "prime rate" for Canadian dollar commercial loans to customers in Canada.

"Pro Rata Reduction" means a reduction to Operation and Maintenance Costs and Return on Capital payable by WKP hereunder determined in accordance with Schedule 7.

(dr960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

"Prudent Utility Practice" means the practices, methods and acts (including, without limitation, those related to reliability, safety, cost, expedition and business conduct) generally accepted at the relevant time by responsible and reputable utilities in the Pacific Northwest region of North America and includes any practice, method or act which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the same result as the generally accepted practices.

"Regulator" means the British Columbia Utilities Commission or any successor Governmental Authority of competent jurisdiction with respect to the revenue, rates or rate of return of WKP.

"Requirement of Law" means, as to any Person, any international, Canadian or United States federal, provincial, state or local statute, law, regulation, order, consent, decree, judgment, permit, license, code, covenant, deed restriction, common law, treaty, convention, ordinance or determination of an arbitrator or a court or other competent authority, in each case applicable to or binding upon such Person or any of the property of such Person.

"Residual Power Sales Agreement" shall have the meaning set out in Section A2. of Schedule 3.

"Return on Capital" has the meaning set out in Schedule 2.

"Right of First Refusal" means a first right to purchase the Brilliant Plant from CPC/CBT in the form set out in Schedule 6.

"Sustaining Capital" means annual capital expenditures required to:

- (a) maintain or sustain the Entitlement or Power; or
- (b) to maintain the operating integrity and safety of the Brilliant Plant, or as required by a competent authority with jurisdiction to do so,

and which are required by GAAP to be capitalized and charged to earnings over the economic life of the asset to which the expenditures relate or other period.

"Sustaining Capital Charge" shall have the meaning set out in paragraph 2. of Schedule 2.

"Technical Committee" means the committee established pursuant to Section 5.13.

"Term" means the term of this Agreement as set forth in Part 2.

"Transmission Asset Transfer Agreement" shall have the meaning set out in Section A4.(i) of Schedule 3.

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F-7-96



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"Unit" means machinery and equipment making up a complete and independent hydro-electric generator including turbine, exciter and generator.

"Upgrade Capital Charge" shall have the meaning set out in paragraph 3. of Schedule 2.

"Water License Volumes" means (i) Final Water License 14089 (13500 cfs Date of Precedence is 21st April, 1931), (ii) Final Water License 47380 (4500 cfs Date of Precedence is 28th June, 1966, (iii) Final Water License 58127 (405,000 acre-feet Date of Precedence is 8th May, 1924) and any other water rights appurtenant to the Brilliant Plant.

"Year" means a calendar year.

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## SCHEDULE 2

## DETERMINATION OF RETURN ON CAPITAL

"Return on Capital" means, for any year, the aggregate of:

- (a) the Original Plant Capital Charge;
- (b) the Sustaining Capital Charge; and
- (c) the Upgrade Capital Charge (if any)

for such year, calculated as per the following:

1. Original Plant Capital Charge

"Original Plant Capital Charge" means an annual charge (payable in two equal semi-annual amounts) in respect of the original financing costs of the acquisition of the Brilliant Plant. The Original Plant Capital Charge in each year of the Brilliant Power Purchase Agreement is to be calculated as follows:

$$\text{Original Plant Capital Charge} = \text{Original Plant Base Charge} \times (1 + \text{FE})^n$$

Where:

"Original Plant Base Charge" is an annual charge equal to 130% of the Original Plant Debt Service Charge multiplied by 2. The "Original Plant Debt Service Charge" is determined according to the following assumptions:

- (a) the all in cost of the Brilliant Plant and the Brilliant Power Purchase Agreement, ("Original Cost") which is the total of:
  - (i) the price of the Brilliant Dam (\$130,000,000);
  - (ii) the Initial Year Capex Program (\$1,900,000);
  - (iii) the acquisition and closing costs including all transfer taxes paid in connection with the sale of the Brilliant Plant, CPC/CBT's reasonable legal, financing and advisor costs and WKP's reasonable legal and advisor costs (estimated to be in aggregate \$4,700,000);
- (b) debt of \$96,000,000 (with a debt/equity ratio of approximately 70%/30%);

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- (c) the Original Plant Debt Service Charge is the amount paid semi-annually on the debt calculated as one of a series of equal semi-annual blended payments of principal and interest that will repay the debt at the end of 30 years using the actual interest rate on the debt.

"FE" or "Fixed Escalator" means the fixed annual percentage increase, expressed in decimal format, to the annual Original Plant Base Charge which will result in an annual internal rate of return on the initial equity investment of CPC/CBT (estimated to be \$40,600,000), after servicing the debt, of 12.5% (calculated on a pre-tax semi-annual payment basis) over 60 years.

"n" means the number of completed years of the term of the Brilliant Power Purchase Agreement.

If CPC/CBT receives a net recovery on a claim against Cominco under the Brilliant Dam Sale Agreement, WKP will receive the benefit of such net recovery through an adjustment to Original Cost and the Original Plant Capital Charge.

Schedule 2A provides an example of the detailed financial calculations required to calculate the Original Plant Base Charge and the Fixed Escalator for the Original Plant Capital Charge.

## 2. Sustaining Capital Charge

"Sustaining Capital Charge" means the semi-annual charge necessary to recover the cost of Sustaining Capital expenditures and a debt and equity financing cost (including debt issue transaction costs) in the form of equal semi-annual charges over 30 years based on a rate equal to the weighted average cost of capital calculated on a 70%/30% debt to equity ratio using the long term debt interest rate available to CPC/CBT at the time of the expenditure for a 30 year loan and an annual 12.5% (on a pre-tax basis) return on equity.

The Sustaining Capital Charge will be calculated in January of each year, based on the previous calendar year's expenditures on Sustaining Capital (including carrying costs to December 31 of each year), for inclusion in the Return on Capital for subsequent years.

The "interest rate available" used in the definition of Sustaining Capital Charge is to be determined using the average rate available to CPC/CBT at the time of calculation in respect of the project considering its credit rating, as estimated by two reputable Investment Banking houses.

Schedule 2B provides an example of the calculation and application of the Sustaining Capital Charge.

(d960820177)

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Order No. 1 E-7-96

  
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B.C. UTILITIES COMMISSION

### 3. Upgrade Capital Charge

"Upgrade Capital Charge" means an annual charge (payable in two equal semi-annual amounts) in respect of the original financing costs of one or more Brilliant Upgrade. The Upgrade Capital Charge in each year of the Power Purchase Agreement is to be calculated as follows:

$$\text{Upgrade Capital Charge} = \text{Upgrade Base Charge} \times (1 + \text{FE})^n$$

Where:

"Upgrade Base Charge" is an annual charge equal to 130% of the Upgrade Debt Service Charge multiplied by 2. The "Upgrade Debt Service Charge" is determined according to the following assumptions:

- (a) the all in cost of one or more Brilliant Upgrade at the date of commissioning, including the indemnity costs incurred in respect thereof pursuant to Section 4.5(b) and debt issue transaction costs;
- (b) debt/equity ratio of 70%/30%
- (c) the Upgrade Debt Service Charge is an amount calculated as one of a series of equal semi-annual blended payments of principal and interest that will repay the debt at the end of 30 years
- (d) actual debt interest rate incurred upon financing one or more Brilliant Upgrade,

"FE" or "Fixed Escalator" means the fixed annual percentage increase, expressed in decimal format, to the annual Upgrade Base Charge which will result in an annual internal rate of return on the initial equity investment of CPC/CBT after servicing of the debt of 12.5% (calculated on a pre-tax semi-annual payment basis) over the greater of:


- (a) 30 years; and
- (b) the remaining number of years in the term of the Brilliant Power Purchase Agreement

"n" means the number of completed years since the commissioning of one or more Brilliant Upgrade

Schedule 2C provides an example of the detailed financial calculations required to calculate both the Upgrade Base Charge and the Fixed Escalator for the Upgrade Capital Charge.

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# SCHEDULE 2A

## EXAMPLE OF CALCULATION TO DETERMINE "ORIGINAL PLANT CAPITAL CHARGE"

(all currency values are in Cdn \$000, unless otherwise noted)

### Objectives of Calculation:

- 1) Determine the first year Original Plant Capital Charge, calculated as 130% of the initial Debt Service payment
- 2) Calculate an equal annual escalator on the first full year Original Plant Capital Charge to enable CPC/CBT to earn 12.5% internal Rate of Return over 60 years

### Inputs and Assumptions:

Debt Proportion	70.1%
Equity Proportion	29.9%
Total Original Cost	\$137,000
Debt rate of financing	9.00%
Annual payment to amortize debt over 30 years	\$9,303
	Represented by two equal semi-annual payments

### Step 1 - Determine first year Original Plant Capital Charge ("Base Charge")

Interest Charges on Debt - first year	\$8,625
Principal Repayment of Debt - first year	\$678
Total Debt Service Payment	\$9,303
Required first year Original Plant Capital Charge ("Base Charge")	\$9,303 x 130% > \$12,094

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 Order No.: E-7-96

SECRETARY  
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### Step 2 - Calculate Annual Cash Flows (assuming cash cash flows received in two equal semi-annual installments)

Fiscal Year following Investment	0	1	2	3	4	5	10	20	30	40	50	60
Fixed Annual Escalator			1.73%	1.73%	1.73%	1.73%	1.73%	1.73%	1.73%	1.73%	1.73%	1.73%
"Original Plant Capital Charge"		12,094	12,303	12,516	12,733	12,953	14,113	16,754	19,888	23,610	28,027	33,271
Debt Service:												
Interest		(8,625)	(8,563)	(8,495)	(8,420)	(8,339)	(7,806)	(5,691)	(592)	-	-	-
Principal		(678)	(741)	(809)	(883)	(964)	(1,498)	(3,612)	(8,711)	-	-	-
Equity Investments		(9,303)	(9,303)	(9,303)	(9,303)	(9,303)	(9,303)	(9,303)	(9,303)	-	-	-
		(41,000)										
Annual Cash Flow to/(from) Equity Holders		2,791	3,000	3,213	3,430	3,650	4,810	7,450	10,585	23,610	28,027	33,271
Internal Rate of Return - 60 years												12.50%

Procedure/mechanics - adjust the escalator to solve for the 12.5% (annualized) Internal Rate of Return ("IRR")  
 The calculated escalator becomes the fixed escalator for the Original Plant Capital Charge in the Power Purchase Agreement

# SCHEDULE 2B

## EXAMPLE OF CALCULATION OF THE "SUSTAINING CAPITAL CHARGE"

(all currency values are in Cdn \$000, unless otherwise noted)

### Objectives of Calculation:

- 1) To determine the equal annual Capital Charge required to fully amortize the debt used to finance each year's Sustaining Capital expenditure, and to enable CPC/CBT to earn an IRR of 12.5% over the 30-years following each expenditure
- 2) To demonstrate that the required 30-year amortization charge represents the "Sustaining Capital Charge" payable by WKP in respect of each Sustaining Capital expenditure made by CPC/CBT over the life of the Brilliant Power Purchase Agreement

### Inputs and Assumptions:

Year of Sustaining Capital Expenditure (example)	1999
Sustaining Capital Expenditure - total capital cost	\$2,000
Debt Proportion	70.0%
Equity Proportion	30.0%
Required Cash Flow Return on Equity (IRR)	12.50%
Debt-financing rate available at time of expenditure	9.00%
Weighted Average Cost of Capital	10.05%

Annual Payment Required to Amortize Sustaining Capital expenditure over 30 years

Calculated as follows  $> =PMT(10.05\%/2, 60 \text{ periods}, \$2 \text{ million})$ , where:

- "10.05%/2" reflects the semi-annual payment rate (ie.  $wacc/2$ )
- "60 periods" represents the number of semi annual payment periods
- "\$2 million" represents the Sustaining Capital expenditure

Semi-annual Payment Required, as calculated using the preceding formula

Annual Payment Required per the Example Above

\$106	> Semi-annual payment
\$212	> Annual total (ie. sum of two semi-annual payments)

### Annual Cash Flows - Annual Sustaining Capital Charges for Example Calculated Above

Fiscal Year	1999	2000	2001	2002	2003	2008	2018	2028
Fiscal Years following Expend'	1	2	3	4	5	10	20	30
Fixed Annual Escalator		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Annual "Sustaining Capital Charge"	212	212	212	212	212	212	212	212

CPC/CBT deemed to make Capital expenditure at beginning of Year; WKP assumed to pay first Sustaining Capital Charge relating to that expenditure in the middle of the same year  
The total Sustaining Capital Charge for a given Year is the sum of all Sustaining Capital Charges relating to Sustaining Capital expenditures made by CPC/CBT in that Year and in prior years of the agreement

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B.C. UTILITIES COMMISSION

# SCHEDULE 2C

## EXAMPLE OF CALCULATION TO DETERMINE "UPGRADE CAPITAL CHARGE"

(all currency values are in Cdn \$000, unless otherwise noted)

### Objectives of Calculation:

- 1) Determine the first year Upgrade Capital Charge, calculated as 130% of the initial Debt Service payment
- 2) Calculate an equal annual escalator on the first full year Upgrade Capital Charge to provide the 12.5% internal Rate of Return over the remaining years in the Power Purchase Agreement, or 30 years, whichever is greater

### Inputs and Assumptions:

Debt Proportion	70.0%
Equity Proportion	30.0%
Total Original Cost	\$15,000
Debt rate of financing	9.00%
Annual payment to amortize debt over 30 years	\$1,018
Assume 50 years remaining in the Power Purchase Agreement	Represented by two equal semi-annual payments

### Step 1 - Determine first year Upgrade Capital Charge ("Base Charge")

Interest Charges on Debt - first year	\$943
Principal Repayment of Debt - first year	\$74
Total Debt Service Payment	\$1,018
Required first year Original Plant Capital Charge ("Base Charge")	

$$\$1,018 \times 130\% > \$1,323$$

### Step 2 - Calculate Annual Cash Flows (assuming cash cash flows received in two equal semi-annual installments)

Fiscal Year following Upgrade	>	0	1	2	3	4	5	10	20	30	40	50
Fixed Annual Escalator			1.79%	1.79%	1.79%	1.79%	1.79%	1.79%	1.79%	1.79%	1.79%	1.79%
"Upgrade Capital Charge"		1,323	1,346	1,371	1,395	1,420	1,552	1,853	2,213	2,642	3,155	
Debt Service:												
Interest		(943)	(937)	(929)	(921)	(912)	(854)	(622)	(65)	-	-	-
Principal		(74)	(81)	(88)	(97)	(105)	(164)	(395)	(953)	-	-	-
		(1,018)	(1,018)	(1,018)	(1,018)	(1,018)	(1,018)	(1,018)	(1,018)	(1,018)	-	-
Equity Investments		(4,500)										
Annual Cash Flow to/(from) Equity Holders		(4,500)	305	329	353	378	403	534	836	1,195	2,642	3,155

Internal Rate of Return - 50 years 12.50%

Procedure/mechanics - adjust the escalator to solve for the 12.5% (annualized) Internal Rate of Return ("IRR")  
The calculated escalator becomes the fixed escalator for the Upgrade Capital Charge in the Power Purchase Agreement

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Order No.: E-7-96  
SECRETARY  
B.C. UTILITIES COMMISSION

## SCHEDULE 3

## CONDITIONS PRECEDENT

A. Conditions Precedent of CPC/GBT. The obligations of CPC/GBT hereunder are subject to the fulfillment of the following conditions (which are established for the sole benefit of CPC/GBT and may be waived in whole or in part by CPC/GBT) on or prior to the Plant Purchase Date:

1. the transactions set out in the Brilliant Dam Sale Agreement shall have closed;
2. CPC/GBT and WKP shall have entered into the Management Agreement;
3. Cominco and WKP shall have entered into an agreement (the "Residual Power Sales Agreement") for the sale of the residual amount of the contracted deliveries which are not delivered under this Agreement and in respect of other obligations under the 1999 Firm Power Supply Agreement and the Long Term Firm Power Supply Agreement;
4. CPC/GBT, WKP and Cominco shall have entered into
  - (i) an agreement (the "Transmission Asset Transfer Agreement") with respect to transmission and interconnection issues for the transmission of power from the Brilliant Plant and exchange of transmission assets;
  - (ii) an agreement (the "1996 Interconnection Agreement") with respect to the interconnection of the facilities of CPC/GBT, WKP and Cominco;
  - (iii) an agreement (the "1996 Canal Plant Subagreement") to recognize and confirm the change in ownership of Brilliant Plant, the Entitlement, and other rights under the Canal Plant Agreement and the Canal Plant Subagreement pursuant to the Brilliant Dam Sales Agreement;
  - (iv) an agreement (the "B.C. Hydro Cooperation Letter Agreement") which provides that the parties will cooperate and work together to
    - A. negotiate with B.C. Hydro to renew the existing Canal Plant Agreement substantially in its current form for a period 30 years beyond its current scheduled expiry in 2005 with CPC/GBT added as a party; and

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Order No.: E-7-96



SECRETARY

B.C. UTILITIES COMMISSION

- B. negotiate a new agreement with effect on expiry of and to replace the Canal Plant Agreement, the Canal Plant Benefit Extension Agreement and the 1996 Canal Plant Subagreement; and
- (v) an agreement (the "1996 Facilities Sharing Agreement") providing for the use of certain transmission facilities of CPC/GBT, WKP and Cominco;
5. CPC/GBT and WKP shall have entered into a letter agreement (the "Future Action Letter Agreement") providing as follows:
- (i) CPC/GBT will give WKP an opportunity to negotiate long-term power purchase agreements for Waneta Upgrades #2, #3 and #4;
  - (ii) CPC/GBT will provide all reasonable assistance to WKP in preserving and extending beyond 2005 the terms and conditions of the General Wheeling Agreement between WKP and B.C. Hydro. This may involve but is not limited to co-operation in interventions before the Regulator with respect to the current B.C. Hydro Wholesale Wheeling Tariff application;
  - (iii) prior to July 1, 1997, WKP and CPC/GBT, through the Management Committee, will use their reasonable efforts to develop engineering costs and procurement dates including in-service dates for the Entitlement from the Brilliant Upgrades #1 through #4 more specifically described in Attachment #1 to the Future Action Letter Agreement. The preliminary schedule for commencement of purchases and the expected profiles of the Entitlement are as described in Attachment #1 to the Future Action Letter Agreement;
  - (iv) CPC/GBT and WKP will endeavor to agree, by July 1, 1998, on a preliminary in-service date for the Expansion;
  - (v) CPC/GBT will, commencing in 1996, diligently pursue necessary engineering, environmental and project development planning studies, permits, approvals and financing to meet an agreed in-service date for the Expansion;
  - (vi) when sufficient feasibility information is available, CPC/GBT will provide WKP with an opportunity to negotiate a power sales agreement in respect of the output from the Expansion; and
  - (vii) CPC/GBT and WKP will co-operate to develop new markets for power from Keenleyside and Waneta Expansion projects.

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 Order No.: E-7-96

  
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 B.C. UTILITIES COMMISSION

6. the representations and warranties of WKP herein shall be true and correct in all material respects and WKP is otherwise in compliance with the provisions of this Agreement;
7. CPC/CBT shall have received an opinion of legal counsel of WKP in a form and substance satisfactory to CPC/CBT acting reasonably as to the corporate power and capacity of WKP, as to due authorization, execution and delivery of this Agreement and the Management Agreement and as to such other matters reasonably required by CPC/CBT and as are usual in the circumstances;
8. WKP will have obtained all necessary regulatory approvals without material conditions or qualifications for this Agreement and all other agreements which were the subject of the application filed with the Regulator on March 11, 1996;
9. an amended Cominco Exemption Order is made by the Minister of Finance which permits the sale of the Brilliant Plant on terms that are satisfactory to CPC/CBT;
10. the Chair of the Treasury Board of British Columbia shall have approved this Agreement and shall have authorized CPC to enter into it; and
11. the Board of Directors of CBT shall have approved this Agreement and shall have authorized CBT to enter into it.

B. Conditions Precedent of WKP. The obligations of WKP hereunder are subject to the fulfillment of the following conditions (which are established for the sole benefit of WKP and may be waived in whole or in part by WKP) on or prior to the Plant Purchase Date:

1. the transactions set out in the Brilliant Dam Sale Agreement shall have closed;
2. CPC/CBT and WKP shall have entered into the Management Agreement;
3. Cominco and WKP shall have entered into the Residual Power Sales Agreement;
4. CPC/CBT, WKP and Cominco shall have entered into the Transmission Asset Transfer Agreement, the 1996 Interconnection Agreement, the 1996 Canal Plant Subagreement, the B.C. Hydro Cooperation Letter and the 1996 Facilities Sharing Agreement.
5. CPC and WKP shall have entered into the Future Action Letter Agreement;

(dt960820177)

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 Order No.: E-7-96

  
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6. the representations and warranties of CPC/GBT herein shall be true and correct in all material respects and CPC/GBT is otherwise in compliance with the provisions of this Agreement;
7. WKP shall have received an opinion of legal counsel of CPC/GBT in a form and substance satisfactory to WKP acting reasonably as to the corporate power and capacity of CPC/GBT, as to due authorization, execution and delivery of this Agreement and the Management Agreement and as to such other matters reasonably required by WKP and as are usual in the circumstances;
8. WKP will have obtained all necessary regulatory approvals without material conditions or qualifications for this Agreement and all other agreements which were the subject of the application filed with the Regulator on March 11, 1996;
9. an amended Cominco Exemption Order is made by the Minister of Finance which permits the sale of Brilliant Plant on terms in respect of all matters that could reasonably be expected to materially and adversely affect WKP or its customers, is satisfactory to WKP, acting reasonably; and
10. CPC/GBT has executed and delivered to WKP the Right of First Refusal in registerable form.

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 Order No.: E-7-96

  
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## SCHEDULE 4

## REPRESENTATIONS AND WARRANTIES

A. CPC/CBT Representations and Warranties. To induce WKP to enter into this Agreement CPC and CBT hereby jointly and severally represent and warrant to WKP as of the effective date of this Agreement, upon each of which representations and warranties WKP specifically relies, as follows:

1. **CPC Corporate Organization and Authority.** CPC has been duly incorporated and is a validly existing corporation under the laws of the Province of British Columbia, is in good standing with respect to all required filings in the office of the Registrar of Companies and has the full corporate power and capacity to execute and deliver this Agreement and perform its obligations hereunder.
2. **CBT Corporate Organization and Authority.** CBT has been duly incorporated and is a validly existing corporation established under the laws of the Province of British Columbia, is in good standing with respect to all required filings in the office of the Registrar of Companies and has the full corporate power and capacity to execute and deliver this Agreement and perform its obligations hereunder.
3. **Ownership.** CPC and CBT each own a 50% undivided legal and beneficial interest in the Brilliant Plant.
4. **Authorization, Consents, Enforceability.** The execution and delivery of this Agreement by each of CPC and CBT and the consummation by CPC and CBT of the transactions contemplated hereby have been duly authorized by the Board of Directors of each of CPC and CBT and this Agreement has been duly executed and delivered by each of CPC and CBT and constitutes valid and binding obligations of each of CPC and CBT, enforceable against CPC and CBT in accordance with its terms, subject to the availability of equitable remedies and enforcement of creditors' rights generally.
5. **Compliance.** The entering into and compliance by CPC and CBT with all of the provisions of this Agreement are legal, do not violate any provisions of any Requirement of Law and do not result in any breach of any of the provisions of, or constitute a default under any charter document, by-law, the Joint Venture Agreement, unanimous shareholder agreement, loan agreement or other agreement or instrument to which CPC or CBT is a party or by which it or its property may be bound.
6. **Applicable Law.** CPC and CBT are both subject to the relevant commercial law of the Province of British Columbia and the law of Canada which is applicable in such province and are generally subject to suit and neither CPC or CBT is immune nor does any of its

(d660820177)

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 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

property or revenues enjoy any right of immunity from any judicial proceedings, including attachment prior to judgment, attachment in aid of execution, execution of judgment or otherwise.

7. **Governmental Approvals, Consents.** Neither the nature of CPC or CBT nor their respective businesses or property, nor any relationship between CPC, CBT and any other Person, nor any circumstance in connection with the entering into and performance of this Agreement is such as to require any Governmental Approval, or consent of any Person, that has not yet been obtained on the part of CPC and/or CBT in connection with the execution, delivery and performance of this Agreement and the operation of the Brilliant Plant.
8. **Material Agreements.** Each Material Agreement to which CPC/CBT is a party is in full force and effect and unamended and CPC/CBT is not in default under the terms thereof, has not waived any of its rights thereunder nor released any party from its obligations with respect thereto.
9. **Necessary Assets.** There is no property or right which is material to the day to day operations of the Brilliant Plant which CPC/CBT does not own, have the right to acquire or have the contractual right to use.

B. **WKP Representations and Warranties.** To induce CPC/CBT to enter into this Agreement WKP hereby represents and warrants to CPC/CBT as of the effective date of this Agreement, upon each of which representations and warranties CPC/CBT specifically relies, as follows:

1. **WKP Corporate Organization and Authority.** WKP has been duly incorporated and is a validly existing corporation by Special Act of the Legislature of the Province of British Columbia and is in good standing with respect to all required filings in the office of the Registrar of Companies and has the full corporate power and capacity to execute and deliver this Agreement and perform its obligations hereunder.
2. **Authorization, Consents, Enforceability.** The execution and delivery of this Agreement by WKP and the consummation by WKP of the transactions contemplated hereby have been duly authorized by the Board of Directors of WKP and this Agreement has been duly executed and delivered by WKP and constitutes valid and binding obligations of WKP, enforceable against WKP in accordance with its terms, subject to the availability of equitable remedies and enforcement of creditors' rights generally.
3. **Compliance.** The entering into and compliance by WKP with all of the provisions of this Agreement are legal, do not violate any provisions of any Requirement of Law and

(d960820177)

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Order No.: E-7-96



SECRETARY

**B.C. UTILITIES COMMISSION**

do not result in any breach of any of the provisions of, or constitute a default under any charter document, by-law, unanimous shareholder agreement, loan agreement or other agreement or instrument to which WKP is a party or by which it or its property may be bound.

4. No Exemptions. WKP is subject to the relevant commercial law of the Province of British Columbia and the law of Canada which is applicable in such province and is generally subject to suit and WKP is not immune nor does any of its property or revenues enjoy any right of immunity from any judicial proceedings, including attachment prior to judgment, attachment in aid of execution, execution of judgment or otherwise.
5. Governmental Approvals, Consents. Neither the nature of WKP nor its business or property, nor any relationship between WKP and any other Person, nor any circumstance in connection with the entering into and performance of this Agreement is such as to require any Governmental Approval, or consent of any Person, that has not yet been obtained on the part of WKP in connection with the execution, delivery and performance of this Agreement.
6. Purchase for Resale. WKP is purchasing the Entitlement or Power for resale.

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*Rebecca*

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## SCHEDULE 5

## OPERATING CHARACTERISTICS

CPC/CBT shall meet reasonable WKP technical requirements for interconnection with the WKP transmission system as they may be defined from time to time and those requirements shall include, but not be limited to:

## Information:

- (a) a current electrical one-line diagram of the Brilliant Station showing the proper connections of all substation equipment and indicating the voltage levels and the ratings of the equipment
- (b) 3-line ac schematic and a dc schematic showing all protection and control schemes
- (c) protective relay coordination graph

## Coordination:

CPC/CBT protective equipment must coordinate with WKP protective equipment.

## Equipment Requirements:

CPC/CBT shall ensure that their station insulation coordinates with WKP's incoming transmission line insulation provided that WKP has industry standard insulation.

Surge arresters are required for protection of station equipment.

Circuit breakers will be provided for all incoming lines and shall be capable of interrupting the ultimate fault duty as determined by WKP.

## Point of Interconnection Voltage:

Nominal Voltage 64.5kV +/- 2.5%

## Point of Supply

Nominal Frequency 60 cycles

Phase Imbalance The current of any one or more phases shall not exceed the current

(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

of any other phase by more than 10%.

(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: F-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

SCHEDULE 6

RIGHT OF FIRST REFUSAL

This agreement is made as of the >th day of >, 1996.

AMONG:

COLUMBIA POWER CORPORATION, a corporation established under the laws of British Columbia and having an office at 712 Yates Street, Victoria, British Columbia, V8V 1X4

("CPC")

CBT POWER CORP., a corporation established under the laws of British Columbia and having an office at 601 Vernon Street, Nelson, British Columbia, V1L 4E9.

("CBT")

(CPC and CBT are hereafter collectively referred to as "CPC/CBT")

AND:

BRILLIANT POWER FUNDING CORPORATION, a corporation established under the laws of British Columbia and having its office c/o Columbia Power Corporation, 712 Yates Street, Victoria, British Columbia, V8V 1X4

("Brilliant")

AND:

WEST KOOTENAY POWER LTD., a corporation established by a Special Act of the Legislature of the Province of British Columbia and having its registered office at 1290 Esplanade, Trail, British Columbia, V1R 4L4

("WKP")

(dr960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No.: E-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

## WHEREAS:

- (i) CPC/CBT are the beneficial owners of the Lands and Brilliant is the registered owner of the Lands as shown in the records of the Land Title Office in which title to the Lands is registered.
- (ii) CPC/CBT have agreed to grant to WKP a right of first refusal to purchase the legal and beneficial interest in the Lands.

## AGREEMENTS

For good and valuable consideration, the receipt and sufficiency of which each party acknowledges, the parties agree as follows:

## ARTICLE 1

## DEFINITIONS

## 1.1 Defined Terms. In this Agreement:

- (a) "Affiliate" shall have the meaning set out in the *Company Act* (British Columbia) at the date of this Agreement;
- (b) "Agreement" means this agreement (including Appendix A) as amended or supplemented from time to time;
- (c) "Brilliant Dam" means the dam located on the Kootenay River together with the spillways and headworks, the power house and hydroelectric facilities, the reservoir created by the dam, and the lands occupied by, or required for the operation of, the dam and hydroelectric facilities including foreshore and lands covered by water and the lands described in Item 2 of Part 1 of Appendix A hereto and includes any Brilliant Upgrade but does not include the Expansion;
- (d) "Brilliant Dam Assets" means all real and personal property and rights owned by CPC/CBT that are occupied by, normally used in connection with or necessary for the operation of the Brilliant Dam including, without limiting the generality of the foregoing:
- (i) all machinery, equipment and spare parts;

(d960820177)

Accepted for filing: MAY 3 1996

Effective: MAY 2 1996

Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION



- (ii) all water licences and other water rights appurtenant to the Brilliant Dam;
- (iii) all agreements appurtenant to the Brilliant Dam;
- (e) "Brilliant Power Purchase Agreement" means the agreement dated April 4, 1996 among the Parties in respect of the sale of power from the Brilliant Dam;
- (f) "Brilliant Upgrade" shall have the meaning set out in the Brilliant Power Purchase Agreement;
- (g) "Business Day" means any day except Saturday, Sunday and any "holiday" as defined under the *Interpretation Act* (British Columbia);
- (h) "Expansion" shall have the meaning set out in the Brilliant Power Purchase Agreement;
- (i) "Offer" means a written offer by CPC/GBT to sell
  - (i) all or part of the beneficial interest in the Brilliant Dam and Brilliant Dam Assets and all or part of the issued and outstanding shares in the capital of Brilliant; or
  - (ii) all or part of the legal and beneficial title to the Brilliant Dam and Brilliant Dam Assets,
 to WKP for cash consideration only;
- (j) "Parties" means CPC, GBT, Brilliant and WKP and "Party" means any one of them;
- (k) "Person" means an individual, corporation, society, partnership, government or governmental department or agency, trustee, and unincorporated organization;
- (l) "Term" means the period commencing with the date of this Agreement and ending on the date on which the Brilliant Power Purchase Agreement expires or is terminated;
- (m) "Third Party Buyer" means any Person who enters into an agreement with CPC/GBT to purchase their beneficial interest in the Brilliant Dam and Brilliant Dam Assets.

## ARTICLE 2

## RIGHT OF FIRST REFUSAL

2.1 **Restriction on Transfer.** During the Term, CPC/CBT will not sell or otherwise transfer or dispose all or any part of the beneficial interest in the Brilliant Dam, any part of the Brilliant Dam or any shares of Brilliant except:

- (a) CPC or CBT may sell, transfer or otherwise dispose of all or part of its beneficial interest in all or any part of the Brilliant Dam and the shares of Brilliant to:
  - (i) an Affiliate of CPC or CBT, as the case may be, if, contemporaneously with the transfer, the Affiliate enters into a written agreement with WKP that the Affiliate will:
    - A. be bound by this Agreement and acknowledge that its interest in the Brilliant Dam and the shares of Brilliant is subject to the right of first refusal provided for herein;
    - B. prior to, or immediately after, ceasing to be an Affiliate of the CPC or CBT, if WKP so requests, transfer the beneficial interest in the Brilliant Dam and shares of Brilliant back to the CPC or CBT as the case may be, or to another Affiliate of CPC or CBT so long as that other Affiliate enters into a similar agreement with WKP; and
    - C. notify WKP when it intends to, or does, cease to be an Affiliate of CPC or CBT; or
  - (ii) CPC or CBT, and in such case CPC or CBT, as the case may be, hereby agree that this Agreement shall continue to apply to their respective beneficial interests in the Brilliant Dam notwithstanding the transfer of beneficial ownership between them;
- (b) as part of a bona fide financing transaction provided the lender agrees in writing with WKP to be bound by the terms of this Agreement; and
- (c) if CPC/CBT delivers to WKP an Offer, along with all documents, plans and information which may reasonably be required by WKP, and such Offer is not accepted by WKP within 90 days of receipt of the Offer by WKP or, if accepted by WKP, the sale does not fully complete on the closing date in the Offer for any

(dt960820177)

Accepted for filing:

MAY 3 1996

Effective:

MAY 3 1996

Order No.:

E-7-96

SECRETARY

B.C. UTILITIES COMMISSION

reason other than default by CPC/CBT or failure of CPC/CBT to act reasonably with respect to the satisfaction or waiver of a condition of the Offer for its benefit, CPC/CBT may, within one year of the expiry of such 90 day period, sell the beneficial interest in the Brilliant Dam and Brilliant Dam Assets to a Third Party Buyer on terms not more favourable to such Third Party Buyer than those set out in the Offer.

2.2 Advance Notice to RFR Holder. If at any time CPC/CBT are contemplating or proposing to offer for sale, or otherwise transfer or dispose of, the beneficial interest in the Brilliant Dam, CPC/CBT will give WKP as much prior notice thereof as may be practicable in the circumstances, provided that failure by CPC/CBT to deliver such notice will not affect the validity of any Offer delivered to WKP and will not give rise to any other remedy at law or in equity in favour of WKP.

2.3 Consents and Approvals. If WKP accepts the Offer, CPC/CBT will, at WKP's expense, provide assistance reasonably requested by WKP to obtain all necessary approvals and consents for such purchase and sale.

2.4 Discharge. If the Offer is for the entire beneficial interest in the Brilliant Dam and WKP does not accept an Offer within the 90 day period stipulated in paragraph 2.1(c), or, if WKP accepts the Offer, the sale does not fully complete on the closing date in the Offer for any reason other than default by CPC/CBT or failure of CPC/CBT to act reasonably with respect to the satisfaction or waiver of a condition of the Offer for its benefit, WKP will execute and deliver to the solicitor for CPC/CBT a registrable discharge of this Agreement prior to the closing of a transaction permitted under paragraph 2.1(c) upon the trust condition that if the sale of the Brilliant Dam and Brilliant Assets to a Third Party Buyer is not completed as permitted by this Agreement, the discharge will immediately be returned to WKP. If the Offer is for a partial beneficial interest in the Brilliant Dam and a Third Party Buyer acquires such interest, the Third Party Buyer shall purchase such interest and any shares of Brilliant subject to the right of first refusal in favour of WKP set out herein and the terms of this Agreement.

2.5 Non-Completion of Sale. If a sale to a Third Party Buyer in accordance with the terms of this Agreement is not fully completed within one year following the expiry of the 90 day period stipulated in paragraph 2.1(c), CPC/CBT will not proceed with any sale, transfer or other disposition of all or part of their beneficial interest in the Brilliant Dam without again complying with the provisions of this Agreement and so on from time to time.

2.6 Representation and Warranty. CPC and CBT jointly and severally represent and warrant to WKP that they are the beneficial owners of the Brilliant Dam and Brilliant Dam Assets and Brilliant is the registered owner of the Brilliant Dam.

2.7 Brilliant. CPC/CBT agree that, subject to paragraph 2.1, for so long as this

(d960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No.: E-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

Agreement is in effect, they shall jointly legally and beneficially own 100% of the issued and outstanding shares in the capital of Brilliant either alone or together and shall, at the request of WKP,

- (a) cause Brilliant to execute and deliver a document registrable in the applicable Land Title Office substantially in the form attached as Appendix A; and
- (b) cause Brilliant to execute and deliver all other instruments and take any other actions necessary to give full effect to this Agreement.

### ARTICLE 3

#### GENERAL

3.1 **Governing Law and Jurisdiction.** This Agreement will be governed by, and construed in accordance with, British Columbia law and applicable Canadian law and will be treated in all respects as a British Columbia contract.

3.2 **Submission to Jurisdiction.** Each Party will:

- (a) submit to the jurisdiction of the British Columbia courts,
- (b) if not incorporated or registered in British Columbia, appoint an agent to receive service of any process in British Columbia and notify the other Party of the agent's name and address.

3.3 **Time of Essence.** Time will be of the essence of this Agreement and any agreement of purchase and sale between CPC/CBT and WKP arising out of this Agreement.

3.4 **Time Periods.** If any period of time ends on a day other than a Business Day, that period will be extended so as to end at the end of the next following Business Day.

3.5 **Notices.** All notices, directions and other instruments required or permitted to be given under this Agreement shall be in writing, and shall be sufficient in all respects if delivered, or if sent by facsimile, or if sent by prepaid registered post mailed in British Columbia to the Parties at the following addresses respectively:

- (a) to West Kootenay Power Ltd.

(dt960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

West Kootenay Power Ltd.  
1290 Esplanade  
Trail, B.C.  
V1R 4L4

Attention: Secretary  
Facsimile Number: (604) 364-1270

(b) to CBT Power Corp.:

CBT Power Corp.  
601 Vernon Street  
Nelson, B.C.  
V1L 4E9.

Attention: Secretary  
Facsimile Number: (604) 354-1682

(c) to Columbia Power Corporation:

Columbia Power Corporation  
712 Yates Street, 2nd Floor  
Victoria, British Columbia  
Canada, V8V 1X4

Attention: Secretary  
Facsimile Number: (604) 356-2819

(c) to Brilliant Power Funding Corporation:

Brilliant Power Funding Corporation  
c/o Columbia Power Corporation  
712 Yates Street, 2nd Floor  
Victoria, British Columbia  
Canada, V8V 1X4

Attention: Secretary  
Facsimile Number: (604) 356-2819

Any Party shall have the right at any time to change its address by notice in writing sent to the other Parties at the address in effect hereunder.

(dt960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No.: E-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

3.6 Time of Delivery. Any notice or communication will be considered to have been received:

- (a) if delivered by hand during business hours on a Business Day, upon receipt by a responsible representative of the receiver, and if not delivered during business hours, upon the commencement of business on the next Business Day;
- (b) if sent by facsimile transmission during business hours on a Business Day, upon the sender receiving confirmation of the transmission, and if not transmitted during business hours, upon the commencement of business on the next Business Day; and
- (c) if mailed by prepaid registered post in Canada, upon the fifth Business Day following posting; except that, in the case of a disruption or an impending or threatened disruption in postal services every notice or communication will be delivered by hand or sent by facsimile transmission.

3.7 Further Assurances. The Parties will execute and deliver all other instruments and take any other actions necessary to give full effect to this Agreement.

3.8 Waivers.

- (a) The failure or delay of one Party to require performance of any of the obligations under this Agreement of another Party will not affect its right to require performance of that obligation, unless that performance has been expressly waived in writing.
- (b) A waiver by one Party of another Party's performance of an obligation under this Agreement will not constitute a waiver of any subsequent failure of that Party in respect of the same obligation.

3.9 Joint and Several. The obligations hereunder of CPC, CBT and Brilliant shall be joint and several. If CPC or CBT sell all of their interest in the Brilliant Dam to the other pursuant to paragraph 2.1(a)(ii), the seller will have no further obligations under this Agreement and will not be entitled to re-acquire an interest under paragraph 2.1(a)(ii).

3.10 Binding Agreement. This Agreement will bind and benefit each of the Parties, and each of their respective successors and permitted assigns. The right of first refusal will be a charge on the Brilliant Dam.

3.11 Entire Agreement. This Agreement (including Appendix A) is the entire agreement between the parties relating to the purchase and sale of the Brilliant Dam and Brilliant Dam

(d960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-2-96

*[Signature]*  
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 B.C. UTILITIES COMMISSION

Assets and supersedes any prior agreement, and neither Party is bound by any representation, warranty or agreement not included in this Agreement, and in particular, no representation or warranty of a Party not expressed in this Agreement is to be implied. If there is a conflict between the terms of the main body of this Agreement and those of Appendix A, the terms of the main body hereof shall govern.

### 3.12 Counterparts.

- (a) This Agreement may be executed and delivered in any number of counterparts, each of which will constitute an original and all of them taken together will constitute one instrument.
- (b) Delivery of a counterpart to a party will be effective if made to that party or to its counsel.

3.13 Legislation. In this Agreement, except as otherwise specifically provided, any reference to legislation includes a reference to the legislation and to any regulations made under that legislation as that legislation or those regulations may be amended or re-enacted from time to time.

3.14 Assignment. WKP shall not assign its rights hereunder without the consent of CPC/CBT, such consent not to be unreasonably withheld or delayed.

IN WITNESS WHEREOF the Parties hereto have executed this Agreement as of the day of > , 1996.

COLUMBLA POWER CORPORATION

c/s

Per:

Authorized Signatory

CBT POWER CORP.

c/s

Per:

Authorized Signatory

BRILLIANT POWER FUNDING CORPORATION

(d960820177)

Accepted for filing:

Effective:

Order No.:

MAY 3 1996

MAY 3 1996

E-7-96



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B.C. UTILITIES COMMISSION

c/s

Per:

Authorized Signatory

WEST KOOTENAY POWER LTD.

c/s

Per:

Authorized Signatory

(d960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No.: E-7-96

  
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## APPENDIX A

LAND TITLE ACT  
FORM C  
(Section 219.81)

Province of  
British Columbia

GENERAL INSTRUMENT - PART 1

(This area for Land Title Office use)

PAGE 1 of > pages

1. APPLICATION: (Name, address, phone number and signature of applicant, applicant's solicitor or agent)

<solicitors-name>

Davis & Company, Barristers & Solicitors  
2800 Park Place, 666 Burrard Street  
Vancouver, BC, V6C 2Z7  
Telephone No. (604) 687-9444  
Client No. 10371 File Ref. 31643-94631

Signature of Solicitor

2. PARCEL IDENTIFIER(S) AND LEGAL DESCRIPTION(S) OF LAND: \*  
(PID) (LEGAL DESCRIPTION)

>

>

3. NATURE OF INTEREST: \*  
DESCRIPTION

DOCUMENT REFERENCE  
(page and paragraph)

PERSON ENTITLED TO INTEREST

Right of First Refusal to Purchase

Entire Instrument

Transferee

4. TERMS: Part 2 of this Instrument consists of (select one only)

(a) Filed Standard Charge Terms

(b) Express Charge Terms

(c) Release

<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

D.F. No.

Annexed as Part 2

There is no Part 2 of this Instrument

A selection of (a) includes any additional or modified terms referred to in Item 7 or in a schedule annexed to this instrument. If (c) is selected, the charge described in Item 3 is released or discharged as a charge on the land described in Item 2.

5. TRANSFEROR(S): \*

BRILLIANT POWER FUNDING CORPORATION

6. TRANSFEREE(S): (including postal address(es) and postal code(s)) \*

WEST KOOTENAY POWER LTD. of 1290 Esplanade, Trail, British Columbia V1R 4L4

7. ADDITIONAL OR MODIFIED TERMS: \*

N/A

(d960820177)

Accepted for filing:

MAY 3 1996

Effective:

MAY 3 1996

Order No.:

E-7-96

SECRETARY

B.C. UTILITIES COMMISSION

8. EXECUTION(S): This Instrument creates, assigns, modifies, enlarges, discharges or governs the priority of the interest(s) described in Item 3 and the Transferor(s) and every other signatory agree to be bound by this Instrument, and acknowledge(s) receipt of a true copy of the filed standard charge terms, if any.

<p>Officer Signature(s)</p>  <p>(Signature)</p> <p>(Print Name)</p> <p>(Address)</p> <p>(Professional Capacity) (as to all signatures)</p>	<p>Execution Date</p> <table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">M</td> <td style="text-align: center;">D</td> </tr> <tr><td style="height: 150px;"></td></tr> </table>	Y	M	D		<p>Party(ies) Signature(s) (ALL SIGNATURES TO BE IN BLACK INK)</p> <p>BRILLIANT POWER FUNDING CORPORATION by its authorized signatories</p> <p>Print name -</p> <p>Print name -</p>
Y	M	D				

<p>Officer Signature(s)</p>  <p>(Signature)</p> <p>(Print Name)</p> <p>(Address)</p> <p>(Professional Capacity) (as to all signatures)</p>	<p>Execution Date</p> <table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">M</td> <td style="text-align: center;">D</td> </tr> <tr><td style="height: 150px;"></td></tr> </table>	Y	M	D		<p>Party(ies) Signature(s) (ALL SIGNATURES TO BE IN BLACK INK)</p> <p>WEST KOOTENAY POWER LTD. by its authorized signatories</p> <p>Print name -</p> <p>Print name -</p>
Y	M	D				


**OFFICER CERTIFICATION:**

Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the *Evidence Act*, R.S.B.C. 1979, c. 116, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the *Land Title Act* as they pertain to the execution of this instrument.

\*If space insufficient, enter "SEE SCHEDULE" and attach schedule in Form E.

\*\*If space insufficient, continue on additional page(s) in Form D.

(d960820177)

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Effective: MAY 3 1996

Order No.: E-7-96

SECRETARY  
B.C. UTILITIES COMMISSION

## TERMS OF INSTRUMENT - PART 2

## RIGHT OF FIRST REFUSAL

## BACKGROUND

A. The Owner has agreed to grant to the RFR Holder a right of first refusal to purchase the Lands.

## AGREEMENTS

For good and valuable consideration, the receipt and sufficiency of which each party acknowledges, the parties agree as follows:

## ARTICLE 1


## DEFINITIONS

## 1.1 Defined Terms. In this Agreement:

- (a) "Agreement" means this agreement as amended or supplemented from time to time;
- (b) "Business Day" means any day except Saturday, Sunday and any "holiday" as defined under the *Interpretation Act* (British Columbia) as amended or modified from time to time;
- (c) "Lands" means the real property described in Item 2 of Part 1;
- (d) "Offer" means a written offer by the Owner to sell the Lands to the RFR Holder for cash consideration only;
- (e) "Owner" means the registered owner of the Lands from time to time as shown in the records of the Land Title Office in which title to the Lands is registered and includes the Person named as "Transferor" in Item 5 of Part 1;
- (f) "Parties" means the Owner and the RFR Holder and "Party" means any one of them;
- (g) "Person" means an individual, corporation, society, partnership, government or governmental department or agency, trustee, and unincorporated organization;

(dr960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96

  
 SECRETARY  
 B.C. UTILITIES COMMISSION

- (h) "RFR Holder" means the Person named as "Transferee" in Item 6 of Part 1;
- (i) "Term" means 60 years from the date of execution of this Agreement by the Owner; and
- (j) "Third Party Buyer" means any Person who enters into an agreement with the Owner to purchase the Lands.

## ARTICLE 2

### RIGHT OF FIRST REFUSAL

2.1 **Restriction on Transfer.** During the Term the Owner will not sell or otherwise transfer or dispose of its legal or beneficial interest in the Lands, or any part of the Lands, except that if the Owner delivers to the RFR Holder an Offer, along with all documents, plans and information which may reasonably be required by the RFR Holder, and such Offer is not accepted by the RFR Holder within 90 days of receipt of the Offer by the RFR Holder, the Owner may, within one year of the expiry of such 90 day period, sell the Lands to a Third Party Buyer on terms not more favourable than those set out in the Offer.

2.2 **Consents and Approvals.** If the RFR Holder accepts the Offer, the Owner will, at the RFR Holder's expense, provide assistance reasonably requested by the RFR Holder to obtain all necessary approvals and consents for such purchase and sale.

2.3 **Discharge.** If the RFR Holder does not accept an Offer within the 90 day period stipulated in paragraph 2.1, or, if the RFR Holder accepts the Offer, the sale does not fully complete on the closing date in the Offer for any reason other than default by the Owner or failure of the Owner to act reasonably with respect to the satisfaction or waiver of a condition of the Offer for its benefit, the RFR Holder will execute and deliver to the solicitor for the Owner a registrable discharge of this Agreement prior to the closing of a transaction permitted under paragraph 2.1 upon the trust condition that if the sale of the Lands to a Third Party Buyer is not completed as permitted by this Agreement, the discharge will immediately be returned to RFR Holder.

2.4 **Non-Completion of Sale.** If a sale to a Third Party Buyer in accordance with the terms of this Agreement is not fully completed within one year following the expiry of the 90 day period stipulated in paragraph 2.1, then the Owner will not proceed with any sale, transfer or other disposition of the Lands without again complying with the provisions of this Agreement and so on from time to time.

(dr960820177)

Accepted for filing: MAY 3 1996  
 Effective: MAY 3 1996  
 Order No.: E-7-96



SECRETARY  
 B.C. UTILITIES COMMISSION

## ARTICLE 3

## GENERAL

3.1 **Governing Law and Jurisdiction.** This Agreement will be governed by, and construed in accordance with, British Columbia law and applicable Canadian law and will be treated in all respects as a British Columbia contract.

3.2 **Submission to Jurisdiction.** Each Party will:

- (a) submit to the jurisdiction of the British Columbia courts,
- (b) if not incorporated or registered in British Columbia, appoint an agent to receive service of any process in British Columbia and notify the other Party of the agent's name and address.

3.3 **Time of Essence.** Time will be of the essence of this Agreement and any agreement of purchase and sale between the Owner and the RFR Holder arising out of this Agreement.

3.4 **Time Periods.** If any period of time ends on a day other than a Business Day, that period will be extended so as to end at the end of the next following Business Day.

3.5 **Notice.** In this Agreement:

- (a) any notice or communication required or permitted to be given under the Agreement will be in writing and will be considered to have been given if delivered by hand, transmitted by facsimile transmission or mailed by prepaid registered post in Canada, to the address or facsimile transmission number of each party set out below:

- (i) if to the RFR Holder:

West Kootenay Power Ltd.  
1290 Esplanade  
Trail, B.C. V1R 4L4

Attention: Corporate Secretary  
Fax No: (604) 364-1720

- (c) if to the Owner:

Brilliant Power Funding Corporation  
c/o Columbia Power Corporation  
712 Yates Street, 2nd Floor

(dt960820177)

Accepted for filing: MAY 3 1996  
Effective: MAY 3 1996  
Order No.: F-7-96

  
SECRETARY  
B.C. UTILITIES COMMISSION

Victoria, B.C. V8V 1X4

Attention: Secretary

Facsimile Number: (604) 356-2819

Any Party shall have the right at any time to change its address by notice in writing sent to the other Parties at the address in effect hereunder.

3.6 Time of Delivery. Any notice or communication will be considered to have been received:

- (a) if delivered by hand during business hours on a Business Day, upon receipt by a responsible representative of the receiver, and if not delivered during business hours, upon the commencement of business on the next Business Day;
- (b) if sent by facsimile transmission during business hours on a Business Day, upon the sender receiving confirmation of the transmission, and if not transmitted during business hours, upon the commencement of business on the next Business Day; and
- (c) if mailed by prepaid registered post in Canada, upon the fifth Business Day following posting; except that, in the case of a disruption or an impending or threatened disruption in postal services every notice or communication will be delivered by hand or sent by facsimile transmission.

3.7 Further Assurances. The Parties will execute and deliver all other instruments and take any other actions necessary to give full effect to this Agreement.

3.8 Waivers.

- (a) The failure or delay of one Party to require performance of any of the obligations under this Agreement of another Party will not affect its right to require performance of that obligation, unless that performance has been expressly waived in writing.
- (b) A waiver by one Party of another Party's performance of an obligation under this Agreement will not constitute a waiver of any subsequent failure of that Party in respect of the same obligation.

3.9 Joint and Several. If a Party is more than one Person under this Agreement every representation, covenant and agreement on the part of the Party to be observed and performed by that Party will be the joint and several representation, warranty, covenant and agreement of each Person comprising the Party.

3.10 Binding Agreement. This Agreement will bind and benefit each of the Parties, and each

(dt960820177)

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Effective:

Order No.:

MAY 3 1996

MAY 3 1996

E-7-96

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of their respective successors and permitted assigns. The Right of First Refusal will be a charge on the Lands and will bind the registered owner from time to time, which registered owner will be considered a party to this Agreement.

3.11 Entire Agreement. This Agreement is the entire agreement between the parties relating to the purchase and sale of the Lands and supersedes any prior agreement, and neither Party is bound by any representation, warranty or agreement not included in this Agreement, and in particular, no representation or warranty of a Party not expressed in this Agreement is to be implied.

### 3.12 Counterparts.

- (a) This Agreement may be executed and delivered in any number of counterparts, each of which will constitute an original and all of them taken together will constitute one instrument.
- (b) Delivery of a counterpart to a party will be effective if made to that party or to its counsel.

3.13 Legislation. In this Agreement, any reference to legislation includes a reference to the legislation and to any regulations made under that legislation as that legislation or those regulations may be amended or re-enacted from time to time.

3.14 Assignment. The RFR Holder shall not assign its rights hereunder without the consent of the Owner, such consent not to be unreasonably withheld or delayed.

3.15 Part 1 and Part 2. In accordance with Section 219.81 of the *Land Title Act*, these Terms of Instrument - Part 2 and the General Instrument Part 1 to which they are attached, form a single instrument.

3.16 Execution. The act of signing by a Party in Item 8 of Part 1 of this document constitutes effective execution of this Agreement by that Party.

END OF DOCUMENT

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## SCHEDULE 7

## PRO RATA REDUCTION

"Pro Rata Reduction" means a reduction to Operation and Maintenance Costs and Return on Capital payable by WKP hereunder determined as follows:

Capacity Reduction

Pro Rata Reduction as it applies to Capacity will be undertaken on the basis of the definitions and calculations set forth below:

Step 1-Allocate fifty percent (50%) of the sum of Fixed Operation and Maintenance Charge and Return on Capital Charge for Entitlement or Power in Year 'y' to Capacity to determine the Annual Capacity Charge, where:

"Annual Capacity Charge" or "ACC<sub>y</sub>" for Year y means the portion of Operation and Maintenance Costs and Return on Capital for Entitlement or Power that is allocated to Capacity expressed in \$.

$$ACC_y = 0.50 \times (FOMC_y + ROCC_y)$$

"Fixed Operation and Maintenance Charge" or "FOMC<sub>y</sub>" for Year y means that portion of the Operation and Maintenance Costs for Entitlement or Power that are unchanged as a result of the event that gave rise to the Pro Rata Reduction expressed in \$.

"Return on Capital Charge" or "ROCC<sub>y</sub>" means the Return on Capital for Entitlement or Power in Year y expressed in \$.

Step 2-Determine the Annual Weighted Capacity for Year y, where:

"Annual Weighted Capacity" or "AWC<sub>y</sub>" means the sum of the Maximum Capacity times the Capacity Weighting for the twelve Months of the Year expressed in MW-months.

$$AWC_y = \sum (MC_m \times CW_m)$$

"Maximum Capacity" or "MC<sub>m</sub>" for Month m means the Capacity component of Entitlement (as modified from time to time as a result of changes to the Base System as defined in the Entitlement Agreements) or the Capacity component of Power as determined in a fashion similar to the determination of the Capacity component of Entitlement, or as mutually agreed otherwise, in existence just prior to the event that gave rise to the Pro Rata Reduction expressed in MW-months.

"Capacity Weighting" or "CW<sub>m</sub>" for Month m means: 0.5 for months September, April, May and June, 1.0 for months July, August, October and March and 1.5 for months November,

(dt960820177)

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 Order No.: 5-7-96

  
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December, January and February, expressed as a scalar.

Step 3-Determine the Capacity Value for each month, where:

"Capacity Value" or " $CV_m$ " for Month  $m$  means Annual Capacity Charge divided by the Annual Weighted Capacity times the Capacity Weighting expressed in \$/MW-month.

$$CV_m = (ACC_y \div AWC_y) \times CW_m$$

Step 4-Determine the Annual Capacity Charge Reduction for Year  $y$ , where:

"Annual Capacity Charge Reduction" or " $ACCR_y$ " for Year  $y$  means the sum of the Maximum Capacity less the Reduced Capacity times the Capacity Value for twelve Months expressed in \$.

$$ACCR_y = \Sigma([MC_m - RC_m] \times CV_m)$$

"Reduced Capacity" or " $RC_m$ " for Month  $m$  means reduced Capacity that results from the event that gave rise to the Pro Rata Reduction having regard for the general level of Planned Outages, Forced Outages, Maintenance Outages and Forced Deratings that could normally be expected to occur while the event that gave rise to the Pro Rata Reduction was in effect expressed in MW-months.

### Energy Reduction

Pro Rata Reduction as it applies to Energy will be undertaken on the basis of the definitions and calculations set forth below:

Step 1- Allocate fifty percent (50%) of the sum of Fixed Operation and Maintenance Charge and Return on Capital Charge of Entitlement or Power in Year ' $y$ ' to Energy to determine Annual Energy Charge, where:

"Annual Energy Charge" or " $AEC_y$ " means the portion the total Operation and Maintenance Costs and Return on Capital for Entitlement or Power that is allocated to Energy for Year  $y$  expressed in \$.

$$AEC_y = 0.50 \times (FOMC_y + ROCC_y)$$

"Fixed Operation and Maintenance Charge" or " $FOMC_y$ " means that portion of the Operation and Maintenance Costs for Entitlement or Power for Year  $y$  that are unchanged as a result of the event that gave rise to the Pro Rata Reduction expressed in \$.

"Return on Capital Charge" or " $ROCC_y$ " means the Return on Capital for Entitlement or Power in Year  $y$  expressed in \$.

(d960820177)

Accepted for filing: MAY 3 1996

Effective: MAY 3 1996

Order No.: E-7-96



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Step 2-Determine the Energy Value for the Year y, where:

"Energy Value" or "EV<sub>y</sub>" for Year y means Annual Energy Charge divided by the sum of the twelve Months of Maximum Energy expressed in \$/MW.h.

$$EV_y = AEC_y \div \Sigma ME_m$$

"Maximum Energy" or "ME<sub>m</sub>" for Month m means the Energy component of Entitlement (as modified from time to time as a result of changes to the Base System as defined in the Entitlement Agreements) or the Energy component of Power as determined from the last 30 years of streamflows, or as mutually agreed otherwise, in existence just prior to the event that gave rise to Pro Rata Reduction expressed in MW.h.

Step 3-Determine the Annual Energy Charge Reduction for Year y, where

"Annual Energy Charge Reduction" or "AECR<sub>y</sub>" for Year y means the sum of Maximum Energy less the Reduced Energy times the Capacity Value for twelve Months expressed in \$.

$$AECR_y = \Sigma([ME_m - RE_m] \times EV_y)$$

"Reduced Energy" or "RE<sub>m</sub>" for Month m means the reduced Energy that results from the event that gave rise to the Pro Rata Reduction having regard for the general level of Planned Outages, Forced Outages, Maintenance Outages and Forced Deratings that could normally be expected to occur while the event that gave rise to the Pro Rata Reduction was in effect expressed in MW.h.

A sample calculation of Pro Rata Reduction of Operation and Maintenance Costs and Return on Capital is attached to this Schedule 7.

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Order No.: E-7-96

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## PRO RATA REDUCTION - SAMPLE CALCULATION

Note: For this sample calculation, it is assumed that the annual Fixed Operation and Maintenance Charge and Return on Capital Charge that would normally be payable by WKP to CPC/CBT in Year "y" would be \$15,000,000.

Two events occur under conditions for which CPC/CBT is at risk, which result in Pro Rata Reductions:

Event 1-One generating unit is out of service for all of January plus 100 hours in February.

Event 2-Entitlement loss reduces available energy (but not capacity) by 10 GW.h in the Months of June and July.

Fixed Operation and Maintenance and Return on Capital Charge for Year "y"=

FOMC+ROCC= \$ 15,000,000

Allocation to Capacity "Annual Capacity Charge"

50% ACC= \$ 7,500,000

Allocation to Energy "Annual Energy Charge"

50% AEC= \$ 7,500,000

Capacity Value

CV= \$ 4,963

\$/MW-mon as derived for Months with Capacity Weighting 1

Energy Value

EV= \$ 8.73

\$/MW.h

Number of Units out of Service: 1

assumed to be 25% of capacity, per Entitlement Agreements prior to reduction

Hours in Month	CW Capacity Weighting	MC Maximum Capacity	Weighted Capacity	Outage Adj (CPA, 1 Unit) MW-months	Hours out of Service (1)	Capacity Reduction	RC Reduced Capacity	CV Capacity Value	Capacity Charge Reduction
Jan 744	1.5	128.9	193.4	32.2	744	32.2	96.7	\$ 7,444	\$ 239,710
Feb 672	1.5	128.9	193.4	32.2	100	4.8	124.1	\$ 7,444	\$ 35,671
Mar 744	1.0	128.9	128.9	32.2	0	0.0	128.9	\$ 4,963	\$ -
Apr 720	0.5	124.9	62.5	31.2	0	0.0	124.9	\$ 2,481	\$ -
May 744	0.5	117.8	58.9	29.4	0	0.0	117.8	\$ 2,481	\$ -
Jun 720	0.5	111.3	55.7	27.8	0	0.0	111.3	\$ 2,481	\$ -
Jul 744	1.0	119.7	119.7	29.9	0	0.0	119.7	\$ 4,963	\$ -
Aug 744	1.0	124.8	124.8	31.2	0	0.0	124.8	\$ 4,963	\$ -
Sep 720	0.5	125.0	62.5	31.2	0	0.0	125.0	\$ 2,481	\$ -
Oct 744	1.0	124.9	124.9	31.2	0	0.0	124.9	\$ 4,963	\$ -
Nov 720	1.5	128.9	193.4	32.2	0	0.0	128.9	\$ 7,444	\$ -
Dec 744	1.5	128.9	193.4	32.2	0	0.0	128.9	\$ 7,444	\$ -
Total	8760	12	1492.9	1511.2					\$ 275,381 = ACCR

Note (1) Capacity reduction for partial month outage is the appropriate CPA adjustment (MW-months) times the hours out divided by total hours in the month.

Hours in Month	ME Maximum Energy	Outage Adj (CPA, 1 Unit) MW.h/hour	Hours out of Service	Energy Reduction	RE Reduced Energy	Energy Charge Reduction
Jan 744	79.6	Event 1 16.8	744	12.5	67.1	\$ 109,157
Feb 672	57.8	Event 1 5.2	100	0.5	57.3	\$ 4,541
Mar 744	52.7	3.4	0	0.0	52.7	\$ -
Apr 720	76.8	22.5	0	0.0	76.8	\$ -
May 744	82.6	28.8	0	0.0	82.6	\$ -
Jun 720	75.7	Event 2 27.2	0	10.0	65.7	\$ 87,331
Jul 744	84.7	Event 2 29.5	0	10.0	74.7	\$ 87,331
Aug 744	85.1	25.5	0	0.0	85.1	\$ -
Sep 720	79.1	21.0	0	0.0	79.1	\$ -
Oct 744	62.1	11.3	0	0.0	62.1	\$ -
Nov 720	59.8	10.1	0	0.0	59.8	\$ -
Dec 744	62.8	8.1	0	0.0	62.8	\$ -
Total	8760			33.0	825.8	\$ 288,361 = AECC

Revised Annual Capacity Charge in Year "y" = \$ 7,500,000 minus \$ 275,381 = \$ 7,224,619

Revised Annual Energy Charge in Year "y" = \$ 7,500,000 minus \$ 288,361 = \$ 7,211,639

Revised Fixed Operation and Maintenance and Return on Capital Charge in Year "y" = \$ 14,436,258

## BRILLIANT POWER PURCHASE AMENDMENT AGREEMENT

THIS AMENDMENT AGREEMENT is made as of the 2nd day of May, 1996.

AMONG:

**COLUMBIA POWER CORPORATION**, a corporation established under the laws of British Columbia and having an office at 712 Yates Street, Victoria, British Columbia, V8V 1X4

("CPC")

**CBT POWER CORP.**, a corporation established under the laws of British Columbia and having an office at 601 Vernon Street, Nelson, British Columbia, V1L 4E9.

("CBT")

(CPC and CBT are hereafter collectively referred to as "CPC/GBT")

AND:

**WEST KOOTENAY POWER LTD.**, a corporation established by a Special Act of the Legislature of the Province of British Columbia and having its registered office at 1290 Esplanade, Trail, British Columbia, V1R 4L4

("WKP")


**WHEREAS:**

A. CPC, CBT and WKP entered into an agreement made as of April 4, 1996 (the "Original Agreement") pursuant to which CPC/GBT agreed to sell, and WKP agreed to purchase, the Entitlement or Power at such rates and under such terms and conditions as were specified therein.

B. CPC, CBT and WKP wish to amend the Original Agreement as set forth below.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the mutual covenants herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby conclusively acknowledged by each of the Parties hereto, the Parties hereto agree that the Original Agreement shall be amended as follows:

(dt961170110)

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Order No.: **E-7-96**  
  
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1. **Definitions.** The defined terms herein shall have the meanings set out in this Amendment Agreement or in the Original Agreement.

2. **Section 4.1.** Delete and replace as follows:

"4.1 **Sale and Purchase of Entitlement or Power.** Subject to and in accordance with this Agreement, CPC/CBT shall sell and make available to WKP, and WKP shall purchase and take, the Entitlement or Power and WKP shall pay to CPC/CBT, whether or not WKP takes,

(a) for each Contract Year in the Initial 30 Year Period, the Operation and Maintenance Costs and Return on Capital (subject to adjustment as provided for in Sections 4.5 and 4.6) for such Contract Year; and

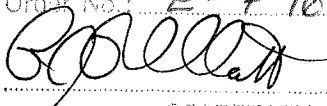
(b) for each Contract Year in the Final 30 Year Period,

(i) if the Operation and Maintenance Costs and Return on Capital (subject to adjustment as provided for in Sections 4.5, 4.6 and 4.7) for such Contract Year is greater than the Market Cost for such Contract Year, the Market Cost;

(ii) if Operation and Maintenance Costs and Return on Capital (subject to adjustment as provided for in Sections 4.5, 4.6 and 4.7) for such Contract Year is less than the Market Cost for such Contract Year and CPC/CBT has not, under the Agreement up to the beginning of such Contract Year, realized a 12.5% annual internal rate of return on the equity component of the Original Cost and Upgrade Cost, the Adjusted Market Cost until such time (if any) in the Contract Year at which the said 12.5% internal rate of return has been obtained and, for the remainder of the Contract Year, a share of Operation and Maintenance Costs and Return on Capital (subject to adjustment as provided for in Sections 4.5, 4.6 and 4.7) for such Contract Year proportionate to the number of days in the remainder of the Contract Year divided by the number of days in the Contract Year; and

(iii) if Operation and Maintenance Costs and Return on Capital (subject to adjustment as provided for in Sections 4.5, 4.6 and 4.7) for such Contract Year is less than the Market Cost for such Contract Year and CPC/CBT has, under the Agreement up to the beginning of such Contract Year,

(dt961170110)

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realized a 12.5% annual internal rate of return on the equity component of the Original Cost and Upgrade Cost, the Operation and Maintenance Costs and Return on Capital (subject to adjustment as provided for in Sections 4.5, 4.6 and 4.7) for such Contract Year.

In making the above determinations the Parties shall at the beginning of each Contract Year use a reasonable estimate of Operation and Maintenance Costs to be incurred during such Contract Year and after the end of such Contract Year adjust the amount paid or payable in respect of such Contract Year in accordance with actual Operation and Maintenance Costs for such Contract Year.

3. **Section 4.1A.** Add the following as a new section to the Agreement.


"4.1A. **Limit on Obligation to Deliver.** If during the Final 30 Year Period the Market Cost for a Contract Year is less than the Operation and Maintenance Cost for such Contract Year as estimated by CPC/GBT acting reasonably, CPC/GBT shall not be obligated to make available the Entitlement or Power hereunder until such time as the Market Cost for a Contract Year is equal to or greater than the Operation and Maintenance Costs for a Contract Year as estimated by CPC/GBT acting reasonably, provided that

- (a) WKP shall have the right to require CPC/GBT to continue to make available Entitlement or Power for a Contract Year by offering to pay an amount therefor equal to the Operation and Maintenance Costs for such Contract Year plus any additional Sustaining Capital necessary for the continuing operation of the Brilliant Plant in accordance with Prudent Utility Practice, in each case for the period during which WKP continues to require Entitlement or Power be made available under this Section 4.1A.(a);
- (b) if Entitlement or Power is not made available, WKP shall have no obligation to make any payment to CPC/GBT; and
- (c) CPC/GBT may not make available Entitlement or Power to any other Person."

4. **Contract Year Amendments.** The Agreement shall be amended by

- (a) replacing the word "year" with the words "Contract Year" and the word "years" with the words "Contract Years" in Section 2.1, Section 7.1(g), the definition of Operation and Maintenance Costs in Schedule 1 and the definition of Overhead and Administration in Schedule 1 (except for the reference in the second last line of such definition);

(dt961170110)

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Original No.: E-7-96  
  
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- (b) replacing the word "Year" with the Words "Contract Year" and the word "Years" with the words "Contract Years" in Section 4.4, Section 6.2(a), Section 6.2(b), Section 6.3 and Schedule 7 (including the attachment thereto); and
- (c) replacing Schedule 2 of the Original Agreement with Schedule 2 hereto.

5. **Amended Sections.** The Agreement shall be further amended as follows:

- (a) **Section 4.5(b)(iv)** - add at the end the words "other than as permitted under Section 4.1A.";
- (b) **Section 7.1(h)** - add at the end the words "other than as permitted under Section 4.1A."; and
- (c) **Section 7.1(i)** - add after the words "Section 4.7" in the third line the words "or Section 4.1A."
- (d) **Schedule 1.** - delete the definition of "Agreement" and replace with the following:

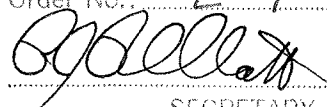
""**Agreement**" means the Original Agreement as amended by this Amendment Agreement."

6. **Schedule 1.** Add the following definitions to Schedule 1:

**"Adjusted Market Cost"** means

- (a) if Market Cost is equal to or less than 125% of Operation and Maintenance Costs and Return on Capital, 100% of Market Cost;
- (b) if Market Cost is greater than 125% but less than or equal to 150% of Operation and Maintenance Costs and Return on Capital, the aggregate of
  - (i) 100% of 125% of Operation and Maintenance Costs and Return on Capital, and
  - (ii) 50% of the difference between 125% of Operation and Maintenance Costs and Return on Capital and Market Cost;
- (c) if Market Cost is greater than 150% of Operation and Maintenance Costs and Return on Capital, the aggregate of
  - (i) 100% of 125% of Operation and Maintenance Costs and Return on Capital;

(dt961170110)

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Order No.: **E-7-96**  
  
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- (ii) 50% of the difference between 125% of Operation and Maintenance Costs and Return on Capital and 150% of Operation and Maintenance Costs and Return on Capital; and
- (iii) 10% of the difference between 150% of Operation and Maintenance Costs and Return on Capital and Market Cost.

**"Contract Year"** means the following periods:

- (a) the period from the Plant Purchase Date to and including the date for the second semi-annual payment under the Long Term Debt Financing;
- (b) the 58 subsequent one year periods commencing on the day after the period referred to in (a); and
- (c) the period from the day after the last period referred to in (b) to the end of the Term.

**"Final 30 Year Period"** means the last 30 Contract Years of the Term.

**"Initial 30 Year Period"** means the first 30 Contract Years of the Term.

**"Long Term Debt Financing"** means the 30 year bond issue by CPC/CBT in the principal amount of approximately \$96,000,000 issued to enable CPC/CBT to acquire the Brilliant Plant or to repay short term debt incurred to acquire the Brilliant Plant.

**"Market Cost"** means in respect of a Contract Year, the cost to WKP to purchase the quantity and quality of capacity and energy (delivered to WKP's transmission system) that would be necessary to replace the Entitlement or Power which is to be made available under the Agreement for such Contract Year in an arm's length open market transaction for a term that public utilities in the Pacific Northwest region of North America are, in accordance with Prudent Utility Practice at the time of determination, generally purchasing such capacity and energy.


**"Original Agreement"** shall have the meaning set out in Recital A. to this Amendment Agreement.

**"Upgrade Cost"** shall have the meaning set out in paragraph 3. of Schedule 2.

7. **Conditions.** This Amendment Agreement shall not be effective until the Original Agreement as amended by this Amendment Agreement

- (a) have been accepted for filing and approved by the British Columbia Utilities Commission; and

(dt961170110)

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- (b) have been approved by, in the case of CBT and WKP, their respective Boards of Directors, and in the case of CPC, the Chair of the Treasury Board of British Columbia.

8. **Restatement of Original Agreement.** At the request of any Party, the Parties shall cooperate and act in good faith in amending and restating the Agreement to reflect in a single document the terms and conditions set out in the Original Agreement and this Amendment Agreement.

9. **Amendment.** Except as hereby amended, the Agreement shall continue in full force and effect.

10. **Counterparts.** This Amendment Agreement may be executed and delivered personally or by facsimile in any number of counterparts, and each executed counterpart will be considered to be an original. All executed counterparts taken together will constitute this Amendment Agreement.

IN WITNESS WHEREOF the Parties hereto have executed this Amendment Agreement as of the 2nd day of May, 1996.

**COLUMBIA POWER CORPORATION**

Per:  
Authorized Signatory

**CBT POWER CORP.**

Per:


  
Authorized Signatory

  
\_\_\_\_\_

**WEST KOOTENAY POWER LTD.**

Per:  
Authorized Signatory

(d961170110)

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Per:   
Authorized Signatory


**CBT POWER CORP.**

Per:  
Authorized Signatory

**WEST KOOTENAY POWER LTD.**

Per:  
Authorized Signatory

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**COLUMBIA POWER CORPORATION**

Per:  
Authorized Signatory


**CBT POWER CORP.**

Per:  
Authorized Signatory

**WEST KOOTENAY POWER LTD.**

Per:   
Authorized Signatory

(d961170110)

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## SCHEDULE 2

### DETERMINATION OF RETURN ON CAPITAL

"Return on Capital" means, for any Contract Year, the aggregate of:

- (a) the Original Plant Capital Charge;
- (b) the Sustaining Capital Charge; and
- (c) the Upgrade Capital Charge (if any)

for such Contract Year, calculated as per the following:

#### 1. Original Plant Capital Charge

"Original Plant Capital Charge" means an annual charge (payable in two equal semi-annual amounts) in respect of the original financing costs of the acquisition of the Brilliant Plant. The Original Plant Capital Charge in each Contract Year of the Brilliant Power Purchase Agreement is to be calculated as follows:


$$\text{Original Plant Capital Charge} = \text{Original Plant Base Charge} \times (1 + \text{FE})^n$$

Where:

"Original Plant Base Charge" is an annual charge equal to 130% of the Original Plant Debt Service Charge multiplied by 2. The "Original Plant Debt Service Charge" is determined according to the following assumptions:

- (a) the all in cost of the Brilliant Plant and the Brilliant Power Purchase Agreement, ("Original Cost") which is the total of:
  - (i) the price of the Brilliant Dam (\$130,000,000);
  - (ii) the Initial Year Capex Program (\$1,900,000);
  - (iii) the acquisition and closing costs including all transfer taxes paid in connection with the sale of the Brilliant Plant, CPC/CBT's reasonable legal, financing and advisor costs and WKP's reasonable legal and advisor costs (estimated to be in aggregate \$4,700,000);
- (b) debt of \$96,000,000 (with a debt/equity ratio of approximately 70%/30%);
- (c) the Original Plant Debt Service Charge is the amount paid semi-annually on the debt calculated as one of a series of equal semi-annual blended payments of

(dt961170110)

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Order No: E-7-96  
  
SECRETARY  
E.C. UTILITIES COMMISSION

principal and interest that will repay the debt at the end of 30 years using the actual interest rate on the debt.

"FE" or "Fixed Escalator" means the fixed annual percentage increase (commencing with the third semi-annual payment under the Long Term Debt Financing), expressed in decimal format, to the annual Original Plant Base Charge which will result in an annual internal rate of return on the initial equity investment of CPC/CBT (estimated to be \$40,600,000), after servicing the debt, of 12.5% (calculated on a pre-tax semi-annual payment basis) over 60 years.

"n" means the number of completed Contract Years of the term of the Brilliant Power Purchase Agreement.

If CPC/CBT receives a net recovery on a claim against Cominco under the Brilliant Dam Sale Agreement, WKP will receive the benefit of such net recovery through an adjustment to Original Cost and the Original Plant Capital Charge.

Schedule 2A provides an example of the detailed financial calculations required to calculate the Original Plant Base Charge and the Fixed Escalator for the Original Plant Capital Charge.

## 2. Sustaining Capital Charge


"Sustaining Capital Charge" means the semi-annual charge necessary to recover the cost of Sustaining Capital expenditures and a debt and equity financing cost (including debt issue transaction costs) in the form of equal semi-annual charges over 30 years based on a rate equal to the weighted average cost of capital calculated on a 70%/30% debt to equity ratio using the long term debt interest rate available to CPC/CBT at the time of the expenditure for a 30 year loan and an annual 12.5% (on a pre-tax basis) return on equity.

The Sustaining Capital Charge will be calculated in the month following the last month of a Contract Year, based on the expenditures on Sustaining Capital during such Contract Year (including carrying costs to the end of such Contract Year), for inclusion in the Return on Capital for subsequent Contract Years.

The "interest rate available" used in the definition of Sustaining Capital Charge is to be determined using the average rate available to CPC/CBT at the time of calculation in respect of the project considering its credit rating, as estimated by two reputable Investment Banking houses.

Schedule 2B provides an example of the calculation and application of the Sustaining Capital Charge.

(dt961170110)

Accepted for filing: MAY 03 1996  
Effective: MAY 03 1996  
Order No. E-7-96  
  
SECRETARY  
B.C. UTILITIES COMMISSION

3. **Upgrade Capital Charge**

"**Upgrade Capital Charge**" means an annual charge (payable in two equal semi-annual amounts) in respect of the original financing costs of one or more Brilliant Upgrade. The Upgrade Capital Charge in each Contract Year of the Power Purchase Agreement is to be calculated as follows:

$$\text{Upgrade Capital Charge} = \text{Upgrade Base Charge} \times (1 + \text{FE})^n$$

Where:

"**Upgrade Base Charge**" is an annual charge equal to 130% of the Upgrade Debt Service Charge multiplied by 2. The "**Upgrade Debt Service Charge**" is determined according to the following assumptions:

- (a) the all in cost of one or more Brilliant Upgrade at the date of commissioning, including the indemnity costs incurred in respect thereof pursuant to Section 4.5(b) and debt issue transaction costs (the "Upgrade Cost");
- (b) debt/equity ratio of 70%/30%
- (c) the Upgrade Debt Service Charge is an amount calculated as one of a series of equal semi-annual blended payments of principal and interest that will repay the debt at the end of 30 years
- (d) actual debt interest rate incurred upon financing one or more Brilliant Upgrade,


"**FE**" or "**Fixed Escalator**" means the fixed annual percentage increase, expressed in decimal format, to the annual Upgrade Base Charge which will result in an annual internal rate of return on the initial equity investment of CPC/CBT after servicing of the debt of 12.5% (calculated on a pre-tax semi-annual payment basis) over the greater of:

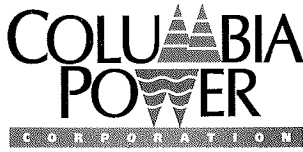
- (a) 30 years; and
- (b) the remaining number of Contract Years in the term of the Brilliant Power Purchase Agreement

"**n**" means the number of completed full Contract Years since the commissioning of one or more Brilliant Upgrade

Schedule 2C provides an example of the detailed financial calculations required to calculate both the Upgrade Base Charge and the Fixed Escalator for the Upgrade Capital Charge.

(dt961170110)

Accepted for filing: MAY 03 1996  
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SECRETARY  
P. C. UTILITIES COMMISSION



Victor Jmaeff, Vice President  
Operations & Engineering  
1125 - 4<sup>th</sup> Street  
Castlegar, BC V1N 2A8  
Tel: (250)365-8585  
Fax: (250)365-8576


Mr. Robin Siddall  
Director, Resource Planning  
and Systems  
West Kootenay Power Ltd.  
1290 Esplanade  
Trail, B.C. V1R 4T2

Dear Mr. Siddall:

*Re: Brilliant Power Purchase Second Amendment Agreement*

We are pleased to enclose for your records one executed original Brilliant Power Purchase Second Amendment Agreement, dated March 31, 2000.

Yours truly,

  
for Victor Jmaeff, P. Eng.  
Vice President  
Operations & Engineering

EP/lld/LTR WKP Signed BPPA

Enclosure: 1 Agreement

cc: E. Pietraszek, Corporate Secretary/Treasurer, CPC Victoria  
G. Lewis, Bull, Housser & Tupper

**BRILLIANT POWER PURCHASE SECOND AMENDMENT  
AGREEMENT**

**COLUMBIA POWER CORPORATION  
CBT POWER CORP.  
WEST KOOTENAY POWER LTD.**



## TABLE OF CONTENTS

<b>1. INTERPRETATION .....</b>	<b>2</b>
1.1 Definitions.....	2
<b>2. BRILLIANT UPGRADES .....</b>	<b>3</b>
2.1 Brilliant Upgrade Entitlement to be Purchased by WKP.....	3
2.2 Regulated Upgrades Entitlement to be Purchased by WKP .....	3
2.3 First Option to Cancel the Sale of the Regulated Upgrades Entitlement.....	4
2.4 Second Option to Cancel the Sale of the Regulated Upgrades Entitlement .....	4
2.5 Upgrade Cost .....	4
2.6 Upgrade Interest Rate.....	5
2.7 Upgrade Capital Charges .....	5
2.8 Use of WKP Capacity Entitlement and Flexibility Accounts by CPC/CBT .....	5
2.9 Transmission .....	7
<b>3. CONDITIONS TO EFFECTIVENESS .....</b>	<b>7</b>
3.1 General Conditions .....	7
<b>4. GENERAL.....</b>	<b>7</b>
4.1 Restatement of Brilliant Power Purchase Agreement.....	7
4.2 Amendment.....	7
4.3 Counterparts.....	7

### **SCHEDULE A BRILLIANT UPGRADES ENTITLEMENT**

### **SCHEDULE B REGULATED UPGRADES ENTITLEMENT**

### **SCHEDULE C ESTIMATE OF BRILLIANT UPGRADES ALL IN COST**

## BRILLIANT POWER PURCHASE SECOND AMENDMENT AGREEMENT

THIS AGREEMENT made as the 31st day of March, 2000.

AMONG:

**COLUMBIA POWER CORPORATION**, a corporation established under the laws of British Columbia and having an office at 3<sup>rd</sup> Floor, 844 Courtney Street, Victoria, British Columbia, V8W 9B5

("CPC")

**CBT POWER CORP.**, a corporation established under the laws of British Columbia and having an office at 102 Nelson Avenue North, Nakusp, British Columbia

("CBT")

(CPC and CBT are hereafter collectively referred to as "CPC/CBT")

AND:

**WEST KOOTENAY POWER LTD.**, a corporation established by a Special Act of the Legislature of the Province of British Columbia and having its registered office at 1290 Esplanade, Trail, British Columbia, V1R 4L4

("WKP")

WHEREAS:

- A. CPC/CBT and WKP entered into an agreement made as of April 4, 1996, as amended by an agreement made as of May 2, 1996 (collectively, the "**Brilliant Power Purchase Agreement**") pursuant to which CPC/CBT agreed to sell and WKP agreed to purchase the Entitlement or Power at such rates and under such terms and conditions as were specified therein;
- B. Under the Brilliant Power Purchase Agreement, WKP agreed to purchase Entitlement and Power resulting from any Brilliant Upgrade, subject to necessary regulatory approvals;
- C. WKP and CPC/CBT have agreed to certain matters relating to the sale by CPC/CBT to WKP of the Entitlement or Power resulting from Brilliant Upgrades and accordingly wish to amend and supplement the Brilliant Power Purchase Agreement as set forth below.

NOW THEREFORE THIS AGREEMENT WITNESSES that in consideration of the mutual covenants herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby conclusively acknowledged by each of the Parties, the Parties agree as follows:

# 1. INTERPRETATION

## 1.1 Definitions

Capitalized terms not defined herein will have the meanings set out in the Brilliant Power Purchase Agreement and:

- (a) **“Brilliant Expansion Right”** means the right to develop and operate a new dam, headworks, hydro electric powerhouse and other works and ancillary facilities on the lands near the Brilliant Dam which is described and defined in the Power Asset Sale and Development Agreement (the “PASAD”) made as of May 18, 1994 between Her Majesty the Queen in right of the Province of British Columbia (the “Province”) and Cominco Ltd., the benefit of which was assigned by the Province to CPC, and which was acquired by CPC from Cominco Ltd. pursuant to PASAD in 1994;
- (b) **“Brilliant Redevelopment Charge”** means an amount of money that represents a portion of the cost of the Brilliant Expansion Right that should, under generally accepted accounting principles, be charged to the Brilliant Upgrades as a result of the use of additional water in connection with the Brilliant Upgrades and the resulting reduction in water available to be used in connection with the Brilliant Expansion Right, as described in the letter of the Auditor General of British Columbia to CPC dated December 20, 1999;
- (c) **“Rate Schedule”** means:
  - (1) Schedule 3808 of B.C. Hydro’s published electric tariff, as amended from time to time;
  - (2) any other B.C. Hydro rate schedule which is expressly designated to supersede Schedule 3808, as amended from time to time; and
  - (3) if Schedule 3808 ceases to exist and is not superseded, a rate schedule agreed to by the Parties that reflects WKP’s least cost energy source alternative to the Regulated Upgrades Entitlement having regard to the shape and other characteristics of the Regulated Upgrades Entitlement;
- (d) **“Regulated Stream Flows”** means water flows caused by upstream regulation resulting from the implementation of and pursuant to the Columbia River Treaty; and
- (e) **“Regulated Upgrades Entitlement”** means either:
  - (1) the additional entitlement under the Entitlement Agreements attributable to the Brilliant Upgrades that results from Regulated Stream Flows (the beneficial use of which has been authorized by the Deputy Comptroller of

Water Rights), which is set out in Schedule B hereto and which has been agreed to by B.C. Hydro under the terms of the Canal Plant Agreement; or

- (2) if the Canal Plant Agreement terminates and is not replaced, the additional Energy generated from the Brilliant Upgrades that results from Regulated Stream Flows.

## **1.2 Amendment of Definitions**

The definition of "Entitlement Agreements" in Schedule 1 of the Brilliant Power Purchase Agreement is deleted and the following is substituted therefor:

"Entitlement Agreements" means the Canal Plant Agreement, the 1996 Canal Plant Sub-Agreement, the Canal Plant Benefit Extension Agreement, various technical committee decisions and operating procedures made pursuant thereto, and any agreements among or between any of B.C. Hydro, Cominco, CPC/CBT and WKP extending, amending, replacing or dealing with the same subject matter as any of the foregoing agreements.

## **2. BRILLIANT UPGRADES**

### **2.1 Brilliant Upgrade Entitlement to be Purchased by WKP**

Under the terms of the Brilliant Power Purchase Agreement and this Amending Agreement, CPC/CBT will sell and WKP will purchase and pay for, subject only to approval by the Regulator if and as required, the energy and capacity entitlement or power attributed to the Brilliant Upgrades, which is set out in Schedule A hereto and which has been agreed to by B.C. Hydro under the terms of the Canal Plant Agreement. These amounts exclude the Regulated Upgrades Entitlement.

### **2.2 Regulated Upgrades Entitlement to be Purchased by WKP**

CPC/CBT will sell and WKP will purchase, subject only to approval by the Regulator if and as required, the Regulated Upgrades Entitlement. The purchase and sale of the Regulated Upgrades Entitlement will be on the terms set out in the Brilliant Power Purchase Agreement, as amended and supplemented from time to time, except that:

- (a) the price for the Regulated Upgrades Entitlement will be the greater of \$26/MW.h and the energy charge from the Rate Schedule;
- (b) water rentals attributable to Regulated Upgrades Entitlement will not be included in Operation and Maintenance Costs;
- (c) subject to subsection (d), in any Month CPC/CBT will be deemed to have made available to WKP all of the Regulated Upgrades Entitlement attributable to that Month;

- (d) if there are outages in a Month, the Regulated Upgrades Entitlement made available to WKP will be deemed to have been reduced by an amount calculated with reference to the outage factors applicable to the Brilliant Upgrade Entitlement; and
- (e) CPC/CBT will invoice WKP for Regulated Upgrades Entitlement made available to WKP in each Month and WKP will pay in accordance with Section 10.5 of the Brilliant Power Purchase Agreement. CPC/CBT will invoice WKP by the earlier of:
  - (1) five (5) business days after receipt from WKP of the outage report for the Month (which WKP will deliver within ten (10) business days after the end of the Month); and
  - (2) fifteen (15) business days after the end of the Month.

### **2.3 First Option to Cancel the Sale of the Regulated Upgrades Entitlement**

On the date (not to be less than 90 days after the giving of the notice) set out in a written notice from CPC/CBT to WKP, which notice may be given any time prior to December 31, 2007, CPC/CBT may terminate the agreement of purchase and sale of the Regulated Upgrades Entitlement set out in Section 2.2. From and after the termination date as provided in the written notice, CPC/CBT will no longer be obliged to sell and WKP will no longer be obliged to purchase the Regulated Upgrades Entitlement, but such termination will not relieve either party from any obligations incurred up to the termination date.

### **2.4 Second Option to Cancel the Sale of the Regulated Upgrades Entitlement**

On the date (not to be less than 90 days after the giving of notice) set out in a written notice from either CPC/CBT or WKP to the other pursuant to this Section 2.4, which notice may be given any time during the Final 30 Year Period, the agreement of purchase and sale of the Regulated Upgrades Entitlement set out in Section 2.2 will be terminated. From and after the termination date as provided in the written notice, CPC/CBT will no longer be obliged to sell and WKP will no longer be obliged to purchase the Regulated Upgrades Entitlement, but such termination will not relieve either party from any obligations incurred up to the termination date.

### **2.5 Upgrade Cost**

The estimated all in cost of the Brilliant Upgrades used in the calculation of the Upgrade Capital Charge is set out in Schedule C hereto. The amount of the Brilliant Redevelopment Charge will form part of the all in cost of the Brilliant Upgrades as contemplated in Schedule C and will be determined by agreement between the Parties no later than December 31, 2000. If agreement is not reached by that date, the amount of the Brilliant Redevelopment Charge will be determined by arbitration under Part 16 of the Brilliant Power Purchase Agreement. The Brilliant Redevelopment Charge will be treated as part of the all in cost of the Brilliant Upgrades from

and after the date of commissioning of the first unit of an Expansion but not before that date and the Upgrade Capital Charge in respect thereof will be calculated as of that date.

## **2.6 Upgrade Interest Rate**

Clause (d) of the definition of “**Upgrade Debt Service Charge**” in paragraph 3 of Schedule 2 of the Brilliant Power Purchase Agreement is amended to read as follows:

- (d) the interest rate for the purposes of calculating the payments in clause (c) will be determined using the average rate available to CPC/CBT at the time of the calculation in respect of the Brilliant Upgrade considering its credit rating, as estimated by two reputable Investment Banking houses.

## **2.7 Upgrade Capital Charges**

Since the Brilliant Upgrades are planned to be commissioned over a three year period, a separate Upgrade Capital Charge will be calculated upon the commissioning of each Brilliant Upgrade based on all capital costs incurred to that date on the Brilliant Upgrades and not included in a prior Upgrade Capital Charge. A fifth Upgrade Capital Charge will be calculated in respect of the Brilliant Redevelopment Charge as of the date of the commissioning of the first unit of an Expansion.

## **2.8 Use of WKP Capacity Entitlement and Flexibility Accounts by CPC/CBT**

- (a) If WKP is not purchasing the Regulated Upgrades Entitlement and if WKP is not using for any purpose the full capacity portion of the Entitlement available to it under this Amending Agreement (i.e. 20 MW), CPC/CBT will be entitled to use, and WKP will make available to CPC/CBT, on an hourly basis, such unused capacity portion of the Entitlement at no cost, subject to the following:
  - (1) WKP will use all other capacity portions of the entitlements available to it under the Entitlement Agreements before using the capacity portion of the Entitlement available to it under this Amending Agreement;
  - (2) if WKP has provided to CPC/CBT, pursuant to operating and accounting procedures agreed pursuant to subsection (e), a next day forecast indicating that some or all of the capacity portion of the Entitlement available to WKP under this Amending Agreement will not be used, WKP will not use that unused capacity on that forecast day unless failing to use it would result in a non-trivial cost to WKP; and
  - (3) subject to clauses (1) and (2), the decision to use the capacity portion of the Entitlement available to WKP under this Amending Agreement is in the sole discretion of WKP and may be made without regard to any request or requirement of CPC/CBT.

- (b) In addition to the capacity to be made available under subsection (a), if at any time before December 31, 2007 WKP is not using any other capacity portion of the entitlement available to it under the Entitlement Agreements (other than the capacity portion of the entitlement available to it under the Residual Supply Agreement between Cominco and WKP), CPC/CBT will be entitled to use, and WKP will make available to CPC/CBT on an hourly basis, such unused capacity portion of the Entitlement at no cost for the purpose of assisting CPC/CBT in selling or exporting Regulated Upgrades Entitlement subject to the following:
  - (1) if WKP has provided to CPC/CBT, pursuant to operating and accounting procedures agreed pursuant to subsection (e), a next day forecast indicating that some or all of such capacity portion of the entitlement available to WKP will not be used, WKP will not use that unused capacity on that forecast day unless failing to use it would result in a non-trivial cost to WKP; and
  - (2) subject to clause (1), the decision to use such capacity portion of the entitlement available to WKP is in the sole discretion of WKP and may be made without regard to any request or requirement of CPC/CBT.
- (c) In this Section 2.8, the words “use”, “using”, and other forms of those words mean, in reference to WKP, WKP’s own use, including necessary reserves, as well as use by third parties pursuant to sales and other agreements between WKP and such third parties.
- (d) For the purpose of selling or exporting the Regulated Upgrades Entitlement, CPC/CBT will have access to any unused portion of the total Flexibility Accounts (24.5 Gw.h) to which WKP is entitled, including Flexibility Accounts assigned to it under the Brilliant Power Purchase Agreement and this Amending Agreement. In the event of a competing request and for the purpose of prorating unused Flexibility Accounts between Cominco and CPC/CBT, WKP will agree to CPC/CBT utilising the Brilliant share of the account for the pro-rata determination.
- (e) The Parties will agree on operating and accounting procedures as necessary to implement this Section and will cooperate in the exchange of reasonably required planning and operating information. If, as a consequence of WKP having to schedule the export of Regulated Upgrades Entitlement for CPC/CBT, WKP incurs incremental administrative costs, WKP reserves the right to charge CPC/CBT for that service.
- (f) CPC/CBT and WKP will negotiate in good faith to arrive at a mutually satisfactory agreement under which, in the period after December 31, 2007, WKP will make the unused capacity portion of the entitlement referred to in subsection (b) available to CPC/CBT on an hourly basis, at no cost, for the purpose of selling or exporting the Regulated Upgrades Entitlement.

- (g) Notwithstanding clause 19.9(a)(i) of the Brilliant Power Purchase Agreement, the consent of WKP to an assignment of the rights of CPC/GBT under subsections (b) and (d) may be unreasonably withheld. If CPC/GBT requests an assignment of its rights under subsection (d) and WKP withholds consent, WKP and CPC/GBT will negotiate in good faith a mutually satisfactory alternate arrangement to facilitate the transaction proposed by CPC/GBT in respect of which CPC/GBT had requested such consent to assignment.

## **2.9 Transmission**

WKP agrees that Section 5.3 of the Transmission Asset Transfer Agreement will apply with respect to any Brilliant Upgrades entitlement (regulated or unregulated) not purchased by WKP from time to time.

## **3. CONDITIONS TO EFFECTIVENESS**

### **3.1 General Conditions**

This Second Amendment Agreement will not be effective until it has been:

- (a) accepted for filing and approved by the Regulator, if required; and
- (b) unconditionally approved by, in the case of GBT, its Board of Directors, and in the case of CPC, the Chair of the Treasury Board of British Columbia.

## **4. GENERAL**

### **4.1 Restatement of Brilliant Power Purchase Agreement**

At the request of any Party, the Parties will cooperate and act in good faith in amending and restating the Brilliant Power Purchase Agreement to reflect in a single document the terms and conditions set out in the Brilliant Power Purchase Agreement and this Second Amendment Agreement.

### **4.2 Amendment**

Except as hereby amended and supplemented, the Brilliant Power Purchase Agreement will continue in full force and effect.

### **4.3 Counterparts**

This Second Amendment Agreement may be executed and delivered personally or by facsimile, and each executed counterpart will be considered to be an original. All executed counterparts taken together will constitute this Second Amendment Agreement.

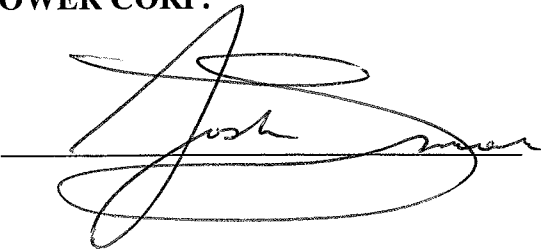
IN WITNESS WHEREOF the Parties have executed this Second Amendment Agreement as of the day and year first above written.



**COLUMBIA POWER CORPORATION**


Per: 

**CBT POWER CORP.**

Per: 

Per: \_\_\_\_\_

**WEST KOOTENAY POWER LTD.**

Per: 

## **SCHEDULE A**

### **BRILLIANT UPGRADES ENTITLEMENT**

for four unit Brilliant Upgrade assuming 1477' forebay operation  
Excludes Regulated Upgrades Entitlement

	Energy (GW.h)	Capacity (MW)
August	11.1	20.1
September	3.2	19.7
October	2.9	19.7
November	2.6	20.1
December	2.8	20.0
January	3.0	19.8
February	1.9	19.9
March	2.2	19.8
April	9.0	20.1
May	7.5	19.8
June	10.7	19.5
July	8.2	19.8
<b>TOTAL</b>	<b>65.1</b>	

These figures are subject to Maximum Output Tests upon commissioning of each Upgrade and are subject to redetermination pursuant to the provisions of the Entitlement Agreements.

## **SCHEDULE B**

### **REGULATED UPGRADES ENTITLEMENT**

for four unit Brilliant Upgrade, assuming 1477' forebay operation

	Energy (GW.h)
August	3.1
September	-1.4
October	0.2
November	10.8
December	11.1
January	6.9
February	6.6
March	4.6
April	3.2
May	6.6
June	2.7
July	5.8
<b>TOTAL</b>	<b>60.2</b>

These figures are subject to Maximum Output Tests upon commissioning of each Upgrade and are subject to redetermination pursuant to the provisions of the Entitlement Agreements.

WKP will make use of the flexibility accounts as required to convert negative entitlements for any month into non-negative entitlements.

## SCHEDULE C

### ESTIMATE OF BRILLIANT UPGRADES ALL IN COST

(All figures nominal thousand \$'s)

	Unit 2	Unit 1	Unit 3	Unit 4	Total
Mechanical Equipment	2,843	1,772	1,641	1,711	7,967
Electrical Equipment	30	31	31	31	123
Site Work	162	142	142	144	590
Capital Contingency	158	150	147	146	601
<b>TOTAL DIRECT COSTS</b>	<b>3,193</b>	<b>2,095</b>	<b>1,961</b>	<b>2,032</b>	<b>9,281</b>
Owners Costs	1,768	365	252	305	2,690
WKP Costs	274	97	97	98	566
Engineering	120	102	102	103	427
Permitting	392	153	102	103	750
Debt Issue Costs	-	102	-	102	204
Outage Costs	1,631	296	296	371	2,594
Environmental Contingency	-	-	153	-	153
Outage Contingency	40	703	1,614	751	3,108
<b>TOTAL OTHER COSTS</b>	<b>4,225</b>	<b>1,818</b>	<b>2,616</b>	<b>1,833</b>	<b>10,492</b>
<b>TOTAL ALL IN COST</b>	<b>7,418</b>	<b>3,913</b>	<b>4,577</b>	<b>3,865</b>	<b>19,773</b>

- Owner's Cost include legal, project management, overhead, capitalized interest and misc. consulting.
- Brilliant Redevelopment Charge to be determined in accordance with Section 2.5 and added to the Brilliant Upgrade all in cost.
- Some environmental costs may be incurred after the commissioning of the last unit and will be included as a Sustaining Capital expenditure.
- Debt issue costs are dependent upon capital costs.
- Outage Costs for Unit 2 reflect current market conditions. Outage costs for remaining units may vary significantly.



**Attachment 14A**

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# Back TO Basics

## An overview of fixed income products and new trends.



Ask some Canadian plan sponsors about the value that bonds add to a pension portfolio and you might get the following response: “Bond man-

agers don’t add much value, so there’s not much to be gained by paying attention to that part of our portfolio. Besides, I glaze over with all the technical detail of bonds. The fixed income allocation of my investment portfolio is there to hedge liabilities anyway, so we are better off focusing on alternative investments and equities to add value.”

But this is wrong. It is true that many top-quartile domestic bond managers add only about 30 basis points (bps) over their benchmarks, leaving even less net of fees. However, they leave money on the table because they ignore opportunities to add value through more innovative fixed income strategies. Foreign pension plans have long recognized the value of accessing global bonds and credit strategies on a tactical basis, reaping alpha rewards well over 100 bps versus domestic benchmarks with a similar risk profile. Fees may be slightly higher for some of these strategies, but a net addition of 70 bps for a \$500 million-dollar fixed income portfolio adds up to \$3.5 million every year. This extra return potential is well worth the investment of some time and effort to learn more about the opportunities and understand the risks.

The fixed income world is indeed technical, and many sectors require specialized expertise to find profitable trading and investment opportunities and to skillfully monitor and manage risk. Plan sponsors have much to gain from becoming educated consumers of this sector and investi-

BY MARLENE K. PUFFER

gating new strategies to add value in this significant portion of their portfolio. To help them along the way, this section of the Fixed Income Primer will outline the latest trends and topics in domestic bonds and some of the more complex foreign fixed income securities.

### KEY TERMS

**Government of Canada Bonds** – The government regularly issues money market, 2- 5- 10- and 30-year bonds in the public market through an auction process. Fiscal surpluses have eliminated the need for net new financing, but maintaining a liquid government market across the yield curve is important for financial market health and future market access. To support the size and liquidity of new benchmark issues, the government began buying back less liquid bonds by reverse auction. The Government of Canada is currently reviewing how they will issue bonds and continue to maintain a liquid bond and money market.

**Federal Agency Bonds** – In Canada, these are bonds issued by agencies and they are fully guaranteed by the Government of Canada. Examples are Canada Mortgage and Housing Corporation (CMHC), Farm Credit Corporation, and Export Development Corporation. Despite the full guarantee, these bonds have higher yields than Canadas, so the government is considering rolling these debt programs into general funding.

Canada Mortgage Bonds (CMB) are a new category of Federal Agency bonds and make up the bulk of this issuance. The CMB program began in 2001 and consists of five-year bonds issued by the Canada Mortgage Trust,

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Marlene K. Puffer is managing director, Twist Financial Corp.

which holds residential mortgages issued by banks and other financial institutions as backing assets. These bonds are fully guaranteed by the Government of Canada and, from an investor perspective, are large semi-annual coupon bonds with no prepayment risk (that risk is retained by the originating banks). They yield about 13 bps higher than Government of Canada bonds for the same AAA credit quality and similar liquidity. This market has limited the issuance of other prepayable mortgage-backed securities in Canada. Overweighting these bonds is an easy, low-risk way to add value.

**Provincial Bonds and Guarantees** – The biggest provincial issuers are Ontario and Quebec, which make up nearly 70% of the provincial market, and are the only issuers with significant issuance of long-term bonds. There is some disagreement about how “quasi-provincial” issuers without guarantees, such as school boards, should be classified for Index purposes. Provincial spreads are tight and relatively stable, driven primarily by overall credit market fundamentals and liquidity, with minimal differentiation by province, particularly since political risk in Quebec has subsided. Active strategies within provincials have limited value added capacity.

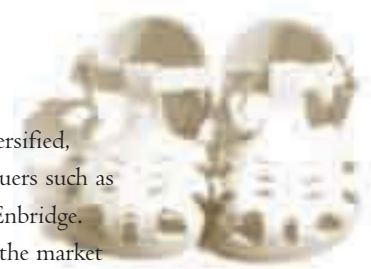
**Municipal Bonds** – Municipal bonds (munis) are under 2% of the Index in Canada. Many municipalities now combine forces and issue debt through trusts for cheaper funding with greater liquidity. The B.C. municipal finance authority has a higher rating than the province, while others are guaranteed by their province to improve their ratings.

Many munis are issued as serial bonds, whereby a series of maturities, each with a small amount outstanding, are issued simultaneously. The small individual issue size limits liquidity and usually excludes these from bond indexes. Yield spreads on munis are correlated with provincial spreads, and opportunities for active strategies are limited.

**Corporate Bonds** – In Canada, corporate bonds have grown from about 10% of the market in 1990 to nearly 30% as government issuance has shrunk and investors have become more receptive to corporate credit to add yield to their portfolios. Diversification in this sector is still poor, with financials representing a full 48% of the market, made up of only a handful of bank and insurance issuers along with a few financing

companies. The long end is also poorly diversified, dominated by a few major non-financial issuers such as Trans Canada Pipelines, GTAA, Bell, and Enbridge.

The BBB sector has expanded to 4% of the market (mainly under 10 years), but is still small in Canada.



## FIXED INCOME FUNDAMENTALS AND STRATEGIES

### Price/yield relationship

As yields, or interest rates, rise, the price of a bond falls. For a simple pure discount bond, this formula shows the relationship between price and yield.

$$\text{Price} = \frac{\text{Face Value}}{(1 + \text{yield})^T}$$

### Yield curve

The relationship between Government of Canada bond yields and maturity. The yield curve is usually upward sloping, so rates are generally higher for longer maturity bonds. This makes the “carry trade” possible, where investors can borrow short-term and invest long-term and make a profit as long as rates don’t rise too much.

In Canada the difference between 2-year and 30-year rates has averaged about 150 bps (or 1.5%) over the past 10 years. This is currently only a few bps, and so the curve is flat. An “inverted” yield curve means short rates are higher than long rates, which usually signals a recession and does not last very long.

### Duration

Sensitivity (% change) of a bond’s price to changes in yield. A bond with nine years to maturity has a duration of about 6.4 years (which is the Canadian Index duration). When rates rise by 1%, the bond’s price will fall by 6%. Longer duration bonds outperform as rates fall. Duration can also be defined as a weighted average time until cash flows are received. Duration measures sensitivity to parallel yield curve movements.

Longer-term bonds have longer duration. For the same maturity, lower coupons mean longer duration. This is illustrated in Chart 1, on page 25. For strips, duration and term to maturity are the same. For callable bonds, “option-adjusted” duration is the relevant measure, which accounts for changes in the value of the option to call the bond when rates move in various ways.

### Yield curve steepener/flattener

A steepener is a trade that pays off if the yield curve steepens. It can involve selling, or underweighting, long-term bonds and buying, or overweighting, short-term bonds. This trade is usually implemented duration neutral so that it

pays off as long as the curve steepens, no matter what happens to the level of interest rates. A bullet usually has a steepening bias.

A flattener pays off if the yield curve flattens, i.e. if short rates rise relative to long rates, or if long yields fall more than short-term rates. Sell short bonds, buy long bonds to implement.

A barbell usually has a flattening bias, but can be a negative carry trade (one that gives up running yield) when the yield curve is very steep. If managers are wrong about the timing of a flatter curve, and have to wait too long, they can underperform even if their view is correct.

### Bullet/barbell

A bulleted portfolio is overweight the belly (mid-term 5- to 10-year maturities) vs. the benchmark, and underweight the wings (short and long maturities). This portfolio generally outperforms if the curve steepens (short rates fall and long rates rise, or both rise but the short end goes up less etc.).

A barbelled portfolio is overweight the wings, and underweight the belly. This generally outperforms if the yield curve flattens, but depends on the specific holdings in the short end and the exact change in the curve shape.

### Credit spread

The difference between the yield on a non-Government of Canada bond and a Government of Canada bond with similar term to maturity or duration. The decision to invest in provincials or corporates is driven by the view of whether spreads are expected to tighten or widen.

When credit spreads widen, corporate bond yields go up relative to Canadas, so corporates underperform government bonds. When credit spreads tighten, corporates outperform governments.

### Sector allocation

The decision to over or underweight specific sectors (such as Provincials, Corporates) vs. the benchmark.

If managers believe corporate bonds will outperform, so corporate spreads will tighten, they will overweight corporate bonds vs. the benchmark, and/or select corporate bonds with longer duration (which will have greater sensitivity to spread movement) than the benchmark.



Canadian pension plans are increasingly allowing BBB-rated bonds since corporate credit analysis by money managers has improved. This trend has contributed to tight credit spreads in all global markets.

Many managers follow a simple strategy of overweighting short-term corporate securities since spread volatility in that sector is relatively limited and investment-grade default rates are very low. But this strategy can backfire in severe credit environments, as was the case in 2001.

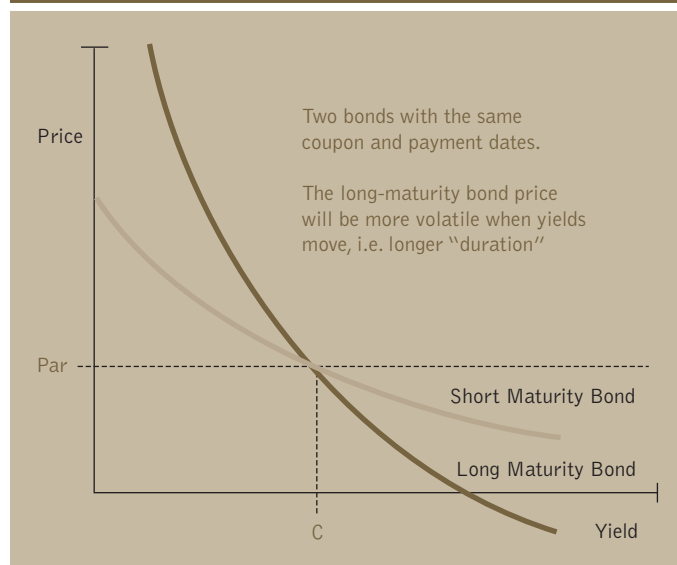
**Maple Bonds** – Maples are foreign (corporate or sovereign) bonds issued in the Canadian market, in Canadian dollars. Approximately half of new corporate issuance in Canada in 2006 has been Maple bonds, a major trend since the removal of the Foreign Property Rule. These bonds eliminate foreign interest rate and currency risk and offer some credit diversification versus domestic issuers. So far, however, high-quality financial issuers dominate Maples. Manager understanding and monitoring of foreign credit risk are essential despite the fact that most of these issuers are highly rated. Secondary market liquidity can be a concern since only the lead dealer supports some deals, with little or no syndicate participation. Other concerns include extra custodial fees for bonds not settled by Canadian Depository Services (CDS), and legal structure since many deals are private placements and investors are subject to a foreign jurisdiction in the event of default.

**Foreign Investment Grade Credit** – Foreign currency and interest rate risk, but this sector offers much better diversification. Manager expertise in credit and derivatives markets is important, and some players can effectively translate their domestic experience into foreign markets. One surmountable barrier to managing currency and interest rate risk through asset swaps or other strategies, is that pension plans must implement a derivatives policy and International Swaps and Derivatives Association (ISDA) agreements.

**High Yield** – The junk bond market started in the 1980's and has evolved into a large, liquid marketplace with over 1600 issues and nearly \$600 billion outstanding in the U.S. alone. That is about the same size as the entire Canadian bond market. Typical U.S. pension plan allocations remain modest, with hedge funds being the most active players. Some Canadian plans are strategically active in the speculative market. The best

## A Closer Look at Duration

## CHART 1



risk and reward tends to be in the BB-rated sector.

**Mortgage-backed Securities (MBS)** – These are pools of mortgages whose payments are securitized in a trust structure and passed through to bond investors. They usually have monthly coupons and most have prepayment risk. The AAA rating comes from guarantees by CMHC in Canada (i.e. the Federal Government) or Ginnie Mae or Fannie Mae in the U.S. (private agencies, not government-guaranteed). The U.S. MBS market is 20% of the global bond market and is bigger than U.S. Treasuries, so U.S. MBS are highly liquid. The behaviour of this market and hedging by major mortgage players is well recognized as a driver of bond market movements, but specialized expertise is required to successfully invest in MBS on a tactical basis.

Prepayable MBS effectively allow managers to bet on interest rate volatility, which is the main driver of relative value in this market and is a diversifying exposure for Canadian bond portfolios. This market can be an excellent substitute for expensive Canadian corporate bonds, with comparable yields for higher-quality credit. However, it may not be attractive in some environments once currency hedging is taken into account.

**Credit Default Swaps (CDS)** – CDS are like an insurance policy where the buyer of default protection pays a premium, and receives a specified notional value in the event of default of the reference asset (usually corporate bonds or loans). Alan White's article on page 37 provides a detailed

description. These liquid contracts isolate credit or spread risk, with no interest rate risk. Currency risk is minimal, or can be eliminated cheaply if CDS is denominated in Canadian dollars. In Canada, relatively few large Canadian names are actively traded, with the majority of trades being in global ones. The benefit of this sector for Canadian portfolios comes from the diversification, liquidity, and the pure credit play with limited currency exposure.

**Structured Finance** – This category includes asset-backed securities (ABS), commercial mortgage-backed securities (CMBS), and collateralized debt obligations (CDOs). Portfolios of fixed income assets, pooled in a trust structure, are tranching into pieces (senior, mezzanine, and equity which bears the first to default risk), with varying levels of protection from default of the underlying assets. Some structures have enhancements to improve credit ratings, such as overcollateralization. Each tranche is rated AAA and below. Underlying assets may include credit card or loan receivables (ABS), commercial mortgages (CMBS, where mortgages are not federally guaranteed), bonds (CBOs), loans (CLSs), and/or credit default swaps (synthetic CDOs), and other assets, ABS, and CDOs made of CDOs (CDO-squared). ABS are the simplest structures, but other structured finance investments require specific expertise, especially when investing in lower-rated tranches.

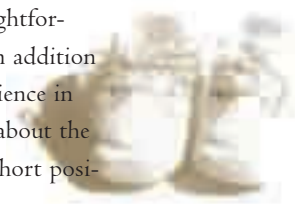
Structured finance markets are growing in Canada and globally. Investors must carefully assess the risk and diversification of underlying assets. Ratings depend on quantitative modelling and simplifying assumptions. The CDO market was tested in 2000 and 2001 with high yield bond defaults, and structures were strengthened, but model risk remains relatively untested.

#### **Global Government Bonds and Related Derivatives –**

Duration and yield curve strategies can be expanded into global government markets by domestic or global managers. Limiting managers to a long-only approach restricts relative value strategies to those where the foreign market is expected to outperform Canada. Allowing short positions boosts potential returns without necessarily increasing risk. Derivatives such as futures and swaps can also be used to implement these strategies, freeing up cash for other value added strategies, such as enhanced money market (a relatively low-risk, yield-enhancing strategy investing in very short-term credit, or extending to six to 18 month maturities to take advantage of an

upward-sloping yield curve).

Implementation of these strategies is straightforward and can be done well by small teams. In addition to evaluating a manager's expertise and experience in these markets, plan sponsors should inquire about the manager's tools for monitoring the risks of short positions or derivatives.



**Emerging Markets** – This sector includes most markets outside the G10 countries. The credit quality of many issuers has improved dramatically in the past few years as major issuers like Russia and Mexico and others are now investment grade. Contagion among markets has also decreased, which enhances diversification benefits. Corporate issuance is expanding rapidly as government supply dwindles. Most bonds are traded in U.S. dollars, but increasing issuance of local currency debt raises the spectre of managing the currency risk, which may be difficult in some markets. Spreads in emerging market debt have tightened in recent years along with all credit markets, but opportunities remain due to improving credit quality.

**Strips** – Bonds can be stripped into coupons and residuals (the par amount due at maturity). Each piece is then traded as a separate security. The strips can be reconstituted into bonds at any time. As long as a coupon has the same date (e.g. June 1st), it can be used to reconstitute any bond from the same issuer with that same coupon date. A strip has much more interest rate risk (longer duration) than a bond of similar maturity. Convexity risk, or sensitivity to the shape of the curve, differs from bonds. In Canada, only a handful (10 or so out of nearly 600 securities) of strips trade actively. The remaining ones tend to be purchased and held long-term to directly hedge liabilities.

**Inflation-linked bonds** – Linkers, or real return bonds, have a coupon and principal that increase with inflation and earn a real yield that protects purchasing power. Prices of inflation-linked bonds reflect investor opinions about the direction and magnitude of inflation, but in Canada's small, illiquid market, the relative value is also subject to severe market demand forces. The Canadian market is limited to only four Government of Canada issues, all in the long end, and a few provincials. That is small compared to the U.S. and the U.K., where these bonds are issued with a wide range of maturities and trade more actively. ■

**Attachment 14B**

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Original Approval Date: January 29, 2010

Most Recent Approval Date: June 21, 2013

Last Edited: June 21, 2013

## University Funds Investment Policy

<b>Office of Accountability:</b>	Vice President (Finance & Administration)
<b>Office of Administrative Responsibility:</b>	Financial Services
<b>Approver:</b>	Board of Governors
<b>Scope:</b>	Compliance with University policy extends to all members of the University community.

### Purpose

The purpose of this investment policy is to establish a distinct **asset allocation** and **risk tolerances** for each of the University funds according to the individual fund's spending obligations, objectives, and liquidity requirements.

### POLICY

Summary:

[DESCRIPTION OF UNIVERSITY FUNDS](#)

[UNITIZED ENDOWMENT POOL \(UEP\)](#)

[MISSION OF THE UEP](#)

[INVESTMENT OBJECTIVES OF THE UEP](#)

[OTHER ENDOWMENTS](#)

[NON-ENDOWED INVESTMENT POOL \(NEIP\)](#)

[GENERAL](#)

#### 1.0 DESCRIPTION OF UNIVERSITY FUNDS

##### 1.1 Unitized Endowment Pool (UEP)

The UEP consists of the University's endowed trust funds or other funds of a permanent or long-term nature. In addition, external funds may be invested in the UEP including funds of affiliated organizations and funds where the University is a beneficiary.

##### 1.2 Other Endowments

Other endowments consist of endowed trust funds, which cannot be pooled for investment purposes because of constraints or conditions attached to the funds.

##### 1.3 Non-Endowed Investment Pool (NEIP)

The NEIP consists of expendable funds, which are pooled for investment purposes until the funds are required for expenditure. For cash flow management purposes the Short-Term Funds portion of the NEIP may include UEP funds.

#### 1.4 Other Non-Endowed Funds

Other non-endowed funds consist of restricted non-endowed donations and the funds earmarked for the Academic Supplementary Retirement Plan, which cannot be pooled for investment purposes because of constraints or conditions attached to the funds.

#### 1.5 Equity Investments in Technology Transfer

The University has accepted equity positions as a form of compensation for licensing a University created technology to a company. Through this activity the University has developed a portfolio of equity investments in both publicly and privately held companies. To facilitate the ongoing development of such companies the University may invest in venture capital limited partnerships. Governance responsibilities for these investments fall outside the Terms of Reference for the Board Investment Committee.

[Return to Summary](#)

### 2.0 UNITIZED ENDOWMENT POOL (UEP)

#### 2.1 General Description and Governance

The UEP represents the pooling of invested assets accumulated by or donated to the University for endowment purposes. The Province of Alberta's Post-Secondary Learning Act, Statutes of Alberta, 2003, Chapter P-19.5, Sections 75 and 76, provides The Governors of the University of Alberta with broad investment powers, the authority to pool funds and the authority to distribute income, subject to the terms of a trust on which it may be held.

The Board of Governors has delegated most investment governance responsibilities to the Board Investment Committee as documented in the Board Investment Committee's Terms of Reference. The Board of Governors has retained responsibility for the following matters (as outlined in this document):

- Approval of the investment policy for the University,
- Approval of the University's endowment objectives and spending policy, and
- Establishment of broad investment risk tolerances within which the University should operate.

The Investment Policy is subject to an annual review by the Board Investment Committee and any recommended changes require approval by the Board of Governors. Management's investment decisions are subject to the overall policy direction of the Board Investment Committee as reflected in this policy.

#### 2.2 Nature of UEP Liabilities (Spending Policy)

The UEP provides funding to the faculties and departments of the University to be used for endowed purposes in accordance with the terms of each endowment or trust. The objective is an inflation indexed spending allocation, subject to certain conditions as outlined in the Unitized Endowment Pool Spending Policy. This policy may be amended from time to time by the Board of Governors to ensure that the **real** value of the endowments (i.e., net of inflation) is maintained.

[Return to Summary](#)

### 3.0 MISSION OF THE UEP

The purpose of the UEP is to support current and future operations of the University in perpetuity.

The endowment has a two-fold mission:

- Foster an environment of academic excellence where superior teaching, learning and research can be pursued, and

Enable the University to achieve and maintain an enhanced level of financial strength and independence in its operations over the long run.

[Return to Summary](#)

### 4.0 INVESTMENT OBJECTIVES OF THE UEP

#### 4.1 Return and Risk Tolerance

The objective of the UEP is to achieve a long-term **rate of return** that in real terms shall equal or exceed the rate of spending established in the UEP spending policy.

The principle of intergenerational equity requires that the UEP be managed to provide the same level of support to future generations as current beneficiaries receive. This means that the value of the UEP should be preserved over time in real terms in order to maintain the future purchasing power of assets. In setting the spending and investment policies for the UEP, the focus should be not just to preserve but to grow the real value of assets over time, while maintaining a strong and stable level of support to the current operations of the University.

Assets will be allocated across four strategic classifications that are based on the role of the underlying assets in the portfolio, which include **Growth, Deflation Hedging, Inflation Sensitive, and Diversifiers**. In order to achieve these goals, the UEP will have to maintain a heavy weighting in Growth assets and less liquid investment strategies. This is based on projected capital market assumptions which indicate that over long periods of time, these assets can be expected to provide returns that exceed the inflation adjusted rate of spending. Deflation Hedging strategies consist largely of government fixed income securities which are expected to provide protection in times of market stress, and support spending in a prolonged deflationary period. Conversely, Inflation Sensitive assets are expected to protect the fund from high or unanticipated inflation, while Diversifiers will consist of strategies that are expected to be uncorrelated with the other three classifications.

There are many types of **risk** that will affect the UEP's ability to achieve its return goal. The most important of which are investment related risks which may prevent the UEP from maintaining its real value over the long-term. The expected standard deviation of returns for the UEP's asset allocation is 11.7%. Given the long-term return expectations, this means that in 7 out of 10 years the UEP can be expected to earn a real return between 18.2% and -5.2%.

With respect to losses, **Value at Risk** and **Expected Tail Loss Risk** are also calculated for the portfolio and will be monitored. Intergenerational equity requires a balance between current and future spending. An asset allocation that produces returns well in excess of spending, will transfer a greater benefit to future generations at the expense of the current beneficiaries. The probability that the endowment will maintain its real value after spending over the long term will be monitored.

#### 4.2 Asset Allocation

The long-term asset allocation will be determined by the following four factors:

- Long-term return, volatility, and correlation expectations for individual asset classes
- Diversification across asset classes and investment strategies
- Objective of a real rate of return that equals or exceeds the total rate of spending
- Projected liquidity requirements of the UEP

The infinite time horizon of the UEP allows for the adoption of a long-term asset allocation policy with a high allocation to Growth assets along the following parameters.

<b>Long-Term Asset Mix</b>			
	<u>Minimum</u>	<u>Target</u>	<u>Maximum</u>
Growth	55%	59%	70%
Inflation Sensitive	5%	20%	25%
Deflation Hedging	10%	16%	20%
Diversifiers	0%	5%	10%
Total		<u>100%</u>	

All investments will be undertaken with a view toward maintaining or enhancing the real value of the assets while meeting the current spending allocation.

The Board Investment Committee shall review investment mandates and investment managers selected for the management of the portfolio. Funds will normally be allocated to external managers, or, when determined to be advantageous, may be allocated to internal management.

Each investment manager shall adhere to this policy and must exercise the care, skill, diligence and judgment that a prudent investor would exercise in making investments. Investment managers are expected to be in compliance with all applicable laws and regulations as well as the Code of Ethics and Standards of Professional Conduct established by the CFA Institute.

To achieve diversification the UEP will invest in the following asset classes subject to indicated limits based on total market value.

<b>Growth</b>			
	Minimum	Target	Maximum
<i>Long-Only Equity</i>			
Canadian Equity	10%	13%	20%
Global Equity	25%	30%	35%
Emerging Markets Equity	0%	10%	15%
<i>Equity Hedge Funds</i>	0%	0%	10%
<i>Private Equity</i>	0%	6%	10%
		<u>59%</u>	
<b>Inflation-Sensitive</b>			
<i>Real Assets</i>			
Real Estate & Infrastructure	0%	5%	10%
Natural Resource Equity	0%	5%	10%
Commodities	0%	5%	10%
Oil & Gas	0%	5%	10%
Real Return Bonds	0%	0%	10%
		<u>20%</u>	
<b>Deflation Hedging</b>			
<i>Fixed Income</i>			
Canadian Government Bonds	10%	16%	20%
		<u>16%</u>	
<b>Diversifiers</b>			
<i>Marketable Alternatives</i>			
Absolute Return	0%	5%	10%
Cash	-5%	0%	5%
		<u>5%</u>	

### 4.3 Categories and Subcategories of Investments Restrictions and Quality Levels

Investments that are permitted shall be classified within the following general categories and restrictions and quality levels apply within the context of overall fund objectives and the asset allocation policy described above.

#### 4.3.1 Money Market Securities

For cash flow management purposes a portion of the UEP is invested in the Short-Term Funds portion of the NEIP and managed according to section 6.1.1 and 6.2.1 of this policy as applicable.

#### 4.3.2 Growth

Growth assets include marketable equity securities that trade on a recognized exchange, directional long/short equity hedge funds, and credit based long only fixed income strategies. Private investments include mezzanine debt, distressed debt, private equity, and venture capital.

#### 4.3.3 Inflation Sensitive

Inflation sensitive assets include inflation linked bonds, real estate, infrastructure, timberland, farmland, natural resource public equities, commodities, and private oil and gas.



#### 4.3.4 Deflation Hedging

Deflation hedging assets include high quality government and investment grade corporate fixed income securities.

#### 4.3.5 Diversifiers

Diversifiers include cash, active currency management, managed futures, and hedge fund strategies including but not limited to low beta long/short equity, market neutral, event driven, merger arbitrage, and global macro.

#### 4.4 Use of Derivatives

**Derivatives** may be used for gaining market exposure, hedging, and risk management including the hedging of foreign currency exposure. Derivative products will not be used to leverage the UEP and will be fully collateralized by cash or cash equivalents. The use of derivative instruments by external managers to leverage the portfolio will be regulated by their approved mandates.

#### 4.5 Rate of Return Goals

In order of priority, it is expected that the UEP will over any 4-year rolling period:

Firstly, achieve an annualized rate of return, before fees, of at least 5.25% above the Canadian **Consumer Price Index (CPI)** (all items).

Secondly, achieve an annualized rate of return, in excess of the following composite benchmark of standard market indices. The current benchmark will be modified towards the target benchmark as the asset allocation contemplated by this policy is implemented.

Current Benchmark	
DEX Bond Universe	20%
S&P/TSX Composite	20%
MSCI World (ex Canada in local currency)	23%
MSCI World (ex Canada in Cad)	23%
Absolute Return (HFRI Fund of Funds Composite Index)	8%
Real Estate (IPD/Realpac Canada Annual Property Index)	6%
	<u>100%</u>

Target Benchmark	
DEX Bond Universe	16%
S&P/TSX Composite	13%
MSCI ACWI (ex Canada in local currency)	20%
MSCI ACWI (ex Canada in Cad)	20%
Marketable Alternatives (HFRI Fund of Funds Composite Index)	5%
Private Equity (Cambridge Associates Private Equity Index)	6%
Real Estate (IPD/Realpac Canada Annual Property Index)	5%
Commodity Index (TBD)	5%
Natural Resource Equity Index (TBD)	5%
Private Oil and Gas Index (TBD)	5%
	<u>100%</u>

Thirdly, achieve an above median return in comparison to other endowment funds with similar asset allocation and return objectives.

[Return to Summary](#)

## 5.0 OTHER ENDOWMENTS

The assets of the Other Endowments shall be invested with the same goals, restrictions and quality levels as described above, subject to any stipulation required by contractual agreement, or by condition of the estate, or administrative arrangement.

[Return to Summary](#)

## 6.0 NON-ENDOWED INVESTMENT POOL (NEIP)

### 6.1 Investment Policy and Risk Tolerance (Internally Managed Investments)

The purpose of the NEIP is to pool for investment purposes capital that is predominately short-term in nature. Trend-line growth of the capital base has created a substantial core balance that will likely be sustained on an on-going basis. Therefore, a maturity profile that is greater than what would be expected for funds with a short-term investment horizon is appropriate for a significant portion of the fund.

#### 6.1.1 Short-Term Funds

Analysis indicates that maintaining a minimum of 33% of the peak NEIP balance, each year as at September 30th, in money market securities, is sufficient to meet the University's cash flow requirements. The primary objective for money market securities is liquidity and preservation of capital.

Money market securities include: cash on hand both domestic and foreign; Government of Canada treasury bills, notes, debentures and any obligations unconditionally guaranteed by the Government of Canada; provincial treasury bills, notes, debentures and any obligations unconditionally guaranteed by the provincial governments of Canada; Banker's Acceptances, Bearer Deposit Notes and other obligations issued by a Schedule I or II chartered bank carrying a short term debt rating of R-1(mid) or better as measured by two recognized debt rating services; and term deposits issued by an Alberta credit union that are 100% guaranteed by the Credit Union Deposit Guarantee Corporation. Money market securities must be maintained in assets maturing within one year.

There are no limitations on the amount that can be invested in money market securities issued by the Government of Canada or its guaranteed Crown corporations or agencies. The limitations on investments in money market securities issued by any single provincial government or its guaranteed agencies are as follows: a maximum 40% rated R-1(high), 30% rated R-1(mid), and 20% rated R-1(low) of the daily NEIP short-term market value. A minimum of 70% of the daily NEIP short-term market value that is managed internally will be invested in governmental issuers. A maximum of 5% may be invested in Alberta credit unions, subject to the Alberta provincial government limit above. A maximum of 10% of the daily NEIP short-term market value can be invested in any single non-governmental issuer.

#### 6.1.2 Mid-Term Funds

Analysis indicates that a maximum of 33% of the peak NEIP balance, each year as at September 30<sup>th</sup>, can be allocated to bonds, debentures and internal loans maturing within five years. This allocation is monitored against the projected overall cash flow requirements of the University.

Internal loans to University faculties, departments and staff are considered to be part of the mid-term funds section of the NEIP. The Internal Loan Policy approved by the Board of Governors on October 24, 2003 governs internal loans.

Bonds and debentures must be denominated in Canadian dollars and are limited to; Government of Canada bonds, debentures and any obligations unconditionally guaranteed by the Government of Canada; provincial bonds, debentures and any obligations unconditionally guaranteed by a province of Canada; bonds and debentures issued by municipalities of Canada; obligations, bonds and debentures issued by a Schedule I or II chartered bank. Bonds and debentures shall have a rating of at least "A" as measured by two recognized debt rating agencies.

There are no limitations on the mid-term funds that can be invested in bonds and debentures issued by the Government of Canada or its guaranteed Crown corporations or agencies. Investment in bonds and debentures issued by any single provincial government or its guaranteed agencies is limited as follows: a maximum of 20% of the daily NEIP mid-term market value can be invested in rated "AAA", 15% in rated "AA" and, 10% in rated "A". A minimum of 70% of the daily NEIP mid-term market value that is managed internally will be invested in governmental issuers. A maximum of 5% of the daily NEIP mid-term market value can be invested in obligations, bonds and debentures issued by any single municipality or Schedule I or II chartered bank.

#### 6.1.3 Long-Term Core Funds

Analysis indicates that a maximum of 33% of the peak NEIP balance, each year as at September 30th, can be considered long-term core funds. Long-term core funds are not expected to require an urgent, unplanned or significant liquidation in a period of less than five years. Long-term core funds are invested in the UEP to provide a higher rate of return. This allocation is monitored against the projected overall cash flow requirements of the University.

For risk management purposes a reserve fund with a target value of 10% of the long-term core funds has been established. This reserve is funded through appropriations of half the earnings in excess of the spending allocation in any given year, and is invested in accordance with the Short-Term Funds portion of the NEIP.

### 6.2 Investment Policy and Risk Tolerance (Externally Managed Investments)

#### 6.2.1 Short-Term Funds

Externally managed money market securities include instruments and obligations that are issued by or guaranteed by the following entities; obligations of banks including banker's acceptances and floating rate notes, corporate debt, corporate commercial paper, schedule I or II chartered bank sponsored asset backed commercial paper, sovereign governments, supranational agencies, US state governments, Canadian provincial governments and other money market securities. All investments shall be denominated as to principal and interest in a currency that is consistent with the mandate and in the case of securities lending the currency of the cash collateral. A maximum of 20% of money market securities may be maintained in assets maturing beyond one year. The primary objective for investments in these securities is liquidity and preservation of capital.

Externally managed money market securities in actively managed mandates shall have a rating of at least R-1 (low), with a limit of not more than 30% in this rating. Where passive investments are made in major fixed income indices, eligibility of an index will be determined by its suitability as an investment vehicle regardless of the rating of individual securities within the index.

There are no limitations on the amount that can be invested in money market securities issued by governments or their guaranteed corporations or agencies. A maximum of 10% can be invested in any single non-governmental issuer. Schedule I or II chartered bank asset backed commercial paper exposure will be limited to a maximum of 5% for any single trust/conduit.

#### 6.2.2 Mid-Term Funds

Bonds and debentures are limited to publicly traded debt securities denominated in Canadian dollars.

A maximum of 20% of bonds and debentures may be maintained in assets maturing beyond five years. Bonds and debentures in actively managed mandates shall have a rating of at least “BBB” as measured by a recognized debt rating agency. The maximum “BBB” exposure will be 10% of fixed income in each actively managed portfolio. Where passive investments are made in major fixed income indices, eligibility of an index will be determined by its suitability as an investment vehicle regardless of the rating of individual bonds and debentures within the index.

There are no limitations on the amount that can be invested in bonds and debentures issued by governments or their guaranteed corporations or agencies. A maximum of 10% can be invested in bonds and debentures issued by any single municipality, non-governmental issuer, or Canadian-dollar denominated foreign-issuer.

#### 6.2.3 Long-Term Core Funds

All long-term core funds are invested in the UEP and are managed in accordance with Sections 2 through 4 of this policy.

#### 6.3 Performance Benchmarks

For each of these components of the NEIP the benchmark is:

Short-Term Funds	DEX 91 Day T-bill Index
Mid-Term Funds	DEX Short Term Bond Index
Long-Term Core Funds	UEP Composite Benchmark

#### 6.4 Other Non-Endowed Funds

The assets of Restricted Non-Endowed Donations shall be invested with the same goals, restrictions and quality levels as described above and the University’s Interest Procedure for Restricted Special Purpose and Restricted Research Accounts will apply, subject to any stipulation required by contractual agreement, or by condition of the estate, or administrative arrangement. The assets of the Academic Supplementary Retirement Plan shall be invested in accordance with the agreement.

[Return to Summary](#)

### 7.0 GENERAL

#### 7.1 Securities Lending and Commission Recapture

The securities may be loaned to investment dealers and banks as part of the **custodian’s** lending program when it is deemed that such lending may add incremental return to the fund at minimal risk and provided the loan is collateralized with highly liquid and marketable securities in accordance with industry standards and marked-to-market and adjusted on a daily basis.

External equity investment managers may be directed to participate in a commission recapture program in order to help mitigate internal investment research related expenses.

## 7.2 Exercise of Proxies and Voting Rights

**Proxy** or other voting rights will be exercised in the best interest of the University. The responsibility for voting is normally delegated to the investment manager, but the University reserves the right to direct the investment manager on the voting of proxies.

## 7.3 Valuation of Infrequently Traded Investments

The valuation of infrequently traded investments shall be determined by the trustee or custodian of the fund. In the case of direct investments in real estate, the valuation shall be based on independent opinions of qualified appraisers as required.

## 7.4 Conflict of Interest Guidelines and Related Parties Transactions

The University's Conflict of Commitment and Conflict of Interest Policy will govern investment activities (General Faculties Council Policy # 35). Related Party transactions will be at fair market value.

## 7.5 Custody

To maintain a proper segregation of duties and adequate controls, all marketable securities held shall remain with a third-party custodian.

## 7.6 Policy Review

This policy shall be reviewed at least annually by the Board Investment Committee, who will either confirm or recommend changes to the Board of Governors. Upon recommendation from the Board Investment Committee, the Board of Governors can approve exceptions to this policy.

## 7.7 Donated Securities

Subject to market conditions, donated securities will generally be sold immediately upon receipt by the University. However, where it is advantageous to do so, and subject to the constraints of this policy, the University may hold these securities internally.

[Return to Summary](#)

## **DEFINITIONS**

Any definitions listed in the following table apply to this document only with no implied or intended institution-wide use. [\[▲Top\]](#)

<b>Asset Allocation</b>	The process of dividing investments into different asset classes, such as stocks, bonds, alternative assets, and cash in order to optimize the risk/return trade-off of a portfolio. This process is based on factors including investment time horizon, liquidity needs, risk tolerance, specific goals and situations, and legal and tax considerations.
<b>Risk Tolerance</b>	An individual's ability to handle temporary and sustained declines in the value of their portfolio.
<b>Real</b>	Used in conjunction with asset values and rates of return and restates these nominal amounts for movements in the consumer price index.

<b>Rate of Return</b>	The percentage change in the value of an asset, including interest and dividends, over an evaluation period.
<b>Growth</b>	Any asset class or investment strategy which can be expected to provide returns that exceed the inflation adjusted rate of spending over the long-term. This may include marketable equity securities that trade on a recognized exchange, directional long/short equity hedge funds, and credit based long only fixed income strategies. Private investments include mezzanine debt, distressed debt, private equity, and venture capital.
<b>Deflation Hedging</b>	Any asset class that serves the primary objective of providing protection in times of market stress, and supports spending in a prolonged deflationary period. This consists primarily of high quality government and investment grade fixed income securities.
<b>Inflation Sensitive</b>	Any asset class or investment strategy that is expected to protect the fund from high or unanticipated inflation. This may include inflation linked bonds, real estate, infrastructure, timberland, farmland, natural resource public equities, commodities, and private oil and gas.
<b>Diversifiers</b>	Any asset class or investment strategy that is expected to be uncorrelated with Growth, Inflation Sensitive, and Deflation Hedging assets. This may include cash, active currency management, managed futures, and hedge fund strategies including but not limited to low beta long/short equity, market neutral, event driven, merger arbitrage, and global macro.
<b>Risk</b>	The possibility of loss and/or the uncertainty of future returns.
<b>Value at Risk</b>	A statistical measure of the amount of loss a portfolio might expect to experience over a specified time horizon with a given probability.
<b>Expected Tail Loss Risk</b>	A statistical measure that is designed to estimate the risk of extreme losses. This statistic is calculated by taking a portfolio's Value at Risk plus the probability weighted average loss expected in excess of the Value at Risk.
<b>Derivatives</b>	A financial instrument whose value is dependent on the performance of an underlying instrument or asset typically a commodity, bond or equity. They are also available on currencies, interest rates, and equity indices. Futures and options are examples of derivatives.
<b>Consumer Price Index (CPI)</b>	A Statistics Canada index of retail prices for goods and services. Increases in the CPI are also referred to as increases in the cost of living and are directly correlated to increases in inflation.
<b>DEX Universe Bond Index</b>	An index produced by PC-Bond, the DEX Universe Bond Index is designed to be a broad measure of the Canadian investment-grade fixed income market. Returns are calculated daily, and are weighted by market capitalization. The Universe Index has been published since 1979.

<b>S&amp;P/TSX Composite Index</b>	The index that tracks the performance of approximately 300 stocks listed on the Toronto Stock Exchange.
<b>MSCI World Index</b>	The Morgan Stanley Capital International Index, which measures the total return (with dividends reinvested) of equity securities available in developed markets around the globe.
<b>HFRI Global Hedge Fund Index</b>	An index maintained by the Hedge Fund Research, Inc. (HFR) that utilizes an objective rules-based methodology to diversify across hedge fund managers that have low correlations to traditional asset classes. This index is rebalanced quarterly and is passively investable.
<b>IPD Canada Annual Property Index</b>	Investment Property Databank index to measure the total return of real estate investments across a wide spectrum of property categories in Canada.
<b>Cambridge Associates Private Equity Index</b>	An index produced by Cambridge Associates that tracks the total return for private equity.
<b>Custodian</b>	A financial institution, usually a bank or trust company, which holds an investment portfolio's securities and cash in safekeeping.
<b>Proxy</b>	A written authorization given by a shareholder to another individual, usually the company's management, in order to cast his/her vote at a shareholder meeting or at some other point in time.

## **RELATED LINKS**

Should a link fail, please contact [uappol@ualberta.ca](mailto:uappol@ualberta.ca). [[▲Top](#)]

[Interest Procedure – Restricted Special Purpose and Restricted Research Accounts](#) (UAPPOL)

[Internal Loan Policy](#) (UAPPOL)

[Investment Committee Terms Of Reference](#) (University of Alberta)

[Statement of Investment Principles & Beliefs](#) (University of Alberta)

[Unitized Endowment Pool \(UEP\) Implementation Guidelines](#) (University of Alberta)

[Unitized Endowment Pool \(UEP\) Spending Policy](#) (UAPPOL)

## **PUBLISHED PROCEDURES OF THIS POLICY**

There are no published procedures of this policy.

**Attachment 14C**

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## **Workers' Compensation Board of Nova Scotia**

### **Statement of Investment Policies and Objectives**

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**Prepared By: FINANCIAL SERVICES**

*Board of Directors Approval: June 2, 1995*

*Revised Date: July 13, 1995*

*Revised Date: March 11, 1996*

*Revised Date: June 20, 1996*

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*Revised Date: September 15, 2005*

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*Revised Date: July 1, 2007*

*Revised Date: July 1, 2009*

*Revised Date: September 17, 2009*

*Revised Date: August 1, 2011*

*Revised Date: October 1, 2012*

*Revised Date: January 1, 2013*

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## TABLE OF CONTENTS

### INVESTMENT PORTFOLIO

1	INTRODUCTION AND GOVERNANCE .....	4
2	PURPOSE .....	6
3	ROLES AND RESPONSIBILITIES .....	7
	A Finance and Investment Committee.....	7
	B Fund Managers .....	8
	C Fund Custodian .....	9
	D Consultants .....	9
4	INVESTMENT OBJECTIVES .....	10
	A Primary Objectives .....	10
	B Benchmark Portfolio .....	10
5	CHARACTERISTICS OF THE LIABILITIES OF THE ACCIDENT FUND .....	12
6	INVESTMENT GUIDELINES .....	13
	A Asset Mix .....	13
	B Investment Constraints .....	13
	C Short Term Investments and Cash .....	16
	D Exceptions .....	16
	E Other .....	16
7	SECURITIES LENDING .....	17
8	CONFLICTS OF INTEREST.....	18
	A Standard of Care .....	18
	B Disclosure .....	18
	C Related Party Transactions .....	18
9	VOTING RIGHTS .....	19
10	ANNUAL REVIEW .....	20
11	VALUATION OF INVESTMENTS .....	21
12	PERFORMANCE EVALUATION .....	22

13	DISMISSAL OF INVESTMENT MANAGER.....	24
14	BORROWING .....	25
15	REBALANCING APPROACH.....	26

### SHORT-TERM INVESTMENTS

16	SHORT-TERM INVESTMENT POLICY .....	27
A	Definition .....	27
B	Policy Statement .....	27
C	Product .....	27
D	Rating .....	27
E	Limits .....	28
F	Term .....	28
G	Financial Institutions .....	28
H	Custody .....	28
I	Approval .....	29

APPENDIX A DESCRIPTION OF THE LIABILITIES OF THE ACCIDENT FUND.....	30
APPENDIX B STATEMENT OF INVESTMENT BELIEFS .....	34

### HISTORY OF REVISIONS

<u>DATE</u>	<u>REFERENCE</u>
June 2, 1995	Original Document Approval
July 13, 1995	Section 8C
March 11, 1996	Section 14D and 14E
June 20, 1996	Section 6B
June 5, 1997	Sections 4B, 6B, 6E, 9, 12, 14 and 15
February 6, 1998	Sections 4A, 4B, 6A, 9, 12
September 4, 1998	Section 6B
January 7, 1999	Sections 15, 16
March 15, 2000	Section 6B (revised but not reprinted)
January 16, 2002	Sections 4A, 6B, 12
October 1, 2002	Sections 4B, 6A, 6B, 12
October 1, 2004	Section 6B
July 1, 2005 <sup>1</sup>	Sections 2, 4B, 12 (Released with September 1, 2005 revisions for approval September 15, 2005)
September 15, 2005	Sections 6B, 12, 15
March 9, 2006	Sections 1, 3A, 6A, 6B, 12, 15, 16I and 16G
December 14, 2006	Sections 6B, and I
July 1, 2007	Sections 4B, 6A, 6B and 12
July 1, 2009	Sections 3A, 4B, 6B, 12 and 15
September 17, 2009	Section 3A
August 1, 2011	Sections 3A, 4B and 12
October 1, 2012	Sections 3A, 4A, 4B, 6B, 12 and Appendix B
January 1, 2013	Section 12

**WORKERS' COMPENSATION BOARD OF NOVA SCOTIA**  
**STATEMENT OF INVESTMENT POLICIES AND OBJECTIVES**  
**INVESTMENT PORTFOLIO**

**1. INTRODUCTION AND GOVERNANCE**

The Workers' Compensation Board is an independent agency of the Province of Nova Scotia. The Workers' Compensation Board administers a mutual accident insurance scheme whereby workers are compensated for loss resulting from work related injuries and employers are protected from suits alleging negligence. The Workers' Compensation Board administers a variety of benefits and vocational rehabilitation programs on behalf of injured workers and employers within the Province of Nova Scotia.

Benefits are defined independent of the value of the Fund Assets. The Fund Assets serve as security that awarded benefit commitments will be paid and are held in trust for injured workers. The annual establishment of assessment rates includes an estimate of investment revenue. The fund must achieve this target or a deficit may be created. The investment portfolio is a key component of the Workers' Compensation Board's funding strategy. This is of paramount importance given the magnitude of the unfunded liability.

There are four groups with significant interests in the Accident Fund: employees, employers, Board members, and the Government.

Employees have a significant interest in the Fund. The money provided by the employers is earmarked to provide compensation, vocational rehabilitation support, medical aid to workers who are injured out of and in the course of their employment, and to pay for the administration and legislated obligations of the legislation that establishes the basis for Workers' Compensation benefits. The level of security that these future costs will be paid is enhanced through prudent management of the Accident Fund. The basis for establishing benefits is provided by the Legislation.

Employers are responsible for providing the funding of Workers' Compensation benefits for injured workers. Therefore, employers stand to benefit from superior investment earnings if that translates into lower assessments; and conversely, employers will suffer from poor investment experience.

The Board of Directors have a fiduciary responsibility for prudently managing the assets in the Accident Fund on behalf of employers and injured workers. The overall management of the Accident Fund is subject to public accountability.

The Government's interest in the Fund is attributable to the fact that the benefits payable to injured workers are determined through the legislative process. The Workers' Compensation Act is a statute of the Province of Nova Scotia.

The legislative authority governing the Workers' Compensation Board's investment of funds is Section 149 of the Worker's Compensation Act, RSNS 1989, c.508, as amended. The section reads as follows:

"The Workers' Compensation Board may

(a)invest any funds arising under any provisions of this Act or under the Workers' Compensation Board's control according to investment and lending policies, standards and procedures that a reasonable and prudent person would apply in respect of a portfolio of investments to avoid undue risk of loss and obtain a reasonable return;..."

The Statement of Investment Policies and Objectives will define these policies, standards, and procedures.

## **2. PURPOSE**

The purpose of this statement is to serve as a guide to those given responsibilities for fund management, including the Finance and Investment Committee, Fund Managers, and other parties having direct responsibility. This document will commit to writing the objectives and policies established by the Finance and Investment Committee. The purpose in establishing objectives and policies is two-fold:

- 1) To ensure that all parties involved in the management of the Fund clearly understand the policies, objectives, goals, and direction of the Fund.
- 2) To facilitate the delegation of Investment Management responsibilities.

The process of determining objectives and policies includes the following:

- 1) Clear identification of the nature of the liabilities of the Fund for which the Board of Directors have a fiduciary responsibility. The important characteristics to identify include the type of liability (a short term wage loss versus a benefit payable to age 65), the length of time the liability will be outstanding (one year versus twenty years), and the type of payment involved (single fixed amount versus monthly payments indexed to CPI).
- 2) Identification of assets which have characteristics similar to the liabilities being assumed (short term, fixed rate bonds for short term liabilities versus common stock equity and real estate investments for long-term indexed pensions).
- 3) Selection of the asset classes which best suit the needs of the liabilities and which will provide the highest rate of return at an acceptable level of risk.
- 4) Provision of sufficient diversification to eliminate unnecessary risk.

The basic goal is to ensure that the assets of the Fund, together with expected contributions, shall be invested in a continued, prudent, and effective manner so as to optimally meet the liabilities of the Workers' Compensation Board.

### **3. ROLES AND RESPONSIBILITIES**

#### **A Finance and Investment Committee**

The Finance and Investment Committee (the “Committee”) is a standing committee, advisory to the Board of Directors. The Committee is comprised of three full members and three Ex-officio members.

The Committee is responsible for reviewing and reporting to the Board of Directors on the administration, supervision and management of the investment program; and for recommending, where appropriate, changes for the Board of Directors to consider.

The full members are all from the Board of Directors. One Board member will be appointed as Chair of the Committee. The Chief Executive Officer; the Chief Financial Officer; and the Executive Corporate Secretary comprise the Ex-officio membership. The Chair of the Board of Directors shall not serve as a member of the Committee but may attend Committee meetings.

In the administration of the Workers’ Compensation Board investment portfolio, Committee members shall exercise the care, diligence and skill that a person of ordinary prudence would exercise in dealing with the property of another person and shall use all relevant knowledge and skill that the member possesses.

Authority from the Board of Directors is delegated as follows:

The Committee will review and recommend to the Board of Directors:

- **Statement of Investment Policies and Objectives**  
In order to facilitate proper management of the assets, the Committee must establish the Statement of Investment Policies and Objectives. The Board of Directors shall retain the authority to approve the Statement of Investment Policies and Objectives (and amendments) which should be reviewed on an annual basis or at such other times as the Board of Directors deem necessary.
- **Borrowing**  
The Board of Directors shall retain the authority to approve borrowing and line of credit changes.
- **Appointment of Consultants and Managers**  
The Board of Directors shall retain the authority to approve the appointment or termination of investment consultants and managers.

The Committee will decide and approve and report to the Board of Directors:

- Investment consultants mandates.
- Investment manager mandates including the asset class and any constraints on investments within that asset class

- Periodic assessment of the investment consultant's performance and fees.
- Investments in accordance with delegated limits.

The Committee will monitor and report highlights to the Board of Directors through: Quarterly investment reports outlining the performance for all asset classes plus the total portfolio against performance measurement targets, and the actual performance of the portfolios versus the appropriate benchmarks.

The means by which the Committee carries out its responsibilities are varied. It may use internal personnel and/or retain professional expertise for advice, portfolio management, performance measurement, or such arrangements as the Committee may recommend to the Board of Directors to meet the investment objectives. It may consider the use of an advisory committee to provide advice and support to the Committee regarding investment structure and process. Any input/advice will be considered but is not binding. Administrative support will be provided by the Director Financial Services. Meetings will be at the call of the Committee Chair, or as directed by the Board of Directors.

## **B      Fund Managers**

Periodic meetings with the Committee will be scheduled for each Fund Manager.

At each meeting, each Fund Manager shall be prepared to discuss the following topics:

- discuss compliance with the Statement of Investment Policies and Objectives.
- a review of the firm including changes in personnel, client growth or decline, asset growth or decline, etc.
- the time weighted rate of return, including investment income and realized and unrealized capital appreciation and depreciation for the most recent quarter and for the one, two, three, four, and five year periods ending with the most recent quarter.
- a comparison of the value of the portfolio since the previous quarter or meeting and the end of the previous year.
- a review of the transactions undertaken during the most recent quarter with a list of brokerage firms and commissions.
- a review of equity, real estate and fixed income segments of the portfolio, if applicable, plus a forecast of anticipated changes during the next quarter or longer.
- an economic review and capital market forecast.
- inform the Committee of any new investment opportunities/asset classes and how they might assist the achievement of fund objectives.
- other items as determined by the Committee.



The investment managers will participate in any annual review of the Statement of Investment Policies and Objectives. They will be required to complete a "statement of compliance" annually.

Specific responsibilities are outlined in individual manager agreements.

## **C      Fund Custodian**

The Fund Custodian will fulfil the regular duties required by law of a Custodian/Trustee and duties outlined in the custodial agreement.

The custodian will provide the Workers' Compensation Board with monthly and annual reports detailing asset holdings and transactions during the period. In addition, the custodian will provide the Workers' Compensation Board with periodic rates of return of the total fund, each manager, and each asset class as agreed in our contract.

## **D      Consultants**

Consultants may be engaged to perform specific services that may include (but are not limited to) the following:

- performance measurement, reviews of the Statement of Investment Policies and Objectives, manager searches, provision of research and empirical information, etc.

The responsibilities will be set out by the terms of each engagement.

#### **4. INVESTMENT OBJECTIVES**

##### **A Primary Objectives**

The Workers' Compensation Board's investment policies must be responsive to the mandate to pay benefits. Two important goals must be recognized:

- 1) Inflation Protection - The Workers' Compensation Board's income replacement benefits will be indexed effective January 1, 2000, and thus will continue to grow year after year.
- 2) Liquidity Requirement - The Workers' Compensation Board has a significant need for cash as payment of benefits to injured workers begins as soon as the award has been made. It is anticipated that these liquidity requirements are facilitated by the operational cash flows of the Workers' Compensation Board.

The investment policies to be followed by the Workers' Compensation Board's Investment Managers must reflect the potentially conflicting requirements of these two goals.

The funds assets will be managed on a going-concern basis, with the primary objective of maximizing returns at an acceptable level of risk; which presumes management of the portfolio to an average allocation over time to asset classes in the proportions indicated in the benchmark portfolio.

##### **.B Benchmark Portfolio**

A benchmark portfolio constitutes a "neutral position" that is representative of the fund's long-term risk tolerance. It represents the portfolio that would be used if the fund were passively managed (i.e. no short-term asset mix movement, no securities selected outside the various indices). Such a fund could be managed at a low cost and the returns generated would be those of the broad indices representative of the invested asset classes.

The benchmark portfolio significantly enhances performance measurement/monitoring and allows the statement of Investment Policies and Objectives to be used as a true management tool.

Based on the policies contained in the document, the benchmark portfolio is constructed as follows:

<u>ASSET CLASS</u>	<u>PERCENTAGE</u>
Canadian Equity	20.0%
US Equity	15.0%
International Equity	15.0%
Global Equity	10.0%
Real Estate	10.0%
Nominal Bonds	30.0%
Cash and Short-term	<u>0.0%</u>
	<u>100.0%</u>

The allocation to the US and international equity asset classes will be partially hedged for currency fluctuations. The target hedge ratio will be 67% of those two asset classes and applied on all major currencies.

The portfolio benchmark will be rebalanced monthly.

## 5. CHARACTERISTICS OF THE LIABILITIES OF THE ACCIDENT FUND

The most significant characteristics of the liabilities of the Fund are:

**Long-Term Disability Liabilities:** Accidents occurring prior to March 23, 1990 that result in permanent disability produce pensions that are payable for biological life. In addition, supplementary benefits are available for eligible injured workers. Compensable injuries after this date that result in permanent impairment produce a monthly (small amounts may be paid as a lump sum) benefit based on the impairment, payable for biological life. Accidents after March 23, 1990 resulting in extended earnings replacement benefits (EERB) generate monthly benefits payable to age 65. Annuities based on permanent impairment benefits (PIB) and EERB will be payable at this time. Pensions, PIB's, and EERB's will be indexed (one half of the annual change in CPI) commencing January 1, 2000.

**Survivor Benefits:** These liabilities are long-term in nature and include monthly pension payments to surviving spouses of workers who have died as a result of a compensable accident. Fatalities that occur prior to the date of proclamation of the new Workers' Compensation Act result in pensions that are payable to surviving spouses for their biological life. Compensable deaths after that date produce benefits that will be paid to the later of the age the deceased worker would have attained the age of 65 years or until the surviving spouse attains the age of 65. A surviving spouse is also entitled to an annuity. In addition, monthly pension payments to dependants of these deceased workers are payable for defined periods based on age and educational requirements. These payments will be indexed (one-half of the annual change in CPI) commencing January 1, 2000.

**Short-term Disability:** These earnings loss liabilities are short-term in nature. Payments of a defined period will be indexed according to the annual change in the Canadian Consumer Price Index commencing January 1, 2000.

**Health Care:** Medical services are provided both in the short-term and long-term depending on the nature of the injury. This liability will increase with the overall price increase of these services.

**Rehabilitation:** This liability is in relation to the vocational and psychological costs associated with rehabilitation. It is short-term in nature and the liability will increase in line with increase in prices of these services.

The significant investment implications relating to these liabilities are:

- 1) In general, a long-term investment horizon can be adopted for the portion of the liabilities that are long-term in nature. However, given the current magnitude of the unfunded liability, the ability to match assets to specific liabilities is constrained.
- 2) Investments that tend to protect against inflation are appropriately matched against liabilities whose cost are related to inflation, directly or indirectly.

## **6. INVESTMENT GUIDELINES**

### **A Asset Mix**

The following ranges are based on the market value of the total portfolio. Should there be a desire to deviate from this policy, or revise it, a written submission should be provided to the Committee detailing the proposed changes and supporting evidence justifying the proposed change.

Asset mix ranges for the Fund:

<b>Asset Class</b>	<b>Minimum %</b>	<b>Maximum %</b>
Canadian Equity	15	25
Foreign Equity (including U.S.)	30	50
Total Equity	50	70
Real Estate	0	15
Bonds	20	40
Cash & Short-term Investments	0	15
Total Debt & Cash	20	40

### **B Investment Constraints**

#### **Equity**

Defined As: Common shares, rights, warrants, securities convertible into common shares, units in real estate investment trusts ("REITS") and units in income trusts.

Unless permitted as a private equity investment as discussed below, all investments in equity will be limited to publicly traded issues. Canadian equities will be limited to equities traded on a recognized Canadian exchange. Foreign equities will be limited to equities that are traded on recognized exchanges in each country represented.

Where the Committee desires to invest in pooled funds, the Committee must satisfy itself that the investment policy of such pooled fund is consistent with this Statement of Investment Policies and Objectives.

No one holding should represent more than 10 percent (market value) of the total equity portfolio, nor should it be more than 10 percent of the voting shares of any corporation.

Not more than 15% of the Canadian equity portfolio may be invested in stocks having a market capitalization below \$1 billion.

No private equity investments will be made without the prior written approval of the Committee.

Publicly traded REITs and income trusts that are reporting issuers under the applicable securities legislation in Canada must be governed by the laws of a province in Canada that limits the liability of unit holders by statute. Otherwise, REITs and income trusts are not permitted.

The Committee authorizes our investment managers to engage where they deem it to be appropriate in transactions involving derivative products for the express purpose of hedging foreign currency exposures on stocks held in foreign jurisdictions. Currency hedging will target 67 percent of the Fund's US and international equity exposures. Without limiting the generality of the foregoing, derivative instruments are to be utilized solely for the purpose of managing currency risk on foreign stocks.

Managers are to confirm annually that their respective organizations have the appropriate internal policies and procedures to monitor and measure risk and to inform us of our risk profile when these transactions are executed. Any change in the managers' internal controls are to be reported to the Workers' Compensation Board immediately.

In addition, as a part of quarterly reporting, managers will report when hedges are put in place, removed, and the associated results.

Derivative products are not to be utilized for the purpose of leveraging exposure of underlying securities.

## **Debt**

Defined As: Bonds and debentures.

"The weighted average credit rating of the bond portfolio will be maintained at or above A<sup>+</sup>". The minimum quality standard for individual bonds and debentures at the time of purchase is "BBB", as rated by the Canadian Bond Rating Service, and/or by the Dominion Bond Rating Service. For purposes of this Section, all debt ratings refer to the ratings of Dominion Bond Rating Service (DBRS) unless otherwise indicated, however, equivalent ratings by another major credit rating agency can be used.

Holdings of "BBB" bonds are permitted to a maximum of 10 percent of the bond portfolio. If a bonds credit rating falls below "BBB" after the purchase date, the Manager shall remove it from the portfolio as soon as practical, but taking care not to unduly impair performance. Debt rated below "BBB" at the time of purchase is not permitted.

The DBRS defines the bond and long-term debt ratings as:

AAA-Bonds which are rated AAA are of the highest credit quality. The degree of protection

afforded principal and interest is of the highest order. Earnings are relatively stable, the structure of the industry in which the entity operates is very strong, and the outlook for future profitability is extremely favourable. There are few qualifying factors present which would detract from the performance of the entity, and the strength of liquidity and coverage ratios is unquestioned.

AA-Bonds rated AA are of superior credit quality, and protection of interest, and principal is considered high. In many cases, they differ from bonds rated AAA to a small degree.

A-Bonds rated "A" are of upper medium grade credit quality. Protection of interest and principal is still substantial, but the degree of strength is less than with AA rated entities. Entities in the "A" category may be more susceptible to adverse economic conditions and have greater cyclical tendencies.

Canadian bonds denominated in foreign currencies (foreign pay bonds) are permissible to a maximum of 20 percent (market value) of the bond portfolio.

All foreign bonds, whether in Canadian currency or native currency, require Committee approval prior to purchase.

Corporate debt obligations will not exceed 50 percent (market value) of the bond portfolio. No individual corporate issuer will exceed 5 percent (market value) of the bond portfolio.

Private placement bonds and debentures will not exceed 10 percent (market value) of the bond portfolio and all unrated bonds will be assigned a rating by the Committee (based on discussions with the fund managers) prior to purchase.

## **Real Estate**

Defined as: real property, whether held through open or closed-end pooled funds, participating debentures, shares of corporations or partnerships formed for tax exempt funds to invest in real estate.

Properties shall be diversified by location, type of use and tenants.

Not more than 10% of the Real Estate portfolio shall be invested in non-income producing property.

Not more than 10% of the Real Estate portfolio may be invested in any one property at the time of acquisition

Income-producing Real Estate holdings may be mortgaged, except that the principal amount of such mortgages shall not exceed 35% of the aggregate market value of the fund, and no mortgage on any single holding shall be more than 75% of the market value of such holding at the time the mortgage is given.

## **C      Short-Term Investments and Cash**

Defined As: Cash on hand, demand deposits, treasury bills, short-term notes, bankers' acceptances, term deposits and guaranteed investment certificates purchased with a maturity of one year or less and reside in the investment portfolio.

The cash and short term investments in the securities of one issuer will not be more than 10 percent of the total market value of all cash and short term investments held by the fund, unless the issuer is guaranteed by the Government of Canada or one of the provinces of Canada.

The purchase of short-term investments issued by corporations and financial institutions is restricted to those which have a minimum rating of "R-1" by the Dominion Bond Rating service, or equivalent; except for Province of Nova Scotia issues which have an "R-2" high level rating. It is anticipated that the investment managers will invest only in instruments of the highest quality. Securities with an "R-1" rating, as rated by the Dominion Bond Rating Service, or a Province of Nova Scotia "R-2" high level rating are permissible investments.

## **D      Exceptions**

When applying the guidelines, it is recognized that there may be occasions during which the policies are not met temporarily for valid investment reasons. It is the responsibility of the investment manager to report any violations and to recommend appropriate remedies.

No other category or type of investment is allowed without the prior written approval of the Committee.

## **E      Other**

All investments will be made in accordance with Standard III.C of the CFA Institute Standards of Practices Handbook. The standard requires that the Fund Manager, when taking an investment action for a specific portfolio or client, consider its appropriateness and suitability for such portfolio or client. In considering such matters, the Fund Manager shall take into account:

- the needs and circumstances of the client,
- the basic characteristics of the investment involved, and
- the characteristics of the total portfolio.

The Fund Manager will use reasonable judgement to determine the applicable relevant factors.



## **7. SECURITIES LENDING**

The securities of the Fund may be loaned by the custodian provided that:

- The custodian sets individual credit limits per borrower which are reviewed at least annually. In addition, their financial strength, credit rating, and reputation are reviewed.
- The loans are secured by cash or readily marketable investments having a market value of at least 105 percent of the market value of the securities loaned.
- The loans are marked to market daily to ensure the collateral continues to have a market value of at least 105 percent of the market value of the loaned assets.
- The securities are not loaned to facilitate a dividend rental arrangement.

## **8. CONFLICTS OF INTEREST**

### **A Standard of Care**

The members of the Board of Directors and its Committee, as well as all agents (fund managers, custodian, consultant, administrator) employed by the Workers' Compensation Board, must maintain a standard of prudence and reasonableness in the management of the Workers' Compensation Board's funds.

An agent is defined to mean a company, organization, association or individual, as well as its employees, retained by the Workers' Compensation Board to provide specific services with respect to the administration and management of the Fund.

In carrying out their duties, the Board of Directors must act in the best interest, and for the benefit, of present and future participants in the Accident Fund. Agents, whose duties to the Workers' Compensation Board are mainly contractual, must act with the skill that can reasonably be expected of a person in their professional position.

### **B Disclosure**

In the execution of their duties, members of the Board of Directors and their agents shall disclose any material ownership of securities, which could impair their ability to render unbiased decisions, as it relates to the administration of the Fund.

Further, it is expected that no Board of Directors member nor agent, shall make any personal financial gain (direct or indirect) because of their fiduciary position.

It is incumbent on any party affected by this Statement who believes that he/she may have a conflict of interest, or who is aware of any conflict of interest, to notify the Chair of the Board of Directors. Disclosure should be made promptly after the affected person becomes aware of the conflict. The Chair of the Board of Directors, in turn, will decide what action is appropriate under the circumstances, but, at a minimum, will table the matter at the next regular meeting of the Board of Directors.

No affected person who has or is required to make a disclosure as contemplated in this Statement of Investment Policies and Objectives shall participate in any discussion, decision or vote relating to any proposed investment or transaction in respect of which he or she has made or is required to make disclosure.

No affected person shall accept a gift or gratuity or other personal favour, other than one of nominal value, from an individual with whom the person deals in the course of performance of his or her duties and responsibilities for the Accident Fund.

### **C Related Party Transactions**

Any party with whom the Workers' Compensation Board contracts will not engage in a non-arm's length transaction without the prior written approval of the Committee.

## **9. VOTING RIGHTS**

The Fund Manager is delegated the responsibility of exercising all voting rights acquired through the Fund's investments. The Fund Manager will exercise acquired voting rights with the intent of fulfilling the investment objectives and policies of the Fund. The Committee reserves the right to exercise voting rights on the Fund securities when it is deemed appropriate. When the Fund Manager votes against management on a particular issue, the Fund Manager will notify the Committee in writing providing a brief rationale for voting against management on the particular issue while continuing to hold the investment.

**10. ANNUAL REVIEW**

This policy is open to review at any time, but should be reviewed annually.

## **11. VALUATION OF INVESTMENTS**

The Committee expects that all the securities held by the Fund will have an active market and therefore valuation of the securities held by the fund will be based on their market values.

The Fund Manager will notify the Committee if the market for any investment held by the Fund becomes inactive and provide for the Committee's consideration a method for valuing the affected investment.

## **12. PERFORMANCE EVALUATION**

The performance objective is to generate a consistent, positive real rate of return on invested assets which will provide for payment of all liabilities as required. There are numerous methods to measure this objective and the following outlines the targets set for the Workers' Compensation Board's investment fund:

### **Fund Management Objective:**

To exceed (on a five year moving average) the return generated by the benchmark portfolio (before investment management fees). The rate of return for the benchmark portfolio will be calculated based on the following parameters:

<u>ASSET CLASS</u>	<u>PERCENTAGE</u>	<u>BENCHMARK INDEX</u>
Canadian Equity	20.0%	S&P/TSX Capped (10%) Total Return Index
U.S. Equity	15.0%	Russell 1000 Total Return Index (in Canadian Dollars), 67% hedged
International Equity	15.0%	Morgan Stanley Capital International (MSCI) Europe, Australasia and Far East (EAFE) Total Return Index (in Canadian Dollars), 67% hedged
Global Equity	10.0%	Morgan Stanley Capital International (MSCI) All Country World (ACWI) Total Return Index (in Canadian Dollars)
Real Estate	10.0%	85% IPD All Property Composite Index + 15% DEX 91 Day Treasury Bills Total Return Index
Nominal Bonds	30.0%	DEX Universe Bond Total Return Index
Cash and Short-term	<u>0.0%</u>	DEX 91 Day Treasury Bills Total Return Index
	<u>100.0%</u>	

All applicable fees will be reviewed in comparison to the performance objectives to ensure that the returns in excess of benchmarks exceed the cost of active management.

Investment returns are measured on a time-weighted basis. The benchmark will be adjusted to reflect the provisions of the Trustee Act for the applicable period of any review.

The portfolio benchmark will be rebalanced monthly.

In addition, individual asset classes will be compared to relevant indices. Specialist portfolios (if applicable) will be compared to the appropriate class market index returns.

Investment results will be monitored and reviewed on a quarterly basis. Performance will be assessed by comparing actual results to the investment objectives, based on five year, moving average time periods.

### **13. DISMISSAL OF INVESTMENT MANAGER**

Reasons for terminating the service of the investment manager include, but are not limited to, the following factors:

- Investment performance, which over a reasonable period of time, is below the stated performance objectives.
- Changes in personnel, firm structure, investment philosophy, style or approach which might adversely affect the potential return and/or risk level of the portfolio.
- Failure to adhere to the stated investment guidelines.
- Failure to satisfy the stated responsibilities.

#### **14. BORROWING**

Borrowing on behalf of the Fund is only permitted in order to pay benefits or expenses with the written approval of the Committee.



## **15. REBALANCING APPROACH**

On a regular basis, the effective asset mix will be compared with the policy/target allocation and predetermined tolerance ranges. If deviations are outside tolerance ranges, a transfer of assets between over-weighted and under-weighted asset classes and managers through timely instructions to the affected managers and the custodian will be initiated. In addition, cash flows in or out of the Fund, as determined necessary by the Workers' Compensation Board Chief Financial Officer, will be processed in a manner to bring the effective asset mix closer to the policy allocation.

Rebalancing of assets and cash flows in or out of the fund will be reported to the Committee on a quarterly basis.

## **16. SHORT TERM INVESTMENT POLICY**

### **A Definition**

Securities purchased with a maturity of one year or less. The funds are required to meet the day-to-day expenditures of the Workers' Compensation Board in a twelve month cycle. They reside outside the long-term investment portfolio.

### **B Policy Statement**

The Finance Department is responsible for the management of the Workers' Compensation Board's short-term investment portfolio.

The overall investment objective for the short-term portfolio is to obtain a reasonable rate of return while maintaining a high degree of liquidity and matching as closely as possible the maturity of the assets to anticipated disbursements.

### **C Product**

It is the policy of the Workers' Compensation Board to invest only in the following low-risk products:

- Government of Canada Treasury Bills
- Bankers Acceptance
- Commercial Paper ("R-1" rating)
- Term Deposits of Schedule I Banks and Major Trust companies
- Short-Term debt of the Provinces (including promissory notes)
- Debt of the Government of Canada that is less than one year.
- Debt of non-Canadian issuers and foreign-pay debt of Canadian issuers are not permitted.

### **D Rating**

The minimum quality standard for individual bonds and debentures is "A", as rated by the Canadian Bond Rating Service, and/or "A" rating by the Dominion Bond Rating Service. Provincial short-term debt or paper and debt of agencies guaranteed by the Provinces may be rated lower than "R-1" but may not exceed 10 percent of the short-term portfolio, except for Province of Nova Scotia issues which have no such limits so long as they remain at an "R-2" high level.

## **E      Limits**

Corporate: Short-term debt on paper of any one corporate issuer shall not exceed 5 percent of the short-term portfolio.

Provincial Issues: Provincial issues rated lower than "R-1" shall not exceed 10 percent of the short term portfolio, except for Province of Nova Scotia issues which the WCB may invest in at an "R-2" high level without such limits. There is no limit for Provincial Issues rated as "R-1".

Treasury Bills - no limit

Government of Canada - no limit

## **F      Term**

Investments are to be for a term not to exceed one year.

## **G      Financial Institutions**

Investment products should be purchased only from the following:

- Any registered member of the Investment Dealers Association
- Schedule I or II banks
- Any nationally recognized trust company.
- Province of Nova Scotia-Department of Finance

## **H      Custody**

All investment assets will remain in the custody of the Investment Dealer, Financial Institution, Custodian, or the Workers' Compensation Board.

## **I      Approval**

The short-term day to day investment activities are under the immediate direction of the Finance Department. Approval is outlined as follows:

### Authorization Levels

<u>Investment Amount</u>	<u>Duration</u>	<u>Authorized By</u>
0 - \$10,000,000	1 - 10 Days	Treasury Accountant and Director Financial Services
0 - \$20,000,000	1 - 180 Days	Chief Financial Officer
\$20,000,000+	1-365 Days	Chief Executive Officer

**APPENDIX A**

**DESCRIPTION OF THE LIABILITIES OF**

**THE ACCIDENT FUND**

## **DESCRIPTION OF THE LIABILITIES OF THE ACCIDENT FUND**

The two major groups of long-term disability liabilities and short-term disability and related liabilities can be further broken down into sub categories as follows:

### **Long-Term Disability Liabilities and Survivor Benefits**

#### **1. Permanent Disability Pensions (pre-March 23, 1990 Accidents)**

Accidents prior to March 23, 1990 that result in a permanent disability produce pension awards based on the degree of medical impairment as determined by a clinical rating schedule. The percentage of impairment is applied to 75 percent of the gross average earnings of the worker at the time of the accident. The awards were usually monthly payments but policies (based on award parameters) provided for lump sum payments. The monthly pensions will be indexed (one-half of the annual change in CPI) commencing January 1, 2000. These pensions are payable for biological life.

In addition, supplementary benefits are available to injured workers who meet eligibility criteria based on age, income, and other parameters. These benefits are payable to age 65.

#### **2. Permanent Impairment Benefits (PIB) (accidents occurring on or after March 23, 1990)**

Accidents in this time frame that result in permanent impairment are compensated based on the percentage of impairment applied to 30 percent of 85 percent of the worker's net average earnings. These awards can be monthly payments for biological life or processed as lump sum payments. The monthly payments will be indexed (one-half of the annual change in CPI) commencing January 1, 2000.

#### **3. Extended Earnings Replacement Benefits (EERB) (accidents occurring on or after March 23, 1990)**

These accidents that result in EERB's will compensate injured workers based on 85 percent of the difference between their pre and post net accident earnings. These earnings replacement benefits will be paid periodically until the worker attains age 65 (or the date the loss of earnings ends, whichever is earlier). The periodic payments will be indexed (one-half of the annual change in CPI) commencing January 1, 2000).

#### **4. Annuities**

Injured workers eligible for EERB's will be entitled to an annuity. The annuity will be based on 5 percent of the EERB and PIB awards (as periodic payments are made). The accumulated funds together with accrued interest will be payable in periodic instalments (or as a lump sum) when the worker attains age 65.

Long-term Disability Liabilities comprise 69.5 percent of total benefit liabilities as at December 31, 1994.

#### **5. Survivor Benefits (accidents prior to March 23, 1990)**

Compensable injuries that result in the death of a worker entitle a surviving spouse to a monthly pension based on 75 percent of the gross average earnings of the deceased worker. This award is payable for the biological life of the surviving spouse. Monthly pensions are also payable on behalf of dependent children for a defined period of time based on age and educational requirements. Other dependants may be entitled to compensation in respect of the deceased worker as well. These pensions will be indexed (one-half of the annual change in CPI) commencing January 1, 2000.

A surviving spouse is also entitled to a death benefit. Burial expenses and transportation costs are also covered by compensation.

#### **6. Survivor Benefits (accidents after March 23, 1990)**

Compensable injuries that result in the death of a worker entitle a surviving spouse to a monthly pension based on 85 percent of the net average earnings of the deceased worker. This award is payable until the worker would have attained age 65 or until the surviving spouse attains age 65, whichever is later. A surviving spouse is also entitled to an annuity based on 5 percent of the survivor pension award (as periodic payments are made). Monthly pensions are also payable on behalf of dependent children for a defined period of time based on age and educational requirements. Other dependants may be entitled to compensation in respect of the deceased worker as well. These pensions will be indexed (one-half of the annual change in CPI) commencing January 1, 2000.

A surviving spouse is also entitled to a death benefit. Burial expenses and transportation cost are also covered by compensation.

Survivor Benefits represent 14.5 percent of total benefit liabilities as at December 31, 1994.

The average duration of payments of existing long-term disability and survivor benefit liabilities is estimated to be 14 years.

#### **Short-Term Disability and Related Liabilities**

1. **Short-Term Disability** -Temporary earnings replacement benefits are paid for loss of earnings capacity at 75 percent of the worker's loss of earnings for the first 26 weeks and 85 percent thereafter. Commencing January 1, 2000, injured workers who have received temporary earnings replacement benefits for more than 12 continuous months have these benefits indexed on January 1 following this anniversary. The indexation is based on that calculated above for long-term disability awards. Short-term disability benefits include income benefits during a rehabilitation period.

This liability comprises 8.2 percent of total benefit liabilities as at December 31, 1994.

2. **Health Care** - This is the cost to the Workers' Compensation Board of medical services resulting from a compensable accident.

Health Care represents 6.4 percent of total benefit liabilities as at December 31, 1994.

3. **Rehabilitation** - This relates to benefits for the rehabilitation of an injured worker, including vocational and psychological rehabilitation costs. This excludes income benefits to the injured worker during the rehabilitation period (included in short-term disability).

This category represents 1.4 percent of total benefit liabilities as at December 31, 1994.

The average duration of payments of these existing liabilities is estimated to be two years.

### **Funding of Liabilities**

The funding of long-term disability liabilities and survivor benefits is significantly different than that of the temporary earnings replacement liabilities and is a function of the nature of each type of liability. Pension/impairment liabilities are long-term annuity type payments with an average life of 14 years. This requires assets which are long-term in nature and which track inflation since pension payments will be indexed to the Consumer Price Index.

The temporary earnings replacement liabilities are much shorter in nature. Theoretically, to correctly match the duration of the assets purchased with the payout requirements of these liabilities, it would be appropriate to purchase one year investments in an amount equal to the liabilities coming due in one year, two year investments in amount equal to the liabilities coming due in two years and so on. Currently this is not required, since assessment premium income exceeds temporary earnings replacement payments in the year. The best asset vehicle to match the temporary earnings replacement liabilities is a debt investment which meets the income requirements and provides security of principal.



**APPENDIX B**

**STATEMENT OF INVESTMENT BELIEFS**

## **STATEMENT OF INVESTMENT BELIEFS**

This document is to be distinct from but should be read in conjunction with the fund's Statement of Investment Policies and Objectives (the "SIP&O").

The purpose of this Statement of Investment Beliefs (the "SIB") is to enunciate a set of investment principles that:

- Reflects the views and beliefs of the Finance & Investment Committee (the "Committee").
- Governs the manner in which the fund's assets (the "Fund") are invested.
- Forms the basis for the formulation of the investment strategy, and the SIP&O and its periodic amendment.
- Provides a documented framework to assess at a later date the rationale for the current investment approach.

### **Background**

WCB's financial objectives (rewards, risks and related tolerance) are as follow:

- Meet the funding requirement of the Workers' Compensation Act; and
- Bring the workers' compensation system to a full funding, ensuring that assets are sufficient to meet liabilities.

Funding valuations are currently based on long term actuarial assumptions which are relatively stable over time. From an accounting stand point, the proposed IFRS rules make discount rate and liabilities more bond market-related.

In managing risk, the Committee believes that the Fund should be diversified across a broad range of financial assets and will review from time to time the risk and return characteristics of specific asset classes, to determine an appropriate debt/equity allocation for the fund and its impact on specific financial metrics. Policies and guidelines for the management of the Fund will be developed with oversight and monitoring procedures to ensure that the Fund is managed in compliance with these policies and procedures. The WCB's investment approach and risk tolerance should remain relatively close compared to other WCB's and like organizations in Canada.

STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
<b>Asset Mix</b>	<ul style="list-style-type: none"> <li>■ The target asset mix is considered to be the most important determining factor in the return/risk profile of the WCB's Fund. Achieving the WCB's financial objectives will require exposure to asset classes with some risk i.e. asset classes that deliver a return premium.</li> </ul>
<b>Traditional Asset classes</b>	<ul style="list-style-type: none"> <li>■ Nominal bonds are generally less volatile than stocks. They provide steady income as well as the return of the original capital at maturity. Importantly, they can be viewed as a type of risk minimizing asset class in the sense that they are better suited than other assets in matching the behavior of the Fund's liabilities, if market-related. A manager structure review of the Fund's bond component may be performed from time to time to reconsider the FIC's position on managing bonds using a 100% passive approach.</li> <li>■ Real return bonds (long term bonds whose coupon payments are adjusted for changes in the rate of inflation) are appealing because they provide a good inflation hedge. However, their supply is very limited and they are more appropriate to hedge market-related indexed liabilities.</li> <li>■ High yield bonds carry high credit risk and are not effective in hedging liabilities but may be considered to diversify equities.</li> <li>■ Cash is the most liquid investment, but is not viewed as an appropriate strategic investment because of its low yields, very short term nature and risk in terms of its mismatch characteristics relative to the market-related liabilities.</li> <li>■ Public equities, while potentially quite volatile in the short term, are expected to produce better returns than bonds over the long term and are expected to reduce the long term costs of managing the Fund.</li> </ul>

STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
<b>Alternative Asset Classes</b>	<p>In general, alternative asset classes will be evaluated based on a set of criteria including their liquidity and the management time needed to monitor the investment.</p> <ul style="list-style-type: none"> <li>■ Real estate: Income producing properties have attractive risk reduction characteristics in that they have a low correlation with equity securities, lower volatility of returns versus equities and can provide some protection against inflation. Despite their illiquid nature, real estate tends to deliver good long term returns that rank between bonds and equities.</li> <li>■ Infrastructure assets: Historical performance data for direct infrastructure is limited and not readily available, but such assets, although illiquid in nature, can deliver stable and superior long term returns that are fairly uncorrelated with traditional asset classes and are an excellent hedge against inflation. This asset class could eventually be considered in the policy asset allocation upon significant recovery of equity markets, i.e. once funded status has improved, to reduce risk.</li> <li>■ Commodities: This asset class displays high volatility and is priced in U.S. dollars, hence adding currency risk. Since the Canadian equity market is already largely exposed to commodity-related sectors, the Fund's assets should not be invested directly in commodities.</li> <li>■ Private equities and hedge funds are not permitted due to internal resource constraints, illiquidity and relatively low performance after fees.</li> </ul>
<b>Preferred Risk Measure</b>	<ul style="list-style-type: none"> <li>■ The focus should be as much as possible on absolute risk (standard deviation of absolute returns) rather than relative risk (tracking error) at the Fund level. However, at the managers' level, there is currently a combination of benchmark agnostic and benchmark-driven managers in place. By benchmark agnostic, we mean that market indices (benchmarks) do not serve as a starting point for portfolio construction and that a manager that abides to such approach is comfortable taking decisive positions away from the benchmark. Benchmark-driven managers do the exact opposite.</li> </ul>

STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
<b>Diversification</b>	<ul style="list-style-type: none"> <li>■ Diversification offers the opportunity to reduce risk and improve risk-adjusted returns. Real estate and bonds are viewed as good diversifiers by the WCB given their low correlation with equities.</li> </ul>
<b>Balanced versus Specialty Managers</b>	<p>A specialty investment manager structure is more advantageous than a balanced approach in managing the Fund's assets as:</p> <ul style="list-style-type: none"> <li>■ Balanced managers have not historically demonstrated an ability to add value through asset mix shifts.</li> <li>■ There are a great number of successful specialty investment firms focusing on a single asset class (e.g., equities) that cannot be considered in a selection process if a balanced structure is utilized.</li> <li>■ It is difficult to find active managers in Canada that are good at managing all asset classes.</li> </ul>
<b>Active versus Passive Investing</b>	<p>Active managers, in some cases, can, over long periods, outperform passive indices. In some cases the size of added value net of fees may not be significant, in which case passive management may be more appropriate. Investment through passive strategies may be more appropriate in more efficient markets. The more efficient the market is, the harder it will be to outperform over the long term. The active vs. passive decision is based on the fee differential, the added value opportunities in the market, the value placed on the "risk management" activities of active managers, the resources available for monitoring and the WCB's confidence in selecting well performing active managers.</p> <p>As a result:</p> <ul style="list-style-type: none"> <li>■ Bonds and currency hedging strategy will be managed using a passive approach. However, the FIC may want to perform a manager structure review of the Fund's bond component from time to time to reassess its position on managing bonds using a 100% passive approach.</li> <li>■ All equity asset classes and alternative investments will be managed actively.</li> </ul>

STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
Investment Styles	<ul style="list-style-type: none"> <li>■ The WCB favors a level of absolute return volatility at the Fund level that will be at or below that of the Fund's benchmark. Selected managers are more likely to be value, core and G.A.R.P. equity managers although a few mandates displaying a major style bias may be envisaged e.g. global equity ACWI mandate.</li> </ul>

STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
<b>Market Capitalization Coverage</b>	<ul style="list-style-type: none"> <li>■ Mid cap and small cap stocks have historically outperformed large cap stocks over long periods, although it also recognizes that history does not necessarily repeat itself.</li> <li>■ Exposure to small/mid cap sizes can be achieved through all cap mandates where managers can tactically adjust exposure to these areas.</li> </ul>
<b>Fundamental vs. Quantitative Managers</b>	<ul style="list-style-type: none"> <li>■ In turbulent market conditions (e.g. 2008-2009), fundamental strategies will tend to outperform pure quantitative managers. As a result, the use of pure quantitative managers should be balanced with that of fundamental managers.</li> </ul>
<b>Number of Managers</b>	<p>It is prudent to utilize more than one investment management firm to manage the Fund's assets:</p> <ul style="list-style-type: none"> <li>■ It is questionable whether a single manager can be among the best in each asset class or category.</li> <li>■ Using different managers/firms can reduce the concentration risk and the potential impact on the Fund of underperformance by a single manager whose style may be out of favour or simply due to organizational issues which could affect the performance of all products of that firm.</li> </ul> <p>The WCB favors mandates of reasonable size, lower number of relationships to monitor and related fees. As a result, the WCB believes that a multi-manager structure composed of a minimum of 4 equity managers (minimum of 3 foreign equity managers) to manage the Fund's assets is best suitable.</p> <p>In determining the appropriate number of investment managers, consideration should be given to the amount of assets under management, targeted risk level, cost efficiency, the administrative economies of scale and the nature of the mandates.</p> <p>Given this belief, the Fund, effective October 1, 2012, will not allocate more than 10% target allocation to any new active mandates on a go forward basis.</p>

STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
Segregated vs. Pooled Funds	<ul style="list-style-type: none"> <li>■ The WCB believes that portfolio segregation is appropriate but, for certain asset classes such as international and global equities, pooled funds are more efficient from an implementation perspective.</li> </ul>



STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
<b>Canadian versus Foreign Equities</b>	<p>It is prudent to maintain an allocation to Canadian equities given that the Fund's liabilities are denominated in Canadian dollars. The WCB recognizes that:</p> <ul style="list-style-type: none"> <li>■ The Canadian equity market generally lacks liquidity and represents only a small component (about 5%) of the global equity market capitalization.</li> <li>■ Concentration risk in the Canadian equity market continues to be a problem with resource and financial stocks representing almost 80% of the S&amp;P/TSX Composite Index.</li> <li>■ There is a greater opportunity set to select from in the international and U.S. equity markets allowing the Fund to be diversified among a greater number of securities and economic sectors.</li> </ul> <p>Therefore, it is also appropriate to maintain a material allocation to foreign equities.</p>
<b>Global Equities vs. Separate U.S. and International Equity Mandates</b>	<ul style="list-style-type: none"> <li>■ Global equity managers have a broader opportunity set for adding value than each U.S. and international equity manager individually. However, investing in separate U.S. and international equity mandates provides a larger combined universe of managers to choose from and permits access to boutique U.S. only equity managers and U.S. all cap mandates.</li> <li>■ As a result, the use of a combination of global/U.S./international equity mandates is viewed as optimal.</li> </ul>

<b>STATEMENT OF INVESTMENT BELIEFS</b>	
<b>Topic</b>	<b>Comments</b>
<b>Emerging Markets vs. Developed Markets Equities</b>	<ul style="list-style-type: none"> <li>■ The demographics and relative economic growth will continue to be an important factor driving equity returns in the future, suggesting that the returns in the current developed countries should lag those of the emerging countries over long periods.</li> <li>■ As a result, emerging markets exposure in equities can be achieved through broader international and/or global equity mandates i.e. no specialized mandate, where managers can tactically adjust exposure to these areas.</li> </ul>
<b>Foreign Currencies</b>	<ul style="list-style-type: none"> <li>■ Given that the Fund's liabilities are in Canadian dollars and given that the short term volatility of currency rates together with the meaningful exposure of the portfolio to major currencies (i.e. U.S. dollar, Yen, Euro and British Pound), it is appropriate to reduce the effect of such currency exposure by implementing a 50% currency hedge overlay strategy with respect to those major currencies through the use of currency forward contracts. Currencies do not add nor detract value.</li> </ul>
<b>Asset Mix Rebalancing</b>	<ul style="list-style-type: none"> <li>■ Market behavior, among other things, can cause asset classes to drift from their respective policy weights. A disciplined and pre-determined rebalancing program (which is formalized in a Rebalancing Policy), outside of a tolerance band in each asset class is value additive and more importantly can reduce risk over the long term.</li> </ul>
<b>Performance-Based Fees</b>	<ul style="list-style-type: none"> <li>■ Performance-based fees (base fee plus an incentive fee for value added) should be used as much as possible for active equity mandates, provided that the arrangement is fair for the WCB.</li> </ul>
<b>Reasons for Hiring Managers</b>	<ul style="list-style-type: none"> <li>■ Need to complete the structure of the Fund.</li> <li>■ Compatibility with the investment style/philosophy of the Fund with respect to the manager's investment process/style.</li> <li>■ Solid, long-serving investment team dedicated to the strategy in question.</li> </ul>

STATEMENT OF INVESTMENT BELIEFS	
Topic	Comments
	<ul style="list-style-type: none"> <li>■ Critical mass of assets under management at the firm level but more importantly in the asset class in question i.e. no hiring of small and growing boutique firms.</li> <li>■ Strong confidence that the manager can outperform for any reasonable period related to the stated benchmark.</li> </ul>
<b>Reasons for Firing Managers</b>	<ul style="list-style-type: none"> <li>■ Changes in investment style/philosophy which are sufficiently significant to alter the role for which the investment manager was hired.</li> <li>■ Changes in key personnel, the decision-making process or ownership.</li> <li>■ Changes in the Fund's investment structure such that the investment manager's services are no longer required.</li> <li>■ Change in the amount of assets managed by the manager beyond a level that may not be appropriate given the investment manager's investment style or personnel.</li> <li>■ Reduced confidence that the manager can outperform for any reasonable period related to the stated benchmark.</li> <li>■ Existence of a criminal charge, securities' law violation or question regarding the firm's or its employees' ethics or integrity.</li> </ul>

**Attachment 14D**

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**Statement of  
Investment Policies  
and Goals**

Saskatchewan  
Pension Plan  
Contribution Fund

As of January 1, 2012

APPROVED on this 13<sup>th</sup> day  
of December, 2011

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Warren Wagner, Chair  
on behalf of the Board of Trustees

# Contents

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<b>Section 1—Overview</b>	<b>1</b>
1.01 Purpose of Statement	1
1.02 Background of the Plan	1
1.03 Plan Profile	1
1.04 Objective of the Funds	2
1.05 Investment and Risk Philosophy	2
1.06 Administration	3
1.07 Distinction of Responsibilities	3
<b>Section 2—Asset Mix and Diversification Policy</b>	<b>4</b>
2.01 Portfolio Return Expectations	4
2.02 Expected Volatility	4
2.03 Asset Mix	5
2.04 Management Structure	6
<b>Section 3—Permitted and Prohibited Investments</b>	<b>7</b>
3.01 General Guidelines	7
3.02 Permitted Investments	7
3.03 Minimum Quality Requirements	9
3.04 Maximum Quantity Restrictions	11
3.05 Prior Permission Required	13
3.06 Prohibited Investments	13
3.07 Securities Lending	13
3.08 Borrowing	14
<b>Section 4—Monitoring and Control</b>	<b>15</b>
4.01 Delegation of Responsibilities	15
4.02 Performance Measurement	16
4.03 Compliance Reporting by Investment Manager	17
4.04 Standard of Professional Conduct	17
4.05 Suppression of Terrorism	17
<b>Section 5—Administration</b>	<b>18</b>
5.01 Conflicts of Interest	18
5.02 Related Party Transactions	19
5.03 Selecting Investment Managers	19
5.04 Monitoring of Investment Managers	19
5.05 Performance Reporting by Investment Managers	20
5.06 Dismissal of an Investment Manager	20
5.07 Voting Rights	21
5.08 Soft Dollars	21
5.09 Valuation of Investments not Regularly Traded	21
5.10 Policy Review	21
<b>Appendix A—Balanced Manager A</b>	<b>22</b>
A.01 Mandate	22

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A.02	Asset Mix	22
A.03	Balanced Manager Benchmark	22
A.04	Permitted Investments	23
A.05	Investment in Pooled Funds	23
A.06	Compliance Report	24
<b>Appendix B</b>	<b>Balanced Manager B</b>	<b>27</b>
B.01	Mandate	27
B.02	Asset Mix	27
B.03	Balanced Manager Benchmark	27
B.04	Permitted Investments	28
B.05	Investment in Pooled Funds	28
B.06	Compliance Report	29
<b>Appendix C</b>	<b>Short Term Fund</b>	<b>30</b>
C.01	Mandate	30
C.02	Asset Mix	30
C.03	Short Term Manager Benchmark	30
C.04	Permissible Investments	30
C.05	Investment in Pooled Funds	31
C.06	Compliance Report	31

# Section 1—Overview

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## 1.01 Purpose of Statement

The purpose of this policy statement is to provide a framework for management of the pension assets within acceptable risk levels. The policy provides the investment managers with a written statement of specific quality, quantity and rate of return standards

A major goal of this policy statement is to establish ongoing communication between the Board and the investment manager. Effective communication will contribute to management of the portfolios in a manner that is consistent with market conditions and with the objectives of the Board. Consultation between the parties will take the form of regular meetings supplemented, from time to time, by informal contact requested by either party.

This Policy is based on the “prudent person portfolio approach” to ensure the prudent investment and administration of the assets of the Plan, within the parameters set out in applicable legislation.

## 1.02 Background of the Plan

The Saskatchewan Pension Plan (SPP) was established by the Government of Saskatchewan to provide a means of retirement income planning for all Saskatchewan residents, and particularly for those residents with little or no access to the Canada Pension Plan or other pension plans. The Plan was created by The Saskatchewan Pension Plan Act (the Act).

Section 5 of the Act authorizes the Board to invest the Plan's money in securities authorized for investment pursuant to The Pension Benefits Act 1992.

Section 5 of the Act requires the Board to develop and implement an investment policy for the Plan.

## 1.03 Plan Profile

In order to establish an appropriate Policy for the investment and administration of Plan assets, it is important to understand the nature of the Plan. Accordingly, this section of the Policy summarizes various aspects of the Plan that impact investment return requirements and risk tolerance.

The Saskatchewan Pension Plan is unique in its design. Non-Retired members have two options in which to invest their assets, the Balanced Fund and the Short Term Fund. These two funds are collectively known as the Contribution Fund. Assets of retired members are held in the Annuity Fund. This policy sets the investment parameters for the Contribution Fund. A separate investment policy governs the Annuity Fund.

The two portfolios hold assets supporting members’ pension credits prior to retirement. The assets are accumulated under a defined contribution (money purchase) arrangement. Under this



arrangement, plan members bear the investment risk and reap the rewards of superior investment performance, as there is no guarantee of pension benefits by a plan sponsor.

Membership in the Plan is open to all individuals between the ages of 18 and 71. Members could contribute up to \$600 annually and effective December 7, 2010, members are allowed to contribute a maximum of \$2,500 per year, subject to an individual's available contribution room. The average age of active members is 48 years, with 45% are under the age of 50 and 61% are under the age of 55.

Contributions and related earnings are locked in to age 55. Retirement options include purchase of an annuity from the Plan or an external provider or members may transfer assets to another financial institution for the purchase of a Prescribed Registered Retirement Income Fund (P-RRIF) or a Locked-in Retirement Account (LIRA). Benefit payments from Annuities must commence and transfers must take place no later than age 71, and can commence as early as age 55. The amount of funds available to a member to purchase pension benefits at retirement is equal to cumulative contributions and accumulated earnings.

#### **1.04 Objective of the Funds**

The purpose of the Saskatchewan Pension Plan Balanced Fund is to accumulate the assets of members and invest these assets in a prudent, risk-controlled manner to provide for long-term growth.

The purpose of the Short Term Fund is to preserve capital and provide a stable cash flow.

#### **1.05 Investment and Risk Philosophy**

##### **(a) Investment Philosophy**

Plan Assets should be prudently managed.

The Balanced Fund balances the need for capital growth for younger members with the desire for capital preservation for older members by targeting a well diversified portfolio with a slight bias to equities over fixed income investments.

The Short Term Fund is designed for members whose primary objective is capital preservation. These members may have a shorter-term investment horizon and do not want to accept much investment risk.

##### **(b) Risk Philosophy**

In order to achieve the long-term investment goals, the Balanced Fund invests in assets that may have uncertain returns, such as Canadian equities, foreign equities and bonds. However, the Board attempts to reduce the overall level of risk by diversifying the asset classes, diversifying within each individual asset class and diversifying by manager style. Risk is also addressed through quality, quantity and diversification guidelines set out in this document. In addition, the Board further addresses risk by retaining an Investment Consultant who monitors investment performance and reports to the Board on Investment Manager related issues that may have an impact on performance. As a further risk control, management reviews compliance on a monthly basis of each of the managers with the quality and quantity guidelines contained in this policy. Finally, investment managers provide quarterly reports to the Board on compliance with the investment policy throughout the reporting period.

Investment Managers invest relative to a Benchmark Portfolio. The return from the benchmark portfolio represents an achievable return for the Balanced Fund given the capital market conditions in which it is invested. The specific weights for each asset class are set based on the risk tolerance of the Balanced Fund. Risk tolerance is assessed through a detailed review of the Plan and the investment markets that considers:

- Investment time horizon
- Liquidity needs
- Regulatory environment including tax issues
- Other unique plan-specific factors
- Historical and prospective risk (volatility) and return of various asset classes and benchmark portfolios.

The Short Term Fund eliminates most risks by investing solely in a high quality money market portfolio. The remaining risks are accepted as the costs of providing a high level of capital preservation.

## **1.06 Administration**

In accordance with The Saskatchewan Pension Plan Act, a Board of Trustees is established to administer the Plan and act as Trustee of the Funds.

Responsibility for safekeeping of the assets, income collection, settlement of investment transactions, and accounting for the investment transactions has been delegated to a trust company. Responsibility for investing the assets of the funds has been delegated to professional investment managers. The Board has a fiduciary responsibility to ensure the investments are managed prudently.

## **1.07 Distinction of Responsibilities**

The Board is responsible for investment of Plan assets.

Duties of the Board as relates to Investments are to:

- Approve a Statement of Investment Policies and Goals;
- Set an appropriate investment structure;
- Appoint investment managers;
- Appoint the custodian;
- Monitor investment performance; and
- Review the investment policy on an annual basis.

## **Section 2—Asset Mix and Diversification Policy**

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### **2.01 Portfolio Return Expectations**

#### **2.01.1 Balanced Fund**

The investment managers appointed by the Plan are directed to achieve a satisfactory long-term real rate of return through a diversified portfolio within their mandate, consistent with acceptable risks and prudent management. The long-term investment goal of the Balanced Fund is to achieve a minimum annualized rate of return of three percentage points in excess of the Canadian Consumer Price Index. This 3% real return objective is consistent with the overall investment risk level that the Balanced Fund could assume and normally will be assessed over annualized rolling four-year periods.

To achieve this long-term investment goal, the Balanced Fund has adopted an asset mix that has a slight bias to equity investments. The Balanced Fund employs a mix of active management styles. Active management provides the opportunity to outperform specific investment benchmarks.

#### **2.01.2 Short Term Fund**

The long-term investment goal of the Short Term Fund is to preserve capital over the short-term and earn a rate of return competitive with other money market funds.

### **2.02 Expected Volatility**

The volatility of the Balanced Fund is directly related to its asset mix, specifically, the balance between Canadian bonds, and Canadian and foreign equities. Since the Investment Managers do not have the authority to make any type of leveraged investment, the volatility should be similar to the volatility of the Benchmark Portfolio set out in Section 4.02 (Performance Measurement).

The Short Term Fund's volatility should be similar to the volatility of the DEX 91-Day T-Bill Index.

## 2.03 Asset Mix

### 2.03.1 Balanced Fund Asset Mix

Taking into consideration the investment and risk philosophy of the Fund, the following asset mix has been established:

Assets (as a % of market value)	Minimum %	Current Benchmark %	Long Term Benchmark %	Maximum %
<b>Equities</b>				
Canadian equities	<u>14</u>	<u>19</u>	<u>19</u>	<u>24</u>
U.S. equities	13	18	18	2
Non-North American equities	<u>13</u>	<u>18</u>	<u>18</u>	<u>23</u>
Foreign equities	<u>26</u>	<u>36</u>	<u>36</u>	<u>46</u>
Total Equities	40	55	55	65
<b>Real Estate</b>	5	5	10	15
<b>Fixed Income</b>				
Bonds and Mortgages	25	37	32	45
Short-term investments	0	<u>3</u>	<u>3</u>	10
<b>Total Fund</b>		100	100	

*The Current Benchmark is effective January 1, 2010. The ranges are effective January 1, 2012. The Long Term Benchmark will be effective upon the Plan substantially reaching the full long term real estate allocation.*

For purpose of the total asset mix described above, the Investment Managers' asset class pooled funds are deemed to be 100% invested, even though these funds may contain a portion held in cash & cash equivalent instruments.

### 2.03.2 Short Term Fund Asset Mix

Taking into consideration the investment and risk philosophy of the Fund, the following asset mix has been established:

Assets (as a % of market value)	Minimum %	Benchmark %	Maximum %
Short-term investments		<u>100</u>	
<b>Total Fund</b>		100	

*The Benchmark is effective March 2010.*

For purpose of the Short Term Fund asset mix described above, the Investment Manager's asset class pooled fund is deemed to be 100% invested, even though the fund may contain a portion held in cash & cash equivalent instruments.

## **2.04 Management Structure**

### **(a) Philosophy**

A balanced management structure has been adopted for management of the Balanced Fund assets, consisting of two active balanced managers with offsetting styles.

This structure employs active management, which provides the opportunity to outperform common market indices over the long-term, with a minimum degree of excess risk.

A specialist management structure has been adopted for management of the Short Term Fund assets, consisting of a single specialist fixed income manager.

### **(b) Manager Allocation**

The Board shall consider the necessity to rebalance the Balanced Fund assets between managers on an ongoing basis.

## Section 3—Permitted and Prohibited Investments

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### 3.01 General Guidelines

The investments of the Plan must comply with the requirements and restrictions imposed by the applicable legislation, including but not limited to the requirements of *The Saskatchewan Pension Benefits Act, 1992*, which refers to the federal *Pension Benefits Standards Act, 1985* on investment related issues, the *Income Tax Act* and *Regulations*, and all subsequent amendments.

### 3.02 Permitted Investments

#### 3.02.1 Balanced Fund

In general, and subject to the restrictions in this Section 3, an Investment Manager may within its mandate, as described within their specific appendix, invest the Plan assets in any of the following asset classes and in any of the investment instruments listed below:

##### (a) Canadian and Foreign Equities

- (i) Common and convertible preferred stock, listed on a recognized exchange.
- (ii) Debentures convertible into common or convertible preferred stock.
- (iii) Rights, warrants and special warrants for common or convertible preferred stock.
- (iv) Installment receipts, American Depositary Receipts and Global Depositary Receipts.
- (v) Exchange traded index participation units (i.e., iUnits and Standard & Poors Depositary Receipts (SPDRs)).
- (vi) Income trusts, domiciled in jurisdictions that provide limited liability protection.
- (vii) TSX exchange traded limited partnerships.
- (viii) Private placement equity where the Investment Manager determines the security will become eligible for trading on a recognized exchange within a reasonable and defined time frame and the issuing company is publicly listed on a recognized exchange.

##### (b) Fixed Income and Mortgages

- (i) Bonds, debentures, notes, non-convertible preferred stock and other evidence of indebtedness of Canadian or developed market foreign issuers whether denominated and payable in Canadian dollars or a foreign currency.
- (ii) Mortgage-backed securities.

- (iii) Conventional first mortgages on income producing commercial property and multi-unit residential properties in Canada, held in pooled funds deemed permissible by the Board.
- (iv) Asset-backed securities.
- (v) Term deposits and guaranteed investment certificates.
- (vi) Private placements of bonds subject to Section 3.03(d).

**(c) Cash and Short-Term Investments**

- (i) Cash on hand and demand deposits.
- (ii) Treasury bills issued by the federal and provincial governments and their agencies.
- (iii) Obligations of trust companies and Canadian and foreign banks chartered to operate in Canada, including bankers' acceptances.
- (iv) Commercial paper and term deposits.

**(d) Real Estate**

Investment in real estate by way of participation in a pooled fund is permissible, where the Board has provided explicit approval to the manager. While it is recognized any real estate pooled fund in which the Plan participates is governed by its own investment policy, desirable traits in selection of a real estate manager and pooled fund include:

- (i) An institutional investment focus;
- (ii) A core style of real estate investing that is predominately focused on developed income-producing properties;
- (iii) A well-diversified portfolio by property type and by region; and
- (iv) Modest use of leverage, not to exceed 75% on individual properties and 50% on Total Fund assets.

**(e) Other Investments**

- (i) Investments in open-or closed-ended pooled funds provided that the assets of such funds are permissible investments under the Policy.
- (ii) Deposit accounts of the custodian can be used to invest surplus cash holdings.

**(f) Derivatives**

The use of derivatives (such as options, futures and forward contracts) is permitted to protect against losses from changes in exchange rates, interest rates and market indices; and for non-hedging purposes, as a substitute for direct investment. Sufficient assets or cash must be held to cover commitments due to the derivatives transactions. No derivatives can be used for speculative trading or to create a portfolio with leverage.

**(g) Pooled Funds**

Investment in pooled funds is permissible. Pooled fund investments are governed by the policies for each fund. The Board, in consultation with the investment consultant, has reviewed the guidelines for a number of funds, listed in the appendices, and determined they are appropriate investment vehicles for a portion of the Plan assets.

From time to time the Plan may invest in additional pooled funds, or existing pooled funds whose policies may have changed during the year, provided the Board has reviewed the fund guidelines for each and deemed them appropriate for the Plan.

Pooled funds reviewed and deemed appropriate are to be added to the lists of eligible funds during the next investment policy review.

Investment Managers are required to notify the Board in writing immediately of any pooled fund guideline changes.

**3.02.2 Short Term Fund**

In general, and subject to the restrictions of the pooled fund guidelines, the Investment Manager may invest the Plan assets in any of the following investment instruments with terms not exceeding 365 days.

**(a) Cash and Short-Term Investments**

- (i) Cash on hand and demand deposits.
- (ii) Treasury bills and bonds issued by the federal and provincial governments and their agencies.
- (iii) Debentures issued by Canadian corporations including, asset backed securities, short term bonds, repurchase agreements and floating rate securities.
- (iv) Bonds and notes denominated in Canadian dollars issued by non-Canadian issuers.

**3.03 Minimum Quality Requirements**

**3.03.1 Balanced Fund**

**(a) Quality Standards**

Within the investment restrictions for individual manager portfolios, including pooled funds, all portfolios should hold a prudently diversified exposure to the intended market.

- (i) The investment manager is expected to maintain relatively high quality portfolios. In general, equity investments should be limited to stocks that are publicly traded on a recognized securities market.
- (ii) The minimum quality standard for individual bonds and debentures is 'BBB' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase (includes all sub-rating levels within the overall 'BBB' rating).
- (iii) The minimum quality standard for individual short-term investments is 'R-1' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase.



- (iv) All investments shall be reasonably liquid (i.e., in normal circumstances they should be capable of liquidation within 1 month), except for real estate and mortgage investments.
- (v) Unrated bonds should be assigned a rating by the investment manager before purchase.
- (vi) The minimum quality standard for individual preferred shares is 'P-1' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase.
- (vii) Asset-backed securities must have ratings from at least two Recognized Bond Rating Agencies.

**(b) Split Ratings**

In cases where the Recognized Bond Rating Agencies do not agree on the credit rating for a bond, preferred share or asset-backed security, the security will be classified according to the following methodology:

- (i) If two agencies rate a security, use the lower of the two ratings;
- (ii) If three agencies rate a security, use the most common; and
- (iii) If all three agencies disagree, use the middle rating.

**(c) Downgrades in Credit Quality**

The Investment Manager will take the following steps in the event of a downgrade in the credit rating of a portfolio asset by a recognized bond rating agency to below the purchase standards set out in Section 3.03(a) Quality Standards:

- (i) The General Manager will be notified of the downgrade by telephone at the earliest possible opportunity;
- (ii) Within ten business days of the downgrade, the Investment Manager will advise the General Manager in writing of the course of action taken or to be taken by the Investment Manager, and its rationale; and
- (iii) The Investment Manager will provide regular reporting on the status of the asset until such time as it matures, is sold or is upgraded to a level consistent with the purchase quality standards as expressed in the above guidelines.

**(d) Rating Agencies**

For the purposes of this Policy, the following rating agencies shall be considered to be 'Recognized Bond Rating Agencies':

- (i) DBRS (Canadian issuers only);
- (ii) Standard and Poor's;
- (iii) Moody's Investors Services; and
- (iv) Fitch Ratings (foreign issuers only).

**(e) Private Placement Bonds**

Private placement bonds and asset-backed securities are permitted subject to all of the following conditions:

- (i) The issues acquired must be minimum 'BBB' or equivalent rated.
- (ii) The Manager's portfolio may not hold more than 5% of the market value of any one private placement.
- (iii) The Manager must be satisfied that there is sufficient liquidity to ensure sale at a reasonable price.

**3.03.2 Short Term Fund**

**(a) Quality Standards**

Within the investment restrictions of the pooled fund guidelines, the portfolio should hold a prudently diversified exposure to the intended market.

- (i) The minimum quality standard for individual short term bonds and floating rate securities is 'A' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase (includes all sub-rating levels within the overall 'A' rating).
- (ii) The minimum quality standard for individual short-term investments is 'R-1' or equivalent as rated by a Recognized Bond Rating Agency, at the time of purchase.

**3.04 Maximum Quantity Restrictions**

**3.04.1 Balanced Fund**

**(a) Combined Fund Level**

The combined equity and debt holdings of a single corporation and its associated or affiliated companies shall not represent more than 10% of the total book value of the assets of the Fund.

**(b) Individual Investment Manager Level**

The Investment Manager shall adhere to the following restrictions:

**(i) Total Portfolio**

- (A) The combined equity and debt holdings of a single corporation and its associated or affiliated companies shall not represent more than 10% of the total book value of the assets of the Manager.

**(ii) Equities**

- (A) No one equity holding shall represent more than 10% of the market value of the Investment Manager's total equity portfolio.
- (B) No one equity holding shall represent more than 10% of the voting shares of a corporation.
- (C) No one equity holding shall represent more than 10% of the available public float of such equity security.

- (D) The 10% limit referred to in 3.04(b)(ii)(B) does not apply to a corporation incorporated for the purpose of, and that limits its activities to, allowing a pension fund to avail itself of either:
  - Expertise not otherwise available to the fund.
  - An investment opportunity in real estate, resource property or venture capital.

**(iii) Bonds and Short-Term**

- (A) Except for federal and provincial bonds (including government guaranteed bonds), no more than 10% of the market value of an Investment Manager's bond portfolio may be invested in the bonds of a single issuer and its related companies.
- (B) Except for federal and provincial bonds, no one bond holding shall represent more than 10% of the market value of the total outstanding for that bond issue.
- (C) 'BBB' bonds may not be purchased if the purchase would raise the 'BBB' holdings to more than 20% of the market value of the bond portfolio.
- (D) No more than 30% of the market value of an Investment Manager's bond portfolio shall be invested in bonds of foreign issuers.
- (E) Foreign currency exposure is limited to 10% of the market value of the bond portfolio.
- (F) No more than 5% of the market value of an Investment Manager's total portfolio shall be invested in a commercial mortgage pooled fund.

**(iv) Pooled Fund Investment**

An investment by the Fund in a single pooled fund should not exceed 10% of the market value of that fund unless provision has been made to transfer assets out of the fund "in kind".

**3.04.2 Short Term Fund**

Subject to the restrictions of the pooled fund guidelines, the Investment Manager may invest the Plan assets as follows:

**Bonds and Short-Term**

- (i) Individual corporate issuers, excluding Canadian banks, will not exceed 8% of the portfolio.
- (ii) The maximum exposure to any single bank issue is 30% of the portfolio.
- (iii) The maximum exposure to floating rate securities is 10% of the portfolio.

### **3.05 Prior Permission Required**

The following investments are permitted provided that prior permission for such investments has been obtained from the Board:

- (a) Investments in private placement equities, other than those permitted in Section 3.02.1 (a) (viii)
- (b) Investments in private placement bonds with credit ratings lower than 'BBB';
- (c) Direct investments in venture capital financing;
- (d) Direct investments in resource properties;
- (e) Derivatives other than those otherwise permitted in Section 3.02(e) above;
- (f) Any other investments not expressly permitted by this policy statement.

### **3.06 Prohibited Investments**

The Investment Managers shall not:

- (a) Invest in companies for the purpose of managing them;
- (b) Purchase securities on margin or engage in short sales, except as allowed in 3.02(e) above;
- (c) Investment in securities that would result in the imposition of a tax on the Plan under the Income Tax Act (Canada) unless they provide a prior written acknowledgement to the Board that such investments will result in a tax and receive prior written permission for such investments from the Board; and
- (d) Make any investment not specifically permitted by this Policy.

### **3.07 Securities Lending**

The securities of the Plan may be loaned by the custodian provided that:

- (a) The custodian provides indemnification against any and all losses related to counterparty risk and collateral risk;
- (b) The loans are secured by cash or readily marketable investments having a market value of at least 102% of the market value of the securities loaned;
- (c) The loans are marked to market daily to ensure the collateral continues to have a market value of at least 102% of the market value of the loaned asset; and
- (d) The securities are not loaned to facilitate a dividend rental arrangement.

Presently, the Plan has been not engaged the custodian or a third party to provide securities lending services on segregated assets.

Investment in a pooled fund that permits securities lending is permissible. The pooled fund manager shall disclose whether the fund uses securities lending.

### **3.08 Borrowing**

The Contribution Fund shall not borrow money, except to cover short-term contingency and the borrowing is for a period that does not exceed ninety days. Also, any borrowing shall be made only in accordance with applicable legislation.

## Section 4—Monitoring and Control

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### 4.01 Delegation of Responsibilities

Overall responsibility for the Plans' assets rests with the Board. The Board is responsible for the investment policy, appointment of custodians, investment managers, actuarial and consulting services, and plan changes. The Board is also charged with ensuring the Plan conforms to legislation and monitoring investment performance.

In completing the above duties a number of responsibilities have been delegated:

**(a) Investment Managers will:**

- (i) Invest the assets of each Fund in accordance with this Policy;
- (ii) Notify the Board, in writing of any significant changes in the investment manager's philosophies and policies, personnel or organization and procedures;
- (iii) Notify the Board, in writing, of any legal or regulatory proceedings or charges of which the Investment Manager may be aware, against the Investment Manager's firm or investment personnel, or sub-advisors or that firm's investment personnel;
- (iv) Meet with the Board as required and provide quarterly written reports regarding their past performance, their future strategies and other issues as requested
- (v) Reconcile account records with the custodian account records monthly; and
- (vi) File quarterly compliance reports (see Section 4.03).

**(b) The custodian will:**

- (i) Maintain safe custody over the assets of each Fund;
- (ii) Execute the instructions of the Board, as communicated by Administration, and any Investment Manager appointed to manage the assets of each Fund; and
- (iii) Record income and provide monthly financial statements as required.

**(c) The investment consultant will:**

- (i) Assist in the development and implementation of this policy and provide related research;
- (ii) Monitor the investment performance of each Fund and the Investment Managers on a quarterly basis;

- (iii) Support the Board on matters relating to investment management and administration of each Fund;
- (iv) Evaluate the appropriateness of pooled fund vehicles made available to each Fund by the Investment Managers; and
- (v) Meet with the Board and Administration as required.

**(d) The General Manager:**

- (i) Is appointed by the Board and is responsible for all investment matters of the Plan.

## 4.02 Performance Measurement

The performance of each Fund shall be measured quarterly and, in accordance with industry convention, return calculations shall be as follows:

- Time weighted rates of return.
- Total returns, including realized and unrealized gains and losses and income from all sources.

Measurement against performance objectives for the Investment Managers will normally be assessed over rolling four-year periods.

### 4.02.1 Balanced Fund Benchmark

The primary objective for the Balanced Fund is to earn a rate of return that exceeds the rate of return earned on a benchmark portfolio. The benchmark consists of the following market index total returns weighted as indicated:

Balanced Fund Benchmark	Long Term Benchmark %	Current Benchmark%
S&P/TSX Capped Composite Index	19	19
S&P 500 Index (Cdn. \$)	18	18
MSCI EAFE Index (Cdn. \$)	18	18
Investment Property Databank	10	5
DEX Universe Bond Index	32	37
DEX 91-Day T-Bills	<u>3</u>	<u>3</u>
	<u>100</u>	<u>100</u>

*The Current Benchmark was effective January 1, 2010. The Long Term Benchmark will be effective upon the Plan substantially reaching the full long term real estate allocation.*

### 4.02.2 Short Term Manager Benchmark

The primary objective for the Short Term Fund is to earn a rate of return that exceeds the rate of return earned on a benchmark portfolio. The benchmark consists of the following market index total returns weighted as indicated:

Short Term Fund Benchmark	%
DEX 91-Day T-Bill Index	100

#### **4.03 Compliance Reporting by Investment Manager**

Each Investment Manager is required to complete and sign a compliance report each quarter. The compliance report should indicate whether or not the Investment Manager's portfolio was in compliance with this Policy, or the relevant pooled fund policy, during the quarter. Copies of the compliance reports must be sent to the Board and to the investment consultant. Report formats for the compliance reports are included under the appendix.

In the event that an Investment Manager is not in compliance with this Policy, the Investment Manager is required to advise the Administration immediately, detailing the nature of the non-compliance and recommending an appropriate course of action to remedy the situation. If it is deemed to be in the best interest of the Plan, the Board may grant permission, on a temporary basis, for the Investment Manager to deviate from the guidelines.

If an Investment Manager believes the Asset Mix Guidelines are inappropriate for anticipated economic conditions, the manager is responsible for advising the Board that a change in guidelines is desirable and the reasons therefore.

The Plan invests in several pooled funds, which have separate investment policies. Should a conflict arise between the provisions of this Policy, and the provisions of the pooled fund's investment policy, the Investment Manager is required to notify the Board immediately in writing, detailing the nature of the conflict and the Investment Manager's recommended course of action.

#### **4.04 Standard of Professional Conduct**

Each Investment Manager is expected to comply, at all times and in all respects, with the Code of Ethics and Standards of Professional Conduct as promulgated by the CFA Institute.

Each Investment Manager will manage the assets with the care, diligence and skill that a prudent person skilled as a professional investment manager would use in dealing with pension plan assets. The Investment Manager will also use all relevant knowledge and skill that it possesses or ought to possess as a prudent investment manager.

#### **4.05 Suppression of Terrorism**

The Investment Managers must comply at all times and in all respects with the Federal Suppression of Terrorism Regulations.



## Section 5—Administration

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### 5.01 Conflicts of Interest

#### (a) Responsibilities

This standard applies to the members of the Board as well as to all agents employed by them, in the execution of their responsibilities to the Plan (the “Affected Persons”).

An “agent” is defined to mean a company, organization, association or individual, as well as its employees, who are retained by the Board to provide specific services with respect to the investment, administration and management of the Plan.

#### (b) Disclosure

In the execution of their duties, the Affected Persons shall disclose any material conflict of interest relating to them, or any material ownership of securities, which could impair their ability to render unbiased advice, or to make unbiased decisions, affecting the administration of the Plan.

Further, it is expected that no Affected Person shall make any personal financial gain (direct or indirect) because of his or her fiduciary position. However, normal and reasonable fees and expenses incurred in the discharge of their responsibilities are permitted if documented and approved by the Board.

No Affected Person shall accept a gift or gratuity or other personal favor, other than one of nominal value, from a person with whom the individual deals in the course of performance of his or her duties and responsibilities for the Board.

It is incumbent on any Affected Person who believes that he/she may have a conflict of interest, or who is aware of any conflict of interest, to disclose full details of the situation to the attention of the Board immediately. The Board, in turn, will decide what action is appropriate under the circumstances but, at a minimum, will table the matter at the next regular meeting of the Board.

No Affected Person who has or is required to make a disclosure which is determined to be in conflict as contemplated in this Policy shall participate in any discussion, decision or vote relating to any proposed investment or transaction in respect of which he or she has made or is required to make disclosure.

## **5.02 Related Party Transactions**

The administrator of the plan may not enter into a transaction with a related party unless:

- (a) The transaction is required for the operation or administration of the plan and the terms and conditions of the transaction are not less favourable to the plan than market terms and conditions; or
- (b) The securities of the related party are acquired at a public exchange.

“Related party” is defined in section 1 of Schedule III to the Pension Benefits Standards Regulations, 1985 (Canada). A related party is a person who is the administrator of the plan including any officer, director or employee of the administrator, or any person who is a member of the Board. It also includes the Investment Managers and their employees, a union representing employees of the employer, a member of the plan, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others. Related party does not include government or a government agency.

Under the preceding conflict of interest guidelines, it is incumbent on any person to notify the Board if a conflict arises. Such conflict includes related party transactions.

## **5.03 Selecting Investment Managers**

In the event that a new Investment Manager must be selected or additional Investment Manager(s) added to the existing Investment Managers, the Board will undertake an Investment Manager search. The criteria used for selecting an Investment Manager will be consistent with the investment and risk philosophy set out in Section 1.05 (Investment and Risk Philosophy), and the Management Structure Philosophy set out in Section 2.04(a).

## **5.04 Monitoring of Investment Managers**

To enable the Board to fulfill its responsibility of monitoring and reviewing the Investment Managers, the Investment Consultant will assist the Board, on an ongoing basis, in considering:

- (a) Investment Manager’s staff turnover, consistency of style and record of service;
- (b) Investment Manager’s current economic outlook and investment strategies;
- (c) Investment Manager’s compliance with this Policy, where a manager is required to complete and sign a compliance report; and,
- (d) Investment performance of the assets of the Plan in relation to the rate of return expectations outlined in this Policy.

### **5.05 Performance Reporting by Investment Managers**

On a calendar quarterly basis, the Investment Managers will provide written reports regarding their performance and portfolio, and in the case of the active Investment Managers, a strategy review for the portfolio under management.

Meetings between the Investment Managers and the Board will be scheduled as required. For each quarter, it is expected that the Managers will prepare a general economic and capital markets overview, which will be distributed to the board. In their report the Managers should address the following issues:

- (a) Review the previous period's strategy and investment results, including pooled fund performance relative to the fund specific performance targets.
- (b) Discuss how the condition of the capital markets affects the investment strategy of their respective portfolios.
- (c) Economic and market expectations.
- (d) Anticipated changes in the asset mix within the limits provided in this Policy.
- (e) Discuss compliance and proxy deviations or exceptions.
- (f) Report material changes in personnel, firm structure and investment philosophy, style or approach.

An important element of the success of this policy is the link between the Investment Managers and the Board. It is expected that the Investment Managers will communicate with the Board, and/or Administration, and the Investment Consultant whenever necessary between regularly scheduled meetings.

### **5.06 Dismissal of an Investment Manager**

Reasons for considering the termination of the services of an Investment Manager include, but are not limited to, the following factors:

- (a) Performance results, which over a reasonable period of time, are below the stated performance benchmarks;
- (b) Changes in the overall structure of a Fund such that the Investment Manager's services are no longer required;
- (c) Legal or regulatory proceedings against the Investment Manager or its investment personnel, or any sub-advisor firm or that firm's investment personnel;
- (d) Change in personnel, firm structure and investment philosophy, style or approach which might adversely affect the potential return and/or risk level of the portfolio; and/or
- (e) Failure to adhere to this Policy.

### **5.07 Voting Rights**

The Board has delegated voting rights acquired through Plan investments to the custodian of the securities, to be exercised in accordance with the Investment Managers' instructions. Investment Managers are expected to vote all proxies in the best interests of the Plan members.

In exceptional circumstances, the Board may take back voting rights of assets held in segregated portfolios for specific situations.

The managers should disclose their proxy voting policies and report annually in the compliance report on (1) whether all eligible proxies were voted on the Plan's behalf and (2) if the proxy guidelines were followed and report on any deviations.

### **5.08 Soft Dollars**

A variety of brokers should be used in order to gain maximum utilization of the services available. It is the responsibility of the Investment Manager to ensure that the commission distribution is representative of the services rendered.

The Board does not use soft dollars to pay for any goods or services. Managers may use soft dollars to pay for research and other investment-related services with disclosure to the Board, provided they comply with the Soft Dollar Standards promulgated by the CFA Institute.

### **5.09 Valuation of Investments not Regularly Traded**

The following principles will apply for the valuation of investments that are not traded regularly:

**(a) Equities**

The most recent bid price available in the market.

**(b) Bonds**

The average of bid and ask price, as available from pricing sources. Where no market price is available, the last available market price is used.

**(c) Mortgages**

Unless in arrears, at the outstanding principal.

**(d) Real Estate**

A certified written appraisal from a qualified independent appraiser on each property annually. Newly acquired properties will be held at cost for a year, until the annual appraisal comes due.

**(e) Others**

Securities that are not publicly traded and for which no external transaction or other evidence of market value exists, will be valued at cost.

### **5.10 Policy Review**

This Policy may be reviewed and amended at any time, but it must be formally reviewed by the Board, at least once in every calendar year.

## Appendix A—Balanced Manager A

### A.01 Mandate

The Balanced Manager has been engaged to manage approximately half of Balanced Fund assets. The assets are to be actively managed using a combination of segregated and pooled fund strategies, in a diversified portfolio.

### A.02 Asset Mix

The following table presents the Balanced Manager benchmark and asset component ranges, based on market values.

Assets (as a % of market value)	Minimum %	Current Benchmark %	Long Term Benchmark %	Maximum %
<b>Equities</b>				
Canadian equities	<u>14</u>	<u>19</u>	<u>19</u>	<u>24</u>
U.S. equities	13	18	18	23
Non-North American equities	<u>13</u>	<u>18</u>	<u>18</u>	<u>23</u>
Foreign equities	<u>26</u>	<u>36</u>	<u>36</u>	<u>46</u>
Total Equities	40	55	55	65
<b>Real Estate</b>	10	10	20	30
<b>Fixed Income</b>				
Bonds and Mortgages	15	32	22	35
Short-term investments	0	<u>3</u>	<u>3</u>	10
<b>Total Fund</b>		100	100	

*The Current Benchmark is effective January 1, 2010. The ranges are effective January 1, 2012. The Long Term Benchmark will be effective upon the mandate substantially reaching the full long term real estate allocation.*

### A.03 Balanced Manager Benchmark

The performance of the Balanced Manager shall be measured quarterly and, in accordance with industry convention, return calculations shall be as follows:

- Time weighted rates of return.
- Total returns, including realized and unrealized gains and losses and income from all sources.

Measurement against performance objectives will normally be assessed over rolling four-year periods.

Balanced Benchmark A	Long Term Benchmark %	Current Benchmark %
S&P/TSX Capped Composite Index	19	19
S&P 500 Index (Cdn. \$)	18	18
MSCI EAFE Index (Cdn. \$)	18	18
Investment Property Databank	20	10
DEX Universe Bond Index	22	32
DEX 91-Day T-Bills	<u>3</u>	<u>3</u>
	<u>100</u>	<u>100</u>

*The Current Benchmark was effective January 1, 2010. The Long Term Benchmark will be effective upon the mandate substantially reaching the full long term real estate allocation.*

A secondary objective is to exceed the benchmark index in each of the asset classes in which the manager invests.

#### **A.04 Permitted Investments**

The Balanced Manager may be invested in securities issued by governments, corporations, trusts, and other commercial entities, located or whose business activities take place either in Canada or abroad. Investments in such entities may be direct investment or indirect investment through approved pooled funds whether or not the funds are publicly traded. All investments are subject to the investment guidelines found in Section 3 and the asset mix guidelines from Section A.03.

The Investment Manager must meet the requirements for eligible investments as outlined in The Pension Benefits Act and Regulations (Saskatchewan), the Income Tax Act and Regulations, and all subsequent amendments.

#### **A.05 Investment in Pooled Funds**

Investment in pooled funds is permissible. Pooled fund investments are governed by the policies for each fund. The Board, in consultation with the Investment Consultant, has reviewed the guidelines for the following funds and determined they are appropriate investment vehicles for a portion of the Plan assets:

Greystone EAFE Growth Fund  
Greystone Real Estate Fund  
Greystone Mortgage Fund

From time to time the Plan may invest in additional pooled funds, or existing pooled funds whose policies may have changed during the year, provided the Board has reviewed the fund guidelines for each and deemed them appropriate for the Plan.

Pooled funds reviewed and deemed appropriate are to be added to the list of eligible funds during the next investment policy review.

## **A.06 Compliance Report**

As specified in section 4.01 (a) (vi), a report on compliance with the investment policy should be completed quarterly. The report format is included on the following page.

**Saskatchewan Pension Plan—Balanced Fund Management**  
**Compliance Report for the Period From \_\_\_\_\_ to \_\_\_\_\_**  
**(date) (date)**

		Guidelines	Policy Complied With Yes/No*
		%	
<b>Asset Mix (at Market Value)</b>			
<b>Equities</b>	Canadian	14 - 24	
	U.S.	13 - 23	
	Non-North American	13 - 23	
	Total Foreign	26 - 46	
	Total	40 - 65	
<b>Real Estate</b>		10 - 30	
<b>Bonds &amp; Mortgages</b>		15 - 35	
<b>Short-Term &amp; Cash</b>		0 - 10	
<b>Permitted Investments</b>		As per Section 3	
<b>Constraints</b>			
<b>Equities</b>	- Publicly traded on recognized securities market		
	- Diversification	Max 10% of the market value of a manager's total equity portfolio in any single holding	
	- Concentration	Max 10% of the voting shares of any corporation	
		Max 10% of available public float	
<b>Bonds</b>	- Quality	Min 'BBB'	
	- Quantity	Except for federal or provincial bonds, max 10% of market value in one issuer. Max 5% of market value in any one private placement.	
		Except for federal or provincial, max 10% of market value of a bond issue	
		Max 20% of bond portfolio market value in 'BBB' bonds at time of purchase	
	- Foreign Issuers	Max 30% of market value of bond portfolio in developed market foreign issuers	
	- Foreign Currencies	Max 10% exposure at market value to foreign currencies within the bond portfolio	
<b>Short-Term Investments</b>	- Minimum Quality	'R-1' rating	
<b>Pooled Funds</b>	- Liquidity	Max 10% of the market value of the pooled fund	
	- Compliance	Pooled funds in compliance with fund policies	
	- Policy Changes	Board notified of policy changes during quarter	
<b>Other Investments</b>	- Prior Approval Required		
<b>Other</b>	- Statutory Requirements	Must meet requirements for eligible investments outlined in <u>The Pension Benefits Act</u> .	
		Must meet requirements for eligible investments outlined in the <u>Income Tax Act</u> .	
<b>Conflicts of Interest</b>	- Disclosure	Conflicts of interest (if any) disclosed to the Chairperson of the Board	
<b>Proxy Voting</b>	Compliance	All proxies voted in compliance with disclosed proxy voting policy	
<b>CFA Institute Code of Ethics and Standards of Professional Conduct</b>	- Compliance	CFA Institute Code of Ethics and Standards of Professional Conduct complied with	
<b>Suppression of Terrorism</b>	- Compliance	Compliance with Federal Suppression of Terrorism Regulations	



**Saskatchewan Pension Plan—Balanced Fund Management**  
**Compliance Report for the Period From \_\_\_\_\_ to \_\_\_\_\_**  
**(date) (date)**

\* Provide actual weight or range where appropriate. If policy not complied with, comment on specifics.

I believe this to be a factual representation of compliance with the Statement of Investment Policies and Goals throughout the reporting period.

\_\_\_\_\_  
Signature and Title

Greystone Managed Investments

\_\_\_\_\_  
Company Name

## Appendix B—Balanced Manager B

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### B.01 Mandate

The Balanced Manager has been engaged to manage approximately half of Balanced Fund assets. The assets are to be actively managed using a combination of segregated and pooled fund strategies, in a diversified portfolio.

### B.02 Asset Mix

The following table presents the Balanced Manager benchmark and asset component ranges, based on market values.

Assets (as a % of market value)	Minimum %	Benchmark %	Maximum %
<b>Equities</b>			
Canadian equities	<u>14</u>	<u>19</u>	<u>24</u>
U.S. equities	13	18	23
Non-North American equities	<u>13</u>	<u>18</u>	<u>23</u>
Foreign equities	<u>26</u>	<u>36</u>	<u>46</u>
Total Equities	40	55	65
<b>Fixed Income</b>			
Bonds	35	42	55
Short-term investments	0	<u>3</u>	10
<b>Total Fund</b>		100	

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*The Benchmark is effective January 1, 2010*

### B.03 Balanced Manager Benchmark

The performance of the Balanced Manager shall be measured quarterly and, in accordance with industry convention, return calculations shall be as follows:

- Time weighted rates of return.
- Total returns, including realized and unrealized gains and losses and income from all sources.

Measurement against performance objectives will normally be assessed over rolling four-year periods.

<b>Balanced Benchmark B</b>	<b>%</b>
S&P/TSX Capped Composite Index	19
S&P 500 Index (Cdn. \$)	18
MSCI EAFE Index (Cdn. \$)	18
DEX Universe Bond Index	42
DEX 91-Day T-Bills	<u>3</u>
	<u>100</u>

*Effective January 1, 2010.*

A secondary objective is to exceed the benchmark index in each of the asset classes in which the manager invests.

#### **B.04 Permitted Investments**

The Balanced Manager may be invested in securities issued by governments, corporations, trusts, and other commercial entities, located or whose business activities take place either in Canada or abroad. Investments in such entities may be direct investment or indirect investment through approved pooled funds whether or not the funds are publicly traded. All investments are subject to the investment guidelines found in Section 3 and the asset mix guidelines from Section A.03.

The Investment Manager must meet the requirements for eligible investments as outlined in The Pension Benefits Act and Regulations (Saskatchewan), the Income Tax Act and Regulations, and all subsequent amendments.

#### **B.05 Investment in Pooled Funds**

Investment in pooled funds is permissible. Pooled fund investments are governed by the policies for each fund. The Board, in consultation with the investment consultant, has reviewed the guidelines for the following funds and determined they are appropriate investment vehicles for a portion of the Plan assets:

- Leith Wheeler U.S. Equity Pension Pooled Fund
- Leith Wheeler International Equity Fund
- Leith Wheeler Total Return Bond Fund
- Leith Wheeler Income Trust Fund
- Leith Wheeler Special Equity Fund

From time to time the Plan may invest in additional pooled funds, or existing pooled funds whose policies may have changed during the year, provided the Board has reviewed the fund guidelines for each and deemed them appropriate for the Plan.

Pooled funds reviewed and deemed appropriate are to be added to the list of eligible funds during the next investment policy review.

**B.06 Compliance Report**

As specified in section 4.01 (a) (vi), a report on compliance with the investment policy should be completed quarterly. The report format is included on the following page.

**Saskatchewan Pension Plan—Balanced Fund Management**  
**Compliance Report for the Period From \_\_\_\_\_ to \_\_\_\_\_**  
**(date) (date)**

		Guidelines	Policy Complied With Yes/No*
		%	
<b>Asset Mix (at Market Value)</b>			
<b>Equities</b>	Canadian	14 - 24	
	U.S.	13 - 23	
	Non-North American	13 - 23	
	Total Foreign	26 - 46	
	Total	40 - 65	
<b>Bonds</b>		35 - 55	
<b>Short-Term &amp; Cash</b>		0 - 10	
<b>Permitted Investments</b>		As per Section 3	
<b>Constraints</b>			
<b>Equities</b>	- Publicly traded on recognized securities market		
	- Diversification	Max 10% of the market value of a manager's total equity portfolio in any single holding	
	- Concentration	Max 10% of the voting shares of any corporation	
		Max 10% of available public float	
<b>Bonds</b>	- Quality	Min 'BBB'	
	- Quantity	Except for federal or provincial bonds, max 10% of market value in one issuer. Max 5% of market value in any one private placement.	
		Except for federal or provincial, max 10% of market value of a bond issue	
		Max 20% of bond portfolio market value in 'BBB' bonds at time of purchase	
	- Foreign Issuers	Max 30% of market value of bond portfolio in developed market foreign issuers	
	- Foreign Currencies	Max 10% exposure at market value to foreign currencies within the bond portfolio	
<b>Short-Term Investments</b>	- Minimum Quality	'R-1' rating	
<b>Pooled Funds</b>	- Liquidity	Max 10% of the market value of the pooled fund	
	- Policy Changes	Board notified of policy changes during quarter	
	- Compliance	Pooled funds in compliance with fund policies	
<b>Other Investments</b>	- Prior Approval Required		
<b>Other</b>	- Statutory Requirements	Must meet requirements for eligible investments outlined in <u>The Pension Benefits Act</u> .	
		Must meet requirements for eligible investments outlined in the <u>Income Tax Act</u> .	
<b>Conflicts of Interest</b>	- Disclosure	Conflicts of interest (if any) disclosed to the Chairperson of the Board	
<b>Proxy Voting</b>	Compliance	All proxies voted in compliance with disclosed proxy voting policy	
<b>CFA Institute Code of Ethics and Standards of Professional Conduct</b>	- Compliance	CFA Institute Code of Ethics and Standards of Professional Conduct complied with	
<b>Suppression of Terrorism</b>	- Compliance	Compliance with Federal Suppression of Terrorism Regulations	

**Saskatchewan Pension Plan—Balanced Fund Management**  
**Compliance Report for the Period From \_\_\_\_\_ to \_\_\_\_\_**  
**(date) (date)**

\* Provide actual weight or range where appropriate. If policy not complied with, comment on specifics.

I believe this to be a factual representation of compliance with the Statement of Investment Policies and Goals throughout the reporting period.

\_\_\_\_\_  
Signature and Title

\_\_\_\_\_  
Leith Wheeler Investment Counsel  
Company Name

## Appendix C—Short Term Fund

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### C.01 Mandate

An active manager has been engaged to manage the Short Term Fund option in the Plan. The assets are to be invested in the manager's Money Market pooled fund.

### C.02 Asset Mix

The following table presents the Short Term manager benchmark and asset component ranges, based on market values.

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#### Short Term Fund Benchmark and Asset Component Ranges

	Minimum %	Benchmark* %	Maximum %
Short-Term Investments	100	100	100

*Effective March 2010*

*Investments in pooled funds are deemed to be fully invested in that pooled fund's asset class even though the pooled fund may have cash reserves*

### C.03 Short Term Manager Benchmark

The performance of the Short Term Manager shall be measured quarterly and, in accordance with industry convention, return calculations shall be as follows:

- Time weighted rates of return.
- Total returns, including realized and unrealized gains and losses and income from all sources.

Measurement against performance objectives will normally be assessed over rolling four-year periods.

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Short Term Fund Benchmark	%
DEX 91-Day T-Bill Index	100

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*Effective March 2010*

### C.04 Permissible Investments

The Short Term Manager may be invested in short-term fixed income securities issued by governments, corporations, trusts, and other commercial entities, located or whose business

activities take place either in Canada or abroad, within the approved pooled Fund. All investments are subject to the investment guidelines found in Section 3 and the pooled fund's internal guidelines. Should a conflict arise between the provisions of this Policy, and the provisions of the pooled fund's investment policy, the Manager is required to notify the Pension Board immediately in writing, detailing the nature of the conflict and the Manager's recommended course of action.

The Investment Manager must meet the requirements for eligible investments as outlined in The Pension Benefits Act and Regulations (Saskatchewan), the Income Tax Act and Regulations, and all subsequent amendments.

### **C.05 Investment in Pooled Funds**

Investment in pooled funds is permissible. Pooled fund investments are governed by the policies for each fund. The Board, in consultation with the investment consultant, has reviewed the guidelines for the following funds and determined they are appropriate investment vehicles for a portion of the Plan assets:

Greystone Money Market Fund

From time to time the Plan may invest in additional pooled funds, or existing pooled funds whose policies may have changed during the year, provided the Board has reviewed the fund guidelines for each and deemed them appropriate for the Plan.

Pooled funds reviewed and deemed appropriate are to be added to the list of eligible funds during the next investment policy review.

### **C.06 Compliance Report**

As specified in Section 4.01 (a) (vi), a report on compliance with the investment policy should be completed quarterly. The report format is included on the following page.



**Saskatchewan Pension Plan— Short Term Fund Management**  
**Compliance Report for the Period From \_\_\_\_\_ to \_\_\_\_\_**  
**(date) (date)**

		Guidelines	Policy Complied With Yes/No*
		%	
<b>Asset Mix (at Market Value)</b>			
<b>Short-Term &amp; Cash</b>	Money Market Fund	100	
<b>Pooled Fund</b>	- Liquidity	Max 10% of the market value of the pooled fund	
	- Policy Changes	Board notified of policy changes during quarter	
	- Compliance	Compliance with Greystone Money Market pooled fund guidelines	
<b>Other</b>	- Statutory Requirements	Must meet requirements for eligible investments outlined in <u>The Pension Benefits Act</u> .	
		Must meet requirements for eligible investments outlined in the <u>Income Tax Act</u> .	
<b>Conflicts of Interest</b>	- Disclosure	Conflicts of interest (if any) disclosed to the Chairperson of the Board	
<b>CFA Institute Code of Ethics and Standards of Professional Conduct</b>	- Compliance	CFA Institute Code of Ethics and Standards of Professional Conduct complied with	
<b>Suppression of Terrorism</b>	- Compliance	Compliance with Federal Suppression of Terrorism Regulations	

\* Provide actual weight or range where appropriate. If policy not complied with, comment on specifics.

**I believe this to be a factual representation of compliance with the Statement of Investment Policies and Goals throughout the reporting period.**

\_\_\_\_\_  
Signature and Title

Greystone Managed Investments  
Company Name

**Statement of  
Investment Policies  
and Goals**

Saskatchewan  
Pension Plan  
Annuity Fund

As of January 1, 2012

APPROVED on this 13<sup>th</sup> day  
of December, 2011

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Warren Wagner Chair  
on behalf of the Board of Trustees

# Contents

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<b>Section 1—Overview</b>	<b>1</b>
1.01 Purpose of Statement	1
1.02 Background of the Plan	1
1.03 Plan Profile	1
1.04 Objective of the Plan	2
1.05 Investment and Risk Philosophy	2
1.06 Administration	2
1.07 Distinction of Responsibilities	3
<b>Section 2—Asset Mix and Diversification Policy</b>	<b>4</b>
2.01 Long-term Mission Statement	4
2.02 Portfolio Structure	4
2.03 Management Structure	4
<b>Section 3—Investment Guidelines</b>	<b>5</b>
3.01 General Guidelines	5
3.02 Permitted Investments	5
3.03 Minimum Quality Requirements	6
3.04 Maximum Quantity Restrictions	7
3.05 Securities Lending	7
3.06 Prohibited Investments	7
3.07 Borrowing	7
<b>Section 4—Monitoring and Control</b>	<b>8</b>
4.01 Delegation of Responsibilities	8
4.02 Performance Standards	9
4.03 Compliance Reporting by Investment Manager	9
4.04 Standard of Professional Conduct	9
4.05 Suppression of Terrorism	9
<b>Section 5—Administration</b>	<b>10</b>
5.01 Conflicts of Interest	10
5.02 Related Party Transactions	11
5.03 Selecting Investment Managers	11
5.04 Monitoring of Investment Managers	11
5.05 Dismissal of an Investment Manager	12
5.06 Policy Review	12
<b>Appendix A—Compliance Report</b>	

# Section 1—Overview

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## 1.01 Purpose of Statement

The purpose of this policy statement is to provide a framework for management of the pension fund within acceptable risk levels. The policy provides the investment managers with a written statement of specific quality, quantity and rate of return standards for the Annuity Fund.

A major goal of this policy statement is to establish ongoing communication between the Board and the investment manager. Effective communication will contribute to management of the portfolio in a manner that is consistent with market conditions and with the objectives of the Board. Consultation between the two parties will take the form of regular meetings supplemented, from time to time, by informal contact requested by either party.

This Policy is based on the “prudent person portfolio approach” to ensure the prudent investment and administration of the assets of the Plan, within the parameters set out in applicable legislation.

## 1.02 Background of the Plan

The Saskatchewan Pension Plan (SPP) was established by the Government of Saskatchewan to provide a means of retirement income planning for all Saskatchewan residents, and particularly for those residents with little or no access to the Canada Pension Plan or other pension plans. The Plan was created by The Saskatchewan Pension Plan Act (the Act).

Section 5 of the Act authorizes the Board to invest the Plan's money in securities authorized for investment pursuant to The Pension Benefits Act 1992.

Section 5 of the Act requires the Board to develop and implement an investment policy for the Fund.

## 1.03 Plan Profile

In order to establish an appropriate Policy for the investment and administration of Plan assets, it is important to understand the nature of the Plan. Accordingly, this section of the Policy summarizes various aspects of the Plan that impact investment return requirements and risk tolerance.

The Saskatchewan Pension Plan is unique in its design. Non-Retired members have two options in which to invest their assets, the Balanced Fund and the Short Term Fund. These two funds are collectively known as the Contribution Fund. Assets of retired members are held in the Annuity Fund. This policy sets out the guidelines for management of the Annuity Fund. A separate policy governs the Contribution Fund.

The Annuity Fund holds assets transferred from the Contribution Fund at retirement. Assets in the Annuity Fund are used to provide annuity payments to retired members. The amount of

the annuity is dependent on the balance in the member's account at the date of retirement, interest rates at the date the annuity is purchased, the type of annuity selected, and life expectancy of the member and the member's spouse, if applicable.

Subsection 7(3.2) of The Saskatchewan Pension Plan Act indicates that any amount by which the liabilities of the fund exceed the assets of the Annuity Fund is a charge on, and payable out of, the general revenue fund of the Government of Saskatchewan.

Membership in the plan is open to all individuals between the ages of 18 and 71. Members are allowed to contribute a maximum of \$600 per year.

In the Contribution Fund, contributions and related earnings are locked in to age 55. Retirement options include purchase of an annuity from the Plan, or an external provider, or members may transfer assets to another financial institution for the purchase of a Prescribed Registered Retirement Income Fund (P-RRIF) or a Locked-in Retirement Account (LIRA). Benefit payments from Annuities must commence and transfers must take place no later than age 71, and can commence as early as age 55. The amount of funds available to a member to purchase pension benefits at retirement is equal to cumulative contributions and accumulated earnings.

#### **1.04 Objective of the Plan**

The purpose of the Saskatchewan Pension Plan Annuity Fund (the Fund) is to hold assets of retired members and provide annuity payments for the life of the member.

#### **1.05 Investment and Risk Philosophy**

(a) **Investment Philosophy**

Plan Assets (Fund) should be prudently managed.

(b) **Risk Philosophy**

Overall, the risk tolerance of the Annuity Fund can be considered low. The Fund cannot tolerate loss of principal. Risk is addressed through an investment approach that invests solely in high quality fixed income instruments. Interest rate risk is addressed by matching estimated future cash payments with interest and principal payments from the portfolio. As such, the Annuity Fund is immunized against changes in interest rates that may cause temporary differences between the asset and liability values.

#### **1.06 Administration**

In accordance with The Saskatchewan Pension Plan Act, a Board of Trustees is established to administer the Plan and act as Trustee of the Fund.

Responsibility for safekeeping of the assets, income collection, settlement of investment transactions, and accounting for the investment transactions has been delegated to a trust company. Responsibility for investing the assets of the fund has been delegated to a professional investment manager. The Board has a fiduciary responsibility to ensure the investments are managed prudently.

### **1.07 Distinction of Responsibilities**

The Board is responsible for investment of Fund assets.

Duties of the Board as relates to investments are to:

- Approve a Statement of Investment Policies and Goals;
- Set an appropriate investment structure;
- Appoint investment managers;
- Appoint the custodian;
- Monitor investment performance; and
- Review the investment policy on an annual basis.

## Section 2—Asset Mix and Diversification Policy

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### 2.01 Long-term Mission Statement

The investment objectives are:

- To structure the investment portfolio so that the Annuity Fund's net assets are immune to changes in the level of interest rates;
- To provide sufficient liquidity to ensure payment to retired members when due; and
- To ensure long-run solvency.

### 2.02 Portfolio Structure

To achieve the objectives cited in 2.01 above, the assets of the Fund should be invested so that:

- The duration of the investment portfolio at cost is matched with the duration of the liabilities at cost on an annual basis. The matching should fall within a band of  $-.5$  to  $+.5$  years of the duration target;
- Portfolio liquidity, including investment cashflows and short term investments, is sufficient to meet annuity payments and avoid the liquidation of long term bonds; and
- The present value of the asset cash flow stream exceeds the present value of expected liability payments.

### 2.03 Management Structure

#### Philosophy

A structure with a single manager has been adopted for management of Fund assets.

This structure employs immunized management, which reduces the possibility of the Fund not being able to achieve its long-term objective.

## Section 3—Investment Guidelines

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### 3.01 General Guidelines

The investments of the Fund must comply with the requirements and restrictions imposed by the applicable legislation, including but not limited to the requirements of The Saskatchewan Pension Benefits Act, which refers to the federal Pension Benefits Standards Act on investment-related issues, the Income Tax Act and Regulations, and all subsequent amendments.

### 3.02 Permitted Investments

In general and subject to the restrictions in this Section 3, the Fund may invest in any of the following asset classes and investment instruments:

**(a) Bonds**

- (i) Bonds, debentures, notes and other evidence of indebtedness of Canadian issuers denominated and payable in Canadian dollars.
- (ii) Mortgage-backed securities.
- (iii) Term deposits and guaranteed investment certificates.
- (iv) Private placements of bonds and asset-backed securities subject to Section 3.03(e).

**(b) Cash and Short-term Investments**

- (i) Cash on hand and demand deposits.
- (ii) Treasury bills issued by the federal and provincial governments and their agencies.
- (iii) Obligations of trust companies and Canadian and foreign banks chartered to operate in Canada, including bankers' acceptances.
- (iv) Commercial paper and term deposits.

**(c) Other Investments**

Deposit accounts of the custodian can be used to invest surplus cash holdings.



### **3.03 Minimum Quality Requirements**

#### **(a) Quality Standards**

- (i) The minimum quality standard for government bonds and debentures is 'BBB' or equivalent as rated by a recognized bond rating agency, at the time of purchase (includes all sub-rating levels within the overall 'BBB' rating)
- (ii) The minimum quality standard for corporate bonds and debentures is 'A' or equivalent as rated by a recognized bond rating agency, at the time of purchase (includes all sub-rating levels within the overall 'A' rating)
- (iii) Callable bonds are not permitted, except for issues with a "doomsday" clause under which the issuer pays a redemption premium relative to current market prices, thus maintaining the Annuity Fund's capital
- (iv) The minimum quality standard for individual short-term investments is 'R-1' or equivalent as rated by a recognized bond rating agency, at the time of purchase
- (v) All investments shall be reasonably liquid (i.e., in normal circumstances they should be capable of liquidation within 3 months)
- (vi) Unrated bonds should be assigned a rating by the investment manager before purchase

#### **(b) Split Ratings**

In cases where the Recognized Bond Rating Agencies do not agree on the credit rating for a bond, preferred share or asset-backed security, the security will be classified according to the following methodology:

- (i) If two agencies rate a security, use the lower of the two ratings;
- (ii) If three agencies rate a security, use the most common; and
- (iii) If all three agencies disagree, use the middle rating.

#### **(c) Downgrades in Credit Quality**

The Investment Manager will take the following steps in the event of a downgrade in the credit rating of a portfolio asset by a recognized bond rating agency to below the purchase standards set out in Section 3.03(a) Quality Standards:

- (i) The General Manager will be notified of the downgrade by telephone at the earliest possible opportunity;
- (ii) Within ten business days of the downgrade, the Investment Manager will advise the General Manager in writing of the course of action taken or to be taken by the Investment Manager, and its rationale; and
- (iii) The Investment Manager will provide regular reporting on the status of the asset until such time as it matures, is sold or is upgraded to a level consistent with the purchase quality standards as expressed in the above guidelines.

**(d) Rating Agencies**

For the purposes of this Policy, the following rating agencies shall be considered to be 'Recognized Bond Rating Agencies':

- (i) DBRS;
- (ii) Standard and Poor's; and,
- (iii) Moody's Investors Services.

**(e) Private Placements**

Private placement bonds and asset-backed securities are permitted subject to all of the following conditions:

- (i) The issues acquired must be minimum 'A' or equivalent rated.
- (ii) The portfolio may not hold more than 5% of the market value of any one private placement.
- (iii) The Investment Manager must be satisfied that there is sufficient liquidity to ensure sale at a reasonable price.

**3.04 Maximum Quantity Restrictions**

The Investment Manager shall adhere to the following restrictions:

- (a) Corporate bonds should not be purchased if it would result in raising corporate bonds above 10% of the market value of the bond portfolio.
- (b) No one corporate bond holding shall represent more than 10% of the market value of the total outstanding for that bond issue.
- (c) 'BBB' bonds may not be purchased if the purchase would raise the 'BBB' holdings to more than 15% of the market value of the bond portfolio.

**3.05 Securities Lending**

The securities of the Fund may not be loaned.

**3.06 Prohibited Investments**

The Investment Manager shall not make any investment not specifically permitted by this Policy.

**3.07 Borrowing**

The Fund shall not borrow money, except to cover short-term contingency and the borrowing is for a period that does not exceed ninety days. Also, any borrowing shall be made only in accordance with applicable legislation.

## Section 4—Monitoring and Control

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### 4.01 Delegation of Responsibilities

Overall responsibility for the Plans' assets rests with the Board. The Board is responsible for the investment policy, appointment custodians, investment managers, actuarial and consulting services, and plan changes. The Board is also charged with ensuring the Plan conforms to legislation and monitoring investment performance.

In completing the above duties a number of responsibilities have been delegated:

**(a) The Investment Manager will:**

- (i) Invest the assets of the Fund in accordance with this Policy;
- (ii) Notify the Board, in writing of any significant changes in the investment manager's philosophies and policies, personnel or organization and procedures;
- (iii) Meet with the Board as required and provide quarterly written reports regarding their past performance, their future strategies and other issues as requested;
- (iv) Reconcile account records with the custodian account records monthly; and
- (v) File quarterly compliance reports (see Section 4.03).

**(b) The custodian will:**

- (i) Maintain safe custody over the assets of the Fund;
- (ii) Execute the instructions of the Board, as communicated by Administration, and any Investment Manager appointed to manage the assets of the Fund; and
- (iii) Record income and provide monthly financial statements as required.

**(c) The investment consultant will:**

- (i) Assist in the development and implementation of this policy and provide related research;
- (ii) Monitor the investment performance of the Fund and the Investment Managers on a quarterly basis;
- (iii) Evaluate the appropriateness of pooled fund vehicles made available to the Fund by the Investment Manager;
- (iv) Support the Board on matters relating to investment management and administration of the Fund; and

- (v) Meet with the Board and Administration as required.

**(d) The General Manager:**

- (i) Is appointed by the Board and is responsible for all investment matters of the Plan.

#### **4.02 Performance Standards**

- (a) Investment performance will be monitored and evaluated on a regular basis.
- (b) Portfolio risk will be monitored annually by measuring the duration gap between the assets and liabilities.
- (c) Long-term solvency will be monitored annually by comparing the present value of the asset cash flow stream to the present value of the estimated liability payments.
- (d) Performance review and investment strategy meetings will be held on a quarterly basis.

#### **4.03 Compliance Reporting by Investment Manager**

The Investment Manager is required to complete and sign a compliance report each quarter. The compliance report should indicate whether or not the Investment Manager's portfolio was in compliance with this Policy during the quarter. Copies of the compliance reports must be sent to the Board and to the Fund's investment consultant. Report formats for the compliance reports are included under the appendix.

In the event that an Investment Manager is not in compliance with this Policy, the Investment Manager is required to advise the Administration immediately, detailing the nature of the non-compliance and recommending an appropriate course of action to remedy the situation.

If an Investment Manager believes the Guidelines are inappropriate for anticipated economic conditions, the manager is responsible for advising the Board that a change in guidelines is desirable and the reasons therefore.

#### **4.04 Standard of Professional Conduct**

Each Investment Manager is expected to comply, at all times and in all respects, with the Code of Ethics and Standards of Professional Conduct as promulgated by the CFA Institute.

Each Investment Manager will manage the assets with the care, diligence and skill that a prudent person skilled as a professional investment manager would use in dealing with pension plan assets. The Investment Manager will also use all relevant knowledge and skill that it possesses or ought to possess as a prudent investment manager.

#### **4.05 Suppression of Terrorism**

The Investment Managers must comply at all times and in all respects with the Federal Suppression of Terrorism Regulations.

## Section 5—Administration

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### 5.01 Conflicts of Interest

#### (a) Responsibilities

This standard applies to the members of the Board as well as to all agents employed by them, in the execution of their responsibilities to the Fund (the “Affected Persons”).

An “agent” is defined to mean a company, organization, association or individual, as well as its employees, who are retained by the Board to provide specific services with respect to the investment, administration and management of the Fund.

#### (b) Disclosure

In the execution of their duties, the Affected Persons shall disclose any material conflict of interest relating to them, or any material ownership of securities, which could impair their ability to render unbiased advice, or to make unbiased decisions, affecting the administration of the Fund.

Further, it is expected that no Affected Person shall make any personal financial gain (direct or indirect) because of his or her fiduciary position. However, normal and reasonable fees and expenses incurred in the discharge of their responsibilities are permitted if documented and approved by the Board.

No Affected Person shall accept a gift or gratuity or other personal favor, other than one of nominal value, from a person with whom the individual deals in the course of performance of his or her duties and responsibilities for the Board.

It is incumbent on any Affected Person who believes that he/she may have a conflict of interest, or who is aware of any conflict of interest, to disclose full details of the situation to the attention of the Board immediately. The Board, in turn, will decide what action is appropriate under the circumstances but, at a minimum, will table the matter at the next regular meeting of the Board.

No Affected Person who has or is required to make a disclosure which is determined to be in conflict as contemplated in this Policy shall participate in any discussion, decision or vote relating to any proposed investment or transaction in respect of which he or she has made or is required to make disclosure.

## **5.02 Related Party Transactions**

The administrator of the plan may not enter into a transaction with a related party unless:

- (a) The transaction is required for the operation or administration of the plan and the terms and conditions of the transaction are not less favourable to the plan than market terms and conditions; or
- (b) The securities of the related party are acquired at a public exchange.

"Related party" is defined in section 1 of Schedule III to the Pension Benefits Standards Regulations, 1985 (Canada). A related party is a person who is the administrator of the plan including any officer, director or employee of the administrator, or any person who is a member of the Board. It also includes, the Investment Managers and their employees, a union representing employees of the employer, a member of the plan, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others. Related party does not include government or a government agency.

Under the preceding conflict of interest guidelines, it is incumbent on any person to notify the Board if a conflict arises. Such conflict includes related party transactions.

## **5.03 Selecting Investment Managers**

In the event that a new Investment Manager must be selected or additional Investment Manager(s) added to the existing Investment Managers, the Board will undertake an Investment Manager search. The criteria used for selecting an Investment Manager will be consistent with the investment and risk philosophy set out in Section 1.05 (Investment and Risk Philosophy), and the Management Structure Philosophy set out in Section 2.03.

## **5.04 Monitoring of Investment Managers**

To enable the Board to fulfill its responsibility of monitoring and reviewing the Investment Managers, the Investment Consultant will assist the Board, on an ongoing basis, in considering:

- (a) Investment Manager's staff turnover, consistency of style and record of service;
- (b) Investment Manager's current economic outlook and investment strategies;
- (c) Investment Manager's compliance with this Policy, where a manager is required to complete and sign a compliance report; and,
- (d) Performance standards of the assets of the Plan in relation to the expectations outlined in this Policy.

### **5.05 Dismissal of an Investment Manager**

Reasons for considering the termination of the services of an Investment Manager include, but are not limited to, the following factors:

- (a) Performance standards, which over a reasonable period of time, are not in compliance with the stated performance benchmarks;
- (b) Changes in the overall structure of the Fund such that the Investment Manager's services are no longer required;
- (c) Change in personnel, firm structure and investment philosophy, style or approach which might adversely affect the potential return and/or risk level of the portfolio; and/or
- (d) Failure to adhere to this Policy.

### **5.06 Policy Review**

This Policy may be reviewed and amended at any time, but it must be formally reviewed by the Board, at least once in every calendar year.

# **Appendix A—Compliance Report**



**Saskatchewan Pension Plan**  
**Annuity Fund**  
**Compliance Report for the Period From \_\_\_\_\_ to \_\_\_\_\_**  
**(date) (date)**

		Guidelines	Policy Complied With Yes/No*
		%	
<b>Permitted Investments</b>			
	- Per Section 3. Canada, provincial and corporate bond issues, strips, mortgage backed securities, and short-term investments are permissible. Equities, options, futures, and other derivative securities are not permissible.		
<b>Constraints</b>			
	- Duration	+/- 0.5 years of liability duration (annually)	
	- Solvency	Present value of assets exceeds present value of expected liability payments (annually)	
	- Quality	Min 'BBB' for government bonds	
		Max 10% of the market value of the bond portfolio in bonds of corporate issuers	
		Max 15% of market value of bond portfolio in 'BBB'	
		Min 'A' rating for bonds of corporate issuers	
		Min 'R-1' for short-term investments	
	- Currency Risk	Foreign debt issues and foreign pay securities not permitted	
	- Private Placements	Min 'A' rating for private placement issuers	
	- Callable Bonds	Callable bonds are not permitted, except for bonds containing a "doomsday" clause	
	- Statutory Requirements	Must meet requirements for eligible investments outlined in <u>The Pension Benefits Act</u>	
		Must meet requirements for eligible investments outlined in the <u>Income Tax Act</u>	
<b>Conflicts of Interest</b>	- Disclosure	Conflicts of interest (if any) disclosed to the Chairperson of the Board	
<b>CFA Institute Code of Ethics and Standards of Professional Conduct</b>	- Compliance	CFA Institute Code of Ethics and Standards of Professional Conduct complied with	
<b>Suppression of Terrorism</b>	- Compliance	Compliance with Federal Suppression of Terrorism Regulations	

\* Provide actual weight or range where appropriate. If policy not complied with, comment on specifics.

I believe this to be a factual representation of compliance with the Statement of Investment Policies and Objectives throughout the reporting period.

\_\_\_\_\_  
Signature and Title

\_\_\_\_\_  
Company Name

**Attachment 14E**

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## Investment Governance Policy



**SIMON FRASER UNIVERSITY**  
POLICIES AND PROCEDURES

Date	Number
May 29, 2003	B 10.09
Revision Date	Revision No.
May 26, 2011	C

### 1.0 Preamble:

1.1 The Board of Governors ("Board") of Simon Fraser University ("the University") has the responsibility, pursuant to paragraph 27(2)(o) of the University Act, "to administer funds, grants, fees, and endowments and other assets."

1.2 The University has established an Endowment Fund and a Non-Endowment Fund ("Funds" or "Investment Funds"). Assets of the Funds are invested to generate investment earnings that are an important source of income for a variety of University purposes. The successful investment management of the Funds will have a direct effect on the ability of the University to achieve its academic and research goals.

### 2.0 Purpose:

2.1 This document constitutes the Investment Governance Policy ("IG Policy") adopted by the Board, and will apply to the Investment Funds. It describes the governance structure established for the investments in the Funds and sets out the requirements for their ongoing, successful investment management.

### 3.0 Definitions:

#### 3.1 Benchmark Portfolio

A reference portfolio constructed on the basis of the objectives for the liquidity and risk of, as well as the return on, the investments. The Benchmark Portfolio serves as a basis for comparison of the performance of the actual Funds.

#### 3.2 Finance and Administration Committee

A standing committee of the Board.

#### 3.3 Investment Advisory Committee ("IAC")

Comprised of three (3) investment experts appointed by the Board and provides an advisory role to the Board on investment matters. It operates under a non-voting mandate.

#### 3.4 Spending Income Allocation Rate

The percentage rate set by the Board on the recommendation of the Vice-President, Finance & Administration ("VPFA"). See Endowment Management Policy, GP 20, Section 4.4.

#### 3.5 Investment Management Agreement

Agreement between the University and an external professional investment manager which defines the investment style and expectations that the manager will follow in the investment of funds under their management. See Section 5.2.6.

### 4.0 Policy:

#### 4.1 Investment Objectives

4.1.1 The investment management of the Funds will be made in a manner that reflects the different objectives of those Funds, and will be accounted for accordingly.

4.1.2 Each Fund will be managed to balance the investment risk, return and liquidity objectives of those Funds.

4.1.2.1 The primary investment return objective of the Endowment Fund is to earn, over the mid and long term, an absolute annual rate of return that exceeds the annual rate of increase in the Consumer Price Index plus the Spending Income Allocation Rate, net of investment expenses.

4.1.2.2 The primary investment return objective of the Non-Endowment Fund is to earn, over the short to mid-term, an absolute annual rate of return that exceeds the annual rate of increase in the Consumer Price Index by 3.0%, net of investment expenses.

4.1.2.3 The primary risk objective of the Funds is to preserve the value of the invested capital over the differing time horizons and investment objectives of the various Funds.

#### 4.2 Investment Principles

4.2.1 The Funds are to be invested in accordance with Section 57 of the University Act which states that the University: "must, when investing...make investments that a prudent person would make."

4.2.2 The following principles will be followed in the investment of the Funds:

4.2.2.1 The selection of investments in the Funds should be made in the context of the total portfolio, with a reasonable expectation of a fair return or capital appreciation;

4.2.2.2 The investment objectives can best be achieved by investing in a diverse mix of asset classes, economic sectors and

geographic markets with varied investment characteristics which will be determined by the Board with advice from the IAC;

4.2.2.3 The VPFA will appoint and use external professional investment management for all equity and fixed income investments with the expectation that professional management can add value, relative to a static benchmark portfolio, through opportunistic security selection;

4.2.2.4 Multiple fund managers may be selected to ensure investment style diversification. The advantage of retaining multiple investment managers will be balanced with the disadvantage of over-diversification and excessive investment management and administrative costs;

4.2.2.5 No entity, including the investment managers, the Custodian or a representative of the University, may lend, pledge or otherwise encumber any of the Funds' assets, except through a Securities Loan or University-related Business Entity Loan Agreement approved by the VPFA.

## 5.0 Roles and Responsibilities:

### 5.1 Governance Structure

5.1.1 The governance structure established for the investments of the Funds is designed to ensure that the investments are managed prudently, appropriately and in compliance with the applicable legislation and this IG Policy. The principal levels of responsibility are described in this section.

5.1.2 The Board has ultimate authority and fiduciary responsibility for the administration of the investment of the Funds and will make investment policy decisions which most significantly impact the Funds' investment risk and return objectives based on recommendations from the IAC and the VPFA.

5.1.3 The Board on the recommendation of the President, will appoint members to the IAC, pursuant to paragraph 27(2)(c) of the University Act, to act in an investment advisory role to the Board.

5.1.3.1 The IAC and the VPFA will monitor the investment performance of the Funds. Reports on the investment performance are made at least semi-annually by the VPFA to the Finance and Administration Committee of the Board.

5.1.3.2 The IAC and the VPFA will review this IG Policy annually and the VPFA will advise the Board of any changes that may be required, including reviewing and approving any recommended changes to the approved categories of investments and/or asset mix ranges.

5.1.4 The Board delegates the operational responsibilities for investment management of the Funds to the VPFA. The VPFA will report on Funds activities to the Board at least semi-annually. The daily management and operational oversight of the Funds rests with the Treasurer.

5.1.5 The VPFA and Treasurer will establish investment management operating procedures.

### 5.2 Investment of Funds

5.2.1 The Board of Governors will approve a list of categories of investments. The VPFA, with advice from IAC, will document a list of Board approved categories of investments [see Appendix 8.1]. Until such time as the Board approves a new category of investments, any investment not in an approved category will be prohibited. Notwithstanding any other limitations, any donation to the University is permitted under Section 57 of the University Act.

5.2.2 The Board will approve the investment asset mix ranges. The VPFA, with advice from the IAC, will document the investment asset mix ranges for each of the Funds [see Appendix 8.2]. The VPFA will maintain the asset mix of the Funds within the specified ranges. At the end of each quarter any asset class outside the range will be rebalanced to the mid-point of the range as soon as is practical, but no later than the end of the following quarter.

5.2.3 The VPFA, with advice from the IAC, will establish and document a Benchmark Portfolio for each Fund. If the IAC believes that the Benchmark Portfolio established for a Fund cannot meet the investment objectives over the following five-year period, it will work with the VPFA to develop an alternative Benchmark Portfolio.

5.2.4 The VPFA will appoint a Custodian to hold the assets of the Funds in safekeeping.

5.2.5 The selection of investment managers will be made in a prudent manner, based on criteria established and documented by the VPFA.

5.2.6 Each investment manager will operate under the terms of an Investment Management Agreement with the University, as agreed to with the VPFA. The agreement will include guidelines and constraints to ensure risk, return, and liquidity is controlled and the requirement to inform the VPFA of any changes in the investment manager's firm that could have a material impact on the management of the funds.

5.2.7 The VPFA will make any changes in the investment managers as is deemed necessary to meet the investment objectives.

### 5.3 Monitoring of the Funds

5.3.1 The VPFA will monitor the performance of each of the investment managers on a monthly basis as well as the overall performance of the Funds.

5.3.2 The VPFA will meet with the IAC on a semi-annual basis and will report on the performance of the Funds and results of meetings with the investment managers since the previous IAC meeting. Any concerns about an investment manager's performance will be noted in the minutes of the IAC's meeting with the VPFA.

5.3.3 The VPFA will forward the minutes of the IAC meetings to the Board and the Finance and Administration Committee.

### 5.4 Conflict of Interest

5.4.1 The conflict of interest guidelines for the Funds will be consistent with the overall guidelines for the University. To the extent that certain situations may create a conflict of interest not covered by the University's guidelines, the VPFA will establish additional guidelines

as required.

5.4.2 All securities will be purchased through normal public market sources, unless the purchase price approximates the prevailing market price from some other recognized source and is negotiated on an arm's length basis.

## 5.5 Voting Rights

5.5.1 The VPFA will develop procedures for the exercise of voting rights acquired through the investments of the Funds.

## 6.0 Scope:

6.1 This policy applies to all of the Funds owned by the University excluding related entities and the pension plan funds.

## 7.0 Authority:

7.1 Questions of interpretation or application of this policy will be referred to the President and the Chair of the Board, who will make a decision which will be final.

## 8.0 Appendix

### 8.1 Approved Categories of Investments

- Publicly traded equities, including common and preferred shares, warrants, rights, instalment receipts and convertible debentures, all of which may be issued by Canadian or non-Canadian issuers, and American Depositary Receipts of companies based outside Canada and the United States, all of which must be in good standing with their auditors and their regulators;
- Debt securities of Canadian and non-Canadian issuers, issued in Canadian or non-Canadian currencies, including sovereign, provincial, municipal and corporate bonds, debentures, mortgages, mortgage-backed securities, asset-backed securities, notes and other debt instruments; All investments in fixed income securities shall be in securities that are the subject of regular price quotations by recognized investment dealers and for which ratings are available for the borrower or the debt issuer. The corporate and government bond and debenture portfolio in aggregate shall be maintained within the following ranges according to the credit ratings of the Dominion Bond Rating Service ("DBRS") or equivalent service:

Credit Rating	Percent (Market Value)
above A	50% - 100%
A or below	0% - 50%
BBB	0% - 10%
below BBB	0%

- Income trusts and real estate investment trusts;
- Private placements, with the prior written approval of the VPFA;
- Alternative investments, including income-producing commercial, industrial and residential property held in a professionally-managed, diversified, pooled real estate fund, private equities, interests in limited partnerships, all with the prior written approval of the VPFA;
- Interest-bearing cash and cash equivalents, including guaranteed investment contracts or term deposits with banks, credit unions, trust companies or insurance companies. Investments for operating cash requirements shall be in Canadian cash equivalents and short term commercial paper rated (minimum rating R-1 Low by the DBRS), an equivalent rating from another agency, or, where not rated, an equivalent level as determined by the market;
- Derivatives, options or futures as part of a defensive strategy or to replicate the investment performance of a recognized market index;
- Unitized pooled funds or mutual funds consisting of eligible investments in the above categories;
- Any investment donated to the University.

### 8.2 Investment Asset Mix Ranges

Asset Class	Endowment Fund		Non-Endowment Fund	
	Benchmark Asset Mix (%)	Range (%)	Benchmark Asset Mix (%)	Range (%)
Canadian Equities	35	30 - 40	30	15 - 25
Global Equities	35	30 - 40	10	5 - 15
Fixed Income	28	20 - 35	60	50 - 70
Cash and Cash Equivalents	2	0 - 10	10	5 - 20
Alternative Investments	0	0 - 10	0	0 - 5

**Attachment 14F**

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**STATEMENT OF INVESTMENT POLICIES AND  
PROCEDURES**

**FOR THE**

**CANADIAN COUNCIL OF CHRISTIAN CHARITIES  
EMPLOYEES PENSION PLAN**

**REGISTRATION NUMBER**

**#0446773**

April 2010

## Table of Contents

FOREWORD .....	Page 3
SECTION I - INTRODUCTION .....	Page 4
Nature of the Plan.....	Page 4
SECTION II - FUND GOVERNANCE.....	Page 5
Investment Management Organization .....	Page 5
The Trustees.....	Page 5
Monitoring.....	Page 6
Conflict of Interest Policy.....	Page 7
Conflict of Interest .....	Page 7
Related Parties .....	Page 8
Policy Review .....	Page 8
SECTION III - INVESTMENT POLICY .....	Page 9
Investment Objectives .....	Page 10
Instruments and Assets Eligible For	
Investment .....	Page 12
Asset Mix .....	Page 13
Investment Guidelines.....	Page 14
Valuation of Investments.....	Page 16
Lending of Securities .....	Page 16
Delegation of Votes and Valuation .....	Page 16
APPENDIX I .....	Page 17



## **FOREWORD**

The Canadian Council of Christian Charities Employees Pension Plan is a Defined Contribution Plan, which has been specially designed to assist employees of participating employers in building a retirement fund. It is the intent of the program to help create a solid foundation for deferred compensation. The investment management and resulting returns on the assets of the plan will have a direct effect on achieving this goal. The Trustees are responsible for ensuring that the pension plan funds are managed in a prudent and effective manner.

This Statement of Investment Policies and Procedures (SIP&P) provides a means for the Trustees and plan members to measure and monitor performance against stated objectives.

The SIP&P must be formally reviewed on an annual basis. This process provides the Trustees with an opportunity to analyze and assess the pension plan's requirements, and devise investment policies and strategies to meet those needs.

All pension plans registered with the Financial Services Commission of Ontario (FSCO) must adopt a SIP&P, except pension plans invested in deposit administration contracts regulated by the Insurance Act.

The FSCO will not offer an opinion on the appropriateness of any investment policy for a particular pension plan, however minimum filing requirements must be met. These include:

- Type of pension plan
- Conflict of interest policy
- Conflict of interest disclosure
- Nature of plan liabilities
- Investment objectives
- Allowable investments and loans
- Asset mix policy
- Portfolio diversification
- Securities or cash lending
- Retention/delegation of voting rights

## **SECTION I**

### **INTRODUCTION**

This investment policy is structured for the Canadian Council of Christian Charities Employees Pension Plan (hereinafter called the Plan), and has been created and approved by the Trustees.

#### **NATURE OF THE PLAN**

The Plan is a multi-employer defined contribution plan whose participating employers represent Christian organizations across Canada. Each of the participating employers has a participation agreement which stipulates the rules and guidelines to be followed for such participating employer. Participating employers are able to set the member contribution at a level between 0 – 12% of member salaries. The employer contribution will be a minimum 5% unless otherwise stipulated in the participation agreement.

The level of a plan member's pension depends upon the accumulation of the combined contributions of the participating employer and the plan member, if any. The level of a plan member's pension is also dependent on the investment performance of the aggregate fund, and the pension vehicle chosen at retirement.

The funds are invested with professional investment managers in an asset allocation determined by the custodian.

## **SECTION II**

### **FUND GOVERNANCE**

#### **INVESTMENT MANAGEMENT ORGANIZATION**

The investment manager retained to invest assets of the pension fund will provide statements to the Plan as required. Representatives from the pooled funds offered will meet with the Trustees as required.

The investment manager, in accordance with this SIP&P, shall invest the fund in its entirety in a prudently diversified manner. The Trustees may modify this statement at any time. Any such change shall be promptly communicated to the custodian.

Copies of the Manager's investment policy statement for the pooled fund(s) are attached as Appendix A. The Committee adopts the guidelines of these statements.

#### **THE TRUSTEES**

The Trustees and its advisors will bear the responsibility of directing the Plan. They will meet at least two times annually and have the following responsibilities:

##### **The Trustees will:**

- Review the SIP&P annually.

- Select a custodian to invest the various fund assets.

- Evaluate the choice of investment vehicles and performance in conjunction with the SIP&P and benchmark objectives.

- Select an administrator to hold, invest and record the various fund assets.

- Monitor the custodian relative to the Investment Objectives and Policy Statement.

- Review and report to participating plan members at least annually on the fund performance.

- Assess ongoing educational requirements for plan members.

- Be responsible for the delegation of any responsibilities to advisors of the plan.

The Investment Manager will:

Select securities within each asset class, subject to applicable legislation and the constraints and directives contained in this Policy and in any supplementary documents provided by the Trustees;

As requested, present reviews and analysis of investment performance, as well as a summary of expectations for future returns on various asset classes and proposed investment strategies for the following period;

Provide the Trustees with annualized rates of return for the total fund and each asset class on a monthly basis and the asset mix at the end of each month calculated using market value.

The Recordkeeper will:

Provide the Trustees with periodic portfolio reports of all assets of the Plan and monthly reports of all transactions during the period.

MONITORING

The Trustees shall meet at least semi-annually to:

1. Evaluate statistics on the investment performance of the fund(s) and custodian.
2. Review the structure of the fund to ensure compliance with the SIP&P.
3. Review the assets, liabilities and net cash flow of the fund.
4. Discuss the current economic outlook.

An overall analysis of fund performance shall be prepared at least semi-annually, which will include:

1. Annual and annualized return(s) of the fund(s).
2. Returns relative to benchmarks identified in the SIP&P.
3. Returns relative to measures of risk.
4. A commentary on the fund and any significant or material changes of the custodian's organization that could potentially impact future performance.

## CONFLICT OF INTEREST POLICY, DISCLOSURE REQUIREMENTS, AND SELF-DEALING RULES

These guidelines apply to:

- a) Trustees
- b) Custodian
- c) Pension Consultant
- d) Administrator
- e) Any employee or agent retained by those listed in a) to d) to provide services to the Plan

### CONFLICT OF INTEREST

Any person listed above must disclose any direct or indirect association or material interest or involvement in aspects related to his role with regard to the Plan investments that would result in any potential or actual conflict of interest.

Without limiting the generality of the foregoing, a conflict of interest arises when one of the individuals governed by the Guidelines receives a benefit from any asset held in the Plan, or a benefit from any actual or proposed contracts with the issuer of any securities which are or will be included in the pension fund. Where the assets of the Plans are invested in other than pooled funds, the individual must disclose his membership on the board of directors of any corporation or any significant holdings in the securities issued by any corporation.

### Procedure On Disclosure

Any person listed above shall disclose the nature and extent of his conflict to the Administrator and the Trustees in writing, or request to have entered in the minutes of a meeting of the Trustees at the earliest of:

- (i) upon first becoming aware of the conflict;
- (ii) at the first meeting in which the matter in issue is discussed;
- (iii) at the first meeting in which he knows or ought to have known that he has an interest in the matter discussed.

For the purposes of (ii) above, the disclosure must be made verbally if knowledge of the conflict arises in the course of a discussion at the meeting.

If the party does not have voting power on decisions affecting the Plan, he may elect not to participate in the activities related to the issue in conflict, or he may continue his activities with the approval of the Trustees.

If the party disclosing the conflict is a Trustee, he may continue in his activities in respect to the issue in conflict only with the unanimous approval of the other Trustees. In this situation he may elect not to participate with respect to the issue in conflict. The notification made by him shall be considered a continuing disclosure on that issue, subject to any future notification by him, for the purpose of the obligations outlined by these guidelines.

### RELATED PARTIES

- 1) The administrator of the Plan shall not, directly or indirectly,
  - a) lend the monies of the plan to a related party or invest those monies in the securities of a related party; or
  - b) enter into a transaction with a related party on behalf of the plan.
- 2) The administrator of the Plan may enter into a transaction with a related party on behalf of the plan if:
  - a) the transaction is required for the operation or administration of the plan; and
  - b) the terms and conditions of the transaction are not less favourable to the plan than market terms and conditions; and
  - c) any securities are acquired at a public exchange; and
  - d) the value of the transaction is nominal or the transaction is immaterial to the Plan.

### POLICY REVIEW

This SIP&P will be reviewed annually and otherwise whenever a major change is apparent or necessary. Such review may be caused by:

significant revisions to the expected long-term trade-off between risk and reward on key asset classes, dependent upon basic economic/political/social factors;

shortcoming(s) of the policy that emerge(s) in its practical operation or significant modifications that are recommended to the Trustees by the investment manager(s).

### **SECTION III**

#### **INVESTMENT POLICY**

The custodian responsible for managing the investment funds at the date of this filing is identified in Appendix I.

#### **Member Benefits & Investment Direction**

The Pension Plan is a contributory defined contribution plan. The level of a Plan Member's pension depends upon the accumulation of the combined contributions of the participating employer and the plan member, within the funds. The level of a Plan Member's pension is also dependent on the investment performance of the funds, and the annuity rates at the time of retirement.

The contribution formula for the Plan Member will be outlined within their employer's Participating Agreement.

Investment risk is borne by the Plan Members. Accordingly, the Plan provides flexibility to Plan Members to allocate their individual Plan account contributions, in proportions which each participant considers appropriate, among a selection of Pooled Funds and guaranteed investments. The plan member will provide investment direction for both the employer's and the plan member's contributions.

#### **Nature of Plan Liabilities**

While many plan members will retire from the Plan, a significant number of plan members will terminate prior to retirement and transfer their accumulated retirement savings to an individual locked-in RRSP or to another pension fund. If members' funds are not locked-in, they will receive member account balances in cash or as a transfer to another registered account. This plan is funded in accordance with the requirements of the Pension Benefits Act of Ontario and the Income Tax Act (Canada).

The three main factors that determine the amount available to purchase retirement income are:

- contributions throughout the plan member's time of employment
- investment returns throughout the plan member's time of employment
- long-term interest rates at the date(s) of retirement from the CCCC pension plan.

## General Investment Guidelines

- 1) The Plan shall provide that the monies of the fund are to be  
Invested in accordance with Schedule III of the Act; and  
Invested  
-in a name that clearly indicates that the investment is held in trust for the Plan and, where the investment is capable of being registered, registered in that name;  
-in the name of a financial institution, or a nominee thereof, in accordance with a custodial agreement or trust agreement, entered into on behalf of the Plan with the financial institutions, that clearly indicates that the investment is held for the Plan, or  
-in the name of The Canadian Depository for Securities Limited, or a nominee thereof, in accordance with a custodial agreement or trust agreement, entered into on behalf of the Plan with a financial institution, that clearly indicates that the investment is held for the Plan.
- 2) The recordkeeper of the Plan shall maintain a current record that clearly identifies every investment held on behalf of the plan, the name in which the investment is made and, where appropriate, the name in which the investment is registered.

## INVESTMENT OBJECTIVES

The investment objectives, which follow, are established for the purpose of providing measurable goals to be achieved by the investment manager of each of the pooled funds offered to members of the defined contribution plan. There are eight pooled funds offered representing six clear and distinct asset classes to allow for adequate diversification of risk for the plan member. Also available are Guaranteed Investment Certificates.

The available asset classes are;

1. Canadian Equity (2)
  2. Balanced (2)
  3. Bond
  4. U.S. Equity
  5. International Equity
  6. Money Market fund
- In the Canadian Equity pooled fund the gross performance of the investment manager will exceed the S&P TSX Total return index by 0.75% on a four-year moving average basis. The investment manager is also expected to achieve investment results, which are above median on a four-year moving average basis as measured against a universe of Canadian Equity



pooled fund managers. A review of the fund will occur after six consecutive quarters of performance below 2<sup>nd</sup> quartile.

- The Canadian Bond pooled fund may either be an indexed fund requiring only passive management tracking the BIGAR Bond Index, or involve active management. In the event active management is selected by the Committee the gross performance of the investment manager will exceed the BIGAR Index by .25% on a four-year moving average basis. The investment manager is also expected to achieve investment results, which are above median on a four-year moving average basis as measured against a universe of Fixed Income pooled fund managers. A review of the fund will occur after six consecutive quarters of performance below 2<sup>nd</sup> quartile.
- In the actively managed U.S. equity pooled fund, the investment manager will meet the S&P Total return index on a four-year moving average basis. The investment manager is also expected to achieve investment results, which are above median on a four-year moving average basis as measured against a universe of U.S. Equity pooled fund managers. A review of the fund will occur after six consecutive quarters of performance below 2<sup>nd</sup> quartile.
- In the International pooled fund the investment manager will meet the Morgan Stanley Capital Inc. (MSCI) EAFE Index on a four-year moving average basis. The investment manager is also expected to achieve investment results which are above median on a four-year moving average basis as measured against a universe of International Equity pooled fund managers. A review of the fund will occur after six consecutive quarters of performance below 2<sup>nd</sup> quartile.
- The gross performance of the Short-term component will meet the SCM 91-Day Canada T-Bill Index.

### Balanced Pooled Fund

- The gross performance of the investment manager operating the Balanced pooled fund is expected to achieve investment results that are above median on a four-year moving average as measured against the universe of Balanced pooled fund managers. The fund is also expected to exceed its composite balanced index by a margin of 0.50% on a four-year moving average basis. A review of the fund will occur after six consecutive quarters of performance below 2<sup>nd</sup> quartile.

### Balanced Composite Index

Canadian Equity	35% TSX Composite Index
Global Equity	15% MSCI World Index
Bonds	45% BIGAR Bond Index
Cash	<u>5%</u> 91 Day T-Bills
	100%

The Trustees have the ability and function to review the performance of the asset classes and managers at any time. It must also be noted that at any time the Trustees may elect to change investment management for reasons other than pure performance.

### In the Event of Underperformance:

If the investment manager fails to achieve the identified benchmark objectives, the following process will be put in place by the Trustees:

A qualitative review of the manager will be prepared addressing the following criteria:

- Personnel
- Investment Process
- Risk Control
- Buy/Sell Disciplines
- Future Growth Plans
- Organizational Structure

A quantitative report will be prepared considering the complete range of risk and return performance relative to the fund's universe.

The Trustees will consider whether the benchmark objective continues to be appropriate.

The Trustees will decide whether there has been a fundamental change at the fund manager's operation which renders the fund no longer appropriate for the Plan's mandate.

If required, the Trustees will conduct a fund manager search for the identified asset class.

### INSTRUMENTS AND ASSETS ELIGIBLE FOR INVESTMENT

From time to time, and subject to the SIP&P, the Fund may invest in any or all of the following instruments or assets. These assets may be obligations or securities of Canadian or non-Canadian entities, the latter subject to the maximum foreign content limitations of the Income Tax Act (Canada):

1. publicly traded common or preferred equity;
2. convertible debentures or preferred securities;
3. bonds, debentures, notes or other debt instruments of government agencies or corporations;
4. warrants, options, futures, forward contracts, or other instruments designed to provide additional income or hedging opportunities for current investments. These instruments will be traded upon recognized public exchanges or, in the case of over-the counter derivatives, the counterparty will have a credit rating of at least A, as defined by a reputable rating agency.

5. Guaranteed Investment Certificates or equivalent of insurance companies, trust companies, banks or other eligible issuers, or funds which invest primarily in such instruments;
6. term deposits or similar instruments of trust companies and banks;
7. cash, or money market securities issued by governments or corporations;
8. real estate investment trusts;
9. mutual or pooled funds, which may invest in any or all of the above instruments or assets;
10. All investments will be made in accordance with Standard III C of the Institute of Chartered Financial Analysts. The standard requires that the custodian, when taking an investment action for a specific portfolio or client, consider its appropriateness and suitability for such portfolio or client. In considering such matters, the custodian shall take into account the needs and circumstances of the client, the basic characteristics of the investment involved, and the characteristics of the total portfolio.

The custodian will use reasonable judgement to determine the applicable relevant factors.

11. All investments will be made in accordance with the Code of Ethics and Standards of Practice of the Association for Investment Management and Research (AIMR).

## ASSET MIX

### Balanced Fund – Asset Mix Policy

The asset mix of the balanced pooled fund shall be based on the discretionary advice of the investment manager and must fall within the following asset mix guidelines:

	<u>Minimum</u>	<u>Maximum</u>	<u>Normal</u>
Canadian Equities	15	65	40
Global Equities	5	30	20
Bonds	20	65	40
Short-term	0	15	0

## INVESTMENT GUIDELINES

### Equity Guidelines

1. With respect to Canadian Equities, the proportion invested in any one industry group may not exceed the lesser of:
  - i) 250% of the index weight as broadly defined by the TSX, or
  - ii) 35% of the TSX.
2. With respect to Global Equities, the proportion invested in any one country may not exceed the lesser of:
  - i) 200% of the country weight as broadly defined by the MSCI World Index, or
  - ii) 60% of the MSCI World Index.

### Bond Guidelines

The Bond portfolio may be indexed to the BIGAR Bond Universe Index, or be managed actively.

In the event of active management, a Bond portfolio shall mean bonds held in the Fund. The indicated ratings refer to those of the Dominion Bond Rating service (DBRS) or the equivalent rating of another reputable rating agency.

### Government Issues

1. There are no limits on Federal issues or AAA provincial issues.
2. Maximum weighting in AA provincials shall be 75% of the market value of the Bond portfolio.
3. Maximum weighting in A provincials shall be 50% of the market value of the Bond portfolio.

### Corporate Issues

1. Corporate issues of any corporation shall not exceed 10% of the book value of the Bond portfolio.
2. Corporate issues may not exceed 100% of the market value of the Bond portfolio.

### Minimum Quality

1. The minimum average quality of the Bond portfolio shall be A.
2. Up to 10% of the market value of the Bond portfolio may be invested in issues that are rated BBB.

### Duration

The market value weighting of the Bond portfolio must be such that the average portfolio duration must not be less than four years or greater than eight years, excluding any investments in real return bonds.

### Short-Term Investment Guidelines

1. Investments will have an average maturity of twelve months or less.
2. Federal, provincial and corporate notes having a rating of R-1 (Low) rating or higher will be permitted. The ratings refer to ratings of DBRS or the equivalent rating of another reputed rating agency.

### Miscellaneous Guidelines

1. Investments must comply with current federal and provincial legislation and any other legislation, which may be subsequently introduced.
2. Investment activity related to private placement is not permitted.
3. Investment activity related to short sales is not permitted, with the exception of shorting currencies in order to hedge foreign currency exposure.
4. The aggregate amount of the equity portion of the Fund that may be invested in the securities of any one corporation shall be limited to 10% of the book value of the Fund at the time the investment is made. This does not apply to investments in pooled funds that comply with the requirements of the Regulations under the Pension Benefits Act, R.S.O. 1990 of Ontario.
5. The custodian of the Plan shall not, directly or indirectly, invest monies of the Plan in real property or Canadian resource properties if, at the time the investment is made,
  - (a) the book value of the investment in any one parcel of real property of Canadian resource property exceeds 5 per cent of the book value of the Plan's assets;
  - (b) the aggregate book value of all investments in Canadian resource properties exceeds 15 percent of the book value of the Plan's assets; or

(c) the aggregate book value of all investments in real property and Canadian resource properties exceeds 25 percent of the book value of the Plan's assets.

6. The custodian of the Plan shall not, directly or indirectly, invest the monies of the Plan in the securities of a corporation to which are attached more than 30 percent of the votes that may be cast to elect the directors of the corporation.

#### VALUATION OF INVESTMENTS

It is expected that all the securities held by the Fund will have an active market and therefore valuation of the securities held in the Fund will be based on their market values.

The custodian will notify the Trustees if the market for any investment held by the Fund becomes inactive and provide for the Trustees's consideration a method for valuing the affected investment.

#### LENDING OF SECURITIES

The Fund is allowed to participate in securities lending. Securitization will be at a minimum of 105% of the market value of the loaned securities.

#### DELEGATION OF VOTING RIGHTS

The custodian is delegated the responsibility of exercising all voting rights acquired through the fund's investments. The custodian will exercise acquired voting rights with the intent of fulfilling the investment objectives and policies of the Plan. Should the custodian receive specific written voting instructions from the Trustees, the custodian shall execute such instructions as given. In any event any voting rights which have been exercised on behalf of the Plan shall be notified to the organization on a quarterly basis.

## **APPENDIX I**

The assets contained within this pension plan will be actively managed by the following organizations:

The Custodian of the Plan is:

**Great-West / London Life / Canada Life**

33 Yonge St.  
Suite 320  
Toronto, Ontario M5E 1G4  
Ph: (416) 359-3456

The Fund Managers are:

**Jarislowsky Fraser Limited**

401 Bay Street  
Suite 1600  
Toronto, Ontario M5H 2Y4  
Telephone: (416) 363-7417  
Fax: (416) 363-8079

McLean Budden  
145 King St. W.  
Suite 2525  
Toronto, Ontario M5H 1J8  
Ph: (416) 862-9800

Sprucegrove  
181 University Ave  
Suite 1300  
Toronto, Ontario M5H 3M7  
Ph: (416) 363-5854

GWLIM  
100 Osborne St. North  
Winnipeg, Manitoba R3C 3A5  
Ph: (204) 946-7289  
Meritas  
410 Hespeler Rd  
Unit 5  
Cambridge Ontario N1R 6J6  
Ph: (519) 624-6767



**Attachment 14G**

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## Policies, Procedures and Guidelines

Complete Policy Title:  
**Statement of Investment Policies and  
Procedures**

Policy Number (if applicable):  
**N/A**

**McMaster University Contributory Pension  
Plan for Hourly-Rated Employees**

Approved by:  
**Board of Governors**

Date of Most Recent Approval:  
**March 1, 2007**

Date of Original Approval(s):  
**February 17, 2005**

Supersedes/Amends Policy dated:  
**February 17, 2005**

Responsible Executive :  
**Assistant Vice-President (Administration)**

Enquiries:  
[Business Management Services](#)

**DISCLAIMER:** *If there is a Discrepancy between this electronic policy and the written copy held  
by the policy owner, the written copy prevails.*

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## Contents

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<b>Section 1—Overview</b>	<b>1</b>
1.01 Purpose of Statement	1
1.02 Background of the Plan	1
1.03 Plan Profile	1
1.04 Objective of the Plan	2
1.05 Investment and Risk Philosophy	2
1.06 Delegation of Responsibility and Administration	2
<b>Section 2—Asset Mix and Diversification Policy</b>	<b>6</b>
2.01 Portfolio Return Expectations	6
2.02 Expected Volatility	6
2.03 Management Structure	6
2.04 Asset Mix	6
<b>Section 3—Permitted and Prohibited Investments</b>	<b>8</b>
3.01 General Guidelines	8
3.02 Permitted Investments	8
3.03 Minimum Quality Requirements	9
3.04 Maximum Quantity Restrictions	10
3.05 Prior Permission Required	11
3.06 Prohibited Investments	11
3.07 Securities Lending	11
3.08 Borrowing	12
3.09 Conflicts Between the Policy and Pooled Fund Investment Policies	12
3.10 Liquidity	12
<b>Section 4—Monitoring and Control</b>	<b>13</b>
4.01 Performance Measurement	13
4.02 Compliance Reporting by Investment Manager	13
4.03 Standard of Professional Conduct	14
<b>Section 5—Administration</b>	<b>15</b>
5.01 Conflicts of Interest	15
5.02 Related Party Transactions	16
5.03 Selecting Investment Managers	17
5.04 Monitoring of Investment Managers	17
5.05 Dismissal of a Investment Manager	17
5.06 Voting Rights	17
5.07 Valuation of Investments Not Regularly Traded	18
5.08 Policy Review	18
<b>Appendix A</b>	<b>19</b>

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# Section 1—Overview

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## 1.01 Purpose of Statement

This Statement of Investment Policies and Procedures (the ‘Policy’) is intended to set out the investment framework which shall apply at all times for the McMaster University Contributory Pension Plan for Hourly-Rated Employees of (the ‘Plan’).

This Policy is based on the ‘prudent person portfolio approach’ to ensure the prudent investment and administration of the assets of the Plan (the ‘Fund’) within the parameters set out in the Pension Benefits Act (Ontario) and the regulations thereunder. This Policy recognizes the Association of Investment Management and Research (AIMR) prudent investor guidelines, which require fund’s fiduciaries to maintain overall portfolio risk at a reasonable level, i.e., risk and return objectives must be reasonable and suitable to the trust. (see Section 4.03)

## 1.02 Background of the Plan

McMaster University was established in 1887 by the bequest of William McMaster and is a university incorporated under the laws of the Province of Ontario, which provides operating grants annually to the University.

The University sponsors the Plan, which is a defined benefit pension plan into which its contributions and the employees' contributions are deposited. These contributions are made monthly and are remitted before the end of the following month to the Plan's trustee.

As directed by the McMaster University Hourly Pension Plan Retirement Committee (the Committee), the University contracts with third parties to provide trustee, custodial, investment management, actuarial, and consulting services. The Plan's current Trustee, Custodian of its assets, Investment Manager(s), Actuary, and Consultant are identified in Appendix A to this Statement. This appendix also provides information on the number of Plan members and the value of Plan assets.

Retiree benefits are paid from the Plan. Also paid from the Plan are termination and death benefits, trustees' fees, audit fees, actuaries' fees, investment counsel fees, consultants' fees, filing fees and other related costs as approved by the Committee.

## 1.03 Plan Profile

### (a) Contributions

The Plan is contributory. Each member is required to contribute 3.5% of his/her regular annual earnings up to the Yearly Maximum Pensionable Earnings (YMPE) and 5% of his/her regular annual earnings in excess of the YMPE.

The University will pay the balance required to provide the cost of benefits. The minimum University contribution each year is an amount equal to the contributions made by the Plan members during the year.

(b) **Benefits**

For service prior to January 1, 1986, the amount of annual pension will be the pension earned to December 31, 1985 increased in accordance with periodic amendments thereafter.

For service after December 31, 1985, the amount of annual pension payable to a member will be:

- (i) 1.4% of Best Average Salary up to the Average Year's Maximum Pensionable Earnings times years of pensionable service, plus
- (ii) 2.0% of Best Average Salary in excess of the Average Year's Maximum Pensionable Earnings times years of pensionable service.

The amount by which twice the member's required contributions with interest exceed the commuted value of the member's benefit shall be paid to the member. Pensions in payment after January 1, 2003, will be increased by the excess over 6% of the 5 year average return on the fund, subject to a maximum increase equal to the change in the CPI for the previous Plan Year.

(c) **Liabilities**

As of the most recent actuarial valuation dated July 1, 2004, the going concern liability of the Plan was \$28.6 million. Approximately 60% of the liability was attributable to active members and 39% of the liability was attributable to pensioners and survivors. The balance of the liability was attributed to deferred pensioners and inactive members.

## **1.04 Objective of the Plan**

The objective of the Plan is to provide participants with defined pension benefits based on a best average salary and with indexation of retirement benefits, as defined in the Plan Text. It is important to set up an appropriately diversified asset mix in order to ensure continued prudent and effective management of pension fund assets.

## **1.05 Investment and Risk Philosophy**

Based on the characteristics of the Plan, the Committee has determined that the Plan has a moderate tolerance of investment risk. Therefore, a long-term asset mix strategy with an average equity content compared to other Plans has been adopted provided that the equity component is well diversified.

The Committee recognizes that, based on historical data and on forecast returns, the asset classes most likely to produce the greatest return in excess of inflation over time are also likely to exhibit the most volatility. Conversely, the asset classes likely to be the least volatile are likely to produce the lowest returns over time. Therefore, the investment philosophies and strategies must take into account both return and risk objectives.

## **1.06 Delegation of Responsibility and Administration**

The University is the legal administrator of the Plan and is therefore responsible for all matters relating to the administration, interpretation and application of the Plan, including developing, monitoring and amending this Policy. In 1986, in revising the Plan, the responsibilities for many administrative functions or duties were transferred to the Committee. The Committee further refined the responsibilities in 2004 as outlined in the governance document and as summarized below. Overall responsibility for the Plan ultimately rests with the Board of Governors of the University. Through execution of its

administrative responsibilities, the Committee assists the Board in fulfilling its fiduciary responsibilities. As well, other suppliers assist the University as described below.

**(a) The Board of Governors will:**

- (i) Determine the level of the University's contribution to the Plan on the recommendation of the Finance Committee and in accordance with the guidelines set out in the Hourly Pension Plan text;
- (ii) Consider items endorsed by the Finance Committee and approve where appropriate;
- (iii) Be responsible for the delegation of any responsibilities not specifically mentioned.

**(b) The Finance Committee of the Board of Governors will:**

- (i) Consider recommendations by the Committee concerning the level of the University's contribution to the plan and endorse those recommendations to the Board of Governors where appropriate;
- (ii) Consider items brought forward by the Committee for approval and endorse recommendations to the Board of Governors where appropriate.

**(c) The Committee will:**

- (i) Approve and make recommendations where necessary to the Finance Committee regarding changes to the Investment Manager(s), Custodian/Trustee, Actuary, Plan Administrator and Investment Consultant;
- (ii) Monitor and review performance of the Investment Manager(s) on a qualitative and quantitative basis at least semi-annually;
- (iii) Review the Fund's performance on a quarterly basis, and approve situations of deviations or proposed deviation by the Fund Manager from the Policy to the Finance Committee;
- (iv) Discuss and promote awareness and understanding of the Plan by members of the Plan and persons receiving benefits under the Plan;
- (v) Review the Statement of Investment Policy and Procedures (the "Policy") at least annually, make changes, and endorse to the Finance Committee for approval as required;
- (vi) Review the actuarial valuation, changes in methods and assumptions and its impact upon the Plan, and endorse to the Finance Committee for approval;
- (vii) Review the financial statements and endorse to the Finance Committee for approval;

- (viii) Ensure the plan's administration complies with all applicable legislation and regulations;
  - (ix) Make recommendations to the parties to the collective agreements regarding amendments to the plan text;
  - (x) Approve and recommend to the Finance Committee proposed changes to the Plan text
  - (xi) Prepare annual report on the operation of the plan and actions of the Committee for the participating unions, the Finance Committee and the Board of Governors;
  - (xii) Consider other matters as may be referred to the Committee by the participating unions, Finance Committee or the Board of Governors;
  - (xiii) Review holdings and transaction reports provided by the custodian on at least an annual basis and reconcile such reports to those provided by the Investment Manager; and
  - (xiv) Any duties or obligations not noted above and described in Section 3 of the McMaster University Hourly Pension Plan Retirement Committee Roles and Responsibilities document.
- (d) **The Investment Manager(s) will:**
- (i) Invest the assets of the Fund in accordance with this Policy and applicable legislation;
  - (ii) Notify the Committee, in writing, of any significant changes in the Investment Manager's philosophies and policies, personnel or organization and procedures;
  - (iii) Meet with the Committee as required and provide written reports regarding their past performance, their future strategies and other issues requested by the Committee; and
  - (iv) Provide semi annual compliance certificate that confirms that the Manager has complied with the Policy or identifies areas of non-compliance.
- (e) **The Custodian/Trustee will:**
- (i) Maintain safe custody over the assets of the Plan;
  - (ii) Execute the instructions of the University and the Investment Manager(s); and,
  - (iii) Record income and provide monthly financial statements to the University as required.

(f) **The Actuary will:**

- (i) Perform actuarial valuations of the Plan as required;
- (ii) Advise the Committee on any matters relating to the Plan design, membership and contributions;
- (iii) File appropriate documents and reports with relevant authorities; and
- (iv) Assist the Committee in any other way required.

(g) **The Investment Consultant will:**

- (i) Assist in the development and implementation of this Policy;
- (ii) Monitor the performance of the Fund and the Investment Managers on a quarterly basis, and advise the Committee on such performance;
- (iii) Monitor the Investment Managers' semi annual compliance reports;
- (iv) Support the Committee on matters relating to investment management and administration of the Fund; and,
- (v) Meet with the Committee as required.



## Section 2—Asset Mix and Diversification Policy

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### 2.01 Portfolio Return Expectations

The Fund will be managed on a going-concern basis. The primary objective is to ensure that the benefits defined in the Plan can be paid.

The secondary performance objective is to outperform a benchmark portfolio constructed from rates of return (including income) of the Standard & Poor's Toronto Stock Exchange Composite Index (S&P/TSX Composite Index), the Standard & Poor's 500 Index (S&P 500 Index), the Morgan Stanley Capital International Europe, Australasia and Far East Index (MSCI EAFE Index) and the Scotia Capital Universe Bond Index over rolling five-year time periods.

### 2.02 Expected Volatility

The expected volatility of investment returns for the Fund is directly related to the asset mix strategy; specifically, the balance between Canadian equities, foreign equities and Canadian bonds. In that regard, the volatility of Fund returns should be similar to the volatility of the Total Combined Fund Benchmark Portfolio set out in Section 4.01.

### 2.03 Management Structure

The Committee believes that an Investment Manager with an active mandate can reduce portfolio risk below market risk and potentially add value both through security selection and asset allocation strategies. Therefore the management structure that has been adopted for the Fund consists of an active balanced Investment Manager.

### 2.04 Asset Mix

#### (a) Overall Asset Mix

The benchmark portfolio is representative of the long-term asset mix policy for the Fund as set out by the Committee. The total Fund benchmark portfolio and asset mix guidelines (by market value) are set out below:

Assets	Minimum %	Benchmark %	Maximum %
Canadian equities	20	30	40
U.S. equities	10	15	20
Non-North American equities	5	<u>10</u>	15
Total equities	40	55	70
Bonds	30	45	60
Cash and Short-term	0	<u>0</u>	10
Total Fixed Income	30	<u>45</u>	60
Total		<u>100</u>	

The actual asset mix at any time may deviate from the Benchmark indicated above. The manager shall monitor and adjust the asset mix to ensure that the actual asset mix stays within the ranges as indicated by the minimums and maximums specified.

The Investment Manager shall comply with restrictions imposed by federal or provincial legislation and regulations.

## Section 3—Permitted and Prohibited Investments

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### 3.01 General Guidelines

The investments of the Fund must comply with the requirements and restrictions imposed by the applicable legislation, including but not limited to the requirements of the Ontario Pension Benefits Act, the federal Income Tax Act and any relevant regulations.

### 3.02 Permitted Investments

In general, and subject to the restrictions noted below, the Fund may invest in any of the asset classes and in any of the instruments listed below.

(a) **Canadian and Foreign Equities**

- (i) Common and convertible preferred stock;
- (ii) Debentures convertible into common or convertible preferred stock;
- (iii) Rights, warrants and special warrants for common or convertible preferred stock;
- (iv) Instalment receipts and American and Global Depositary Receipts; and,
- (v) Private placements of equities subject to Section 3.04; and,
- (vi) Canadian income trusts which provide provincially-legislated limited liability protection to the unitholders.

(b) **Bonds**

- (i) Bonds, debentures, notes, non-convertible preferred stock and other evidence of indebtedness of Canadian and non-Canadian issuers whether denominated and payable in Canadian dollars or a foreign currency;
- (ii) Mortgage-backed securities, guaranteed under the National Housing Act;
- (iii) Term deposits and guaranteed investment certificates; and,
- (iv) Private placements of bonds and asset backed securities subject to Section 3.04.

(c) **Cash and Short Term Investments**

- (i) Cash on hand and demand deposits;
- (ii) Treasury bills issued by the federal and provincial governments and their agencies;
- (iii) Obligations of trust companies and Canadian and foreign banks chartered to operate in Canada, including bankers' acceptances;

- (iv) Commercial paper and term deposits; and,
  - (v) Deposit accounts of the custodian can be used to invest surplus cash holdings.
- (d) **Derivative Instruments**  
 The use of derivative instruments which would be contracted on a leveraged basis is prohibited.
- The following uses of non-leveraged derivative instruments for defensive purposes are permitted:
- (i) Puts, calls, options, option contracts and futures or options on future contracts on securities that are permissible investments in accordance with this Statement;
  - (ii) The Manager of an index portfolio may utilize fully backed, i.e. non-leveraged, derivative strategies designed to replicate the performance of specific market indices; and,
  - (iii) Currency futures contracts and forward contracts to hedge foreign currency exposure.
- (e) **Other Investments**  
 Following appropriate consultation with and approval by the Committee, investment may be made in:
- (i) Futures and options;
  - (ii) Pooled or mutual funds holding otherwise eligible investments, including any fund sponsored by the Investment Manager for the client's benefit;
  - (iii) Foreign investments other than U.S. and international equities as provided for above;
  - (iv) Real estate;
  - (v) Mortgages, including index-linked mortgages; and,
  - (vi) Index-linked annuities.
- Such approval will be considered to be in effect until written notice has been received that it has been rescinded by the Committee.

### 3.03 Minimum Quality Requirements

- (a) **Quality Standards**  
 Within the investment restrictions for individual portfolios, all portfolios should hold a prudently diversified exposure to the intended market.
- (i) The minimum quality standard for individual bonds and debentures is 'BBB' or equivalent as rated by a recognised bond rating agency, at the time of purchase.
  - (ii) The minimum average rating of the overall bond portfolio must be 'A', or better.

- (iii) The minimum quality standard for individual short term investments is 'R-1' or equivalent as rated by a recognised bond rating agency, at the time of purchase.

(b) **Rating Agencies**

For purposes of this Policy, the following shall be considered 'Recognized Bond Rating Agencies':

- (i) Dominion Bond Rating Agency;
- (ii) Standard & Poor's; and,
- (iii) Moody's Investors Services.

Should the rating on a short-term or bond investment fall below the minimum standards outlined above, the Investment Manager must immediately notify the Assistant Vice-President (Administration) and make recommendations as to what action should be taken. The Assistant Vice President (Administration) must report all such occurrences and action undertaken to remedy the situation to the Committee.

### **3.04 Maximum Quantity Restrictions**

The following restrictions are to be respected:

(a) **Equities**

- (i) In general, no one equity holding shall represent more than 10% of the market value of any one manager's equity portfolio;
- (ii) No one equity holding shall represent more than 10% of the voting shares of a corporation;
- (iii) No one equity holding shall represent more than 10% of the available public float of such equity security; and,
- (iv) Private placements can be held to a maximum of 10% of the equity portfolio.

(b) **Bonds and Short Term Securities**

- (i) Except for federal and provincial bonds, no more than 10% of a manager's bond portfolio may be invested in the bonds of a single issuer and its related companies;
- (ii) Except for federal and provincial bonds, no one bond holding shall represent more than 10% of the market value of the total outstanding for that bond issue;
- (iii) No more than 10% of the market value of a manager's bond portfolio shall be invested in bonds rated 'BBB' or equivalent;
- (iv) No more than 20% of the market value of a manager's bond portfolio shall be invested in bonds denominated in a currency other than Canadian dollars; and,

- (v) Private placements and asset-backed securities can be held to a maximum of 20% of the bond portfolio. The investment manager will advise the Committee when this category exceeds 10% of the bond portfolio.

### **3.05 Prior Permission Required**

The following investments are permitted provided that the Investment Manager has obtained prior written permission from the Committee:

- (a) Investment in any asset or security previously disqualified by the Committee by written notice to the Investment Manager;
- (b) Direct investments in a Canadian resource property;
- (c) Direct investments in mortgages;
- (d) Direct investments in any one parcel of real property;
- (e) Direct investments in venture capital financing; and,
- (f) Investments in a pooled fund with objectives that conflict with this Policy;

### **3.06 Prohibited Investments**

The Investment Managers shall not:

- (a) Invest in companies for the purpose of managing them;
- (b) Purchase securities on margin or engage in short sales, except in the case of a unleveraged synthetic index strategy where the manager will utilize futures contracts and short-term securities to attempt to create returns that match those of a specified index;
- (c) Make any investment not specifically permitted by this Policy or the Investment Manager's investment mandate.

### **3.07 Securities Lending**

The investments of the Fund may be loaned for the purpose of generating revenue for the Fund, subject to the provisions of the Pension Benefits Act (Ontario), the Income Tax Act (Canada), and applicable regulations, and provided that appropriate controls are in place and there is an indemnity by the custodian against all losses as a result of the custodian's securities lending program.

Such loans must be secured by cash and/or readily marketable high quality bonds, treasury bills, and short-term securities having a market value of at least 105% of the market value of the loaned securities. This mark-to-market relationship must be calculated at least daily.

### **3.08 Borrowing**

The Plan shall borrow money only for the purpose of covering a short-term contingency and the borrowing is for a period that does not exceed ninety days, subject to the Pension Benefits Act (Ontario), the Income Tax Act and the prior written permission of the Board of Governors, endorsed by the Committee.

### **3.09 Conflicts Between the Policy and Pooled Fund Investment Policies**

While the guidelines in this Policy are intended to guide the management of the Fund, it is recognized that, due to the use of pooled funds, there may be instances where there is a conflict between this policy and the investment policy of a pooled fund. In that case, the pooled fund policy shall dominate. However, wherever such a conflict results in non-compliance with the Policy, the Investment Manager must report this conflict explicitly in its semi annual compliance report.

### **3.10 Liquidity**

The Investment Manager is expected to have sufficient liquid assets to enable payment of the Plan's promised benefits in a timely manner. Since pooled funds have regular capital infusion, the Plan's liquidity needs will largely be met by the use of pooled funds as the prime funding vehicle

## Section 4—Monitoring and Control

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### 4.01 Performance Measurement

Evaluation of investment performance will be made by the Committee and will take place quarterly based on the results at March 31, June 30, September 30, and December 31.

(a) **Total Fund Benchmark**

The primary objective of the Fund is to earn a rate of return that exceeds the rate of return on a benchmark portfolio plus 0.75%. The benchmark consists of the following market index total returns weighted as indicated:

Benchmark	Weight (%)
S&P/TSX Composite Index	30
S&P 500 Index (Cdn. \$)	15
MSCI EAFE Index (Cdn. \$)	10
Scotia Capital Universe Bond Index	<u>45</u>
Total	<u>100</u>

The benchmark is expected to produce a return of 4.5% in excess of changes in the CPI before fees over five (5) year periods.

A secondary objective of the Fund is to achieve, over a five (5) year period at least second quartile performance compared to a performance measurement service pension database.

Total rate of return is the time-weighted rate of return, before fees, based on the change of market value including realised and unrealised gains and losses and including income from all sources.

In addition to assessing performance relative to the Benchmark Portfolio, the Committee will examine risk factors and performance by asset class.

### 4.02 Compliance Reporting by the Investment Manager

The Investment Manager(s) must submit a compliance report on a semi annual basis to the Committee. The compliance report should indicate whether or not the manager's portfolio was in compliance with this policy during the previous six months.

In the event that the Investment Manager's portfolio is not in compliance with this policy, the Investment Manager is required to detail the nature of the non-compliance in the semi annual compliance report as well as notify the Assistant Vice President (Administration) and to implement an appropriate course of action to remedy the situation, as soon as practical.



#### **4.03 Standard of Professional Conduct**

The Investment Manager(s) are expected to comply at all times and in all respects with the Code of Ethics and Standards of Professional Conduct as promulgated by the Association for Investment Management and Research (AIMR).

The Investment Manager(s) will manage the assets with the care, diligence and skill that an investment manager of ordinary prudence would use in dealing with pension plan assets. The Investment Manager(s) will also use all relevant knowledge and skill that they possess, or ought to possess, as prudent investment managers.

## Section 5—Administration

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### 5.01 Conflicts of Interest

(i) **Definition**

For the purpose of this statement a conflict of interest is defined as any event in which any employee or member of or consultant to:

- (a) Board of Governors,
- (b) Finance Committee,
- (c) Audit Committee,
- (d) The Committee,
- (e) Actuary,
- (f) Investment Manager(s),
- (g) Custodian/Trustee, and/or
- (h) Consultant,

or any directly related party may gain a financial or other advantage from knowledge of, or participation in, an investment decision of the fund, or a circumstance that could reasonably be interpreted as impairing his/her ability to render unbiased and objective advice or to fulfil his/her fiduciary responsibilities to act in the best interest of the beneficiaries of the Plan.

It is not possible to anticipate in advance, in this statement, the multitude of situations which can arise. All persons listed above must, therefore, be cognizant of the possibility that conflicts, or perceived conflicts, may arise and must make timely and full disclosure in accordance with generally accepted concepts of fiduciary responsibilities, and in accordance with the procedures set forth below:

(ii) **Responsibilities**

This standard applies to the persons named in Section 5.01(i) above in the execution of their responsibilities under the Pension Benefits Act (Ontario) (the “Affected Persons”).

(iii) **Disclosure**

In the execution of their duties, the Affected Persons shall disclose any material conflict of interest relating to them, or any material ownership of securities, which could impair their ability to render unbiased advice, or to make unbiased decisions, affecting the administration of the Plan’s assets.

Further, it is required that no Affected Person shall make any personal financial gain (direct or indirect) because of his or her fiduciary position. However, normal and

reasonable fees and expenses incurred in the discharge of his/her responsibilities are permitted if documented and approved by the University.

No Affected Person shall accept a gift or gratuity or other personal favour, that is material, from a person with whom the Affected Person deals in the course of performance of his or her duties and responsibilities for the Plan.

It is incumbent on any Affected Person who believes that he or she may have a conflict of interest, or who is aware of any conflict of interest, to disclose full details of the situation in writing to the Chair of the Committee within three business days after the individual becomes aware of the conflict of interest. The disclosure should also be made orally if awareness of the conflict occurs during the discussion of Plan business.

The Committee, in turn, will decide what action is appropriate under the circumstances but, at a minimum, will table the matter at the next regular meeting of the Committee.

Normally, the individual disclosing the conflict of interest shall withdraw from the meeting during discussion of and vote on the issue causing the conflict of interest. The individual may be permitted, at the Committee's request, to participate in the discussion but he/she shall not be present for the vote.

The disclosure of a conflict of interest, the name of the individual declaring the conflict and the manner in which the conflict was resolved will be recorded in the minutes of the Committee.

## **5.02 Related Party Transactions**

The Committee, on behalf of the Plan, may not enter into a transaction with a related party unless:

- (a) The transaction is both required for operation and or administration of a plan and the terms and conditions of the transaction are not less favourable than market terms and conditions; or,
- (b) Securities of the related party are acquired at a public exchange.

A “related party” is defined to mean the administrator of the Plan, including any officer, director or employee of the administrator, or any person who is a member of the Committee. It also includes the Investment Managers and their employees, a union representing employees of the employer, a member of the plan, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others. The concept of “Related party” does not include government or a government agency, or a bank, trust company or other financial institution that holds the assets of the Plan, where that person is not the administrator of the Plan.

## **5.03 Selecting Investment Managers**

In the event that a new Investment Manager must be selected or additional Investment Manager(s) added to the set of existing Investment managers, the Committee will undertake a

Investment Manager search with the assistance of a third-party investment consultant. The criteria used for selecting a Investment Manager will be consistent with the investment and risk philosophy set out in Section 1.05 (Investment and Risk Philosophy).

#### **5.04 Monitoring of Investment Managers**

At least semi-annually, the Committee will monitor and review the:

- (a) Assets and net cash flow of the Plan;
- (b) Investment Manager's financial stability, staff turnover, consistency of style and record of service;
- (c) Investment Manager's current economic outlook and investment strategies;
- (d) Investment Manager's compliance with this Policy, where a Manager is required to complete and sign a compliance report; and
- (e) Investment performance of the assets of the Plan in relation to the rate of return expectations outlined in this Policy.

#### **5.05 Dismissal of a Investment Manager**

The Committee shall consider from time to time whether a Manager's investment performance or any other circumstances may warrant the introduction of a probationary period or a change in Investment Manager(s). Such circumstances would include but not be limited to:

- (a) Significant turnover in staff of Investment Manager(s);
- (b) Change in ownership of Investment Manager(s);
- (c) Failure of the Investment Manager(s) to satisfy all of the responsibilities set out in Section 3 of this Statement;
- (d) Desire to diversify the management of the Pension Fund or to add another Investment Manager(s);
- (e) Unsatisfactory performance and/or compliance in relation to the performance standards specified in Sections 3 and 4 of this Policy.

#### **5.06 Voting Rights**

The Committee has delegated voting rights acquired through the investments held by the Plan to the custodian of the securities to be exercised in accordance with the Investment Manager's instructions. Investment Managers are expected to exercise all voting rights related to investments held by the Fund in the interests of the Plan members. On a semi-annual basis, the Investment Managers shall report their voting activities to the Committee.

The Committee reserves the right to take-back voting rights of assets held in segregated portfolios for specific situations.

Further, the Investment Managers must maintain records documenting how they voted and will advise the Committee if they vote against its own share voting policy.

## **5.07 Valuation of Investments Not Regularly Traded**

The following principles will apply for the valuation of investments that are not traded regularly:

- (a) **Equities**  
Average of bid-and-ask prices from two major investment dealers, at least once every calendar quarter.
- (b) **Bonds**  
Same as for equities.
- (c) **Mortgages**  
Unless in arrears, the outstanding principal plus/minus the premium/discount resulting from the differential between the face rate and the currently available rate for a mortgage of similar quality and term, determined at least once every calendar quarter.
- (d) **Real Estate**  
A certified written appraisal from a qualified independent appraiser at least every two years.
- (e) **Resource Properties and Venture Capital**  
A written market value assessment prepared by party qualified to make such assessments, at least every two years.

## **5.08 Policy Review**

The Policy may be reviewed and revised at anytime, but it must be formally reviewed by the Committee at least annually.

# Appendix A

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McMaster University has contracted with the following to provide services:

## **Investment Managers**

- (a) Jarislowsky Fraser Limited

## **Actuary**

- (a) Mercer Human Resource Consulting Ltd.

## **Custodian/Trustee**

- (a) CIBC Mellon Trust Company

## **Pension Investment Consulting and Monitoring**

- (a) Mercer Investment Consulting

## **Plan Status**

As of the last filed actuarial valuation July 1, 2004, the Plan had 364 active members, 234 retired members, and 12 former members with deferred benefits and assets, at market value, of \$25,714,000.

The going concern liability of the Plan was \$28.6 million compared to the actuarial value of the assets, which was \$25.3 million, leaving a deficit of \$3.3 million. Approximately 60% of the liability was attributable to active members and 39% of the liability was attributable to pensioners and survivors. The balance of the liability was attributed to deferred pensioners and inactive members.

**Attachment 17A**

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# **SECOND AMENDED AND RESTATED 2005 CANAL PLANT AGREEMENT**

**BRITISH COLUMBIA HYDRO AND POWER AUTHORITY  
FORTISBC INC.**

**TECK METALS LTD.**

**BRILLIANT POWER CORPORATION  
BRILLIANT EXPANSION POWER CORPORATION  
WANETA EXPANSION LIMITED PARTNERSHIP**

**DATED FOR REFERENCE  
NOVEMBER 15, 2011**



## TABLE OF CONTENTS

<b>1. INTERPRETATION .....</b>	<b>4</b>
1.1 Definitions .....	4
1.2 Plural and Singular .....	12
1.3 Including .....	12
1.4 Section, Schedule and Table References .....	13
1.5 Operating Procedure Inconsistencies .....	13
1.6 Parties.....	13
1.7 Headings.....	13
1.8 Invalid Provisions.....	13
1.9 Applicable Law .....	13
1.10 Joint Obligations .....	13
<b>2. OBLIGATIONS AND RIGHTS .....</b>	<b>13</b>
2.1 Plant Output and Aggregate Entitlement.....	13
2.2 Coordination Transfers .....	14
2.3 Coordination .....	14
2.4 Information Exchange.....	15
2.5 Ownership and Operation.....	16
2.6 Good Utility Practice and Industry Requirements.....	16
<b>3. AGGREGATE ENTITLEMENT .....</b>	<b>16</b>
3.1 Aggregate Entitlement .....	16
3.2 Adjustments to Aggregate Entitlement .....	17
3.3 Reductions Due to System Limitations.....	17
3.4 Methodology .....	17
3.5 Aggregate Entitlement Usage.....	17
3.6 Metering and Measurement.....	18
3.7 Minimum Take and Scheduling Constraints.....	18
<b>4. FLEXIBILITY / ENTITLEMENT USAGE ACCOUNTING .....</b>	<b>20</b>
4.1 Monthly Aggregate Entitlement Energy Adjustments .....	20
4.2 Monthly Accounting .....	20
4.3 Use and Daily Accounting .....	21
4.4 Exchange Accounts Maximum .....	21
4.5 Segregated Hourly Energy and Capacity Accounting .....	21
<b>5. MAINTENANCE .....</b>	<b>22</b>
5.1 Maintenance .....	22
<b>6. OPERATIONAL MATTERS .....</b>	<b>22</b>
6.1 Automatic Generation Control System .....	22
6.2 Integration into Control Area.....	22
6.3 Control Area Services.....	22

6.4	Schedules to and from the Entitlement Parties' System .....	23
6.5	Control of Schedules .....	23
6.6	Reserve Sharing .....	24
6.7	Ancillary Services .....	24
6.8	Remedial Action Schemes .....	25
<b>7.</b>	<b>TRANSMISSION FACILITIES AND INTERCONNECTION .....</b>	<b>25</b>
7.1	Entitlement Parties Transmission .....	25
7.2	Kootenay Interconnection .....	25
7.3	Kootenay Interconnection Transmission Facilities .....	26
7.4	Transfer Limits and Transmission Capabilities .....	26
7.5	No Wheeling Charges on Coordination Transfers .....	26
7.6	BC Hydro's Share of Actual Generation .....	26
<b>8.</b>	<b>SCHEDULING .....</b>	<b>26</b>
8.1	Kootenay Interconnection Scheduling Point .....	26
<b>9.</b>	<b>WATER FEES .....</b>	<b>27</b>
9.1	Responsibility for Water Licence Fees .....	27
9.2	Statement to B.C. Hydro .....	27
9.3	Netting by Agent .....	27
9.4	Adjusting Payment by B.C. Hydro .....	27
9.5	Adjusting Payment by Entitlement Party .....	27
9.6	Limitation on Adjustment .....	27
9.7	Modifications .....	28
<b>10.</b>	<b>ENVIRONMENTAL CREDITS .....</b>	<b>28</b>
10.1	Environmental Credits .....	28
<b>11.</b>	<b>OPERATING COMMITTEE .....</b>	<b>28</b>
11.1	Establishment of Committee .....	28
11.2	Chair of Operating Committee .....	29
11.3	Alternate Representatives .....	29
11.4	Meetings .....	29
11.5	Unanimity Required .....	29
11.6	Role of Operating Committee .....	30
11.7	Compliance With Legal Obligations and Good Utility Practice .....	30
11.8	Operating Procedures Binding .....	30
11.9	Operating Procedures in Place .....	30
<b>12.</b>	<b>DISPUTE RESOLUTION .....</b>	<b>31</b>
12.1	Referral to Senior Executives .....	31
12.2	Referral to Arbitration .....	32
12.3	Equitable Remedies .....	32
<b>13.</b>	<b>TERM AND TERMINATION .....</b>	<b>32</b>
13.1	1971 Agreement .....	32

13.2	Term .....	32
13.3	Amendment and Restatement.....	32
13.4	Benefit Extension Agreement.....	32
13.5	Obligations Survive.....	33
<b>14.</b>	<b>GENERAL PROVISIONS.....</b>	<b>33</b>
14.1	Consents and Waivers .....	33
14.2	Amendment .....	33
14.3	Permitted Assignment by an Entitlement Party .....	33
14.4	Release of Assignor .....	34
14.5	Permitted Assignment by B.C. Hydro.....	35
14.6	No Other Assignment Without Consent .....	35
14.7	Enurement .....	35
14.8	Further Assurances .....	35
14.9	Notice.....	35
14.10	No Partnership.....	35
14.11	Conflict With Other Agreements.....	36
14.12	Confidentiality .....	36
14.13	Counterpart Execution.....	36
14.14	Electronic Delivery .....	37

#### **SCHEDULE A ENTITLEMENT CALCULATION, ADJUSTMENT AND RE-DETERMINATION**

#### **SCHEDULE B KOOTENAY INTERCONNECTION**

## **SECOND AMENDED AND RESTATED 2005 CANAL PLANT AGREEMENT**

THIS AGREEMENT dated for reference the 15th day of November, 2011.

AMONG:

**BRITISH COLUMBIA HYDRO AND POWER AUTHORITY**

("B.C. Hydro")

AND:

**FORTISBC INC.**

("FortisBC")

AND:

**TECK METALS LTD. (formerly Teck Cominco Metals Ltd.)**

("Teck")

AND:

**BRILLIANT POWER CORPORATION**

("BPC")

AND:

**BRILLIANT EXPANSION POWER CORPORATION**

("BEPC")

AND:

**WANETA EXPANSION LIMITED PARTNERSHIP, by its general partner Waneta Expansion  
General Partner Ltd.**

("WELP")

WHEREAS:

A. The Canadian and United States entities under the Columbia River Treaty are required to cooperate to coordinate the operation of the Libby Dam with the hydroelectric plants on the Kootenay River and elsewhere in Canada;

B. For the purposes of implementing the arrangements contemplated in Recital A, B.C. Hydro is the Canadian entity referred to in the Columbia River Treaty;

C. The Canadian entity is also responsible for operating the Duncan Dam to achieve the benefits contemplated in the Columbia River Treaty;

D. B.C. Hydro is for all its purposes an agent of Her Majesty the Queen in Right of the Province of British Columbia (the “**Province**”) as provided in the *Hydro and Power Authority Act*, R.S.B.C. 1996, c. 212;

E. B.C. Hydro, Teck, FortisBC and the Province entered into an agreement comprised by letter dated August 13, 1971, from FortisBC to the Province, as clarified by letter dated August 30, 1971, from the Province to FortisBC, and enclosures therein (the “**1971 Agreement**”);

F. B.C. Hydro, Teck and FortisBC entered into an agreement made as of August 1, 1972 (the “**Original Canal Plant Agreement**”) pursuant to the 1971 Agreement whereby the parties agreed to cooperate in the operation of their available storages and generating facilities in British Columbia for the purpose of obtaining optimum generation from B.C. Hydro’s generation resources and the Plants;

G. The Province entered into an agreement with Teck made as of May 18, 1994 (the “**Benefit Extension Agreement**”) whereby the Province agreed that Teck would continue to receive the benefits of the Original Canal Plant Agreement until December 31, 2035;

H. The Province:

- (a) entered into the Power Asset Sale and Development Agreement made as of May 18, 1994 with Teck (the “**PASDA**”) whereby Teck agreed to sell expansion rights at its Brilliant and Waneta Dams;
- (b) assigned its rights under the PASDA to Columbia Power Corporation, which completed the purchase of the expansion rights from Teck and held such rights for the benefit of itself and Columbia Basin Trust and their affiliates;
- (c) transferred to Columbia Power Corporation, Columbia Basin Trust and their affiliates the benefit of the water reserve on the Pend d'Oreille River near the Waneta Dam; and
- (d) allowed the issuance of water licences for the Brilliant Upgrades and Brilliant Expansion pursuant to the terms of the water reserve on the Kootenay River near the Brilliant Dam that had previously been established by the Province in favour of B.C. Hydro;

I. On May 22, 1996, Teck sold the Brilliant Dam and related assets to a joint venture of Columbia Power Corporation and CBT Power Corp. (collectively, “**CPC/CBT**”) and Teck assigned to CPC/CBT its rights and obligations under the Original Canal Plant Agreement and the Benefit Extension Agreement to the extent those rights and obligations relate to the Brilliant Dam and CPC/CBT assumed and agreed to be bound by the obligations of Teck under the Original Canal Plant Agreement and the Benefit Extension Agreement to the extent those obligations relate to the Brilliant Dam;

J. FortisBC, Teck and CPC/CBT entered into an agreement made as of April 4, 1996 to identify the ownership of certain facilities and to define the specific rights and obligations of each of FortisBC, Teck and CPC/CBT with respect to the Original Canal Plant Agreement, which agreement was amended and restated concurrently with execution of the 2005 Canal Plant Agreement (as hereinafter defined in Recital L) by an agreement among the Entitlement Parties, as amended and restated as of February 15, 2010 and as further amended and restated as of the date hereof (the “**CPA Subagreement**”);

K. On April 1, 2004, CPC/CBT assigned the Brilliant Dam and all related assets and rights, including its rights under the Original Canal Plant Agreement and the Benefit Extension Agreement to BPC and BPC assumed and agreed to be bound by the obligations of CPC/CBT under the Original Canal Plant Agreement and the Benefit Extension Agreement to the extent those obligations relate to the Brilliant Dam;

L. B.C. Hydro, Teck, FortisBC, BPC, BEPC and Waneta Expansion Power Corporation (“**WEPC**”) (the previous owner of the Waneta Expansion rights) entered into an agreement made as of July 1, 2005 (such agreement as amended prior to completion of the Waneta Sale Transaction, the “**2005 Canal Plant Agreement**”) pursuant to the 1971 Agreement whereby the parties amended and restated the Original Canal Plant Agreement in its entirety to provide for their continued cooperation in the operation of their available storages and generating facilities in British Columbia for the purpose of obtaining optimum generation from B.C. Hydro's generation resources and the Plants;

M. Teck and WEPC entered into an agreement made October 22, 2009 (the “**Sizing Agreement**”) to establish as between each other the respective priorities for the diversion of water at the Waneta Facilities, as amended;

N. B.C. Hydro, Teck and others entered into an agreement made as of September 22, 2009, and completed March 5, 2010, whereby Teck sold to B.C. Hydro and B.C. Hydro purchased from Teck a one-third undivided interest in the Waneta Plant (the “**Waneta Sale Transaction**”);

O. B.C. Hydro, Teck, FortisBC, BPC, BEPC and WEPC entered into an agreement (the “**First Amended and Restated 2005 Canal Plant Agreement**”), effective as of the completion of the Waneta Sale Transaction, to amend and restate the 2005 Canal Plant Agreement in its entirety;

P. WELP, a limited partnership in which Fortis Inc. (an affiliate of FortisBC), CPC Waneta Holdings Ltd. and CBT Waneta Expansion Power Corp. are limited partners, has obtained from WEPC all of the rights related to the Waneta Expansion, including all of WEPC's rights and obligations under the First Amended and Restated Canal Plant Agreement and the Sizing Agreement, and intends to construct, own and operate the Waneta Expansion;

Q. Pursuant to Section 14.3 of the First Amended and Restated 2005 Canal Plant Agreement, B.C. Hydro, Teck, FortisBC, BPC, BEPC and WELP wish to enter into this Agreement to amend and restate the First Amended and Restated 2005 Canal Plant Agreement in its entirety; and

R. Pursuant to the *Clean Energy Act* (British Columbia), effective on July 5, 2010 the rights, property, assets of British Columbia Transmission Corporation (“**BCTC**”), including most of its contracts and permits were transferred to and vested in B.C. Hydro and the obligations and liabilities of BCTC except those under certain excluded contracts and permits, were transferred and assumed by B.C. Hydro.

THIS AGREEMENT WITNESSES that in consideration of the mutual covenants herein and other good and valuable consideration, the parties agree as follows:

## 1. INTERPRETATION

### 1.1 Definitions

In this Agreement, including the Recitals:

- (a) **“Adjustment Factor”** means:
  - (1) for the FortisBC Plants, 1.00349 in the case of the Adjustment Factor for Entitlement Energy, and 1.0401 in the case of the Adjustment Factor for Entitlement Capacity;
  - (2) for the Brilliant Plant, 0.97756;
  - (3) for the Waneta Plant:
    - (A) prior to WAX Start-up, from and after WAX Start-up in respect of the first 25,000 cfs of water authorized for diversion and use by the Waneta Facilities, and during any WAX Start-up Prolonged Outage Period:
      - (i) 0.91112 if the Teck Cominco CPA Scheduling Agreement is not in effect; and
      - (ii) if the Teck Cominco CPA Scheduling Agreement is in effect, 0.91112 plus the Adjustment Factor Increment in the Teck Cominco CPA Scheduling Agreement,
    - (B) from and after WAX Start-up, except during any WAX Start-up Prolonged Outage Period, in respect of Waneta Residual Water:
      - (i) 0.7567 if the Teck Cominco CPA Scheduling Agreement is not in effect; and
      - (ii) if the Teck Cominco CPA Scheduling Agreement is in effect, 0.7567 plus the Adjustment Factor Increment in the Teck Cominco CPA Scheduling Agreement (0.02233 as at the date of this Agreement);
  - (4) for the Brilliant Facilities:
    - (A) 0.86028 during any period that is not a Flexibility Option Period (as defined in the BEPC CPA Scheduling Option Agreement); and
    - (B) during any Flexibility Option Period (as defined in the BEPC CPA Scheduling Option Agreement), 0.86028 plus the Adjustment Factor Increment in the BEPC CPA Scheduling Option Agreement;

- (5) for the Waneta Expansion, from and after WAX Start-up, except during any WAX Start-up Prolonged Outage Period (when the Adjustment Factor will be zero):
  - (A) in respect of the first 21,330 cfs of water in excess of 25,000 cfs authorized for diversion and use by the Waneta Facilities, 0.811 plus the SVM Benefit Adjustment Factor Increment; and
  - (B) in respect of WAX Residual Water, 0.7567;
- (b) **“Aggregate Entitlement”** means the Entitlement Energy and Entitlement Capacity applicable to all of the Plants;
- (c) **“Aggregate Entitlement Energy”** in a period means the total Entitlement Energy applicable to all of the Plants in that period;
- (d) **“Agreement”** means this agreement, including the Schedules and Tables hereto;
- (e) **“B.C. Control Area”** means the electric system or systems within the province of British Columbia which, as of the date of this Agreement, is bounded by interconnection metering and telemetry, has one operator responsible for effecting generation control to maintain the area’s schedules with other control areas and contributes to frequency regulation of the Western Interconnection;
- (f) **“B.C. Hydro System”** means the transmission facilities and related protection, control and communication equipment in British Columbia owned and operated by B.C. Hydro, and includes all additions and modifications thereto and repairs or replacements thereof;
- (g) **“BEPC CPA Scheduling Option Agreement”** means the agreement between BEPC and B.C. Hydro made as of the 1<sup>st</sup> day of July, 2005, as amended and supplemented from time to time;
- (h) **“Brilliant Expansion”** means hydro-electric facilities near the Brilliant Plant that use the hydraulic head created by the Brilliant Dam, including Upgrades thereto from time to time. As of the date of this Agreement Brilliant Expansion is owned by BEPC;
- (i) **“Brilliant Facilities”** means the Brilliant Plant and the Brilliant Expansion;
- (j) **“Brilliant Plant”** means the Brilliant Dam located on the Kootenay River and its related hydroelectric facilities, including Upgrades thereto from time to time (but excluding the Brilliant Expansion). As of the date of this Agreement Brilliant Plant is owned by BPC;
- (k) **“Columbia River Treaty”** means the Treaty between Canada and the United States of America relating to the Co-operative Development of the Water Resources of Columbia River Basin (together with any protocol or exchange of notes relating thereto, any agreement or operating plan entered into or agreed between entities pursuant thereto, and the related agreement dated July 8, 1963 between the Province and Canada), any extension thereof or any replacement thereof;
- (l) **“Coordination Transfers”** means:



- (1) energy delivered to the Entitlement Parties by B.C. Hydro to make up for a deficiency of the Plants' generation compared to the Entitlement Parties' Aggregate Entitlement usage; and
  - (2) energy delivered to B.C. Hydro by the Entitlement Parties from the Plants' generation which is in excess of the Entitlement Parties' Aggregate Entitlement usage;
- (m) **"Co-Ownership and Operating Agreement"** means the Co-Ownership and Operating Agreement made as of the 5th day of March, 2010 between B.C. Hydro and Teck;
  - (n) **"Dispute Parties"** has the meaning set out in Section 12.1;
  - (o) **"Entitlement Capacity"** is determined in accordance with Schedule A, and may be adjusted and re-determined from time to time in accordance with this Agreement, including Schedule A;
  - (p) **"Entitlement Energy"** is determined in accordance with Schedule A, and may be adjusted and re-determined from time to time in accordance with this Agreement, including Schedule A;
  - (q) **"Entitlement Parties' System"** means the interconnected transmission facilities and related protection, control and communication equipment located in British Columbia within the area served by FortisBC as at the date of this Agreement and owned by one or more of the Entitlement Parties or their affiliates, and includes all additions and modifications thereto and repairs or replacements thereof;
  - (r) **"Entitlement Party"** means any of FortisBC, Teck, BPC, BEPC and WELP, and successors and permitted assigns thereof, and **"Entitlement Parties"** means all of them;
  - (s) **"Environmental Credit"** means any income, credit, right, benefit or advantage relating to environmental matters including, without limitation, type and level of emissions, means of production of energy, input sources and compliance with any environmental laws, regulations, rules or orders;
  - (t) **"Exchange Accounts"** has the meaning set out in Section 4.2;
  - (u) **"FortisBC Plants"** means the Plants owned by FortisBC as of the date of this Agreement being collectively, the Corra Linn, Upper Bonnington, Lower Bonnington and South Slocan dams located on the Kootenay River and their respective related hydroelectric facilities, including Upgrades thereto from time to time;
  - (v) **"Good Utility Practice"** means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended

to be limited to the optimum practice, method or act to the exclusion of all others, but rather to be acceptable practices, methods or acts generally accepted in the WECC region;

(w) **“Interchange Schedule”** means a schedule for the transfer of energy between the B.C. Control Area and any other control area or between the Entitlement Parties’ System and other parts of the B.C. Control Area, but does not include:

- (1) a schedule for the transfer of energy solely on the Entitlement Parties’ System;
- (2) a Coordination Transfer;
- (3) a schedule from generation other than the Plants that does not affect Aggregate Entitlement usage; or
- (4) a schedule by B.C. Hydro including, for greater certainty, a schedule under the Power Purchase Agreement between B.C. Hydro and FortisBC made as of the 1<sup>st</sup> day of October, 1993 (filed by B.C. Hydro as Rate Schedule 3808) as amended, supplemented or replaced from time to time, and the Duck Lake Wheeling Agreement between B.C. Hydro and FortisBC dated October 6, 2009;

nor, in respect of FortisBC, does it include any of the following:

- (5) a schedule that affects Aggregate Entitlement usage only to the extent of the provision by FortisBC of ancillary services required to be provided pursuant to its wholesale open access transmission tariff, as such tariff exists as at the date of this Agreement or as it may be amended or replaced on substantially similar terms;
- (6) a schedule from generation facilities other than the Plants, the output of which facilities FortisBC is obliged to purchase pursuant to any of the following agreements (as amended or replaced from time to time), provided and to the extent that the maximum output of such facilities is not increased from the level (indicated below):
  - (A) General Service Power Contract dated December 20, 2002 between FortisBC and Zellstoff Celgar Limited (approximately 50 MW);
  - (B) Letter Agreement dated January 8, 2001 between FortisBC and City of Nelson (approximately 15 MW); and
  - (C) Letter Agreement dated January 22, 2001 between FortisBC and Cascade Pacific Corporation (approximately 1 MW); or
- (7) a schedule from generation facilities other than the Plants, in respect of which facilities none of the Entitlement Parties has a direct contractual relationship pursuant to which such schedules might be prevented from affecting Aggregate Entitlement usage, and the output of which facilities a municipal wholesale

customer of FortisBC is permitted to purchase pursuant to any of the following agreements (as amended or replaced from time to time), provided and to the extent that the maximum output so purchased does not exceed the limit of 15 MW specified in each such agreement:

- (A) Agreement made as of the 1st day of November, 2004 between FortisBC and City of Kelowna;
- (B) Agreement made as of the 1st day of April, 2006 between FortisBC and City of Penticton;
- (C) Agreement made as of the 1st day of April, 2006 between FortisBC and City of Grand Forks;
- (D) Agreement made as of the 1st day of November, 2004 between FortisBC and City of Nelson; and
- (E) Agreement made as of the 1st day of April, 2006 between FortisBC and District of Summerland;

(x) **“Interconnection Agreement”** means:

- (1) the agreement dated as of April 5, 2004 between FortisBC and B.C. Hydro;
- (2) the agreement dated as of April 5, 2004 between Teck and B.C. Hydro;
- (3) the agreement dated as of April 5, 2004 between Arrow Lakes Power Corporation and B.C. Hydro; and
- (4) the agreement dated November 7, 2011 between WELP and B.C. Hydro,

as each may be amended or supplemented from time to time, and from time to time hereafter any other agreement between an Entitlement Party and B.C. Hydro which sets out the terms and conditions as to operational and other matters pertaining to the interconnection of the transmission systems of the parties thereto and **“the Interconnection Agreements”** at any time means all such agreements in force at that time;

(y) **“Kootenay Canal Plant”** means the dam and related hydroelectric facilities owned by B.C. Hydro located on the Kootenay River near the FortisBC Plants;

(z) **“Kootenay Interconnection”** means the interconnections described in Schedule B, which are deemed for the purposes of this Agreement to be a single point of interconnection between the Entitlement Parties' System and the B.C. Hydro System;

(aa) **“Late Schedule Change Limit”** means:

- (1) 210 MW;

- (2) less, while the Teck Cominco CPA Scheduling Agreement is in effect or Section 3.7(d) applies, 125 MW; and
- (3) less, during a Flexibility Option Period (as defined in the BEPC CPA Scheduling Option Agreement), 25 MW;
- (bb) **“Legal Obligations”** means, as applicable, the Columbia River Treaty and hydroelectric operating plans and other legal obligations developed thereunder, water licences, permits, Orders of the International Joint Commission, the provisions of this Agreement and other requirements established by statute, regulation or lawful order;
- (cc) **“Maximum Generation Capacity”** has the meaning set out in Schedule A;
- (dd) **“Minimum Take”** means, from time to time 150 MW plus 21.5% of the amount that the total Maximum Energy Delivery Rate for December as set out in Table 9 exceeds 690 MW, as modified from time to time in accordance with Section 3.7(a) or Section 6.9 of Schedule A;
- (ee) **“NERC”** means the North American Electric Reliability Council or a successor organization;
- (ff) **“Operating Committee”** means the operating committee established under Section 11.1;
- (gg) **“Operating Procedures”** means those procedures for the implementation of this Agreement developed and modified from time to time by the Operating Committee pursuant to this Agreement or as otherwise developed by dispute resolution pursuant to Section 12;
- (hh) **“Operating Year”** means the period from August 1st to July 31st inclusive, or such other consecutive 12-month period as the Operating Committee may determine;
- (ii) **“Original Canal Plant Agreement”** means the agreement described in Recital F, as amended and supplemented up to June 30, 2005;
- (jj) **“Plant”** means any one of the Brilliant Plant, the Waneta Plant, each of the FortisBC Plants, the Brilliant Expansion, and from and after WAX Start-up the Waneta Expansion, except that:
  - (1) for the purposes of the definitions of Generation Versus Flow Characteristics, Head Correction Factors, Maximum Generation Capacity, Flow at Maximum Generation Capacity and Plant Characteristics the Brilliant Facilities will be treated as a single Plant;
  - (2) for the purposes of the definitions of Generation Versus Flow Characteristics, Head Correction Factors, Maximum Generation Capacity, Flow at Maximum Generation Capacity and Plant Characteristics and for the purposes of Sections 5.2, 5.3(g)(2)(E) and 5.5 of Schedule A, from and after WAX Start-up except

during any WAX Start-up Prolonged Outage Period, the Waneta Facilities will be treated as a single Plant;

- (3) (for the purposes of Sections 2.3 and 10.1, the Kootenay Canal Plant will be treated as a Plant; and
- (4) for the purposes of Sections 1.1(b), (c), (l) and (w), 2.1, 2.3 (but not 2.3(e)), 2.5, 3.7, 6.7(c), and 10.1 "Plant" is limited, with respect to the Waneta Plant, to the Teck Participation Percentage of the Waneta Plant;
- (kk) **"Plant Characteristics"** has the meaning set out in Schedule A;
- (ll) **"Residual Water"** means water licensed or otherwise authorized for diversion and use by the owner(s) of the Waneta Facilities in excess of the first 46,330 cfs;
- (mm) **"Season"** means either the Storage Draft Season or the Storage Refill Season;
- (nn) **"Senior Executive"** of a party means the Chair, the President, any Vice-President or any other officer of the party equivalent to any of the foregoing;
- (oo) **"Sizing Agreement"** has the meaning set out in Recital M;
- (pp) **"Storage Draft Season"** means the period of August 1 through April 30;
- (qq) **"Storage Refill Season"** means the period of May 1 through July 31;
- (rr) **"SVM Benefit Adjustment Factor Increment"** means:
  - (1) until the expiry or earlier termination of the initial term of the WAX EPA, 0.123 subject to re-determination as set out in Section 6.11 of Schedule A; and
  - (2) after the expiry or earlier termination of the initial term of the WAX EPA, zero;
- (ss) **"Teck Cominco CPA Scheduling Agreement"** means the agreement between Teck and B.C. Hydro made as of the 1<sup>st</sup> day of July, 2005, as amended and supplemented from time to time;
- (tt) **"Teck Participation Percentage"** means, at any given time, Teck's **"Participation Percentage"** (as defined in the Co-Ownership and Operating Agreement) at that time;
- (uu) **"Unexpected Transmission Limitation"** means:
  - (1) any limitation on the use of non-firm transmission that occurs after an Interchange Schedule is duly submitted which affects the Interchange Schedule; and
  - (2) any other limitation on the use of transmission that occurs after an Interchange Schedule is duly submitted which affects the Interchange Schedule and was not expected when the Interchange Schedule was submitted;

- (vv) **“Unit”** means machinery and equipment making up a complete and independent hydro-electric generator including water passages, turbine, exciter, generator and generator output transformer and replacements thereof;
- (ww) **“Unit Derate”** means a Unit's capacity is reduced below its maximum continuous rating used in the derivation of the Maximum Generation Capacity of the Plant due to a component failure, maintenance or other equipment or Plant condition, reasonable safety concerns or any other cause beyond the reasonable control of the owner or operator;
- (xx) **“Unit Outage”** means a Unit out of service due to a component failure, maintenance or other equipment or Plant condition, reasonable safety concerns or any other cause beyond the reasonable control of the owner or operator;
- (yy) **“Upgrade”** of a Plant means any capital project that results in an increase in the capacity or energy generation of the Plant by means of efficiency improvement, but not by means of the use of water in addition to that authorized as of the date of this Agreement to be diverted at the Plant, and for greater certainty includes the Brilliant Upgrades and the Waneta Upgrades completed prior to the date of this Agreement; the use of the word **“Upgrade”** immediately after the name of a Plant means an Upgrade of that Plant;
- (zz) **“Waneta Expansion”** or **“WAX”** means hydro-electric facilities to be constructed near the Waneta Plant using the hydraulic head created by the Waneta Dam, including Upgrades thereto from time to time;
- (aaa) **“Waneta Facilities”** means, together, the Waneta Plant and the Waneta Expansion;
- (bbb) **“Waneta Plant”** means the Waneta Dam located on the Pend d'Oreille River and its related hydroelectric facilities, including Upgrades thereto from time to time (but excluding the Waneta Expansion), except in respect of (i) references to “Entitlement Energy and Entitlement Capacity attributable to the Waneta Plant” in Section 6.7 of Schedule A, (ii) references to “Entitlement Capacity attributable to the Waneta Plant” in Section 4.2(i) of Schedule A, and (iii) references to “Entitlement Energy attributable to the Waneta Plant” in Section 4.3(f) of Schedule A, where in each such case **“Waneta Plant”** means only the Teck Participation Percentage of the Waneta Plant. As of the Waneta Closing, Teck owns the Teck Participation Percentage of the Waneta Plant;
- (ccc) **“Waneta Residual Water”** means Residual Water the priority to which is allocated to the owners of the Waneta Plant pursuant to the Sizing Agreement;
- (ddd) **“Water Fees”** has the meaning set out in Section 9.1;
- (eee) **“Water Licence”** means a water licence or other authorization to divert water issued to an Entitlement Party relating to the operation of one or more of the Plants;
- (fff) **“WAX CAPA”** means the capacity purchase agreement dated as of October 1, 2010 between WELP and FortisBC;

- (ggg) **“WAX EPA”** means the electricity purchase agreement dated as of October 1, 2010 between WELP and B.C. Hydro;
- (hhh) **“WAX Residual Water”** means Residual Water the priority to which is allocated to WEPC (now WELP) pursuant to the Sizing Agreement;
- (iii) **“WAX Start-up”** means that for 120 consecutive hours a Unit at the Waneta Expansion:
- (1) during all periods in such 120 hour period when flow was available, has generated power as reasonably expected for such flow conditions and without a Unit Outage;
  - (2) during all periods in such 120 hour period when flow was not available, was available for operation; and
  - (3) subject to flow availability, throughout the 120 hour period was capable of stopping and starting without unusual delay, as expected based on design and operating procedures,
- and has been, pursuant to Good Utility Practice in the reasonable opinion of WELP, commissioned;
- (jjj) **“WAX Start-up Period”** means the period beginning on WAX Start-up and ending on the later of: (1) the first anniversary of WAX Start-up; and (2) the day when there has not been a WAX Unit Outage of 3 consecutive months or longer in the previous 12 months;
- (kkk) **“WAX Start-up Prolonged Outage Period”** means any period of time in the WAX Start-up Period beginning three months after both WAX Units have gone out of or are deemed to have gone out of service and ending when at least one Unit returns to service (which for the purpose of this definition means the Unit has satisfied the conditions described in the definition of WAX Start-up for 60 consecutive hours (as opposed to 120 consecutive hours));
- (lll) **“WECC”** means Western Electricity Coordinating Council or a successor organization; and
- (mmm) **“Western Interconnection”** has the meaning assigned to it by WECC.

## 1.2 Plural and Singular

In this Agreement, the singular includes a reference to the plural, and vice versa, unless the context requires otherwise.

## 1.3 Including

In this Agreement, references to “include”, “including” and similar expressions mean “including but not limited to”.

## **1.4 Section, Schedule and Table References**

Reference to a particular numbered Section, Schedule or Table is a reference to the correspondingly numbered Section, Schedule or Table of this Agreement.

## **1.5 Operating Procedure Inconsistencies**

In the event there is an inconsistency between this Agreement and any Operating Procedure made under it, this Agreement will prevail to the extent of the inconsistency and the Operating Committee will modify the Operating Procedure to eliminate the inconsistency. In the event there is an inconsistency between two or more Operating Procedures, the Operating Committee will modify one or more of the Operating Procedures to eliminate the inconsistency.

## **1.6 Parties**

Unless the context otherwise indicates, reference to a “party” or the “parties” is a reference to a party, or the parties, to this Agreement and their respective permitted assigns, successors, subcontractors, trustees, administrators and receivers.

## **1.7 Headings**

The headings appearing in this Agreement have been inserted for ease of reference and as a matter of convenience only and in no way define, limit or enlarge the scope of any provision of this Agreement.

## **1.8 Invalid Provisions**

If any provision of this Agreement is declared or found to be invalid, illegal or unenforceable, in whole or in part, it will not be severable from this Agreement but the parties will work together in good faith to amend the provisions of this Agreement so that it will be valid, legal and enforceable.

## **1.9 Applicable Law**

This Agreement will be construed in accordance with the laws of the Province of British Columbia.

## **1.10 Joint Obligations**

The obligations expressed herein to be obligations of the Entitlement Parties (as distinguished from an obligation of an Entitlement Party, each Entitlement Party or each of the Entitlement Parties) are joint obligations of the Entitlement Parties.

# **2. OBLIGATIONS AND RIGHTS**

## **2.1 Plant Output and Aggregate Entitlement**

The Entitlement Parties will be entitled to the Aggregate Entitlement from generation from and at the Plants, as they may be operated in accordance with this Agreement, and, to the extent the generation at the Plants is insufficient, from B.C. Hydro. The Entitlement Parties may use the Aggregate Entitlement in accordance with this Agreement and may use the reactive power support available at the Plants in their absolute discretion. B.C. Hydro will be entitled to any energy, capacity and reactive power generation of



the Plants over and above the Aggregate Entitlement and reactive power support provided to the Entitlement Parties, provided that B.C. Hydro will not be entitled to use reactive power generation at the Plants during any period of time in which the Entitlement Parties have notified B.C. Hydro that in the reasonable opinion of the Entitlement Parties use by B.C. Hydro of such reactive power generation may be detrimental to the Entitlement Parties.

## **2.2 Coordination Transfers**

Coordination Transfers from B.C. Hydro to the Entitlement Parties will be made available by B.C. Hydro to the Entitlement Parties, and will be deemed to occur, at the Kootenay Interconnection. Coordination Transfers from the Entitlement Parties to B.C. Hydro will be made available by the Entitlement Parties to B.C. Hydro, and will be deemed to occur, at the Kootenay Interconnection.

## **2.3 Coordination**

B.C. Hydro will provide operating instructions to the Entitlement Parties respecting generation and water releases at their respective Plant(s), and each of the Entitlement Parties will control its Plant(s) in accordance with such operating instructions from B.C. Hydro, all in accordance with the Operating Procedures and subject to the following:

- (a) an Entitlement Party, or its agent, may alter the dispatch of its Plant(s) from that in the operating instructions provided by B.C. Hydro only for reasons of (1) local reliability, (2) local reactive power support, or (3) reliability of the Plant; provided that the alteration of the dispatch of a Plant will be done in such a manner that the magnitude and duration of the altered dispatch is no more than reasonably required;
- (b) each party will endeavour to operate its Plant(s) in an environmentally responsible manner while recognizing its commercial interests. In developing the Operating Procedures and determining the operation of an individual Plant, each of the parties will reasonably consider the interests (short-term and long-term) of the Plants of other parties and will consult over a reasonable period of time with each other party whose interests may be materially affected and will reasonably take into account the interests of such other parties before making or agreeing to make any changes that affect the generation of any Plant. Each party will, on an on-going basis, identify any concerns with respect to Plant operation to the Operating Committee;
- (c) B.C. Hydro will endeavour to coordinate river operations in an environmentally responsible manner while recognizing its commercial interests. In coordinating river operations and providing operating instructions, B.C. Hydro will reasonably consider the interests (short-term and long-term) of the Plants of other parties. B.C. Hydro will identify any concerns with respect to Plant operation to the Operating Committee;
- (d) except as provided in (a) above, to the extent that an Entitlement Party, or its agent, does not comply with an operating instruction from B.C. Hydro and thereby restricts the operation of any Plant or Kootenay Lake in a manner that was not considered in (1) the calculation of that portion of the Aggregate Entitlement applicable to the affected Plant(s), or (2) the determination of the Aggregate Entitlement scheduling constraints of Section 3.7, such Entitlement Party will be responsible for the actual impact of such

restrictions, net of any Aggregate Entitlement reductions that result from such restrictions. The Operating Committee will determine the extent, if any, of the Entitlement Party's responsibility for the actual impact of such restrictions;

- (e) if a restriction is imposed on the operation of any Plant or Kootenay Lake in a manner that was not considered in (1) the calculation of the Aggregate Entitlement applicable to the affected Plant(s), or (2) the determination of the Aggregate Entitlement scheduling constraints of Section 3.7, then to the extent that the restriction is a result of B.C. Hydro coordination of water operations in the basin, and would not have been imposed in the absence of such B.C. Hydro coordination, no adjustments to or re-determinations of Aggregate Entitlement will be made, all of which will be determined by the Operating Committee;
- (f) if an Entitlement Party, or its agent, expects to impose restrictions on the operation of any Plant or Kootenay Lake, it will provide B.C. Hydro with as much notice of such restrictions as practicable. B.C. Hydro will take steps to modify its planned operations to recognize such restrictions, without prejudice to B.C. Hydro's rights under this Section 2.3. The Operating Committee will determine, in advance if practicable, the appropriate mechanism to compute the adjustments to or re-determinations of Aggregate Entitlement, or other compensation, resulting from such restrictions; and
- (g) the parties will endeavour to implement cost-effective mitigation and compensation measures designed to minimize the need to restrict Plant operations. The Operating Committee will determine the cost sharing for such measures.

## **2.4 Information Exchange**

Each party will provide to another party, in a timely manner, information requested by that other party that is reasonably required by that other party for the implementation of this Agreement or is reasonably required for the optimization of B.C. Hydro's generation resources and the Plants, including:

- (a) good faith estimates of the Entitlement Parties' hourly load and hourly Aggregate Entitlement usage;
- (b) good faith estimates of net aggregate Interchange Schedules;
- (c) real-time changes to net aggregate Interchange Schedules;
- (d) information regarding transmission limitations;
- (e) metering information;
- (f) Legal Obligations;
- (g) other potential or actual restrictions on Plant operations; and
- (h) expected and actual Unit Outages and Unit Derates.

Except as otherwise determined by the Operating Committee or agreed to by the parties (including in Section 4.5), the Entitlement Parties will be considered as a single party for the purposes of the provision of information pursuant to each of (a), (b) and (c) above and the information will be provided to B.C. Hydro by the Entitlement Parties or their agent on an aggregate basis.

Each party receiving information under or pursuant to this Agreement will use such information only for the implementation of this Agreement, the optimization of B.C. Hydro's generation resources and the Plants, or the reliable operation of its respective system. Without limitation, a party will not use or permit to be used any data or information that it receives from another party or a third party under or pursuant to this Agreement for the purpose of obtaining a commercial advantage over any other party or of inhibiting or otherwise interfering with the legitimate business interests of any other party.

The Operating Committee will develop one or more Operating Procedures with respect to information exchange, including timing for providing information (including real-time changes).

An Entitlement Party's right to implement Interchange Schedules in accordance with Section 6.4 is acknowledged. It is also acknowledged that the timely exchange of information is required to realize the coordination benefits to be derived from this Agreement and the Entitlement Parties' net aggregate Interchange Schedule information is required for the optimum dispatch of B.C. Hydro's generation resources and the Plants.

## **2.5 Ownership and Operation**

Nothing in this Agreement will affect a party's ownership of its Plant(s), transmission system and related assets, its right to upgrade its assets or its responsibility to ensure the operation of its assets remains consistent with its Legal Obligations and Good Utility Practice. For greater certainty, Coordination Transfers and ancillary services as contemplated hereunder are an allocation of output from coordinated resources of B.C. Hydro and the Entitlement Parties and are not the provision of a product or service by a party to another.

## **2.6 Good Utility Practice and Industry Requirements**

Each of the parties will comply with Good Utility Practice in exercising its rights and performing its obligations under this Agreement.

Each of the parties will comply with applicable criteria from time to time of the B.C. Control Area operator, NERC, WECC, and any other authority having jurisdiction, in exercising its rights and performing its obligations under this Agreement. When considering how to comply with applicable criteria the parties will take into account the terms of this Agreement in determining the means of complying with such criteria.

# **3. AGGREGATE ENTITLEMENT**

## **3.1 Aggregate Entitlement**

The Aggregate Entitlement is as set out in Table 9.

### **3.2 Adjustments to Aggregate Entitlement**

The Aggregate Entitlement may be adjusted in accordance with Section 4.1 and will be reduced for Unit Outages and Unit Derates in accordance with the procedures and adjustments set out in Schedule A.

### **3.3 Reductions Due to System Limitations**

- (a) B.C. Hydro will be responsible for any losses incurred due to its inability to accept Coordination Transfers at the Kootenay Interconnection and accordingly there will be no resulting Aggregate Entitlement reductions.
- (b) If any Plant is derated due to limitations on both the B.C. Hydro System and the Entitlement Parties' System, the Aggregate Entitlement reduction will be determined by the Operating Committee in a manner that reflects the relative impact of each system's limitations.
- (c) If any Plant is derated due to limitations on the Entitlement Parties' System (such limitations to include any actual limitations on Teck's Line 71 resulting from conditions in the United States):
  - (1) the Entitlement Capacity will be reduced based on the Aggregate Entitlement adjustments set out in Table 10, regardless of the amount (if any) of actual capacity lost; and
  - (2) the Entitlement Energy reduction will be equal to the lesser of:
    - (A) the actual unavoidable energy loss; and
    - (B) the Entitlement Energy reduction for the Plant based on Table 10.
- (d) The parties will use reasonable efforts to mitigate actual energy losses resulting from limitations under this Section 3.3. The party benefiting from mitigation measures of another party will, to the extent of the benefit, be responsible for the costs of mitigation. If more than one party benefits, the responsibility for the costs of mitigation will be determined by the Operating Committee in a manner that shares the mitigation costs based on the benefits respectively enjoyed by such parties.

### **3.4 Methodology**

The Aggregate Entitlement has been, and during the term of this Agreement may only be, determined in accordance with the calculation methodology used in the Entitlement Calculation Program, which is described in Schedule A. Except as specifically set out herein, the Entitlement Calculation Program may not be amended without the written agreement of all of the parties to this Agreement.

### **3.5 Aggregate Entitlement Usage**

Subject to Section 3.7, the Entitlement Parties may use the Aggregate Entitlement, both Entitlement Energy and Entitlement Capacity, which is made available to them under this Agreement for their use, including for spill, in their absolute discretion. Entitlement Energy recorded in the Exchange Accounts

established pursuant to Section 4.2 is not a use of Aggregate Entitlement Energy; withdrawals of energy from the Exchange Accounts are a use of Aggregate Entitlement Energy. The Operating Committee will develop an Operating Procedure for the accounting of Aggregate Entitlement usage. Entitlement Capacity usage may not exceed the Aggregate Entitlement capacity at any time.

Certain of the Entitlement Parties have entered into, and any of the Entitlement Parties may from time to time hereafter enter into, amend or replace, commercial arrangements with third parties (including B.C. Hydro) that limit such Entitlement Party's Aggregate Entitlement usage and/or Exchange Accounts use under this Agreement. Any such Entitlement Party having entered into such a commercial arrangement with a third party (including B.C. Hydro but not including other Entitlement Parties) will give to all other parties whose interests hereunder are, in the opinion of such Entitlement Party (formed in good faith), affected by the commercial arrangement prompt notice of any such commercial arrangements and the effect thereof on the notifying Entitlement Party's Aggregate Entitlement usage and/or Exchange Accounts use, and the Entitlement Parties will abide by the limits on Aggregate Entitlement usage and/or Exchange Accounts use that are identified in any and all such notices.

### **3.6 Metering and Measurement**

Each Entitlement Party will be responsible for maintaining existing metering capability (or replacement with revenue quality metering) at its Plant(s). Each party will be responsible for maintaining existing metering capability (or replacement with revenue quality metering) at any points of interconnection between its system and any other systems. In the case of interconnections between the systems of two or more parties to this Agreement, the interconnecting parties will determine which party will provide the metering capability. If any party requests that additional metering be provided, the other parties will make reasonable efforts to accommodate such request and the requesting party will be responsible for any incremental capital costs incurred.

Each Entitlement Party will provide B.C. Hydro with reasonable access to its premises, at B.C. Hydro's own risk and expense, for the installation and maintenance of B.C. Hydro meters and metering apparatus that it reasonably determines that it requires for administration of this Agreement.

The *Electricity and Gas Inspection Act* (Canada), as revised from time to time and the regulations made thereunder will govern any revenue quality metering carried out under this Agreement. The parties acknowledge that the owners of meters may test, calibrate, remove and change their respective metering equipment at any reasonable time. Each party will be entitled to have a representative present at any test or calibration by another party. Other types of metering and telemetering carried out under this Agreement for system operation or other purposes, will be subject to mutual agreement.

### **3.7 Minimum Take and Scheduling Constraints**

- (a) The hourly Aggregate Entitlement usage must be at least equal to the Minimum Take, reflecting operating constraints on the Plants. The Operating Committee will modify the Minimum Take or impose new constraints on Aggregate Entitlement usage if required to reflect changes in generation at the Plants based on: (1) changes from and after the date of this Agreement to (A) Plant Characteristics, (B) Legal Obligations of the Entitlement Parties, or (C) system reliability requirements or implementation of the reliability requirements established by NERC, WECC, or any other authority having jurisdiction; or

(2) the application by the B.C. Control Area operator of any system reliability requirement (whether the system reliability requirement was established before or after the date of this Agreement). When considering modifying the Minimum Take or imposing new constraints on the Aggregate Entitlement usage as a result of application by the B.C. Control Area operator of any system reliability requirement, the Operating Committee must consider the characteristics of the Entitlement Parties' System (for example, the ability to shed load) and arrangements, if any, between an Entitlement Party and the B.C. Control Area operator relating to those characteristics. Subject to any applicable modifications established by the Operating Committee, for any hour during which Aggregate Entitlement usage is less than the Minimum Take, B.C. Hydro will be deemed to have made available and the Entitlement Parties will be deemed to have used the Minimum Take for that hour.

- (b) If changes in the usage of Aggregate Entitlement by one or more of the Entitlement Parties other than FortisBC, excluding changes agreed to or consented to by FortisBC after 30 September 2010 (whether by agreeing to amendments to this Agreement, the CPA Subagreement, or otherwise), materially reduce FortisBC's flexibility with respect to the usage of Entitlement Capacity attributable to the Waneta Expansion and purchased by FortisBC pursuant to the WAX CAPA prior to expiry of the initial term of the WAX EPA by reason of FortisBC's obligation to share in the Minimum Take obligation, then B.C. Hydro and FortisBC will, acting reasonably, seek to agree on methods of mitigating such reduced flexibility in a manner that would minimize the impact to both parties. Nothing in this Section 3.7(b) requires any other Entitlement Party to agree to any amendment to this or any other agreement.
- (c) Subject to the Teck Cominco CPA Scheduling Agreement, the BEPC CPA Scheduling Option Agreement and Section 3.7(e), the Entitlement Parties will have full discretion to change their Interchange Schedules at any time except that, other than as necessary to meet changes to system requirements, during the period between 70 minutes and 10 minutes prior to the deadline in the WECC region for making real time changes (as such deadline is amended from time to time, and which as of the date of this Agreement is 20 minutes prior to the start of the hour that energy is scheduled to flow) the Entitlement Parties will not increase or decrease their net aggregate Interchange Schedules by more than the Late Schedule Change Limit and thereafter will not change such schedules at all. For purposes of this Section "changes to system requirements" means Unexpected Transmission Limitations, unexpected changes to Plant availability and unexpected changes to reasonably forecasted load requirements, but does not include (1) changes in response to market conditions or (2) unexpected generation and load changes that can be addressed through normal entitlement storage operations. For purposes of this Section 3.7(c) "normal entitlement storage operations" means that the Entitlement Parties are not obligated to reduce the amount unused in the Exchange Account applicable to that day below 5.5 GW.h or to reduce the amount unused in the total available in the two Exchange Accounts (as described in Section 4.4) below 5.5 GW.h.
- (d) If an Entitlement Party implements an Interchange Schedule that is not in compliance with this Section 3.7 then the Entitlement Party will, to the extent required by B.C. Hydro

(acting reasonably), remedy the lack of compliance to the extent possible, which may include cutting or reinstating the applicable Interchange Schedule.

- (e) If the Teck Cominco CPA Scheduling Agreement is not in effect then the rights and obligations of Teck with respect to scheduling will be the same as its rights and obligations with respect to scheduling under the Original Canal Plant Agreement and its related technical decisions and operating procedures for implementing the Original Canal Plant Agreement as the Original Canal Plant Agreement and those technical decisions and operating procedures existed as of June 30, 2005, and subject to the rights and obligations of B.C. Hydro and Teck under the Co-Ownership and Operating Agreement and under the Surplus Power Rights Agreement made as of March 5, 2010 between those parties.

#### **4. FLEXIBILITY / ENTITLEMENT USAGE ACCOUNTING**

##### **4.1 Monthly Aggregate Entitlement Energy Adjustments**

The Entitlement Parties may adjust the monthly Aggregate Entitlement Energy by up to +/- 7% provided that the Aggregate Entitlement Energy, after the adjustment, in each of the Storage Draft Season, the Storage Refill Season and the November through February period does not exceed the Aggregate Entitlement Energy for such period. The adjustments in Aggregate Entitlement Energy will only be effective for the particular Operating Year (i.e. adjustments cannot be cumulative from Operating Year to Operating Year). The Entitlement Parties will collectively submit to B.C. Hydro at least 30 days prior to the start of each Operating Year their election for the monthly Aggregate Entitlement Energy for the next Operating Year.

The adjustments, if any, to the monthly Aggregate Entitlement Energy under Section 4.1 of the First Amended and Restated 2005 Canal Plant Agreement in effect immediately prior to the commencement of the term of this Agreement will be the adjustments to the monthly Aggregate Entitlement Energy for the applicable Season at the commencement of this Agreement.

##### **4.2 Monthly Accounting**

There are two accounts (the “**Exchange Accounts**”) established under this Agreement. One Exchange Account is for the Storage Draft Season and one Exchange Account is for the Storage Refill Season. The balance (B<sub>m</sub>) in an Exchange Account at the end of a month will equal the balance (B<sub>m-1</sub>) at the end of the immediately preceding month in the Season for which that Exchange Account is applicable plus the Aggregate Entitlement Energy for that month (E<sub>m</sub>) minus the Aggregate Entitlement Energy usage (A<sub>m</sub>) in the month so that:

$$B_m = B_{m-1} + E_m - A_m$$

The balance, if any, as of the commencement of the term of this Agreement in the energy exchange accounts established under Section 4.2 of the First Amended and Restated 2005 Canal Plant Agreement will be the opening balance for the applicable Exchange Account under this Agreement.

### 4.3 Use and Daily Accounting

The difference between daily Aggregate Entitlement Energy and usage of Aggregate Entitlement Energy by the Entitlement Parties will be recorded each day in the Exchange Account applicable to the Season of usage (i.e. the Storage Draft Season or the Storage Refill Season). The balance (Bd) in the Exchange Account at the end of a day will equal the balance (Bd-1) at the end of the immediately preceding day plus daily Aggregate Entitlement Energy (Sd) minus the Aggregate Entitlement Energy usage (Ad) in the day so that:

$$B_d = B_{d-1} + S_d - A_d$$

For the purposes of this calculation:

- (a) for the first day of a month, Bd-1 is equal to the balance at the end of the immediately preceding month in the same season (i.e. the Storage Draft Season or the Storage Refill Season);
- (b) the daily Aggregate Entitlement Energy is the monthly Aggregate Entitlement Energy divided by the number of days in the month, minus adjustments for Unit Outages and Unit Derates for each day; and
- (c) telemetered values will be taken as actual usage during the month and then corrected with metered values as soon as they become available.

The Operating Committee will develop an Operating Procedure from time to time that accounts for commercial arrangements entered into by individual Entitlement Parties with third parties (including B.C. Hydro but not including other Entitlement Parties) in order to ensure that the Entitlement Parties abide by the limits on Aggregate Entitlement usage and/or Exchange Accounts use identified in any and all notices under Section 3.5.

### 4.4 Exchange Accounts Maximum

At the end of any day neither the balance in the Exchange Account for the Season applicable to that day nor the total of the balances in the two Exchange Accounts may exceed +46.5 GW.h or be less than -46.5 GW.h, provided however that if the Teck Participation Percentage changes from 66.667%, the foregoing limits will instead be +29.5 GW.h plus the Teck Participation Percentage of 25.5 GW.h, and -29.5 GW.h plus the Teck Participation Percentage of -25.5 GW.h. For example, if the Teck Participation Percentage were to change to 65%, then the limits would be calculated as follows: +29.5 GW.h + (0.65 x 25.5 GW.h) = +46.075 GW.h, and -29.5 GW.h + (0.65 x -25.5 GW.h) = -46.075GW.h.

### 4.5 Segregated Hourly Energy and Capacity Accounting

Notwithstanding that certain of the Entitlement Parties' rights and obligations under this Agreement are joint, in order that the parties are able to ensure compliance with this Agreement and other commercial arrangements related hereto that are now in place or entered into by Entitlement Parties from time to time hereafter and in respect of which a notice must be given pursuant to Section 3.5, each Entitlement Party that is subject to such a commercial arrangement that limits Aggregate Entitlement usage and/or Exchange Accounts use will promptly make available to the other parties to whom it is obliged to give



notice pursuant to Section 3.5 segregated hourly energy and capacity accounting for its Aggregate Entitlement usage and/or Exchange Account use, as applicable. The Operating Committee will develop a detailed Operating Procedure providing for such segregated hourly energy and capacity accounting. Such accounting will be consistent with Aggregate Entitlement accounting and will be provided by the Entitlement Parties in a coordinated manner.

## **5. MAINTENANCE**

### **5.1 Maintenance**

The Entitlement Parties retain the right to schedule maintenance of their Plant(s) and each Unit of their Plant(s). The Operating Committee will develop Operating Procedures regarding scheduling of maintenance.

## **6. OPERATIONAL MATTERS**

### **6.1 Automatic Generation Control System**

B.C. Hydro, at its own cost, may include any or all of the Brilliant Plant, Brilliant Expansion, Waneta Plant and Waneta Expansion in the automatic generation control system for the B.C. Control Area. The design, operation and resulting load control duties must be acceptable to the Plant owner in each case. The owners of those Plants will provide B.C. Hydro with reasonable access to their premises, at B.C. Hydro's risk and expense, for the installation and maintenance of any equipment necessary to integrate those Plants into the automatic generation control system.

### **6.2 Integration into Control Area**

The Entitlement Parties' generation and load located within the area served by FortisBC as at the date of this Agreement will continue to be integrated into the B.C. Control Area, and none of the Entitlement Parties will provide an independent system load control. Despite such integration the Entitlement Parties remain responsible for providing, or causing to be provided, sufficient qualified resources to meet their ancillary service requirements as established from time to time by the B.C. Control Area operator, NERC, the WECC or any other authority having jurisdiction, as if they had retained their own control area.

### **6.3 Control Area Services**

Except to the extent the Entitlement Parties are responsible for providing ancillary services under Section 6.7, B.C. Hydro will ensure that the Entitlement Parties receive at no cost to the Entitlement Parties, those control area services established by NERC criteria as being required for a control area, which are as set out in an Operating Procedure as at the date of this Agreement.

If the criteria for services required for a control area as established by the B.C. Control Area operator, NERC, WECC or any other authority having jurisdiction are revised or augmented, then B.C. Hydro will ensure that the Entitlement Parties receive those revised, augmented or new control area services which, due to integration of the Entitlement Parties' systems into the B.C. Control Area, it is reasonable for B.C. Hydro as operator of the B.C. Control Area to provide. The Entitlement Parties will pay B.C. Hydro for the provision of such revised, augmented or new services the lesser of B.C. Hydro's incremental cost for the provision of such services to the Entitlement Parties and the amount that the Entitlement Parties would

have paid for such services in the absence of integration with the B.C. Control Area, all as determined by the Operating Committee.

#### 6.4 Schedules to and from the Entitlement Parties' System

- (a) Nothing in this Agreement diminishes the rights, privileges and obligations relating to transmission interconnections with other control areas that the Entitlement Parties would have if they had retained their own control area. As a result of integration into the B.C. Control Area the Entitlement Parties are no longer capable of independently implementing schedules to and from the Entitlement Parties' System with other control areas. Accordingly, B.C. Hydro will ensure that, upon the request of an Entitlement Party to B.C. Hydro, schedules of such Entitlement Party to and from the Entitlement Parties' System are effected if such schedules are in accordance with the terms and conditions of any tariffs, agreements or business practices that are applicable and are in accordance with Good Utility Practice. For greater certainty, nothing in this Section presupposes or provides transmission capacity rights or B.C. Hydro services on the B.C. Hydro System to the Entitlement Parties beyond those provided by separate agreement.
- (b) As of February 15, 2010 the practice in effect for Interchange Schedules is to show an Entitlement Party as the generator or the load for an Entitlement Party's Interchange Schedule and to show B.C. Hydro as the generator and load for all B.C. Hydro schedules (the "**Current Practice**"). B.C. Hydro and the Entitlement Parties acknowledge that such practice is acceptable and is sufficient to satisfy their respective rights and obligations under this Agreement, and no party (either directly or indirectly via an agent or affiliate) will seek a change to the Current Practice unless that party is, or is reasonably expected to be, materially adversely affected by the Current Practice due to a change, or a reasonably expected change, in circumstances subsequent to February 15, 2010. For the purposes of this Section 6.4(b), the actions of B.C. Hydro's grid operations business (or any successor or replacement entity) in its capacity as the B.C. Control Area operator will not be considered to be the actions of B.C. Hydro or an agent or affiliate of B.C. Hydro, provided such actions could reasonably be expected to be taken by an independent control area operator in like circumstances and are not taken for the purpose of benefitting B.C. Hydro or any affiliate of B.C. Hydro to the detriment of any of the Entitlement Parties.

#### 6.5 Control of Schedules

Subject to section 6.4(a), nothing in this Agreement provides a party with a right to control, approve, reject or modify a schedule of another party.

The parties recognize that, as a result of this Agreement, in the future a party (the "**Mandated Party**") may be required to approve, reject, modify or otherwise control a schedule of another party to effect compliance with criteria of the B.C. Control Area operator, NERC, WECC, or other authority having jurisdiction. In such event:

- (a) the Mandated Party will approve, reject, modify or otherwise control a schedule of another party:

- (1) only for the purpose for which the granting of the right was intended (for example, reliability) and not for any other purpose;
  - (2) in accordance with the terms and conditions of any tariffs, agreements or business practices that are applicable and Good Utility Practice; and
  - (3) with the same degree of fairness as it would use for other schedules over which it has approval, rejection, modification or other control rights, including reasonable consultation as time permits, and will report the reasons for its action to the other parties as soon as reasonably practical;
- (b) if the Mandated Party exercises a right contrary to (a) above it will compensate a party adversely affected for losses reasonably demonstrated by the party adversely affected; and
  - (c) the Operating Committee will develop Operating Procedures to ensure that the exercise by the Mandated Party of a right to approve, reject, modify or otherwise control a schedule of another party is in accordance with (a) and (b) above and such procedures will fairly recognize the interests of all parties to this Agreement, including their rights and obligations under this Agreement, and other agreements between the parties, and their interests in controlling and protecting commercially sensitive information.

## **6.6 Reserve Sharing**

B.C. Hydro will ensure that the Entitlement Parties receive reserve sharing through any reserve sharing groups in which each of B.C. Hydro, as operator of the B.C. Control Area, and the designated operator of the Entitlement Parties' System is a participant. The reserve sharing rights and obligations will be set out in an Operating Procedure that must be consistent with the rules and practices of such reserve sharing group.

## **6.7 Ancillary Services**

- (a) The Entitlement Parties will be responsible for providing, or causing to be provided (including from B.C. Hydro as contemplated below), sufficient qualified resources to meet their ancillary services requirements, as established from time to time by the B.C. Control Area operator, NERC, WECC or any other authority having jurisdiction, in respect of Aggregate Entitlement usage, including operating reserves, both spinning and non-spinning, as well as regulation and frequency response.
- (b) For those ancillary services requirements that can be provided through the use of Aggregate Entitlement (such as reserves and regulation and frequency response), the Entitlement Parties may satisfy ancillary services requirements either from Aggregate Entitlement or otherwise in their discretion. The parties acknowledge that as of the date of this Agreement the regulation and frequency response requirement of the Entitlement Parties is 2% of the Aggregate Entitlement.
- (c) B.C. Hydro will provide to the Entitlement Parties, either at the Plants or at the Kootenay Interconnection, for the use of the Entitlement Parties or for the provision by an

Entitlement Party to a third party, at no cost to the Entitlement Parties, ancillary services provided by generation resources that cannot be provided by the Entitlement Parties through the use of their Aggregate Entitlement to the extent that:

- (1) such ancillary services are requested by the Entitlement Parties on adequate notice to B.C. Hydro;
- (2) the Entitlement Parties would, without the obligations to B.C. Hydro under this Agreement, be actually capable of providing such ancillary services from the Plants assuming the Plants were operated in a manner consistent with the expected operational practices and dispatch limitations used to determine the Aggregate Entitlement; and
- (3) such capabilities are not being called upon from the Plants by the Entitlement Parties consistent with the terms of this Agreement.

## **6.8 Remedial Action Schemes**

- (a) As the parties participate in remedial action schemes with respect to the operation of the Kootenay Interconnection that are determined to be required to reliably run the system or systems, pursuant to their various Interconnection Agreements, the parties will endeavour to cooperate fully with each other and their respective operations. The parties agree to submit resources for remedial action schemes in an equitable manner having regard to the assistance that the various generation resources can provide.
- (b) Each of the parties does not and will not have any arrangement with any other party whereby B.C. Hydro would be called on to execute remedial action schemes with respect to the Kootenay Interconnection other than in accordance with Good Utility Practice and with the same degree of fairness as it would use for other generation units and load participating in remedial action schemes within the B.C. Control Area.
- (c) If at any time there is any dispute with respect to procedures to be followed or resources required or determinations of requirements of remedial action schemes with respect to the Kootenay Interconnection, the parties' respective systems will be operated, pending dispute resolution, in accordance with Good Utility Practice.

## **7. TRANSMISSION FACILITIES AND INTERCONNECTION**

### **7.1 Entitlement Parties Transmission**

The Entitlement Parties will continue to ensure that adequate transmission facilities are provided and maintained on the Entitlement Parties' System to provide for optimum generation of the Plants.

### **7.2 Kootenay Interconnection**

Except for temporary disconnections permitted in any of the Interconnection Agreements, the parties will use all reasonable efforts to ensure that the B.C. Hydro System and the Entitlement Parties' System remain interconnected at the Kootenay Interconnection.

### **7.3 Kootenay Interconnection Transmission Facilities**

B.C. Hydro and the Entitlement Parties acknowledge that as of the date of this Agreement the B.C. Hydro System and the Entitlement Parties' System are sufficient to satisfy their respective obligations under this Agreement, including obligations arising from the Waneta Expansion provided the planned 230 kV transmission additions from the Waneta Expansion to B.C. Hydro's Selkirk substation (which additions will form a part of the Entitlement Parties' System) are constructed.

### **7.4 Transfer Limits and Transmission Capabilities**

The Operating Committee will develop one or more Operating Procedures with respect to transfer limits and transmission capability taking into account:

- (a) Section 7.3;
- (b) the transfer limits at the Kootenay Interconnection under both system-intact and contingency conditions;
- (c) the amount of transmission capability required for Coordination Transfers; and
- (d) the requirements of the B.C. Control Area operator.

### **7.5 No Wheeling Charges on Coordination Transfers**

None of the parties will charge any other of the parties for the delivery or receipt of Coordination Transfers, all of which are deemed to occur at the Kootenay Interconnection.

### **7.6 BC Hydro's Share of Actual Generation**

For the duration of any outage of "Line 71", FortisBC will allow "BC Hydro's Share of Actual Generation" (as each of those terms is defined in the Co-Ownership and Operating Agreement) to be transmitted on the Entitlement Parties' System from the Waneta Plant to B.C. Hydro's System, at no cost to any party, on transmission capacity which FortisBC owns or has the right to use.

## **8. SCHEDULING**

### **8.1 Kootenay Interconnection Scheduling Point**

The parties acknowledge that the Kootenay Interconnection has been established as a single point for scheduling and applicable rate determination purposes and that the Kootenay Interconnection has been established as a single scheduling point on B.C. Hydro's scheduling system for wholesale transmission service (referred to as OASIS at the time of this Agreement). Throughout the term of this Agreement B.C. Hydro and the Entitlement Parties will use all reasonable efforts to ensure that the Kootenay Interconnection is maintained as a single point for scheduling and applicable rate determination purposes.

## **9. WATER FEES**

### **9.1 Responsibility for Water Licence Fees**

Each Entitlement Party will be responsible for the timely payment of all fees, levies and other charges ("**Water Fees**") related to the Water Licences issued to the Entitlement Party. For certainty, in the case of the Waneta Plant, and unless Teck and B.C. Hydro otherwise agree, Teck's responsibility for payment of Water Fees respecting Water Licences relating to the Waneta Plant is based on the Teck Participation Percentage in the Waneta Plant and is as provided for in the Co-Ownership and Operating Agreement.

### **9.2 Statement to B.C. Hydro**

Subject to Section 9.3, each Entitlement Party will, no later than February 28th of each year (or such other date determined by the Operating Committee), send to the person or office designated by B.C. Hydro for the purpose of this Section a statement, with reasonable supporting documentation, setting out:

- (a) the Water Fees payable by the Entitlement Party in the current year; and
- (b) the Water Fees that would have been payable by the Entitlement Party in that year if the Water Fees had been based on the Entitlement Party's Entitlement Energy usage, less any Entitlement Energy used for spill, in the previous calendar year.

### **9.3 Netting by Agent**

For the purposes of Section 9.2, two or more Entitlement Parties may appoint an agent which may combine the statements of such Entitlement Parties and notify B.C. Hydro accordingly on a net basis.

### **9.4 Adjusting Payment by B.C. Hydro**

If the amount under Section 9.2(a) exceeds the amount under Section 9.2(b), B.C. Hydro will pay the Entitlement Party the amount of the excess on or before the day(s) the Water Fees are due.

### **9.5 Adjusting Payment by Entitlement Party**

If the amount under Section 9.2(b) exceeds the amount under Section 9.2(a), the Entitlement Party will pay B.C. Hydro the amount of the excess on or before the day(s) the Water Fees are due.

### **9.6 Limitation on Adjustment**

In addition to and separate from the adjustment contemplated in Section 9.4, if:

- (a) the process or method by which the Comptroller of Water Rights ("**CWR**") determines the Water Fees payable by Teck or WELP for any year varies from that set out in the Methodology for Determining Energy Generation Based on Water Licence Rights ("**Methodology**") attached to the May 3, 2012 letter from the CWR to Teck, WELP and BC Hydro; and
- (b) as a result of such change, Water Fees for some or all of the energy that would have been billed to Teck in accordance with the Methodology for that year are payable by

WELP in that year, and were computed using a rate for some or all of that energy that is higher than the rate that would have been applicable if billed to Teck in accordance with the Methodology (the amount of energy at such higher rate, multiplied by the difference between the higher rate and the rate that would have been applicable if billed to Teck in accordance with the Methodology (herein referred to as the **"Incremental Water Fees"**),

then Teck and WELP will each be responsible for, and will pay to BC Hydro, 50% of the Incremental Water Fees.

## **9.7 Modifications**

If the process or method for assessing or collecting Water Fees changes, the parties will determine what, if any, consequential amendments are required to this Section 9 and will amend this Section 9 accordingly. If the parties are unable to agree on the required consequential amendments, any party may submit the dispute to arbitration in accordance with Section 12.2. The arbitrator is authorized to amend this Section 9 for the limited purpose of making any such required consequential amendments.

## **10. ENVIRONMENTAL CREDITS**

### **10.1 Environmental Credits**

Nothing in this Agreement is intended to transfer Environmental Credits and the parties intend that each party will retain any and all Environmental Credits related to its Plant(s), except to the extent otherwise agreed by separate agreement. If, notwithstanding such express intention, any party receives Environmental Credits related to another party's Plant(s), the receiving party will promptly execute and deliver such documents and instruments reasonably required to transfer the Environmental Credits to the Plant owner. For greater certainty, as between B.C. Hydro and FortisBC, FortisBC will be entitled to those Environmental Credits that the FortisBC Plants would have earned in the absence of this Agreement and in the absence of Libby Dam and Duncan Dam.

## **11. OPERATING COMMITTEE**

### **11.1 Establishment of Committee**

The Operating Committee established pursuant to the First Amended and Restated 2005 Canal Plant Agreement is carried over and continues to be the Operating Committee for purposes of this Agreement, consisting, from the date of this Agreement, of six representatives appointed as follows:

- (a) two appointed by B.C. Hydro;
- (b) one appointed by FortisBC;
- (c) one appointed by Teck;
- (d) one appointed jointly by BPC and BEPC; and
- (e) one appointed by WELP.

Each representative will serve on the Operating Committee until notice has been given by the appointing party(ies) to the other parties of their successor.

### **11.2 Chair of Operating Committee**

Responsibility for chairmanship of the Operating Committee will rotate among the parties annually, unless the members of the Operating Committee otherwise agree from time to time.

### **11.3 Alternate Representatives**

Each party will give notice to the other parties of an alternate representative for each of its representatives appointed under Section 11.1, who will serve on the Operating Committee during any inability or absence of such representative.

### **11.4 Meetings**

The Operating Committee will meet (in person at a location convenient to the parties or by telephone or video conference) as often as required to carry out its duties and responsibilities under this Agreement, and at least once each Operating Year, and will keep written records of its meetings and determinations. Any party may require that a meeting of the Operating Committee be held by giving notice of the time and location (or telephone or video conference arrangements) and notice of the topics to be discussed at the meeting, to the other parties at least 10 days prior to the date of the meeting. A quorum for a meeting of the Operating Committee will be one representative or alternate representative of each party, except that if a quorum has not been present at two consecutive meetings for which proper notice has been given, the quorum for the next meeting will be those representatives or alternate representatives in attendance. The Operating Committee will establish additional rules, procedures and terms of reference governing its own meetings and determinations.

### **11.5 Unanimity Required**

No decision or action of the Operating Committee will be effective unless it has been approved at a duly constituted meeting as follows:

- (a) if the decision or action affects or may affect some but not all of the parties, by the affirmative votes of the representatives of all of the affected parties, provided that:
  - (1) those parties (the **"Notifying Parties"**) who believe they are all of the affected parties give notice of the proposed decision or action to the other parties at least 14 days prior to the meeting, such notice stating that it is given pursuant to Section 11.5 and setting out in reasonable detail the reasons why the Notifying Parties believe that they are all of the parties affected by the proposed decision or action; and
  - (2) none of the other parties has, by notice to the Notifying Parties, disputed the right of the Notifying Parties to make the decision or take the action or it has been determined under Section 12 that the Notifying Parties have such right; and
- (b) otherwise, by the affirmative votes of all representatives present at the meeting.



## **11.6 Role of Operating Committee**

The Operating Committee:

- (a) will in a timely manner develop and approve Operating Procedures which are reasonably required to implement this Agreement;
- (b) may, from time to time, modify, terminate or replace Operating Procedures and will modify, terminate or replace Operating Procedures as may be reasonably required to implement this Agreement;
- (c) will re-determine the Aggregate Entitlement from time to time in accordance with Schedule A;
- (d) will make such determinations, take such actions and perform such other roles and responsibilities as are contemplated by this Agreement, or as the parties direct; and
- (e) will promptly notify the parties of all Operating Procedures, modifications or replacements of Operating Procedures and other actions and decisions taken by the Operating Committee pursuant to this Agreement.

The Operating Committee will cooperate with the operating committees appointed pursuant to the Interconnection Agreements, meeting together as reasonably necessary, on all issues related to the Kootenay Interconnection.

## **11.7 Compliance With Legal Obligations and Good Utility Practice**

The Operating Committee will at all times observe and comply with the provisions of this Agreement in a reasonable and timely manner and will not develop or allow to remain in effect any Operating Procedure, amend Schedule A or Schedule B or decide any technical issue in a manner that is inconsistent with a party's Legal Obligations or Good Utility Practice.

## **11.8 Operating Procedures Binding**

Each Operating Procedure developed by the Operating Committee in accordance with the terms of this Agreement will be binding on each of the parties from the date it is delivered to the parties, or such other date specified in the Operating Procedure, until the date it is modified, terminated or replaced by the Operating Committee or one or more of the parties (if the Operating Procedure allows for termination by one or more of the parties), or such other date specified in the Operating Procedure, and the parties will take all reasonable steps necessary to implement the Operating Procedures. If a particular circumstance arises that is not covered by an Operating Procedure, the parties will act in accordance with Good Utility Practice.

## **11.9 Operating Procedures in Place**

The following Operating Procedures have been developed and approved by the Operating Committee, as evidenced by the members' signatures thereon, and continue in effect as of the date of this Agreement:

<b>Procedure No.</b>	<b>Subject</b>
001	Maintenance of Operating Procedures
002	Assignment of Operating Responsibilities
003	Contacts for CPA Administration
004	Typical Data Exchange
005	Metering Estimates
006	Reports to Entities External to the CPA
007	Operating to and Compliance with the IJC
008	Flow Requirements for Waneta Plant
009	Coordination with Columbia River Treaty Operations
010	Kootenay Flow Below Brilliant
011	Operating and Maintenance Cost of Gauges
012	Incremental Discretionary Operating Costs
013	Scheduling Annual Maintenance Outages
014	Short Outage Durations for Minor Maintenance
015	Coordinating and Implementing Scheduled and Unscheduled Outages
016	Trashrack Cleaning
017	Transmission & Network Restrictions
018	Entitlement Accounting for Startup Failures
019	Entitlement Accounting for Discretionary Spills
020	Entitlement Accounting Procedures <b>[not complete]</b>
021	Operating Reserve
022	Forebay Constraints
023	CPA Load and Scheduling Information Exchange
024	Control Area Services and Ancillary Services
025	Transmission Capacity Requirements
026	Entitlement Parties' Obligations Arising from October 1993 Power Purchase Agreement
027	Hourly Aggregate Entitlement Use <b>[to be revised and incorporated in OP 020]</b>
028	Updating Schedule A and Tables on Re-Determination

The parties acknowledge that as at the date of this Agreement the foregoing Operating Procedures are consistent with the parties' Legal Obligations and Good Utility Practice and are reasonably required to implement this Agreement, subject to completion of Operating Procedure 020 (incorporating Operating Procedure 027) consistent with this Agreement and updates and revisions to Operating Procedures 4, 21, 23, 24 and 26.

## **12. DISPUTE RESOLUTION**

### **12.1 Referral to Senior Executives**

If two or more parties (in this Section 12, the "**Dispute Parties**") have a dispute arising out of or in connection with this Agreement, including: (1) the interpretation of any provision of this Agreement or any Operating Procedure; or (2) the failure by the Operating Committee to make a determination on a matter required hereunder to be determined by it, to take an action or to carry out any role or responsibility conferred on it under this Agreement (including a dispute over whether an Operating Procedure is reasonably required to be developed, modified, terminated or replaced and the terms thereof), the Dispute Parties will first refer the dispute for resolution to Senior Executives of the Dispute Parties, and each Dispute Party will promptly appoint one of its Senior Executives for this purpose.

## **12.2 Referral to Arbitration**

If the Senior Executives appointed under Section 12.1 are unable to resolve the dispute within 30 days of its first reference to them or if any Dispute Party fails to appoint a Senior Executive for that purpose, then any of the Dispute Parties may after the end of such 30 day period or upon failure of a Dispute Party to promptly appoint a Senior Executive for that purpose, submit the dispute to arbitration under the *Commercial Arbitration Act* (British Columbia). The arbitration will be by a single arbitrator knowledgeable in such matters. The award of the arbitrator will be final and binding on the Dispute Parties as set out in the *Commercial Arbitration Act* (British Columbia).

If the dispute involves an Operating Procedure or proposed Operating Procedure, or relates to a matter that the Operating Committee is required to address under Section 11.6 (including the failure to make a determination by reason of the required members of the Operating Committee failing to agree on the determination), the arbitrator is hereby authorized and directed to make the required determination (including to develop any Operating Procedure or modify, terminate or replace any Operating Procedure) in order to resolve the dispute. Any such determination by the arbitrator will be deemed to have been a determination by the Operating Committee. No award or determination of an arbitrator may be inconsistent with the terms and conditions of this Agreement.

## **12.3 Equitable Remedies**

The parties acknowledge that a declaratory judgment or damages may provide an inadequate remedy for breach of the provisions of this Agreement, and accordingly each party will be entitled to seek specific performance, injunction or other similar remedy to ensure full and proper performance by the other party of its obligations under this Agreement. Such remedy may only be sought from the arbitrator appointed under Section 12.2.

## **13. TERM AND TERMINATION**

### **13.1 1971 Agreement**

This Agreement is made pursuant to the 1971 Agreement.

### **13.2 Term**

This Agreement will be effective on the date hereof, or such other date agreed by all parties, and will continue in force and effect, unless terminated earlier by the agreement of all parties, until the termination date, not to be less than five years after the date of the notice, set out in a notice given by any party to all of the other parties at any time on or after December 31, 2030.

### **13.3 Amendment and Restatement**

The First Amended and Restated 2005 Canal Plant Agreement is amended and restated in its entirety by this Agreement.

### **13.4 Benefit Extension Agreement**

Teck and Brilliant Power Corporation acknowledge and agree that this Agreement is an agreement with B.C. Hydro as contemplated by section 2.1(c) of the Benefit Extension Agreement.

### **13.5 Obligations Survive**

All obligations of the parties which arise prior to the termination of this Agreement will survive such termination. Affected parties will within 180 days of termination agree on a purchase price or alternative delivery provision for any balances remaining in Exchange Accounts as of the termination date and, failing agreement, the matter will be determined under Section 12.

## **14. GENERAL PROVISIONS**

### **14.1 Consents and Waivers**

No consent or waiver, express or implied, by any party to or of any breach or default by any other party of any or all of its obligations under this Agreement will:

- (a) be valid unless it is in writing and stated to be a consent or waiver pursuant to this Section 14.1;
- (b) be relied on as a consent to or waiver of any other breach or default of the same or any other obligation;
- (c) constitute a general waiver under this Agreement; or
- (d) eliminate or modify the need for a specific consent or waiver pursuant to this Section in any other or subsequent instance.

### **14.2 Amendment**

Except as otherwise provided herein, this Agreement may not be amended except by written agreement between the parties. Any two or more parties (in this Section, the “**Amending Parties**”) may amend this Agreement without the agreement of the other parties, and such amendment will be effective, if:

- (a) the amendment does not and will not affect the rights or obligations of any of the other parties, except to the extent any affected party has agreed;
- (b) the Amending Parties give notice of the proposed amendment to the other parties at least 90 days before the date on which the proposed amendment is by its terms to become effective;
- (c) none of the other parties has disputed the right of the Amending Parties to make the proposed amendment or it has been determined under Section 12 that the Amending Parties have such right; and
- (d) an originally signed copy of the amendment has been delivered to each of the parties.

### **14.3 Permitted Assignment by an Entitlement Party**

An Entitlement Party may assign any or all of its rights under this Agreement:

- (a) to a corporation, joint venture or partnership that: (1) concurrently purchases one or more Plants from the assignor (and the assignment is of all rights and obligations relating to the purchased Plant(s)); and (2) enters into an agreement in favour of all other parties to this Agreement confirming that the assignee is bound by this Agreement to the extent of the assignment;
- (b) as security to any of its lenders;
- (c) as security to any entity to secure an obligation to deliver power; or
- (d) in the case of B.C. Hydro and Teck, to each other to secure obligations under the Co-Ownership and Operating Agreement,

and an Entitlement Party will not sell any of its Plants unless it also assigns its rights under this Agreement relating to such Plant to the purchaser and the purchaser assumes the obligations under this Agreement relating to such Plant. A reduction in the Teck Participation Percentage and a corresponding increase in B.C. Hydro's interest in the Waneta Plant is not a sale of the Waneta Plant for the foregoing purposes. As a condition of assigning any or all of its rights under this Agreement as security pursuant to Sections 14.3(b) or 14.3(c), an assigning Entitlement Party will first require that the party to be secured enters into an agreement with B.C. Hydro and the Entitlement Party on such terms as B.C. Hydro, the Entitlement Party and the secured party require, acting reasonably, dealing with the parties' rights and obligations arising from the granting of security and any default under such security.

Except in the circumstances described in the last two sentences of this paragraph, if B.C. Hydro acquires legal or beneficial ownership or control of an Entitlement Party or acquires a Plant then, unless otherwise agreed, the parties will negotiate in good faith to make such amendments to this Agreement and other agreements, or to enter into such new agreements, as are necessary to remove the acquired Entitlement Party and its Plant(s) or to remove the acquired Plant, as the case may be, from this Agreement, having regard to the existing rights, benefits and obligations of the parties, including those of each of the Entitlement Parties in the CPA Subagreement. A reduction in the Teck Participation Percentage to but not below 50.001% in, and a corresponding increase in B.C. Hydro's interest to but not above 49.999% in, the Waneta Plant, is not an acquisition by B.C. Hydro of the Waneta Plant for purposes of this Section 14.3. If the parties cannot agree on the necessary amendments to this Agreement and other agreements, or on the terms of any new agreements, then the dispute respecting such amendments or terms will be subject to dispute resolution in accordance with Section 12. If B.C. Hydro acquires the Brilliant Plant or legal or beneficial ownership or control of the entity owning the Brilliant Plant, and has not acquired FortisBC or its successor under the Brilliant Power Purchase Agreement made between Columbia Power Corporation, CBT Power Corp. and West Kootenay Power Ltd. as of the 4th day of April 1996 (the "**PPA**"), then for so long as the PPA remains in effect and B.C. Hydro has not acquired FortisBC, the Brilliant Plant will remain in this Agreement. For the purposes of this paragraph, "control" has the meaning given to it in section 2(3) of the *Business Corporations Act* (British Columbia).

#### **14.4 Release of Assignor**

If, in accordance with Section 14.3(a) an Entitlement Party has assigned to a corporation, joint venture or partnership that purchases one or more of the Entitlement Party's Plants all of the Entitlement Party's rights and obligations relating to the purchased Plant(s), it will be released from and have no further

obligations under this Agreement with respect to that Plant or those Plants as the case may be. If an Entitlement Party has assigned all of its rights under Section 14.3(a) to one or more corporations, joint ventures or partnerships that purchase all of the Entitlement Party's Plants, it will be released from and have no further obligations under this Agreement.

#### **14.5 Permitted Assignment by B.C. Hydro**

B.C. Hydro may assign any or all of its rights under this Agreement:

- (a) as security to any of its lenders; or
- (b) as security to any entity to secure an obligation to deliver power.

As a condition of assigning any or all of its rights under this Agreement as security, B.C. Hydro will first require that the party to be secured enters into an agreement with the Entitlement Parties and B.C. Hydro on such terms as B.C. Hydro, the Entitlement Parties and the secured party require, acting reasonably.

#### **14.6 No Other Assignment Without Consent**

Except as provided for in Section 14.3 or 14.5, no party may assign any right, benefit or interest in or under this Agreement without written consent of the other parties not to be unreasonably withheld. In particular, without limiting the generality of the foregoing, a lender to a party holding this Agreement as security may not assign any right, benefit or interest in or under this Agreement, other than in the manner contemplated in Section 14.3(a), without the written consent of the other parties.

#### **14.7 Enurement**

This Agreement will enure to the benefit of and be binding upon the parties and their respective successors and permitted assigns.

#### **14.8 Further Assurances**

Each party will at its own expense, execute and deliver all such further agreements and documents and do such further acts and things as may be reasonably required to give effect to this Agreement.

#### **14.9 Notice**

Every notice, request, demand or direction required or permitted to be given under this Agreement must be made or given in accordance with the Operating Procedures.

#### **14.10 No Partnership**

Nothing herein nor any action taken pursuant hereto will be construed as creating a partnership, joint venture or other similar entity of any kind or as imposing upon any party any duty, obligation or liability as a partner or joint venturer.

#### 14.11 Conflict With Other Agreements

If the provisions of this Agreement conflict or are inconsistent with the provisions of the 1971 Agreement, the provisions of this Agreement will govern and the provisions of the 1971 Agreement will be so construed.

#### 14.12 Confidentiality

- (a) Each party may, at any time whether before or after delivery, designate specific data and information (“**Confidential Information**”) that it wishes to keep confidential for the purpose of this Section 14.12 and for a period of five years (or such shorter period as may be set out in the designation) after such designation each of the other parties will not, unless the Confidential Information was already in its possession or in the public domain, or unless required by law or to comply with regulatory requirements or requirements of the operator of the B.C. Control Area and then only after reasonable notice to the designating party, disclose any Confidential Information without the prior written consent of the designating party; provided that, subject to Section 14.12(b), nothing in this Section 14.12(a) will limit disclosure of Confidential Information to such of their or their affiliates’ directors, officers, employees, agents, professional advisors or consultants, or any other person with the consent of the designating party, in each case who need to have access to such Confidential Information for the performance of this Agreement and the optimum dispatch of the B.C. Hydro generation resources and the Plants or the reliable operation of its system. The parties will take all reasonable precautions to ensure that any such persons to whom Confidential Information is disclosed abide by the obligation of confidentiality under this Section 14.12(a).
- (b) If, as a result of this Agreement, a party (the “**Receiving Party**”) receives data or information respecting another party’s (the “**Subject Party**”) schedules in addition to the data and information to be provided pursuant to an Operating Procedure with respect to information exchange in effect as of the date of this Agreement (“**Additional Information**”), and the Subject Party, acting reasonably, designates such Additional Information as “commercially sensitive” then the Receiving Party will put into place reasonable measures to limit disclosure of the designated Additional Information (including measures to prevent disclosure of the designated Additional Information to any person directly engaged in the marketing and sales operations of the Receiving Party or its agents or affiliates); provided, however, that such measures will not impair the Receiving Party’s ability to fulfil its rights and obligations under this Agreement and will not require the Receiving Party to effect any change to its organizational structure or to that of its affiliates.

#### 14.13 Counterpart Execution

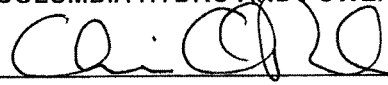
This Agreement may be executed in several counterparts, each of which so executed will be deemed to be an original, and such counterparts together will constitute but one and the same.

**14.14 Electronic Delivery**

Delivery by a party of an executed copy of this Agreement by electronic means will be effective delivery, but that party will promptly also deliver in person to the other parties an originally executed copy of this Agreement.

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the day and year first above written.

**BRITISH COLUMBIA HYDRO AND POWER AUTHORITY**

Per:   
Authorized Signatory

**FORTISBC INC.**

Per: \_\_\_\_\_  
Authorized Signatory

**TECK METALS LTD.**

Per: \_\_\_\_\_  
Authorized Signatory

**BRILLIANT POWER CORPORATION**

Per: \_\_\_\_\_  
Authorized Signatory

**BRILLIANT EXPANSION POWER CORPORATION**

Per: \_\_\_\_\_  
Authorized Signatory

**WANETA EXPANSION LIMITED PARTNERSHIP, by its  
general partner Waneta Expansion General Partner Ltd.**

Per: \_\_\_\_\_  
Authorized Signatory

Per: \_\_\_\_\_  
Authorized Signatory



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Authorized Signatory

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Per: \_\_\_\_\_  
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Authorized Signatory

**FORTISBC INC.**

Per: \_\_\_\_\_  
Authorized Signatory

**TECK METALS LTD.**

Per: \_\_\_\_\_  
Authorized Signatory

**BRILLIANT POWER CORPORATION**

Per: \_\_\_\_\_  
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**BRILLIANT EXPANSION POWER CORPORATION**

Per: \_\_\_\_\_  
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**WANETA EXPANSION LIMITED PARTNERSHIP, by its  
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Per: \_\_\_\_\_  
Authorized Signatory

Per: \_\_\_\_\_  
Authorized Signatory

## SCHEDULE A

### ENTITLEMENT CALCULATION, ADJUSTMENT AND RE-DETERMINATION

#### 1. INTERPRETATION

##### 1.1 Definitions

In addition to the other defined terms in this Agreement, in this Schedule:

**“Available Flow”** at a Plant means monthly average stream flows at the Plant during the Stream Flow Record Period, determined as set out in Section 2 of this Schedule A;

**“Brilliant Target Minimum”** means the amount set out under the heading “KL Curve 3 – Brilliant Min Flows” in Table 6;

**“CPA Tables Workbook”** means the Excel workbook incorporating the principles and calculations described in this Schedule A that is used to calculate the Entitlement Energy and Entitlement Capacity for the Plants based on the results of the studies performed using the Entitlement Calculation Program as described in this Schedule A, a revised copy of which, incorporating the changes necessary to implement the revisions related to inclusion of the Waneta Expansion, and which includes all new and updated Tables, has been developed by B.C. Hydro and the Entitlement Parties;

**“Entitlement”** in respect of a Plant means the Entitlement Energy and/or Entitlement Capacity attributable to that Plant;

**“Entitlement Calculation Program”** means the computer program incorporating the principles and calculations described in this Schedule A, developed in Excel with Visual Basic programming language, that is used to assist in calculating the Entitlement Energy and Entitlement Capacity for the Plants based on the applicable Available Flow and Plant Characteristics, a revised copy of which, incorporating the changes necessary to implement the revisions related to inclusion of the Waneta Expansion, and which includes new and updated Tables, has been developed by B.C. Hydro and the Entitlement Parties;

**“Flow at Maximum Generation Capacity”** of a Plant means the lowest flow that achieves the Maximum Generation Capacity as determined under Section 3.3 of this Schedule A and as set out in Table 7;

**“Generation Versus Flow Characteristics”** for a Plant means the power generated at the Plant (measured at the generator output terminals) as a function of flow at the Plant recognizing Water Licences and, in the case of Corra Linn, as a function of the forebay elevation at the Plant, as set out in Table 7;

**“Head Correction Factors”** for a Plant means monthly adjustment factors to account for variations in forebay elevations at the Plant throughout the year, as described in Section 3.4 of this Schedule A and as set out in Table 8;

**“Maximum Generation Capacity”** of a Plant means the amount set out for that Plant in the row “Max. Gen - MW” in Table 7 and as determined in Section 3.3 of this Schedule A;

**“Monthly Energy Generation”** has the meaning set out in Section 4.3(a) of this Schedule A;

**“Monthly Generation Capacity”** has the meaning set out in Section 4.2(g) of this Schedule A;

**“Monthly Average Generation Capacity”** has the meaning set out in Section 4.2(g) of this Schedule A;

**“Plant Characteristics”** of a Plant means the Plant’s Generation Versus Flow Characteristics, Maximum Generation Capacity, Flow at Maximum Generation Capacity, Head Correction Factors, Brilliant Target Minimum and Waneta Minimum, as further described in this Schedule A;

**“Regulated Stream Flow”** means the stream flow that would have occurred during the Stream Flow Record Period assuming the existence throughout the Stream Flow Record Period of the expected annual operation of upstream storage and diversions into and out of the basin from time to time during the term of this Agreement including, in the case of the Brilliant Facilities, the Duncan and Libby storage regulation;

**“Stream Flow Record Period”** means August, 1938 to July, 1988, inclusive;

**“Unregulated Stream Flow”** means the natural stream flow that would have occurred during the Stream Flow Record Period assuming the absence of regulation at upstream facilities, and is set out in Tables 1 and 2; and

**“Waneta Minimum”** means the minimum flow constraints applicable to the Waneta Facilities (including either or both of the Waneta Plant and the Waneta Expansion) as required by Legal Obligations applicable to such facilities from time to time, which is reflected in Section 4.2(c) of this Schedule A as at the date of this Agreement).

## 1.2 Tables

The following Tables are attached to and form part of this Schedule:

Table No.	Description
1	Kootenay Lake Inflows: Unregulated
2	Local Inflows between Corra Linn and Brilliant
3	Inflows for the Waneta Facilities
4	Kootenay Lake Inflows: Regulated
5	Kootenay Lake Inflows: Regulated with Non-Power
6	Target Monthend Elevations – Kootenay Lake @ Queens Bay
7	Plant Characteristics: Generation Versus Flow
8	Plant Characteristics: Head Correction Factors
9	Entitlement Summary
10	Entitlement Reductions for Outages
10a	Energy Entitlement Adjustments: Fortis-BC Planned Outages

<b>Table No.</b>	<b>Description</b>
11	Data and Program Flow Chart
12	[intentionally left blank]
13	[intentionally left blank]
14	[intentionally left blank]
15	[intentionally left blank]
16	Plant Characteristics, Legal Obligations applicable to Seven Mile

Reference to a Table means the Table as amended from time to time in accordance with this Agreement.

### 1.3 Study and Output Precisions

Input and output data will be carried to the following precisions:

<b>Data</b>	<b>Units</b>	<b>Decimal Places</b>	<b>Excel@Round Specifier</b>
1) Model Inputs			
Gen Table MW	MW	2	2
Gen Table Flow	cfs	100's	-2
Head Correction Factors		3	3
KL Target Elevations	Feet	2	2
Min Flows	cfs	100's	-2
Inflows	cfs	0	0
BRX Flow Increment	cfs	0	0
Max Generation Capacity	MW	1	1
2) Model Display: Show all decimal places used in the model			
3) Model Output			
Energy Entitlement	GW.h/month	3	3
Capacity Entitlement	MW	1	1
Energy Ent Adjustment (note 1)	MW.h/h	1	1
Capacity Ent Adjustment (note 1)	MW	1	1
Adjustment Factor		5	5

Note 1: Adjustments for Unit Derates and Unit Outages

## 2. ENTITLEMENT CALCULATION PRINCIPLES

### 2.1 Purpose

This Section 2 documents the general principles used to compute the Aggregate Entitlement, the stream flow data used and describes how the Available Flow is determined at each Plant.

## 2.2 Principles

The Entitlement determinations are based on the following principles:

- (a) For the Waneta Plant, or the Waneta Facilities after WAX Start-up, the determination incorporates expected stream flow regulation provided at all projects upstream;
- (b) For all FortisBC Plants, the determination excludes stream flow regulation provided by the Libby and Duncan projects, but includes stream flow regulation provided at Kootenay Lake;
- (c) For the Brilliant Plant, the determination for the Plant prior to Upgrades excludes stream flow regulation provided by the Libby and Duncan projects, but includes stream flow regulation provided at Kootenay Lake;
- (d) For the Upgrade portion of the Brilliant Plant and the Brilliant Expansion, the determination incorporates incremental stream flow regulation energy benefits attributable to the Brilliant Upgrades and the Brilliant Expansion provided by all projects upstream. Subject to any other applicable agreement:
  - (1) if B.C. Hydro elects to retain compensation it receives in respect of generation losses at the Brilliant Facilities resulting from changes to upstream project regulation (as it has for the Brilliant Upgrade project), the determinations will use an upstream regulation that reflects the expected operation of upstream projects prior to implementation of such changes; and
  - (2) if B.C. Hydro does not receive compensation or elects to flow the compensation through to project owners, the determinations will use an upstream regulation that reflects the implementation of such changes;
- (e) Because of: (i) an agreement between BPC and B.C. Hydro to include incremental stream flow regulation energy benefits in the determination of Entitlements for the Brilliant Upgrades and Brilliant Expansion projects and (ii) operational changes to the Brilliant forebay levels implemented by BPC coincident with these projects, multiple studies using the Entitlement Calculation Program to determine the Entitlement attributable to the Brilliant Facilities under a number of configurations and incorporating alternative stream flow data sets are required, as follows:
  - (1) Study B0U – Base Brilliant 1475/1477 Unregulated
 

This study incorporates the Generation Versus Flow Characteristics for the base Brilliant Plant, prior to the Brilliant Upgrades and Brilliant Expansion and operating under historical forebay levels of elevation 1477 feet from Sep 1 to Apr 15 and 1475 feet during the balance of the year. This study uses the Unregulated Stream Flow data for Kootenay Lake (Table 1) and Kootenay Lake target elevations (Table 6, KL Curve 1);

## (2) Study B1U – Base Brilliant 1477 Unregulated

This study incorporates the Generation Versus Flow Characteristics for the base Brilliant Plant operated continuously at elevation 1477 feet, the Unregulated Stream Flow data for Kootenay Lake (Table 1) ) and Kootenay Lake target elevations (Table 6, KL Curve 1);

## (3) Study B1R – Base Brilliant 1477 Regulated

This study incorporates the Generation Versus Flow Characteristics for the base Brilliant Plant operated continuously at elevation 1477, Regulated Stream Flow data for Kootenay Lake based on Columbia River Treaty assured operating plan operation (Table 4)<sup>1</sup> and Kootenay Lake target elevations (Table 6, KL Curve 2).

## (4) Study B2U – Upgraded Brilliant Unregulated

This study incorporates the Generation Versus Flow Characteristics for the upgraded Brilliant Plant operated continuously at elevation 1477, Unregulated Stream Flow data for Kootenay Lake (Table 1) and Kootenay Lake target elevations (Table 6, KL Curve 1).

## (5) Study B2R – Upgraded Brilliant Regulated

This study incorporates the Generation Versus Flow Characteristics for the upgraded Brilliant Plant operated continuously at elevation 1477 feet, Regulated Stream Flow data for Kootenay Lake based on the Columbia River Treaty assured operating plan operation (Table 4) and Kootenay Lake target elevations (Table 6, KL Curve 2).

## (6) Study B3R – Brilliant Facilities Regulated

This study incorporates the Generation Versus Flow Characteristics table (Table 7) for the Brilliant Facilities operated continuously at elevation 1477, the best estimate of actual upstream storage regulation, including expected non-power operations at Libby (Table 5), minimum flow constraints applicable under the Brilliant Expansion water licence and Kootenay Lake target elevations (Table 6, KL Curve 3).

- (f) The Entitlement Energy and Entitlement Capacity attributable to the Brilliant Facilities is separated into several component parts:

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<sup>1</sup> Studies related to the Brilliant Upgrades incorporating Regulated Stream Flows (Studies B1R and B2R) currently make use of Columbia River Treaty assured operating plan flows. Because of new non-power constraints introduced to the operation of Libby, actual Regulated Stream Flows generally produce slightly lower levels of stream flow regulation benefits. However, in accordance with CPA Schedule A Section 2.2(d)(1), these studies currently incorporate assured operating plan flows because B.C. Hydro is presently being compensated for this change in Libby operation under the Libby Coordination Agreement.



- (1) Base Brilliant Unregulated 1475/77 – the Entitlement attributable to the Brilliant Plant prior to Upgrades using Unregulated Stream Flows:

The Entitlement Energy is the monthly energy output of Study B0U multiplied by the Adjustment Factor applicable to the Brilliant Plant.

The Entitlement Capacity is the monthly capacity output of Study B0U.

- (2) Base Brilliant Regulated Increment – the increment of Entitlement Energy attributable to the Brilliant Plant Prior to Upgrades using Regulated Stream Flows:

The Entitlement Energy attributable to the difference between the monthly energy output of Study B1R and that of Study B1U is reflective of the stream flow regulation energy benefits that are provided by the base Brilliant Plant and that have historically accrued to B.C. Hydro<sup>2</sup>;  $(B1R - B1U)$ .

- (3) Brilliant Upgrade Unregulated Increment – the increment of Entitlement associated with Brilliant Upgrades using Unregulated Stream Flows:

The incremental Entitlement Energy is the difference between the monthly energy output of Study B2U, less that of Study B1U multiplied by the agreed benefit distribution factor ("**BDF**") of 0.98435;  $(B2U - B1U) * BDF$ .

The incremental Entitlement Capacity is the difference between the monthly capacity output of Study B2U, less that of Study B1U;  $(B2U - B1U)$ .

- (4) Brilliant Upgrade Regulated Increment – the increment of Entitlement Energy associated with the Brilliant Upgrades having access to Regulated Stream Flows:

The incremental Entitlement Energy attributable to the Brilliant Upgrades having access to Regulated Stream Flows can then be determined as the difference between the stream flow regulation energy benefits provided by the upgraded Brilliant Plant  $(B2R - B2U)$  less the stream flow regulation energy benefits provided by the base Brilliant Plant  $(B1R - B1U)$  multiplied by the agreed benefit distribution factor ("**BDF**") of 0.97031;  $((B2R - B2U) - (B1R - B1U)) * BDF$ .

- (5) Upgraded Brilliant Plant:

The Entitlement Energy for the upgraded Brilliant Plant is then determined as the sum of:

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<sup>2</sup> Under the Columbia River Treaty no one in Canada may make use of the improvement in stream flow provided by the Treaty except "with the prior approval of the authority in Canada having jurisdiction" (Columbia River Treaty, Article XI 1.(b)) – i.e. the Provincial government. The Province agreed that B.C. Hydro should retain these benefits through its execution of the 1971 Agreement.

- (A) Base Brilliant Unregulated 1475/77 Entitlement Energy amount (Section 2.2(f)(1) of this Schedule A); plus
- (B) Brilliant Upgrade Unregulated Increment Entitlement Energy amount (Section 2.2(f)(3) of this Schedule A); plus
- (C) Brilliant Upgrade Regulated Increment Entitlement Energy amount (Section 2.2(f)(4) of this Schedule A).

The Entitlement Capacity for the upgraded Brilliant Plant is determined as the sum of:

- (i) the Base Brilliant Unregulated 1475/77 Entitlement Capacity (Section 2.2(f)(1) of this Schedule A); plus
- (ii) the incremental Entitlement Capacity associated with the Brilliant Upgrades based on the regulated flow studies (i.e. the difference between the Entitlement Capacity indicated in Study B2R less that of Study B1R).

Note that the regulated portion of the incremental Entitlement Capacity is defined as zero, and all incremental Entitlement Capacity associated with the Brilliant Upgrades is allocated to the unregulated portion;

- (6) Brilliant Facilities – the Entitlement associated with the combined upgraded Brilliant Plant and Brilliant Expansion using Regulated Stream Flows:

The Entitlement Energy for the Brilliant Facilities is determined directly from the results of Study B3R – i.e. the average monthly energy generation from the Brilliant Facilities multiplied by the Adjustment Factor applicable to the Brilliant Facilities;  $B3R \times AF$ .

The Entitlement Capacity for the Brilliant Facilities is determined directly from the results of Study B3R.

- (7) Brilliant Expansion Increment – the increment of Entitlement associated with the Brilliant Expansion using Regulated Stream Flows:

The incremental Entitlement Energy attributable to the Brilliant Expansion is derived from the difference between the Entitlement Energy for the Brilliant Facilities less the Entitlement Energy for the upgraded Brilliant Plant.

The incremental Entitlement Capacity for the Brilliant Expansion is determined from the average monthly capacity attributable to the Brilliant Facilities in Study B3R less the Entitlement Capacity for the upgraded Brilliant Plant, and then further adjusted in the months of September to April inclusive to be the greater of:

- (A) the monthly value calculated above, plus 10 MW; and

- (B) the capacity that will result in an 82% monthly capacity factor for the Brilliant Expansion Entitlement Energy for the corresponding month, calculated as: monthly Entitlement Energy (Brilliant Expansion Increment on Table 9) converted to AvMW per month divided by 0.82;
- (g) Prior to WAX Start-up, the Entitlement attributable to the Waneta Plant is determined by an Entitlement Calculation Program model run that incorporates the Generation Versus Flow Characteristics table (Table 7) for the Waneta Plant and the Adjustment Factor applicable to that Plant.
- (h) From and after WAX Start-up, the Entitlement attributable to the Waneta Facilities is to be separated into two component parts, reflecting the different ownership of the Waneta Plant and Waneta Expansion. In addition, the calculation procedure agreed to by the Parties requires additional Entitlement Calculation Program model runs to adjust for the allocation of water rights amongst the Waneta Facilities, as agreed to by the owners of the Waneta Plant and Waneta Expansion in the Sizing Agreement. The following studies are required:
  - (1) an Entitlement Calculation Program model run that incorporates a Generation Versus Flow Characteristics table for the expected coordination of the Waneta Facilities but with turbine discharges limited to 25,000 cfs (Study W1);
  - (2) an Entitlement Calculation Program model run that incorporates a Generation Versus Flow Characteristics table for the expected coordination of the Waneta Facilities but with turbine discharges limited to 46,330 cfs (Study W2);
  - (3) an Entitlement Calculation Program model run that incorporates a Generation Versus Flow Characteristics table for the expected coordination of the Waneta Facilities but with turbine discharges limited to 46,330 cfs plus the lesser of: (i) 7910 cfs; and (ii) the hydraulic capacity of the Waneta Plant less 25,000 cfs (Study W3); and
  - (4) an Entitlement Calculation Program model run that incorporates a Generation Versus Flow Characteristics table for the expected coordination of the Waneta Facilities but with turbine discharges limited only by unit discharge capabilities and water licence limitations (Study W4);
- (i) From and after WAX Start-up, the studies in subsection (h) above will be used to compute the Entitlement for the Waneta Plant and for the Waneta Expansion as follows:
  - (1) The Entitlement Energy attributable to the Waneta Plant is determined as the sum of:
    - (A) the energy attributable to the Waneta Facilities in Study W1, multiplied by the Adjustment Factor applicable to the Waneta Plant, plus
    - (B) the difference between the energy attributable to the Waneta Facilities in Study W3, less the energy attributable to the Waneta Facilities in Study

W2, multiplied by the Adjustment Factor applicable to the use of Waneta Residual Water;

- (2) The Entitlement Capacity attributable to the Waneta Plant is determined as the sum of:
  - (A) the capacity attributable to the Waneta Facilities in Study W1, plus
  - (B) the difference between the capacity attributable to the Waneta Facilities in Study W3, less the capacity attributable to the Waneta Facilities in Study W2.
- (3) The Entitlement Energy attributable to the Waneta Expansion is determined as the sum of:
  - (A) the difference between the Waneta Facilities energy generation from Study W2, less the Waneta Facilities energy generation from Study W1, multiplied by Adjustment Factor applicable to the Waneta Expansion; plus
  - (B) the difference between the Waneta Facilities energy generation from Study W4, less the Waneta Facilities energy generation from Study W3, multiplied by Adjustment Factor applicable to the use of WAX Residual Water.
- (4) The Entitlement Capacity attributable to the Waneta Expansion is determined as the sum of:
  - (A) the difference between the capacity attributable to the Waneta Facilities in Study W2, less the capacity attributable to the Waneta Facilities in Study W1; plus
  - (B) the difference between the capacity attributable to the Waneta Facilities in Study W4, less the capacity attributable to the Waneta Facilities in Study W3.
- (j) The Entitlement attributable to the Waneta Expansion and determined in accordance with subsections (g) through (i) above is subject to the further adjustment agreed to between B.C. Hydro and WELP pursuant to the Bilateral BCH/WELP Agreement referred to in Section 6.10 of this Schedule A. Corresponding adjustments to Table 10 will also be made as appropriate.

## 2.3 Stream Flow Data

Stream flow data for the Stream Flow Record Period used in the determination of the Aggregate Entitlement is provided in the following Tables:

- (a) Table 1 provides Unregulated Stream Flow data for Kootenay Lake. It is taken from Seasonal Volumes and Statistics, Columbia River Basin 1928-1989, dated July 1993, prepared for Bonneville Power Administration by A. G. Crook Company;
- (b) Table 2 provides Unregulated Local Inflow data occurring between Kootenay Lake and the Brilliant Facilities forebay (Slocan River local inflow), taken from Seasonal Volumes and Statistics, Columbia River Basin 1928-1989, dated July 1993, prepared for Bonneville Power Administration by A. G. Crook Company (difference between Corra Linn inflows and Brilliant Facilities inflows);
- (c) Table 3 provides Regulated Stream Flow data for the Waneta Facilities. This information is as supplied in February 1998 by the Bonneville Power Administration and was developed from a simulation study of the entire Columbia Basin for historical water years from 1928 through 1988, incorporating all power and non-power operating constraints and procedures;
- (d) Table 4 provides the Regulated Stream Flow data for Kootenay Lake and is taken from the Columbia River Treaty Assured Operating Plan for Operating Year 2002-03 System Regulation Study 03-41 for historical water years from 1928 through 1988, dated April 13, 1998 which reflects only power and flood control operation upstream;
- (e) Table 5 provides a Regulated Stream Flow data set for Kootenay Lake and is taken from the 1998 BPA Rate Case for Regulated Stream Flow Data with Sturgeon for historical water years 1929 to 1989 which reflects non-power (i.e. fish-driven) operations upstream; and
- (f) Table 6 provides information on target elevations for Kootenay Lake for expected conditions with Unregulated Stream Flows and Regulated Stream Flows and the applicable minimum flows.

## **2.4 Available Flow – Waneta Facilities**

The Available Flow for the Waneta Facilities used in the determination of Entitlement is set out in Table 3.

## **2.5 Available Flow – FortisBC Plants**

The Available Flow for the FortisBC Plants is the discharge from Kootenay Lake as determined by the Entitlement Calculation Program using the unregulated inflows to Kootenay Lake (Table 1) and the Kootenay Lake target elevations (Table 6). The Entitlement Calculation Program simulates the operation of Kootenay Lake, accounting for its minimum and maximum discharge characteristics as a function of lake elevation to compute the discharge from Kootenay Lake. The Entitlement Calculation Program then computes the elevations of Kootenay Lake at Queen's Bay and the resulting forebay elevations at Corra Linn.

## **2.6 Available Flow – Brilliant Facilities**

The Available Flow at the Brilliant Facilities is determined as follows:

- (a) for the purpose of determining the Entitlement Capacity and Entitlement Energy attributable to the Brilliant Plant without the Brilliant Upgrades or Brilliant Expansion, the Available Flow is the aggregate of:
  - (1) the discharge from Kootenay Lake as determined by the Entitlement Calculation Program in Study B0U; and
  - (2) the local inflows between Kootenay Lake and the Brilliant Plant (Table 2);
- (b) for the purpose of determining the incremental Entitlement Capacity and Entitlement Energy attributable to the Brilliant Upgrades, the Available Flow is the aggregate of:
  - (1) the discharge from Kootenay Lake as determined by the Entitlement Calculation Program in Study B1R; and
  - (2) the local inflows between Kootenay Lake and the Brilliant Plant (Table 2); and
- (c) for the purpose of determining the incremental Entitlement Capacity and Entitlement Energy attributable to the Brilliant Expansion the Available Flow is the aggregate of:
  - (1) the discharge from Kootenay Lake as determined by the Entitlement Calculation Program in Study B3R; and
  - (2) the local inflows between Kootenay Lake and the Brilliant Plant (Table 2).

### **3. PLANT CHARACTERISTICS**

#### **3.1 Purpose and Interpretation**

This Section 3 documents the characteristics of each Plant used to determine the Aggregate Entitlement. Where the Plant Characteristics are provided in tabular form, linear interpolation will be used to determine intermediate values as required.

#### **3.2 Generation Versus Flow Characteristics**

The performance characteristics of each Plant are aggregated into a table of Generation Versus Flow Characteristics (Table 7). The Generation Versus Flow Characteristics are determined from the best available data, which could include measured data at-site and turbine model studies. They are intended to represent the overall conversion efficiency at each Plant from time to time reflecting the owner's expected operational practices and dispatch limitations, tailwater elevations as a function of total flow (generation plus spill and based on normal operation at projects downstream, if any), actual approach and exit channel losses, water diversion and use rights and other relevant factors. In some cases, (for example the Brilliant Facilities and, after WAX Start-up, the Waneta Facilities) to facilitate separation of Entitlement Energy and Entitlement Capacity as required by project owners, multiple Generation Versus Flow Characteristics tables may be required for each Plant.

In calculating the outputs of the Upper Bonnington Plant, it was assumed that the first 1,400 cfs were available to the Upper Bonnington Plant and the next 1,428 cfs were available to the City of Nelson<sup>1</sup>.

### **3.3 Maximum Generation Capacity and Flow at Maximum Generation Capacity**

The Maximum Generation Capacity at each Plant and the Flow at Maximum Generation Capacity are set out in on Table 7. These amounts can be derived from the Generation Versus Flow Characteristics as follows:

- (a) the Maximum Generation Capacity is the largest MW entry for the corresponding Plant; and
- (b) the Flow at Maximum Generation Capacity is the lowest flow corresponding to such Maximum Generation Capacity.

For Corra Linn, these values vary slightly for a range of Kootenay Lake levels. For Aggregate Entitlement computations a constant Flow at Maximum Generation Capacity (corresponding to the flow associated with the majority of the Maximum Generation Capacity values set out in Table 7), which as of the date of this Agreement is established at 13,000 cfs, is assumed and the Maximum Generation Capacity is the capacity at a flow of 13,000 cfs for the appropriate level of Kootenay Lake.

Except for the Brilliant Expansion, for all levels of Available Flow less than the Flow at Maximum Generation Capacity, the Plants are assumed capable of generating at Maximum Generation Capacity on an instantaneous basis. At levels of flow above the Flow at Maximum Generation Capacity, the capacity is reduced as set out in Table 7.

For Brilliant Expansion, where a minimum flow operating restriction is in effect, the Maximum Generation Capacity at the Brilliant Facilities is limited as provided in Section 4.2(b) of this Schedule A.

Selecting KL Curve 3 in Table 6 enables the Entitlement Calculation Program to automatically apply this minimum flow restriction to the capacity calculation of the Brilliant Facilities.

### **3.4 Head Correction Factors**

Head Correction Factors provide adjustments to the Generation Versus Flow Characteristics to reflect annual operations that are different than those assumed in the development of these characteristics. During the period from September 1 through April 15 each year the forebay elevation at South Slocan is raised through the installation of flashboards. This affects the Generation Versus Flow Characteristics at Lower Bonnington due to the impact on Lower Bonnington's tailwater elevation. The half month operation in April is approximated by cutting the adjustment in half in that month. The Head Correction Factors for South Slocan reflect the operation of the Brilliant forebay at 1477 ft. maximum elevation all year (since the South Slocan generation table was derived assuming a Brilliant forebay elevation of 1475 ft.).

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<sup>1</sup> Actual diversions into the City of Nelson plant are set by other agreements between the City of Nelson and B.C. Hydro. In actual operations, 1693 cfs is made available to City of Nelson.

Table 8 provides the resulting Head Correction Factors to be applied to applicable Generation Versus Flow Characteristics resulting from these operational changes.

#### **4. ENTITLEMENT CALCULATION METHODOLOGY**

##### **4.1 Purpose**

This Section 4 documents the calculation method and procedures that are used by the Entitlement Calculation Program to assist in calculating Entitlement Energy and Entitlement Capacity, which are set out in Table 9. These procedures make use of the Entitlement Calculation Program, which is an Excel workbook consisting of several components, as follows:

- (a) A Visual Basic model ("the VB Module") that calculates:
  - (1) in respect of Corra Linn, Upper Bonnington, Lower Bonnington, South Slocan and the Brilliant Facilities the applicable Available Flow at each Plant (as described in Sections 2.5 and 2.6 of this Schedule A); and
  - (2) for each month of each year of the Stream Flow Record Period, the energy generation and generation capacity for each of the Plants based on the Plant Characteristics and Available Flow;
- (b) Several worksheets to store and summarize alternative input data needed to run the VB Module for the various studies (as described in Section 2.2 of this Schedule A);
- (c) Several worksheets to store and summarize the output data from the VB Module, including the computation of average monthly energy generation and monthly generation capacity for each Plant over the Stream Flow Record Period; and
- (d) A worksheet to select the appropriate input data from the available options and to initiate the execution of the VB Module.

##### **4.2 Entitlement Capacity**

The VB Module determines the generation capacity for each Plant and each month as follows:

- (a) the generation capacity for each Plant in each of the 600 months of the Stream Flow Record Period is determined as follows:
  - (1) if the Available Flow at the Plant in that month is greater than the Flow at Maximum Generation Capacity, the generation capacity for that month is determined based on the Available Flow, and for Corra Linn the average Corra Linn forebay elevation, utilizing the Generation Versus Flow Characteristics; and
  - (2) if the Available Flow at the Plant in that month is less than or equal to the Flow at Maximum Generation Capacity, the generation capacity for that month is determined as the corresponding Maximum Generation Capacity for that Plant;



(b) despite Section 4.2(a) of this Schedule A, the generation capacity for the Brilliant Facilities is determined as follows:

- (1) if the Available Flow at the Brilliant Facilities in that month is greater than the Flow at Maximum Generation Capacity, the generation capacity for that month is determined based on generation capacity at the Available Flow utilizing the Generation Versus Flow Characteristics;
- (2) if the Available Flow at the Brilliant Facilities in that month is less than or equal to the Brilliant Target Minimum, the generation capacity for that month is determined based on the generation capacity at the Available Flow utilizing the Generation Versus Flow Characteristics;
- (3) if the Available Flow at the Brilliant Facilities in that month is greater than the Brilliant Target Minimum but less than the sum of the Brilliant Target Minimum plus the Brilliant Flow Increment (defined below), the generation capacity for that month is determined as follows:

$$C = Cmin + (CM - Cmin) * (AF - Qmin) / Qinc$$

Where:

*Cmin* = Capacity at the Brilliant Target Minimum.

CM = Capacity available when Available Flow equals Flow at Maximum Generation Capacity

AF = Available Flow

Qmin = Brilliant Target Minimum

Qinc = Brilliant Flow Increment, which is defined as the Brilliant Facility's Flow at Maximum Generation Capacity less the Brilliant Target Minimum divided by 6, which reflects peaking requirements of 4 hours during each day; and

- (4) if the Available Flow at the Brilliant Facilities in that month is less than or equal to the Flow at Maximum Generation Capacity but greater than or equal to the Brilliant Target Minimum plus the Brilliant Flow Increment (as defined above), the generation capacity for that month is determined as the corresponding Maximum Generation Capacity for the Brilliant Facilities;

(c) despite Section 4.2(a) of this Schedule A, during the months of June and July, the generation capacity for the Waneta Facilities includes consideration of three distinct Waneta Minimum constraints that are applicable during those periods. The three minimum flow scenarios are:

- (1) scenario A – uses 20,000 cfs as Waneta Minimum for June and July and is representative of flow constraints applicable when daily inflows are above 20,000 cfs during June 1 to July 15;

- (2) scenario B - uses 8,500 cfs as Waneta Minimum for June and July and is representative of flow constraints applicable when daily inflows are below 20,000 cfs during June 1 to July 31;
  - (3) scenario C - uses 0 cfs as Waneta Minimum for June and July and is representative of flow constraints applicable when daily inflows are above 20,000 cfs during the period from July 16 to July 31;
- (d) for each scenario referred to in Section 4.2(c) of this Schedule A, generation capacity for a month is determined as follows:
- (1) if the Available Flow at the Waneta Facilities in that month is greater than the Flow at Maximum Generation Capacity, the generation capacity for that month is determined based on generation capacity at the Available Flow utilizing the Generation Versus Flow Characteristics;
  - (2) if the Available Flow at the Waneta Facilities in that month is less than or equal to the Waneta Minimum, the generation capacity for that month is determined based on the generation capacity at the Available Flow utilizing the Generation Versus Flow Characteristics;
  - (3) if the Available Flow at the Waneta Facilities in that month is greater than the Waneta Minimum, but less than the sum of the Waneta Minimum plus the Waneta Flow Increment (defined below), the generation capacity for that month is determined in accordance with the following formula:

$$C = C_{min} + (CM - C_{min}) * (AF - Q_{min}) / Q_{inc}$$

Where:

$C_{min}$  = Capacity at the Waneta Minimum

$CM$  = Capacity available when Available Flow at the Waneta Facilities equals the Waneta Facility's Flow at Maximum Generation Capacity

$AF$  = Available Flow at the Waneta Facilities

$Q_{min}$  = Waneta Minimum, as described in Section 4.2(c) of this Schedule A

$Q_{inc}$  = Waneta Flow Increment, which is defined as the Waneta Facility's Flow at Maximum Generation Capacity less the applicable Waneta Minimum divided by 6, which reflects peaking requirements of 4 hours during each day); and

- (4) if the Available Flow at the Waneta Facilities in that month is less than or equal to the Flow at Maximum Generation Capacity but greater than or equal to the Waneta Minimum plus the Waneta Flow Increment (as defined above), the generation capacity for that month is determined as the corresponding Maximum Generation Capacity for the Waneta Facilities;

- (e) the results of the capacity computation for the three scenarios in Section 4.2(c) of this Schedule A are then used to determine a weighted average capacity value for the Waneta Facilities applicable to that month. The weighting factors represent the estimated likelihood of each Waneta Minimum flow constraint being applicable in that period. Based on current constraints and Available Flows, the weighting factors are:

<u>Scenario</u>	<u>June</u>	<u>July</u>
A	92.0%	40.0%
B	8.0%	30.0%
C	0.0%	30.0%
	100%	100%

- (f) Sections 4.2(c), (d) and (e) of this Schedule A reflect the Waneta Minimum as at the date of this Agreement. In connection with any re-determination resulting from a change in the Waneta Minimum, the Operating Committee will amend these Sections in order to appropriately reflect such change, however in any such amendment the monthly Entitlement Capacity will be calculated based on the generation capacity for the Waneta Facilities in each of the 600 months of the Stream Flow Record Period being the lesser of:
- (1) the generation capacity determined in accordance with Sections 4.2(a)(1) and (2) of this Schedule A; and
  - (2) the generation capacity at the flow determined by shaping the Available Flow into 4 hour daily blocks after taking into consideration any Waneta Minimum requirements during the remaining hours of each day;
- (g) each of the 600 monthly generation capacity amounts determined in Sections 4.2(a), (b), (d) and (f) of this Schedule A is multiplied by the applicable Head Correction Factor and each of the resulting amounts is called the “Monthly Generation Capacity”. The Monthly Generation Capacity amounts are then averaged over all 50 years of the Stream Flow Record Period to determine the “Monthly Average Generation Capacity”.

The output of the Entitlement Calculation Program (Monthly Average Generation Capacity) is then input into the CPA Tables Workbook and the Entitlement Capacity attributable to each Plant is computed in the Table 9 worksheet as follows:

- (h) for each month, the Entitlement Capacity is determined as follows:
- (1) for the Brilliant Facilities, the Entitlement is separated into its component parts as described in Section 2.2 of this Schedule A (See Table 9 for details of this computation); and

- (2) for the Waneta Facilities the Entitlement is separated into its component parts as described in Section 2.2 of this Schedule A (See Table 9 for details of this computation);
  - (3) only in the case of the FortisBC Plants, the Entitlement Capacity is adjusted by the Adjustment Factor for capacity, and in accordance with the FortisBC Entitlement Adjustment Agreement between B.C. Hydro and FortisBC made effective the 1<sup>st</sup> day of June, 2004 (the "FortisBC Entitlement Adjustment Agreement");
- (i) despite Section 4.2(h) of this Schedule A, if:
- (1) Teck and B.C. Hydro have given a notice pursuant to Section 6.7 of this Schedule A, then for so long as such notice is in effect, the Entitlement Capacity attributable to the Waneta Plant is the amount specified in such notice; or
  - (2) no such notice has been given or is in effect, then the Entitlement Capacity attributable to the Waneta Plant is determined by multiplying the Entitlement Capacity for the Waneta Plant otherwise determined in accordance with this Section 4.2 by the Teck Participation Percentage.

The Entitlement Capacity as of the date of this Agreement is set out in Table 9.

### **4.3 Entitlement Energy**

The VB Module of the Entitlement Calculation Program determines the energy generation of each Plant for each month as follows:

- (a) for each of the 600 months in the Stream Flow Record Period, the Entitlement Calculation Program determines the "Monthly Energy Generation" for each Plant as the lesser of:
  - (1) the energy generation for that Plant and that month based on the Available Flow for that Plant and month and the Plant Characteristics at that Plant; and
  - (2) the amount of energy that would have been generated in the month if the Plant were generating at 100% of the Monthly Generation Capacity less a required spinning reserve allowance (which as of the date of this Agreement is 2.5%);
- (b) for each Plant and each month, the average energy is determined by averaging the Monthly Energy Generation amounts for that Plant and for that month over all 50 years of the Stream Flow Record Period. The Monthly Energy Generation amounts are computed in average MW and multiplied by the hours in the month, and divided by 1000, to convert to GW.h.

The output of the Entitlement Calculation Program (Average Monthly Energy Generation) is then input into the CPA Tables Workbook and the Entitlement Energy for each Plant is computed in the Table 9 worksheet as follows:

- (c) for each FortisBC Plant, the Entitlement Energy is computed by multiplying the average energy determined in accordance with Section 4.3(b) of this Schedule A by the Adjustment Factor for Entitlement Energy applicable to the FortisBC Plants (see Table 9);
- (d) for the Brilliant Facilities and the Waneta Facilities, the Entitlement Energy applicable to those facilities requires multiple runs of the Entitlement Calculation Program, as more specifically described in Section 2.2 of this Schedule A. Detailed information on these runs and the related calculation of Entitlements is provided in Table 9;
- (e) for February, the monthly average Entitlement Energy is multiplied by 28.25/28 every year to account for leap years, and no further adjustment is made in a leap year (see Table 9); and
- (f) if (i) Teck and B.C. Hydro have given a notice pursuant to Section 6.7 of this Schedule A, then for so long as such notice is in effect, the Entitlement Energy attributable to the Waneta Plant is the amount specified in such notice; or (ii) no such notice has been given or is in effect, then the Entitlement Energy attributable to the Waneta Plant is determined by multiplying the Entitlement Energy attributable to the Waneta Plant otherwise determined in accordance with this Section 4.3 by the Teck Participation Percentage.

The amounts of Entitlement Energy as of the date of this Agreement are as set out in Table 9.

#### **4.4 Entitlement Post WAX Start-up**

Table 9 sets out the Waneta Facilities' Entitlement upon WAX Start-up, subject to re-determination in accordance with this Agreement. WELP will timely undertake independent Turbine Model Testing and provide the results thereof to B.C. Hydro. In addition to any re-determination pursuant to Section 6 of this Schedule A, Aggregate Entitlement attributable to the Waneta Facilities may be re-determined in accordance with this Agreement:

- (a) after Turbine Model Testing to incorporate any updated Waneta Facilities Plant Characteristics;
- (b) at WAX Start-up, using Available Flows then in use under this Agreement and then-current Plant Characteristics and Legal Obligations applicable to the Waneta Facilities; and/or
- (c) after WAX Start-up, once both Units are in service, based on as-built Plant Characteristics following Performance Testing.

Any such re-determination will reflect any variation from the following assumptions which were used in determining the initial Waneta Facilities Entitlement set out in Table 9:

- (d) the Waneta Facilities are not subject to Legal Obligations that impose speed no-load operation;
- (e) the only restrictions recognized for minimum flows are in June and July, as described in Section 4.2(c) of this Schedule A;

- (f) the Waneta Expansion tailwater level curve is 1.5 feet lower than the Waneta Plant tailwater level curve; and
- (g) the estimated Waneta Expansion turbine and generator characteristics based on the preliminary design provided to B.C. Hydro on March 4, 2010.

The Waneta Facilities' Entitlement in Table 9 includes no adjustment for Waneta Expansion station service or transmission losses from the Waneta Expansion to the Selkirk Substation, on the basis that Waneta Expansion will be included in the computation of usage of Aggregate Entitlement in the same manner as the Waneta Plant, the FortisBC Plants and the Brilliant Facilities. Waneta Expansion generation will be metered at the generator output terminals and these metered amounts will be an input to the computation of gross load within the Entitlement Parties' System (i.e. system load plus losses).

## **5. AGGREGATE ENTITLEMENT ADJUSTMENTS**

### **5.1 Purpose**

This Section 5 documents the Aggregate Entitlement adjustments applicable to Unit Outages and Unit Derates. Typical adjustments for Entitlement Energy and Entitlement Capacity are set out in Tables 10 and 10a, however for different amounts of capacity out of service or, in the case of the Waneta Facilities, for different allocation scenarios not covered by Tables 10 and 10a, the Aggregate Entitlement adjustments may be computed in accordance with Sections 5.2 and 5.3 of this Schedule A. For the purpose of calculating Aggregate Entitlement adjustments, the capacity stranded by Water Licence restrictions at each Plant will be determined by the Operating Committee and will reflect the difference between the estimated Maximum Generation Capacity assuming no Water Licence limitations at the Plant and the actual Maximum Generation Capacity incorporating Water Licence limitations at the Plant, as provided in Table 7.

### **5.2 Derivation of Entitlement Capacity Adjustments**

Entitlement Capacity adjustments are derived directly from the Entitlement Capacity attributed to each Plant and the amount of capacity out of service at the Plant. Subject to Section 6.8 of this Schedule A, the Entitlement Capacity adjustments are computed as follows:

- (a) subject to Section 5.2(b) of this Schedule A, for all Plants other than the Brilliant Facilities, the (linear) monthly capacity adjustment rate for the Plant is computed as the monthly Entitlement Capacity attributable to that Plant divided by the Maximum Generation Capacity of that Plant, as provided in Table 7. The Entitlement Capacity adjustment is then determined by multiplying the amount of capacity out of service, less any capacity stranded by Water Licence restrictions at the Plant, as provided on Table 10, by the (linear) monthly capacity adjustment rate for the Plant; and
- (b) for certainty, the values for the calculations contemplated in (a) above for the Waneta Facilities will be values that include the whole of the Waneta Plant before any change made to the Entitlement Capacity attributable to the Waneta Plant pursuant to Section 6.7 of this Schedule A, and will be allocated between Teck and WELP pro rata based on the capacity out of service at each of the Waneta Plant and the Waneta Expansion, as

applicable. From and after January 1, 2036, any Entitlement Capacity adjustment allocated to Teck will be further adjusted by multiplying it by the Teck Participation Percentage of the Waneta Plant.

Because the Entitlement Capacity recognised for the Brilliant Expansion is reduced by the minimum flow requirement associated with that Plant, the Brilliant Facilities have three (linear) monthly capacity adjustment rates; as described below:

- (c) for the Brilliant Expansion, the (linear) monthly capacity adjustment rate is computed by dividing the monthly increment of Entitlement Capacity attributable to the Brilliant Expansion by the difference between the Maximum Generation Capacity of the Brilliant Facilities and the Maximum Generation Capacity of the Brilliant Plant;
- (d) when the Brilliant Expansion is out of service, the (linear) monthly capacity adjustment rate for the Brilliant Plant is computed as the monthly Entitlement Capacity attributable to the Brilliant Plant divided by the Maximum Generation Capacity of the Brilliant Plant, as provided in Table 7;
- (e) when the Brilliant Expansion is in service, to provide for an anomaly associated with the use of different stream flow records, the monthly capacity adjustment rate applicable to the Brilliant Plant will be limited to the lesser of the capacity adjustment rates computed in (b) or (c) above;
- (f) the Brilliant Plant Entitlement Capacity adjustment is then computed by multiplying the amount of Brilliant Plant capacity out of service by the monthly adjustment rate computed in either (c) or (d), as applicable; and
- (g) the rate defined in (b) will apply to any outage of the Brilliant Expansion, regardless of the status of the Brilliant Plant Units. Because the Brilliant Expansion only has one Unit, any full outage of that Unit will result in a full loss of the Entitlement attributable to the Brilliant Expansion.

Table 10 shows the computation of the (linear) monthly adjustment rates for each Plant and the Entitlement Capacity adjustments for several combinations of Unit outages.

### **5.3 Derivation of Entitlement Energy Adjustments**

- (a) Subject to Section 6.8 of this Schedule A, the Entitlement Energy outage adjustments for Unit Outages and Unit Derates are derived using the Entitlement Calculation Program by inputting the total amount of capacity out of service, less any capacity stranded by Water Licence restrictions at the Plant, as provided on Table 10. The program uses this information to modify the Generation Versus Flow Characteristics by limiting the curve to the in service capacity at flows less than Flow at Maximum Generation Capacity and by de-rating the curve in proportion to the amount of capacity out of service (relative to the Maximum Generation Capacity at the Plant) for flows in excess of Flow at Maximum Generation Capacity. The difference between the computed Aggregate Entitlement Energy with no outage adjustment and the computed Aggregate Entitlement Energy with

the outage adjustment is the Entitlement Energy outage adjustment. If the Entitlement Energy outage adjustments pursuant to this subsection (a) are different than those pursuant to subsection (g) below, those pursuant to subsection (g) below will govern.

- (b) For certainty, the values for the calculations contemplated in subsection (a) above for the Waneta Plant will be values for the whole of the Waneta Plant prior to and including December 31, 2035. From and after January 1, 2036, provided WAX Start-up has not then occurred, any Entitlement Energy outage adjustments for the Waneta Plant calculated pursuant to (a) above will be multiplied by the Teck Participation Percentage. These calculations will also apply after WAX Start-up, whether before or after January 1, 2036, during any WAX Start-up Prolonged Outage Period. If WAX Start-up has occurred (other than during any WAX Start-up Prolonged Outage Period), the outage adjustments will be in accordance with (g) below.
- (c) Because the Brilliant Expansion is a one Unit facility, for that Plant the monthly Entitlement Energy adjustment is the monthly Energy Entitlement applicable to the Brilliant Expansion converted directly to MW.h/h amounts.
- (d) The outage adjustments for a Unit Outage at the Brilliant Expansion are as provided in item 5C of Table 10, regardless of Unit Outages at the Brilliant Plant, if any.
- (e) Because the existence of the Brilliant Expansion affects the actual impact of outages at the Brilliant Plant, different outage adjustments will apply to Unit Outages at the Brilliant Plant depending on whether there is also a Unit Outage at the Brilliant Expansion.
  - (1) if the Brilliant Expansion is available, the outage adjustments for Unit Outages at the Brilliant Plant as provided in item 5A of Table 10 will be used.
  - (2) if there is also a Unit Outage at the Brilliant Expansion, the outage adjustments for Unit Outages at the Brilliant Plant as provided in item 5B of Table 10 will be used.
- (f) Other outage adjustments relating to Brilliant Plant are provided in Table 10 for information only, as they are only used for internal arrangements between FortisBC and BEPC.
- (g) Subject to Section 6.8 of this Schedule A, following WAX Start-up, the Entitlement Energy outage adjustment will be determined for the Waneta Facilities and the outage adjustment will then be allocated to the Waneta Plant and the Waneta Expansion under the Waneta Release Coordination Agreement, prior to applying the Teck Participation Percentage to the amount allocated to the Waneta Plant, as contemplated by Section 5.3(i) below. Such Entitlement Energy outage adjustment is to be computed in a manner that reflects the modelled impact of each outage, the agreed allocation of water rights and the agreed Adjustment Factors applicable to each increment of water usage, as follows:



- (1) All studies will incorporate the Generation Versus Flow Characteristics table for the expected coordination of the Waneta Facilities with turbine discharges limited only by Unit discharge capabilities and water licence limitations (i.e. the data used for Study W4);
- (2) To capture the impact of multiple Adjustment Factors being applied to the various increments of water usage, multiple studies are required to compute outage adjustments. In each study the Adjustment Factor input to the Entitlement Calculation Program is set to 1.0000 and the monthly energy generation is then utilized with the applicable outage adjustments as set out in the following steps. The required studies are as follows:
  - (A) A study with all capacity available (Study WA);
  - (B) A study with an amount of capacity on maintenance such that the remaining unit hydraulic capacity equals HCAP1 which is the sum of: (i) 25,000 cfs, (ii) 21,330 cfs, and (iii) the lesser of 7910 cfs or the actual capability of the units at Waneta Plant to discharge water in excess of 25,000 cfs. (Study WB);
  - (C) A study with an amount of capacity on maintenance such that the remaining unit hydraulic capacity equals HCAP2 which is the sum of: (i) 25,000 cfs, and (ii) 21,330 cfs, (Study WC); and
  - (D) A study with an amount of capacity on maintenance such that the remaining unit hydraulic capacity equals HCAP3 which is equal to 25,000 cfs, (Study WD); and
  - (E) A study with the specific amount of capacity on outage for the outage state under consideration specified as the "MW on Maintenance" parameter for the applicable Plant on the Entitlement Calculation Program, (Study WE).

Note that the first four studies can be done in advance and the results saved for later computations. Therefore only one study (the last one in the list above) is required to compute the outage adjustment for any particular outage state.

- (3) The Energy Entitlement adjustment for Unit Outages is computed from the monthly generation  $E(m)$  averaged over the Stream Flow Record Period from the studies as follows:
  - (A) If the hydraulic capacity associated with the outage state exceeds HCAP1, then the outage adjustment for the month is determined as  $E(m)$  from Study WE minus  $E(m)$  from Study WA, multiplied by the Adjustment Factor applicable to WAX Residual Water;

- (B) If the hydraulic capacity associated with the outage state exceeds HCAP2, but is less than HCAP1, then the outage adjustment for the month is determined as the sum of:
  - (i) E(m) from Study WB minus E(m) from Study WA, multiplied by the Adjustment Factor applicable to WAX Residual Water; plus
  - (ii) E(m) from Study WE minus E(m) from Study WB, multiplied by the Adjustment Factor applicable to WAN Residual Water;
- (C) If the hydraulic capacity associated with the outage state exceeds HCAP3, but is less than HCAP2, then the outage adjustment for the month is determined as the sum of:
  - (i) E(m) from Study WB minus E(m) from Study WA, multiplied by the Adjustment Factor applicable to WAX Residual Water; plus
  - (ii) E(m) from Study WC minus E(m) from Study WB, multiplied by the Adjustment Factor applicable to Waneta Residual Water; plus
  - (iii) E(m) from Study WE minus E(m) from Study WC, multiplied by the Adjustment Factor applicable to the first 21,330 cfs of water diverted and used in the Waneta Expansion;
- (D) If the hydraulic capacity associated with the outage state is less than HCAP3, then the outage adjustment for the month is determined as the sum of:
  - (i) E(m) from Study WB minus E(m) from Study WA, multiplied by the Adjustment Factor applicable to WAX Residual Water; plus
  - (ii) E(m) from Study WC minus E(m) from Study WB, multiplied by the Adjustment Factor applicable to Waneta Residual Water; plus
  - (iii) E(m) from Study WD minus E(m) from Study WC, multiplied by the Adjustment Factor applicable to the first 21,330 cfs of water diverted and used in the Waneta Expansion; plus
  - (iv) E(m) from Study WE minus E(m) from Study WD, multiplied by the Adjustment Factor applicable to the first 25,000 cfs of water diverted and used in the Waneta Plant;
- (h) The outage adjustments for certain combinations of Unit Outages at the Waneta Facilities are as provided in Table 10, and, among other things, were determined based on the assumptions set out in Sections 4.4 (d) – (h) of this Schedule A.

- (i) For certainty, the more detailed calculation methodology set out in subsection (g)(3)(A) - (D) above in respect of the Waneta Facilities after WAX Start-Up computes the Entitlement Energy adjustment for Unit Outages at the Waneta Facilities including 100% of the Waneta Plant. The Entitlement Energy outage adjustments produced by this methodology are applicable until January 1, 2036 and assuming no notice has been given under Section 6.8 of this Schedule A. Subject to Section 6.8 of this Schedule A, from and after January 1, 2036, the Entitlement Energy outage adjustments for the Waneta Facilities must be further adjusted and allocated as follows:
- (1) compute the Waneta Facilities outage adjustment, including 100% of the Waneta Plant, as per subsection (g)(3)(A) - (D) above;
  - (2) allocate the Waneta Facilities outage adjustment between the Waneta Plant and the Waneta Expansion as per the Waneta Release Coordination Agreement. Under that Agreement, this allocation will depend on the Units concurrently on outage at each Plant, and the nature of the outages (planned vs forced);
  - (3) reduce the outage adjustment allocated to the Waneta Plant by multiplying it by the Teck Participation Percentage; and
  - (4) recompute the Waneta Facilities outage adjustment as the sum of the outage adjustment allocated to the Waneta Expansion, as computed in (2) above, plus the revised outage adjustment for the Waneta Plant as computed in (3) above.

#### **5.4 Planned Outages**

In the case of Unit Outages and Unit Derates at the FortisBC Plants that are “Planned Outages” or “Planned Derates” as defined in the FortisBC Entitlement Adjustment Agreement, outage adjustments will be determined in accordance with that Agreement and set out in Table 10a.

#### **5.5 Application of Adjustments**

Subject to Section 6.8 of this Schedule A, if the amount of capacity out of service is equal to the “MW on Outage” column of Table 10, the Entitlement Energy adjustments for the Plant indicated on Table 10 will be as shown on Table 10. For different amounts of capacity out of service, the “MW on Maintenance” feature of the Entitlement Calculation Program (an input parameter on the “Progress” worksheet) may be used to determine applicable levels of Entitlement Energy adjustments for this outage state, as described more fully in this Schedule A. For the Waneta Facilities, whether the adjustments are as shown on Table 10 or determined using the methodology described in Section 5.3 of this Schedule A, then unless those adjustments for the applicable outage scenario have been allocated on Table 10, they must be allocated between the Waneta Plant and the Waneta Expansion as contemplated by Section 5.3(i) of this Schedule A.

## 5.6 Start-up of Second WAX Unit

If WAX Start-up occurs with only one Unit in service, the second Unit will not be considered in service (and will be deemed to be on outage and the applicable outage adjustments will apply) until it also satisfies the tests set out in the definition of WAX Start-up as if it were the first Unit to come into service.

## 6. RE-DETERMINATION OF AGGREGATE ENTITLEMENT

### 6.1 Re-Determination

Subject to Section 2.3 of this Agreement, the Aggregate Entitlement may be re-determined from time to time if B.C. Hydro or a Plant owner receives a request for re-determination from the other (a copy of which the requesting party will send to the other Entitlement Parties) based on one of the following:

- (a) the requesting party believes that since the later of February 15, 2010 and the last re-determination under this subsection (a) relating to that Plant there has been or will within 12 months be a change or changes in the Plant Characteristics of the Plant which would result in a change to the Aggregate Entitlement if re-determined;
- (b) the requesting party believes that since the later of the date of February 15, 2010 and the last re-determination under this subsection (b) relating to that Plant there has been or will within 12 months be a change or changes in the Available Flow at the Plant which would result in a change to the Aggregate Entitlement if re-determined, except for Available Flow changes resulting directly from B.C. Hydro's operating instructions hereunder or for which B.C. Hydro has received adequate compensation as determined by the Operating Committee;
- (c) the WECC or any other authority having jurisdiction has changed the requirements relating to spinning reserve allowances and the requesting party believes that such change would result in a change to the Aggregate Entitlement if re-determined; or
- (d) the requesting party believes that the Adjustment Factor applicable to a Plant has changed or will within 12 months change as a result of (1) the Teck Cominco CPA Scheduling Agreement terminating, (2) a period being or ceasing to be a Flexibility Option Period as defined in the BEPC CPA Scheduling Option Agreement, or (3) a re-determination of the SVM Benefit Adjustment Factor Increment pursuant to Section 6.10 of this Schedule A, in any case which would result in a change to the Aggregate Entitlement if re-determined.

### 6.2 Information

Each of the parties will promptly disclose to each other party any information that could reasonably lead to a re-determination. If a party (the "**Knowledgeable Party**") does not disclose such information promptly and a re-determination occurs between the time the Knowledgeable Party became aware of the information and the time the Knowledgeable Party disclosed the information, any party may, without prejudice to any other rights under this Agreement, request a re-determination based on the disclosed information despite the fact that an intervening re-determination has occurred. Such re-determination will be retroactive to the time the Knowledgeable Party became aware of the information.

### 6.3 Re-Determination Procedure

A re-determination of the Aggregate Entitlement will be conducted by the Operating Committee as follows:

- (a) the Operating Committee will, without unreasonable delay, update this Schedule A and Tables to reflect the changes to the Available Flow and Plant Characteristics of the Plant;
- (b) the Entitlement Calculation Program will be used to determine the Entitlement Energy and Entitlement Capacity applicable to the Plant based on the updated Available Flow and Plant Characteristics;
- (c) if the Operating Committee determines that the Entitlement Energy or Entitlement Capacity applicable to the Plant under the updated Available Flow and Plant Characteristics has changed or will change from that set out in Table 9, after reasonably taking into account any compensation received by any of the parties related to the change:
  - (1) Table 9 will be revised to reflect the new Entitlement Energy and Entitlement Capacity;
  - (2) the Aggregate Entitlement adjustments in Tables 10 and/or 10a, as the case may be, will be adjusted as required to reflect the changes; and
  - (3) the Operating Committee will determine the effective date of the re-determination and any necessary transitional provisions (including procedures for confirming changes that have not then yet been implemented); and
- (d) the Operating Committee will deliver the updated Tables to the parties and, upon delivery, this Agreement will be deemed to have been amended accordingly as of the effective date of the re-determination.

### 6.4 Modification of Tables

In a re-determination of the Aggregate Entitlement, the Operating Committee will have the authority and responsibility to modify any Table to this Schedule A to reflect the new Entitlement with respect to each Plant, the applicable outage adjustments (determined in accordance with this Agreement) used to develop such Entitlement, or to document the revised data used to develop such Entitlement, subject to the following:

- (a) the Stream Flow Record Period may not be modified except by agreement amongst all parties;
- (b) except as required to accommodate a modification of the Stream Flow Record Period under (a) above, Tables 1 and 2 will not be modified;
- (c) inflow data for the Waneta Plant or, after WAX Start-up, the Waneta Facilities and for Kootenay Lake for Regulated Stream Flow conditions:

- (1) may be modified to reflect the expected operation of upstream projects, and;
- (2) may not be modified for any other reason except to the extent that the inflow data has been modified in a study of inflow data by a third party and that study does not provide a means of removing those modifications, in which event any party that considers itself adversely affected by the modification of the inflow data by the third party may seek, at its expense, to have the third party remove the modifications from the study of the inflow data for the Waneta Plant or, after WAX Start-up, the Waneta Facilities, or for Kootenay Lake;
- (d) subject to Section 2.3(e) and (f) of this Agreement, the Kootenay Lake target elevations for Unregulated Stream Flow conditions in Table 6 may be modified but only to reflect changes resulting from modifications to any of the Kootenay Lake storage Water Licences, changes in Kootenay Lake operation or modifications to the International Joint Commission rule curve for Kootenay Lake; and
- (e) subject to Section 2.3(e) and (f) of this Agreement, the Kootenay Lake target elevations for Regulated Stream Flow, Table 6 Kootenay Lake Curve 2 and 3, conditions may be modified to reflect the expected operation of Kootenay Lake.

## **6.5 Other Modifications**

In a re-determination of the Aggregate Entitlement:

- (a) Adjustment Factors may not be modified except by agreement between the parties affected by modification;
- (b) the methodology used to determine Entitlement Capacity and Entitlement Energy, as described in Section 4 of this Schedule A, may not be modified;
- (c) spinning reserve allowances may be modified only in response to changes determined by the authority having responsibility for establishing such provisions, or by agreement between B.C. Hydro and the Entitlement Party affected by the modification; and
- (d) the Entitlement Calculation Program may not be modified to amend existing algorithms or to incorporate new algorithms, except by agreement between the parties affected by the modification, however computational errors will be corrected if required. Nothing in this Section 6.5(d) prevents changes to Tables that may form part of the Entitlement Calculation Program, as provided for in this Agreement.

## **6.6 Re-Determination Dispute Resolution**

A dispute in connection with a re-determination of the Aggregate Entitlement will be resolved in accordance with Section 12 of this Agreement. A lack of agreement respecting a modification that, under this Section 6 of this Schedule A, may not be made except by agreement between parties is not a dispute to be resolved in accordance with Section 12 of this Agreement. If a dispute is resolved by arbitration, the arbitrator is empowered to determine the effective date of the re-determination and any transitional provisions having regard to all of the circumstances, including any unreasonable delay by a party.

### **6.7 Bilateral Amendments for Waneta Plant Entitlement Energy and Entitlement Capacity**

Subject to Section 6.10 of this Schedule A, Teck and B.C. Hydro may agree at any time, and from time to time, to change the Entitlement Energy and Entitlement Capacity attributable to the Waneta Plant for either a specific period of time or until further notice, on written notice thereof to the other Entitlement Parties, and so often as such a notice is given, Table 9 will be deemed amended to reflect such change effective for the specific period or as of the date set out in the notice.

### **6.8 Bilateral Amendments for Waneta Plant Outage Factors**

Subject to Section 6.10 of this Schedule A, Teck and B.C. Hydro may agree at any time, and from time to time, to:

- (a) change the capacity and/or energy outage adjustments for the Waneta Plant; or
- (b) change the procedure for determining the amount of MW on Outage for the Waneta Plant, or for the Waneta Plant as part of the Waneta Facilities, to be used in determining the outage adjustments to Entitlement Capacity or Entitlement Energy,

either for a specific period of time or until further notice, on written notice thereof to the other Entitlement Parties, and so often as such a notice is given, the outage adjustments for the Waneta Plant, Table 10 and/or the procedure for determining MW on Outage to be used, as applicable, will be deemed amended to reflect such change effective for the specific period or as of the date set out in the notice.

### **6.9 Bilateral Amendments of Waneta Expansion Entitlement Energy, Entitlement Capacity and other Changes**

Subject to Section 6.10 of this Schedule A, WELP and B.C. Hydro may agree at any time, and from time to time, to change the Entitlement Energy and/or the Entitlement Capacity attributable to the Waneta Expansion by giving written notice thereof to the other Entitlement Parties, and Table 9 will be deemed amended to reflect any such change, effective as of the date set out in the notice.

Further, WELP and B.C. Hydro may agree at any time, and from time to time, to change the Minimum Take requirements, scheduling constraints, or other constraints on Aggregate Entitlement usage, insofar as they are attributable to Waneta Expansion generation, by giving written notice thereof to the other Entitlement Parties, such change to be effective as of the date set out in the notice. The Entitlement Parties will be responsible for allocating such changed requirements or constraints on Aggregate Entitlement usage among the Entitlement Parties under the CPA Subagreement.

### **6.10 Limits on Bilateral Amendments**

Teck and B.C. Hydro will only make changes pursuant to Section 6.7 and Section 6.8 of this Schedule A for purposes of effecting the changes to Waneta Plant Entitlement Energy and Entitlement Capacity, changes to the capacity and/or energy outage adjustments for the Waneta Plant (provided no resulting changes to the Waneta Expansion outage adjustments occur) and changes to the procedure for determining the amount of MW on Outage for the Waneta Plant contemplated by the Co-Ownership and Operating Agreement, or for the purpose of making changes to Waneta Plant Entitlement Energy and Entitlement Capacity pursuant to the Letter Agreement regarding Waneta Speed No Load Operation,

Redeterminations relating to WAX and Replacement CPA dated November 15, 2011 between BC Hydro and Teck, and not, either directly or indirectly, for any other purpose.

WELP and BC Hydro will only make changes pursuant to Section 6.9 of this Schedule A for purposes of effecting changes to Waneta Expansion Entitlement Energy and/or Entitlement Capacity, changes to Minimum Take requirements, scheduling constraints, or other constraints on Aggregate Entitlement usage, only for purposes of (i) effecting a buy-down of Waneta Expansion Entitlement Capacity sold pursuant to the WAX CAPA, by agreement between B.C. Hydro and WELP, or (ii) effecting changes that have been agreed between those parties (or determined by arbitration) pursuant to the Bilateral BCH/WELP Agreement between those parties made as of the 15th day of November, 2011, and not, either directly or indirectly, for any other purpose.

#### **6.11 Re-determination of SVM Adjustment Factor Increment**

The Seven Mile coordination benefits are calculated based on two sets of power studies as the value weighted generation difference between Seven Mile operated with WAX plus WAN downstream, and Seven Mile operated with only WAN downstream. If the Available Flow, Plant Characteristics and/or Legal Obligations applicable to the Waneta Facilities or the plant characteristics and/or assumed Legal Obligations applicable to B.C. Hydro's Seven Mile plant (collectively referred to as the **"Initial Determination Conditions"**) change prior to the expiry or earlier termination of the initial term of the WAX EPA, the new SVM Benefit Adjustment Factor Increment included in the Adjustment Factor applicable to the Waneta Expansion will be adjusted as follows:

- (a) the Seven Mile coordination benefits prior to the change (**"Bp"**) will be estimated based on: (1) the then most current detailed modelling of Pend d'Oreille River operations using the Initial Determination Conditions applicable prior to the change and (2) the time of delivery factors applied by B.C. Hydro in its then most recent call for new power;
- (b) the Seven Mile coordination benefits after the change (**"Ba"**) will be estimated based on the then most current detailed modelling of Pend d'Oreille River operations using the revised conditions applicable after the change incorporating the same time of delivery factors as in subsection (a) above; and
- (c) the new SVM Benefit Adjustment Factor Increment will be re-determined as the old SVM Benefit Adjustment Factor Increment multiplied by the ratio of Ba to Bp.

The new SVM Benefit Adjustment Factor Increment will be re-determined as the old SVM Benefit Adjustment Factor Increment multiplied by the ratio of Ba to Bp.

The current SVM Benefit Adjustment Factor Increment is based on the 2004 Waneta Plant flows. The plant characteristics and Legal Obligations applicable to Seven Mile pre- and post- WAX Start-up and used for determining the Seven Mile coordination benefits are documented in Table 16. Following a change in the SVM Benefit Adjustment Factor Increment based on this Section 6.11, Table 16 will be updated to reflect the revised Initial Determination Conditions, if applicable, for Seven Mile, on which the new SVM Benefit Adjustment Factor Increment is based.



Table 1

<b>Kootenay Lake Inflows: Unregulated</b>													
Source: 1990 Modified Flows from BPA													
Inflow (cfs)													
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Ann.
	31	30	31	30	31	31	28	31	30	31	30	31	365
Minimum	14,753	10,212	5,945	4,556	5,163	5,098	4,714	5,341	8,795	38,869	46,253	20,739	16,005
Average	22,002	14,540	12,523	11,002	9,471	7,978	8,372	10,115	25,483	74,107	90,110	48,717	27,947
Maximum	43,351	33,029	29,073	19,266	21,500	19,680	19,369	24,052	54,121	111,212	157,081	98,751	37,415
1938-39	15,409	12,662	9,904	7,659	6,353	7,303	4,879	8,167	28,261	71,273	54,919	40,809	22,404
1939-40	17,290	11,036	14,802	11,361	10,822	6,645	6,968	10,741	24,412	66,989	55,557	26,171	21,982
1940-41	15,123	13,822	12,385	8,133	7,246	6,097	5,550	9,921	24,575	48,109	46,253	24,898	18,564
1941-42	15,163	20,611	20,767	15,360	21,500	9,073	7,498	7,258	25,548	66,697	80,125	59,581	29,207
1942-43	23,785	13,347	10,084	8,851	7,697	5,673	6,500	7,864	54,121	56,388	80,284	66,678	28,502
1943-44	22,723	11,394	9,989	7,415	6,020	5,288	4,714	5,479	10,374	39,849	47,393	20,739	16,005
1944-45	15,222	11,633	10,010	7,638	5,163	5,718	5,652	5,818	8,795	56,109	76,241	37,736	20,538
1945-46	15,068	11,564	8,940	9,525	7,327	6,931	6,278	9,671	32,023	97,900	97,820	50,942	29,600
1946-47	21,032	15,841	10,675	8,498	9,528	7,439	9,983	13,506	34,622	97,508	82,017	43,761	29,632
1947-48	18,540	14,500	29,073	18,249	10,876	8,373	7,729	8,009	26,795	91,822	131,755	43,308	34,152
1948-49	25,787	13,791	11,051	8,503	5,986	5,098	6,238	8,324	30,395	90,201	54,510	25,373	23,882
1949-50	16,274	11,007	8,980	11,396	10,548	6,919	7,844	11,937	23,277	64,295	121,674	72,538	30,620
1950-51	25,154	13,301	18,010	17,042	17,820	13,149	19,369	11,135	31,789	103,648	84,417	72,206	35,708
1951-52	25,418	18,227	22,132	13,453	11,154	8,531	8,478	8,520	40,275	83,105	74,371	43,381	29,854
1952-53	20,080	11,721	7,998	5,600	5,633	9,602	10,444	7,925	16,594	65,613	99,607	58,630	26,679
1953-54	23,729	12,887	11,151	10,850	8,467	7,269	8,546	9,397	20,598	97,561	112,336	98,751	35,303
1954-55	35,046	21,844	13,485	14,654	10,974	7,535	6,476	5,946	13,190	47,299	121,239	71,772	30,857
1955-56	24,869	13,913	16,962	17,322	12,497	10,781	7,359	10,991	43,576	108,985	119,139	57,068	37,072
1956-57	22,464	12,983	12,785	8,647	8,450	5,545	6,490	8,924	18,731	111,212	73,100	30,229	26,777
1957-58	16,624	10,888	10,271	7,759	6,924	6,201	7,772	8,947	19,457	95,797	65,769	30,065	23,982
1958-59	16,269	12,120	11,827	10,118	8,994	10,002	6,948	8,081	28,218	74,746	123,577	65,961	31,473
1959-60	25,809	33,029	25,770	19,266	14,440	8,525	8,718	13,959	38,154	58,348	95,646	54,189	33,039
1960-61	21,203	15,043	11,369	10,886	6,793	7,774	12,037	11,691	22,098	96,279	140,214	38,057	32,801
1961-62	20,508	12,532	13,495	8,887	7,309	6,200	8,239	6,859	33,284	58,516	86,499	42,197	25,409
1962-63	22,715	12,720	12,852	13,409	12,194	8,056	12,743	10,706	21,260	64,236	88,573	50,189	27,521
1963-64	21,733	15,153	10,604	10,733	8,464	7,483	6,045	6,153	16,546	63,117	117,729	58,813	28,607
1964-65	24,949	16,254	17,355	12,565	8,918	8,209	8,747	9,342	30,662	67,510	99,650	47,173	29,331
1965-66	26,064	14,618	13,454	12,778	8,964	8,055	6,653	9,581	29,998	78,285	98,377	52,246	30,015
1966-67	20,827	12,626	9,373	8,949	9,438	8,684	9,086	8,848	14,530	67,753	149,396	65,068	32,080
1967-68	22,686	13,593	11,040	10,463	7,448	7,519	9,744	14,467	12,966	64,838	99,880	54,925	27,536
1968-69	24,409	18,902	14,766	14,156	10,642	8,200	7,045	8,997	44,820	101,816	108,177	51,006	34,504
1969-70	18,027	13,732	12,438	10,362	7,295	6,496	6,524	6,937	11,747	57,860	82,344	31,282	22,133
1970-71	15,804	10,822	8,904	6,968	6,860	8,127	13,769	9,100	26,025	100,468	108,255	58,714	31,219
1971-72	26,646	13,078	10,033	8,787	6,613	6,448	8,233	24,052	21,058	90,651	135,813	68,479	35,105
1972-73	33,331	14,032	13,245	9,924	8,487	7,594	7,467	8,280	14,970	57,084	68,367	35,700	23,296
1973-74	16,257	11,375	10,275	13,630	11,624	19,680	11,503	12,690	34,900	75,186	157,081	74,440	37,415
1974-75	30,353	13,920	8,356	9,561	7,665	6,276	7,122	7,448	13,326	60,784	99,052	55,143	26,663
1975-76	24,027	15,919	12,939	15,203	20,688	10,268	9,494	8,251	28,088	93,153	74,425	67,249	31,805
1976-77	43,351	23,507	10,248	7,215	7,182	5,737	6,326	5,341	16,586	39,663	49,563	23,031	19,875
1977-78	18,624	14,038	9,361	8,704	9,837	6,914	6,055	12,146	26,329	65,988	87,370	52,278	26,554
1978-79	21,079	20,763	12,506	9,260	6,088	5,304	7,727	9,037	14,120	59,537	57,886	30,376	21,203
1979-80	15,319	10,544	6,826	4,556	8,961	5,107	6,300	8,342	37,599	95,118	61,460	28,883	24,182
1980-81	17,312	13,300	11,286	11,458	17,702	14,534	13,391	13,345	23,777	86,767	81,357	68,728	31,210
1981-82	31,403	15,002	12,523	11,389	9,702	8,598	15,333	14,308	18,205	71,875	114,140	53,952	31,410
1982-83	26,866	19,127	14,457	10,562	10,349	11,689	11,660	17,791	27,016	71,954	78,495	55,767	29,747
1983-84	26,043	13,526	9,689	17,493	8,462	11,515	8,963	10,141	21,186	38,869	91,892	49,252	25,608
1984-85	22,650	13,372	8,575	9,044	7,119	6,029	5,395	6,096	23,676	75,558	66,785	28,511	22,817
1985-86	14,753	14,813	14,469	14,947	8,377	8,044	10,555	21,267	30,544	66,753	85,089	39,127	27,435
1986-87	20,688	12,369	12,714	14,269	9,413	7,235	6,618	15,791	31,893	81,334	52,277	28,704	24,553
1987-88	15,597	10,212	5,945	6,621	6,552	5,426	5,381	8,239	33,136	60,926	67,598	31,785	21,497

Table 2

<b>Local Inflows between Corra Linn and Brilliant</b>													
Source: 1990 Modified Flow Data from BPA													
Local inflow (cfs)													
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Ann.
	31	30	31	30	31	31	28	31	30	31	30	31	365
Minimum	998	718	679	571	501	477	457	473	1,067	3,815	6,452	2,484	1,997
Average	2,492	1,624	1,485	1,331	1,037	839	783	910	2,256	7,671	11,162	6,334	3,170
Maximum	5,727	4,010	3,341	2,468	1,770	1,423	1,587	1,912	3,718	12,277	17,470	11,202	4,046
1938-39	1,586	886	954	784	658	657	520	612	2,935	10,338	9,223	7,489	3,070
1939-40	1,961	933	963	1,835	1,642	742	634	729	2,720	7,482	8,658	3,465	2,654
1940-41	1,407	718	1,362	1,075	501	477	457	1,064	3,205	7,168	7,163	3,053	2,311
1941-42	998	2,799	2,783	1,742	1,770	917	602	671	2,018	5,924	8,929	5,507	2,896
1942-43	2,174	1,048	767	680	641	644	615	538	3,718	5,987	9,871	7,843	2,885
1943-44	2,860	1,086	1,022	893	664	555	524	473	1,260	5,599	6,452	2,484	1,997
1944-45	1,539	1,375	1,581	1,349	935	764	690	675	1,067	6,453	10,614	4,884	2,666
1945-46	1,619	1,067	897	945	775	673	622	772	2,563	10,978	12,367	6,654	3,340
1946-47	2,301	1,589	1,127	895	882	685	768	1,049	2,800	9,134	9,387	4,941	2,973
1947-48	2,061	1,274	2,210	1,859	1,067	819	668	616	1,687	8,279	14,966	4,000	3,296
1948-49	2,588	1,679	1,488	1,066	804	585	508	653	2,592	9,480	7,013	3,123	2,644
1949-50	1,842	1,123	971	1,076	1,161	887	787	724	1,449	4,684	12,084	7,342	2,849
1950-51	2,524	1,265	1,551	1,696	1,583	1,373	1,348	999	2,549	8,827	9,546	7,678	3,425
1951-52	2,595	1,631	2,278	1,382	1,181	942	723	681	2,971	8,981	9,626	5,406	3,212
1952-53	2,074	1,085	732	571	532	617	727	735	1,342	6,392	11,085	7,570	2,797
1953-54	2,799	1,639	1,571	1,544	1,126	934	759	877	1,365	8,676	11,673	11,202	3,700
1954-55	3,844	2,730	1,717	1,771	1,520	1,010	770	644	1,315	3,815	13,790	10,397	3,619
1955-56	3,340	1,427	1,621	1,831	1,162	968	751	748	3,386	10,683	13,462	6,461	3,832
1956-57	2,306	1,300	1,523	1,157	915	728	639	680	1,629	12,277	9,131	3,322	2,983
1957-58	1,801	1,096	1,298	1,115	834	727	887	1,139	1,930	10,556	9,262	3,051	2,818
1958-59	1,289	1,110	1,656	1,245	919	961	730	699	2,010	7,087	13,628	8,262	3,308
1959-60	2,992	4,010	3,341	2,468	1,543	1,017	869	1,156	3,276	5,643	11,253	7,616	3,773
1960-61	2,372	1,697	1,459	1,388	949	854	1,016	1,186	2,254	8,871	16,106	4,496	3,555
1961-62	1,809	1,174	1,227	1,041	788	679	732	672	2,923	6,208	11,677	6,610	2,966
1962-63	3,014	1,601	1,835	1,812	1,458	1,158	1,166	1,165	2,362	7,010	11,323	5,779	3,314
1963-64	2,395	1,448	1,102	1,217	1,068	847	705	652	1,429	5,564	14,591	9,093	3,350
1964-65	3,960	2,570	2,525	1,722	1,097	896	837	934	2,696	6,498	10,927	5,131	3,324
1965-66	2,433	1,658	1,531	1,500	1,111	954	782	902	2,649	7,584	11,527	6,708	3,287
1966-67	2,304	1,197	1,006	1,045	1,116	972	932	915	1,479	6,169	17,470	8,988	3,637
1967-68	2,607	1,233	1,324	1,436	1,046	942	1,033	1,620	1,571	6,960	13,656	8,168	3,475
1968-69	3,506	2,645	2,047	1,615	1,200	731	704	792	3,407	10,254	12,004	5,330	3,697
1969-70	1,852	1,339	1,785	1,809	1,216	896	785	798	1,185	5,294	10,271	3,715	2,582
1970-71	1,607	1,105	1,104	910	823	858	1,587	1,038	2,305	10,772	13,256	8,519	3,666
1971-72	3,423	1,550	1,369	1,102	902	803	670	1,398	2,195	9,058	16,436	9,483	4,046
1972-73	3,691	1,742	1,599	1,157	884	811	665	846	1,408	6,196	8,525	4,786	2,704
1973-74	1,687	1,021	1,408	1,597	1,279	1,115	1,001	984	2,639	6,784	16,892	10,042	3,876
1974-75	3,712	1,516	829	733	688	639	628	664	1,164	5,367	11,460	7,130	2,887
1975-76	2,686	2,180	1,514	1,745	1,598	1,101	825	780	2,291	9,291	10,264	10,033	3,711
1976-77	5,727	3,408	1,598	1,010	785	632	625	664	1,848	5,741	7,756	3,197	2,758
1977-78	1,740	1,562	1,125	952	862	686	611	988	2,629	6,876	11,056	7,397	3,049
1978-79	2,801	2,856	1,981	1,276	899	682	611	909	1,405	6,411	8,185	4,115	2,686
1979-80	1,631	1,181	848	729	774	646	577	853	3,562	11,395	7,378	3,526	2,771
1980-81	1,823	1,532	1,384	1,264	1,262	1,423	1,279	1,489	2,285	9,066	10,774	9,912	3,640
1981-82	4,041	1,926	1,985	2,006	1,442	1,051	1,120	1,228	1,669	6,868	15,047	9,243	3,979
1982-83	3,688	2,336	2,000	1,555	1,131	1,029	1,134	1,912	2,717	7,806	11,324	7,307	3,673
1983-84	3,302	2,072	1,276	2,160	1,240	1,102	970	1,202	2,396	4,378	12,631	8,996	3,483
1984-85	2,895	1,724	1,294	1,088	795	662	571	586	2,214	8,441	10,068	3,702	2,845
1985-86	1,592	1,832	1,709	1,882	1,033	808	763	1,381	2,621	6,773	11,962	5,321	3,144
1986-87	2,197	1,268	1,296	1,199	893	720	636	1,301	2,404	9,177	6,567	3,338	2,596
1987-88	1,617	935	679	633	719	583	583	728	3,326	8,277	9,801	4,888	2,738

Table 3

Waneta Inflows													
Source: BPA Data (Feb 98) - Best estimate of regulated flows													
Inflow (cfs)													
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Ann.
	31	30	31	30	31	31	28	31	30	31	30	31	365
Minimum	7,681	10,570	15,327	12,856	13,264	11,653	8,782	11,887	15,308	20,389	12,614	7,604	15,499
Average	16,986	15,635	22,917	19,001	21,751	18,902	17,887	22,756	33,541	58,987	62,866	32,818	28,711
Maximum	28,512	24,656	37,508	31,390	35,799	34,173	30,895	43,346	54,196	98,812	125,724	66,451	40,698
1938-39	13,421	12,834	19,101	14,734	16,253	15,188	9,795	17,656	33,727	60,771	33,970	16,869	22,108
1939-40	10,300	11,808	18,097	14,216	16,685	11,875	12,690	22,489	30,289	40,278	21,367	11,371	18,492
1940-41	8,331	11,444	18,104	14,750	15,252	12,985	12,477	16,863	19,607	26,422	16,618	12,860	15,499
1941-42	7,998	13,979	19,275	16,765	34,072	17,695	13,650	16,776	27,457	41,748	58,572	35,752	24,625
1942-43	14,271	14,487	19,614	17,849	19,412	18,623	13,756	18,751	54,196	70,204	77,001	55,725	32,892
1943-44	22,792	15,423	21,712	16,327	16,333	12,183	11,526	11,887	15,792	24,663	21,742	14,442	17,111
1944-45	7,851	11,057	15,327	12,856	13,264	14,580	10,721	16,968	16,752	42,975	48,874	30,163	20,168
1945-46	12,916	13,207	20,725	18,383	21,656	20,361	12,610	20,288	39,073	69,730	58,662	28,650	28,101
1946-47	14,116	15,464	24,548	21,498	30,437	24,847	23,426	28,644	42,203	75,749	66,253	30,820	33,212
1947-48	17,031	17,067	34,601	24,155	24,362	22,299	15,537	19,330	36,080	88,860	125,724	39,014	38,729
1948-49	28,512	17,014	22,076	17,704	15,307	11,653	15,320	21,575	38,667	78,853	52,295	23,237	28,594
1949-50	15,052	13,420	20,631	20,219	23,376	20,382	21,454	30,108	38,623	60,648	92,764	66,451	35,308
1950-51	28,200	18,426	30,546	25,799	35,490	26,505	28,095	30,071	48,646	77,584	71,506	42,702	38,690
1951-52	24,006	21,150	34,012	23,022	25,114	22,503	16,557	19,330	43,531	78,266	47,893	26,857	31,957
1952-53	14,730	12,461	18,033	15,119	16,108	19,183	18,765	19,041	23,493	53,114	81,516	39,323	27,585
1953-54	20,836	12,545	20,832	16,534	19,679	18,164	17,580	22,305	29,816	73,771	87,521	59,484	33,348
1954-55	23,803	20,318	23,794	20,039	20,815	13,464	12,718	13,197	22,374	40,941	76,886	52,480	28,460
1955-56	21,107	14,794	29,211	21,534	32,742	26,380	20,981	25,682	51,157	98,812	88,283	31,617	38,610
1956-57	20,886	15,530	22,687	17,554	21,044	14,871	15,459	21,702	28,740	78,641	64,712	22,754	28,792
1957-58	13,482	12,396	21,130	16,305	18,175	16,475	18,471	22,259	30,341	71,086	50,929	20,206	25,982
1958-59	13,489	13,383	22,538	22,256	29,554	24,998	24,685	26,095	40,808	64,396	95,074	42,648	34,992
1959-60	21,026	24,513	37,508	31,390	34,964	25,393	18,428	24,900	48,670	55,944	62,066	31,096	34,715
1960-61	18,393	15,358	21,158	20,058	18,465	18,087	24,626	24,632	32,968	69,759	84,263	26,712	31,184
1961-62	12,283	13,187	24,040	16,829	18,399	19,820	16,773	19,990	42,196	65,614	58,569	25,211	27,778
1962-63	16,004	14,470	25,204	21,529	26,284	18,807	23,262	22,362	29,929	44,446	44,773	26,416	26,130
1963-64	13,571	14,600	19,128	17,501	16,275	15,259	11,269	16,412	24,117	58,092	97,833	44,355	29,076
1964-65	21,377	19,863	23,642	19,407	27,230	22,089	20,948	26,550	46,069	77,680	86,198	36,648	35,683
1965-66	20,256	21,835	25,291	19,213	19,450	15,006	12,075	21,277	36,506	50,994	48,908	27,012	26,547
1966-67	12,885	13,060	19,449	18,152	23,026	24,671	23,375	23,048	23,566	56,875	94,396	36,169	30,711
1967-68	17,178	12,154	22,332	20,022	19,450	18,579	21,105	27,348	24,289	41,892	52,752	24,521	25,145
1968-69	19,698	24,656	32,060	24,599	26,225	22,662	20,243	21,667	51,563	81,947	54,489	30,607	34,265
1969-70	12,672	14,792	22,662	17,238	17,000	17,786	16,324	19,342	21,628	57,991	75,639	27,712	26,756
1970-71	14,725	13,924	22,672	17,756	18,676	20,193	30,895	27,682	41,884	82,045	90,816	38,894	34,981
1971-72	20,774	15,156	21,392	17,145	17,524	18,394	21,691	43,346	48,943	72,965	108,082	40,930	37,212
1972-73	23,139	16,118	22,272	17,263	18,761	15,417	11,886	19,183	16,883	28,831	29,809	14,769	19,585
1973-74	9,651	11,573	17,995	22,861	30,206	34,173	30,834	31,185	51,232	72,478	113,234	63,170	40,698
1974-75	22,148	16,082	19,988	17,046	17,525	16,702	13,333	17,966	20,591	51,621	94,425	58,464	30,560
1975-76	24,133	20,764	26,879	23,133	35,799	21,230	23,014	22,705	41,946	79,433	64,624	38,222	35,230
1976-77	25,203	20,916	21,231	15,799	14,886	12,536	12,446	13,528	15,308	20,389	12,614	7,604	16,067
1977-78	7,681	11,927	19,686	16,635	24,994	20,245	13,505	24,657	41,964	58,893	58,711	39,781	28,299
1978-79	21,568	20,314	21,284	16,921	15,072	14,726	16,609	21,561	23,543	58,601	45,976	19,644	24,695
1979-80	12,262	13,227	18,433	15,079	16,336	15,459	12,399	19,345	30,945	64,491	52,562	30,120	25,127
1980-81	14,609	16,680	22,696	19,346	33,786	28,907	27,282	25,367	27,310	59,883	66,583	37,323	31,674
1981-82	19,559	13,364	21,168	17,708	19,180	20,645	29,122	34,444	33,026	63,407	85,556	54,222	34,292
1982-83	22,054	16,235	24,339	18,369	19,814	21,108	21,271	31,894	27,500	44,798	47,031	41,988	28,097
1983-84	22,637	16,328	22,649	24,192	19,642	20,923	20,496	23,266	28,399	41,354	58,672	33,467	27,681
1984-85	17,640	16,996	22,398	19,766	16,585	14,986	12,734	16,743	30,937	53,687	45,019	14,965	23,576
1985-86	13,210	20,482	29,920	23,893	23,364	18,490	21,644	36,045	41,879	40,710	41,349	21,772	27,734
1986-87	11,162	14,412	23,488	20,353	19,499	14,877	11,714	24,735	31,763	42,883	15,627	12,879	20,350
1987-88	8,689	10,570	18,272	13,210	14,010	12,725	8,782	15,600	30,099	34,119	23,562	31,060	18,460

Table 4

<b>Kootenay Lake Inflows: Regulated AOP</b>													
Source: 2003 AOP (study 03-42) dated 13 April 1998, for power and flood control only													
Inflow (cfs)													
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Ann.
	31	30	31	30	31	31	28	31	30	31	30	31	365
Minimum	14,047	11,498	12,775	16,351	16,646	8,899	6,264	7,476	13,191	25,664	27,585	15,858	18,449
Average	22,474	19,525	16,855	26,195	30,230	26,888	20,491	13,722	24,685	47,795	51,079	35,620	27,992
Maximum	43,351	38,011	32,389	36,093	42,932	40,522	32,712	24,051	44,821	76,824	95,080	75,410	37,187
1938-39	17,018	17,732	15,189	21,899	27,196	11,528	9,828	8,904	23,397	48,755	35,683	30,797	22,404
1939-40	18,030	17,727	19,856	25,698	30,972	11,740	10,213	11,390	20,708	44,276	32,044	21,664	22,101
1940-41	16,584	19,360	14,765	23,450	28,266	12,616	6,745	9,755	24,378	30,258	29,231	18,828	19,574
1941-42	16,619	21,598	19,946	25,167	42,932	33,897	23,979	11,984	21,029	36,148	40,023	42,953	28,068
1942-43	23,860	19,268	16,058	22,549	28,582	29,631	22,096	12,422	41,742	35,853	44,537	45,264	28,502
1943-44	22,788	16,833	14,773	22,655	27,078	11,448	6,264	10,790	15,903	25,664	27,585	18,719	18,449
1944-45	14,047	11,498	18,018	23,462	25,184	14,974	7,875	10,525	16,552	36,708	39,683	16,910	19,681
1945-46	17,830	14,192	12,775	17,495	22,431	34,556	24,924	14,755	26,835	60,162	51,361	38,429	28,009
1946-47	21,098	20,823	14,432	24,868	30,960	34,429	27,107	17,897	27,979	55,395	44,547	35,795	29,632
1947-48	18,938	19,140	32,389	35,076	32,309	40,438	27,485	13,183	26,795	50,048	82,741	30,877	34,098
1948-49	25,852	18,774	15,428	24,234	27,418	10,310	7,202	8,530	24,910	71,375	30,996	20,054	23,882
1949-50	19,133	17,538	14,986	21,099	31,891	36,828	28,183	17,249	23,277	44,166	66,517	46,531	30,620
1950-51	25,218	18,283	21,326	33,868	39,252	40,520	32,712	19,976	31,789	68,806	41,736	54,169	35,708
1951-52	25,482	23,209	25,448	30,280	32,585	27,680	22,095	11,643	32,239	54,905	44,408	29,226	29,969
1952-53	18,655	17,876	14,554	20,022	26,427	30,020	26,597	11,925	16,937	41,742	49,173	44,328	26,526
1953-54	23,794	17,870	15,676	26,429	29,900	39,350	30,921	14,939	20,298	64,236	63,982	75,410	35,303
1954-55	35,110	26,827	16,801	31,481	32,406	31,838	20,647	9,988	13,191	30,974	66,981	53,540	30,857
1955-56	24,933	18,896	20,277	34,148	33,930	40,522	31,837	16,186	39,606	72,053	70,752	40,916	37,005
1956-57	22,528	17,967	16,760	24,793	29,882	22,354	15,608	11,350	18,348	76,824	41,290	22,381	26,776
1957-58	17,679	17,497	14,898	21,787	27,189	19,766	15,812	10,315	18,609	65,702	33,148	24,436	23,982
1958-59	16,664	17,521	15,243	26,081	30,426	40,521	31,054	13,596	27,144	44,563	69,911	45,394	31,474
1959-60	25,873	38,011	29,086	36,093	35,872	30,258	22,073	17,375	38,155	36,883	50,685	35,602	33,002
1960-61	21,624	19,657	16,000	26,354	28,225	39,855	32,712	18,769	21,712	56,995	91,997	20,624	32,801
1961-62	20,572	19,225	15,916	25,368	28,316	20,639	18,700	9,124	33,284	33,931	47,767	32,194	25,409
1962-63	22,779	18,152	16,557	29,384	33,627	29,427	26,819	14,364	21,260	38,033	43,103	36,734	27,521
1963-64	21,797	20,135	15,478	25,949	29,896	34,609	22,391	10,243	16,423	38,404	65,761	41,509	28,562
1964-65	25,013	21,236	20,672	29,391	30,351	34,578	26,273	13,965	27,682	40,643	48,058	34,114	29,332
1965-66	26,128	19,602	16,770	29,605	30,396	37,277	24,521	14,561	29,998	44,875	51,703	34,563	30,015
1966-67	21,090	18,064	15,218	22,892	30,495	40,522	31,730	14,391	14,116	41,730	95,080	40,303	32,080
1967-68	22,751	18,577	15,472	26,136	28,880	27,581	20,457	17,318	14,926	39,450	56,878	41,177	27,506
1968-69	24,474	23,884	18,080	30,982	32,074	40,280	27,102	14,520	44,821	63,146	57,827	36,764	34,503
1969-70	18,961	18,517	15,415	26,838	28,728	11,821	7,810	8,193	18,685	37,043	47,825	25,127	22,133
1970-71	16,395	16,967	13,854	20,454	28,239	39,672	32,712	16,165	26,025	63,861	58,775	41,565	31,219
1971-72	26,711	18,061	14,619	24,300	28,046	38,528	30,209	24,051	21,058	59,520	85,433	49,808	35,044
1972-73	33,395	19,014	16,561	26,750	29,920	12,169	8,114	8,447	18,715	34,105	42,397	31,617	23,524
1973-74	18,123	18,175	15,100	22,450	33,056	40,522	32,712	19,976	34,901	74,351	92,256	44,807	37,187
1974-75	30,418	18,903	13,983	23,999	29,096	20,583	15,593	9,909	13,326	39,991	60,475	42,929	26,663
1975-76	24,092	20,901	16,435	31,844	42,121	40,522	30,282	13,148	28,089	53,758	39,825	39,611	31,748
1976-77	43,351	28,557	13,994	23,598	28,614	10,618	7,396	10,983	20,655	28,101	34,727	26,930	23,215
1977-78	15,423	16,665	20,569	24,319	16,646	8,899	11,523	14,672	24,734	40,449	44,476	39,629	23,215
1978-79	21,144	25,746	16,207	25,689	27,520	10,150	8,426	9,090	18,670	37,045	29,108	26,782	21,365
1979-80	16,541	17,161	14,609	16,351	28,322	19,704	14,810	10,558	37,599	67,205	28,783	15,858	24,022
1980-81	17,968	18,019	15,345	26,842	39,134	40,521	32,712	19,976	25,983	50,745	42,446	44,283	31,183
1981-82	31,467	19,985	16,260	27,780	31,134	31,892	28,657	18,134	18,205	47,047	65,412	40,861	31,410
1982-83	26,931	24,109	17,775	27,388	31,781	26,924	20,643	19,976	27,025	44,640	44,018	44,983	29,747
1983-84	26,107	18,509	14,595	32,677	29,894	15,363	11,391	10,749	18,831	26,769	62,591	39,339	25,601
1984-85	22,715	18,355	13,328	24,385	28,551	10,498	7,186	7,476	20,485	54,097	43,411	25,007	23,047
1985-86	18,797	17,530	13,287	31,773	29,809	26,228	19,958	21,267	30,545	40,485	48,058	28,634	27,205
1986-87	21,336	18,375	15,626	29,885	30,845	13,402	8,198	15,223	29,275	62,069	29,931	27,427	25,253
1987-88	19,848	15,737	16,323	23,718	24,715	16,377	14,278	16,157	27,378	35,743	38,828	32,000	23,468

Table 5

<b>Kootenay Lake Inflows: Regulated with Non-Power</b>													
Source: 1998 BPA Ratecase													
Inflow (cfs)													
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Ann.
	31	30	31	30	31	31	28	31	30	31	30	31	365
Minimum	13,172	10,201	10,703	10,515	14,287	7,766	6,595	7,078	10,086	26,551	27,952	12,339	16,286
Average	26,399	21,292	17,234	15,767	23,813	14,922	24,442	15,621	23,516	59,083	61,335	31,845	27,918
Maximum	38,023	36,819	36,176	28,006	35,824	21,639	32,820	24,052	44,820	97,851	112,382	66,133	37,002
1938-39	13,172	15,464	13,484	12,140	21,366	14,046	25,628	8,905	22,635	41,399	40,993	27,755	21,366
1939-40	24,503	16,715	18,448	15,801	25,779	14,361	11,392	17,393	20,475	54,101	44,680	17,421	23,510
1940-41	13,535	12,639	13,631	14,369	20,166	11,033	16,639	9,756	17,679	37,580	28,493	16,337	17,656
1941-42	19,818	24,931	20,597	19,906	35,824	16,930	32,711	7,959	18,557	52,547	53,479	40,119	28,574
1942-43	30,850	19,150	13,706	13,198	22,798	14,333	32,711	19,197	41,290	50,245	58,537	32,522	28,971
1943-44	24,271	17,184	13,440	12,103	20,973	8,290	10,911	10,885	10,086	26,551	27,952	12,339	16,286
1944-45	19,213	18,024	15,924	17,337	14,343	7,766	9,464	7,466	11,241	36,708	47,243	33,595	19,906
1945-46	25,611	17,135	13,481	10,515	20,101	15,478	32,712	19,977	32,548	77,340	63,632	25,562	29,465
1946-47	28,097	21,631	14,117	13,044	24,627	16,105	32,711	19,976	34,622	75,496	54,190	21,709	29,656
1947-48	25,417	20,190	32,515	22,795	25,976	15,874	32,252	19,976	21,930	65,162	82,463	36,933	33,430
1948-49	30,895	26,517	17,163	13,050	21,086	13,843	18,438	19,976	30,395	71,100	42,919	14,700	26,724
1949-50	13,863	10,201	11,502	13,235	19,013	15,557	32,711	19,977	24,548	64,071	77,109	39,724	28,393
1950-51	26,974	24,703	21,452	21,589	32,920	16,254	32,711	19,976	31,789	97,851	55,366	39,084	35,094
1951-52	30,586	27,371	31,651	17,999	26,254	15,562	32,820	19,674	30,959	69,148	56,077	21,009	31,566
1952-53	14,170	16,990	11,720	10,971	19,771	17,305	32,711	19,977	14,645	57,558	63,509	29,836	25,698
1953-54	28,831	18,677	14,593	15,397	23,566	16,053	32,711	19,977	22,991	84,216	70,405	66,133	34,505
1954-55	36,062	30,564	27,566	19,200	26,074	15,668	18,936	7,286	13,222	45,877	81,612	47,751	30,857
1955-56	30,915	27,065	21,724	21,868	27,596	15,369	32,820	19,976	43,576	91,193	73,983	38,131	37,002
1956-57	34,267	21,550	16,227	13,193	23,549	14,538	21,963	19,976	20,815	83,967	49,945	16,050	28,071
1957-58	16,132	16,459	13,849	12,203	21,944	14,997	19,193	14,473	17,290	76,019	43,845	13,510	23,370
1958-59	23,028	17,641	15,236	14,664	24,095	15,665	32,712	19,977	28,218	65,244	75,157	38,457	30,792
1959-60	31,212	36,819	36,176	28,006	29,540	15,925	32,819	19,977	38,154	53,235	64,558	28,247	34,490
1960-61	17,952	20,709	14,811	15,433	21,893	16,225	32,712	19,977	22,098	86,065	86,673	30,874	32,068
1961-62	25,763	18,352	16,917	13,437	22,397	14,523	29,231	8,053	24,779	49,035	58,679	22,744	25,255
1962-63	29,779	18,510	16,294	17,954	27,293	16,766	32,713	14,038	20,163	54,308	57,763	25,308	27,521
1963-64	28,797	20,943	14,079	15,246	23,564	15,973	32,820	9,854	17,236	55,244	72,795	31,327	28,081
1964-65	29,007	28,352	23,028	17,111	24,019	16,254	32,712	19,976	32,369	56,719	63,000	21,991	30,306
1965-66	26,982	20,408	16,895	17,324	24,063	15,833	32,711	19,977	29,998	61,989	63,663	25,973	29,591
1966-67	26,791	18,359	12,915	13,389	24,539	15,980	32,711	19,977	18,684	62,572	88,377	42,479	31,351
1967-68	28,492	26,708	16,077	15,008	22,548	15,673	22,493	14,629	12,951	56,283	65,248	39,119	27,958
1968-69	33,513	24,691	18,207	18,702	25,742	15,936	32,712	19,978	44,820	79,188	67,830	35,693	34,721
1969-70	24,688	19,397	15,879	14,909	22,395	15,453	14,792	7,774	11,351	37,231	49,344	31,356	22,088
1970-71	23,131	16,375	12,420	11,405	21,960	16,303	32,712	19,976	27,381	77,796	68,425	39,419	30,588
1971-72	32,537	25,756	15,409	13,334	21,714	15,195	32,819	24,052	21,058	79,256	84,090	55,147	35,038
1972-73	38,023	25,569	20,923	14,470	23,586	11,753	27,699	8,363	13,043	49,349	47,795	21,040	25,112
1973-74	13,672	12,826	14,042	17,727	26,724	21,639	32,713	19,976	34,901	75,186	112,382	46,259	35,598
1974-75	35,406	26,001	15,206	14,046	22,764	14,495	32,711	19,976	18,900	54,894	68,022	29,172	29,245
1975-76	17,592	13,421	14,925	19,748	35,788	16,139	32,820	19,977	28,088	73,614	54,066	34,241	30,025
1976-77	35,744	32,313	22,665	11,761	22,282	7,970	12,003	9,839	14,123	30,841	30,114	15,736	20,501
1977-78	22,039	21,112	16,362	17,011	15,952	13,365	32,711	12,929	20,153	55,556	58,034	26,797	25,913
1978-79	26,073	26,017	15,947	13,807	21,189	8,763	11,523	9,545	13,036	37,664	50,108	17,817	20,983
1979-80	23,051	15,740	10,703	11,039	21,754	13,847	12,867	9,444	29,617	61,455	52,444	29,191	24,324
1980-81	22,999	18,606	14,817	15,871	32,801	16,327	20,067	12,851	22,715	55,095	74,268	57,925	30,419
1981-82	36,225	27,084	19,543	15,935	24,801	16,264	14,181	13,718	15,727	53,629	93,782	45,227	31,410
1982-83	32,504	30,335	21,507	15,109	25,449	18,210	10,618	16,266	21,393	52,864	63,880	47,350	29,747
1983-84	34,535	25,514	13,130	22,039	23,563	17,978	8,922	14,114	17,065	26,769	61,127	41,678	25,608
1984-85	35,754	20,595	12,017	13,590	22,218	14,129	6,595	7,078	20,815	48,891	54,710	24,590	23,509
1985-86	21,969	19,750	17,853	19,494	23,477	15,818	10,493	21,268	24,670	44,510	69,624	36,113	27,154
1986-87	30,485	18,029	16,184	18,759	24,513	15,323	9,266	15,223	24,021	49,879	47,400	28,935	24,939
1987-88	25,016	15,531	14,726	12,101	14,287	12,994	8,091	9,501	26,973	51,637	46,974	19,033	21,471

Table 6

Target Monthend Elevations (in feet above EI 1700)										
Kootenay Lake @ Queens Bay										
								[For studies incl Brilliant Expansion]		
Month	KL Curve 1				KL Curve 2				KL Curve 3	
	Unregulated Rule Curve	Note	Brilliant Min Flows (cfs)		Regulated Rule Curve	Note	Brilliant Min Flows (cfs)		Regulated Rule Curve with Min Flows	Note  Brilliant Min Flows (cfs)
August	43.32	1	0		43.32	1	0		43.32	1 18000
September	44.52	2	0		45.02	5	0		45.02	5 18000
October	45.32	2	0		45.02	5	0		45.02	5 16000
November	45.32	2	0		45.02	5	0		45.02	5 16000
December	44.17	2	0		45.02	5	0		45.02	5 18000
January	40.20	2	0		43.70	6	0		43.70	6 18000
February	38.10	2	0		41.70	7	0		41.70	7 18000
March	38.00	3	0		39.02	8	0		39.02	8 18000
April	38.00	3	0		38.00	3	0		38.00	3 18000
May	46.50	4	0		46.50	4	0		46.50	4 18000
June	46.30	4	0		46.30	4	0		46.30	4 18000
July	44.20	4	0		44.20	4	0		44.20	4 18000
Notes:										
1) Set = IJC Ratchet elevation (1743.32' @ Nelson gauge], since water level drop between gauges provides for operating differential.										
2) Target elevation as specified by FortisBC										
3) Set = minimum licenced lake elevation										
4) Set = average historical monthend lake levels, since the ratchet is seldom if ever triggered during May, June or July.										
5) Set = IJC maximum elevation (1745.32') - 0.3' operating margin.										
6) Set = IJC maximum elevation (1744.0') - 0.3' operating margin.										
7) Set = IJC maximum elevation (1742.0') - 0.3' operating margin.										
8) Set = IJC maximum elevation (1739.32') - 0.3' operating margin.										



		Plant Characteristics															Pre-WAX		Post WAX Start-up												
Option#	4				3		3		N/A [Built into Plant Data1 in CPA Model]					2		3		4		5		5		12		13		14		15	
Plant	Plant #1: LBO [2 UG]		Plant #2: UBO [1UG]		Plant #3: SLO [1UG]		Plant #4: COR [1 ULE]					BRD Base 1475/77		BRD Base		Plant #5: Brilliant 4UG		Brilliant Facility		Plant #6: Waneta [4UG]		W1		W2		W3 (KRS est)		W4			
	Flow	Generation	Flow	Generation	Flow	Generation	Flow	Generation (for indicated forebay elevation)				Flow	Generation	Flow	Generation	Flow	Generation	Flow	Generation	Flow	Generation	WAF 25 kcfs		WAF 46.33 kcfs		WAF 54.012 kcfs		Full WAF			
	cfs	MW	cfs	MW	cfs	MW	cfs	34.0	38.0	42.0	46.0	50.0	cfs	MW	cfs	MW	cfs	MW	cfs	MW	cfs	MW	cfs	MW	cfs	MW	cfs	MW	cfs	MW	
	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	-	0.0	0	0.0	0	0.00	0	0.00		
	3,500	17.04	3,500	10.54	3,500	17.30	3,500	12.09	13.03	13.98	14.92	15.87	7,000	51.70	7,000	52.70	7,000	48.03	7,600	45.56	4,000	56.15	7,000	112.86	7,000	112.86	7,000	112.86	7,000	112.86	
	5,000	24.14	5,000	18.58	5,000	23.16	5,000	15.99	17.25	18.52	19.78	21.05	7,500	55.40	7,500	56.52	7,500	52.50	9,000	67.01	5,000	69.24	9,000	149.82	9,000	149.82	9,000	149.82	9,000	149.82	
	5,300	25.96	5,300	20.07	5,300	24.85	5,300	16.68	18.00	19.33	20.65	22.30	8,000	58.90	8,000	60.08	8,000	57.39	11,000	85.31	6,000	92.59	11,000	168.31	11,000	168.31	11,000	168.31	11,000	168.31	
	6,000	29.36	6,000	23.52	6,000	29.45	6,000	19.59	21.16	22.72	24.28	25.84	8,500	61.80	8,500	63.08	8,500	62.39	13,000	102.17	7,000	111.62	13,000	205.93	13,000	205.93	13,000	205.93	13,000	205.93	
	7,000	32.81	7,000	28.45	7,000	33.92	7,000	23.31	25.18	27.05	28.93	30.80	9,000	64.10	9,000	65.37	9,000	67.18	15,000	118.40	8,000	119.06	14,000	222.05	14,000	222.05	14,000	222.05	14,000	222.05	
	7,500	35.01	7,500	31.02	7,500	35.94	7,500	24.91	26.92	28.92	30.93	32.94	9,500	68.00	9,500	69.34	9,500	71.46	16,000	126.30	9,000	127.78	15,000	242.10	15,000	242.10	15,000	242.10	15,000	242.10	
	8,000	38.09	8,000	33.05	8,000	37.65	8,000	26.26	28.39	30.51	32.64	34.76	10,000	72.40	10,000	73.83	10,000	74.91	17,000	134.06	10,000	147.60	16,000	262.54	16,000	262.54	16,000	262.54	16,000	262.54	
	8,500	40.86	8,500	36.14	8,500	40.46	8,500	26.69	28.86	31.03	33.19	35.36	10,500	76.50	10,500	78.09	10,500	75.93	18,000	141.67	11,000	166.67	17,000	274.83	17,000	274.83	17,000	274.83	17,000	274.83	
	9,000	43.22	9,000	39.06	9,000	43.28	9,000	28.65	30.98	33.31	35.64	37.98	10,800	78.90	10,800	80.53	10,800	75.88	19,000	149.11	12,000	183.35	18,000	295.71	18,000	295.71	18,000	295.71	18,000	295.71	
	9,500	45.00	9,500	41.19	9,500	45.94	9,500	30.51	33.00	35.49	37.99	40.48	11,000	80.50	11,000	82.10	11,000	75.74	20,000	156.40	13,000	202.69	19,000	315.20	19,000	315.20	19,000	315.20	19,000	315.20	
	10,000	46.23	10,000	43.91	10,000	48.40	10,000	32.26	34.91	37.55	40.20	42.84	11,500	84.10	11,500	85.81	11,500	80.40	21,000	163.53	14,000	220.82	20,000	331.50	20,000	331.50	20,000	331.50	20,000	331.50	
	10,500	46.81	10,500	45.94	10,500	50.58	10,500	33.92	36.71	39.49	42.28	45.07	12,000	87.40	12,000	89.17	12,000	85.26	22,000	169.73	15,000	234.93	21,000	328.13	21,000	328.13	21,000	328.13	21,000	328.13	
	10,800	46.79	10,800	47.42	10,800	51.74	10,800	34.84	37.71	40.58	43.45	46.32	12,500	90.30	12,500	92.14	12,500	90.19	23,000	177.10	16,000	246.14	22,000	348.96	22,000	348.96	22,000	348.96	22,000	348.96	
	11,000	46.78	11,000	48.41	11,000	52.09	11,000	35.44	38.37	41.29	44.21	47.13	13,000	93.00	13,000	94.91	13,000	95.05	24,000	184.32	17,000	259.75	23,000	368.72	23,000	368.72	23,000	368.72	23,000	368.72	
	11,500	46.74	11,500	50.66	11,500	52.20	11,500	36.82	39.87	42.91	45.96	49.00	13,500	97.20	13,500	99.24	13,500	99.70	25,000	191.36	18,000	278.00	24,000	384.39	24,000	384.39	24,000	384.39	24,000	384.39	
	12,000	46.71	12,000	52.84	12,000	52.31	12,000	37.10	41.19	44.34	47.50	50.65	14,000	101.30	14,000	103.38	14,000	104.10	26,000	198.23	19,000	294.90	25,000	404.03	25,000	404.03	25,000	404.03	25,000	404.03	
	12,500	46.68	12,500	55.02	12,500	52.41	12,500	36.94	41.64	45.55	48.79	52.04	16,000	115.40	16,000	117.74	16,000	112.64	28,000	211.36	20,000	313.82	26,000	403.83	26,000	422.71	26,000	422.71	26,000	422.71	
	13,000	46.64	13,000	57.14	13,000	52.51	13,000	36.79	41.49	45.73	48.94	52.20	18,000	125.10	18,000	127.66	18,000	131.59	29,000	218.38	21,000	330.19	28,000	402.87	28,000	437.30	28,000	437.30	28,000	437.30	
	13,500	46.61	13,500	59.44	13,500	52.60	13,500	36.64	41.33	45.51	48.83	52.09	18,400	125.70	18,600	129.60	20,000	146.44	30,000	225.22	22,000	342.96	30,000	401.70	30,000	471.80	30,000	471.80	30,000	471.80	
	14,000	46.58	14,000	61.48	14,000	52.69	14,000	36.50	41.18	45.50	48.73	51.99	20,000	125.10	20,000	129.02	20,750	149.14	31,000	231.86	23,000	355.45	32,000	401.32	32,000	510.22	32,000	510.22	32,000	510.22	
	16,000	46.44	16,000	62.32	16,000	53.01	16,000	35.95	40.62	44.98	48.34	51.60	22,000	124.30	22,000	128.21	22,000	148.57	32,000	237.59	24,000	365.93	34,000	400.93	34,000	544.33	34,000	544.33	34,000	544.33	
	18,000	46.30	18,000	62.59	18,000	53.27	18,000	35.46	40.10	44.59	47.98	51.25	24,000	123.50	24,000	127.42	24,000	147.69	33,000	244.60	25,000	382.56	36,000	400.54	36,000	562.23	36,000	562.23	36,000	562.23	
	20,000	46.16	20,000	62.79	20,000	53.47	20,000	35.00	39.62	44.22	47.65	50.92	25,000	123.10	25,000	127.03	25,000	147.26	34,000	251.44	26,000	401.59	38,000	399.96	38,000	601.18	38,000	601.18	38,000	601.18	
	22,000	46.02	22,000	62.92	22,000	53.63	22,000	34.57	39.17	43.96	47.34	50.61	30,000	121.30	30,000	125.20	30,000	145.24	35,000	258.10	27,000	419.65	40,000	399.57	40,000	632.92	40,000	632.92	40,000	632.92	
	24,000	45.88	24,000	63.01	24,000	53.74	24,000	34.16	38.75	43.52	47.05	50.31	40,000	118.00	40,000	121.91	40,000	141.71	36,000	264.61	28,000	436.55	42,000	398.80	42,000	663.64	42,000	663.64	42,000	663.64	
	25,000	45.81	25,000	63.03	25,000	53.78	25,000	33.97	38.55	43.31	46.91	50.17	50,000	115.20	50,000	119.04	50,000	138.69	37><												

## Plant Characteristics Head Correction Factors

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
<b>Base BRD Studies [1477' BRD forebay Nov through Mar; 1475' all other months; BRD generation table based on 1475' forebay]</b>												
Lower Bonnington	1.000	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.994	1.000	1.000	1.000
Upper Bonnington	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
South Slocan	1.000	1.000	1.000	0.969	0.969	0.969	0.969	0.969	1.000	1.000	1.000	1.000
Corra Linn	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Brilliant	1.000	1.000	1.000	1.030	1.030	1.030	1.030	1.030	1.000	1.000	1.000	1.000
Waneta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
<b>Brilliant Facility Studies [1477' all year; BRD forebay increase included directly in generation table]</b>												
Lower Bonnington	1.000	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.994	1.000	1.000	1.000
Upper Bonnington	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
South Slocan	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Corra Linn	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Brilliant	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Waneta	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T					
1	Table 9: Entitlement Study Parameters, Study Results and Entitlement Summaries																								
2																									
3	Section 1 - Study Input Parameters and Explanatory Notes																								
4																									
5	This table is divided into five sections, as follows:																								
6	Section 1: Provides documentation of the study input parameters used to perform the CPA Model runs required for entitlement determination																								
7	Section 2: Provides the CPA Model output, prior to the application of Adjustment Factors, and leap-year and other adjustments, for the various studies																								
8	Section 3: Provides a computation of Entitlements prior to WAX Startup under current conditions																								
9	Section 4: Provides a computation of Entitlements post WAX Startup using currently available information																								
10	Section 5: Provides a computation of default Waneta Entitlement nominations under the Teck - BCH Co-ownership and Operating Agreement																								
11																									
12	Study Input Parameters																								
13																									
14	Study	Gen Vs Flow	Gen	Flow Data	Inflows	Koot Lk	Turbine Flow		KL Curve		Comments														
15			Table			Target	Min	Max																	
16	FBC Projects																								
17	LBO	2 Upgrades	4	Unregulated	U	1			WKP Request																
18	UBO	1 Upgrade	3	Unregulated	U	1			WKP Request																
19	SLO	1 Upgrade	3	Unregulated	U	1			WKP Request		SLO studies need BRD tables #3, 4 or 5 (with 1477' forebay levels and related head correction factors).														
20	COR		N/A	Unregulated	U	1			WKP Request																
21																									
22	Brilliant Facilities																								
23	B0U	Brilliant base 1475/77'	2	Unregulated	U	1	0	18,400	WKP Request		B0U is used to compute "base" entitlement amount														
24	B1U	Brilliant base 1477'	3	Unregulated	U	1	0	18,600	WKP Request		B1U is used to compute entitlement increments due to Upgrade														
25	B1R	Brilliant base 1477'	3	Agreed Regulated	R1	2	0	18,600	Regulated		B1R- B1U is indicative of regulation benefits from Base Brilliant														
26																									
27	B2U	Upgraded Brilliant 1477'	4	Unregulated	U	1	0	20,750	WKP Request		B2U - B1U is used to compute entitlements for Upgraded Brilliant														
28	B2R	Upgraded Brilliant 1477'	4	Agreed Regulated	R1	2	0	20,750	Regulated		B2R - B2U is indicative of regulation benefits from Upgraded Brilliant														
29																									
30	B3R	Brilliant Facilities	5	Best Est. Regulated	R2	3	18,000	38,100	Regulated with Min. Q		B3R is used in the calculation of Brilliant Expansion entitlements														
31						[16,000 in Oct, Nov]																			
32	Waneta Plant - Prior to WAX Startup																								
33		Waneta [4 UG] 100%	5	1998 Flow estimate	WF2			32,900			Waneta Plant Only - 4 units upgraded -- Not applicable after WAX Startup														
34																									
35	Waneta Facilities - Post WAX Startup																								
36	W1	Turbine flow limit: 25 kcfs	12	1998 Flow estimate	WF2		Various	25,000			W1 measures the effectiveness of Waneta Base water														
37	W2	Turbine flow limit: 46.33 kcfs	13	1998 Flow estimate	WF2		Various	46,330			W2- W1 measures the effectiveness of WAX Base water														
38	W3	Turbine flow limit: ~54.0 kcfs	14	1998 Flow estimate	WF2		Various	54,000	approx		W3-W2 measures the effectiveness of Waneta residual water														
39	W4	Total Facility Turbine flow	15	1998 Flow estimate	WF2		Various	54,300			W4 - W3 measures the effectiveness of WAX residual water														
40											All as documented in the Sizing Agreement														
41																									
42	Other Explanatory Notes (these explanations refer to specific notations in the tables):																								
43																									
44	Note 1	Adjustment made in accordance with the FortisBC Entitlement Adjustment Agreement																							
45	Note 2	Revised entitlement amount submitted by Teck and BCH to reflect the Co-Ownership and Operating Agreement, in accordance with CPA Schedule A, Section 6.8																							
46	Note 3	BRX adjustment factor was set = 0.86028 to maintain an annual energy amount as close to 452.413 as possible (energy amount prior to correction of minimum flow calculation) using 5 decimal places.																							
47	Note 4	Unless otherwise indicated (such as by Note2) , the Teck and BCH nomination data in this Table are based on the default computations under the COA as shown in Section 5 of this Table																							
48	Note 5	The regulated portion of the incremental Entitlement Capacity is defined as zero, and all incremental Entitlement Capacity associated with the Brilliant Upgrade is allocated to the unregulated portion;																							
49																									

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
50	Table 9 (cont'd) Entitlement Study Parameters, Study Results and Entitlement Summaries																				
51	Section 2 - CPA Model Outputs Pre-WAX (Prior to application of Adjustment Factors and other adjustments (Leap Year, COA, FBC Entitlement Adjustments))																				
52	Plt			Other	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual	Formula			
53	#			Details	0.744	0.72	0.744	0.72	0.744	0.744	0.672	0.744	0.72	0.744	0.72	0.744	8.76				
54					57.14%						Blue Entry = Data from Entitlement Calculation Program										
55	Average Monthly Capacity (MW)											Green Entry = Computed Value					Average				
56																					
57	FBC Projects						These values include all sig figs from the CPA Model runs, even if only 2 are present.														
58	1	LBO		Refer to Section 1	45.6	46.1	46.1	46.1	46.1	45.9	46.1	46.2	45.8	43.3	40.6	43.1	45.1		C(LBO)		
59	2	UBO			62.9	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	61.8	60.6	61.7	62.6		C(UBO)		
60	3	SLO			52.1	52.2	52.2	52.2	52.2	52.2	52.2	52.2	52.2	50.4	48.2	50.3	51.6		C(SLO)		
61	4	COR			43.4	46.6	47.5	47.9	47.4	44.3	40.5	39.4	36.1	32.5	29.8	34.2	40.8		C(COR)		
62		Sub-total			204.0	207.9	208.9	209.3	208.7	205.5	201.8	200.8	197.1	188.0	179.1	189.3	200.0				
63	Brilliant Facilities																				
64	5	Brilliant																			
65		Study B0U			121.5	125.4	125.5	129.4	129.3	129.3	129.4	129.4	123.6	111.8	105.3	111.9	122.7		C(B0U)		
66		Study B1U			125.4	129.3	129.4	129.5	129.5	129.4	129.6	129.6	127.5	115.6	109.0	115.7	125.0		C(B1U)		
67		Study B1R			126.3	129.1	129.1	126.2	124.8	125.2	126.6	128.7	127.3	121.2	116.5	120.3	125.1		C(B1R)		
68		Study B2U			145.3	148.9	148.9	149.1	149.0	149.0	149.1	149.1	147.4	135.1	127.7	135.1	144.5		C(B2U)		
69		Study B2R			146.4	148.7	148.8	146.3	144.8	145.0	146.4	148.6	147.3	141.0	136.0	140.0	144.9		C(B2R)		
70		Study B3R			257.5	198.1	180.7	175.4	234.0	175.8	231.6	210.5	226.0	263.2	260.6	264.9	223.2		C(B3R)		
71	Waneta Plant prior to WAX Startup						These values include all sig figs from the CPA Model runs, even if only 4 are present.														
72	6	Waneta [4 UG] 100%		Model Output	493.2	493.2	493.2	493.2	493.1	493.2	493.2	493.1	491.1	478.5	476.0	490.5	490.1		C(WAN)		
73		Teck-owned portion of Waneta		2/3rds	328.8	328.8	328.8	328.8	328.8	328.8	328.8	328.7	327.4	319.0	317.4	327.0	326.7		=2/3 C(WAN)		
74																					
75	Average Monthly Energy Generation (GWh)																Total				
76																					
77	FBC Projects																				
78	1	LBO		Refer to Section 1	33.089	31.857	31.119	30.089	32.271	33.331	30.068	30.283	32.115	31.415	28.485	31.255	375.377		E(LBO)		
79	2	UBO			45.618	35.888	33.177	32.798	35.075	44.476	34.497	31.494	43.362	44.828	42.537	44.786	468.538		E(UBO)		
80	3	SLO			37.784	34.765	33.081	32.085	34.570	37.867	33.075	31.631	36.471	36.579	33.810	36.456	418.174		E(SLO)		
81	4	COR			31.460	29.713	28.626	28.031	29.880	32.147	24.947	23.032	25.159	23.557	20.930	24.787	322.269		E(COR)		
82		Sub-total			147.951	132.224	126.002	123.002	131.796	147.820	122.588	116.441	137.108	136.378	125.761	137.285	1584.357				
83	Brilliant Facilities																				
84	5	Brilliant																			
85		Study B0U			88.110	67.643	63.715	64.438	66.591	83.825	63.948	60.340	83.714	81.134	73.912	81.166	878.535		E(B0U)		
86		Study B1U			90.944	69.171	65.131	63.925	66.065	83.207	63.439	59.825	86.173	83.883	76.511	83.912	892.187		E(B1U)		
87		Study B1R			91.562	85.400	89.741	88.512	90.531	87.060	77.175	89.130	88.985	87.899	81.753	87.234	1044.982		E(B1R)		
88		Study B2U			103.898	70.155	65.752	64.227	66.400	83.920	62.793	59.375	96.121	98.000	89.655	98.025	958.323		E(B2U)		
89		Study B2R			105.538	87.908	93.045	102.199	104.785	97.406	85.912	96.228	100.921	102.197	95.444	101.554	1173.137		E(B2R)		
90		Study B3R			165.152	118.476	109.857	100.301	134.120	109.844	137.413	119.140	127.476	184.650	182.348	180.542	1669.320		E(B3R)		
91	Waneta Plant prior to WAX Startup																				
92	6	Waneta [4UG] 100% for info		Model Output	195.765	174.698	261.155	211.585	245.771	217.625	185.807	256.996	309.375	341.587	317.216	302.929	3020.510		E(WAN)		
93		Teck-owned portion of Waneta		2/3rds	130.510	116.465	174.103	141.057	163.847	145.083	123.871	171.331	206.250	227.725	211.478	201.953	2013.673		=2/3 E(WAN)		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
94	Table 9 (cont'd) Entitlement Study Parameters, Study Results and Entitlement Summaries																				
95	Section 3 Entitlement Amounts -- Pre WAX Startup																				
96																					
97	Plt			Adjustment Factor	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual	Formula			
98	#				0.744	0.72	0.744	0.72	0.744	0.744	0.672	0.744	0.72	0.744	0.72	0.744	8.76				
99	Entitlement Capacity (MW)																				
100	FBC Projects																				
101	1	LBO		1.04010	47.4	47.9	48.0	48.0	48.0	47.8	48.0	48.0	47.7	45.0	42.2	44.8	46.9	= Round(ADJ*C(LB),1)			
102	2	UBO		1.04010	65.4	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	64.3	63.0	64.2	65.1	= Round(ADJ*C(UB),1)			
103	3	SLO		1.04010	54.2	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	52.4	50.1	52.3	53.6	= Round(ADJ*C(SS),1)			
104	4	COR		1.04010	45.1	48.4	49.4	49.8	49.3	46.1	42.1	41.0	37.6	33.8	31.0	35.5	42.4	= Round(ADJ*C(CL),1)			
105		FBC Entitlement Adjustment		Note 1				5.9	5.9	5.9	5.9										
106		- Sub-total			212.1	216.1	217.2	223.5	223.0	219.6	215.8	208.8	205.1	195.5	186.3	196.8	210.0	[A] = Sum of previous rows			
107	Brilliant																				
108		- Base Brilliant Unreg			121.5	125.4	125.5	129.4	129.3	129.3	129.4	129.4	123.6	111.8	105.3	111.9	122.7	= Round(C(B0U),1)			
109		- Brilliant Upgrade Incr			20.1	19.6	19.7	20.1	20.0	19.8	19.9	19.9	20.0	19.8	19.5	19.7	19.8	= Round(C(B2R),1)-Round(C(B1R),1)			
110		- Brilliant Upgrade Reg Incr			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	= Zero			
111		Brilliant Plant			141.6	145.0	145.2	149.5	149.3	149.1	149.3	149.3	143.6	131.6	124.8	131.6	142.5	[B] = Sum of previous 3 rows			
112																					
113		Brilliant Expansion increment																			
114		- Before Adjustment			115.9	53.1	35.5	25.9	84.7	26.7	82.3	61.2	82.4	131.6	135.8	133.3	80.7	[D] = Round(C(B3R),1)-[A]			
115		- After Adjustment			115.9	63.1	47.5	35.9	94.7	36.7	92.3	71.2	92.4	131.6	135.8	133.3	87.5	[F]			
116	Waneta Plant				Sep through April adder = Max of +10 MW or 82% capacity factor on monthly energy amount.																
117		Waneta 100% for info			493.2	493.2	493.2	493.2	493.1	493.2	493.2	493.1	491.1	478.5	476.0	490.5	490.1	[G] = Round(C(WAN),1)			
118		Waneta default amount (adjusted for Teck ownership share)			328.8	328.8	328.8	328.8	328.8	328.8	328.8	328.7	327.4	319.0	317.4	327.0	326.8	[H] = Round(2/3 C(WAN),1)			
119		Teck & BCH Nomination		Note 2	226.7	229.2	232.1	235.0	236.8	237.1	236.2	234.0	231.8	229.5	228.0	226.4	231.9	[I] = input			
120		Waneta entitlement			226.7	229.2	232.1	235.0	236.8	237.1	236.2	234.0	231.8	229.5	228.0	226.4	231.9	[J] = If (isblank([I]), [H],[I])			
121																					
122	Aggregate Entitlement				696.3	653.4	642.0	643.9	703.8	642.5	693.6	663.3	672.9	688.2	674.9	688.1	671.9	= sum of [A] [B] [F] & [J]			
123																					
124																					
125																		Entitlement Totals (GWh)			
126	Entitlement Energy (GWh)				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual	Nov-Feb	Aug-Apr	May-Jul	
127				Leap Year Factor =>	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00893	1.00000	1.00000	1.00000	1.00000	1.00000					
128	FBC Projects			Adjustment Factor																	
129	1	LBO		1.00349	33.204	31.969	31.227	30.194	32.383	33.447	30.443	30.389	32.227	31.524	28.584	31.364	376.955	126.467	285.483	91.472	
130	2	UBO		1.00349	45.777	36.014	33.292	32.913	35.198	44.632	34.927	31.604	43.514	44.984	42.685	44.943	470.483	147.670	337.871	132.612	
131	3	SLO		1.00349	37.916	34.886	33.196	32.197	34.691	37.999	33.487	31.741	36.598	36.706	33.928	36.584	419.929	138.374	312.711	107.218	
132	4	COR		1.00349	31.570	29.817	28.726	28.128	29.984	32.259	25.257	23.113	25.247	23.639	21.003	24.874	323.617	115.628	254.101	69.516	
133		- Sub-total		Note 1	148.467	132.686	126.441	123.432	132.256	148.337	124.114	116.847	137.586	136.853	126.200	137.765	1590.984	528.139	1190.166	400.818	
134	Brilliant Facilities																				
135		- Base Brilliant Unreg		0.97756	86.133	66.126	62.285	62.992	65.096	81.944	63.071	58.986	81.835	79.313	72.253	79.345	859.379	273.103	628.468	230.911	
136		- Brilliant Upgrade Unreg Incr		0.98435	12.751	0.968	0.612	0.297	0.330	0.702	-0.642	-0.443	9.792	13.896	12.939	13.892	65.094	0.687	24.367	40.727	
137		- Brilliant Upgrade Reg Incr		0.97031	0.992	1.478	2.603	12.988	13.506	9.347	9.185	7.324	1.929	0.175	0.530	0.201	60.258	45.026	59.352	0.906	
138		Brilliant Plant			99.876	68.572	65.500	76.277	78.932	91.993	71.614	65.867	93.556	93.384	85.722	93.438	984.731	318.816	712.187	272.544	
139																					
140		Brilliant Expansion Incr		0.86028	42.201	33.351	29.008	10.010	36.449	2.504	47.655	36.627	16.109	65.467	71.149	61.879	452.409	96.618	253.914	198.495	
141				Note 3	Brilliant Expansion energy entitlement increment = E(B3R) x 0.86028 rounded to 3 decimal places, less Upgraded Brilliant Plant energy																
142		Total Brilliant Facilities			142.077	101.923	94.508	86.287	115.381	94.497	119.269	102.494	109.665	158.851	156.871	155.317	1437.140	415.434	966.101	471.039	
143	Waneta Plant																				
144		Scheduling agreement Increment		0.02233																	
145		Waneta 100% Entitlement for info			182.737	163.072	243.775	197.504	229.415	203.142	174.990	239.893	288.786	318.855	296.106	282.769	2821.044				
146		Default Computation		0.93345	121.825	108.714	162.517	131.670	152.943	135.428	116.660	159.929	192.524	212.570	197.404	188.513	1880.697	536.701	1282.210	598.487	
147		Teck & BCH Nomination per CPA Schedule A, Section 6.7			141.772	139.590	162.517	160.417	152.943	135.428	127.512	155.500	188.821	136.300	171.983	140.517	1813.300	576.300	1364.500	448.800	
148		Entitlement amount			141.772	139.590	162.517	160.417	152.943	135.428	127.512	155.500	188.821	136.300	171.983	140.517	1813.300	576.300	1364.500	448.800	
149																					
150	Aggregate Entitlement				432.316	374.199	383.466	370.136	400.580	378.262	370.895	374.841	436.072	432.004	455.054	433.599	4841.424	1519.873	3520.767	1320.657	
151																					
152	Maximum Energy Delivery Rate (MW): Entitlement Capacity less 2.5% for Spinning Reserve and 2% for Regulation																Average				
153	1	LBO		4.45%	45.3	45.8	45.9	45.9	45.9	45.7	45.9	45.9	45.6	43.0	40.3	42.8	44.8				
154	2	UBO		4.45%	62.5	62.6	62.6	62.6	62.6	62.6	62.6	62.6	62.6	61.4	60.2	61.3	62.2				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
155	3	SLO		4.45%	51.8	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	50.1	47.9	50.0	51.2			
156	4	COR		4.45%	43.1	46.2	47.2	47.6	47.1	44.0	40.2	39.2	35.9	32.3	29.6	33.9	40.5			
157		FBC Entitlement Adjustment		Note 1	0.0	0.0	0.0	5.6	5.6	5.6	5.6	0.0	0.0	0.0	0.0	0.0	1.9			
158	5	Brilliant Plant		4.45%	135.3	138.5	138.7	142.8	142.7	142.5	142.7	142.7	137.2	125.7	119.2	125.7	136.2			
159		Brilliant Expansion Incr		4.45%	110.7	60.3	45.4	34.3	90.5	35.1	88.2	68.0	88.3	125.7	129.8	127.4	83.6			
160	6	Waneta [4 UG]		4.45%	216.6	219.0	221.8	224.5	226.3	226.5	225.7	223.6	221.5	219.3	217.9	216.3	221.6			
161																				
162	Aggregate Maximum Energy Delivery Rate				665.3	624.3	613.4	615.2	672.5	613.9	662.7	633.8	643.0	657.6	644.9	657.5	642.0			
163	- FortisBC sub-total				202.7	206.5	207.5	213.6	213.1	209.8	206.2	199.5	196.0	186.8	178.0	188.0	198.8			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
164	<b>Table 9 (cont'd) Entitlement Study Parameters, Study Results and Entitlement Summaries</b>																			
165	<b>Section 4 Entitlement Amounts -- Post WAX Startup</b>																			
166																				
167	Plt			Adjustment	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual		Formula	
168	#			Factor	0.744	0.72	0.744	0.72	0.744	0.744	0.672	0.744	0.72	0.744	0.72	0.744	8.76			
169	<b>Entitlement Capacity (MW)</b>																			
170	<b>FBC Projects (w/o WAX)</b>																			
171	1	LBO		1.04010	47.4	47.9	48.0	48.0	48.0	47.8	48.0	48.0	47.7	45.0	42.2	44.8	46.9		= ADJ*Round(C(LBO),1)	
172	2	UBO		1.04010	65.4	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	64.3	63.0	64.2	65.1		= ADJ*Round(C(UBO),1)	
173	3	SLO		1.04010	54.2	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	52.4	50.1	52.3	53.6		= ADJ*Round(C(SLO),1)	
174	4	COR		1.04010	45.1	48.4	49.4	49.8	49.3	46.1	42.1	41.0	37.6	33.8	31.0	35.5	42.4		= ADJ*Round(C(COR),1)	
175		FBC Entitlement Adjustment		Note 1				5.9	5.9	5.9	5.9									
176		FBC Sub-total			212.1	216.1	217.2	223.5	223.0	219.6	215.8	208.8	205.1	195.5	186.3	196.8	210.0		[A] = Sum of previous rows	
177	<b>Brilliant Facilities</b>																			
178		- Base Brilliant Unreg			121.5	125.4	125.5	129.4	129.3	129.3	129.4	129.4	123.6	111.8	105.3	111.9	122.7		= Round(C(B0U),1)	
179		- Brilliant Upgrade Unreg Incr		Note 5	20.1	19.6	19.7	20.1	20.0	19.8	19.9	19.9	20.0	19.8	19.5	19.7	19.8		= Round(C(B2R),1)-Round(C(B1R),1)	
180		- Brilliant Upgrade Reg Incr			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		= Zero	
181		Brilliant Plant			141.6	145.0	145.2	149.5	149.3	149.1	149.3	149.3	143.6	131.6	124.8	131.6	142.5		[B] = Sum of previous 3 rows	
182																				
183		Brilliant Expansion increment																		
184		- Before Adjustment			115.9	53.1	35.5	25.9	84.7	26.7	82.3	61.2	82.4	131.6	135.8	133.3	80.7		[D] = Round(C(B3R),1)-[A]	
185		- After Adjustment			115.9	63.1	47.5	35.9	94.7	36.7	92.3	71.2	92.4	131.6	135.8	133.3	87.5		[F]	
186	<b>CPA Model results -- Waneta Facilities Studies post WAX Startup</b>																			
187		Study W1	Waneta Base		403.9	404.0	403.6	403.9	403.5	403.9	403.8	403.5	400.8	392.6	382.8	386.0	399.4		C(W1)	
188		Study W2			727.6	727.7	727.7	727.7	727.7	727.7	727.7	727.7	727.2	717.6	677.6	675.7	718.3		C(W2)	
189		Study W3			813.2	820.0	820.0	820.0	820.0	820.0	819.7	820.0	820.0	810.1	757.5	752.5	807.7		C(W3)	
190		Study W4			816.7	823.9	823.9	823.9	823.9	823.9	823.5	823.9	823.9	814.0	760.8	755.7	811.5		C(W4)	
191		Study W3 - W2	Waneta residual		85.6	92.3	92.3	92.3	92.3	92.3	92.0	92.3	92.8	92.5	79.9	76.7	89.4			
192		Study W2 - W1	WAX Base		323.7	323.7	324.1	323.8	324.2	323.8	323.9	324.2	326.5	325.0	294.7	289.7	318.9			
193		Study W4 - W3	WAX Residual		3.5	3.9	3.9	3.9	3.9	3.9	3.8	3.9	3.9	3.9	3.3	3.2	3.8			
194	<b>CPA Model Results -- Waneta Facilities Studies post WAX Startup</b>																			
195		Study W1	Waneta Base		200.241	180.131	259.532	219.760	241.657	221.939	186.855	252.763	269.701	283.864	266.421	265.412	2848.276		E(W1)	
196		Study W2			201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	372.837	493.087	459.530	363.038	3516.650		E(W2)	
197		Study W3			201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.639	539.970	504.833	372.808	3626.408		E(W3)	
198		Study W4			201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436		E(W4)	
199		Study W3 - W2	Waneta residual		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.802	46.884	45.303	9.769	109.758			
200		Study W2 - W1	WAX Base		1.721	0.057	13.929	1.938	19.379	4.745	4.706	18.806	103.135	209.223	193.109	97.626	668.374			
201		Study W4 - W3	WAX Residual		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058	1.848	1.719	0.402	4.028			
202	<b>Waneta Facilities</b>																			
203		Attributable to Waneta (100%)						Note: these Teck & BCH nomination values are based on the calculations in Sction 5												
204		- Base Amount		1.00000	403.9	404.0	403.6	403.9	403.5	403.9	403.8	403.5	400.8	392.6	382.8	386.0	399.4		= Round(C(W1),1)	
205		- Residual Water		1.00000	85.6	92.3	92.3	92.3	92.3	92.3	92.0	92.3	92.8	92.5	79.9	76.7	89.4		= Round(C(W3-W2),1)	
206		Waneta Sub-Total			489.5	496.3	495.9	496.2	495.8	496.2	495.8	495.8	493.6	485.1	462.7	462.7	488.8		= sum of previous 2 rows	
207		Adjustment for Teck Ownership		0.666666667	326.3	330.9	330.6	330.8	330.5	330.8	330.5	330.5	329.1	323.4	308.5	308.5	325.9		[K] = ADJ* previous row	
208		Teck & BCH Nomination		Note 2	237.3	239.6	242.6	245.4	247.2	247.5	246.7	244.4	242.1	239.6	237.4	240.2	242.5		[L] = input from COA (see below)	
209		Entitlement attributable to Waneta			237.3	239.6	242.6	245.4	247.2	247.5	246.7	244.4	242.1	239.6	237.4	240.2	242.5		[M] = If (isblank([L]), [K],[L])	
210		Entitlement Attributable to WAX																		
211		- Base Amount		1.00000	323.7	323.7	324.1	323.8	324.2	323.8	323.9	324.2	326.5	325.0	294.7	289.7	318.9		= Round(C(W2)-C(W1),1)	
212		- Residual Water		1.00000	3.5	3.9	3.9	3.9	3.9	3.9	3.8	3.9	3.9	3.9	3.3	3.2	3.8		= Round(C(W4)-C(W3),1)	
213		WAX Sub-total			327.2	327.6	328.0	327.7	328.1	327.7	327.7	328.1	330.4	328.8	298.1	293.0	322.7		[N] = sum of previous 2 rows	
214		Sub-total Waneta Facilities			564.5	567.2	570.6	573.0	575.3	575.2	574.4	572.5	572.5	568.4	535.5	533.1	565.2		= [N]+[M]	
215		Sub-total WF before adjustment for Teck/BCH Nomination			816.7	823.9	823.9	823.9	823.9	823.9	823.5	823.9	824.0	813.9	760.8	755.7	811.5		= [N]+[206]	
216		Waneta Facilities 100% before nomination (for info)			816.7	823.9	823.9	823.9	823.9	823.9	823.5	823.9	824.0	813.9	760.8	755.7	811.5			
217	<b>Aggregate Entitlement Capacity</b>																			
218		Hours in Month			744.0	720.0	744.0	720.0	744.0	744.0	672.0	744.0	720.0	744.0	720.0	744.0	8760.0		= sum of [A] [B] [F] [M] & [N]	
219		EPA-specified HLH in month			416.0	400.0	400.0	400.0	400.0	416.0	384.0	432.0	384.0	416.0	416.0	400.0	4864.0			
220		EPA-specified Off Peak Hours in month			328.0	320.0	344.0	320.0	344.0	328.0	288.0	312.0	336.0	328.0	304.0	344.0	3896.0			
221		WAX Capacity to BCH with Energy			3.9	0.1	32.5	4.5	45.3	10.7	11.5	40.7	251.0	264.5	252.3	123.0	86.7			
222		WAX Capacity to FBC:HLH			323.3	327.5	295.5	323.1	282.9	317.1	316.2	287.5	79.4	64.3	45.8	170.0	236.0			
223		WAC Capacity to FBC: LLH			327.2	327.6	328.0	327.7	328.1	327.7	327.7	328.1	330.4	64.3	45.8	170.0	269.4			



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
224	Entitlement Energy (GWh)				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual	Nov-Feb	Aug-Apr	May-Jul
225				Leap Year Factor =>	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00893	1.00000	1.00000	1.00000	1.00000	1.00000				
226	FBC Projects			Adjustment Factor																
227	1	LBO		1.00349	33.204	31.969	31.227	30.194	32.383	33.447	30.443	30.389	32.227	31.524	28.584	31.364	376.955	126.467	285.483	91.472
228	2	UBO		1.00349	45.777	36.014	33.292	32.913	35.198	44.632	34.927	31.604	43.514	44.984	42.685	44.943	470.483	147.670	337.871	132.612
229	3	SLO		1.00349	37.916	34.886	33.196	32.197	34.691	37.999	33.487	31.741	36.598	36.706	33.928	36.584	419.929	138.374	312.711	107.218
230	4	COR		1.00349	31.570	29.817	28.726	28.128	29.984	32.259	25.257	23.113	25.247	23.639	21.003	24.874	323.617	115.628	254.101	69.516
231		- Sub-total			148.467	132.686	126.441	123.432	132.256	148.337	124.114	116.847	137.586	136.853	126.200	137.765	1590.984	528.139	1190.166	400.818
232	Brilliant Facilities																			
233		- Base Brilliant Unreg		0.97756	86.133	66.126	62.285	62.992	65.096	81.944	63.071	58.986	81.835	79.313	72.253	79.345	859.379	273.103	628.468	230.911
234		- Brilliant Upgrade Unreg Incr		0.98435	12.751	0.968	0.612	0.297	0.330	0.702	-0.642	-0.443	9.792	13.896	12.939	13.892	65.094	0.687	24.367	40.727
235		- Brilliant Upgrade Reg Incr		0.97031	0.992	1.478	2.603	12.988	13.506	9.347	9.185	7.324	1.929	0.175	0.530	0.201	60.258	45.026	59.352	0.906
236		Brilliant Plant			99.876	68.572	65.500	76.277	78.932	91.993	71.614	65.867	93.556	93.384	85.722	93.438	984.731	318.816	712.187	272.544
237																				
238		Brilliant Expansion Incr		0.86028	42.201	33.351	29.008	10.010	36.449	2.504	47.655	36.627	16.109	65.467	71.149	61.879	452.409	96.618	253.914	198.495
239																				
240		Total Brilliant Facilities			142.077	101.923	94.508	86.287	115.381	94.497	119.269	102.494	109.665	158.851	156.871	155.317	1437.140	415.434	966.101	471.039

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
241	Table 9 (cont'd) Entitlement Study Parameters, Study Results and Entitlement Summaries																			
242	Section 4 (Cont'd) Entitlement Amounts -- Post WAX Startup																			
243	Waneta Facilities				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual	Nov-Feb	Aug-Apr	May-Jul
244	Attributable to Waneta (100%)						Note 4: These Teck & BCH nomination values are based on the calculations in Section 5													
245	- Waneta Base Water			0.93345	186.915	168.144	242.260	205.135	225.574	207.169	175.977	235.942	251.753	264.973	248.691	247.749	2660.282	813.855	1898.869	761.413
246	- Waneta Residual water			0.77903	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.078	36.524	35.292	7.611	85.505	0.000	6.078	79.427
247	- WAX Base water			0.93400	1.607	0.053	13.010	1.810	18.100	4.432	4.435	17.565	96.328	195.414	180.364	91.182	624.300	1248.600	157.340	466.960
248	- WAX Residual Water			0.75670	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044	1.398	1.301	0.305	3.048	6.096	0.044	3.004
249	Sub-total - Waneta Facilities				188.522	168.197	255.270	206.945	243.674	211.601	180.412	253.507	354.203	498.309	465.648	346.847	3373.135	842.632	2062.331	1310.804
250	Waneta sub-total for info				186.915	168.144	242.260	205.135	225.574	207.169	175.977	235.942	257.831	301.497	283.983	255.360	2745.787	813.855	1904.947	840.840
251	Teck share of Waneta for info			0.666666667	124.600	112.100	161.500	136.800	150.400	138.100	117.300	157.300	171.900	201.000	189.300	170.200	1830.525	542.600	1270.000	560.500
252	Teck & BCH Nomination			Note 4	151.907	143.795	164.093	167.384	153.041	140.069	140.861	159.809	200.688	138.397	173.776	146.567	1880.387	601.355	1421.647	458.740
253	Waneta entitlement				151.907	143.795	164.093	167.384	153.041	140.069	140.861	159.809	200.688	138.397	173.776	146.567	1880.387	601.355	1421.647	458.740
254	Attributable to WAX																			
255	WAX Sub-total for info				1.607	0.053	13.010	1.810	18.100	4.432	4.435	17.565	96.372	196.812	181.665	91.487	627.348	28.777	157.384	469.964
256	Sub-total Waneta Facilities before nomination				126.207	112.153	174.510	138.610	168.500	142.532	121.735	174.865	268.272	397.812	370.965	261.687	2457.848	571.377	1427.384	1030.464
257	Waneta Facilities 100% before nomination (for info)				190.129	168.250	268.280	208.755	261.774	216.033	184.847	271.072	450.575	695.121	647.313	438.334	4000.483	871.409	2219.715	1780.768
258	Waneta Facilities Entitlement (incl. nomination)				153.514	143.848	177.103	169.194	171.141	144.501	145.296	177.374	297.060	335.209	355.441	238.054	2507.735	630.132	1579.031	928.704
259	Aggregate Entitlement Energy				444.058	378.457	398.052	378.913	418.778	387.335	388.679	396.715	544.311	630.913	638.512	531.136	5535.859	1573.705	3735.298	1800.561
260																				
261																				
262	Maximum Energy Delivery Rate (MW): Entitlement Capacity less 2.5% for Spinning Reserve and 2% for Regulation																Average			
263	1 LBO			4.45%	45.3	45.8	45.9	45.9	45.9	45.7	45.9	45.9	45.6	43.0	40.3	42.8	44.8			
264	2 UBO			4.45%	62.5	62.6	62.6	62.6	62.6	62.6	62.6	62.6	62.6	61.4	60.2	61.3	62.2			
265	3 SLO			4.45%	51.8	51.9	51.9	51.9	51.9	51.9	51.9	51.9	51.9	50.1	47.9	50.0	51.2			
266	4 COR			4.45%	43.1	46.2	47.2	47.6	47.1	44.0	40.2	39.2	35.9	32.3	29.6	33.9	40.5			
267	FBC Entitlement Adjustment			Note 1	0.0	0.0	0.0	5.6	5.6	5.6	5.6	0.0	0.0	0.0	0.0	0.0	1.9			
268	5 Brilliant Plant			4.45%	135.3	138.5	138.7	142.8	142.7	142.5	142.7	142.7	137.2	125.7	119.2	125.7	136.2			
269	Brilliant Expansion Incr			4.45%	110.7	60.3	45.4	34.3	90.5	35.1	88.2	68.0	88.3	125.7	129.8	127.4	83.6			
270	6 Waneta			4.45%	226.7	229.0	231.8	234.4	236.2	236.5	235.8	233.5	231.3	228.9	226.8	229.5	231.7			
271	Waneta Expansion			4.45%	312.6	313.0	313.4	313.1	313.5	313.1	313.1	313.5	315.7	314.2	284.8	279.9	308.3			
272																				
273	Aggregate Maximum Energy Delivery Rate				988.0	947.3	936.8	938.2	996.0	936.9	985.9	957.2	968.5	981.4	938.6	950.6	960.5			
274	- FortisBC sub-total				202.7	206.5	207.5	213.6	213.1	209.8	206.2	199.5	196.0	186.8	178.0	188.0	198.8			
275																				
276																				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
277	Section 5 Computation of Teck Entitlements as per the Co-Ownership and Operating Agreement																				
278	Based on WAX Startup of Apr 2015																				
279																					
280					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual				
281	New Entitlement for 100% of Waneta Plant (A Values)																				
282	Pre-WAX Startup Values																				
283		Aug 2013 to Jul 2014		- Capacity (MW)	493.2	493.2	493.2	493.2	493.1	493.2	493.2	493.1	491.1	478.5	476.0	490.5	490.1	From Table 9 Section 3			
284				- Energy (GWh)	182.737	163.072	243.775	197.504	229.415	203.142	174.990	239.893	288.786	318.855	296.106	282.769	2821.044				
285	Startup Year Values																				
286		Aug 2014 to Jul 2015		- Capacity (MW)	493.2	493.2	493.2	493.2	493.1	493.2	493.2	493.1	493.6	485.1	462.7	462.7	487.5	Above values until March			
287				- Energy (GWh)	182.737	163.072	243.775	197.504	229.415	203.142	174.990	239.893	257.831	301.497	283.983	255.360	2733.199	Values below after March			
288	Post WAX Startup Values																				
289		Aug 2015 to Jul 2016		- Capacity (MW)	489.5	496.3	495.9	496.2	495.8	496.2	495.8	495.8	493.6	485.1	462.7	462.7	488.8	From Table 9 Section 4			
290		and thereafter thru Dec 2035		- Energy (GWh)	186.915	168.144	242.260	205.135	225.574	207.169	175.977	235.942	257.831	301.497	283.983	255.360	2745.787				
291																					
292	Agreed `F` Values per COA																				
293	Forecast of Waneta Entitlements for 100% of the Plant - COA Table 1 (F Values)																				
294		Aug 2013 to Jul 2014		- Capacity (MW)	493.2	493.2	493.2	493.2	493.1	493.2	493.2	493.1	491.1	478.5	476.0	490.5	490.1				
295				- Energy (GWh)	182.737	163.072	243.776	197.505	229.415	203.143	174.990	239.894	288.786	318.855	296.105	282.769	2821.047				
296		Aug 2014 to Jul 2015		- Capacity (MW)	493.2	493.2	493.2	493.2	493.1	493.2	493.2	493.1	483.3	475.0	453.4	448.9	483.8				
297				- Energy (GWh)	182.737	163.072	243.776	197.505	229.415	203.143	174.990	239.894	249.800	299.400	282.300	249.200	2715.232				
298		Aug 2015 to Jul 2016		- Capacity (MW)	478.9	485.9	485.5	485.8	485.4	485.8	485.3	485.4	483.3	475.0	453.4	448.9	478.2				
299		and thereafter thru Dec 2035		- Energy (GWh)	182.400	163.900	234.500	198.200	217.600	201.300	171.700	228.400	249.800	299.400	282.300	249.200	2678.700				
300	Agreed Adjustments per COA Table 2 (`C` Values)																				
301		Aug 2013 to Jul 2014		- Capacity (MW)	595.3	592.8	589.9	587.0	585.1	584.9	585.8	587.9	586.7	568.0	565.3	591.1	585.0				
302				- Energy (GWh)	162.790	132.197	243.776	168.758	229.415	203.143	164.138	244.323	292.490	395.124	321.526	330.765	2888.445				
303		Aug 2014 to Jul 2015		- Capacity (MW)	595.3	592.8	589.9	587.0	585.1	584.9	585.8	587.9	573.7	562.2	527.6	521.8	574.5				
304				- Energy (GWh)	162.790	132.197	243.776	168.758	229.415	203.143	164.138	239.894	231.941	362.700	298.407	274.926	2712.085				
305		Aug 2015 to Jul 2016		- Capacity (MW)	571.5	580.6	577.0	574.7	572.2	572.6	572.6	575.0	573.7	562.2	527.6	521.8	565.1				
306		and thereafter thru Dec 2035		- Energy (GWh)	156.608	133.616	234.500	169.884	217.600	201.300	149.583	228.400	223.676	362.700	298.407	274.926	2651.200				
307	Agreed Forecast of Teck's Entitlement per COA Table 3																				
308		Aug 2013 to Jul 2014		- Capacity (MW)	226.7	229.2	232.1	235.0	236.8	237.1	236.2	234.0	231.8	229.5	228.0	226.4	231.9				
309				- Energy (GWh)	141.772	139.590	162.517	160.417	152.943	135.428	127.512	155.500	188.821	136.300	171.983	140.517	1813.300				
310		Aug 2014 to Jul 2015		- Capacity (MW)	226.7	229.2	232.1	235.0	236.8	237.1	236.2	234.0	231.8	229.5	228.0	226.4	231.9				
311				- Energy (GWh)	141.772	139.590	162.517	160.417	152.943	135.428	127.512	159.929	184.392	136.300	172.093	140.407	1813.300				
312		Aug 2015 to Jul 2016		- Capacity (MW)	226.7	229.2	232.1	235.0	236.8	237.1	236.2	234.0	231.8	229.5	228.0	226.4	231.9				
313		and thereafter thru Dec 2035		- Energy (GWh)	147.392	139.551	156.333	160.449	145.067	134.200	136.584	152.267	192.657	136.300	172.093	140.407	1813.300				
314																					
315	Teck's New Entitlement per COA formula Et = A +(PP*F) - C																				
316	Subject to agreed changes under the COA, these values would become the default nomination pursuant to CPA, Schedule A, Section 6.8																				
317		Aug 2013 to Jul 2014	0.667	- Capacity (MW)	226.7	229.2	232.1	235.0	236.7	237.1	236.2	233.9	231.8	229.5	228.0	226.4	231.9				
318				- Energy (GWh)	141.8	139.6	162.5	160.4	152.9	135.4	127.5	155.5	188.8	136.3	172.0	140.5	1813.297				
319		Aug 2014 to Jul 2015		- Capacity (MW)	226.7	229.2	232.1	235.0	236.7	237.1	236.2	233.9	242.1	239.6	237.4	240.2	235.5				
320				- Energy (GWh)	141.8	139.6	162.5	160.4	152.9	135.4	127.5	159.9	192.4	138.4	173.8	146.6	1831.269				
321		Aug 2015 to Jul 2016		- Capacity (MW)	237.3	239.6	242.6	245.4	247.2	247.5	246.7	244.4	242.1	239.6	237.4	240.2	242.5				
322		and thereafter thru Dec 2035		- Energy (GWh)	151.9	143.8	164.1	167.4	153.0	140.1	140.9	159.8	200.7	138.4	173.8	146.6	1880.387				
323																					
324	Change (New Entitlement minus COA Table 3)																				
325		Aug 2013 to Jul 2014		- Capacity (MW)	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0				
326				- Energy (GWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.003				
327		Aug 2014 to Jul 2015		- Capacity (MW)	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	10.3	10.1	9.4	13.8	3.6				
328				- Energy (GWh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	2.1	1.7	6.2	17.969				
329		Aug 2015 to Jul 2016		- Capacity (MW)	10.6	10.4	10.5	10.4	10.4	10.4	10.5	10.4	10.3	10.1	9.4	13.8	10.6				
330		and thereafter thru Dec 2035		- Energy (GWh)	4.5	4.2	7.8	6.9	8.0	5.9	4.3	7.5	8.0	2.1	1.7	6.2	67.087				



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W				
1	Table 10 -- Entitlement Adjustments for Outages																										
2																											
3		Table 10 includes the following sections:																									
4		Section 1: provides Entitlement energy and capacity adjustments for the Lower Bonnington, Upper Bonnington, South Slocan and Corra Linn projects (Plants 1 to 4).																									
5		Section 2: provides Entitlement energy and capacity adjustments for the Brilliant Facilities. This section includes the results of the CPA model runs necessary to compute the adjustments and the associated computations of the adjustments																									
6		Section 3: provides Entitlement energy and capacity adjustments for the Waneta Facilities, including Entitlement Calculation Program results of the studies needed to compute the adjustments as well as the detailed computation of the adjustments.																									
7		Section 3: also provides examples that demonstrate how outages at specific units at the Waneta Facilities and the resulting adjustments are allocated to either the Waneta Plant or the WAX PLant, in accordance with the WRCA and the further adjustments needed to these values after Jan 1, 2036 to properly account for Teck's Participation Percentage (Teck's ownership share) of the Waneta Plant.																									
8																											
9																											
10	Table 10 Section 1 - Capacity Entitlement Adjustments for Plants 1-4																										
11																											
12				Maximum Generation Capacity (Table 7)	MW Stranded by Water Licence	Capacity Entitlement Adjustments (MW)																					
13			MW on Outage			(or other data as indicated by leftmost column)																					
14			Gross			Net	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Avg.								
15				(MW)	(MW)	0.744	0.720	0.744	0.720	0.744	0.744	0.672	0.744	0.720	0.744	0.720	0.744	8.760									
16																											
17	1	Lower Bonnington	46.8	0.0																							
18		Capacity Entitlement Subject to Adjustment				47.4	47.9	48.0	48.0	48.0	47.8	48.0	48.0	47.7	45.0	42.2	44.8	46.9									
19		Capacity Schedule (due to FEEA Clause 2.1); Not subject to adjustment						5.9	5.9	5.9	5.9																
20		Capacity Entitlement with Capacity Schedule				47.4	47.9	48.0	53.9	53.9	53.7	53.9	48.0	47.7	45.0	42.2	44.8	48.8									
21		Capacity Adjustment Rate				1.0128	1.0235	1.0256	1.0256	1.0256	1.0214	1.0256	1.0256	1.0192	0.9615	0.9017	0.9573	1.0020									
22		1 Base			14.2	14.2	14.4	14.5	14.6	14.6	14.5	14.6	14.6	14.5	13.7	12.8	13.6	14.2									
23		1 UG			16.3	16.3	16.5	16.7	16.7	16.7	16.6	16.7	16.7	16.6	15.7	14.7	15.6	16.3									
24		1 Base 1 UG			30.5	30.5	30.9	31.2	31.3	31.3	31.2	31.3	31.3	31.1	29.3	27.5	29.2	30.6									
25		2 UG			32.6	32.6	33.0	33.4	33.4	33.4	33.3	33.4	33.4	33.2	31.3	29.4	31.2	32.7									
26		Full Project			46.8	46.8	47.4	47.9	48.0	48.0	47.8	48.0	48.0	47.7	45.0	42.2	44.8	46.9									
27																											
28	2	Upper Bonnington	63	1.5																							
29		Capacity Entitlement				65.4	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	64.3	63.0	64.2	65.1									
30		Capacity Adjustment Rate				1.0381	1.0397	1.0397	1.0397	1.0397	1.0397	1.0397	1.0397	1.0397	1.0206	1.0000	1.0190	1.0329									
31		1 Small			5.8	4.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.3	4.4	4.4									
32		2 Small			11.6	10.1	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.3	10.1	10.3	10.4									
33		1 Large (Base)			18.7	17.2	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.6	17.2	17.5	17.8									
34		1 UG			22.6	21.1	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.5	21.1	21.5	21.8									
35		1 Small 1 Large (Base)			24.5	23.0	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.5	23.0	23.4	23.8									
36		1 Small 1 UG			28.4	26.9	27.9	28.0	28.0	28.0	28.0	28.0	28.0	28.0	27.5	26.9	27.4	27.8									
37		1 Large (Base) 1 UG			41.3	39.8	41.3	41.4	41.4	41.4	41.4	41.4	41.4	41.4	40.6	39.8	40.6	41.1									
38		Full Project			64.5	63.0	65.4	65.5	65.5	65.5	65.5	65.5	65.5	65.5	64.3	63.0	64.2	65.1									
39																											
40	3	South Slocan	53.9	2.5																							
41		Capacity Entitlement				54.2	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	52.4	50.1	52.3	53.6									
42		Capacity Adjustment Rate				1.0056	1.0074	1.0074	1.0074	1.0074	1.0074	1.0074	1.0074	1.0074	0.9722	0.9295	0.9703	0.9947									
43		1 Base			18.6	16.1	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	15.7	15.0	15.6	16.0									
44		1 UG			19.2	16.7	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.2	15.5	16.2	16.6									
45		2 Base			37.2	34.7	34.9	35.0	35.0	35.0	35.0	35.0	35.0	35.0	33.7	32.3	33.7	34.5									
46		1 Base 1 UG			37.8	35.3	35.5	35.6	35.6	35.6	35.6	35.6	35.6	35.6	34.3	32.8	34.3	35.1									
47		Full Project			56.4	53.9	54.2	54.3	54.3	54.3	54.3	54.3	54.3	54.3	52.4	50.1	52.3	53.6									
48																											
49	4	Corra Linn	52.2	0.0																							
50		Capacity Entitlement				45.1	48.4	49.4	49.8	49.3	46.1	42.1	41.0	37.6	33.8	31.0	35.5	42.4									
51		Capacity Adjustment Rate				0.8640	0.9272	0.9464	0.9540	0.9444	0.8831	0.8065	0.7854	0.7203	0.6475	0.5939	0.6801	0.8129									
52		Existing unit			17.4	17.4	15.0	16.1	16.5	16.6	16.4	15.4	14.0	13.7	12.5	11.3	11.8	14.1									
53		2 existing units			34.8	34.8	30.1	32.3	32.9	33.2	30.7	28.1	27.3	25.1	22.5	20.7	23.7	28.3									
54		Full Project			52.2	52.2	45.1	48.4	49.4	49.8	49.3	46.1	42.1	41.0	37.6	33.8	31.0	42.4									
55																											
56																											
57	Table 10 Section 1 (cont'd) - Energy Entitlement Adjustments for Plants 1-4																										
58																											
59						MW on Outage		Energy Entitlement Adjustments (MW.h/h)																			
60						Gross	Net	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total							
61						(MW)	(MW)	0.744	0.720	0.744	0.720	0.744	0.744	0.672	0.744	0.720	0.744	0.720	0.744	8.760							
62		Number of hours in month / 1000																		(GWh)							
63																											
64	1	Lower Bonnington																									
65		1 Base			14.2	14.2		13.5	13.0	10.6	10.8	12.1	13.6	13.6	9.7	13.5	12.9	12.0	12.8	108.0							
66		1 UG			16.3	16.3		15.5	15.0	12.6	12.7	14.1	15.7	15.6	11.5	15.5	14.8	13.8	14.7	125.1							

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
67			1 Base 1 UG			30.5	30.5	29.1	28.7	26.3	26.2	27.8	29.3	29.4	25.1	29.1	27.6	25.9	27.5	242.3			
68			2 UG			32.6	32.6	31.1	30.7	28.3	28.2	29.8	31.3	31.5	27.1	31.2	29.5	27.7	29.4	259.6			
69			Full Project			46.8	46.8	44.6	44.4	42.0	41.9	43.5	45.0	45.3	40.8	44.8	42.4	39.7	42.2	377.0			
70																							
71			2 Upper Bonnington																				
72			1 Small			5.8	4.3	4.2	0.9	0.6	1.1	0.7	3.0	1.0	0.8	3.7	4.1	4.0	4.1	20.7			
73			2 Small			11.6	10.1	9.9	2.6	2.0	2.8	2.3	8.2	3.1	2.1	9.1	9.7	9.5	9.7	52.0			
74			1 Large (Base)			18.7	17.2	16.8	6.7	4.8	5.7	5.4	15.2	7.4	4.3	15.8	16.5	16.2	16.5	96.1			
75			1 UG			22.6	21.1	20.6	9.6	6.8	7.8	7.8	19.0	10.8	5.8	19.5	20.2	19.9	20.2	122.9			
76			1 Small 1 Large (Base)			24.5	23.0	22.5	11.2	7.9	9.0	9.2	20.9	12.6	6.8	21.3	22.1	21.6	22.1	136.9			
77			1 Small 1 UG			28.4	26.9	26.3	14.7	10.6	11.8	12.4	24.7	16.3	9.1	25.1	25.8	25.3	25.8	166.5			
78			1 Large (Base) 1 UG			41.3	39.8	38.9	27.3	22.0	23.2	24.6	37.3	29.1	19.8	37.7	38.2	37.5	38.2	273.0			
79			Full Project			64.5	63.0	61.5	50.0	44.7	45.7	47.3	60.0	52.0	42.5	60.4	60.5	59.3	60.4	470.5			
80																							
81			3 South Slocan																				
82			1 Base			18.6	16.1	15.2	12.6	9.2	9.6	10.9	15.2	13.7	7.9	15.0	14.7	14.1	14.7	111.5			
83			1 UG			19.2	16.7	15.8	13.2	9.7	10.1	11.4	15.8	14.2	8.3	15.6	15.3	14.6	15.2	116.1			
84			2 Base			37.2	34.7	32.8	30.3	26.4	26.5	28.4	32.9	31.5	24.5	32.6	31.8	30.3	31.7	262.5			
85			1 Base 1 UG			37.8	35.3	33.4	30.8	27.0	27.1	29.0	33.4	32.0	25.0	33.2	32.3	30.9	32.2	267.3			
86			Full Project			56.4	53.9	51.0	48.5	44.6	44.7	46.6	51.1	49.8	42.7	50.8	49.3	47.1	49.2	419.9			
87																							
88			4 Corra Linn																				
89			Existing unit			17.4	17.4	14.1	11.0	8.1	8.5	9.5	14.5	10.9		11.5	10.6	9.7	11.1	91.7			
90			2 existing units			34.8	34.8	28.3	26.2	23.1	23.5	24.8	28.9	24.3	18.2	23.3	21.2	19.4	22.3	207.0			
91			Full Project			52.2	52.2	42.4	41.4	38.6	39.1	40.3	43.4	37.6	31.1	35.1	31.8	29.2	33.4	323.6			
92																							
93	Table 10 (cont'd) Section 2 - Entitlement Adjustments for the Brilliant Facilities																						
94																							
95				Maximum	MW																		
96				Generation	Stranded																		
97				Capacity	by Water																		
98				(Table 7)	Licence																		
99																							
100			5 Brilliant Facilities																				
101																							
102			Brilliant Facilities	272.0	0.0			Entitlement Capacity from Table 9 (MW)															
103			Brilliant Plant (BRD)	149.1	0.0			257.5	198.1	180.7	175.4	234.0	175.8	231.6	210.5	226.0	263.2	260.6	264.9	223.2			
104			- Base Brilliant Unreg					141.6	145.0	145.2	149.5	149.3	149.1	149.3	149.3	143.6	131.6	124.8	131.6	142.5			
105			- Brilliant Upgrade Unreg Incr					121.5	125.4	125.5	129.4	129.3	129.3	129.4	129.4	123.6	111.8	105.3	111.9	122.6			
106			- Brilliant Upgrade Reg Incr					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
107			Brilliant Expansion (BRX) Incr					20.1	19.6	19.7	20.1	20.0	19.8	19.9	19.9	20.0	19.8	19.5	19.7	19.8			
108								115.9	63.1	47.5	35.9	94.7	36.7	92.3	71.2	92.4	131.6	135.8	133.3	87.6			
109			5A Brilliant Plant - If BRX is in service (less than 50% derated)					Entitlement Capacity Adjustments (MW)															
110			Capacity Adjustment Rate					0.9430	0.5134	0.3865	0.2921	0.7705	0.2986	0.7510	0.5793	0.7518	0.8826	0.8370	0.8826	0.6573			
111			1 BRD Unit OOS			37.3	37.3	35.2	19.2	14.4	10.9	28.7	11.1	28.0	21.6	28.0	32.9	31.2	32.9	24.5			
112			2 BRD Units OOS			74.6	74.6	70.4	38.3	28.8	21.8	57.5	22.3	56.0	43.2	56.1	65.8	62.4	65.8	49.0			
113			3 BRD Units OOS			111.9	111.9	105.5	57.5	43.2	32.7	86.2	33.4	84.0	64.8	84.1	98.8	93.7	98.8	73.5			
114			4 BRD Units OOS			149.1	149.1	140.6	76.6	57.6	43.6	114.9	44.5	112.0	86.4	112.1	131.6	124.8	131.6	98.0			
115																							
116			5B Brilliant Plant - If BRX is out of service (more than 50% derated)																				
117			Capacity Adjustment Rate					0.9497	0.9725	0.9738	1.0027	1.0013	1.0000	1.0013	1.0013	0.9631	0.8826	0.8370	0.8826	0.9554			
118			1 BRD Unit			37.3	37.3	35.4	36.3	36.3	37.4	37.4	37.3	37.4	37.4	35.9	32.9	31.2	32.9	35.6			
119			2 BRD Units			74.6	74.6	70.8	72.5	72.6	74.8	74.7	74.6	74.7	74.7	71.8	65.8	62.4	65.8	71.3			
120			3 BRD Units			111.9	111.9	106.3	108.8	109.0	112.2	112.1	111.9	112.1	112.1	107.8	98.8	93.7	98.8	106.9			
121			4 BRD Units			149.1	149.1	141.6	145.0	145.2	149.5	149.3	149.1	149.3	149.3	143.6	131.6	124.8	131.6	142.5			
122																							
123			5C Brilliant Expansion - 1 Unit (Total Plant)																				
124			Capacity Adjustment Rate					0.9430	0.5134	0.3865	0.2921	0.7705	0.2986	0.7510	0.5793	0.7518	1.0708	1.1050	1.0846	0.7124			
125			1 BRX Unit (Total Plant)			122.9	122.9	115.9	63.1	47.5	35.9	94.7	36.7	92.3	71.2	92.4	131.6	135.8	133.3	87.6			
126																							
127																							
128																							
129			Number of hours in month / 1000																				
130								Gross	Net														
131								(MW)	(MW)														
132			Leap Year Factor =>					1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000			
133			5 Brilliant Facilities																				
134																							
135			Upgraded Brilliant Plant (BRD)					Entitlement Energy from Table 9 (MWh)															
136			- Base Brilliant Unreg		0.97756			99.876	68.572	65.500	76.277	78.932	91.993	71.614	65.867	93.556	93.384	85.722	93.438	984.731			
137			- Brilliant Upgrade Unreg Incr		0.98435			86.133	66.126	62.285	62.992	65.096	81.944	63.071	58.986	81.835	79.313	72.253	79.345	859.379			
138			- Brilliant Upgrade Reg Incr		0.97031			12.751	0.968	0.612	0.297	0.330	0.702	-0.642	-0.443	9.792	13.896	12.939	13.892	65.094			
139			Brilliant Expansion (BRX) Incr		0.86028			0.992	1.478	2.603	12.988	13.506	9.347	9.185	7.324	1.929	0.175	0.530	0.201	60.258			
								42.201	33.351	29.008	10.010	36.449	2.504	47.655	36.627	16.109	65.467	71.149	61.879	452.409			

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
140																							
141		5A	Brilliant Plant - If BRX is in service (less than 50% derated)					Entitlement Energy Adjustments (MWh/h)															
142			1 BRD Unit OOS			37.29	37.29	12.1	0.9	1.5	0.0	2.2	0.0	12.1	0.0	2.7	26.0	29.3	22.9	80.021			
143			2 BRD Units OOS			74.57	74.57	32.2	3.9	3.9	0.7	7.7	0.0	29.0	1.8	10.8	53.7	59.2	48.4	183.037			
144			3 BRD Units OOS			111.86	111.86	58.2	14.5	9.8	3.7	24.3	1.3	49.5	17.2	27.0	82.6	89.2	76.7	330.950			
145			4 BRD Units OOS			149.14	149.14	88.1	38.5	24.1	16.9	52.0	24.1	75.5	39.9	51.6	113.0	119.2	107.3	547.288			
146																							
147		5B	Brilliant Plant - If BRX is out of service (more than 50% derated)																				
148			1 BRD Unit OOS			37.29	37.29	33.0	5.9	5.0	8.8	8.0	10.3	6.9	4.6	27.5	32.3	30.6	32.3	150.388			
149			2 BRD Units OOS			74.57	74.57	68.0	25.5	19.9	28.4	26.7	45.5	27.5	17.4	61.6	64.5	61.2	64.5	373.816			
150			3 BRD Units OOS			111.86	111.86	102.9	61.3	53.6	65.5	65.4	84.2	66.6	50.2	97.4	96.8	91.9	96.8	681.493			
151			4 BRD Units OOS			149.14	149.14	134.2	95.2	88.0	105.9	106.1	123.6	106.6	88.5	129.9	125.5	119.1	125.6	984.731			
152																							
153		5C	Brilliant Expansion - 1 Unit (Total Plant)			122.90	122.90	56.7	46.3	39.0	13.9	49.0	3.4	70.9	49.2	22.4	88.0	98.8	83.2	452.409			
154																							
155																							
156		Computation Details of Brilliant Plant Outages with BRX In Service																					
157																							
158				Gen Table	Inflows	KL Target	MW on Outage	Unfirmed Energy (GWh)															
159			Study B3R - Brilliant Facilities	5	R2	3	0.00	165.152	118.476	109.857	100.301	134.120	109.844	137.413	119.140	127.476	184.650	182.348	180.542	1669.320			
160			Study B3R 1 BRD Unit OOS	5	R2	3	37.29	154.716	117.722	108.570	100.282	132.255	109.839	128.035	119.138	125.190	162.131	157.802	160.708	1576.388			
161			Study B3R 2 BRD Units OOS	5	R2	3	74.57	137.319	115.183	106.476	99.729	127.488	109.825	114.937	117.612	118.448	138.251	132.763	138.725	1456.756			
162			Study B3R 3 BRD Units OOS	5	R2	3	111.86	114.788	106.356	101.424	97.230	113.085	108.709	99.066	104.263	104.906	113.238	107.687	114.214	1284.965			
163			Study B3R 4 BRD Units OOS	5	R2	3	149.14	88.956	86.248	89.056	86.117	89.123	89.001	78.989	84.654	84.249	86.925	82.618	87.734	1033.671			
164																							
165						Adj Factor	Firmed and LY Adj Energy (GWh)																
166			Study B3R - Brilliant Facilities			0.86028	0.00	142.077	101.923	94.508	86.287	115.381	94.497	119.269	102.494	109.665	158.851	156.871	155.317	1437.140			
167			Study B3R 1 BRD Unit OOS			0.86028	37.29	133.099	101.274	93.401	86.271	113.776	94.492	111.130	102.492	107.698	139.478	135.754	138.254	1357.119			
168			Study B3R 2 BRD Units OOS			0.86028	74.57	118.133	99.090	91.599	85.795	109.675	94.480	99.761	101.180	101.899	118.935	114.214	119.342	1254.103			
169			Study B3R 3 BRD Units OOS			0.86028	111.86	98.750	91.496	87.253	83.645	97.285	93.520	85.985	89.695	90.248	97.416	92.641	98.256	1106.190			
170			Study B3R 4 BRD Units OOS			0.86028	149.14	76.527	74.197	76.613	74.085	76.670	76.566	68.559	72.826	72.478	74.780	71.075	75.476	889.852			
171																							
172		Computation Details of Brilliant Plant Outages with BRX Out of Service (OOS)																					
173																							
174				Gen Table	Inflows	KL Target	MW on Outage	Unfirmed Energy (GWh)															
175			Study B2U - Brilliant Plant	4	U	1	0.00	103.898	70.155	65.752	64.227	66.400	83.920	62.793	59.375	96.121	98.000	89.655	98.025	958.323			
176			Study B2U 1 Unit OOS	4	U	1	37.29	79.026	66.170	62.647	61.075	63.787	78.485	60.420	57.715	76.357	73.490	67.233	73.509	819.913			
177			Study B2U 2 Units OOS	4	U	1	74.57	52.677	52.142	51.913	49.987	52.977	54.033	48.735	49.866	51.738	48.987	44.816	48.999	606.869			
178			Study B2U 3 Units OOS	4	U	1	111.86	26.321	26.107	26.955	25.951	26.999	26.998	24.398	26.823	25.852	24.477	22.393	24.483	307.758			
179																							
180						Adj Factor	Firmed and LY Adj Energy (GWh)																
181			Study B2U - Brilliant Plant [A]			0.97756	0.00	101.567	68.581	64.277	62.786	64.910	82.037	61.932	58.043	93.964	95.801	87.644	95.825	937.367			
182			Study B2U 1 Unit OOS			0.97756	37.29	77.252	64.685	61.242	59.704	62.355	76.724	59.592	56.420	74.644	71.841	65.724	71.859	802.042			
183			Study B2U 2 Units OOS			0.97756	74.57	51.495	50.972	50.748	48.865	51.788	52.821	48.066	48.747	50.577	47.888	43.810	47.900	593.677			
184			Study B2U 3 Units OOS			0.97756	111.86	25.730	25.522	26.350	25.369	26.394	26.393	24.064	26.221	25.271	23.928	21.890	23.934	301.066			
185																							
186						BD Factor	Firmed Energy and LY Adj (GWh) - Note: As done in the 2005 CPA Table 10, to avoid conflicts with negative numbers, the Regulated Increment has been split out in a linear fashion																
187			Brilliant Upgrade Reg Incr [B]:			0.97031	0.00	0.992	1.478	2.603	12.988	13.506	9.347	9.185	7.324	1.929	0.175	0.530	0.201	60.258			
188			1 Unit OOS				[B] - [B]*(1/4)	0.744	1.109	1.952	9.741	10.130	7.010	6.889	5.493	1.447	0.131	0.398	0.151	45.195			
189			2 Units OOS				[B] - [B]*(2/4)	0.496	0.739	1.302	6.494	6.753	4.674	4.593	3.662	0.965	0.088	0.265	0.101	30.132			
190			3 Units OOS				[B] - [B]*(3/4)	0.248	0.370	0.651	3.247	3.377	2.337	2.296	1.831	0.482	0.044	0.133	0.050	15.066			
191																							
192			Brilliant Plant [C]:				Firmed and LY Adj Energy (GWh)																
193			[A] + [B]			0.00		102.559	70.059	66.880	75.774	78.416	91.384	71.117	65.367	95.893	95.976	88.174	96.026	997.625			
194			1 Unit OOS				37.29	77.996	65.794	63.194	69.445	72.485	83.734	66.481	61.913	76.091	71.972	66.122	72.010	847.237			
195			2 Units OOS				74.57	51.991	51.711														

216	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
217			Brilliant Plant Regulated Outage Factors (MWh/h)																				
218			Brilliant Upgrade Reg Increment																				
219			1 Unit OOS				37.29	0.3	0.5	0.9	4.5	4.5	3.1	3.4	2.5	0.7	0.1	0.2	0.1	15.063			
220			2 Units OOS				74.57	0.7	1.0	1.7	9.0	9.1	6.3	6.8	4.9	1.3	0.1	0.4	0.1	30.126			
221			3 Units OOS				111.86	1.0	1.5	2.6	13.5	13.6	9.4	10.3	7.4	2.0	0.2	0.6	0.2	45.192			
222			4 Units OOS				149.14	1.3	2.1	3.5	18.0	18.2	12.6	13.7	9.8	2.7	0.2	0.7	0.3	60.258			
223			BRX In Service																				
224																							
225			Brilliant Plant Outage Factors - BRX In Service (MWh/h)				MW on Outage	MWh/h															
226			1 Unit OOS				37.29	12.1	0.9	1.5	0.0	2.2	0.0	12.1	0.0	2.7	26.0	29.3	22.9	80.021			
227			2 Units OOS				74.57	32.2	3.9	3.9	0.7	7.7	0.0	29.0	1.8	10.8	53.7	59.2	48.4	183.037			
228			3 Units OOS				111.86	58.2	14.5	9.8	3.7	24.3	1.3	49.5	17.2	27.0	82.6	89.2	76.7	330.950			
229			4 Units OOS				149.14	88.1	38.5	24.1	16.9	52.0	24.1	75.5	39.9	51.6	113.0	119.2	107.3	547.288			
230																							
231			Brilliant Plant Credit to Brilliant Expansion (MWh/h) - (to keep Brilliant Plant whole to original outage factors)																				
232			1 Unit OOS				37.29	20.9	5.0	3.5	8.8	5.8	10.3	-5.2	4.6	24.8	6.2	1.3	9.3	70.367			
233			2 Units OOS				74.57	35.8	21.5	16.0	27.7	19.0	45.5	-1.6	15.7	50.8	10.9	2.0	16.2	190.779			
234			3 Units OOS				111.86	44.7	46.9	43.8	61.8	41.1	82.9	17.1	33.0	70.4	14.2	2.7	20.1	350.543			
235			4 Units OOS				149.14	46.1	56.7	64.0	89.0	54.1	99.5	31.1	48.7	78.3	12.5	-0.1	18.3	437.443			
236																							
237																							
238			Table 10(cont'd) Section 3 - Entitlement Adjustments for the Waneta Facilities (Pre and Post WAX Startup)																				
239	6		Waneta Plant Entitlement Capacity Adjustments (Pre WAX Start-up) - MW																				
240			Waneta Plant (Pre-WAX Startup)*	493.20	0															Average			
241			Capacity Entitlement				493.2	493.2	493.2	493.2	493.1	493.2	493.2	493.1	491.1	478.5	476.0	490.5	490.1				
242			Capacity Adjustment Rate				1.0000	1.0000	1.0000	1.0000	0.9998	1.0000	1.0000	0.9998	0.9957	0.9702	0.9651	0.9945	0.9938				
243			1 UG			123.30	123.30	123.3	123.3	123.3	123.3	123.3	123.3	123.3	122.8	119.6	119.0	122.6	122.5				
244			2 UG			246.60	246.60	246.6	246.6	246.6	246.6	246.6	246.6	246.6	245.6	239.3	238.0	245.3	245.1				
245			3 UG			369.90	369.90	369.9	369.9	369.9	369.9	369.8	369.9	369.9	368.3	358.9	357.0	367.9	367.6				
246			Full Project			493.20	493.20	493.2	493.2	493.2	493.2	493.1	493.2	493.1	491.1	478.5	476.0	490.5	490.1				
247			Waneta Facilities Entitlement Capacity Adjustments - (Post WAX Start-up) - MW																				
248				Approx Nameplate Ratings per unit																			
249				WAN	WAX	WF total																	
250				123.30	165.35	823.93																	
251																							
252							Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		(MW)			
253			From Table 9	Waneta Facility Capacity Entitlement (MW)			816.7	823.9	823.9	823.9	823.9	823.9	823.5	823.9	824.0	813.9	760.8	755.7	811.4				
254				Attributable to WAX ==>			327.2	327.6	328.0	327.7	328.1	327.7	327.7	328.1	330.4	328.8	298.1	293.0	322.7				
255				Attributable to Waneta (before nomination)==>			489.5	496.3	495.9	496.2	495.8	496.2	495.8	495.8	493.6	485.1	462.7	462.7	488.8				
256			From Table 7 (currently set to 823.93)	Maximum Generation Capacity (MW)			823.93																
257				Linear Capacity Adjustment Rate			0.9912	1.0000	1.0000	0.9999	1.0000	1.0000	0.9995	1.0000	1.0000	0.9879	0.9234	0.9171	0.9848				
258			Waneta Plant Outages Only*	MW on Outage																			
259			1 upgraded unit			123.30	123.30	122.2	123.3	123.3	123.3	123.3	123.2	123.3	123.3	121.8	113.9	113.1	121.4				
260			2 upgraded units			246.60	246.60	244.4	246.6	246.6	246.6	246.6	246.6	246.6	246.6	243.6	227.7	226.2	242.9				
261			3 upgraded units			369.90	369.90	366.6	369.9	369.9	369.9	369.9	369.9	369.9	369.9	365.4	341.6	339.3	364.3				
262			4 upgraded units			493.20	493.20	488.9	493.2	493.2	493.2	493.2	493.2	492.9	493.2	493.2	487.2	455.4	452.3	485.7			
263			Waneta Expansion Outages Only																				
264			1 unit			165.4	165.4	163.9	165.3	165.3	165.3	165.4	165.3	165.3	165.4	163.3	152.7	151.7	162.8				
265			2 units			330.7	330.7	327.2	327.6	328.0	327.7	328.1	327.7	327.7	328.1	330.4	326.7	298.1	293.0	322.5			
266			Combination Outages																				
267			1 WAX, 1 Waneta			288.7	288.7	286.1	288.6	288.6	288.6	288.7	288.6	288.5	288.6	288.7	285.2	266.5	264.7	284.3			
268			2 WAX, 1 Waneta			453.3	453.3	449.4	450.9	451.3	450.9	451.4	451.0	450.9	451.4	453.7	448.5	411.9	406.0	443.9			
269			2 Waneta, 1 WAX			411.6	411.6	408.3	411.9	411.9	411.9	412.0	411.9	411.7	411.9	412.0	407.0	380.4	377.8	405.7			
270																							
271			* Note: For up to 22 days of planned maintenance at the Waneta Plant in Sept (or after WAX in-service-date in other months as Teck and BCH may agree) the MW on Outage used to compute Capacity Entitlement Adjustments, will be reduced by the capacity of one unit (123.3 MW), as documented in the COA between Teck and BCH																				
272			For example, the adjustment for a 1 unit outage will be zero, and the adjustment for a 2 unit outage will be computed as if the MW on Outage was only 123.3 MW (the capacity of one unit), etc.																				
273			Table 10 Section 3(cont'd) - Energy Entitlement Adjustments for the Waneta Facilities																				
274																							
275			Pre-WAX Startup																				
276			Waneta Plant				(MWh/h)													(GWh)			
277			1 upgraded unit			123.30	123.30	3.8	0.6	17.3	3.52												



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
290			2 Waneta Units	246.6				201.962	180.188	273.033	221.698	261.036	226.684	191.561	269.838	342.344	403.871	373.735	335.733	3281.682				
291			1 WAX, 1 WAN unit	288.3				201.962	180.188	271.685	221.698	258.820	226.332	191.561	268.244	329.653	376.664	349.333	322.902	3199.042				
292			2 WAX units	330.0				201.962	180.188	269.365	221.454	255.150	225.727	191.369	265.818	314.929	349.198	324.657	308.766	3108.583				
293			3 Waneta Units	369.9				201.868	180.188	265.882	220.893	250.385	224.995	190.131	261.941	297.495	322.784	300.673	292.215	3009.450				
294			1 WAX, 2 WAN	411.6				200.642	180.188	261.045	220.064	243.736	222.903	187.603	255.116	276.275	294.358	275.411	271.948	2889.289				
295			2 WAX units, 1 WAN unit	453.3				197.609	179.193	252.848	217.007	234.309	218.133	183.281	244.104	253.153	265.145	249.916	249.496	2744.194				
296			4 Waneta Units	493.2				190.371	176.985	236.439	210.076	223.163	210.422	176.161	228.371	228.694	236.976	224.656	226.416	2568.730				
297																								
298			Summary of computed energy adjustments (GWh/month)																					
299			1 Waneta Unit	123.3				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.712	50.177	50.602	10.242	119.733				
300			1 WAX Unit	165.0				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.503	15.344	72.394	72.706	15.896	176.843				
301			2 Waneta Units	246.6				0.000	0.000	0.399	0.000	0.000	0.000	0.000	1.617	34.653	121.402	116.737	33.489	308.297				
302			1 WAX, 1 WAN unit	288.3				0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	46.506	146.813	139.528	45.473	385.484				
303			2 WAX units	330.0				0.000	0.000	3.826	0.228	5.498	0.894	0.179	5.371	60.258	172.466	162.576	58.676	469.972				
304			3 Waneta Units	369.9				0.088	0.000	7.079	0.752	9.948	1.578	1.336	8.993	76.541	197.137	184.977	74.135	562.564				
305			1 WAX, 2 WAN	411.6				1.233	0.000	11.597	1.526	16.158	3.531	3.697	15.367	96.361	223.687	208.572	93.064	674.793				
306			2 WAX units, 1 WAN unit	453.3				4.064	0.929	19.249	4.380	24.959	7.984	7.731	25.647	117.946	250.959	232.373	114.024	810.245				
307			4 Waneta Units	493.2				10.821	2.990	34.566	10.850	35.363	15.182	14.378	40.333	140.777	277.253	255.952	135.568	974.033				
308																								
309			Summary of computed energy adjustments (MWh/hour)					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Average				
310			1 Waneta Unit	123.3				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.100	67.442	70.281	13.766	13.668				
311			1 WAX Unit	165.0				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.676	21.311	97.304	100.981	21.366	20.188				
312			2 Waneta Units	246.6				0.000	0.000	0.536	0.000	0.000	0.000	0.000	2.173	48.129	163.175	162.135	45.012	35.194				
313			1 WAX, 1 WAN unit	288.3				0.000	0.000	2.230	0.000	2.782	0.442	0.000	4.175	64.592	197.329	193.789	61.120	44.005				
314			2 WAX units	330.0				0.000	0.000	5.142	0.317	7.390	1.202	0.264	7.219	83.692	231.809	225.800	78.866	53.650				
315			3 Waneta Units	369.9				0.118	0.000	9.515	1.044	13.371	2.121	1.971	12.087	106.307	264.969	256.913	99.644	64.218				
316			1 WAX, 2 WAN	411.6				1.657	0.000	15.587	2.119	21.718	4.746	5.453	20.655	133.835	300.655	289.683	125.086	77.027				
317			2 WAX units, 1 WAN unit	453.3				5.462	1.290	25.872	6.083	33.547	10.731	11.403	34.472	163.814	337.310	322.740	153.258	92.486				
318			4 Waneta Units	493.2				14.544	4.153	46.460	15.069	47.531	20.406	21.206	54.211	195.524	372.652	355.489	182.215	111.176				
319																								
320			Table 10 Section 3(cont'd) - Energy Entitlement Adjustments for the Waneta Facilities (Post WAX Startup)																					
321			Detailed computation of the Post WAX Startup Outage Factor -- (applicable to 100% of Waneta Facility, No Reduction for Teck Participation Percentage) Applicable through Dec 31, 2035																					
322							Average Monthly Energy from CPA Model (GWh)														Total			
323				Base Data	823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436				
324						3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400				
325						96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486				
326						419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765				
327							Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul						
328							Average Monthly Energy from CPA Model (GWh)																	
329					823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436				
330			One Waneta unit OOS			3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400				
331			[Three sement summation			96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486				
332			Since MW on Outage is > 96.21 MW]			419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765				
333					700.63	→ 123.30	WE	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	370.117	480.129	444.543	360.623	3483.571				
334																								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
363								Average Monthly Energy from CPA Model (GWh)												(GWh)			
364					823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436			
365			One WAX, One WAN unit OOS			3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400			
366			[Three sement summation			96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486			
367			Since MW on Outage is > 96.21 MW]			419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765			
368					535.63	288.30	WE	201.962	180.188	271.685	221.698	258.820	226.332	191.561	268.244	329.653	376.664	349.333	322.902	3199.042			
369						0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036			
370						0.77903	WB-WC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-7.466	-45.907	-45.236	-9.305	-107.914			
371						0.93400	WC-WE	0.000	0.000	-1.776	0.000	-2.216	-0.352	0.000	-3.325	-43.507	-117.405	-110.269	-40.594	-319.444			
372			Energy Outage Adjustment					0.000	0.000	-1.659	0.000	-2.070	-0.329	0.000	-3.106	-46.506	-146.813	-139.528	-45.473	-385.484			
373								Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total			
374								Average Monthly Energy from CPA Model (GWh)												(GWh)			
375					823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436			
376			Two WAX units OOS			3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400			
377			[Three sement summation			96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486			
378			Since MW on Outage is > 96.21 MW]			419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765			
379					493.93	330.00	WE	201.962	180.188	269.365	221.454	255.150	225.727	191.369	265.818	314.929	349.198	324.657	308.766	3108.583			
380						0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036			
381						0.77903	WB-WC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-7.466	-45.907	-45.236	-9.305	-107.914			
382						0.93400	WC-WE	0.000	0.000	-4.096	-0.244	-5.886	-0.957	-0.192	-5.751	-58.231	-144.871	-134.945	-54.730	-409.903			
383			Energy Outage Adjustment					0.000	0.000	-3.826	-0.228	-5.498	-0.894	-0.179	-5.371	-60.258	-172.466	-162.576	-58.676	-469.972			
384								Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total			
385								Average Monthly Energy from CPA Model (GWh)												(GWh)			
386					823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436			
387			Three Waneta units OOS			3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400			
388			[Three sement summation			96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486			
389			Since MW on Outage is > 96.21 MW]			419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765			
390					454.03	369.90	WE	201.868	180.188	265.882	220.893	250.385	224.995	190.131	261.941	297.495	322.784	300.673	292.215	3009.450			
391						0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036			
392						0.77903	WB-WC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-7.466	-45.907	-45.236	-9.305	-107.914			
393						0.93400	WC-WE	-0.094	0.000	-7.579	-0.805	-10.651	-1.689	-1.430	-9.628	-75.665	-171.285	-158.929	-71.281	-509.036			
394			Energy Outage Adjustment					-0.088	0.000	-7.079	-0.752	-9.948	-1.578	-1.336	-8.993	-76.541	-197.137	-184.977	-74.135	-562.564			
395	Table 10 Section 3(cont'd) - Entitlement Adjustments for the Waneta Facilities (Post WAX Startup)																						
396	Detailed computation of the Post WAX Startup Outage Factor -- (applicable to 100% of Waneta Facility, No Reduction for Teck Participation Percentage) Applicable through Dec 31, 2035																						
397								Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total			
398								Average Monthly Energy from CPA Model (GWh)												(GWh)			
399			One WAX, Two WAN units OOS		823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436			
400			[Three sement summation			3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400			
401			Since MW on Outage is > 96.21 MW]			96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486			
402						419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765			
403					412.33	411.60	WE	200.642	180.188	261.045	220.064	243.736	222.903	187.603	255.116	276.275	294.358	275.411	271.948	2889.289			
404						0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036			
405						0.77903	WB-WC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-7.466	-45.907	-45.236	-9.305	-107.914			
406						0.93400	WC-WE	-1.320	0.000	-12.416	-1.634	-17.300	-3.781	-3.958	-16.453	-96.885	-199.711	-184.191	-91.548	-629.197			
407			Energy Outage Adjustment					-1.233	0.000	-11.597	-1.526	-16.158	-3.531	-3.697	-15.367	-96.361	-223.687	-208.572	-93.064	-674.793			
408								Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total			
409								Average Monthly Energy from CPA Model (GWh)												(GWh)			
410					823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436			
411			Two WAX, One WAN unit OOS		820.01	3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400			
412			[Four sement summation		727.72	96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486			
413			Since MW on Outage is > 419.93 MW]		404.00	419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765			
414					370.63	453.30	WE	197.609	179.193	252.848	217.007	234.309	218.133	183.281	244.104	253.153	265.145	249.916	249.496	2744.194			
415						0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036			
416						0.77903	WB-WC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-7.466	-45.907	-45.236	-9.305	-107.914			
417						0.93400	WC-WD	-1.681	-0.057	-13.639	-1.900	-18.986	-4.664	-4.592	-18.426	-101.197	-205.471	-189.219	-95.888	-655.721			
418						0.93345	WD-WE	-2.672	-0.938	-6.974	-2.791	-7.741	-3.887	-3.688	-9.039	-18.810	-23.453	-20.467	-18.112	-118.571			
419			Energy Outage Adjustment					-4.064	-0.929	-19.249	-4.380	-24.959	-7.984	-7.731	-25.647	-117.946	-250.959	-232.373	-114.024	-810.245			
420								Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total			
421								Average Monthly Energy from CPA Model (GWh)												(GWh)			
422					823.93	0.00	WA	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.697	541.818	506.552	373.210	3630.436			</

435	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
436						3.92	WB	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	380.626	539.976	504.838	372.801	3626.400				
437						96.21	WC	201.962	180.188	273.461	221.698	261.036	226.684	191.561	271.569	373.160	494.069	459.602	363.496	3518.486				
438						419.93	WD	200.281	180.131	259.822	219.798	242.050	222.020	186.969	253.143	271.963	288.598	270.383	267.608	2862.765				
439			419.93 MW OOS		404.00	419.93	WE	200.279	180.131	259.817	219.797	242.043	222.016	186.966	253.135	271.947	288.577	270.365	267.592	2862.665				
440			This section looks at the results if a			0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036				
441			"boundary value" is input as WE ... no			0.77903	WB-WE	-1.683	-0.057	-13.644	-1.901	-18.993	-4.668	-4.595	-18.434	-108.679	-251.399	-234.473	-105.209	-763.735				
442			problems were encountered.			0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036				
443			This section also provides the fully			0.77903	WB-WC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-7.466	-45.907	-45.236	-9.305	-107.914				
444			generalized calculation that can be applied			0.93400	WC-WE	-1.683	-0.057	-13.644	-1.901	-18.993	-4.668	-4.595	-18.434	-101.213	-205.492	-189.237	-95.904	-655.821				
445			regardless of which segment WE is located.			0.75670	WA-WB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.071	-1.842	-1.714	-0.409	-4.036				
446			This section is not directly used, but is retained			0.77903	WB-WC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-7.466	-45.907	-45.236	-9.305	-107.914				
447			in case additional WE runs are needed in the future.			0.93400	WC-WD	-1.681	-0.057	-13.639	-1.900	-18.986	-4.664	-4.592	-18.426	-101.197	-205.471	-189.219	-95.888	-655.721				
448						0.93345	WD-WE	-0.002	0.000	-0.005	-0.001	-0.007	-0.004	-0.003	-0.008	-0.016	-0.021	-0.018	-0.016	-0.100				
449			One segment only	0.00	Section 5.3(e ) (1)			-1.274	-0.043	-10.324	-1.438	-14.372	-3.532	-3.477	-13.949	-82.291	-191.627	-178.723	-79.921	-580.971				
450			Two Segment summation	0.00	Section 5.3(e ) (2)			-1.311	-0.044	-10.629	-1.481	-14.796	-3.637	-3.580	-14.361	-84.718	-197.241	-183.958	-82.270	-598.026				
451			Three segment summation	1.00	(3)			-1.572	-0.053	-12.743	-1.776	-17.739	-4.360	-4.292	-17.217	-100.403	-229.086	-213.285	-97.133	-699.659				
452			Four segment summation?	0.00	(4)			-1.572	-0.053	-12.743	-1.776	-17.739	-4.360	-4.292	-17.217	-100.403	-229.086	-213.285	-97.133	-699.659				
453				Okay	Applicable Range	Energy Adjustment (GWh/month)																		
454			Energy Outage Adjustment		820.01	823.93		-1.572	-0.053	-12.743	-1.776	-17.739	-4.360	-4.292	-17.217	-100.403	-229.086	-213.285	-97.133	-699.659				
455					727.72	820.01																		
456					404.00	727.72																		
457	Table 10 (cont'd) Section 4 - Allocation of Waneta Facility Entitlement Adjustments to Project Owners																							
458	Allocations depend on the units on outage and the outage type - see WRCA for details, Additional adjustments for Teck Participation Percentage Apply after Jan 1, 2036																							
459			Allocation of Outages between WAX and Waneta and other adjustments post Jan 1, 2036										Example 1 - Summary of Results											
460													WAN	WAX	Total									
461			Outage State: One WAX, One Waneta										Example 1A	208.6	176.8	385.5								
462			Example 1A										Example 1B	119.7	265.8	385.5								
463			WAX	Planned Outage									Example 1C	119.7	265.8	385.5								
464			Waneta	Forced Outage									Example 1D	272.7	289.3	562.0								
465																								
466			WRCA ==>																					
467			WAX unit has priority because outage is planned, not forced																					
468								Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual				
469			Waneta Facility 100% adjustment for 1 WAX, 1 WAN(from above)					0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	46.506	146.813	139.528	45.473	385.484				
470			Allocate 1 WAX outage to WAX					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.503	15.344	72.394	72.706	15.896	176.843	WAX	Ex 1A		
471			Allocate residual of 1 WAX, 1 Wan vs 1 WAX to WAN					0.000	0.000	1.659	0.000	2.070	0.329	0.000	2.603	31.162	74.419	66.822	29.577	208.641	WAN			
472			-----																					
473			Example 1B																					
474			Waneta	Planned Outage																				
475			WAX	Forced Outage																				
476			WRCA ==>																					
477			Waneta unit has priority because outage is planned, not forced																					
478																								
479			Waneta Facility 100% adjustment for 1 WAX, 1 WAN(from above)					0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	46.506	146.813	139.528	45.473	385.484				
480			Allocate 1 WAN outage to WAN					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.712	50.177	50.602	10.242	119.733	WAN	Ex 1B		
481			Allocate residual of 1 WAX, 1 Wan vs 1 WAN to WAX					0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	37.794	96.636	88.926	35.231	265.751	WAX			
482			-----																					
483			Example 1C																					
484			Waneta	Planned Outage																				
485			WAX	Planned Outage																				
486			WRCA ==>																					
487			Waneta Facility 100% adjustment for 1 WAX, 1 WAN(from above)					0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	46.506	146.813	139.528	45.473	385.484				
488			WAN unit has priority as both outages are planned					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.712	50.177	50.602	10.242	119.733	WAN	Ex 1C		
489			Allocate 1 WAN to WAN					0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	37.794	96.636	88.926	35.231	265.751	WAX			
490			Allocate residual to WAX																					
491			-----																					
492			Outage State: One WAX, Two Waneta (Pe-2036)										Example 2 - Summary of Results											
493													WAN	WAX	WF									
494			Example 2A										Example 2A	409.0	265.8	674.8								
495			Waneta	1 unit planned, 1 unit forced									Example 2B	357.1	317.7	674.8								
496			WAX	1 unit planned outage									Example 2C	498.0	176.8	674.8								
497													Example 2D	272.7	265.8	538.4	Note lower allocation to WF post 2036, compared to pre-2036 as in Example 2A							
498			WRCA ==>																					
499			WAX unit & 1 WAN unit have equal priority because both are planned outages																					
500			WAN unit on forced outage has last priority because it is a forced outage																					
501								Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Annual				
502			Waneta Facility 100% adjustment (from above)					1.233	0.000	11.597	1.526	16.158	3.531	3.697	15.367	96.361	223.687	208.572	93.064	674.793				
503			Allocate planned outages (1 WAX, 1 WAN) to WAN, WAX giving priority to WAN					0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	46.506	146.813	139.528	45.473	385.484				
504			Allocate 1 WAN to WAN					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.712	50.177	50.602	10.242	119.733	WAN			
505			Allocate residual of 1 WAX, 1 WAN vs 1 WAN to WAX					0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	37.794	96.636	88.926	35.231	265.751	WAX			
506																								
507			Allocate residual of 1 WAX, 2 Wan vs 1 WAX, 1WAN to WAN					1.233	0.000	9.938	1.526	14.088	3.202	3.697	12.261	49.855	76.874	69.044	47.591	289.309				
508																								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
509																							
510			WRCA ==>																				
511			WAN unit on planned outage has priority																				
512			2 units (1 WAX, 1 WAN) on forced outage have equal (second) priority																				
513						Waneta Facility 100% adjustment (from above)			1.233	0.000	11.597	1.526	16.158	3.531	3.697	15.367	96.361	223.687	208.572	93.064	674.793		
514						Allocate first priority WAN outage to WAN			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.712	50.177	50.602	10.242	119.733		Ex 2B
515						Allocate residual of 1 WAX, 2 Wan vs 1 WAN to WAX & WAN prorata			1.233	0.000	11.597	1.526	16.158	3.531	3.697	15.367	87.649	173.510	157.970	82.822	555.060		
516						123.30	42.77%	to WAN	0.527	0.000	4.960	0.653	6.910	1.510	1.581	6.572	37.486	74.207	67.561	35.421			
517						165.00	57.23%	to WAX	0.706	0.000	6.637	0.873	9.248	2.021	2.116	8.795	50.163	99.303	90.409	47.401	317.672	WAX	
518						288.30		sub-total to WAN	0.527	0.000	4.960	0.653	6.910	1.510	1.581	6.572	46.198	124.384	118.163	45.663	357.121	WAN	
519																							
520			Example 2C	Outage State: One WAX, Two Waneta (Pe-2036)																			
521			Waneta	2 units forced outage																			
522			WAX	1 unit planned outage																			
523			WRCA ==>																				
524			WAX unit has priority, outage is planned																				
525			Waneta units have equal (second) priority																				
526						Waneta Facility 100% adjustment (from above)			1.233	0.000	11.597	1.526	16.158	3.531	3.697	15.367	96.361	223.687	208.572	93.064	674.793		
527						Allocate 1 WAX outage to WAX			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.503	15.344	72.394	72.706	15.896	176.843		Ex 2C
528						Allocate residual of 1 WAX, 2 Wan vs 1 WAX to WAN prorata			1.233	0.000	11.597	1.526	16.158	3.531	3.697	14.864	81.017	151.293	135.866	77.168			
529						123.30	50.00%	to WAN	0.617	0.000	5.799	0.763	8.079	1.766	1.849	7.432	40.509	75.647	67.933	38.584	420.782		
530						123.30	50.00%	to WAN	0.617	0.000	5.799	0.763	8.079	1.766	1.849	7.432	40.509	75.647	67.933	38.584	210.391		
531						246.60		sub-total to WAN	1.233	0.000	11.597	1.526	16.158	3.531	3.697	14.864	81.017	151.293	135.866	77.168	497.950	WAN	
532																							
533			Outage State: One WAX, Two Waneta (Post-2036)																				
534			Example 2D (Post 2036)																				
535			Waneta	1 planned, 1 forced																			
536			WAX	1 unit planned outage																			
537			WRCA ==>																				
538			1 WAX, 1 WAN on planned outage have equal first priority, allocate first to WAN																				
539			1 WAN on forced outage has second priority																				
540						Waneta Facility 100% adjustment (from above)			1.233	0.000	11.597	1.526	16.158	3.531	3.697	15.367	96.361	223.687	208.572	93.064	674.793		
541						1 WAX, 1 WAN (from above)			0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	46.506	146.813	139.528	45.473	385.484		
542						Allocate 1 WAN to WAN			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.712	50.177	50.602	10.242	119.733		
543						Residual 1 WAX 1 WAN vs 1 WAN to WAX			0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	37.794	96.636	88.926	35.231	265.751		
544						Residual 1 WAX 2 WAN vs 1 WAX 1 WAN to WAN			1.233	0.000	9.938	1.526	14.088	3.202	3.697	12.261	49.855	76.874	69.044	47.591	289.309	WAX	
545						sub-total to WAN			1.233	0.000	9.938	1.526	14.088	3.202	3.697	12.261	58.567	127.051	119.646	57.833	409.042		
546																							
547			Additional adjustments post 2036																				
548			Adjustment to WAN allocation for Teck Participation Percentage					0.66667	0.822	0.000	6.625	1.017	9.392	2.135	2.465	8.174	39.045	84.701	79.764	38.555	272.695	WAN	
549			Allocation to WAX (no change)						0.000	0.000	1.659	0.000	2.070	0.329	0.000	3.106	37.794	96.636	88.926	35.231	265.751	WAX	
550			Revised Waneta Facility adjustment (post 2036)						0.8	0.0	8.3	1.0	11.5	2.5	2.5	11.3	76.8	181.3	168.7	73.8	538.446	WF	
551																							



Table 10a

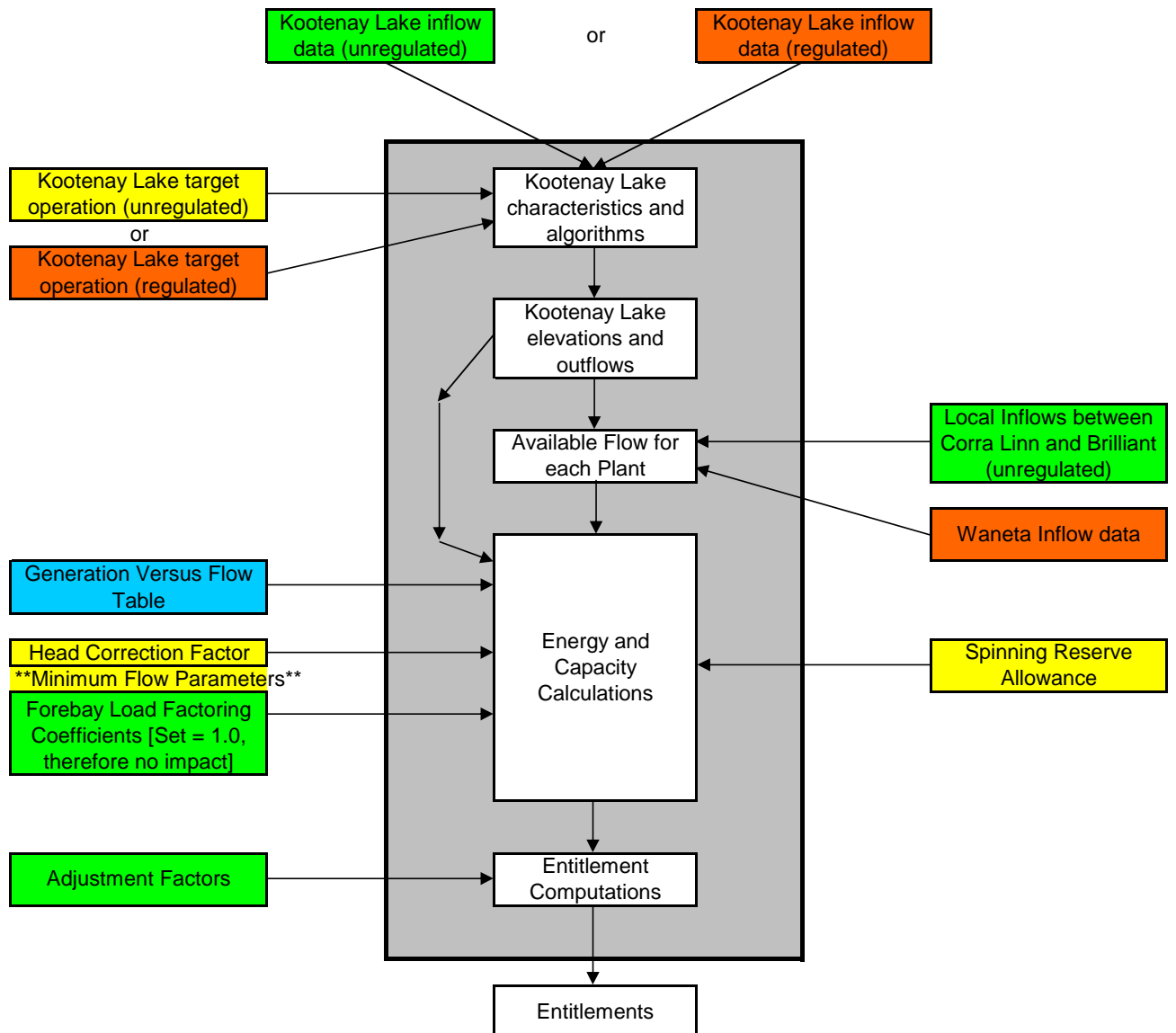
Energy Entitlement Adjustments: FortisBC Planned Outages (MW.h/h)																
		Net MW on Outage														
		MW	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total	
	Number of hours in month / 1000		0.744	0.720	0.744	0.720	0.744	0.744	0.672	0.744	0.720	0.744	0.720	0.744	8.760	
																(GWh/a)
1	Lower Bonnington															
	1 Base	13.5	1.8	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	10.4	12.6	6.9	23.6	
	1 UG	17.2	2.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.1	12.0	14.5	8.0	27.4	
	1 Base 1 UG	27.0	11.8	8.2	8.3	8.2	9.1	8.2	8.3	8.2	8.5	24.5	27.6	19.3	109.9	
	2 UG	30.7	13.8	10.3	10.3	10.2	11.1	10.2	10.3	10.2	10.5	26.6	29.6	21.3	127.6	
	Full Project [Short term outage]		27.7	24.0	24.0	23.9	24.9	23.9	24.2	23.9	24.4	40.3	43.0	35.1	247.9	
2	Upper Bonnington															
	1 Small	4.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	3.9	1.7	5.9	
	2 Small	10.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	9.1	4.0	14.1	
	1 Large (Base)	17.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	15.6	6.9	24.9	
	1 UG	19.3	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	19.2	8.6	31.1	
	1 Small 1 Large (Base)	23.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	20.9	9.5	34.2	
	1 Small 1 UG	25.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6	24.5	11.3	40.7	
	1 Large (Base) 1 UG	38.1	4.2	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.1	27.3	36.3	18.0	63.3	
	Full Project [Short term outage]		23.7	18.6	18.9	18.6	19.0	18.6	20.3	18.6	18.9	49.2	58.7	38.9	235.4	
3	South Slocan															
	1 Base	15.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	14.2	7.1	25.1	
	1 UG	15.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	14.8	7.4	26.2	
	2 Base	33.1	8.5	4.3	4.5	4.3	4.7	4.3	6.2	4.3	4.6	26.1	31.0	18.6	88.8	
	1 Base 1 UG	33.6	9.1	4.9	5.1	4.9	5.3	4.9	6.7	4.9	5.2	26.6	31.5	19.2	93.9	
	Full Project [Short term outage]		26.7	22.5	22.7	22.5	22.9	22.5	24.5	22.5	22.8	44.2	49.0	36.8	248.1	
4	Corra Linn															
	Existing unit	17.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	11.0	5.8	19.9	
	2 existing units	34.8	6.7	3.7	4.0	3.8	4.1	3.8	4.9	3.9	4.2	19.8	22.3	14.7	70.2	
	Full Project [Short term outage]		20.9	18.9	19.5	19.3	19.4	19.1	18.4	16.9	16.6	32.8	34.2	29.0	193.7	
If any of these entries are greater than the corresponding adjustments presented in Table 10, the Table 10 adjustments are to be used.																

# Data and Program Flow Chart

Table 11

## Legend:

	Entitlement Calculation Program
	Fixed Data (no provision to vary throughout agreement), except by agreement
	Input data that may change as a result of changes to upstream operation
	Input data that may change as a result of upgrades, expansions, re-evaluation, etc.
	Input data that may change only as a result of changes to legal obligations (eg. IJC, licences, WECC, etc.)



**Table 16****PLANT CHARACTERISTICS, LEGAL OBLIGATIONS APPLICABLE TO SEVEN MILE**

The following summarizes the Seven Mile pre-WAX water licence provisions (Baseline W.L. Provisions) and the assumed future water licence provisions (Assumed post-WAX Start-up W.L. Provisions), including the Order under the Water Act dated December 18, 2006. If there is any inconsistency between the Baseline W.L. Provisions and the terms of the applicable pre-WAX water licences, the terms of the licences will prevail.

Baseline W.L. Provisions with Waneta Discharge Capability = 32,900 cfs (932 m<sup>3</sup>/s)

<b>Legal Obligation</b>	<b>Effective Period</b>	<b>Requirement</b>
Maximum WL Generation Discharge	Instantaneous	1472.5 m <sup>3</sup> /s
SEV Release Restriction	Sept 1 – May 31	Reasonable efforts to distribute flows from SEV to minimize the amount of discharge that exceeds 932 m <sup>3</sup> /s in event of unexpected changes in inflow, unforecasted high Salmo River discharges or a need to respond to system demand through SEV generation
	Sept 1- May 31 When daily average inflow <sup>3</sup> is less than 932 m <sup>3</sup> /s	Reasonable efforts to distribute SEV discharge such that total instantaneous discharge at Waneta does not exceed 932 m <sup>3</sup> /s
	Sept 1- May 31 When daily average inflow is equal to or greater than 932 m <sup>3</sup> /s	Reasonable efforts to distribute SEV discharge such that total instantaneous discharge at Waneta does not exceed the daily average inflow
SEV Release Restriction	June 1 – Aug 31	Best efforts to minimize the amount of total discharge at Waneta that exceeds 932 m <sup>3</sup> /s
	June 1 – Aug 31 When daily average inflow is less than 932 m <sup>3</sup> /s	Best efforts to distribute SEV discharge such that total instantaneous discharge at Waneta does not exceed 932 m <sup>3</sup> /s
	June 1 – Aug 31 When daily average inflow is equal to or greater than 932 m <sup>3</sup> /s	Best efforts to distribute SEV discharge such that total instantaneous discharge at Waneta does not exceed the daily average inflow
Maximum permissible Rate of reservoir rise or drawdown <sup>4</sup>		6.0m per day 1.2m per hour

<sup>3</sup> Daily Average Inflow is an estimate based on the previous day's inflow, which is used to plan operations for the next day.

Legal Obligation	Effective Period	Requirement
Summer Recreation Reservoir Drawdown restriction <sup>4</sup>	June 1 – August 31	No more than 10days in the period of reservoir fluctuations exceeding 4.0m and hourly fluctuations exceeding 0.6m

Assumed post-WAX Start-up W.L. Provisions with Waneta Facility Discharge Capability = 54,350 cfs (1540 m<sup>3</sup>/s)

As long as the total licenced Waneta Facility Discharge Capability is in excess of the Seven Mile discharge capability of 52 kcfs (1472.5 m<sup>3</sup>/s), it is assumed that Seven Mile would have no obligation to re-regulate river flows to provide any particular inflow into the Waneta forebay. When the total licenced Waneta Facility Discharge Capability exceeds the Seven Mile discharge capability, changes in Seven Mile turbine releases will not decrease spill downstream at the Waneta Facility, so “Waneta Spill Reduction” restrictions to Seven Mile generation volumes should not be required. This assumed change in restrictions is recognized in the table below by revising the water flow requirement in the Legal Obligation table from 932 m<sup>3</sup>/s, to the combined water licence release of Waneta and WAX. This is currently expected to be 1540 m<sup>3</sup>/s.

Legal Obligation	Effective Period	Requirement
Maximum WL Generation Discharge	Instantaneous	1472.5 m <sup>3</sup> /s
SEV Release Restriction	Sept 1 – May 31	Reasonable efforts to distribute flows from SEV to minimize the amount of discharge that exceeds 1540 m <sup>3</sup> /s in event of unexpected changes in inflow, unforecasted high Salmo River discharges or a need to respond to system demand through SEV generation
	Sept 1- May 31 When daily average inflow is less than 1540 m <sup>3</sup> /s	Reasonable efforts to distribute SEV discharge such that total instantaneous discharge at Waneta Facility does not exceed 1540 m <sup>3</sup> /s
	Sept 1- May 31 When daily average inflow is equal to or greater than 1540 m <sup>3</sup> /s	Reasonable efforts to distribute SEV discharge such that total instantaneous discharge at Waneta Facility does not exceed the daily average inflow
SEV Release Restriction	June 1 – Aug 31	Best efforts to minimize the amount of total discharge at Waneta Facility that exceeds 1540 m <sup>3</sup> /s
	June 1 – Aug 31 When daily average inflow is less than 1540 m <sup>3</sup> /s	Best efforts to distribute SEV discharge such that total instantaneous discharge at Waneta Facility does not exceed 1540 m <sup>3</sup> /s
	June 1 – Aug 31 When daily average	Best efforts to distribute SEV discharge such that total instantaneous discharge at Waneta Facility

<sup>4</sup> In case of conflict between discharge requirement and limitation on reservoir rise/drawdown, the discharge requirement takes precedence.

Legal Obligation	Effective Period	Requirement
	inflow is equal to or greater than 1540 m <sup>3</sup> /s	does not exceed the daily average inflow
Maximum permissible Rate of reservoir rise or drawdown		6.0m per day 1.2m per hour
Summer Recreation Reservoir Drawdown restriction	June 1 – August 31	No more than 10days in the period of reservoir fluctuations exceeding 4.0m and hourly fluctuations exceeding 0.6m

PLANT CHARACTERISTICS APPLICABLE TO SEVEN MILE

Operation	Effective Period	Requirement
Normal Generation Ranges	Annual	Units 1-3 120.0 to 190.0 MW Unit 4 140.0 to 220.0 MW
Restricted Generation	Annual	No restrictions.
Normal maximum generation up and down ramp rates	Annual	Ramp up and down: Units 1-3 21.3 MW/minute Unit 4 85.2 MW/minute
Normal Forebay Operating Range		514.8 m to 527.3 m.
Tailwater Levels		461.0m to 464.0m Normal 457.8 m Minimum level (no SEV release and draft WAN forebay)

Seven Mile Generation							
(Based on CRO July 2012)							
Waneta FB	Forebay El.	Flow	Generation	Waneta FB	Forebay El.	Flow	Generation
(m)	(m)	(m³/s)	(MW)	(m)	(m)	(m³/s)	(MW)
457	516	240	118.9	459	516	240	118.2
		800	378.8			800	378.2
		1000	468.7			1000	468.3
		1200	557.3			1200	556.8
		1320	608.8			1320	608.3
	520	230	123.2		520	230	122.4
		800	409.2			800	408.6
		1000	506.5			1000	506.0
		1200	601.8			1200	601.3
		1370	678.8			1370	678.3
	525	220	125.8		525	220	125.6
		800	444.5			800	444.0
		1000	551.4			1000	551.0
		1200	655.6			1200	655.2
		1430	767.4			1430	767.0
	528	210	125.9		528	210	125.1
		800	466.7			800	466.0
		1000	578.8			1000	578.4
		1200	688.2			1200	687.8
		1450	814.7			1450	814.1
Waneta FB	Forebay El.	Flow	Generation	Waneta FB	Forebay El.	Flow	Generation
(m)	(m)	(m³/s)	(MW)	(m)	(m)	(m³/s)	(MW)
461	516	240	115.8	463	516	240	111.9
		800	374.6			800	367.6
		1000	464.7			1000	457.2
		1200	553.4			1200	545.6
		1320	604.8			1320	596.9
	520	230	120.7		520	230	117.0
		800	404.5			800	397.0
		1000	502.0			1000	494.1
		1200	597.8			1200	589.8
		1370	674.8			1370	666.7
	525	220	123.8		525	220	121.3
		800	440.3			800	433.4
		1000	547.3			1000	540.1
		1200	652.0			1200	645.0
		1430	763.8			1430	756.4
	528	210	123.5		528	210	120.7
		800	462.3			800	455.0
		1000	574.6			1000	566.9
		1200	684.4			1200	677.1
		1450	810.5			1450	802.6

## **SCHEDULE B**

### **KOOTENAY INTERCONNECTION**

The interconnections at:

- (a) Kootenay Canal Plant as follows:
  - (1) the point where the B.C. Hydro-owned 63 kV Line 60L225 interconnects with the 69kV Line 13 at the first structure outside South Slocan Substation fence (60L225 – Line 13 interconnection);
  - (2) the point where the B.C. Hydro-owned 63 kV Line 60L227 interconnects with the FortisBC-owned 69kV Line 12 at the first structure outside Kootenay Canal Plant G.S. switchyard fence (60L227 – Line 12 interconnection); and
  - (3) the point where the B.C. Hydro-owned 230 kV Line 2L288 interconnects with the FortisBC-owned 230kV Line 79 at the first structure outside Kootenay Canal Plant G.S. switchyard fence (2L288 – Line 79 interconnection).
- (b) the point where the transmission line owned by Arrow Lakes Power Corporation (Line 2L289) interconnects with the B.C. Hydro-owned Selkirk substation;
- (c) the point where the Teck-owned 230 kV Line 71 (referred to by B.C. Hydro as Line 2L277) from the Waneta Plant enters into the B.C. Hydro-owned Nelway substation; and since B.C. Hydro has authority from Teck to configure the path of Line 71 at the Nelway substation, such point at the Nelway substation is part of the Kootenay Interconnection regardless of how Line 71 is configured; and
- (d) the point where the 230 kV transmission line to be built by WELP interconnects with the B.C. Hydro-owned Selkirk substation.

## **Attachment 19**

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### **REFER TO LIVE SPREADSHEET MODEL**

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)



## **Attachment 20**

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### **REFER TO LIVE SPREADSHEET MODELS**

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