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BCUC File: 57791
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May 31, 2018

Mr. Patrick Wruck  
Commission Secretary and Manager  
Regulatory Support  
British Columbia Utilities Commission  
Suite 410, 900 Howe Street  
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

**RE:    British Columbia Utilities Commission (BCUC or Commission)  
         British Columbia Hydro and Power Authority (BC Hydro)  
         Electricity Purchase Agreement (EPA) Renewals – Sechelt Creek Hydro,  
         Brown Lake Hydro, and Walden North Hydro**

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BC Hydro writes in respect of three separate renewed Electricity Purchase Agreements (**EPA**) it has recently entered into with Sechelt Creek, Brown Lake, and Walden North Independent Power Producers. The Sechelt Creek EPA is effective March 1, 2018 and the Brown Lake EPA and Walden North EPA are effective April 1, 2018. The renewed EPAs are collectively referred to as the three EPA renewals, unless otherwise noted.

This filing (the **Filing**) follows BC Hydro's April 17, 2018, request for an extension to the 60-day filing rule set out in the Commission's Rules for Energy Supply Contracts for Electricity for the Sechelt Creek EPA. The request for an extension was so that one consolidated application can be submitted to the Commission for the three EPA renewals. BC Hydro believed that this would provide regulatory efficiency, because the agreements are similar and are all renewal agreements for existing hydro projects.

The Filing is submitted under section 71 of the *Utilities Commission Act*. In the Filing, BC Hydro seeks an Order from the Commission that each of the renewed Sechelt Creek EPA, the renewed Brown Lake EPA, and the renewed Walden North EPA are in the public interest and are accepted for filing. A draft of the requested Order is included as Appendix A. At the same time of, or soon after, this Filing, BC Hydro will provide a notice of this Filing to the registered interveners in BC Hydro's most recent revenue requirements application in accordance with section 1.1.2 of British Columbia Utilities Commission Rules for Energy Supply Contracts for Electricity (Rules), adopted by Order No. G-61-12.

Copies of the three EPA renewals are provided as Appendix E in the confidential version of the Filing. A comparison table of the original EPAs between BC Hydro and the three Independent Power Producers, as compared to the specimen EPA for hydro project

renewals (**Specimen EPA**), is included in Appendix F. BC Hydro's Specimen EPA is included as Appendix D. Supporting information is provided in relevant excerpts from BC Hydro's Fiscal 2017 to Fiscal 2019 Revenue Requirements Application and BC Hydro's Integrated Resource Plan are included as Appendix B and Appendix C respectively; and the British Columbia's Energy Objectives are included as Appendix K.

The Walden North EPA renewal has the unique benefit of allowing BC Hydro to continue diverting water from Cayoosh Creek into Seton Lake providing additional generation at BC Hydro's Seton Generating Station and maintaining the dilution ratio supportive of fish spawning in the Bridge River system. Images showing the Walden North site layout and adjacent BC Hydro facilities are included as Appendix G. As discussed further in the Filing, the original Walden North EPA, Diversion Agreement and the related Forbearance Agreement remain in effect at this time. The Walden North EPA renewal is intended to replace the original Walden North EPA, the Forbearance Agreement will be terminated and the Diversion Agreement will be amended upon the Commission accepting the Walden North EPA renewal. Therefore, the original Walden North EPA is provided as Appendix H, the Walden North Forbearance Agreement is provided as Appendix I, and the Diversion Agreement is provided in Appendix J in the confidential version of the Filing.

### **Confidentiality**

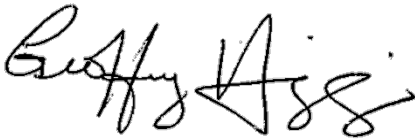
BC Hydro is of the view that specific commercial terms and conditions relating to the three EPA renewals, such as the pricing information and cost-effectiveness benchmarks, are commercially sensitive and the public disclosure of such information will harm BC Hydro's negotiating position with respect to further EPA renewals. Certain information in this Filing and the three EPA renewals are also considered commercially sensitive to the respective Independent Power Producers. In addition, the original Walden North EPA, Forbearance Agreement, and Diversion Agreement is considered commercially sensitive to the Walden North Independent Power Producer. BC Hydro has redacted commercially sensitive information from the public version of the Filing, the three EPA renewals in their entirety (Appendix E), as well as the original Walden North EPA, Forbearance Agreement, and Diversion Agreement in their entirety (Appendix H, I, and J respectively). As provided by the General Rules 1.10 of the Rules for Energy Supply Contracts for Electricity, Part IV of the Commission's Rules of Practice and Procedure, and section 42 of the *Administrative Tribunals Act*, BC Hydro requests that the Commission keep this information confidential.

BC Hydro has included its Specimen EPA in the public version of the Filing which forms the basis of the EPA renewal negotiations. Except as noted in the Filing, the three EPA renewals conform to the Specimen EPA. Subsequent EPA renewals for similar projects are expected to generally conform to the Specimen EPA.

May 31, 2018  
Mr. Patrick Wruck  
Commission Secretary and Manager  
Regulatory Support  
British Columbia Utilities Commission  
Electricity Purchase Agreement (EPA) Renewals – Sechelt Creek Hydro, Brown  
Lake Hydro, and Walden North Hydro

For further information, please contact Geoff Higgins at 604-623-4121 or by email at [bchydroregulatorygroup@bchydro.com](mailto:bchydroregulatorygroup@bchydro.com).

Yours sincerely,



(for) Fred James  
Chief Regulatory Officer

st/tl

Enclosure

Copy to: BCUC Project No. 3698869 (BC Hydro  
F2017 to F2019 Revenue Requirements  
Application) Registered Intervener  
Distribution List.

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**Gitxaala First Nation**

**Kitsumkalum First Nation**

**Cayoos Creek Indian Band**

**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**PUBLIC**

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Appendix C	2013 Integrated Resource Plan Excerpts
Appendix D	BC Hydro Specimen Hydro Electricity EPA Renewal Contract
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# 1 Introduction

## 1.1 Introduction

BC Hydro is in the process of negotiating the renewal of several Electricity Purchase Agreements (**EPAs**) with facilities that are at or approaching the end of their initial contract terms. Since July 2016, BC Hydro has entered into four EPA renewals with run-of-river hydroelectric facilities and filed these EPAs with the British Columbia Utilities Commission (**BCUC or Commission**) for acceptance. The BCUC has determined that each of these EPA renewals is in the public interest and accepted them for filing.<sup>1</sup>

BC Hydro has recently renewed the EPAs for each of the following projects:

- Sechelt Creek (formerly known as Salmon Inlet) run-of-river hydroelectric project (**Sechelt Creek**) with an effective date of March 1, 2018;
- Brown Lake storage hydroelectric project (**Brown Lake**) with an effective date of April 1, 2018; and
- Walden North run-of-river hydroelectric project (**Walden North**) with an effective date of April 1, 2018.

BC Hydro is filing these three EPA renewals (**Filing**) with the BCUC for acceptance in accordance with section 71 of the *Utilities Commission Act (UCA)*.

The EPA renewals that are the subject of this Filing provide for continued use of existing, reliable facilities generating electricity from clean or renewable hydro

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<sup>1</sup> On September 15, 2016, BC Hydro filed the first two of these EPA renewals for the Akolkolex and Soo River run-of-river hydroelectric projects and the Commission accepted these agreements pursuant to Order No. E-1-17. The third of these EPA renewals, for the Boston Bar run-of-river hydroelectric project, was filed with the Commission on June 1, 2017 and the Commission accepted this agreement pursuant to Order No. E-16-17. The fourth of these EPA renewals, for the Doran Taylor hydroelectric project, was filed with the Commission on October 11, 2017 and the Commission accepted this agreement pursuant to Order No. E-6-18.

resources at cost-effective pricing. In addition, the projects provide the following incremental benefits which are discussed in greater detail later in this Filing:

- The Sechelt Creek project is located close to BC Hydro's load centre and delivers a relatively high proportion of its annual energy during BC Hydro's peak load months;
- The Brown Lake EPA renewal provides storage benefits to BC Hydro, which support reliability in the Prince Rupert area; and
- The Walden North EPA renewal provides water diversion benefits to BC Hydro by enabling the continued diversion of water from Cayoosh Creek into Seton Lake.

The EPA renewal terms and conditions for each of the agreements are based on the same Specimen EPA as was used for the Akolkolex, Soo River, Boston Bar and Doran Taylor projects, reflecting current contracting standards including more robust terms and conditions. A copy of the Specimen Hydro EPA (**Specimen EPA**) is attached as Appendix D.

## **1.2 Order Sought**

In this Filing, BC Hydro requests from the BCUC that the EPA renewals are accepted for filing. A copy of the draft form Order is attached as Appendix A.

## **1.3 BC Hydro EPA Renewal Process**

As stated in BC Hydro's Fiscal 2017 to Fiscal 2019 Revenue Requirements Application (**F17-F19 RRA**) which reflects the most recent Load Resource Balance (**LRB**), BC Hydro's plan continues to include pursuing EPA renewals with Independent Power Producers (**IPPs**) consistent with BC Hydro's 2013 Integrated Resource Plan (**2013 IRP**).<sup>2</sup> BC Hydro's most recent LRB from the F17-F19 RRA is

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<sup>2</sup> Refer to BC Hydro's F17-F19 RRA, section 3.4.4.2, EPA Renewals included in Appendix B of this Filing.



1 contained in Appendix B and relevant excerpts from the 2013 IRP for EPA renewal  
2 purposes are contained in Appendix C.

3 The 2013 IRP includes EPA renewal assumptions.<sup>3</sup> However, these assumptions do  
4 not set targets or threshold amounts for the energy and capacity volumes for EPA  
5 renewals (by resource type or in aggregate) but were estimates of what BC Hydro  
6 assumed at that time would be available for renewal at a cost effective price. The  
7 need for new resources, including EPA renewals is identified by BC Hydro's LRB.  
8 Based on the mid-level load forecast in the F17-F19 RRA, the LRB identifies a need  
9 for new resources in fiscal 2022. Implementing the Recommended Actions of the  
10 2013 IRP (i.e., including Site C, Demand Side Management (**DSM**), Standing Offer  
11 Program, and the assumed energy and capacity volumes from EPA renewals) will  
12 defer the need for additional resources until fiscal 2034. BC Hydro's current estimate  
13 of its Long-Run Marginal Cost (**LRMC**) after fiscal 2034 is \$104/MWh (\$2017) for  
14 greenfield IPPs.<sup>4</sup>

15 BC Hydro generally assesses each individual IPP project as its EPA approaches the  
16 end of its contract term; however, for those EPAs that have "evergreen" provisions,  
17 BC Hydro has been deferring renewal of EPAs for the smaller hydroelectric projects  
18 and focusing on negotiation of EPA renewals with larger projects such as the  
19 Akolkolex, Soo River, Boston Bar and Doran Taylor projects. The EPA renewals in  
20 this Filing are the last of the EPAs with larger (greater than 4 MW) IPP run-of-river  
21 hydro facilities on the integrated system due to expire prior to fiscal 2024.

22 Given the above, as an EPA for a larger hydroelectric project approached the end of  
23 its contract term, our negotiations with the individual IPP focused on assessing the  
24 individual facility and its cost structure and risks, and achieving a cost-effective

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<sup>3</sup> As outlined in BC Hydro's response to Commission Staff Question 1.1.1 in the Akolkolex and Soo River Filing, the energy and capacity volume assumptions for IPP renewals in the 2013 IRP are as follows: 75 per cent of from expiring run-of-river hydroelectricity EPAs; 50 per cent from expiring biomass EPAs; and 100 per cent of all remaining expiring EPAs.

<sup>4</sup> Please refer [Table 1](#).

1 renewal contract in the context of the key principle of reducing near-term costs while  
2 maintaining cost-effective options for long-term need (Recommended Action 4 from  
3 the 2013 IRP). BC Hydro renews an individual EPA where it is cost-effective to do so  
4 and is guided by the 2013 IRP EPA renewal assumptions.

5 Where a cost-effective contract can be negotiated, renewing an EPA with existing  
6 IPP facilities has a number of important benefits. It allows for the continued use of  
7 existing reliable assets, which defers the need to develop new resources and  
8 associated environmental impacts. EPA renewals generally allow BC Hydro to  
9 negotiate lower energy prices given that the initial IPP capital investment has likely  
10 been fully or largely recovered during the term of the original EPA. Moreover,  
11 renewing the EPAs of existing projects enables continued reliable operation of these  
12 facilities, with benefits to the Province of B.C., regional districts and local  
13 communities.

14 Even where a cost-effective contract can be negotiated, the cost must still be within  
15 BC Hydro's budget. The total cost forecast from the 10-Year Rates Plan provides a  
16 financial framework and budget within which the costs for all EPA renewals are  
17 being managed by BC Hydro.

#### 18 **1.4 Structure of this Application**

19 This application consists of eight sections and has been structured to be generally  
20 consistent with the format and approach of the previous EPA renewal filings, with  
21 some structural changes to facilitate the joint filing of three EPA renewals.

22 Section [2](#) contains an overview of the regulatory review that BC Hydro proposes for  
23 the three requested EPA renewals.

24 Section [3](#) covers BC Hydro's cost-effectiveness evaluation of EPA renewals.

Section 4 discusses the Sechelt Creek EPA renewal project, 1990 EPA and EPA renewal. This section also details the cost-effectiveness of the Sechelt Creek EPA renewal, risk assessment and First Nations considerations.

Section 5 discusses the Brown Lake EPA renewal project, 1994 EPA and EPA renewal. This section also details the cost-effectiveness of the Brown Lake EPA renewal, risk assessment and First Nations considerations.

Section 6 discusses the Walden North EPA renewal project, 1990 EPA; Forbearance Agreement, Diversion Agreement and EPA renewal. This section also details the cost-effectiveness of the Walden North EPA renewal, risk assessment and First Nations considerations.

Section 7 sets out the legislation that the Commission must consider when determining if the three EPA renewals are in the public interest.

Section 8 highlights other benefits of the three EPA renewals that the Commission may consider.

## **2 Regulatory Review**

BC Hydro believes that the BCUC can issue the requested Orders without a hearing as the information contained in this Filing provides the information necessary for the BCUC to determine that each of the EPA renewals is in the public interest in accordance with the criteria set out in section 71 of the UCA, including:

- The levelized prices of \$ [REDACTED], \$ [REDACTED], and \$ [REDACTED] (all in 2017\$) over the term of the Sechelt Creek, Brown Lake, and Walden North EPA renewals, respectively, compare favourably to BC Hydro's opportunity cost of \$ [REDACTED], \$ [REDACTED], and \$ [REDACTED] (all in 2017\$), for each facility respectively;
- BC Hydro negotiated the three EPA renewals on more favourable terms than the original EPAs;

- 
- 1 • Pursuant to the three EPA renewals, BC Hydro is buying the same electricity  
2 product from the same generating facility and the same counterparty, as under  
3 the expiring, or expired EPA;
  - 4 • The three EPA renewals align to the key principle of reducing near-term costs  
5 while maintaining cost-effective options for long-term need, as set out in  
6 Recommended Action 4 of the approved IRP;
  - 7 • The three EPA renewals are consistent with the commercial terms/conditions of  
8 the recently filed EPA renewals for the Akolkolex and Soo River, Boston Bar  
9 and Doran Taylor Hydro projects as accepted pursuant to Order Nos. E-1-17,  
10 E-16-17 and E-6-18; and
  - 11 • Each of the three EPA renewals has unique benefits to BC Hydro as follows:
    - 12 ► The Sechelt Creek EPA renewal is located close to BC Hydro's load centre  
13 and delivers a relatively high proportion of its annual energy during  
14 BC Hydro's peak load months;
    - 15 ► The Brown Lake EPA renewal provides storage benefits to BC Hydro and  
16 local area reliability support; and
    - 17 ► The Walden North EPA renewal enables the continued diversion of water  
18 from Cayoosh Creek into Seton Lake which allows for additional BC Hydro  
19 generation at the Seton Generating Station (**Seton GS**) and maintains the  
20 dilution ratio supportive of fish spawning in the Bridge River system. In the  
21 absence of the EPA renewal, alternative arrangements for diversion to  
22 Seton Lake would be required and may not be feasible due to cost and  
23 environmental considerations.

24 A public version of this Filing is being provided to registered interveners in the  
25 F17-F19 RRA.

1 The commercial terms of each of the EPA renewals are commercially sensitive and  
2 confidential, and accordingly the Sechelt Creek, Brown Lake and Walden North  
3 EPAs are attached as Appendix E-1, E-2, and E-3, respectively, to the confidential  
4 version of this Filing for the BCUC only.

5 This Filing fulfils the section 71 filing obligations of all parties to the Sechelt Creek,  
6 Brown Lake and Walden North EPA renewals.

7 We note that the BCUC has recently been requesting that interested persons  
8 provide comments on whether filed EPA renewals should be accepted without a  
9 hearing. If the BCUC makes such a request respecting this Filing, we ask that the  
10 BCUC request parties to provide their comments on a timetable that allows for a  
11 BCUC decision by August 28, 2018. This deadline stems from the terms of the  
12 renewed Sechelt Creek EPA that allows either party to terminate the EPA renewal if  
13 Commission acceptance is not issued by that date;<sup>5</sup> whereas the deadline for  
14 Commission acceptance of the Brown Lake and Walden North EPAs is  
15 September 28, 2018.

16 Additionally, if the BCUC staff have questions about the Filing, we request that  
17 interested parties be provided notice of the questions and that the timetable for  
18 BC Hydro's response to the questions permits interested parties to consider the  
19 response in preparing their comments on whether the filed EPAs should be  
20 accepted without a hearing.

### 21 **3 EPA Renewal Cost-Effectiveness**

22 As explained in BC Hydro's recent EPA renewal filings, BC Hydro considers EPA  
23 renewal prices against an estimate of the IPP's cost of service (including a rate of  
24 return), as well as BC Hydro's opportunity cost, the IPP's opportunity cost, the

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<sup>5</sup> Refer to Appendix E-1 of this Filing, section 3 of the Sechelt Creek EPA renewal.

1 impact to BC Hydro's rates plan and system benefits and support characteristics (if  
2 applicable).

- 3 • IPP's Opportunity Cost – will generally reflect market prices; BC Hydro is using,  
4 as a proxy, the Mid-C electricity spot market value less costs for losses and  
5 wheeling to Mid-C (referred to as the BC Border sell price<sup>6</sup>);
- 6 • IPP's Cost of Service – based on forecasted operating and maintenance (O&M)  
7 costs and sustaining capital costs for continued facility operation, which is  
8 compared to industry standards; and
- 9 • BC Hydro's Opportunity Cost – reflects an upper limit for the levelized value of  
10 the energy to the BC Hydro system over the term of the EPA based on the  
11 LRMC<sup>7</sup> of firm clean energy resources [REDACTED]<sup>8</sup>.

12 The determination and usage of BC Hydro's LRMC is outlined in Chapter 3 of  
13 BC Hydro's F17-F19 RRA and summarized in [Table 1](#) below.

14 **Table 1 Marginal Resources and Related Costs**

Marginal Resources	Period of Applicability	LRMC (Fiscal 2017\$)
DSM and EPA Renewals	Fiscal 2022 to Fiscal 2033	Less than \$89/MWh
Greenfield IPPs	Fiscal 2034 and beyond	\$104/MWh

15 It is important to note that LRMC is not a clearing price but rather it is used as a  
16 benchmark to determine the cost-effectiveness of different resources. For EPA  
17 renewals, BC Hydro expects to acquire the additional resources needed from  
18 fiscal 2022 to fiscal 2033 at prices below the LRMC of \$89/MWh, given that the EPA  
19 renewals are for existing projects for which the IPP's initial capital investment is likely  
20 to have been fully or largely recovered during the term of the original EPA.

<sup>6</sup> Adjusted for time of delivery and losses to the Lower Mainland.

<sup>7</sup> Adjusted for time of delivery, losses to the Lower Mainland and portion of energy considered firm (25 per cent freshet firm energy cap).

<sup>8</sup> [REDACTED]

When BC Hydro evaluates the energy price for the term of an EPA, BC Hydro's opportunity cost analysis values IPP energy at the market price during periods of surplus; whereas, during periods of deficit BC Hydro values the IPP energy at the LRMC.

## **4 Sechelt Creek EPA Renewal**

### **4.1 Sechelt Creek Project**

The Sechelt Creek project is located northeast of Sechelt B.C., on Salmon Inlet. The project has an installed capacity of 16.7 MW with average annual generation of 85 GWh. The project is owned by MPT Hydro LP, a subsidiary of Capstone Infrastructure Corporation, and is operated by Regional Power Inc. Earlier this year, BC Hydro was advised that the Sechelt Creek IPP and the shíshálh Nation entered into an agreement that results in collaborative decision-making and governance, and will result in shíshálh Nation equity ownership and profit sharing for the project.

The Sechelt Creek project is located close to BC Hydro's load centre, delivers a relatively high proportion of its annual energy during BC Hydro's peak load months (December and January), and has a high annual capacity factor. The project has been recognized for its environmental stewardship, including efforts to enhance the salmon run in Sechelt Creek, and was the recipient of a United Nations Educational, Scientific and Cultural Organisation (commonly known as **UNESCO**) prize for excellence in sustainable hydropower development.

### **4.2 Sechelt Creek 1990 EPA**

The Sechelt Creek IPP originally signed an EPA with BC Hydro in August 1990 under the 1989 Request for Proposals. The project achieved commercial operation on March 1, 1997 and has been selling electricity to BC Hydro for over 20 years.

The current energy price under the original EPA was \$ [REDACTED] (2017\$), escalating at [REDACTED] per cent per annum. The EPA had an evergreen provision allowing

the contract to continue from year-to-year after March 2017 unless terminated by either party after providing six months' notice. Following the expiry of the original 20-year EPA term on March 1, 2017, the contract continued on a year-to-year basis under the evergreen provision. BC Hydro terminated the original Sechelt Creek EPA effective March 1, 2018, immediately prior to the effective date of the Sechelt Creek EPA renewal.

### **4.3 Sechelt Creek EPA Renewal**

The effective date of the Sechelt Creek EPA renewal is March 1, 2018. In April 2018 BC Hydro sought and received an extension to the April 30, 2018 Commission filing guideline for the Sechelt Creek EPA renewal to May 31, 2018, so that a consolidated application could be submitted to the Commission for the three EPA renewals contained in this Filing. BC Hydro believes a consolidated application provides regulatory efficiency, because the agreements are similar in that they are all renewal agreements for existing hydro projects. Further details of the Sechelt Creek EPA renewal are provided below.

### **4.4 Sechelt Creek EPA Comparison**

The Sechelt Creek EPA (as well as the Brown Lake and Walden EPAs as later discussed in this Filing) is modelled after the more robust present-day form of EPA. BC Hydro has updated its Specimen EPA for hydro projects to reflect current drafting standards, including more robust contractual provisions consistent with recent EPAs within BC Hydro's IPP supply portfolio. The key terms that have changed between the original EPAs for these projects and the current EPA renewals are outlined in the table provided in Appendix F. This is the same comparison table submitted as part of the previous hydro EPA renewal filings.<sup>9</sup>

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<sup>9</sup> See Table 1, at page 6, of the Akolkolex/Soo River EPA renewals filing dated September 15, 2016; Appendix C of the Boston Bar EPA renewal filing dated June 1, 2017; and Appendix C of the Doran Taylor EPA renewal filing dated October 11, 2017.



As more fully outlined in Appendix F, key terms which have changed are: energy price escalation, environmental attributes, First Nations consultation, revenue metering, dispatch/turn-down rights, exclusivity, and termination rights. All of these changes are to BC Hydro's benefit, and therefore to the benefit of BC Hydro ratepayers.

#### 4.5 Project Specific EPA Terms and Conditions

In addition to the contractual provisions contained in the Specimen EPA for hydro projects, the project-specific commercial terms applicable to the Sechelt Creek EPA renewal are summarized in [Table 2](#).

**Table 2 Sechelt Creek EPA Renewal Commercial Terms**

Description	EPA Section	Sechelt Creek EPA Renewal
Seller	Page 1	MPT Hydro LP
Effective Date	Page 1	March 1, 2018
Term of EPA	2.1	
Regulatory Condition Expiry Date	3.2	Either party may terminate the EPA if Commission acceptance is not issued by August 28, 2018 (i.e., 180 days after the Effective Date of the EPA renewal).
Energy	5.1	Expected generation of 84.6 GWh/year
Hourly Limit	5.2	MWh per hour
Energy Price	6.1	

Similar to the other recently filed EPA renewals, the Sechelt Creek EPA renewal has an hourly delivery limit. The hourly delivery limit caps BC Hydro's financial commitments for energy purchases and is aligned with . In lieu of the two step pricing structure contained in other recently filed EPA renewals, a low initial energy price was negotiated with a .

#### 4.6 Sechelt Creek EPA Cost Effectiveness

For the Sechelt Creek EPA renewal, the key cost-effectiveness benchmarks over the term of the EPA renewal are as follows:

**Table 3 Sechelt Creek EPA Renewal  
Cost-Effectiveness Benchmarks**

	Levelized Energy Price (\$2017/MWh) <sup>10</sup>
Original EPA (if original EPA price is applied to entire renewal term)	■
IPP's Opportunity Cost (based on BC Border Sell Price) <sup>11</sup>	■
BC Hydro's Opportunity Cost <sup>12</sup> ■	■
Renewed EPA	■

As shown above, the negotiated energy price of \$■ (levelized)<sup>13</sup> for the Sechelt Creek EPA renewal is below BC Hydro's opportunity cost of \$■ which is viewed as the upper benchmark of cost-effectiveness. BC Hydro is of the view that the levelized EPA energy price is reasonable relative to the estimated cost of service for the Sechelt Creek IPP, given the risks borne by the IPP (see section 4.7).

Also, if the original EPA price and escalation terms were to be applied to the entire renewal term, the levelized energy price would be \$■ (2017\$). The levelized energy price for this renewed EPA is approximately ■ per cent lower than the levelized price under the original EPA's evergreen clause.

<sup>10</sup> To facilitate comparison with the most recent EPA renewal filing, Doran Taylor, BC Hydro has used \$2017.

<sup>11</sup> Adjusted for project-specific product characteristics such as time of delivery and losses to the Lower Mainland.

<sup>12</sup> Adjusted for project-specific product characteristics such as time of delivery, losses to the Lower Mainland and portion of energy considered firm (25 per cent freshet firm energy cap).

<sup>13</sup> BC Hydro calculates the levelized cost of energy of an EPA as the present value of the unit cost of energy over the term of the EPA.

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## 4.7 Risk Assessment

The risks associated with the Sechelt Creek EPA renewal are described below and are generally viewed as low for BC Hydro.

### (a) Attrition

The attrition risk is considered to be very low given that the Sechelt Creek facility has been operating reliably since 1997.

### (b) Financial

The Sechelt Creek IPP submitted forecasted capital and O&M costs for the facility, as well as a 5-year history of these costs. BC Hydro believes that the submitted O&M costs are within the range of overall industry practice. At BC Hydro's request, the O&M and capital plans were reviewed by an independent third-party consulting firm retained by the IPP. The consultant found that the forecasted O&M costs are "generally consistent with good engineering practice and generally meet hydroelectric industry practice". As well, the capital plans appear to address facility needs for continued reliable operation and the estimated expenditures appear to be "adequate and appropriately conservative".

Based on a critical assessment of the financial submissions made by the IPP and its project-related risks, BC Hydro is of the view that the proposed EPA renewal price reasonably represents the cost of service for the Sechelt Creek facility, including an acceptable rate of return given the risk borne by the IPP. Examples of the risks borne by the IPP include uncertainty regarding water rental and property tax increases, equipment failure, diversion restrictions, and reduced water flows.

### (c) Permitting / Environmental

BC Hydro confirmed with the Ministry of Forest, Lands & Natural Resources Operations (**FLNRO**) that the Sechelt Creek facility's provincial permits are in good-standing. BC Hydro also engaged an independent firm to review the material

1 permits required for continued operation of the Sechelt Creek facility. The consultant  
2 concluded that the Sechelt Creek facility has all material permits needed for  
3 continued operation and these permits do not require renewal during the [REDACTED]  
4 term of the EPA renewal, with the exception of the following provincial agreements  
5 and permits:

- 6 • Lease agreements for the powerhouse and intake, which expire  
7 October 16, 2025;
- 8 • Right of way agreement for the penstock, which expires October 1, 2030;
- 9 • Licence of occupation for the road to the powerhouse and substation, which  
10 expires in 2027 (it can be extended to match the term of the EPA); and
- 11 • Conversion of the existing permit for the dock and barge ramp to current land  
12 tenure standard, which is currently underway with FLNRO.

13 The appropriate permit renewal process will be followed for any permits that expire  
14 during the term of the EPA renewal.

15 (d) Technical

16 The consulting firm retained by the Sechelt Creek IPP conducted a condition  
17 assessment of the facility and concluded that the facility is in “generally good  
18 condition for structures of this age” and, as noted in sub-paragraph (b) above, O&M  
19 procedures and practices are “generally consistent with good engineering practices  
20 and generally meet accepted hydroelectric industry practices”. The consultant also  
21 stated that with on-going management consistent with normal industry practice and  
22 implementation of the recommended capital plan it was of the view that the facility  
23 should be sustainable for another [REDACTED] The recommended capital  
24 improvements were incorporated into the capital plan submitted by the Sechelt  
25 Creek IPP.

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(e) Network Upgrade Costs

As part of its EPA renewal process, BC Hydro is also ensuring that the existing transmission infrastructure supporting these IPP interconnections meets current standards and requirements. Some of the IPPs renewing their EPAs with BC Hydro require upgrades to their system (which is a cost borne by the IPP) and/or upgrades to BC Hydro's network system (which is a network upgrade cost covered by BC Hydro pursuant to its Standard Generator Interconnection Agreement). Generally these upgrades are minor, such as upgrades to the communications and protection systems or metering equipment. This is the case with the required Sechelt Creek upgrades, and the network upgrade costs that BC Hydro is responsible for are estimated at \$ [REDACTED]<sup>14</sup>.

#### **4.8 First Nations**

The shíshálh Nation is the only First Nation whose consultative boundaries include the Sechelt Creek project. During the EPA renewal negotiations, BC Hydro was advised that the Sechelt Creek IPP and the shíshálh Nation entered into an agreement that results in collaborative decision-making and governance, and will result in shíshálh Nation equity ownership and profit sharing for the project.

BC Hydro is of the view that the Sechelt Creek EPA renewal will not result in any new or incremental impacts on Aboriginal rights and title, and therefore it does not trigger the duty to consult. The Sechelt Creek IPP has advised:

- They do not anticipate any changes to the physical footprint of the Sechelt Creek facility and there will be no change to the energy output of the facility or operations as a result of the EPA renewal;

---

<sup>14</sup> BC Hydro notes that the adjusted levelized energy price, including interconnection network upgrade costs, increases by [REDACTED] to \$ [REDACTED] (2017\$).

- There are no environmental impacts that resulted from the original construction of Sechelt Creek facility that have the potential to worsen with continued operation; and
- It is uncertain whether the Sechelt Creek facility would be decommissioned or decommissioned earlier in the event the EPA is not renewed.

In addition, the network upgrades to be undertaken by BC Hydro in relation to the EPA renewal will not change the operations or physical footprint of the BC Hydro transmission system.

As noted in section [4.7](#) of this Filing, the Sechelt Creek facility has the required permits to continue operation, although some provincial permits and agreements will require renewal before the end of the new EPA term.

For the reasons stated above, BC Hydro is therefore of the view that the renewal of the Sechelt Creek EPA has no potential new or incremental impacts on Aboriginal rights and title and no consultation with First Nations is required.

## **5 Brown Lake EPA Renewal**

### **5.1 Brown Lake Project**

Located by the Ecstall River near Prince Rupert B.C., Brown Lake is a 7.2 MW hydro project with storage that provides average annual energy generation of 52.3 GWh. Innergex Renewable Energy Inc. (**Innergex**) purchased Brown Lake in 2012 from Capital Power Corporation.

The Brown Lake project has a high annual capacity factor and delivers a high proportion of its annual energy during BC Hydro's peak load months and a low proportion of its annual energy during the freshet season.

BC Hydro's transmission line connecting the Prince Rupert area to BC Hydro's integrated system covers mountainous terrain and is subject to significant natural

1 hazard risk (e.g., avalanche, landslides), which has resulted in extended forced  
2 outages for the Prince Rupert community. The transmission line also requires  
3 planned outages to conduct annual maintenance work. The storage capability at the  
4 Brown Lake facility allows BC Hydro to support local reliability in the Prince Rupert  
5 area, acting as standby resource in case of an outage (both forced and planned) for  
6 BC Hydro's transmission line.

## 7 **5.2 Brown Lake 1994 EPA**

8 The original Brown Lake EPA was awarded in September 1994 under the  
9 1989 Request for Proposals. The Brown Lake project achieved commercial  
10 operation in December 1996 and has been selling electricity to BC Hydro for over  
11 20 years.

12 The current energy price under the original EPA was \$ [REDACTED] (2017\$),  
13 escalating at 3 per cent per annum. The original EPA had an evergreen provision  
14 allowing the contract to continue from year-to-year after December 2016 unless  
15 terminated by either party after providing six months' notice. BC Hydro terminated  
16 the original Brown Lake EPA effective April 1, 2018, immediately prior to the  
17 effective date of the Brown Lake EPA renewal.

## 18 **5.3 Brown Lake EPA Renewal**

19 The effective date of the Brown Lake EPA renewal is April 1, 2018. Further details of  
20 the Brown Lake EPA renewal are provided below.

## 21 **5.4 Brown Lake EPA Comparison**

22 The Brown Lake EPA, similar to the Sechelt Creek EPA, is modelled after the more  
23 robust present-day form of EPA. Please refer to section [4.4](#) of this Filing above for a  
24 further discussion of this comparison.

## 5.5 Project Specific EPA Terms and Conditions

In addition to the contractual provisions contained in the Specimen EPA for hydro projects, the project-specific commercial terms applicable to the Brown Lake EPA renewal are summarized in [Table 4](#).

**Table 4 Brown Lake EPA Renewal Commercial Terms**

Description	EPA Section	Brown Lake EPA Renewal
Seller	Page 1	Brown Miller Power Limited Partnership
Effective Date	Page 1	April 1, 2018
Term of EPA	2.1	[REDACTED]
Regulatory Condition Expiry Date	3.2	Either party may terminate the EPA if Commission acceptance is not issued by September 28, 2018 (i.e., 180 days after the Effective Date of the EPA renewal).
Energy	5.1	Expected generation of 52.3 GWh/year
Hourly Limit	5.2	[REDACTED] MWh per hour
Energy Price	6.1	[REDACTED]
Local Reliability	5.9	In connection with a Reliability Request by BC Hydro to support local load conditions in the Prince Rupert Area, the Seller shall [REDACTED]

Similar to the other recently filed EPA renewals, the renewed Brown Lake EPA has a two-step pricing structure and an hourly delivery limit. As more fully explained below, the two-step pricing provides BC Hydro with lower energy prices for the front-end of the EPA. The hourly delivery limit caps BC Hydro's financial commitments for energy purchases and is aligned with [REDACTED].



BC Hydro has negotiated a lower energy price for the first

## 5.6 Brown Lake Cost Effectiveness

For the Brown Lake EPA renewal, the key cost-effectiveness benchmarks over the term of the EPA renewal are as follows:

**Table 5 Brown Lake EPA Renewal  
Cost-Effectiveness Benchmarks**

	Levelized Energy Price (\$2017/MWh) <sup>16</sup>
Original EPA (if original EPA price is applied to entire renewal term)	
IPP's Opportunity Cost (based on BC Border Sell Price) <sup>17</sup>	
BC Hydro's Opportunity Cost <sup>18</sup> [REDACTED]	
Renewed EPA	

As shown above, the negotiated energy price of \$ [REDACTED] (levelized)<sup>19</sup> for the Brown Lake EPA renewal is below BC Hydro's opportunity cost of \$ [REDACTED] which is viewed as the upper benchmark of cost-effectiveness. BC Hydro is of the view that the levelized EPA energy price is reasonable relative to the estimated costs of service for the Brown Lake IPP, given the risks borne by the IPP (see section [5.7](#)).

<sup>16</sup> To facilitate comparison with the most recent EPA renewal filing, Doran Taylor, we have used \$2017.

<sup>17</sup> Adjusted for project-specific product characteristics such as time of delivery and losses to the Lower Mainland.

<sup>18</sup> Adjusted for project-specific product characteristics such as time of delivery, losses to the Lower Mainland and portion of energy considered firm (25 per cent freshet firm energy cap).

<sup>19</sup> BC Hydro calculates the levelized cost of energy of an EPA as the present value of the unit cost of energy over the term of the EPA, in this case \$ [REDACTED] (2017\$).

1 Also, if the original EPA price were to be applied to the entire renewal term, the  
2 levelized energy price would have been \$ [REDACTED] (2017\$). The levelized energy  
3 price for this renewed EPA is approximately [REDACTED] per cent lower than the levelized  
4 price under the original EPA's evergreen clause.

## 5 **5.7 Risk Assessment**

6 The risks associated with the Brown Lake EPA renewal are described below and are  
7 generally viewed as low for BC Hydro.

### 8 (a) Attrition

9 The attrition risk is considered to be very low given that the Brown Lake facility has  
10 been operating reliably since 1996.

### 11 (b) Financial

12 The Brown Lake IPP submitted forecasted capital and O&M costs for the facility, as  
13 well as historic O&M costs. BC Hydro believes that the submitted O&M costs are  
14 within the range of overall industry practice.

15 Based on a critical assessment of the financial submissions made by the IPP and its  
16 project-related risks, BC Hydro is of the view that the proposed EPA renewal price  
17 reasonably represents the cost of service for the Brown Lake facility, including a rate  
18 of return given the risk borne by the IPP. Examples of the risks borne by the IPP  
19 include uncertainty regarding water rental and property tax increases, equipment  
20 failure, diversion restrictions, and reduced water flows.

### 21 (c) Permitting / Environmental

22 BC Hydro also engaged an independent consulting firm to review material permits  
23 required for the Brown Lake facility. The consultant concluded that the Brown Lake  
24 facility has all material permits needed for continued operation and none of these  
25 permits require renewal during the [REDACTED] term of the EPA renewal.

1 (d) Technical

2 A consulting firm retained by the Brown Lake IPP conducted a condition assessment  
3 of the Brown Lake facility and concluded that “all mechanical equipment that have  
4 been inspected and necessary for the operation of the power plant are in very good  
5 condition and all civil equipment that have been inspected and necessary for the  
6 operation of the power plant are in apparent good condition.” The consultant’s report  
7 further states that “proper operation of power plant can be assured for [REDACTED]  
8 [REDACTED]”. The Brown Lake IPP also provided a Long Term  
9 Operating Reliability Report that concluded “the Brown Lake Generating Station has  
10 a proven historical record of reliable operation which can be maintained through  
11 adherence to the preventive maintenance program, proactive repair to damaged  
12 mechanical equipment, replacement and refurbishment of aging electrical  
13 components, and modernization of the control and protection systems. If these  
14 conditions are maintained, similar levels of reliability can be achievable for an  
15 additional 40 years.”

16 (e) Network Upgrade Costs

17 As discussed in section [4.7](#)(e) above, BC Hydro is also ensuring that the existing  
18 transmission infrastructure supporting these IPP interconnections meets current  
19 standards and requirements. The Brown Lake facility requires minor upgrades, and  
20 the BC Hydro network upgrade costs for the Brown Lake facility is estimated to be  
21 \$ [REDACTED]<sup>20</sup>.

22 **5.8 First Nations**

23 A review of the consultative boundary maps by BC Hydro identifies the Brown Lake  
24 facility as being within the consultative boundaries of the following First Nations:

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<sup>20</sup> In addition, BC Hydro notes that the adjusted levelized energy price, which takes into consideration interconnection network upgrade costs, increases to \$ [REDACTED] (2017\$).

- 
- 1 • Lax Kw'alaams Band;
  - 2 • Gitgaat First Nation;
  - 3 • Gitxaala Nation;
  - 4 • Kitselas First Nation;
  - 5 • Kitsumkalum First Nation; and
  - 6 • Metlakatla First Nation.

7 BC Hydro is of the view that the Brown Lake EPA renewal will not result in any new  
8 or incremental impacts on Aboriginal rights and title, and therefore it does not trigger  
9 the duty to consult. The Brown Lake IPP has advised:

- 10 • They do not anticipate any changes to the physical footprint of the Brown Lake  
11 facility and there will be no change to the energy output of the facility or  
12 operations as a result of the EPA renewal;
- 13 • There are no environmental impacts that resulted from the original construction  
14 of the Brown Lake facility that have the potential to worsen with continued  
15 operation; and
- 16 • The Brown Lake facility will not be decommissioned or decommissioned earlier  
17 if the EPA is not renewed. In the absence of an EPA renewal with BC Hydro,  
18 the Brown Lake IPP's intention and preferred course of action is to sell energy  
19 to another party.

20 In addition, the network upgrades to be undertaken by BC Hydro, in relation to the  
21 EPA renewal, will not change the operations or physical footprint of the BC Hydro  
22 transmission system.

23 As noted in section [5.7](#) of this Filing, the status of crown authorizations for the Brown  
24 Lake facility is that the facility has the required permits to continue operations for the  
25 term of the new EPA.

1 For the reasons stated above, BC Hydro is therefore of the view that there are no  
2 potential new or incremental impacts of the renewal of the Brown Lake EPA on  
3 Aboriginal rights and title and no consultation with First Nations is required.

## 4 **6 Walden North EPA Renewal**

### 5 **6.1 Walden North Project**

6 The Walden North project is a run-of-river hydroelectric facility on Cayoosh Creek  
7 about five kilometers west of Lillooet; B.C. The project is located near the confluence  
8 of Cayoosh Creek and the Seton River which is just downstream of BC Hydro's  
9 Seton Dam. Appendix G provides a site layout for the Walden North project and  
10 adjacent BC Hydro facilities. The Walden North project has five generating units with  
11 total installed capacity of 16 MW producing an average of 33.8 GWh per year.<sup>21</sup>

12 Given its proximity to BC Hydro's Seton GS, the Walden North project provides  
13 support to BC Hydro facilities in relation to generation and water flow. BC Hydro's  
14 Seton Dam was completed in 1956 and is the final dam of the Bridge River  
15 hydroelectric system. As part of the Seton Dam project, BC Hydro built a tunnel  
16 (**Cayoosh Diversion Tunnel**) to divert water from Cayoosh Creek to Seton Lake for  
17 BC Hydro generation purposes at Seton GS. It is also BC Hydro's understanding  
18 that diverting Cayoosh Creek flows into Seton Lake facilitates salmon migration to  
19 spawning areas in the Bridge River system, via Seton River and Seton Lake, during  
20 the sockeye salmon migration period.

21 The Walden North tailrace, owned by the IPP, was designed to channel flows from  
22 the Walden North powerhouse directly to BC Hydro's Cayoosh Diversion Tunnel,  
23 with flows in excess of 1400 cubic feet per second (**cfs**) diverted by a culvert back to  
24 Cayoosh Creek. A Diversion Agreement dated November 14, 1990 (the **Diversion**  
25 **Agreement**) sets out the rights and obligations of BC Hydro and the Walden North

---

<sup>21</sup> There is a sixth generating unit at the Walden North facility. It is BC Hydro's understanding that this sixth unit has been decommissioned.

1 IPP with respect to the design, construction, operation and maintenance of the  
2 “Walden North Diversion” and enabled the diversion of Cayoosh Creek water into  
3 the Cayoosh Diversion Tunnel. Pursuant to the Diversion Agreement, the Walden  
4 North IPP maintains and operates the works that are used to divert water from the  
5 Walden North tailrace into BC Hydro’s Cayoosh Diversion Tunnel and the culverts  
6 that return excess water to Cayoosh Creek and a fish spawning area. The Diversion  
7 Agreement provides the following benefits to BC Hydro:

- 8 • Additional generation from the water diverted by the Cayoosh Diversion Tunnel  
9 into Seton Lake. On average, approximately [REDACTED] is generated from  
10 water diverted through the Cayoosh Diversion Tunnel after consideration of  
11 other Bridge River system constraints. A portion of this incremental generation  
12 is outside of the freshet season.
- 13 • Diversion of Cayoosh Creek water facilitates maintenance of the dilution ratio of  
14 Seton River water to Cayoosh Creek water below the Cayoosh confluence  
15 which we understand facilitates salmon migration to spawning areas in the  
16 Bridge River system, via Seton River and Seton Lake. In 2001, the Department  
17 of Fisheries and Ocean provided guidance for BC Hydro and the Walden North  
18 IPP on the minimum discharges for Seton River and the prescribed Cayoosh  
19 Creek flows in order to support the dilution ratio of Cayoosh Creek to Seton  
20 Creek water below the Cayoosh confluence. This guidance was provided to  
21 facilitate salmon migration to spawning areas in the Bridge River system during  
22 the salmon migration period. In 2017, BC Hydro commissioned a study to  
23 assess the impact of the dilution ratio on salmon migration, and it was  
24 confirmed that maintaining the dilution ratio facilitates salmon migration during  
25 spawning.

1 The contract term of the Diversion Agreement is tied to the term of the original  
2 Walden North EPA such that if the EPA terminates the Diversion Agreement also  
3 terminates.

## 4 **6.2 Walden North 1990 EPA**

5 The original Walden North EPA was awarded in August 1990 under the  
6 1989 Request for Proposals. The Walden North project achieved commercial  
7 operation in June 1993 and at that time was owned by ESI Power-Walden  
8 Corporation Ltd (**ESI**). In 1994, West Kootenay Power Ltd. (now FortisBC Inc.)  
9 acquired all of the shares of ESI.

10 The original EPA had an initial 20-year term with an evergreen provision allowing the  
11 contract to continue from year-to-year unless terminated by either party after  
12 providing six months' notice. The current energy price under the original EPA is  
13 \$ [REDACTED] (2017\$), escalating at 3 per cent per annum.

14 In anticipation of the expiry of the initial 20-year term, BC Hydro and ESI began  
15 discussions in 2012 to explore the potential for an EPA renewal. At the time, a  
16 10-year extension of the project was being proposed by ESI. With respect to the  
17 EPA renewal, BC Hydro was unable to reach an agreement with ESI because the  
18 upper limit of pricing BC Hydro was able to offer for a 10-year extension was not, as  
19 indicated by ESI, adequate to recover its costs at that time.

20 Nevertheless, BC Hydro wanted to maintain the incremental generation and  
21 environmental benefits it received as a result of the Diversion Agreement and  
22 without the EPA the Diversion Agreement would terminate. Parallel to these EPA  
23 discussions, BC Hydro and FortisBC Energy Inc. (an affiliate of ESI) there were  
24 confidential negotiations in relation to a suite of agreements, including the gas  
25 arrangements in relation to the Burrard Generating Station. The gas-related issues  
26 were resolved by Order in Council 749 issued in December 2014. Around this same  
27 time period, BC Hydro also wished to resolve the outstanding Walden North EPA

1 and Diversion Agreement issues, and we entered into the Forbearance Agreement  
2 with an effective date of April 1, 2014 with the following key terms:

- 3 • BC Hydro agreed to forebear for a minimum of [REDACTED] from exercising its right  
4 to terminate the Walden North EPA which then allowed the continuation of the  
5 Diversion Agreement;

- 6 • [REDACTED]  
7 [REDACTED]  
8 [REDACTED]  
9 [REDACTED]  
10 [REDACTED] and

- 11 • [REDACTED]  
12 [REDACTED]  
13 [REDACTED]  
14 [REDACTED]

15 In February 2016, the Walden North project was acquired by Cayoose Creek Power  
16 Limited Partnership (**CCPLP**), which is comprised of Cayoose Creek Development  
17 Corporation and Innergex. The Sekw'el'was Cayoose Creek Indian Band (**Cayoose**  
18 **Creek Indian Band** ) is the sole beneficial shareholder of Cayoose Creek  
19 Development Corporation. Cayoose Creek Indian Band is part of the St'at'imc  
20 Nation. The original Walden North EPA, Forbearance Agreement and Diversion  
21 Agreement were assigned to CCPLP at that time. Confidential copies of the original  
22 Walden North EPA, Forbearance Agreement, and Diversion Agreement are attached  
23 as Appendix H, Appendix I, and Appendix J respectively.

24 The original Walden North EPA, and its related Forbearance Agreement, have not  
25 been terminated and will continue in accordance with their respective terms unless  
26 the renewed EPA is accepted by the Commission. The Forbearance Agreement  
27 remains in effect at this time, and will terminate effective with Commission



1 acceptance of the Walden North EPA renewal. If the Walden North EPA renewal is  
2 not accepted, original EPA and the Forbearance Agreement will remain in effect until  
3 at least [REDACTED] at which time either party may exercise their right to terminate the  
4 original Walden North EPA with six months' notice. The Diversion Agreement also  
5 remains in effect at this time and, upon acceptance of the renewed Walden EPA, it  
6 will be amended to continue during the term of the renewal.

### 7 **6.3 Walden North EPA Renewal**

8 BC Hydro and CCPLP have entered into a [REDACTED] Walden North EPA renewal  
9 which will replace the original Walden North EPA subject to Commission approval.  
10 The effective date of the Walden North EPA renewal is April 1, 2018. Further details  
11 of the Walden North EPA renewal are provided below.

12 The IPP is planning to undertake certain refurbishments of the Walden North  
13 facilities once the Walden North EPA renewal has received Commission  
14 acceptance. The refurbishment includes a new sluice gate to manage gravel at the  
15 intake and associated work, penstock/manifold recoating, civil upgrades for the  
16 powerhouse and tailrace area and the decommissioning of an old penstock. The  
17 purpose of the refurbishment is to restore the facility to its original condition, and  
18 bring other aspects of the facility to current standards, but not to increase the  
19 generating capacity.

### 20 **6.4 Walden North EPA Comparison**

21 The Walden North EPA, similar to the Sechelt Creek EPA and Brown Lake EPA, is  
22 modelled after the more robust present-day form of EPA. Please refer to section [4.4](#)  
23 of this Filing above for a further discussion of this comparison.

## 6.5 Project-Specific EPA Terms and Conditions

In addition to the contractual provisions contained in the Specimen EPA for hydro projects, the project-specific commercial terms applicable to the Walden North EPA renewal are summarized in [Table 6](#).

**Table 6 Walden North EPA Renewal Commercial Terms**

Description	EPA Section	Walden North EPA
Seller	Page 1	CCPLP
Effective Date	Page 1	April 1, 2018
Term of EPA	2.1	
Continuance of Original EPA	2.2	<ul style="list-style-type: none"> <li>The original EPA remains in effect until the EPA renewal receives Commission acceptance.</li> <li>Following Commission acceptance, the original EPA (and Forbearance Agreement) will terminate, and the EPA renewal will be in full force and effect.</li> </ul>
Regulatory Condition Expiry Date	3.2	Either party may terminate the EPA if Commission acceptance is not issued by September 28, 2018 (i.e., 180 days after the Effective Date of the EPA renewal).
Average Energy		<ul style="list-style-type: none"> <li>47.2 GWh/yr (post-refurbishment)<sup>22</sup></li> </ul>
Hourly Limit	5.2	MWh per hour
Energy Price	6.1	

<sup>22</sup> The average annual energy after refurbishment is uncertain and is based on estimates provided by CCPLP and the MWh/h hourly limit will continue to apply post-refurbishment.

<sup>23</sup> Assuming per cent inflation.

Description	EPA Section	Walden North EPA
Turn-Down Rights	5.9	More robust turn-down provisions, than what is typically included in EPA renewals, to help manage issues from transmission system constraints during the summer.
Cayoosh Diversion Tunnel	5.10	BC Hydro has exclusive right (a) to operate, maintain or decommission the Cayoosh Diversion Tunnel, and (b) to shut off the flow of water through the Cayoosh Diversion Tunnel at any time and for any length of time.

1 The Bridge River generation system is currently curtailed or restricted by  
2 transmission system constraints during the summer period (June, July, August,  
3 September) and/or water management issues during the freshet period (May, June,  
4 July). From time to time, at BC Hydro's discretion and as defined in the EPA, the  
5 Walden North facility's generation may need to be turned-down (for energy  
6 management) or the Cayoosh Diversion Tunnel may need to be closed (for water  
7 management) in support of BC Hydro's Bridge River generation system. The Walden  
8 North EPA renewal provides more robust rights for BC Hydro to turn-down Walden  
9 North generation and to close the Cayoosh Diversion Tunnel (which is normally  
10 open). Including the right for BC Hydro to close the Cayoosh Diversion Tunnel  
11 (temporarily or permanently) in the EPA renewal is a risk mitigation feature to [REDACTED]

14 The Cayoosh Diversion Tunnel has a capacity of 1400 cfs. The Walden North facility  
15 is currently unable to divert more than 900 cfs of water to Cayoosh Creek and  
16 therefore has insufficient capacity when the tunnel is closed. The Walden North  
17 tailrace culverts need to be upgraded with the capability to divert water at a minimum  
18 of 1400 cfs when the tunnel is closed. Pursuant to the Walden North EPA renewal,  
19 the IPP is required to replace and upgrade the tailrace culverts at the Walden North  
20 facility to achieve a minimum design capability of 1400 cfs by December 31, 2019.  
21 This upgrade project will enable BC Hydro to safely close the tunnel at any time and

1 for any period of time. Pursuant to the Walden North EPA renewal BC Hydro will  
2 contribute up to \$ [REDACTED] towards the IPP's costs for such work.<sup>24</sup>

3 Similar to the other recent EPA renewals, the renewed Walden North EPA has a  
4 two-step pricing structure and an hourly delivery limit. As more fully explained below,  
5 the two-step pricing provides BC Hydro with lower energy prices for the front-end of  
6 the EPA. The hourly delivery limit caps BC Hydro's financial commitments for energy  
7 purchases and is aligned to [REDACTED]

8 The Walden North EPA renewal has a lower energy price for the first [REDACTED] years of  
9 the contract, roughly corresponding to the time period in which there is sufficient  
10 energy supply from planned resources (see section [1.3](#) of this Filing). This period  
11 also corresponds with the end of the current 10 Year Rates Plan. The stepped-up  
12 energy price starting in [REDACTED] remains well below BC Hydro's applicable LRMC  
13 (see [Table 1](#) of this Filing).

## 14 **6.6 Walden North Cost Effectiveness**

15 In the case of the Walden North EPA renewal, the negotiations of price and other  
16 contract terms were focused on reaching an agreement on a cost effective price and  
17 addressing BC Hydro's requirements related to operating the Cayoosh Diversion  
18 Tunnel.

19 For the Walden North EPA renewal, the key cost-effectiveness benchmarks over the  
20 term of the EPA renewal are as follows:

---

<sup>24</sup> Refer to Appendix E-3 of this Filing, section 4.9 of the Walden North EPA renewal.

**Table 7**      **Walden North EPA Renewal**  
**Cost-Effectiveness Benchmarks**

	<b>Levelized Energy Price (\$2017/MWh)<sup>25</sup></b>
Original EPA applied to the renewal term	██████████
Original EPA offset by the Forbearance fee applied for the renewal term	██████████
IPP's Opportunity Cost (based on BC Border Sell Price) <sup>26</sup>	██████████
BC Hydro's Opportunity Cost <sup>27</sup> ██	██████████
Renewed EPA	██████████

As shown above, the energy price of \$██████████ (levelized)<sup>28</sup> for the Walden North EPA renewal is below BC Hydro's opportunity cost of \$██████████, and our opportunity cost is viewed as the upper benchmark of cost-effectiveness. BC Hydro is of the view that the levelized EPA energy price reasonably represents the cost of service for the Walden North IPP, given the risks borne by the IPP (see section 6.7).

If the original EPA price were to be applied to the entire renewal term, the levelized energy price would have been \$██████████ (2017\$). The levelized energy price for this renewed EPA is approximately ██████ per cent lower than the levelized price under the original EPA's evergreen clause.

Also, if the existing EPA price (with the Forbearance Agreement payment to BC Hydro) were to be applied for the entire renewal term, the energy price would have been approximately the same \$██████████.

<sup>25</sup> To facilitate comparison with the most recent EPA renewal filing, Doran Taylor, we have used \$2017.

<sup>26</sup> Based on the BC border market sell price forecast (including wheeling and losses from BC border to Mid-C and losses from plant to BC border).

<sup>27</sup> Adjusted for project-specific product characteristics such as time of delivery, losses to the Lower Mainland and portion of energy considered firm (25 per cent freshet firm energy cap). Includes incremental generation at Seton GS attributable to the Diversion Agreement. Excluding the value of incremental generation at Seton GS, BC Hydro's Opportunity Cost is estimated to be \$██████████ (2017\$).

<sup>28</sup> BC Hydro calculates the levelized cost of energy of an EPA as the present value of the unit cost of energy over the term of the EPA, in this case \$██████████ (2017\$). In addition, BC Hydro notes that the adjusted levelized energy price, which takes into consideration BC Hydro's contribution of \$██████████ to the IPP's costs as provided in section 4.9 of the Walden North EPA renewal (see Appendix E-3 of this Filing) and BC Hydro's interconnection network upgrade costs, is \$██████████ (2017\$).

1 The Walden North EPA renewal enables BC Hydro to avoid the cost of alternative  
2 diversion structure if the EPA was not renewed and the Diversion Agreement  
3 terminated. Furthermore, given the cost and environmental considerations,  
4 alternative diversion structures may not be feasible.

## 5 **6.7 Risk Assessment**

6 The risks associated with the Walden North EPA renewal are described below and  
7 are generally viewed as low for BC Hydro.

### 8 (a) Attrition

9 The attrition risk is considered to be low. The existing Walden North facilities have  
10 been operating reliably since 1993.

### 11 (b) Financial

12 BC Hydro assessed Walden North cost data provided by ESI in 2014 and found, at  
13 that time, the costs to be reasonable based on a review by an independent  
14 third-party consultant. More recently, the IPP submitted information about its historic  
15 capital and O&M costs, as well as cost projections for the proposed [REDACTED] term.  
16 BC Hydro engaged another independent third-party consultant to review information  
17 provided by the IPP and the draft report submitted by the consultant indicated that  
18 the IPP's refurbishment / maintenance costs for key equipment were in a low to  
19 reasonable range.

20 Based on the financial information provided by the IPP, BC Hydro is of the view that  
21 the proposed renewal EPA price reasonably represents Walden North IPP's cost of  
22 service including a rate of return given the risks borne by the IPP. Examples of the  
23 risks borne by the IPP include uncertainty regarding water rental and property tax  
24 increases, equipment failure, the refurbishment project, diversion restrictions and  
25 reduced water flows.

1 (c) Permitting / Environmental

2 BC Hydro confirmed with FLNRO that the Walden North facility's provincial permits  
3 are in good-standing.

4 BC Hydro also engaged an independent consultant firm to review Walden North  
5 facility's material permits. The consultant concluded that all material permits needed  
6 for continued operations during the [REDACTED] term of the EPA renewal are in place  
7 with the exception that BC Hydro has been consulting with the T'it'q'et  
8 Administration about the transfer of lands from BC Hydro to T'it'q'et Administration,  
9 related to a transmission line easement and road access easement required for the  
10 Walden North facility. It is expected that the easements will be in place shortly.

11 The appropriate permit renewal process will be followed for any permits that expire  
12 during the term of the EPA renewal.

13 (d) Technical

14 The IPP engaged a consulting firm to conduct a condition assessment of the Walden  
15 North facilities. The consulting firm concluded that "in the light of capex  
16 reinvestments planned by Innergex over coming years and given the  
17 professionalism with which Innergex performs maintenance of their power plants and  
18 conditional to the realization of the capex program, we believe that it is greatly  
19 doable that the Walden plant will be operational for the next [REDACTED]".

20 In addition, the IPP provided a Due Diligence Condition Assessment report prepared  
21 by a consulting firm in July 2015 for the IPP's acquisition of Walden North. The  
22 report concluded that the Walden North facility was in satisfactory condition and  
23 provided rehabilitation recommendations over the 40-year life planned for Walden  
24 North project which are in line with the proposed refurbishment project.

(e) Network Upgrade Costs

As discussed in section [4.7](#)(e) above, BC Hydro is also ensuring that the existing transmission infrastructure supporting these IPP interconnections meets current standards and requirements. The Walden North facility requires minor upgrades, and the BC Hydro network upgrade costs for the Walden North facility are estimated to be \$ [REDACTED].<sup>29</sup>

## 6.8 First Nations

Both the Cayoose Creek Indian Band and the T'it'q'et Administration, whose consultative boundaries include the Walden North project, were informed that EPA renewal discussions were taking place. The Cayoose Creek Indian Band and the T'it'q'et Administration are two of the eleven communities constituting the St'át'imc Nation.

BC Hydro is of the view that the Walden North EPA renewal will not result in any new or incremental impacts on the St'át'imc Nation's Aboriginal rights and title, and therefore it does not trigger the duty to consult (including any requirements under the 2011 settlement agreements noted below). The Walden North IPP has advised:

- It does not anticipate any changes to the physical footprint of the Walden North facility and there will be no change to the energy output of the facility or operations as a result of the EPA renewal; the proposed refurbishment of the plant and culvert upgrade would not involve a change to the existing water license or other Crown authorizations;
- There are no environmental impacts that resulted from the original construction of the Walden North facility that have the potential to worsen with its continued operation; and

---

<sup>29</sup> These network upgrade costs have been accounted for in the calculation of the adjusted levelized energy price provided in footnote [27](#) of this Filing.



- 
- The Walden North facility will not be decommissioned or decommissioned earlier if the EPA is not renewed.

BC Hydro has existing rights to close the Cayoosh Diversion Tunnel. As a result, the articulation in the EPA of BC Hydro's right to close it does not trigger the duty to consult because there are no potential incremental impacts to the St'át'imc Nation's Aboriginal rights and title. In particular, any potential impacts from the operation of the diversion tunnel have been included in the settlement agreements with St'át'imc. In 2011, St'át'imc Nation, the Province of British Columbia and BC Hydro entered into a series of settlement agreements that settled all past, present and future impacts and claims relating to BC Hydro's Bridge River facilities, and their continued maintenance and operations. And, as part of these settlement agreements, St'át'imc Nation agreed that all of BC Hydro's obligations to consult or accommodate St'át'imc Nation were satisfied in respect of those facilities.

In addition, the network upgrades to be undertaken by BC Hydro, in relation to the EPA renewal, will not change the operations or physical footprint of the BC Hydro transmission system.

As noted in section [6.7](#) of this Filing, the status of crown authorizations for the Walden North facility is that the facility has the required permits to continue operations for the term of the new EPA.

For the reasons stated above, BC Hydro is of the view that there are no potential new or incremental impacts of the renewal of the Walden North EPA on Aboriginal rights and title and no consultation with First Nations is required.

The Cayoose Creek Indian Band has confirmed to BC Hydro that they are comfortable with all aspects of the refurbishment, construction, and mitigation plans for Walden North. As part of BC Hydro's commitment under the St'át'imc settlement agreements, BC Hydro has been consulting with T'it'q'et Administration about the

1 transfer of lands from BC Hydro to T'it'q'et Administration, related to the  
2 transmission line easement and road access easement required for Walden North  
3 as noted above in sub-paragraph [6.7\(c\)](#). BC Hydro has also met with T'it'q'et  
4 Administration and has responded to some questions they had in relation to the  
5 Walden North EPA renewal.

## 6 **7 Energy Supply Contract Considerations**

7 The Sechelt Creek, Brown Lake, and Walden North EPA renewals are each an  
8 “energy supply contract” under Part 5 of the UCA. Section 71(2.21) of the UCA  
9 describes what the Commission must consider when assessing whether or not an  
10 energy supply contract is in the public interest.

11 First, section 71(2.21) of the UCA requires the Commission to consider the interests  
12 of persons in British Columbia who receive or may receive service from BC Hydro.  
13 Secondly, the Commission must consider factors contained in the *Clean Energy Act*,  
14 including (a) British Columbia's energy objectives<sup>30</sup>; (b) an applicable  
15 Government-approved IRP; and (c) the extent to which an EPA is consistent with the  
16 93 per cent target for clean or renewable electricity generation.

17 These three EPA renewals support the following British Columbia energy objectives:

- 18 • To achieve electricity self-sufficiency [objective 2(a)]:
  - 19 ► BC Hydro has exclusive rights to the electricity from these three facilities
  - 20 (electricity generated in B.C.) to satisfy domestic need;
- 21 • To generate at least 93 per cent of the electricity in B.C. from clean or  
22 renewable resources [objective 2(c)]:
  - 23 ► Electricity purchased under these three EPAs helps BC Hydro meet the
  - 24 93 per cent clean or renewable generation target;

---

<sup>30</sup> British Columbia's energy objectives, as set out in section 2 of the *Clean Energy Act*, are provided in Appendix K of this Filing.

- 
- 1 • To use and foster the development in B.C. of innovative technologies that  
2 support energy conservation and efficiency and the use of clean or renewable  
3 resources [objective 2(d)]:
- 4 ▶ These three facilities use proven technologies that utilize clean or renewable  
5 hydro resources;
- 6 • To ensure the BC Hydro's rates remain among the most competitive of rates  
7 charged by public utilities in North America [objective 2(f)]:
- 8 ▶ The levelized energy prices for the renewed Sechelt Creek, Brown Lake,  
9 and Walden North EPAs are respectively approximately [REDACTED] [REDACTED], and  
10 [REDACTED] per cent lower than the levelized price under the original EPAs'  
11 evergreen provision (see sections [4.6](#), [5.6](#), and [6.6](#));
- 12 • To encourage economic development and the creation and retention of jobs  
13 [objective 2(k)]:
- 14 ▶ Renewal of each of these three EPAs provides for the continued operation  
15 of the generation facility, job retention and economic benefits associated  
16 with ongoing operating and capital expenditures, including significant  
17 expenditures for the refurbishment and upgrading of these facilities;
- 18 • To foster the development of First Nation and rural communities through the  
19 use and development of clean or renewable resources [objective 2(l)]:
- 20 ▶ The Sechelt Creek IPP and the shíshálh Nation entered into an agreement  
21 that will result in shíshálh Nation equity ownership and profit sharing for the  
22 project;
- 23 ▶ The Cayoose Creek Indian Band is a beneficial owner of the Walden North  
24 project;

1 ▶ The local communities in the region will continue to obtain economic  
2 benefits from the ongoing generation of clean/renewable electricity from  
3 these three facilities; and

- 4 • To maximize the value, including the incremental value of the resources being  
5 clean or renewable resources, of British Columbia's generation and  
6 transmission assets for the benefit of British Columbia [objective 2(m)]:

7 ▶ The continued generation of clean or renewable electricity from these three  
8 facilities will facilitate the optimization of existing assets.

9 In addition to the *Clean Energy Act* considerations outlined above, the Commission  
10 must also consider the following:

- 11 • Quantity of energy to be supplied under the EPA:

12 ▶ The expected energy generation being supplied under the Sechelt Creek,  
13 Brown Lake and Walden North EPAs is 84.6, 52.3, and 47.2 GWh/year,  
14 respectively, as shown in [Table 2](#), [Table 4](#) and [Table 6](#) of this Filing;

- 15 • Availability of the energy supply:

16 ▶ The three facilities have reliably supplied energy for over 20 years, as noted  
17 in sections [4.2](#), [5.2](#) and [6.2](#) of this Filing. These facilities are expected to be  
18 capable of continued reliable operation over the entire term of the EPA  
19 renewal (see sections [4.7](#), [5.7](#), and [6.7](#));

- 20 • Price and availability of alternative sources of energy:

21 ▶ BC Hydro's opportunity cost represents the upper benchmark for  
22 cost-effectiveness and is based on the price and availability of alternative  
23 sources of energy as described in sections [4.6](#), [5.6](#), and [6.6](#); and

- 
- 1 • Price of the energy being supplied under the EPA:
    - 2 ► The energy prices for the Sechelt Creek, Brown Lake, and Walden North
    - 3 EPA renewals are shown in [Table 2](#), [Table 4](#), and [Table 6](#) respectively, with
    - 4 the associated levelized prices being \$ [REDACTED], \$ [REDACTED] and \$ [REDACTED]
    - 5 (2017\$), respectively. These energy prices are viewed as being
    - 6 cost-effective given that the levelized price of the renewed EPAs is below
    - 7 BC Hydro's opportunity costs and considers the IPP's cost of service.

8 With respect to consideration of a Government-approved IRP, BC Hydro notes that  
9 the Sechelt Creek, Brown Lake, and Walden North EPA renewals are consistent  
10 with Recommended Action 4 of the 2013 IRP which sets out EPA renewals as one  
11 of the actions required to optimize BC Hydro's existing portfolio of IPP resources.  
12 Also, as noted above, these three EPA renewals are cost-effective, contribute to  
13 BC Hydro's self-sufficiency requirement and help meet the energy objective of  
14 93 per cent clean or renewable electricity generation.

## 15 **8 Additional EPA Benefits**

16 In addition to the considerations set out in section 71 of the UCA, the Commission  
17 may also consider other qualitative factors such as dispatchability, capacity value  
18 and other system benefits in its review of filed energy supply contracts. The Sechelt  
19 Creek, Brown Lake, and Walden North EPAs provide dispatch/turn-down rights  
20 which BC Hydro can use to more efficiently manage its electricity system,  
21 particularly during periods where there is excess supply.

22 All three EPA renewals also provide the Province of B.C., applicable regional  
23 districts and local communities with ongoing economic benefits such as water  
24 rentals, property taxes, employment and other contracting opportunities.

25 In addition, each of the three EPA renewals has their own unique benefits to  
26 BC Hydro as follows:

- 
- 1 • The Sechelt Creek EPA renewal is located close to BC Hydro's load centre and  
2 delivers a relatively high proportion of its annual energy during BC Hydro's peak  
3 load months;
  - 4 • The Brown Lake EPA renewal provides storage benefits to BC Hydro and local  
5 area reliability support by providing a standby resource in case of an outage  
6 (both forced and planned) for BC Hydro's transmission line; and
  - 7 • The Walden North EPA renewal enables the continued diversion of water from  
8 Cayoosh Creek into Seton Lake which allows for additional BC Hydro  
9 generation at the Seton GS and maintains the dilution ratio supportive of fish  
10 spawning in the Bridge River system. In the absence of the EPA renewal,  
11 alternative arrangements for diversion to Seton Lake would be required and  
12 may not be feasible due to cost and environmental considerations.

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# **Sechelt Creek Hydro, Brown Lake Hydro and Walden North Hydro**

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## **Electricity Purchase Agreement**

### **Renewals**

### **Appendix A**

**Draft Order – Sechelt Creek EPA,  
Brown Lake EPA, and Walden North EPA Renewals**



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Vancouver, BC Canada V6Z 2N3  
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**ORDER NUMBER**

**E-xx-xx**

**IN THE MATTER OF**

the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

British Columbia Hydro and Power Authority  
Section 71 Filing of Electricity Purchase Agreements Renewal  
Sechelt Creek Hydro, Brown Lake Hydro, and Walden North Hydro

**BEFORE:**

Commissioner  
Commissioner  
Commissioner

on Date

**ORDER**

**WHEREAS:**

- A. By Order G-61-12 dated May 17, 2012, the British Columbia Utilities Commission (Commission) established "Rules for Energy Supply Contracts for Electricity" (Rules) to facilitate the Commission's review of energy supply contracts for electricity. As stated in the Rules, a person entering into an Energy Supply Contract (Energy Purchase Agreement or EPA) shall file the EPA with the Commission within 60 days of the date upon which the person enters into the EPA;
- B. On April 17, 2018, the British Columbia Hydro and Power Authority (BC Hydro) requested an extension from the 60 days filing rule set out in the Rules for the Sechelt Creek Energy EPA renewal, which has an effective date of March 1, 2018, so that one consolidated application can be submitted to the Commission for three EPA renewals including Sechelt Creek, Brown Lake, and Walden North. BC Hydro believed that this would provide regulatory efficiency, because the agreements are similar and are all renewal agreements for existing hydro projects;
- C. On May 31, 2018, the British Columbia Hydro and Power Authority (BC Hydro), pursuant to section 71 of the *Utilities Commission Act* (UCA), filed with the Commission an EPA with an effective date of March 1, 2018 between BC Hydro and Sechelt Creek Independent Power Producer, and two EPAs with an effective date of April 1, 2018 between BC Hydro and Brown Lake Independent Power Producer, and between BC Hydro and Walden North Independent Power Producer (Filing). In the Filing, BC Hydro seeks an order from the Commission that the three EPAs filed are in the public interest and are accepted for filing;

.../2



- D. On May 31, 2018, BC Hydro filed both redacted and un-redacted copies of the Filing and advised the Commission that it provided a redacted copy of the Filing to interveners in the BC Hydro Fiscal 2017 to Fiscal 2019 Revenue Requirements proceeding. BC Hydro requests that the un-redacted version of the Filing be held confidential as it contains information that is commercially sensitive and, the release of which, may harm BC Hydro's negotiating position with respect to further EPA renewals;
- E. As stated in the Rules, the Commission will rely on all information it considers necessary to determine whether an energy supply contract is in the public interest;
- F. The Commission has reviewed the Filing in accordance with the criteria under section 71(2.21) of the UCA and requirements under the Rules, and considered the information provided in the Filing. The Commission finds that the Sechelt Creek, Brown Lake, and Walden North EPAs are in the public interest and that a public hearing is not necessary for acceptance of the EPA renewals.

**NOW THEREFORE** pursuant to section 71 of the *Utilities Commission Act* and the British Columbia Utilities Commission's Rules for Energy Supply Contracts for Electricity, the Commission orders as follows:

1. The Electricity Purchase Agreement dated March 1, 2018 between BC Hydro and Sechelt Creek Independent Power Producer, is in the public interest and is accepted for filing under section 71 of the *Utilities Commission Act*.
2. The Electricity Purchase Agreement dated April 1, 2018 between BC Hydro and Brown Lake Independent Power Producer, is in the public interest and is accepted for filing under section 71 of the *Utilities Commission Act*.
3. The Electricity Purchase Agreement dated April 1, 2018 between BC Hydro and Walden North Independent Power Producer, is in the public interest and is accepted for filing under section 71 of the *Utilities Commission Act*.
4. The Commission will hold confidential the un-redacted version of the Sechelt Creek, Brown Lake, and Walden North Electricity Purchase Agreements as well as the un-redacted versions of the original Walden North Electricity Purchase Agreement, Diversion Agreement, and Forbearance Agreement on the basis that disclosure of commercially sensitive information may impair BC Hydro's ability to negotiate favourable Electricity Purchase Agreements on behalf of its customers in future.

**DATED** at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)  
Commissioner

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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix B**

**Fiscal 2017 to Fiscal 2019  
Revenue Requirements Application Excerpts**

(other things being equal) will be lower than forecasted and this favourable difference will be credited to the Non-Heritage Deferral Account as described in Chapter 7.

A review of the 2013 Integrated Resource Plan is planned for the fall of 2016. The review is a commitment in Chapter 8 of the 2013 Integrated Resource Plan (Clean Energy Strategy). It will not affect the test years of this application, since the Integrated Resource Plan review will not be discussing any actions in the test period. The review is intended to determine whether there is any need for acquisition (in addition to those already in Recommended Actions) beyond the test period of this application prior to the next Integrated Resource Plan in 2018. At this time, additional acquisition is not expected to be required.

BC Hydro has reviewed the Recommended Actions of the 2013 Integrated Resource Plan in light of the updated Load Resource Balances. The Recommended Actions of the 2013 Integrated Resource Plan are generally still appropriate despite the changes in the Load Resource Balances. BC Hydro has either implemented, or continues to implement, the 18 Recommended Actions, but has modified the approach to demand-side management. Given the present circumstances, BC Hydro is planning to continue for the test period a demand-side management expenditure moderation strategy similar to the strategy that was implemented in Recommended Action 1 of the 2013 Integrated Resource Plan for fiscal 2014 to fiscal 2016 to the Revenue Requirement Application Test Years of fiscal 2017 to fiscal 2019.

BC Hydro will continue to exceed the *Clean Energy Act* target of achieving at least 66 per cent of incremental demand through conservation to 2020 (refer to section [3.4.3.1](#) for details).

### 3.4.2 Load Resource Balances

The Load Resource Balances presented in this section are current to May 2016 and form the basis for this application. The Load Resource Balance is the difference

between BC Hydro's forecast load and forecast supply. BC Hydro presents the Load Resource Balances for both energy and capacity.

The energy Load Resource Balance is presented in two views:

- Planning View:** The Planning View<sup>42</sup> reflects the capability of resources based on BC Hydro's planning criteria, including the requirement contained in subsection 6(2) of the *Clean Energy Act* to achieve electricity self-sufficiency under prescribed water conditions from its hydroelectric Heritage assets (refer to section 1.2.2 of the Integrated Resource Plan). This view is relevant for setting the context for resource acquisitions. The planning view is summarized in the Energy Load Resource Balances ([Table 3-6](#) and [Table 3-8](#)) as "Surplus/Deficit as % of Net Load (planning view)" where lower than 100 per cent means that there is a system shortfall and a need for additional resources; and
- Operational View:** The Operational View<sup>43</sup> shows the forecasted operation of these same resources given market conditions, expected system conditions in the near term and average conditions in the long term. This view is shown in [Table 3-6](#) and [Table 3-8](#), and this view is relevant for forecasting revenue requirements because it mimics actual operation.

The capacity Load Resource Balance ([Table 3-7](#) and [Table 3-9](#)) shows system capability based on BC Hydro's planning criteria (refer to section 1.2.2 of the Integrated Resource Plan).

<sup>42</sup> The most obvious difference between the Planning View and the Operational View is the energy from dispatchable thermal resources. The Planning View reflects the firm energy that dispatchable thermal resources are capable of generating and can be relied upon for planning purpose (Island Generation at 2,170 GWh and Prince Rupert Generating Station at 180 GWh). In contrast, the Operational View shows how much dispatchable thermal resources is expected to run (Island Generation at 140 GWh and Prince Rupert at 0 GWh).

<sup>43</sup> The Operational View reflects near term conditions that are better known for fiscal 2017 to fiscal 2019 (e.g., near term reservoir elevations and expected water conditions) and assumes average conditions in the longer term (fiscal 2020 and beyond).

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**3.4.2.1 Key changes in Load Resource Balances Since 2013 Integrated Resource Plan**

The Planning View of the Load Resource Balance in the context of the approved 2013 Integrated Resource Plan drives the need for resource acquisitions such as demand-side management savings, and IPP contract renewals. The Planning View of the updated Load Resource Balances with existing and committed resources<sup>44</sup> in [Table 3-6](#) and [Table 3-7](#) show that new energy and capacity resources are needed in fiscal 2022 and fiscal 2020 respectively (compared to fiscal 2017 for both energy and capacity in the 2013 Integrated Resource Plan). The Recommended Actions in the approved 2013 Integrated Resource Plan are still appropriate as discussed and the Load Resource Balances with planned resources per the Recommended Actions, in addition to existing and committed resources, are shown in [Table 3-8](#) and [Table 3-9](#) (refer to section [3.4.3](#) for more details on the Recommended Actions).

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<sup>44</sup> Existing supply-side resources include BC Hydro's Heritage hydroelectric and thermal generating resources, as well as IPP facilities delivering electricity to BC Hydro. Committed supply-side resources are resources for which material regulatory and BC Hydro executive approvals have been secured (including Site C).

Table 3-6 Energy Load Resource Balance with Existing and Committed Resources<sup>45</sup>

	[GWh]	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028	F2029	F2030	F2031	F2032	F2033	F2034	F2035	F2036
<b>Existing and Committed Heritage Resources</b>																					
1	Heritage Resources (including Site C)	48,445	46,895	46,014	48,491	48,491	48,491	48,491	48,857	52,383	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777
2	Existing and Committed IPP Resources	13,198	14,592	14,337	14,364	14,097	13,782	13,547	13,210	12,814	12,414	12,307	11,983	11,467	10,720	10,269	10,203	10,163	10,015	9,476	8,110
3	Total Supply (Operating View*)	61,643	61,487	60,351	62,856	62,588	62,274	62,038	62,067	65,197	66,191	66,084	65,761	65,244	64,497	64,037	63,981	63,941	63,792	63,253	61,887
<b>Demand - Integrated System Total Gross Requirements</b>																					
4	2016 May/Mid Load Forecast Before DSM	-56,334	-59,013	-60,413	-61,371	-62,309	-63,675	-64,636	-66,008	-67,109	-68,310	-69,267	-70,266	-71,222	-72,296	-73,374	-74,535	-75,462	-76,363	-77,215	-78,089
5	Expected LNG Load	-61	-148	-148	-252	-1,265	-2,299	-2,721	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848
6	Sub-total	-56,395	-59,162	-60,561	-61,624	-63,574	-65,974	-67,557	-68,856	-69,957	-71,158	-72,115	-73,104	-74,070	-75,144	-76,222	-77,383	-78,310	-79,241	-80,063	-80,937
<b>Existing and Committed Demand Side Management &amp; Other Measures</b>																					
7	SM Theft Reduction	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
8	Voltage and VAR Optimization	67	152	171	188	219	240	254	259	263	268	285	290	295	300	305	310	315	320	325	331
9	2016 DSM Plan F16 savings	982	970	939	940	935	926	923	917	912	885	863	855	848	844	807	770	760	758	757	736
10	Sub-total	1,131	1,204	1,193	1,211	1,237	1,249	1,260	1,258	1,258	1,235	1,231	1,228	1,226	1,227	1,195	1,163	1,157	1,161	1,165	1,150
11	Surplus/(Deficit) Operational View**	4,379	3,529	983	2,443	251	(2,451)	(4,259)	(3,502)	(3,502)	(3,732)	(4,800)	(6,115)	(7,600)	(9,420)	(10,990)	(12,239)	(13,212)	(14,288)	(15,644)	(17,900)
12	Surplus / Deficit as % of Net Load (Planning View)**	112%	113%	110%	108%	104%	99%	94%	92%	95%	94%	93%	91%	89%	87%	85%	84%	83%	81%	80%	78%
13	Low Load Forecast Surplus/(Deficit) (Operational View)**	6,700	6,089	3,995	5,833	4,118	1,935	506	(492)	1,839	1,904	1,045	(24)	(1,248)	(2,802)	(4,146)	(5,057)	(5,772)	(6,670)	(7,973)	(10,099)
14	High Load Forecast Surplus/(Deficit) (Operational View)**	1,992	638	(2,612)	(1,962)	(4,761)	(8,203)	(10,899)	(12,534)	(10,879)	(11,495)	(12,726)	(14,388)	(16,235)	(18,524)	(20,367)	(21,911)	(23,150)	(24,509)	(26,282)	(28,887)
* 2016 Integrated System Load Forecast with losses																					
** See section 3.4.2 for description of Operational versus Planning View																					

<sup>45</sup> BC Hydro amended the Load Resource Balance tables as part of BC Hydro's response to BCUC IR 1.11.1 as part of the Fiscal 2017 – Fiscal 2019 Revenue Requirements Application proceeding. This appendix includes those amended tables, rather than the information that originally appeared in the Fiscal 2017 – Fiscal 2019 Revenue Requirements Application.

Table 3-7 Peak Capacity Load Resource Balance with Existing and Committed Resources<sup>45</sup>

(MW)	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028	F2029	F2030	F2031	F2032	F2033	F2034	F2035	F2036
<b>Existing and Committed Heritage Resources</b>																				
1 Heritage Resources (including Site C)	11,372	11,410	11,416	11,416	11,416	11,480	11,480	11,480	12,020	12,211	12,211	12,211	12,211	12,211	12,625	12,625	12,625	12,625	12,625	12,625
2 Existing and Committed PP Resources	1,593	1,673	1,621	1,572	1,490	1,461	1,167	1,132	1,069	1,025	1,025	975	938	806	806	802	796	771	747	683
3 14% of Supply Requiring Reserves***	-1,787	-1,803	-1,797	-1,790	-1,778	-1,783	-1,742	-1,737	-1,811	-1,832	-1,832	-1,825	-1,819	-1,801	-1,859	-1,858	-1,857	-1,854	-1,851	-1,842
4 Effective Load Carrying Capability	11,178	11,280	11,240	11,198	11,128	11,157	10,905	10,874	11,279	11,404	11,404	11,362	11,330	11,216	11,572	11,568	11,563	11,542	11,521	11,466
<b>Demand - Integrated System Peak</b>																				
5 2016 Mid Load Forecast Before DSM*	-10,776	-11,021	-11,209	-11,374	-11,541	-11,737	-11,930	-12,119	-12,313	-12,515	-12,708	-12,943	-13,155	-13,386	-13,614	-13,840	-14,074	-14,303	-14,542	-14,774
6 Expected LNG Load	-19	-19	-19	-72	-222	-329	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361
7 Sub-total	-10,795	-11,039	-11,228	-11,447	-11,763	-12,066	-12,291	-12,480	-12,674	-12,876	-13,069	-13,304	-13,516	-13,747	-13,975	-14,201	-14,435	-14,664	-14,903	-15,135
<b>Existing and Committed Demand Side Management &amp; Others Measures</b>																				
8 SMI Theft Reduction	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
9 Voltage and VAR Optimization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 2016 DSM Plan F16 savings	216	214	210	211	210	207	204	201	198	193	189	185	183	180	174	168	165	165	165	162
11 Sub-total	227	226	222	222	221	218	215	212	209	204	200	197	194	192	186	179	176	176	176	173
12 Surplus / (Deficit) **	610	466	234	271	414	691	1,170	1,393	1,186	1,266	1,469	1,745	1,993	2,340	2,718	2,954	2,995	2,946	2,906	2,895
13 Low Load Forecast Surplus / (Deficit) **	1,030	934	782	590	287	100	310	482	218	245	400	627	821	1,113	943	1,113	1,297	1,506	1,750	1,997
14 High Load Forecast Surplus / (Deficit) **	160	(84)	(444)	(855)	(1,356)	(1,769)	(2,408)	(2,693)	(2,552)	(2,700)	(2,926)	(3,270)	(3,589)	(4,024)	(3,953)	(4,242)	(4,539)	(4,848)	(5,198)	(5,552)
* 2016 Integrated System Load Forecast with losses																				
** Planning View is shown in this table. Capacity load resource balances are only shown in Planning View. See section 3.4.2.																				
*** This is also referred to as the Planning Reserve - the system generating capacity beyond that required to meet peak demand that is necessary to meet reliability criteria. See section 1.2.2 of the IPR for more details on the criteria.																				

Table 3-8 Energy Load Resource Balance after Planned Resources<sup>45</sup>

[GWh]	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028	F2029	F2030	F2031	F2032	F2033	F2034	F2035	F2036
<b>Existing and Committed Heritage Resources</b>																				
1 Heritage Resources (including Site C)	48,445	46,895	46,014	48,491	48,491	48,491	48,491	48,857	52,383	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777	53,777
<b>Existing and Committed PP Resources</b>																				
2 Existing and Committed PP Resources	13,198	14,592	14,337	14,364	14,097	13,782	13,547	13,210	12,814	12,414	12,307	11,983	11,467	10,720	10,259	10,203	10,163	10,015	9,476	8,110
<b>Future Supply-Side Resources</b>																				
3 IPP Renewals	106	280	571	647	779	936	1,114	1,349	1,628	1,951	2,032	2,223	2,617	3,328	3,788	3,828	3,863	4,011	4,549	5,515
4 Standing Offer Program	71	130	291	419	546	674	801	929	1,056	1,184	1,311	1,439	1,566	1,694	1,821	1,949	2,076	2,204	2,320	2,448
5 Revelstoke 6											26	26	26	26	26	26	26	26	26	26
6 Sub-total	177	410	862	1,066	1,325	1,609	1,916	2,278	2,684	3,135	3,370	3,688	4,209	5,048	5,635	5,803	5,966	6,241	6,895	7,988
7 Total Supply (Operational View) **	61,820	61,897	61,213	63,922	63,913	63,883	63,964	64,345	67,881	69,327	69,454	69,449	69,453	69,545	69,672	69,783	69,806	70,033	70,149	69,875
<b>Demand - Integrated System Total Gross Requirements</b>																				
8 2016 Mid Load Forecast Before DSM	-58,334	-59,013	-60,413	-61,371	-62,309	-63,675	-64,836	-66,008	-67,109	-68,310	-69,267	-70,256	-71,222	-72,296	-73,374	-74,535	-75,462	-76,303	-77,215	-78,089
9 Expected LNG Load	-61	-148	-148	-252	-1,265	-2,299	-2,721	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848	-2,848
10 Sub-total	-58,395	-59,162	-60,561	-61,624	-63,574	-65,974	-67,557	-68,856	-69,957	-71,158	-72,115	-73,104	-74,070	-75,144	-76,222	-77,383	-78,310	-79,241	-80,063	-80,937
<b>Existing and Committed Demand Side Management &amp; Others Measures</b>																				
11 SM Theft Reduction	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
12 Voltage and VAR Optimization	67	152	171	188	219	240	254	259	263	268	285	290	295	300	305	310	315	320	325	331
13 2016 DSM Plan F16 savings	982	970	939	940	935	926	923	917	912	885	863	855	848	844	807	770	760	758	757	736
<b>Planned Demand Side Management Measures</b>																				
14 2016 DSM Plan F17 to F19 savings	389	988	1,679	1,896	1,931	1,969	1,966	1,935	1,917	1,908	1,886	1,853	1,787	1,694	1,613	1,547	1,462	1,300	1,224	1,190
15 2016 DSM Plan F20+ savings	0	0	0	292	904	1,454	1,897	2,310	2,637	2,946	3,229	3,500	3,758	4,006	4,248	4,473	4,690	4,908	5,116	4,976
16 Sub-total	1,521	2,192	2,873	3,399	4,072	4,672	5,112	5,502	5,811	6,089	6,356	6,581	6,770	6,927	7,055	7,183	7,310	7,368	7,505	7,317
17 Surplus / (Deficit) (Operational View) **	4,945	4,928	3,524	5,697	4,411	2,582	1,509	991	3,735	4,257	3,695	2,926	2,154	1,328	506	(417)	(1,093)	(1,840)	(2,410)	(3,745)
18 Surplus / Deficit as % of Net Load (Planning View) **	113%	115%	115%	114%	111%	108%	106%	105%	109%	110%	109%	107%	106%	105%	103%	102%	101%	99.97%	98%	97%
19 Small Gap Surplus/(Deficit) (Operational View) **	7,266	7,487	6,536	9,087	8,279	6,967	6,275	6,030	9,076	9,893	9,540	9,017	8,506	7,946	7,350	6,766	6,346	5,779	5,282	4,056
20 Large Gap Surplus/(Deficit) (Operational View) **	2,559	2,036	(70)	1,293	(601)	(3,171)	(5,130)	(6,012)	(3,641)	(3,506)	(4,231)	(5,328)	(6,462)	(7,776)	(8,872)	(10,089)	(11,032)	(12,060)	(13,047)	(14,732)
* 2016 Integrated System Load Forecast with losses																				
** See section 3.4.2 for description of Operational versus Planning view																				



Table 3-9 Peak Capacity Load Resource Balance after Planned Resources<sup>45</sup>

(MW)	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028	F2029	F2030	F2031	F2032	F2033	F2034	F2035	F2036
<b>Existing and Committed Heritage Resources</b>																				
1 Heritage Resources (including Site C)	11,372	11,410	11,416	11,416	11,416	11,480	11,480	11,480	12,020	12,211	12,211	12,211	12,211	12,211	12,625	12,625	12,625	12,625	12,625	12,625
2 Existing and Committed IPP Resources	1,593	1,673	1,621	1,572	1,490	1,461	1,167	1,132	1,069	1,025	1,025	975	938	806	806	802	796	771	747	683
3 Future Supply-Side Resources																				
3 IPP Renewals	9	23	55	79	120	135	419	441	450	486	486	514	538	671	671	674	680	705	862	901
4 Standing Offer Program	4	18	24	31	39	46	53	61	68	76	83	91	98	106	113	120	128	135	142	150
5 Revelstoke 6																				
6 Sub-total	13	41	78	110	159	181	472	502	519	562	1,057	1,092	1,124	1,264	1,272	1,283	1,296	1,328	1,492	1,539
7 Total Supply	12,978	13,124	13,115	13,098	13,065	13,122	13,120	13,113	13,608	13,797	14,293	14,279	14,273	14,281	14,702	14,709	14,717	14,724	14,864	14,847
8 14% of Supply Requiring Reserves***	-1,788	-1,809	-1,808	-1,805	-1,801	-1,809	-1,808	-1,807	-1,884	-1,910	-1,980	-1,978	-1,977	-1,978	-2,037	-2,038	-2,039	-2,040	-2,080	-2,057
9 Effective Load Carrying Capacity	11,189	11,315	11,307	11,293	11,264	11,313	11,311	11,306	11,725	11,887	12,313	12,301	12,296	12,303	12,665	12,671	12,678	12,684	12,804	12,790
<b>Demand - Integrated System Peak</b>																				
10 2016 May Mid Load Forecast Before DSM*	-10,776	-11,021	-11,209	-11,374	-11,541	-11,737	-11,930	-12,119	-12,313	-12,515	-12,708	-12,943	-13,155	-13,386	-13,614	-13,840	-14,074	-14,303	-14,542	-14,774
11 Expected LNG Load	-19	-19	-19	-72	-222	-329	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361	-361
12 Sub-total	-10,795	-11,039	-11,228	-11,447	-11,763	-12,066	-12,291	-12,480	-12,674	-12,876	-13,069	-13,304	-13,516	-13,747	-13,975	-14,201	-14,435	-14,664	-14,903	-15,135
<b>Existing and Committed Demand Side Management &amp; Others Measures</b>																				
13 SM Theft Reduction	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
14 Voltage and VAR Optimization	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 2016 DSM Plan F16 savings	216	214	210	211	210	207	204	201	198	193	189	185	183	180	174	168	165	165	165	162
<b>Planned Demand Side Management Measures</b>																				
16 2016 DSM Plan F17 to F19 savings	66	167	272	310	314	316	311	305	299	295	290	282	272	259	247	237	225	207	198	195
17 2016 DSM Plan F20+ savings	0	0	0	47	170	285	358	421	468	514	554	593	629	663	696	725	753	788	822	808
18 Sub-total	293	392	494	578	706	818	884	938	977	1,013	1,045	1,072	1,095	1,114	1,128	1,142	1,154	1,171	1,196	1,176
19 Surplus / (Deficit)**	687	668	573	424	206	65	96	236	27	23	289	70	124	330	1182	389	603	808	903	1,169
20 Small Gap Surplus / (Deficit)**	1,107	1,136	1,121	1,041	908	856	765	675	595	1,046	1,354	1,188	1,048	897	1,093	953	796	629	554	328
21 Large Gap Surplus / (Deficit)**	237	118	(105)	(403)	(737)	(1,013)	(1,334)	(1,536)	(1,339)	(1,409)	(1,172)	(1,455)	(1,721)	(2,014)	(1,917)	(2,177)	(2,445)	(2,711)	(2,884)	(3,226)
* 2016 Integrated System Load Forecast with losses																				
** Planning View is shown in this table. Capacity/load resource balances are only shown in Planning View. See section 3.4.2.																				
*** This is also referred to as the Planning Reserve - the system generating capacity beyond that required to meet peak demand that is necessary to meet reliability criteria. See section 1.2.2 of the IPR for more details on the criteria.																				

The key changes on the Load Resource Balances since the 2013 Integrated Resource Plan are as follows:

- Load Forecast:** The Load Forecast continues to predict long-term load growth across all three customer sectors (refer to section 3.2 for details); however, load is forecast to be lower compared to the 2013 Integrated Resource Plan. For the residential and commercial sectors, the lower forecast is due to lower projections in economic drivers such as housing starts. For the industrial sector, the lower forecast is due to factors including delays of in service dates for several mining, LNG, and oil and gas projects, reduced expectations for potential new mining and oil and gas loads given current low commodity prices, the closure of Paper Excellence's Howe Sound Thermo-Mechanical Pulp Facility, and a reduced outlook for the pulp and paper sector;
- Demand-Side Management Savings:**<sup>46</sup> Demand-side management continues to be a key resource in the Load Resource Balance and there have been changes since the 2013 Integrated Resource Plan:

  - First, energy savings from conservation rate structures have been less than forecasted, but energy savings from codes and standards have increased. In particular, customers' response to the Large General Service and Medium General Service two part baseline rates was considerably lower than forecasted in the 2013 Integrated Resource Plan. Most of the energy savings forecast from the Large General

<sup>46</sup> While the demand-side management savings shown throughout this Application are based on the same Demand-Side Management Plan, there are two estimates of the savings. The latest and more detailed estimate, prepared based on a bottom up approach, it is the basis for both the Load Resource Balances in Table 3.8 and Table 3.9, as well as the demand side management numbers quoted in section 3.4.3 and Chapter 10 of the Application. The rest of the Application reflects an earlier high level estimate, prepared using a "top down" approach for the purpose of informing the Revenue Forecasting process for the Application. The difference in savings between the two estimates is minor (71 GWh, 154 GWh and 29 GWh (with losses) in fiscal 2017, fiscal 2018, and fiscal 2019, respectively.

Service and Medium General Service rates occurred prior to fiscal 2015 and are reflected in actual sales; and

- ▶ Second, BC Hydro has determined that it is appropriate to continue a strategy of moderation of demand-side management spending through fiscal 2017 to fiscal 2019 (refer to section [3.4.3.1](#) for more details). This moderation strategy has been extended as an assumption for years fiscal 2020 and beyond (i.e., relatively constant expenditure levels, adjusted for inflation). Actual expenditure levels (and the resulting energy savings) for fiscal 2020 and beyond will be determined in the 2018 Integrated Resource Plan and subsequent applications for expenditure schedules under section 44.2 of the *Utilities Commission Act*.

- **IPP Forecasts:** The forecast of IPP supply from existing Electricity Purchase Agreements has increased. Refer to sections [3.4.3.5](#) and [3.4.3.6](#) for more information on the IPP-related recommended actions and section 4.4.2.3 for details on the IPP forecast up to fiscal 2019;
- **Major Maintenance:** BC Hydro's heritage assets are aging with many requiring major maintenance work to ensure reliable operation. Given the capacity need and the cost-effective strategy to rely on the market as a bridging resource to the Site C Clean Energy Project, BC Hydro has delayed major maintenance work at the Mica generating station to avoid taking major units out of service during the period prior to the in-service date of the Site C Clean Energy Project. The updated capacity Load Resource Balance reflects the current view of scheduling maintenance outages for generating units 1 to 4 (410 MW each for dependable capacity) when the Site C Clean Energy Project comes online. It is currently estimated that the units will be out of service for 12 to 18 months each. The resulting impact is a 410 MW reduction in capacity contribution from BC Hydro's heritage resources for a period of approximately five years, which will advance BC Hydro's need for

- 1 new capacity resources, such as Revelstoke Unit 6, after the Site C Clean  
 2 Energy Project. The impact of the outage on energy is minimal; and
- 3 • **North Coast capacity addition:** The 2013 Integrated Resource Plan  
 4 includes a recommended action to “Explore natural gas-fired generation for  
 5 the North Coast (Recommended Action 11): Working with industry, explore  
 6 natural gas supply options on the North Coast to enhance transmission  
 7 reliability and to meet expected load.” In the 2013 Integrated Resource Plan  
 8 Base Resource Plan with LNG, BC Hydro estimated that 400 MW of Simple  
 9 Cycle Gas Turbines may be required to meet capacity requirement starting  
 10 in fiscal 2020. In fiscal 2015, BC Hydro completed an assessment of adding  
 11 up to 400 MW of both natural gas and clean generating capacity in the North  
 12 Coast region. However, given the current reduced need for capacity in the  
 13 system prior to the Site C Clean Energy Project, BC Hydro has assumed no  
 14 North Coast capacity additions will take place before the end of fiscal 2024.  
 15 BC Hydro continues to assess regional considerations which will inform  
 16 future decisions on resource acquisitions outside the 2013 10 Year Rates  
 17 Plan.

#### 18 **3.4.2.2 Accounting For Uncertainties on the Load Resource Balances**

19 BC Hydro continues to monitor its Load Resource Balance as it faces significant  
 20 uncertainties. The magnitude of the uncertainty is shown by the range of  
 21 surplus/deficit presented in each of the load resource balances in [Table 3-8](#) and  
 22 [Table 3-9](#). Considering these uncertainties, the Load Resource Balance with  
 23 planned resources ([Table 3-9](#)) shows that additional capacity resources may be  
 24 needed as early as fiscal 2019.<sup>47</sup>

<sup>47</sup> The risk of capacity shortfall is BC Hydro’s primary concern because, unlike energy, capacity is required at specific times to meet load requirements and maintain system security and reliability.

- 1 • The cost for developing some new clean energy resources has declined
- 2 (e.g., wind and solar);
- 3 • The Pacific Northwest, including BC Hydro, has become more constrained
- 4 in operation during the freshet oversupply period; and
- 5 • BC Hydro is expecting to have greater need for new capacity resources over
- 6 energy resources.

7 Accordingly, BC Hydro is going through an optimization process for the Standing  
 8 Offer Program and Micro-Standing Offer Program. This process will help to  
 9 ensure the Standing Offer Program and Micro-Standing Offer Program reflect  
 10 future system needs, consider recent advancements in technology, and are  
 11 aligned with the 2013 10 Year Rates Plan. To ensure that projects that are  
 12 significantly advanced are not unduly impacted, any changes to the programs are  
 13 expected to apply to projects allocated to the Standing Offer Program volume in  
 14 calendar 2020 and beyond, and not during the current test period.

#### 15 **3.4.4 Long-Run Marginal Costs**

16 This section discusses the updated energy and capacity long-run marginal costs  
 17 and compares them that with those set out in the approved 2013 Integrated  
 18 Resource Plan.

##### 19 **3.4.4.1 How Long-Run Marginal Cost is Used**

20 Long-run marginal cost can be defined as the price for acquiring resources to  
 21 meet incremental customer demand beyond existing and committed resources. A  
 22 consideration in setting the long-run marginal cost is providing a steady and  
 23 consistent price signal for determining/screening the cost-effectiveness of  
 24 different resources. BC Hydro does not expect to acquire all available resources  
 25 up to the long-run marginal cost, nor does it expect the long-run marginal cost to  
 26 be the clearing price.

BC Hydro uses long-run marginal costs as a price signal to determine cost-effectiveness of the resources that it acquires in circumstances where portfolio analysis cannot be effectively undertaken. In particular, the long-run marginal costs are benchmarks in determining:

- The cost-effectiveness of demand-side management expenditures in this application;
- The cost-effectiveness of IPP Electricity Purchase Agreement renewals; and
- The level of efficiency to specify in acquiring electric system equipment.

The Long Run Marginal Cost also informs the setting of conservation rate structures as per the current 2015 Rate Design Application.

Determination of the long-run marginal costs is guided by the government approved Integrated Resource Plan, which ensures reliable and cost-effective electricity service both in the near and long-term while balancing multiple policy objectives.

#### **3.4.4.2 Energy Long-Run Marginal Cost Determination and Application**

For many years prior to the 2013 Integrated Resource Plan, BC Hydro had a forecast need to acquire energy from greenfield clean or renewable IPP projects and they were the marginal resource that set the long-run marginal cost. The estimated cost of energy from greenfield clean or renewable IPPs<sup>52</sup> was revised from \$135/MWh (fiscal 2013\$)<sup>53</sup> to \$125/MWh (fiscal 2013)<sup>54</sup> in the 2013 Integrated Resource Plan. It is now estimated at \$100/MWh (fiscal 2015\$).<sup>55</sup> The need for energy from greenfield clean and renewable IPPs

<sup>52</sup> The costs shown are adjusted Unit Energy Costs including delivery cost to the Lower Mainland/Vancouver Island region.

<sup>53</sup> Based upon the Clean Power Call results, the most recent and broadly-based power acquisition process at the time of the 2013 Integrated Resource Plan.

<sup>54</sup> Based upon resource cost estimate at the time of the 2013 Integrated Resource Plan, reflecting cost reduction since the Clean Power Call.

<sup>55</sup> Based upon BC Hydro's most recent resource options updates, reflecting recent wind cost estimates.

shown in the updated Load Resource Balance in section [3.4.2](#) is not expected to occur until fiscal 2034.

The Greenfield clean or renewable IPP long-run marginal cost is still relevant in the case of:

- Demand-side management, reflecting “the authority’s long-run marginal cost of acquiring electricity generated from clean or renewable resources in British Columbia for the purpose of section 4.1.1 of the *Demand Side Management Regulation*”,<sup>56</sup>
- Longer term stable pricing signals for rates; and
- Long lived assets where electricity supply benefits extend to and beyond fiscal 2034.

A long-run marginal cost based on resources that have a lower cost than greenfield IPPs was introduced in the 2013 Integrated Resource Plan after lower Load Forecasts and modifications to *Clean Energy Act* self-sufficiency requirements reduced the need for new resources. Currently, and still consistent with the 2013 Integrated Resource Plan, BC Hydro’s actions to meet future energy demand through to the late 2020’s include the Site C Clean Energy Project and the Standing Offer Program, along with demand-side management and IPP Electricity Purchase Agreement renewals. Given that the Site C Clean Energy Project is a committed resource under construction and the Standing Offer Program is required pursuant to subsection 15(2) of the *Clean Energy Act*, they are not marginal resources. As a result, the marginal resources before the return of need for new resources from greenfield clean or renewable IPPs are

<sup>56</sup> Section 4.1.1 of the Demand-Side Management Regulation requires that “the authority’s long-run marginal cost of acquiring electricity generated from clean or renewable resources in British Columbia” be used in the total resource cost test. BC Hydro interprets this long-run marginal cost in the Demand-Side Management Regulation to be the cost of acquiring greenfield clean or renewable IPP resources, which is estimated at \$100/MWh (fiscal 2015\$).

demand-side management programs and Electricity Purchase Agreement renewals.

Since the demand-side management and IPP renewal resource supply curves (price and volume relationship) are not easily visible until the actions have been undertaken, BC Hydro used a price signal (i.e., the Long Run Marginal Cost) to set the upper limit on these acquisitions. The long-run marginal cost set out in the 2013 Integrated Resource Plan was \$85 to \$100/MWh (fiscal 2013\$). This was revised to \$85/MWh based upon a reduced need for new resources and further information as set out in the Rate Design Application Evidentiary Update.

BC Hydro expects it will be able to acquire sufficient resources to meet its need at or below this price.

- Electricity Purchase Agreement Renewals:*** As described in section [3.4.3.5](#), the cost of service for IPPs is one of the factors in Electricity Purchase Agreement renewal negotiations and could vary significantly among IPPs. BC Hydro is targeting renewal of contracts for those facilities that have the lowest cost, greatest certainty of continued operation and best system support characteristics. Due to the fact that Electricity Purchase Agreement renewals are related to existing projects for which the IPPs' initial capital investment has been fully or largely recovered during the term of the initial Electricity Purchase Agreement, BC Hydro expects to be able to negotiate a lower energy price than the initial Electricity Purchase Agreement. Since the 2013 Integrated Resource Plan, BC Hydro has carried out further analysis of the expected cost of service for existing projects. BC Hydro currently estimates that the renewal volumes in the plan can be acquired at or below \$85/MWh (fiscal 2013\$) although the relationship between price, volume, contract terms and other non-energy benefits has yet to be established through bilateral negotiations. As previously noted in this section, BC Hydro does



not expect to acquire all available resources up to the long-run marginal cost nor does it expect the long-run marginal cost to be the clearing price;

- ***Demand-Side Management Plan:*** The \$85/MWh amount was used to inform the development of the Demand-Side Management Plan including by ensuring that all demand-side management initiatives were cost-effective in a total resource cost test against the \$85/MWh threshold.

Based on the updated load resource balances in section [3.4.2](#), the need for new energy resources beyond existing and committed resources is in fiscal 2022 (delayed from fiscal 2017 in the 2013 Integrated Resource Plan). Given planned resources pursuant to the 2013 Integrated Resource Plan Recommended Actions, greenfield IPPs will not be needed until fiscal 2034. The resulting marginal resources and related costs are as follows:

**Table 3-10 Marginal Energy Resources and Related Cost**

Marginal Resources	Period of Applicability	\$/MWh
Demand-Side Management and Electricity Purchase Agreement renewals	fiscal 2022 to fiscal 2033	Less than: \$87/MWh (fiscal 2016\$) or \$85/MWh (fiscal 2013\$)
Greenfield IPPs	fiscal 2034 and beyond	\$102/MWh (fiscal 2016\$) or \$100/MWh (fiscal 2015\$)

#### **3.4.4.3 Capacity Long-Run Marginal Cost Determination and Application**

Consistent with the 2013 Integrated Resource Plan, the updated capacity Load Resource Balance continues to show a need to acquire additional capacity resources over and above the other resource acquisitions in the Plan. The next generation capacity resources that could be developed and are being advanced for contingency planning purposes are Revelstoke Unit 6 and natural gas-fired simple-cycle gas turbine generators. Revelstoke Unit 6 is the next most cost-effective generation capacity resource on a unit cost basis.

In the 2013 Integrated Resource plan, the long-run marginal cost for capacity was estimated at \$50 to \$55/kW-year based on Revelstoke Unit 6 and the unit capacity costs for simple-cycle gas turbine generators was estimated at \$88/kW-year. These costs are both in fiscal 2013\$ and are at point-of-interconnection. In BC Hydro's most recent resource options updates, the unit capacity costs of a simple-cycle gas turbine generators at point-of-interconnection has dropped to \$79/kW-year (fiscal 2015\$). To make the unit capacity costs comparable to the adjusted unit energy costs with delivery to Lower Mainland and to adjust for energy impacts, these unit capacity costs are adjusted to be \$57/kW-year (fiscal 2015\$) for Revelstoke Unit 6 and \$115/kW-year (fiscal 2015\$) for a simple-cycle gas turbine. The range of \$50 to \$55/kW-year (fiscal 2013\$) continues to be reasonable for Revelstoke Unit 6.

As shown in the updated Load Resource Balance in section [3.4.2](#), "Peak Capacity Load Resource Balance after Planned Resources", there is still a small capacity need prior to the Site C Clean Energy Project coming fully into service in fiscal 2025. BC Hydro continues to plan to rely on the market to bridge this capacity need.

Revelstoke Unit 6 is the next capacity resource planned and is being advanced as either a contingency resource for its earliest in-service date in fiscal 2022 or for the need in the mid-level forecast in fiscal 2027. The next capacity resource after Revelstoke Unit 6 is not needed until fiscal 2029. The resulting marginal resources and related costs are as follows:

**Table 3-11 Marginal Capacity Resources and Related Costs**

Marginal Resources	Period of Applicability	\$/kW-year
Revelstoke Unit 6	Fiscal 2020 to fiscal 2028	\$50 - \$55/kW-year (fiscal 2013\$)
Simple-Cycle Gas Turbine	Fiscal 2029 and beyond	\$117/kW-year (fiscal 2016\$) or \$115/kW-year (fiscal 2015\$)

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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix C**

**2013 Integrated Resource Plan Excerpts**

(d) IPP attrition rates from power acquisition processes and the chance that they are lower than expected, adding to cost through additional energy purchases when the energy is not needed.

#### **4.2.5 Methods to Reduce Costs Over the Short to Mid-Term Planning Period**

This section lays out the framework used to assess potential actions and displays anticipated changes to the LRBs. It concludes with the cumulative impacts to the LRBs.

##### **4.2.5.1 Reduce Spending on EPAs**

One potential method considered to decrease energy costs during the short to mid-term period after self-sufficiency is achieved is to reduce spending on the contracted energy supply (i.e., EPAs). This section identifies three categories of potential opportunities to reduce EPA volume and/or cost and then addresses the method for identifying and selecting specific reduction opportunities. It concludes with a summary of how actions taken to date and actions recommended within this IRP will impact the LRB.

BC Hydro identified three categories of potential EPA portfolio supply reductions:

- (i) Pre-COD EPAs where there is some ability to defer Commercial Operation Date (**COD**), downsize capacity or terminate the EPA
- (ii) EPA renewals where contracts are expiring
- (iii) New EPAs

For all three categories, EPAs were assessed based on:

- Cost - BC Hydro examined the potential PV of energy savings against two bookends to inform decisions: (a) termination of the EPA; and (b) continuing with the EPA. For cases where the continuation of the EPA is under

consideration, options for downsizing project size or deferring COD were pursued.

- Implementation risk – This risk encompasses factors such as: First Nations relationship risk (e.g., loss of economic, training or employment opportunities for First Nations - in some cases a First Nations IBA has been executed with the IPP proponent); reputational risk (e.g., the perception that BC Hydro lacks integrity in managing its contractual obligations under these agreements); other stakeholder risk (e.g., loss of economic benefits for communities); and litigation risk (e.g., pay out of damages exceeds savings)
- System Benefits – These benefits could include factors such as capacity contribution to generation operations and local transmission, and capital and/or operating cost reductions. For example, bioenergy projects can provide hourly firm capacity.
- Economic Development Benefits – In some cases, local communities and First Nations strongly support the development of power generation projects due to economic benefits, such as direct and indirect employment, other economic activity, and tax revenues. For example, bioenergy EPAs typically result in broad economic benefits because they also benefit the forestry and transportation sectors, in addition to the benefits associated with construction and operation of the facility itself.

#### *Category 1: Deferring, Downsizing or Terminating Pre-COD EPAs*

In early 2013, BC Hydro reviewed the status of all EPAs that have not reached COD. A total of 52<sup>6</sup> EPAs were examined, representing about 8,200 GWh/year of contracted energy, or about 4,400 GWh/year of firm energy after adjustment for attrition. BC Hydro applied the following review process:

<sup>6</sup> By August 2, 2013 BC Hydro had only 46 pre-COD EPAs with two additional projects reaching COD and four EPAs being terminated (as described in this section).

- 
- 1 • Stage 1 – Determine whether each pre-COD EPA project has progressed to  
 2 substantial construction or if significant First Nations, stakeholder or other  
 3 implementation risks exist. Projects where significant construction has taken  
 4 place were deemed unlikely candidates for deferral, downsizing or termination  
 5 because of the high costs that would be involved. As a result, 32 pre-COD  
 6 EPAs proceeded to the next stage of review. This group consisted of  
 7 18 projects where development had stalled and termination appeared possible.  
 8 The remaining 14 EPAs were identified as potential candidates for deferral or  
 9 downsizing.
  - 10 • Stage 2 – Assess the potential benefits of EPA deferral, downsizing or  
 11 termination by examining the impact on the PV commitment and the PV of  
 12 energy savings. In addition, carry out further assessment of implementation  
 13 risks and other considerations. Based on an assessment of the estimated  
 14 impact of potential deferral, downsizing or termination, a comparison of current  
 15 contractual commitments versus expected commitments after implementation  
 16 was carried out. This analysis indicated that, if successful, these EPA actions  
 17 could result in an incremental rate reduction of, on average, approximately  
 18 1 per cent in the period F2014 through F2022.
- 19 To date, BC Hydro has executed mutual agreements to terminate four EPAs,  
 20 representing 147 MW in nameplate capacity and 980 GWh/year of contracted  
 21 energy generation. Since completion of these projects was not 100 per cent certain  
 22 prior to termination, the impact on the probability-weighted supply forecast as shown  
 23 in the LRBs is less.
- 24 BC Hydro is in discussions with other IPPs where development of pre-COD EPA  
 25 projects has stalled. Based on an assessment of the estimated impact of potential  
 26 deferral, downsizing or termination, a comparison of current contractual  
 27 commitments versus expected commitments after implementation was carried out.  
 28 This analysis indicated that, if successful, these EPA actions could result in:

- 
- 1 • A reduction of contracted energy by F2021 of roughly 1,800 GWh
  - 2 • A reduction in attrition-adjusted forecast firm energy supply by F2021 of
  - 3 160 GWh/year
  - 4 • A reduction in the PV of contractual commitments for electricity supply of more
  - 5 than \$1 billion
  - 6 • An incremental rate reduction of, on average, approximately 1 per cent in the
  - 7 period F2014 through F2022

8 BC Hydro is negotiating agreements to defer COD for projects or to downsize  
 9 projects where possible; and is declining developer requests for BC Hydro's consent  
 10 to plant capacity increases unless ratepayer value can be achieved.<sup>7</sup> For example,  
 11 value can be realized through a variety of mechanisms, such as deferral of  
 12 commercial operations, capping overall purchase obligations or other contractual  
 13 concessions. There may also be some limited opportunity to cost-effectively  
 14 negotiate agreements to terminate certain EPAs where BC Hydro does not have  
 15 termination rights, but where a termination agreement may result in benefit to both  
 16 parties. In these cases, BC Hydro weighs a number of factors to determine the best  
 17 course of action, including but not limited to: BC Hydro's contractual rights and  
 18 obligations; the PV of the purchase commitment; the value of the energy purchased  
 19 over the term of the EPA; potential impacts on First Nations and stakeholders; the  
 20 likelihood that the project will proceed to commercial operations; and the potential  
 21 cost of a termination agreement, if any.

22 [Table 4-5](#) and [Table 4-6](#) show the impact on expected energy and dependable  
 23 capacity of the proposed changes from deferring, downsizing or terminating  
 24 pre-COD EPAs (Category 1). These changes reflected in the updated LRBs for  
 25 energy and capacity presented in [Figure 4-3](#) and [Figure 4-4](#) at the end this section.

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<sup>7</sup> BC Hydro has discretion under its EPAs to consent or not consent to various requests. In some cases, BC Hydro discretion is absolute and in other cases, BC Hydro must not unreasonably withhold or delay its consent.

**Table 4-5 Expected Energy from Pre-COD EPA Terminations and Deferrals, GWh**

	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2028	F2033
Expected Terminations	-166	-181	-209	-209	-209	-209	-209	-211	-209
Expected Deferrals <sup>8</sup>	-331	-76	53	53	53	53	53	53	53
Total	-497	-257	-156	-156	-156	-156	-156	-157	-156

**Table 4-6 Expected Capacity from Pre-COD EPA Terminations and Deferrals, MW**

	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2028	F2033
Expected Terminations	-7	-7	-11	-11	-11	-11	-11	-11	-11
Expected Deferrals	-18	0	3	3	3	3	3	3	3
Total	-25	-7	-8	-8	-8	-8	-8	-9	-8

#### *Category 2: EPA Renewals*

As EPAs expire for projects already in operation, BC Hydro is targeting renewal of the contracts for those facilities that have the lowest cost, greatest certainty of continued operation and best system support characteristics. Due to the fact that these are existing projects where the IPP's initial capital investment has been fully or largely recovered over the initial term of the EPA, BC Hydro expects to be able to negotiate a lower energy price. In its EPA renewal negotiations, BC Hydro will consider the seller's opportunity cost, the electricity spot market, the cost of service for the seller's plant and other factors such as the attributes of the energy produced and other non-energy benefits.

Previously BC Hydro assumed that no existing bioenergy EPAs would be renewed upon expiry due to pricing and fuel supply risks, and that all other existing EPAs would be renewed for the remainder of the planning horizon. For planning purposes, BC Hydro now estimates that about 50 per cent of the bioenergy EPAs will be

<sup>8</sup> In some cases it is expected that there will be additional contracted energy and capacity as part of EPA amendments or prior commitments.



renewed, about 75 per cent of the small hydroelectric EPAs that are up for the renewal in the next five years will be renewed, and all remaining EPAs will be renewed. These changes are summed up in [Table 4-7](#) and [Table 4-8](#) and are reflected in the LRBs presented for energy and capacity in section [4.2.6](#).

The above changes for EPA renewals reflect updated planning assumptions used for this IRP. On an ongoing basis, IPP projects will continue to be individually assessed as EPAs come up for renewal. Refer to section 9.2.4 for additional detail.

The following tables show the impacts to energy and capacity of implementing the proposed changes to EPA renewals (Category 2) using the planning assumptions set out above.

**Table 4-7 EPA Renewal Energy Differences (F2017 to F2023, F2028, F2033), GWh**

	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2028	F2033
Previous EPA Renewals <sup>9</sup>	1,205	1,297	1,298	1,298	1,298	1,298	3,468	4,316	5,086
Updated EPA Renewals	1,147	1,245	1,570	1,683	1,824	2,117	4,357	5,463	6,356
Difference	-58	-52	273	385	526	819	889	1,147	1,270

**Table 4-8 EPA Renewal Capacity Differences (F2017 to F2023, F2028, F2033), MW**

	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2028	F2033
Previous EPA Renewals	137	142	142	142	142	142	417	444	470
Updated EPA Renewals	133	146	177	202	214	256	539	603	640
Difference	-3	4	35	60	73	114	122	159	170

<sup>9</sup> For [Table 4-7](#) to [Table 4-10](#), the "previous" assumptions refer to the illustrative example, starting in the spring of 2013, used to generate a baseline for comparison.

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#### 9.2.4 Recommended Action 4: Optimize existing portfolio of IPP resources

*Optimize the current portfolio of IPP resources according to the key principle of reducing near-term costs while maintaining cost-effective options for long-term need.*

The combined Independent Power Producer (IPP) supply and targeted DSM results in BC Hydro having an adequate energy supply until F2028 and adequate capacity supply until F2019, as shown in section 4.2.6. BC Hydro is undertaking time-critical actions over the next few months to prudently manage the costs of the energy resources that it has acquired, committed to or planned to target over the next five years. These actions include negotiating agreements to defer commercial operation date (COD), downsize or terminate pre-COD EPAs. Based on the EPA actions, BC Hydro expects to achieve an energy supply reduction of contracted energy by F2021 of roughly 1,800 GWh/year, translating into a reduction in attrition-adjusted forecasted firm energy supply of about 160 GWh/year by F2021.

##### 9.2.4.1 Justification

The energy and capacity LRBs depicted in section 4.4.2.6 after implementation of the DSM target and EPA renewal assumptions show:

- There is an energy gap beginning in F2028 and a capacity gap beginning in F2019 without Expected LNG load
- The corresponding energy and capacity gaps begin in F2022 and F2019, respectively, with Expected LNG load

BC Hydro identified three categories of potential EPA portfolio supply reductions:

1. Pre-COD EPAs where there is some ability to defer COD, downsize capacity or terminate the EPA
2. EPA renewals where contracts are coming to end of life
3. New EPAs

For all three categories, as described in section 4.2.5.1, projects were assessed based on cost, implementation risk, system benefits and economic development benefits.

#### **9.2.4.2 Execution**

**Termination, Deferral or Downsizing of Pre-COD EPAs:** To date, BC Hydro has executed mutual agreements to terminate four EPAs, representing 147 MW in nameplate capacity and 980 GWh in total annual generation (prior to attrition adjustment). BC Hydro is in discussions with IPPs where development of pre-COD EPA projects has stalled, with the objective of obtaining mutual agreement to terminate these contracts.

BC Hydro is continuing to discuss options for deferral or downsizing of EPAs with developers, where feasible options exist.

**EPA Renewals:** As described in section 4.2.5.1, prior to this IRP BC Hydro assumed that no bioenergy EPAs would be renewed upon expiry due to pricing and fuel supply risks, and that all other EPAs would be renewed for the remainder of the planning horizon. For planning purposes, BC Hydro now assumes that about 50 per cent of the bioenergy EPAs will be renewed, and about 75 per cent of the run-of-river hydroelectric EPAs that are up for renewal in the next five years will be renewed. These EPA renewal planning assumptions would result in about 1,800 GWh/year of firm energy in F2021 and about 6,400 GWh/year of firm energy in F2033.

However, IPP projects will be individually assessed as EPAs come up for renewal. BC Hydro recognizes that EPAs can provide beneficial products such as voltage support, dependable capacity (valued using Revelstoke Unit 6 cost of capacity) and dispatchability. A recent example is BC Hydro's plan to exercise an option to extend the EPA term for the 120 MW McMahon Cogeneration natural gas-fired facility located near Taylor, B.C., provides cost-effective firm energy, dispatchability and capacity support to the local transmission system. Consultation with First Nations

would be required where there are physical or operational changes to the projects triggered by the renewal.

By way of illustration, renewing about 2,000 GWh/year by F2021 would cost about \$2.5 billion (through to F2033 in as-spent dollars).

**New EPAs:** BC Hydro is continuing to negotiate in good faith with First Nations and other parties where there are agreements committing BC Hydro to negotiate EPAs. For further actions on new IPPs, see the Clean Energy Strategy Recommended Action 10 in section [9.2.10.2](#) on SOP and Net Metering.

#### **9.2.4.3 Future Approval Process**

BC Hydro anticipates that its management of the IPP EPA portfolio will be informed by the IRP review and approval process and through future RRA processes.

#### **9.2.5 Recommended Action 5: Investigate customer incentive mechanisms**

*Investigate incentive-based pricing mechanisms over the short-term that could encourage potential new customers and existing industrial and commercial customers looking to establish new operations or expand existing operations in BC Hydro's service area.*

##### **9.2.5.1 Justification**

Because domestic rates are higher than the price that can be obtained on the spot market, one potential strategy to get higher value for the available energy is to increase domestic demand. This is only worthwhile if the increased load is temporary and there is benefit in the initiative. Initiatives that boost demand over a longer timeframe will increase rates and revenue requirements once the additional electricity supplies are needed.

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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix D**

**BC Hydro Specimen Hydro Electricity  
EPA Renewal Contract**

*BC Hydro – Specimen Hydro EPA (Renewals)*

**BC HYDRO**

**SPECIMEN HYDRO ELECTRICITY PURCHASE AGREEMENT (RENEWALS)**

**Revised: August 2016**

*[Notes: This template EPA applies to existing run-of-river projects with the following characteristics:*

- 1. Project is a small hydro project.*
- 2. Project has a direct interconnection to the BC Hydro System, and an Interconnection Agreement is in place from EPA execution.*
- 3. Energy available from EPA execution.*
- 4. Seller is a single corporation, rather than a joint venture, limited partnership or other entity.*
- 5. Original EPA has expired or been terminated prior to or concurrent with EPA execution.]*

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*BC Hydro – Specimen Hydro EPA (Renewals)*

**BC HYDRO**

**ELECTRICITY PURCHASE AGREEMENT**

THIS ELECTRICITY PURCHASE AGREEMENT (“EPA”) is made as of \_\_\_\_\_, 20\_\_\_\_ (the “Effective Date”)

BETWEEN:

\_\_\_\_\_ a corporation incorporated under the  
Laws of \_\_\_\_\_ with its head office at \_\_\_\_\_

(“Seller”)

AND:

**BRITISH COLUMBIA HYDRO AND POWER AUTHORITY**, a corporation  
continued under the *Hydro and Power Authority Act* R.S.B.C. 1996,  
c. 212, with its head office at 333 Dunsmuir Street, Vancouver, BC V6B  
5R3

(“Buyer”).

The Parties agree as follows:

**1. INTERPRETATION**

The definitions and certain principles of interpretation that apply to this EPA are set out in Appendix 1.

**2. TERM**

**2.1 Term** - The term (“Term”) of this EPA commences on the Effective Date and continues until the *[insert]* anniversary of the Effective Date, unless it is terminated earlier as authorized under this EPA. *[Note: Seller and BC Hydro to confirm term.]*

**3. REGULATORY**

**3.1 Regulatory Filing –**

- (a) The Buyer will take all reasonable steps to secure BCUC Acceptance. The Seller will provide any assistance reasonably requested by the Buyer to secure BCUC Acceptance.
- (b) The Buyer will file this EPA with the BCUC under section 71 of the UCA as an energy supply contract in accordance with the Buyer’s usual filing practices within a reasonable period of time following the Effective Date.

**3.2 Termination** - If BCUC Acceptance has not been issued on or before the Regulatory Condition Expiry Date, either Party may terminate this EPA at any time after the Regulatory Condition

Expiry Date by delivering notice of termination to the other Party, and such termination will be effective on the date that is 30 days after the date of delivery of such notice of termination, provided that a Party may not terminate this EPA under this section 3.2 if BCUC Acceptance is issued before the notice of termination is delivered to the other Party. If this EPA is terminated by either Party in accordance with this section 3.2, the Parties will have no further liabilities or obligations under, or in relation to, this EPA, except as set out in sections 10.4 and 10.6.

**3.3 Exemptions** - Sections 3.1 and 3.2 are of no effect if an Exemption exists before termination of this EPA under section 3.2. Nothing in this EPA obliges either Party to seek an Exemption, and the Parties acknowledge that they have entered into this EPA with the expectation that there will not be an Exemption of any kind.

**3.4 Utility Regulation** - The Seller will not take any action that would cause the Seller to cease to be exempt, or omit to take any action necessary for the Seller to continue to be exempt, from regulation as a “public utility”, as defined in the UCA, with respect to the Seller’s Plant, the sale of Energy and the performance by the Seller of its obligations under this EPA where such regulation as a “public utility” could reasonably be expected to have an adverse effect on the Buyer or the Buyer’s interests under this EPA.

#### **4. SELLER’S PLANT**

**4.1 Ownership** – The Seller will own the Seller’s Plant at all times during the Term.

**4.2 Operation Costs and Liabilities** - The Seller will be solely responsible for all costs, expenses, liabilities and other obligations associated with the design, engineering, construction, Interconnection, commissioning, operation, maintenance and decommissioning of the Seller’s Plant.

**4.3 Standard of Operation** - Except as otherwise consented to by the Buyer, the Seller will ensure that the location, design, engineering, construction, Interconnection, commissioning, operation and maintenance of the Seller’s Plant are and will be carried out at all times during the Term:

- (a) in accordance with the information in the Information Submittals in all material respects;
- (b) in compliance with the Project Standards provided that if the requirements for Clean Energy are amended or replaced after the Effective Date, the Seller will make commercially reasonable efforts to operate the Seller’s Plant in a manner that allows the Energy to continue to qualify as Clean Energy under the new requirements; and
- (c) by qualified and experienced individuals.

The Seller will make commercially reasonable efforts to operate the Seller’s Plant such that the amount of Eligible Energy delivered to the POI in any hour does not exceed the Hourly Limit.

**4.4 Permits** - The Seller will promptly obtain, comply with and maintain in full force and effect, all Permits. The Seller acknowledges that this EPA and the terms and conditions of this EPA are not intended to, and do not, fetter the discretion of any Governmental Authority with respect to any decision or action by that Governmental Authority with respect to the Project and the

Buyer will be entitled to exercise any rights and remedies available to it under this EPA resulting from any such decision or action including, the right to terminate this EPA if any of the circumstances described in section 10.1 occur as a result of the decision or action and the right to receive any Termination Payment payable by the Seller under section 10.6 as a result of such termination.

**4.5 Project Changes** – Without the Buyer’s prior consent, the Seller will not make any change to:

- (a) the Seller’s Plant as described in Appendix 2; or
- (b) any other aspects of the Seller’s Plant or the information in any Interconnection Review prior to the Effective Date where such change would increase the Buyer’s liability for any costs with respect to the Seller’s Plant or any other project.

The Seller acknowledges that the Buyer may require, as a condition of its consent to any change described in this section 4.5, that the Seller agree in writing to reimburse the Buyer for any incremental liability for any losses, costs and damages incurred by the Buyer or any third party (including any incremental Network Upgrade Costs), with respect to the Seller’s Plant or any other project, as a result of any change described in this section 4.5. The Buyer may also require the Seller to provide security to the Buyer to secure such reimbursement obligation. If the change requiring the Buyer’s consent is the result of the Seller’s agreement with a third party to interconnect a generating facility to the Seller’s Plant and transmit electricity via the Seller’s Plant to the POI, the Buyer will require as a condition of consent that the Seller agree to be responsible for any incremental losses of Energy, costs, damages and risks associated with the interconnection.

**4.6 Metering** - The Seller will, at its cost, install, operate and maintain a Meter at a location approved by the Buyer at the Seller’s Plant that is tested and sealed according to any Measurement Canada standards. The Buyer may, at its cost, install a duplicate meter at the Seller’s Plant at a location agreed to by the Seller, acting reasonably. The Seller will allow the Buyer to access the Seller’s Plant to install, inspect and maintain any such duplicate meter. The Seller will make equipment and telecommunications access available to the Buyer as required for any duplicate meter. All information collected or recorded by the meter(s) will be transmitted directly to the Buyer or provided by the Seller to the Buyer, as reasonably required by the Buyer. If the Seller’s Plant is rated 1.00 MVA or higher, the Seller will ensure that the Seller’s Plant is equipped with SCADA capability. If there is any dispute regarding the accuracy of the Meter, either Party may give notice to the other Party of the dispute. In that case the Parties will resolve the matter in accordance with the *Electricity and Gas Inspection Act* (Canada).

**4.7 Insurance** - The Seller will, at its cost, obtain and maintain (i) policies of commercial general liability insurance with a per occurrence limit of liability not less than \$\_\_\_\_\_ applicable to the Project, and (ii) construction insurance (if construction is planned or undertaken by or on behalf of the Seller in connection with the Project) and, in respect of the Seller’s Plant, property insurance, with limits of liability and deductibles consistent with those a prudent owner of a facility similar to the Seller’s Plant would maintain and those the Facility Lender may require. All commercial general liability policies must include the Buyer, its directors, officers, employees and agents as additional insureds and must contain a cross liability and severability

of interest clause. All policies of insurance must include a waiver of subrogation in favour of the Buyer. All policies of insurance must be placed with insurers that have a minimum rating of A- (or equivalent) by A.M. Best Company and are licensed to transact business in the Province of British Columbia and must be endorsed to provide to the Buyer 30 days' prior written notice of cancellation, non-renewal or any material amendment that results in a reduction in coverage. The Seller will give the Buyer a copy of the insurance certificate(s) for the insurance required to be maintained by the Seller under this section not more than 30 days after the effective date of coverage and promptly upon renewal thereafter. The Seller will be responsible for the full amount of all deductibles under all insurance policies required to be maintained by the Seller under this section.

*[Note: Policy limit for commercial general liability insurance will be based on Plant Capacity as follows:*

*Up to and including 1 MW - \$1,000,000*

*Greater than 1 MW up to and including 5 MW - \$2,000,000*

*Greater than 5 MW - \$3,000,000*

*Further, for Projects that are deemed to be in a zone where there is a risk of forest fire, such policy will include coverage for forest fire fighting expense liability at a sublimit of \$1,000,000.]*

**4.8 No Liability For Delay** - The Buyer will have no liability under this EPA for delays in completion of (i) any Network Upgrades, or any other work undertaken by or on behalf of either Party under the Interconnection Agreement, or (ii) other work undertaken by the Buyer on the Seller's Plant side of the POI, in each case howsoever arising.

#### **4.9 Outages**

**4.9.1 Notice of Outage** - The Seller will notify the Buyer of any Outages, or changes in any Outages, by delivering to the Buyer an Outage Notice or revised Outage Notice:

- (a) promptly in the case of any Forced Outage;
- (b) not less than 90 days in advance of any Planned Outage, and
- (c) promptly in the case of any changes to the duration, start time or end time of any Outage.

#### **4.9.2 Coordination and Scheduling of Planned Outages**

- (a) The Seller will make commercially reasonable efforts to coordinate any Planned Outages with the Buyer's maintenance schedule or other requirements where such schedule or requirements are publicly available or otherwise notified to the Seller.
- (b) The Buyer may, by notice to the Seller, require the Seller to reschedule any Planned Outage. On such notice, the Seller will promptly provide the Buyer with a reasonable

cost estimate, with supporting detail and reasonable contingency allowance, of the costs it expects to incur as a direct result of rescheduling the Planned Outage. Upon review of the Seller's cost estimate, the Buyer may withdraw its requirement that the Seller reschedule the Planned Outage. If the Buyer does not withdraw the requirement, the Seller will reschedule the Planned Outage as required by the Buyer provided that rescheduling is consistent with Good Utility Practice and does not have a materially adverse effect on the operation of the Seller's Plant. The Buyer will compensate the Seller for costs reasonably incurred by the Seller as a result of the rescheduling, provided those costs do not exceed the cost estimate provided by the Seller to the Buyer in advance of the Planned Outage.

- 4.10 Operating Plans** - On or before September 30 in each year during the Term (or such other date or dates in any year during the Term as the Buyer may from time to time request) the Seller will provide to the Buyer its Operating Plan for the 14-month period commencing on November 1 of the same year (or for such other period and/or commencing on such other date during the Term, as the Buyer may from time to time request). The Seller will promptly provide the Buyer with a revised Operating Plan upon the Seller becoming aware of any expected material change in the then current Operating Plan for that period. The Parties agree that the Operating Plan is provided for planning purposes and does not guarantee or limit the quantity or timing of Seller's delivery of Energy to the POI. The Seller will ensure that all Operating Plans are consistent with Good Utility Practice.

## **5. PURCHASE AND SALE OBLIGATIONS**

- 5.1 Sale and Purchase of Energy** - During the Term, the Seller will sell and deliver all Energy to the Buyer at the POI and the Buyer will, subject to section 5.2, purchase and accept delivery of all Eligible Energy. The Buyer will pay for Eligible Energy in accordance with section 6.1. When the Seller is delivering Energy to the Buyer, the Seller will make commercially reasonable efforts to operate the Seller's Plant in a manner that ensures delivery of Energy at the POI at a uniform rate within each hour during which Energy is delivered.

- 5.2 Limit on Eligible Energy** - Notwithstanding any other provision in this EPA:

- (a) the Buyer will not be obligated in any hour after the Effective Date to purchase or accept delivery from the Seller at the POI of any Eligible Energy that is greater than the Hourly Limit;
- (b) no amount will be payable by the Buyer for Eligible Energy in any hour above the Hourly Limit regardless of whether the Buyer consented to or accepted delivery of Energy at the POI greater than the Hourly Limit; and
- (c) in determining the total amount of Eligible Energy for a year, month, hour or any other time period under this EPA for any purpose, the total amount of Eligible Energy in each hour of such time period will not exceed the Hourly Limit, even if the Seller delivered to the POI, or the Seller's Plant was capable of generating, more Energy than the Hourly Limit.

- 5.3 Environmental Attributes** - The Seller hereby transfers, assigns and sets over to the Buyer all right, title and interest in and to the Environmental Attributes.

- 5.4 Exclusivity** - The Seller will not at any time during the Term commit, sell or deliver any Energy or any Environmental Attributes to any Person, other than the Buyer under this EPA. The Seller will not use any Energy or use, apply, claim or retire Environmental Attributes for any purpose whatsoever except for sale to the Buyer under this EPA. These prohibitions do not apply when the Buyer is in breach of its obligations under section 5.1. The Seller acknowledges and agrees that the exclusive rights conferred by this section are of fundamental importance, and that, without prejudice to any right to claim damages, compensation or an accounting of profits, the granting of an interim, interlocutory and permanent injunction is an appropriate remedy to restrain any breach or threatened breach by the Seller of the obligation set out in this section.
- 5.5 Custody, Control, Risk of and Title To Energy** - Custody, control, risk of, and title to, all Energy (including any Energy exceeding the limits set out in section 5.2 even where the Buyer has not paid for such excess Energy) and all Environmental Attributes associated with such Energy pass from the Seller to the Buyer at the POI. The Seller will ensure that all Energy delivered to the Buyer under this EPA and all Environmental Attributes transferred to the Buyer under this EPA are free and clear of all liens, claims, charges and encumbrances.
- 5.6 Line Losses** - The Seller will be responsible for all Line Losses, costs and liabilities relating to the transmission of Energy and other electricity, if applicable, on the Seller's side of the POI.
- 5.7 BC Hydro System Constraint -**
- 5.7.1** The Buyer will not be in breach or default of its obligations under section 5.1 or section 6.1 if the Buyer is not able to accept delivery of Energy at the POI as a result of a BC Hydro System Constraint. The Buyer will have no liability with respect to a BC Hydro System Constraint, except as set out in this section 5.7, if applicable.
- 5.7.2** If in any month the Seller is unable to deliver Energy at the POI solely as a result of a BC Hydro System Constraint that:
- (a) is not caused by an event beyond the reasonable control of the Buyer;
  - (b) is not caused by the Seller, the Seller's Plant or anything on the Seller's side of the POI; and
  - (c) occurs after any BC Hydro System Constraint has been in effect for more than 24 hours in the aggregate, whether or not continuous, in such month
- then, notwithstanding that the Buyer is excused under section 5.7.1 from its obligations under section 5.1, but subject to sections 5.2 and 5.7.3, the Buyer will pay to the Seller in accordance with Article 6 an amount equal to the price payable for Eligible Energy under section 6.1 multiplied by that amount of Energy that could have been generated and delivered to the POI in each hour after the 24 hours has elapsed but for the occurrence of the BC Hydro System Constraint ("**Constraint Energy**"), less any costs the Seller avoided or, acting reasonably, could have avoided during the BC Hydro System Constraint.
- 5.7.3** The Buyer will not be required to pay for any Constraint Energy under this section 5.7:
- (a) during any period where the Seller's Plant would not have been operating;

*BC Hydro – Specimen Hydro EPA (Renewals)*

- (b) during any period specified as an Outage in any Outage Notice, revised Outage Notice or in an Operating Plan;
- (c) during any period when either Party is or would be excused, in accordance with section 8.8 or 8.9, from its obligation to deliver or to accept delivery of Energy as a result of Force Majeure;
- (d) if the Seller has not provided the Buyer with an Operating Plan in accordance with section 4.10 for the period in which the BC Hydro System Constraint occurs; and
- (e) if the Seller has not provided the Buyer with:
  - i. a reasonably detailed statement of any Constraint Energy for which the Seller is claiming a right to be paid, and associated avoided or avoidable costs, and received the Buyer's approval of the amounts in such statement prior to issuing its final statement according to section 6.3.1; and
  - ii. a written attestation, in a form acceptable to the Buyer and signed by an authorized representative of the Seller, confirming that, during all periods of the BC Hydro System Constraint in which the Seller is claiming a right to be paid for Constraint Energy, the Seller was unable to deliver Energy at the POI solely as a result of the BC Hydro System Constraint.

**5.7.4** The Buyer may request additional Records in support of the amount of any Constraint Energy and any costs the Seller avoided or, acting reasonably, could have avoided during the BC Hydro System Constraint.

**5.8 Buyer Dispatch/Turn-Down Right -**

**5.8.1** The Buyer may at any time during the Term deliver notice to the Seller requiring the Seller to Dispatch/Turn-Down and the Seller will promptly comply with any such direction except to the extent that any operational, technical, regulatory or fuel storage constraint prevents or limits the Seller's ability to comply with such direction.

**5.8.2** In respect of any period of a Dispatch/Turn-Down, but subject to sections 5.2, 5.8.3 and 5.8.5, the Buyer will pay to the Seller in accordance with Article 6 an amount equal to the price payable for Eligible Energy under section 6.1 multiplied by that amount of Energy that could have been generated and delivered to the POI in each hour but for the occurrence of the Dispatch/Turn-Down ("Dispatch/Turn-Down Energy"), less any costs the Seller avoided or, acting reasonably, could have avoided during the Dispatch/Turn-Down.

**5.8.3** The Buyer will not be required to pay for any Dispatch/Turn-Down Energy:

- (a) during any period where the Seller's Plant would not have been operating;
- (b) during any period specified as an Outage in any Outage Notice, revised Outage Notice or in an Operating Plan;
- (c) during any period when either Party is or would be excused, in accordance with section

8.8 or 8.9, from its obligation to deliver or to accept delivery of Energy as a result of Force Majeure;

- (d) if the Seller has not provided the Buyer with an Operating Plan in accordance with section 4.10 for the period in which the Dispatch/Turn-Down occurs;
- (e) if the Buyer's requirement for the Seller to Dispatch/Turn-Down is the result of the operation of the Seller's Plant in a manner inconsistent with section 4.3; and
- (f) if the Seller has not provided the Buyer with:
  - i. a reasonably detailed statement of any Dispatch/Turn-Down Energy for which the Seller is claiming a right to be paid, and associated avoided or avoidable costs, and received the Buyer's approval of the amounts in such statement prior to issuing its final statement according to section 6.3.1; and
  - ii. a written attestation, in a form acceptable to the Buyer and signed by an authorized representative of the Seller, confirming that, during all periods of the Dispatch/Turn-Down in which the Seller is claiming a right to be paid for Dispatch/Turn-Down Energy, the Seller was unable to deliver Energy at the POI solely as a result of the Dispatch/Turn-Down.

**5.8.4** The Buyer may request additional Records in support of the amount of any Dispatch/Turn-Down Energy and any costs the Seller avoided or, acting reasonably, could have avoided during the Dispatch/Turn-Down.

**5.8.5** Where the Buyer requires the Dispatch/Turn-Down as result of a BC Hydro System Constraint, section 5.7 will apply for the purposes of determining the amount of Dispatch/Turn-Down Energy for which the Buyer is required to pay the Seller.

## **6. PRICE AND PAYMENT TERMS**

**6.1 Energy Price** - Subject to section 5.1, section 5.2, section 5.7 and section 5.8, the price payable by the Buyer for each MWh of Eligible Energy from and following the Effective Date and prior to expiry of the Term or earlier termination of this EPA is \$[insert]/MWh, adjusted as follows:  
*[Note: The parenthetical will be completed with the Base Price set between the parties prior to execution of the EPA.]*

- (a) effective as of January 1 in each year after the Effective Date in accordance with the following formula:

$$\text{Payment Price}_n = ([A] * \$[B]/\text{MWh} * \text{CPI}_{\text{January 1, } n} / \text{CPI}_{\text{January 1, } \_\_\_\_\_\_}) + ([C] * \$[D]/\text{MWh})$$

*[Note: "A" and "C" (which must total 1) will be determined by the parties prior to execution of the EPA. "B" and "D" will be completed with the Base Price as described above. The blank in the subscript will be set as the year in which the EPA is signed.]*



where:

n = the year for which the relevant calculation is being conducted

CPI<sub>January 1, n</sub> = the CPI for December in the year immediately prior to the year for which the relevant calculation is being conducted.

**6.2 No Further Payment** - The amount payable by the Buyer as specified in section 6.1 is the full and complete payment and consideration payable by the Buyer for Eligible Energy and for the Environmental Attributes.

**6.3 Statements and Payment -**

**6.3.1 Statements:**

- (a) The Seller will, by the 15th day of each month, deliver to the Buyer a statement (i) for the preceding month, in respect of Delivered Energy that is Eligible Energy, and (ii) for the month that precedes the preceding month, in respect of Deemed Delivered Energy that is Eligible Energy. The statement will be in such form as the Buyer may require from time to time, and must indicate, among other things, (i) the amount of Delivered Energy that is Eligible Energy, (ii) the amount of Deemed Delivered Energy that is Eligible Energy, and any associated avoided or avoidable costs, pursuant to sections 5.7 and 5.8 that have been approved in advance by the Buyer, (iii) the price payable for the Eligible Energy, and (iv) any Final Amounts owing by either Party to the other Party. The statement must set out in reasonable detail the manner by which the statement and the amounts shown thereon were computed and be accompanied by sufficient data to enable the Buyer, acting reasonably, to satisfy itself as to the accuracy of the statement.
- (b) Either Party may give notice to the other Party of an error, omission or disputed amount on a statement within 36 months after the statement was first issued together with reasonable detail to support its claim. After expiry of that 36 month period, except in the case of willful misstatement, fraud or concealment, amounts on a previously issued statement will be considered accurate and amounts which were omitted will be considered to be nil, other than amounts disputed in accordance with this subsection within the 36 month period, which will be resolved in accordance with this EPA.
- (c) If the Buyer gives notice to the Seller of an error, omission or disputed amount on a statement as described in subsection 6.3.1(b), the Buyer may direct the Seller to promptly produce new statements for the relevant month(s). The new statements will show the undisputed amount and disputed amount each in a separate statement or will otherwise separate the amounts in a single statement in a manner acceptable to the Buyer.

**6.3.2 Payment:**

- (a) Within 30 days after receipt of a statement delivered under section 6.3.1, and subject to section 6.5, the Buyer will pay to the Seller the amount set out in the statement,

except to the extent the Buyer in good faith disputes all or part of the statement by notice to the Seller as described in subsection 6.3.1(b).

- (b) If the Buyer disputes any portion of a statement, the Buyer must pay the undisputed net amount payable by the Buyer pursuant to the statement or, if applicable, the new statement of the undisputed amount described in subsection 6.3.1(c).
- (c) The Parties will endeavor to resolve any error, omission or disputed amount on a statement within 30 days of the notice described in subsection 6.3.1(b).
- (d) Any amount required to be paid in accordance with this EPA, but not paid by either Party when due, will accrue interest at an annual rate equal to the Prime Rate plus 2%, compounded monthly. Any disputed amount that is found to be payable will be deemed to have been due within 30 days after the date of receipt of the statement which included or should have included the disputed amount.

**6.4 Taxes** - All dollar amounts in this EPA do not include any value added, consumption, commodity or similar taxes applicable to the purchase by the Buyer of Eligible Energy and Environmental Attributes, including GST, PST and any successor thereto, which, if applicable, will be added to each statement and paid by the Buyer.

**6.5 Set-off** - If the Buyer and the Seller each owe the other an amount under this EPA in the same month, then such amounts with respect to each Party will be aggregated and the Parties may discharge their obligations to pay through netting, in which case the Party, if any, owing the greater aggregate amount will pay to the other Party the difference between the amounts owed, provided that:

- (a) this section applies only to any purchase price for Eligible Energy owing by the Buyer to the Seller, and any Final Amount owing by either Party to the other Party; and
- (b) no Final Amount will be added to or deducted from the price owing by the Buyer to the Seller for Eligible Energy unless that amount remains unpaid 30 days after the Buyer gives notice to the Seller of the amount owing.

Except as otherwise expressly provided herein, each Party reserves all rights, counterclaims and other remedies and defences which such Party has, or may be entitled to, arising from or related to this EPA.

## **7. ENVIRONMENTAL ATTRIBUTES – CERTIFICATION AND ADMINISTRATION**

**7.1 Environmental Certification and Administration** - Without limiting the Seller's obligation to deliver Energy in compliance with the Project Standards, the Seller will, at the Buyer's request, use commercially reasonable efforts to apply for, and diligently pursue and maintain, any certification, licensing or approval offered by any Governmental Authority or independent certification agency that is identified by the Buyer evidencing that the Seller's Plant and the Delivered Energy has Environmental Attributes, and the Buyer will reimburse the Seller for any certification, audit and licensing fees charged by the applicable Governmental Authority or independent certification agency for such certification, licensing or approval that the Buyer requires the Seller to obtain. Any failure by the Seller to promptly comply with its obligations

in this section 7.1 is a “material default” for the purposes of this EPA, and the Buyer may terminate this EPA under subsection 10.1(i).

## **8. EPA ADMINISTRATION**

**8.1 Records** - The Seller will prepare and maintain all Records, or duplicates of such Records, at the Seller’s Plant or following the expiry of the Term or the earlier termination of this EPA, at such other location as may be agreed in writing between the Parties, for a period of not less than 7 years from the date on which each such Record is created. The Audit Parties may take copies of such Records for the purposes of an inspection or audit under section 8.2.

**8.2 Inspection and Audit Rights** - For the sole purpose of verifying:

- (a) compliance with this EPA;
- (b) the accuracy of statements, supporting information and calculations delivered by the Seller to the Buyer under this EPA;
- (c) the qualification of the Energy as Clean Energy;
- (d) the qualification of the Seller’s Plant and the Energy for the Environmental Certification; or
- (e) the liability of each of the Parties for Network Upgrade Costs,

the Seller will, on reasonable prior notice from the Buyer, provide the Audit Parties with prompt access during normal business hours to the Seller’s Plant and all Records, including any Seller Confidential Information, to enable the Audit Parties to conduct an inspection or audit thereof. The Audit Parties will exercise any access and audit rights under this section in a manner that minimizes disruption to the operation of the Seller’s Plant. Any review, inspection or audit by any of the Audit Parties may not be relied upon by the Seller, or others, as confirming or approving those matters. Where the Buyer requires the Seller to provide access to the Seller’s Plant and/or Records relating to the Seller’s Plant to a third Person with whom the Buyer or any of its Affiliates has entered into a contract for the sale and purchase of Environmental Attributes or any Affiliate, representative, consultant or advisor to any such third Person, the Buyer will first obtain from the third Person an agreement to maintain the confidentiality of any Seller Confidential Information to which such Person may have access and to limit the use of such Seller Confidential Information as required to verify the Environmental Attributes.

**8.3 Seller Consents** - The Seller will promptly provide any consents required to enable any of the Audit Parties to make enquiries with any Governmental Authority or any Person administering the Environmental Certification concerning any or all of the following: (a) the qualification of the Energy as Clean Energy; (b) the qualification of the Seller’s Plant and the Energy for Environmental Certification, the status of the Environmental Certification and copies of any audits, inspections or reports prepared in connection with the Environmental Certification; and (c) compliance by the Seller with Laws and Permits applicable to the Seller’s Plant.

**8.4 Assignment** -

- (a) Requirement for Consent: The Seller may not Assign this EPA except with the prior consent of the Buyer, which consent may not be unreasonably withheld, conditioned or delayed. Any Assignment (other than an Assignment to a Facility Lender under subsection (b) of the definition of “Assignment” in Appendix 1, or an Assignment arising as a result of a change of Control of the Seller) is subject to the assignee entering into and becoming bound by this EPA, assuming all the obligations and liabilities of the Seller under this EPA and the Interconnection Agreement arising both before and after the Assignment, and providing the representations and warranties set out in section 11.1 effective as at the time of Assignment.
- (b) Time for Request: Any request by the Seller for the Buyer’s consent under subsection 8.4(a) must be delivered to the Buyer not less than 30 days before the date of the proposed Assignment. A request under this section must be accompanied by such information as reasonably required by the Buyer to assess the request for consent including the name, address and ownership structure of the assignee, details of any consultation with First Nations that may be impacted by the Seller’s Plant or the Assignment with respect to the proposed Assignment, a list of the directors and officers of the assignee and information concerning the assignee’s operations, experience and financial status.
- (c) Assignment to Facility Lender: If the Seller seeks consent to Assign this EPA to a Facility Lender, the Buyer may require, as a condition of its consent to the Assignment, that the Seller and the Facility Lender enter into a Lender Consent Agreement with the Buyer.
- (d) Costs: The Seller will reimburse the Buyer for all costs reasonably incurred by the Buyer in connection with any request by the Seller for the Buyer’s consent pursuant to subsection 8.4(a).

**8.5 Dispute Resolution -**

- (a) Arbitration: Any dispute under or in relation to this EPA will be referred to and finally resolved by arbitration conducted by a single arbitrator in Vancouver, British Columbia and administered by the British Columbia International Commercial Arbitration Centre (“BCICAC”) pursuant to its rules. Except as otherwise expressly provided in this EPA, the arbitrator will have the jurisdiction to grant equitable remedies, including interim or permanent injunctive relief. It will not be incompatible with this agreement to arbitrate for a Party to seek from the Supreme Court of British Columbia, or for that court to grant, interim measures of protection pending the outcome of arbitral proceedings. The decision of the arbitrator will be final and binding on the Parties.
- (b) Effect of Arbitration: All performance and payments required under this EPA will continue during any dispute under this EPA, provided that the Parties may, notwithstanding the foregoing, exercise any right to terminate this EPA in accordance with the terms of this EPA. Any payments or reimbursements required by an arbitration award will be due as of the date determined under subsection 6.3.2(d) or, where that subsection does not apply, as of the date determined in the award. Without duplication with subsection 6.3.2(d), any payments or reimbursements required by an

arbitration award will bear interest at an annual rate equal to the Prime Rate plus 2% compounded monthly from the date such payment was due until the amount is paid.

- (c) Confidentiality: The Parties will maintain in confidence the fact that an arbitration has been commenced, all documents and information exchanged during the course of the arbitration proceeding, and the arbitrator's award, provided that each of the Parties will be entitled to disclose such matters: (i) as required by applicable Law or for regulatory purposes (including pursuant to the rules of any stock exchange on which the shares of the Seller or its Affiliates are traded); (ii) as required to enforce any arbitration award; (iii) to that Party's consultants and professional advisors who have a need to know such information; and (iv) in the case of the Buyer, to representatives of the Province of British Columbia.

**8.6 Notices** – Any notice, consent, waiver, declaration, request for approval or other request, statement or bill that either Party may be required or may desire to give to the other Party under this EPA must be in writing addressed to the other Party at the address for that Party stated in Appendix 1 and:

- (a) notices under sections 8.8 and 8.9, Article 9, section 10.1, and section 10.3 must be delivered by hand or by a courier service during normal business hours on a Business Day and a notice so delivered will be deemed to have been delivered on that Business Day;
- (b) all notices other than notices described in subsection 8.6(a) may be delivered by email during normal business hours on a Business Day and a notice so delivered will be deemed to have been delivered on that Business Day; and
- (c) either Party may change its address for notices under this EPA by notice to the other Party.

**8.7 Confidentiality**

**8.7.1 Confidentiality Agreement** - The Confidentiality Agreement continues in full force and effect in accordance with its terms, and section 2.4 thereof is amended to provide that the obligations thereunder will expire two years following the Effective Date.

**8.7.2 Additional Confidentiality Obligation** - Without limiting the effect of the Confidentiality Agreement, during the Term and for two years thereafter:

- (a) the Buyer will treat as confidential, and will not disclose to any third Person, Seller Confidential Information, and
- (b) the Seller will treat as confidential, and will not disclose to any third Person, Buyer Confidential Information.

**8.7.3 Disclosure of Confidential Information** - Notwithstanding the Confidentiality Agreement or section 8.7.2 above:

- (a) the Seller may disclose Buyer Confidential Information, and the Buyer may disclose

Seller Confidential Information, in the following circumstances:

- i. disclosures expressly authorized under this EPA or otherwise set out in this EPA;
  - ii. disclosures to enable a Party to fulfill its obligations under this EPA;
  - iii. disclosure in any arbitration or legal proceedings for the enforcement of this EPA;
  - iv. disclosure to the Party's directors, officers, employees, Facility Lenders, consultants and advisors, provided each of them is advised of the confidential nature of the information and agrees to respect such confidentiality;
  - v. subject to subsection 8.7.3(b)(iv), disclosure required to be made by a Party by an order of a court, a regulatory agency or a tribunal or under any law, regulatory requirements or any requirement of any stock exchange that is binding upon a Party, provided that the Party intending to make the disclosure (i) to the extent reasonably practicable, gives reasonable notice to the other Party before making the disclosure, and (ii) limits the disclosure to that required by the applicable order Laws or regulatory or stock exchange requirement, and provided further that in the case of disclosure of any Buyer Confidential Information that is required or proposed to be made by the Seller (iii) the Seller makes all reasonable efforts to resist and limit such exposure including but not limited to applying to the court, tribunal or other regulatory entity to do so, and (iv) the Seller will indemnify and hold harmless the Buyer from all reasonable costs and expenses (including full legal costs and expenses) incurred by or on behalf of the Buyer in connection with resisting, limiting, reviewing and responding to such disclosure (which may include taking measures to oppose or restrict the disclosure);
  - vi. disclosure to a third Person if such information was known by that third Person before disclosure by the Buyer or Seller, as the case may be, provided the third Person did not know of the information as a result of a breach of the non-disclosure obligations in this EPA or the Confidentiality Agreement; or
  - vii. disclosure with the consent of the Buyer, in the case of Buyer Confidential Information, or the Seller, in the case of Seller Confidential Information;
- (b) the Buyer may disclose Seller Confidential Information in the following circumstances:
- i. disclosure to the Buyer's Affiliates or to a third Person, and their respective employees, consultants and advisors, for the purpose of reselling or marketing any Energy or Environmental Attributes, including disclosure of the Seller Confidential Information by such Affiliate or third Person to those who have purchased or may purchase the Energy or Environmental Attributes;
  - ii. for purposes other than those described in subsection 8.7.3(a), to the Buyer's Affiliates and to any directors, officers, employees, consultants and advisors of

any Affiliates, provided each of them is advised of the confidential nature of the information and agrees to respect such confidentiality;

- iii. to any ministers, deputy ministers, servants or employees of the Province of British Columbia, provided each of them is advised of the confidential nature of the information and agrees to respect such confidentiality; or
- iv. disclosure in any regulatory proceeding, whether related to this EPA or not, to the extent that the Buyer considers disclosure is necessary or desirable to support its position in such proceeding. For greater certainty, subsection 8.7.2(a) does not apply to such disclosures.

**8.7.4 Freedom of Information and Protection of Privacy Act** - The Seller acknowledges that the Buyer is subject to the *Freedom of Information and Protection of Privacy Act* (British Columbia) and agrees that the Buyer's non-disclosure obligations under this EPA are subject to the provisions of that legislation, as amended from time to time.

**8.7.5 Exemption from Disclosure** - The Parties confirm that Seller Confidential Information constitutes commercial and financial information of the Seller, which has been supplied, or may be supplied, in confidence and the disclosure of which could reasonably be expected to harm significantly the competitive position and/or interfere significantly with the negotiating position of the Seller. Accordingly, the Parties confirm their intention that, subject to section 8.7.4, all Seller Confidential Information disclosed by the Seller to the Buyer will be deemed to be confidential and exempt from disclosure to third Persons in accordance with section 21 of the *Freedom of Information and Protection of Privacy Act* (British Columbia), as amended from time to time.

**8.8 Force Majeure -**

(a) If there is a Force Majeure affecting a Party's ability to perform an obligation under this EPA, and that Party wishes to declare a Force Majeure, that Party will promptly notify the other Party of the Force Majeure. The notice of Force Majeure must identify the nature of the Force Majeure, the date the Force Majeure commenced, the expected duration of the Force Majeure, and the particular obligations affected by the Force Majeure. A Party will be deemed to have invoked Force Majeure from the later of:

- i. the date when the Party gives notice of the Force Majeure in accordance with this subsection 8.8(a); and
- ii. if such date is not a Business Day, the next following Business Day;

provided that if such notice is given by 17:00 PPT on the fifth Business Day following the later of:

- i. the day on which the Force Majeure occurs; and
- ii. the day when the Party knew, or reasonably ought to have known, of the occurrence of the Force Majeure;

the Party will be deemed to have invoked Force Majeure from the date on which the event of Force Majeure occurred.

- (b) Neither Party will be in default of any obligation under this EPA if a Party is unable to perform that obligation due to an event or circumstance of Force Majeure, provided notice is delivered in accordance with this section and the circumstances are, in fact, an event or circumstance of Force Majeure.
- (c) Subject to any limitations expressly set out in this EPA, the time for performance of such obligation will be extended by the number of days that Party is unable to perform such obligation as a result of the event or circumstance of Force Majeure. The Party invoking Force Majeure will promptly respond to any inquiry from the other Party regarding the efforts being undertaken to remove the Force Majeure and will give prompt notice of the end of the Force Majeure.

#### **8.9 First Nations -**

- (a) Notwithstanding the definition of Force Majeure in Appendix 1, and without limiting the application of the definition of Force Majeure to any circumstance that is not specifically described in this section 8.9(a), any order or decision of any court of competent jurisdiction or any regulatory authority, including the BCUC, that is binding on the Buyer and/or the Seller, the compliance with which would prevent the Buyer and/or the Seller from performing all or any of its obligations under this EPA, which is based in whole or in part on any failure or alleged failure of the Buyer to adequately consult with, and/or accommodate, any First Nations, in relation to this EPA, the Project, the Seller's Plant or the Interconnection of the Seller's Plant to the BC Hydro System, (which, for greater certainty, does not include any failure to consult with, and/or accommodate any First Nations, with respect to activities occurring on the Buyer's side of the POI or on the BC Hydro System), will be an event of Force Majeure that may be invoked by the Party or Parties so prevented, provided that the Party or Parties so prevented will use commercially reasonable efforts to remedy the situation and remove, so far as possible and with reasonable dispatch, the Force Majeure to the extent that it is within the control of that Party to do so, provided that in the case of the Buyer, this obligation is subject to the Seller complying with, or having complied with, its obligation under section 9.2.1.
- (b) A Party may not invoke Force Majeure as a result of such binding order or decision referenced at subsection 8.9(a) if such order or decision results from a wilful act or omission of a Party as contemplated in subsection (d) of the definition of Force Majeure in Appendix 1, provided that the failure or alleged failure of the Buyer to have adequately consulted with, and/or accommodated, any First Nations may only be considered a wilful act or omission where the underlying event or circumstance giving rise to the duty to consult or accommodate was or is fully within the control of the Buyer and provided further that, for greater certainty, any activities of the Seller will not be considered to be within the control of the Buyer regardless of any consent, waiver, declaration or approval under this EPA, including any further amendment of this EPA that the Buyer may provide in respect of the Seller's activity.



- (c) The Seller may not invoke Force Majeure as a result of such binding order or decision referenced at subsection 8.9(a) if such order or decision results from a failure by the Seller to comply with its obligations under Article 9 of this EPA.
- (d) The Buyer may not invoke Force Majeure as a result of such order or decision referenced at subsection 8.9(a) if:
  - i. the Buyer has received notice in writing from the Seller that the Seller is attempting to resolve, cure, fulfill or remedy, as the case may be, at its own initiative and at its own expense, the issues, orders or obligations raised or required by the order or decision;
  - ii. the Buyer is not incurring additional expense, risk or liability as a result of the Seller taking the steps described in paragraph (a) and the Buyer has received written confirmation from the Seller that the Buyer will not be subject to any liability to the Seller for breach of this EPA as a result of the Buyer's compliance with that portion of the order or decision that prohibits the Buyer from performing its obligations under this EPA while at the same time not being able to invoke Force Majeure as a result of this provision;
  - iii. the Seller is at all times moving expeditiously and in good faith to resolve, cure, fulfill or remedy the issues, orders or obligations raised in the order or decision; and
  - iv. the Buyer would not be in breach of the order or decision as a result of the Seller taking the steps described in subsection 8.9(d)(i).

## **9. ABORIGINAL CONSULTATION**

**9.1 Definitions:** - For the purposes of this EPA, the following terms will have the following meanings, respectively:

- (a) **"First Nations"** means:
  - (i) for the purposes of this EPA (other than subsection 9.2.2), any band, band council, tribal council, aboriginal treaty nation and/or other aboriginal group or aboriginal governing body, however organized and established by aboriginal people within their traditional territory in British Columbia, that is identified by the Crown, before or after the Effective Date, as a band, band council, aboriginal treaty nation and/or other aboriginal group or aboriginal governing body with which consultation regarding any of the Potential Impacts is required in accordance with applicable Laws as a result of an application or request by the Seller or any Affiliate of the Seller for any Permit or tenure related directly to the Seller's Plant or any amendment, renewal, replacement, assignment or any other decision whatsoever by the Crown with respect to any Permit or tenure related directly to the Seller's Plant, and
  - (ii) for the purposes of subsection 9.2.2, any band, band council, tribal council, aboriginal treaty nation and/or other aboriginal group or aboriginal governing

body, however organized and established by aboriginal people within their traditional territory in British Columbia, whether or not identified by the Crown pursuant to the foregoing subsection (i) of this subsection 9.1(a),

- (b) **“Order or Decision”** means:
  - (i) any order or decision of any court of competent jurisdiction or any regulatory authority, including the BCUC; and
  - (ii) a writ or any other document commencing legal proceedings with respect to the Buyer or any written communication threatening to issue a writ or otherwise commence legal proceedings with respect to the Buyer, alleging that there has been a failure to consult with First Nations in relation to Potential Impacts, and which has received a Verification;
- (c) **“Potential Impacts”** means any adverse impact or potential adverse impact on the established or potential aboriginal rights (including title) of a First Nations as a result of the following matters (and which, for greater certainty, does not in any circumstance include any matters arising on the Buyer’s side of the POI or on the BC Hydro System:
  - (i) this EPA;
  - (ii) the Project;
  - (iii) the interconnection of the Seller’s Plant to the BC Hydro System; or
  - (iv) any activities carried out by the Seller, any Affiliate, consultant or contractor of the Seller, or any other Person for whom the Seller is responsible at law directly related to the Seller’s Plant to enable the Seller to comply with its obligations under this EPA; and
- (d) **“Verification”** means that a lawyer, qualified to practice in British Columbia and acceptable to both the Buyer and Seller, has reviewed the writ or other document commencing legal proceedings or the written communication threatening to issue a writ or otherwise commencing legal proceedings, and verified in writing to both Parties that there is a reasonable prospect of an order or decision of a court of competent jurisdiction or regulatory authority, including the BCUC, in favour of the party who has commenced or threatened the writ or other legal proceedings. The Buyer and the Seller will each provide to the lawyer conducting such review such information and other assistance as may be requested by that lawyer to assist them in completing the review. If the Buyer and the Seller are unable to agree on an acceptable lawyer to provide the Verification within 15 days after the Buyer has provided the name of a proposed lawyer to the Seller, either Party may refer the matter to arbitration under section 8.5 and each of the Buyer and the Seller will, within 7 days after the dispute is referred by either Party to arbitration, submit a list of lawyers that would be acceptable to that Party and the Parties will ask the arbitrator to select the lawyer from the proposed lists that is, in the arbitrator’s opinion, after receiving any submissions from the Parties the arbitrator may request, the most qualified lawyer to provide the Verification. The Buyer and the Seller will each pay 50% of the costs of obtaining the

Verification. Each Party acknowledges and agrees that any lawyer providing a Verification is jointly retained by the Parties and any communications between the Parties and the lawyer and any work product of the lawyer in subject to solicitor client privilege.

**9.2 Order or Decision -**

**9.2.1** If the Buyer is or may be required by an Order or Decision to consult with and/or accommodate any First Nations in relation to Potential Impacts, then the Seller, if requested to do so by the Buyer, by notice sent to the Seller as soon as practicable after the Buyer receives notice of the Order or Decision, will:

- (a) carry out that consultation to the extent the Seller is legally capable of doing so and in accordance with applicable Laws, or assist the Buyer if and to the extent requested by the Buyer in the consultation process;
- (b) take measures, to the extent (if any) required under the Order or Decision, or under applicable Laws, to address, prevent, mitigate, compensate or otherwise accommodate any Potential Impacts; and
- (c) provide regular written reports to the Buyer concerning the Seller's compliance with this subsection, or such other information and communications as may be reasonably requested by the Buyer.

**9.2.2** Notwithstanding subsection 9.2.1, the Buyer hereby confirms that the responsibilities of the Seller in subsection 9.2.1 do not in any way whatsoever encompass or apply to the following matters:

- (a) any duty to consult or accommodate applicable to any Crown decision-maker or regulatory authority, which for greater certainty does not include the Buyer, that is considering or dealing with the Project in any way, including in connection with the consideration of the issuance of any of the Permits;
- (b) any measure of reconciliation or accommodation that the Buyer may offer or be required to provide to a First Nations related to land or resource use that is not associated with the Potential Impacts, including resource revenue sharing, or that is related to electricity policy, planning, regulation or export; and
- (c) any measure of reconciliation or accommodation that the Crown may offer or be required to provide to a First Nations related to land or resource use, including resource revenue sharing, or that is related to electricity policy, planning, regulation or export.

**9.2.3** The Buyer will as soon as practicable notify the Seller of any written communication received by the Buyer that commences a legal proceeding with respect to the Buyer or that threatens to issue a writ or any other document commencing a legal proceeding with respect to the Buyer, with respect to which the Buyer intends to request the Seller to carry out its obligations under subsection 9.2.1. Any failure by the Buyer to notify the Seller as required under subsection 9.2.1 or this subsection 9.2.3 will not limit or otherwise affect the Seller's obligations under

subsection 9.2.1 except to the extent the Buyer's failure to notify the Seller has a materially adverse effect on the Seller. For greater certainty, the covenant of the Buyer in section 13.10 applies to the obligations of the Seller in subsection 9.2.1 and section 9.3, and the Seller will reimburse the Buyer for all costs reasonably incurred by the Buyer in providing assistance to the Seller at the request of the Seller as contemplated under that section to assist the Seller to perform its obligations under subsection 9.2.1 and 9.3. Without limiting the generality of but subject to the foregoing (including the obligation to reimburse the Buyer for all costs reasonably incurred by the Buyer), for greater certainty, the Buyer will at the request of the Seller provide reasonable assistance to the Seller in the performance by the Seller of its obligations under subsections 9.2.1 and 9.3; including agreeing to reasonable amendments of this EPA as contemplated by section 9.3; provided however, that any proposed amendment of this EPA must be in the public interest.

**9.2.4** At any time prior to the second anniversary of the Effective Date, the Buyer will not have any discussions with any First Nations with respect to the consultation or accommodation regarding the Project without first notifying the Seller of its intention to have such discussions and seeking the consent of the relevant First Nations for the Seller to participate in such discussions. The foregoing obligation does not extend to any properties or infrastructure owned by the Buyer.

**9.3 Right to Termination** - If a measure or measures required to be undertaken by the Seller in order to comply with its obligations under section 9.2 of this EPA would impose a commercially unreasonable cost or other obligation on the Seller, or would require the consent of the Buyer under any provision of this EPA or would require agreement by the Buyer to an amendment of this EPA in order to address any such adverse impacts on established and potentially existing aboriginal rights (including title) and if such consent or agreement to amend is not provided within 60 days after the Seller's request to the Buyer, then the Seller may terminate this EPA on notice to the Buyer, and such termination will be effective on the date that is 60 days after the date of delivery of such notice of termination unless, prior to that date, the Seller, by notice from the Buyer or otherwise, has been relieved of its obligation to take the measure or measures that would impose the commercially unreasonable cost or other obligation on the Seller or the consent or agreement to an amendment of this EPA has been provided, as applicable. A termination by the Seller under this section will, for all purposes of this EPA, be treated in the same manner as a termination by the Seller under subsection 10.3(c) of this EPA. If the Seller terminates this EPA pursuant to this section, the Seller will not be, or be deemed to be or have been, in breach of section 9.2 of this EPA for failure to implement the measure or measures that gave rise to the Seller's right to terminate this EPA under this section 9.3. For purposes of this section 9.3, "a commercially unreasonable cost or other obligation on the Seller" means a cost or obligation (i) to be borne by the Seller, (ii) that results, or can reasonably be expected to result, from the implementation of a measure or measures required under section 9.2, and (iii) that would impose upon the Seller a commercially unreasonable burden, having regard to all other financial benefits and burdens of this EPA to the Seller over the entire Term.

## **10. TERMINATION**

**10.1 Termination by Buyer** - In addition to any other right to terminate this EPA expressly set out in any other provision of this EPA and in addition to all other rights and remedies the Buyer may

have under this EPA, or at law or in equity in respect of any of the following events, the Buyer may terminate this EPA by notice to the Seller if:

- (a) the Seller does not deliver any Energy to the Buyer for a period of 730 continuous days for any reason whatsoever (including Force Majeure or a BC Hydro System Constraint), but excluding a BC Hydro System Constraint for which the Seller is entitled to receive payment under section 5.7; or
- (b) the Buyer is unable to accept delivery of Energy at the POI for a period of 730 continuous days due to Force Majeure invoked by the Buyer in accordance with section 8.8 or 8.9 or a BC Hydro System Constraint other than a BC Hydro System Constraint for which the Seller is entitled to receive payment under section 5.7; or
- (c) the Seller breaches section 5.4; or
- (d) any Interconnection Agreement or Interconnection Review that is completed, amended, revised or restated after the Effective Date contains information that is inconsistent with the description of the Seller's Plant at Appendix 2 and the Seller has not received the Buyer's consent under section 4.5 for the change to Appendix 2; or
- (e) the Seller is Bankrupt or Insolvent; or
- (f) the Seller, as a result of an act or omission of the Seller, ceases to be exempt from regulation as a "public utility" as defined in the UCA with respect to the Seller's Plant and the sale of Energy to the Buyer under this EPA, and the loss of such exemption could reasonably be expected to have an adverse effect on the benefit to the Buyer of this EPA; or
- (g) an amount due and payable by the Seller to the Buyer under this EPA remains unpaid for 30 days after its due date and such default has not been cured within 30 days after the Buyer has given notice of the default to the Seller; or
- (h) the Seller permits a third Person to interconnect an electric load or generation facility to the Seller's Plant without the advance written approval of the Buyer; or
- (i) the Seller is in material default of any of its covenants, representations and warranties or other obligations under this EPA (other than as set out above), unless within 30 days after the date of notice by the Buyer to the Seller of the default the Seller has cured the default or, if the default cannot be cured within that 30 day period, the Seller demonstrates to the reasonable satisfaction of the Buyer that the Seller is working diligently and expeditiously to cure the default and the default is cured within a further reasonable period of time. A "material default" includes any purported Assignment of this EPA without the consent of the Buyer and any failure by the Seller to comply with section 4.3 in respect of subsection (e) of the "Project Standards" definition in Appendix 1, section 5.4 or section 7.1.

Any termination pursuant to this section will be effective immediately upon delivery of the notice of termination to the Seller.

**10.2 Notice of Termination Event** - The Seller will notify the Buyer promptly if the Seller is Bankrupt or Insolvent or if there is a material risk that the Seller will become Bankrupt or Insolvent or if the Seller has defaulted under any agreement with a Facility Lender or if any Permit or land tenure agreement for the Seller's Plant is terminated or expires.

**10.3 Termination by the Seller** - In addition to any other right to terminate this EPA expressly set out in any other provision of this EPA and in addition to all other rights and remedies the Seller may have under this EPA or at law or in equity in respect of any of the following events, the Seller may terminate this EPA by notice to the Buyer if:

- (a) the Buyer has not accepted delivery of Energy for a period of 180 continuous days due to an event described in section 5.7.1 or any event of Force Majeure and the Seller is not entitled to receive any payment pursuant to section 5.7 in respect of that period; or
- (b) the Seller's Plant has suffered Major Damage;
- (c) the Seller has been unable to deliver Energy to the POI for a period of 730 continuous days solely as a result of Force Majeure invoked by the Seller in accordance with section 8.8 or 8.9 or a BC Hydro System Constraint other than a BC Hydro System Constraint for which the Seller is entitled to receive payment under section 5.7; or
- (d) the Buyer is Bankrupt or Insolvent; or
- (e) except where an amount has been disputed in the manner specified in subsection 6.3.1(b), an amount due and payable by the Buyer to the Seller under this EPA remains unpaid for 30 days after its due date and such default has not been cured within 30 days after the Seller has given notice of the default to the Buyer; or
- (f) the Buyer is in material default of any of its covenants, representations and warranties or other obligations under this EPA (other than as set out above), and such default has not been cured within 30 days after the Seller has given notice of the default to the Buyer or, if the default cannot be cured within that 30 day period, the Buyer fails to demonstrate to the reasonable satisfaction of the Seller that the Buyer is working diligently and expeditiously to cure the default or the default is not cured within a further reasonable period of time.

Any termination pursuant to this section will be effective immediately upon delivery of the notice of termination to the Buyer.

**10.4 Effect of Termination** - Upon expiry of the Term or earlier termination of this EPA in accordance with its terms:

- (a) the Parties may pursue and enforce any rights and remedies permitted by law or equity in respect of any prior breach or breaches of this EPA, and may enforce any liabilities and obligations that have accrued under this EPA prior to the expiry of the Term or the date of termination or that are stated to arise on termination of this EPA (including any claims by the Buyer for amounts payable by the Seller under the Interconnection Agreement), subject to any express restrictions on remedies and limitations or

exclusions of liability set out in this EPA;

(b) both Parties will remain bound by:

- i. Article 6 with respect to any final billing and resolution of disputed amounts only;
- ii. the Interconnection Agreement and Article 10 with respect to the satisfaction of residual obligations for the period prior to termination or that are specified to arise on termination;
- iii. Article 12 and sections 8.5 and 8.7; and
- iv. all provisions of this EPA with respect only to Environmental Attributes associated with Delivered Energy and Deemed Delivered Energy prior to the expiry of the Term or earlier termination of this EPA; and

(c) the Seller will remain bound by:

- i. section 8.1; and
- ii. section 8.2 for a period of 36 months following expiry of the Term or earlier termination of this EPA;

and, in all such cases, both Parties will remain bound by any other provisions necessary for the interpretation and enforcement of the foregoing provisions.

**10.5 Buyer Payment on Seller Termination** – If the Seller terminates this EPA under any of subsections 10.3(d), (e) or (f), the Buyer will pay to the Seller an amount equal to the positive amount if any by which the Seller's Financial Losses and Costs exceed its aggregate Gains. The Seller's Gains, Financial Losses and Costs will be determined by comparing the reasonably estimated quantities of Eligible Energy for the remaining Term and the price payable for those quantities under this EPA had it not been terminated to the relevant market prices for equivalent quantities of electricity for the remaining Term either quoted by a bona fide arm's length third Person or which are reasonably expected to be available in the market under a replacement contract for this EPA. Market prices will be adjusted for differences between the product subject to the market prices and a product, inclusive of Environmental Attributes, equivalent to that specified under this EPA, including with respect to quantity, place of delivery, length of term and each element of the eligibility requirements. The Seller will not be required to enter into a replacement transaction in order to determine the amount payable by the Buyer under this section. The Seller's Gains, Financial Losses and Costs will be discounted to the present value of those Gains, Financial Losses and Costs at the effective date of termination of this EPA (to take into account the time value of money for the period between the effective date of termination of this EPA and the date the Gains, Financial Losses and Costs would have occurred but for the termination of this EPA) using the Present Value Rate. If the Seller's aggregate Gains exceed its aggregate Financial Losses and Costs, if any, resulting from the termination of this EPA, the amount of the payment by the Buyer to the Seller under this section will be zero.

**10.6 Seller Payment on Termination** – If the Buyer terminates this EPA on or before the second anniversary of this EPA, or the Seller terminates this EPA under any of section 3.2 or subsections 10.3(a), (b) or (c) on or before the first anniversary of this EPA, the Seller will, within 30 days after receipt of an invoice from the Buyer, reimburse the Buyer for:

- (a) all Network Upgrade Costs incurred by the Buyer, or which the Buyer has become contractually obligated to pay, prior to the termination of this EPA including Network Upgrade Costs the Buyer would otherwise be responsible for under the Interconnection Agreement;
- (b) any incremental Network Upgrade Cost liability the Buyer will incur as a result of the termination of this EPA; and
- (c) any Network Upgrade Costs the Seller is responsible for under any reimbursement agreement pursuant to section 4.5.

**10.7 Calculation and Payment** - The Seller will calculate the amount of any payment owed by the Buyer under section 10.5 and will notify the Buyer of such amount and provide reasonable particulars with respect to its calculation within 120 days after the effective date of termination of this EPA, failing which the Seller will not be entitled to any payment under section 10.5. The Buyer will pay any amount owing by the Buyer under section 10.5 within 30 Business Days after the date of delivery of an invoice by the Seller to the Buyer. Any amounts owing by the Seller to the Buyer under this EPA will be netted against any amount owing by the Buyer to the Seller under section 10.5.

**10.8 Exclusive Remedies** - Subject to section 10.4, payment by the Buyer of the amount determined under section 10.5 is the exclusive remedy to which the Seller is entitled, and the Buyer's limit of liability, for termination of this EPA by the Seller pursuant to any of subsections 10.3(d), (e) or (f). Subject to section 10.4, termination of this EPA is the exclusive remedy to which the Buyer or the Seller, as the case may be, is entitled if the Buyer or the Seller elects to exercise its right to terminate this EPA under any of section 10.1, or subsection 10.3(a), (b), or (c). Subject to section 10.4, the actions contemplated by sections 3.1 and 3.2 are the exclusive remedies to which the Parties are entitled for termination of this EPA pursuant to section 3.2. For greater certainty, subject to section 10.4, the Seller will not be required to pay any termination payment on termination by the Buyer of this EPA. Neither Party will have any right to terminate this EPA except as expressly set out herein.

## **11. REPRESENTATIONS AND WARRANTIES AND LIABILITY LIMITATIONS**

**11.1 Seller's Representations** - The Seller represents and warrants to the Buyer, and acknowledges that the Buyer is relying on those representations and warranties in entering into this EPA, as follows:

- (a) **Corporate Status** - the Seller is duly incorporated, organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation, is registered or otherwise lawfully authorized to carry on business in British Columbia, and has full power, capacity and authority to own its assets and to carry on its business as now conducted and to enter into and to perform its obligations under this EPA;



*BC Hydro – Specimen Hydro EPA (Renewals)*

- (b) Bankruptcy - no actions are threatened, or have been taken or authorized by the Seller or any other Person to initiate proceedings for, or in respect of, the bankruptcy, insolvency, liquidation, dissolution or winding-up of the Seller or to appoint a receiver, liquidator, trustee or assignee in bankruptcy in respect of the Seller;
- (c) Assets - no appropriation, expropriation or seizure of all or any portion of the Seller's Plant, or any of its material properties or assets, is pending or threatened;
- (d) No Conflict - neither the signing of this EPA, nor the carrying out of the Seller's obligations under this EPA will (i) constitute or cause a breach of, default under, or violation of, the constating documents or bylaws of the Seller, any permit, franchise, lease, license, approval or agreement to which the Seller is a party, or any other covenant or obligation binding on the Seller or affecting any of its properties, (ii) cause a lien or encumbrance to attach to the Seller's Plant, other than a security interest granted in respect of financing the design, construction or operation of the Seller's Plant, or (iii) result in the acceleration, or the right to accelerate, any obligation under, or the termination of, or the right to terminate, any Permit, franchise, lease, license, approval or agreement related to the Seller's Plant;
- (e) Binding Obligation - this EPA constitutes a valid and binding obligation of the Seller enforceable against the Seller in accordance with its terms;
- (f) Authorization, Execution and Delivery - this EPA has been duly authorized, executed and delivered by the Seller;
- (g) Exemption From Regulation –the Seller is exempt from regulation as a “public utility”, as defined in the UCA, with respect to the Seller's Plant, the sale of Energy and the performance by the Seller of its obligations under this EPA;
- (h) Permits – the Seller has all Permits legally required to own, operate, and maintain the Seller's Plant and perform the Seller's obligations set out in this EPA; and
- (i) Information Submittals – all information in the Information Submittals is true and correct in all material respects and there is no material information omitted from the Information Submittals that makes the information in the Information Submittals misleading or inaccurate in any material respect.

**11.2 Buyer's Representations** - The Buyer represents and warrants to the Seller, and acknowledges that the Seller is relying on those representations and warranties in entering into this EPA, as follows:

- (a) Corporate Status - the Buyer is a corporation continued under the *Hydro and Power Authority Act*, R.S.B.C. 1996, c.212, is validly existing and is in good standing under the laws of British Columbia, is lawfully authorized to carry on business in British Columbia, and has full corporate power, capacity and authority to enter into and to perform its obligations under this EPA;
- (b) Binding Obligation - this EPA constitutes a valid and binding obligation of the Buyer enforceable against the Buyer in accordance with its terms; and

- (c) Authorization, Execution and Delivery - this EPA has been duly authorized, executed and delivered by the Buyer.

**11.3 Limit of Liability** - The Buyer's liability for damages for any failure to take or pay for Eligible Energy under this EPA is limited to the price payable by the Buyer for that Eligible Energy under Article 6 and any interest thereon calculated under this EPA less the amount of any revenue received by the Seller from any third Person for that Eligible Energy.

**11.4 Consequential Damages** - Neither Party will be liable to the other Party for any special, incidental, exemplary, punitive or consequential damages with respect to, arising out of, relating to or in any way connected with a Party's performance or non-performance under this EPA.

## **12. INDEMNITIES**

**12.1 Seller Indemnity** - The Seller will indemnify, defend and hold harmless the Buyer Indemnified Parties from and against all claims, demands, actions, causes of action, suits, orders and proceedings made or brought against any of the Buyer Indemnified Parties:

- (a) with respect to any emissions from the Seller's Plant; or
- (b) for personal injury, including death, to third Persons and for damage to property of third Persons, to the extent caused or contributed to by the wilful act or omission or negligence of the Seller, any contractor or subcontractor or supplier to the Seller or any director, officer, employee or agent of the Seller or any other Person for whom the Seller is responsible at law where such wilful act or omission or negligence is in connection with the Project or the performance of, or the failure to perform, any of the Seller's obligations under this EPA.

**12.2 Buyer Indemnity** - The Buyer will indemnify, defend and hold harmless the Seller Indemnified Parties from and against all claims, demands, actions, causes of action, suits, orders and proceedings made or brought against any of the Seller Indemnified Parties for personal injury, including death, to third Persons and for damage to property of third Persons, to the extent caused or contributed to by the wilful act or omission or negligence of the Buyer, any contractor or subcontractor or supplier to the Buyer or any director, officer, employee or agent of the Buyer or any other Person for whom the Buyer is responsible at law while the Buyer or any such Person is at the Seller's Plant.

**12.3 Indemnification Conditions** - The right of a Party ("Indemnatee") to be indemnified by the other Party ("Indemnitor") under any indemnity contained in this EPA in respect of a claim by a third Person is subject to the conditions that:

- (a) the Indemnatee gives the Indemnitor prompt notice of such claim, the right to select and instruct counsel, and all reasonable cooperation and assistance, including the availability of documents and witnesses within the control of the Indemnatee, in the defence or settlement of the claim; and
- (b) the Indemnatee does not compromise or settle the claim without the prior consent of the Indemnitor.

**12.4 Third Party Beneficiary Conditions** - The Parties acknowledge that the Buyer holds the benefit of section 12.1 for itself, and on behalf of the Buyer Indemnified Parties, which are not party to this EPA, and the Seller holds the benefit of section 12.2 for itself, and on behalf of the Seller Indemnified Parties, which are not party to this EPA. The Parties further acknowledge that each of the Buyer Indemnified Parties and the Seller Indemnified Parties may enforce those sections respectively for their own benefit by action taken directly against the Seller or the Buyer respectively, and/or such actions may be taken by the Buyer or the Seller against the other for the benefit of their respective indemnified parties.

**13. GENERAL PROVISIONS**

**13.1 Electric Service to the Seller** - If at any time the Buyer makes electric service available to the Seller's Plant, then that service will be provided under and in accordance with the Buyer's electric tariff applicable at the relevant time, and not under this EPA.

**13.2 Independence** - The Parties are independent contractors, and nothing in this EPA or its performance creates a partnership, joint venture or agency relationship between the Parties.

**13.3 Enurement** - This EPA enures to the benefit of the Parties, their successors and their permitted assigns.

**13.4 Entire Agreement** - This EPA contains the entire agreement between the Parties with respect to the purchase and sale of Energy and Environmental Attributes and supersedes all previous communications, understandings and agreements between the Parties with respect to the subject matter hereof, provided that this EPA will not supercede any obligations of the Parties under the Original EPA that by their nature survive expiry or termination of the Original EPA. There are no representations, warranties, terms, conditions, undertakings or collateral agreements express, implied or statutory between the Parties other than as expressly set out in this EPA.

**13.5 Amendment** - This EPA may not be amended except by an agreement in writing signed by both Parties.

**13.6 No Waiver** - Other than in respect of the specific matter or circumstance for which a waiver is given, and except as otherwise specified in this EPA, no failure by a Party to enforce, or require a strict observance and performance of, any of the terms of this EPA will constitute a waiver of those terms or affect or impair those terms or the right of a Party at any time to enforce those terms or to take advantage of any remedy that Party may have in respect of any other matter or circumstance.

**13.7 Interconnection Notices** - Nothing in the Interconnection Agreement and no exercise of any right thereunder, restricts or otherwise affects any right, obligation or liability of either Party under this EPA, except to the extent set out expressly herein, and no notice, consent, approval or other communication or decision under or in relation to the Interconnection Agreement will constitute or be relied upon as a notice, consent, approval or communication or decision under this EPA.

**13.8 Future Agreements** – At the end of the Term, the Buyer will have no obligation to extend the Term or to enter into a new electricity purchase agreement with the Seller. In the event the

Parties wish to enter into a new agreement at the end of the Term, the Parties expect to negotiate the terms (including the energy price) based on conditions in effect at that time.

- 13.9 Commodity Contract/Forward Contract** - The Parties agree and intend that this EPA constitutes an “eligible financial contract” under the *Bankruptcy and Insolvency Act* (Canada) and *Companies’ Creditors Arrangement Act* (Canada) and that this EPA and the transactions contemplated under this EPA constitute a “forward contract” within the meaning of section 556 of the United States Bankruptcy Code and that the Parties are “forward contract merchants” within the meaning of the United States Bankruptcy Code.
- 13.10 Further Assurances** - Each Party will, upon the reasonable request of the other Party, do, sign or cause to be done or signed all further acts, deeds, things, documents and assurances required for the performance of this EPA including, in the case of the Seller, completing any registration process required in respect of Environmental Attributes as requested by the Buyer.
- 13.11 Severability** - Any provision of this EPA which is illegal or unenforceable will be ineffective to the extent of the illegality or unenforceability without invalidating the remaining provisions of this EPA.
- 13.12 Counterparts** - This EPA may be executed in counterparts, each of which is deemed to be an original document and all of which are deemed one and the same document.

*BC Hydro – Specimen Hydro EPA (Renewals)*

IN WITNESS WHEREOF each Party by its duly authorized representative(s) has signed this EPA effective as of the date set out on page one of this EPA.

For : **[SELLER NAME]**

\_\_\_\_\_  
Authorized Representative

\_\_\_\_\_  
Print Name and Office

\_\_\_\_\_  
Date

For: **BRITISH COLUMBIA HYDRO AND POWER AUTHORITY:**

\_\_\_\_\_  
Authorized Representative

\_\_\_\_\_  
Print Name and Office

\_\_\_\_\_  
Date

**APPENDIX 1**

**DEFINITIONS AND INTERPRETATION**

**1. DEFINITIONS**

References in an Appendix to a section or subsection mean a section or subsection of this EPA, and not an Appendix, unless otherwise stated. The following words and expressions wherever used in this EPA have the following meaning:

- 1.1** “**Affiliate**” means, with respect to the Seller or any third Person, any Person directly or indirectly Controlled by, Controlling, or under common Control with, the Seller or the third Person, and with respect to the Buyer, any Person directly or indirectly Controlled by the Buyer and, if at any time the Buyer is not Controlled, directly or indirectly, by the Province of British Columbia, will include any Person directly or indirectly Controlling, or under common Control, with the Buyer.
- 1.2** “**Assign**” or “**Assignment**” means to assign or dispose of this EPA or any direct or indirect interest in this EPA, in whole or in part, for all or part of the Term and, without limiting the foregoing, each of the following is deemed to be an Assignment of this EPA by the Seller:
  - (a) any sale or other disposition of all or a substantial part of the Seller’s ownership interest in the Seller’s Plant, or of all or any interest of the Seller in this EPA or revenue derived from this EPA;
  - (b) any mortgage, pledge, charge or grant of a security interest in all or any part of the Seller’s Plant or the Seller’s ownership interest therein; and
  - (c) any change of Control, merger, amalgamation or reorganization of the Seller.
- 1.3** “**Audit Parties**” means the Buyer and its Affiliates, representatives, consultants, advisors and any third Person with whom the Buyer or any of its Affiliates has entered into a contract for the sale and purchase of Environmental Attributes and their Affiliates, representatives, consultants and advisors.
- 1.4** “**Bankrupt or Insolvent**” means, with respect to a Person:
  - (a) the Person has started proceedings to be adjudicated a voluntary bankrupt or consented to the filing of a bankruptcy proceeding against it; or
  - (b) the Person has filed a petition or similar proceeding seeking reorganization, arrangement or similar relief under any bankruptcy or insolvency law; or
  - (c) a receiver, liquidator, trustee or assignee in bankruptcy has been appointed for the Person or the Person has consented to the appointment of a receiver, liquidator, trustee or assignee in bankruptcy; or
  - (d) the Person has voluntarily suspended the transaction of its usual business; or

- (e) a court of competent jurisdiction has issued an order declaring the Person bankrupt or insolvent.
- 1.5 “BC Hydro System”** means the transmission, distribution, protection, control and communication facilities owned, controlled or operated by the Buyer in British Columbia, and includes all additions and modifications thereto and repairs or replacements thereof, all as more particularly described in the Interconnection Agreement.
- 1.6 “BC Hydro System Constraint”** means any outage, suspension, constraint or curtailment in the operation of the BC Hydro System preventing or limiting deliveries of Energy at the POI.
- 1.7 “BCUC”** means the British Columbia Utilities Commission or any successor thereto.
- 1.8 “BCUC Acceptance”** means that the BCUC has issued an order accepting for filing, or approving, this EPA under section 71 of the UCA as an energy supply contract either without conditions or subject to conditions that do not (i) require as a condition of acceptance for filing or approval a material alteration to any material term or condition of this EPA, or (ii) otherwise have an adverse effect on one or both of the Parties.
- 1.9 “Business Day”** means any calendar day which is not a Saturday, Sunday or British Columbia statutory holiday.
- 1.10 “Buyer”** means British Columbia Hydro and Power Authority and its successors and permitted assigns.
- 1.11 “Buyer Confidential Information”** means technical or commercial information disclosed by the Buyer to the Seller that the Buyer directs, and clearly marks, as confidential, including this EPA whether or not so directed and marked, but excluding information that (i) is or becomes in the public domain, other than as a result of a breach of this EPA by the Seller, or (ii) is known to the Seller before disclosure to it by the Buyer, or becomes known to the Seller, thereafter by way of disclosure to the Seller by any other Person who is not under an obligation of confidentiality with respect thereto.
- 1.12 “Buyer Indemnified Parties”** means the Buyer and its Affiliates, and their respective directors, officers, employees, agents, representatives, successors and permitted assigns.
- 1.13 “Clean Energy”** means Energy that qualifies as energy generated by a clean or renewable resource under British Columbia’s *Clean Energy Act*, SBC 2010, c.22, as amended from time to time.
- 1.14 “Confidentiality Agreement”** means the confidentiality agreement, a copy of which is attached as Appendix 3 to this EPA.
- 1.15 “Constraint Energy”** has the meaning given in section 5.7.2.
- 1.16 “Control”** of any Person means:
  - (a) with respect to any corporation or other Person having voting shares or the equivalent, the ownership or power to vote, directly or indirectly, shares, or the equivalent,

representing 50% or more of the power to vote in the election of directors, managers or Persons performing similar functions;

- (b) ownership of 50% or more of the equity or beneficial interest in that Person; or
- (c) the ability to direct the business and affairs of any Person by acting as a general partner, manager or otherwise.

**1.17** “**Costs**” means brokerage fees, commissions and other similar transaction costs and expenses reasonably incurred or that would reasonably be expected to be incurred by the Seller in entering into new arrangements which replace this EPA and legal fees, if any, incurred in connection with enforcing the Seller’s rights under this EPA.

**1.18** “**CPI**” means the British Columbia Consumer Price Index, All Items (Not Seasonally Adjusted) as published by Statistics Canada or any successor agency thereto, adjusted or replaced in accordance with subsection 2.9(c) of this Appendix 1.

**1.19** “**Crown**” means Her Majesty in the Right of the Province of British Columbia or Her Majesty in Right of the Government of Canada.

**1.20** “**Deemed Delivered Energy**” means, in any hour after the Effective Date:

- (a) Constraint Energy in that hour for which the Buyer is required to pay the Seller pursuant to section 5.7; and
- (b) Dispatch/Turn-Down Energy in that hour for which the Buyer is required to pay the Seller pursuant to section 5.8.

**1.21** “**Delivered Energy**” means, in each hour after the Effective Date, the amount of Energy delivered by the Seller at the POI in that hour as recorded by the Meter, or the duplicate revenue meter installed by the Buyer under section 4.6, if any, as adjusted for Line Losses.

**1.22** “**Dispatch/Turn-Down**” means a turn down or shut off of the Seller’s Plant.

**1.23** “**Dispatch / Turn-Down Energy**” has the meaning given in section 5.8.2.

**1.24** “**Effective Date**” means the date set out on page one of this EPA.

**1.25** “**Eligible Energy**” means, in any hour after the Effective Date, and subject to section 5.2, the total of:

- (a) Delivered Energy in that hour; and
- (b) Deemed Delivered Energy in that hour.

**1.26** “**Energy**” means all electric energy expressed in MWh generated by the Seller’s Plant, excluding electricity required to service the Seller’s Plant.

**1.27** “**Environmental Attributes**” means the following as attributable to Delivered Energy and Deemed Delivered Energy:



- (a) all attributes directly associated with, or that may be derived from, the Delivered Energy and Deemed Delivered Energy having decreased environmental impacts relative to certain other generation facilities or technologies including any existing or future credit, allowance, “green” tag, ticket, certificate or other “green” marketing attribute or proprietary or contractual right, whether or not tradeable;
- (b) any credit, reduction right, offset, allowance, allocated pollution right, certificate or other unit of any kind whatsoever, whether or not tradeable and any other proprietary or contractual right, whether or not tradeable, resulting from, or otherwise related to the actual or assumed reduction, displacement or offset of emissions at any location other than the Seller’s Plant as a result of the generation, purchase or sale of the Delivered Energy and Deemed Delivered Energy;
- (c) any credit, reduction right, off-set, allowance, allocated pollution right, certificate or other unit of any kind whatsoever whether or not tradeable resulting from or otherwise related to the reduction, removal, or sequestration of emissions at or from the Seller’s Plant; and
- (d) all revenues, entitlements, benefits and other proceeds arising from or related to the foregoing, but for certainty not including:
  - i. benefits or proceeds from environmental incentive programs offered by Governmental Authorities that do not require a transfer of the attributes in subsections (a) to (c) above; and
  - ii. benefits or proceeds from social programs, including programs relating to northern or rural development, employment or skills training, or First Nations, that do not require a transfer of the attributes in subsections (a) to (c) above.

**1.28 “Environmental Certification”** means any certification the Buyer requires the Seller to obtain under section 7.1.

**1.29 “Exemption”** means a lawful exemption from the requirement under section 71 of the UCA that this EPA be filed thereunder as an “energy supply contract” as defined therein.

**1.30 “Facility Lender”** means any lender(s) providing any debt financing or debt hedging facilities for the design, engineering, construction and/or operation of the Seller’s Plant and any successors or assigns thereto and any Person taking any mortgage, pledge, charge or grant of a security interest in all or any part of the Seller’s Plant.

**1.31 “Final Amount”** means an amount owing by either Party to the other Party under this EPA, including as a result of a breach of this EPA, where such amount is: (a) undisputed by the Party owing such amount; or (b) has been finally determined by an arbitration award under section 8.5 or by a court order and all rights of appeal in respect of such award or order have been exhausted or have expired.

**1.32 “Financial Losses”** means an amount equal to the present value of the economic loss (exclusive of Costs), if any, to the Seller resulting from the termination of this EPA, determined in a commercially reasonable manner and in the manner set out in section 10.5.

- 1.33** “**First Nations**” has the meaning given in section 9.1.
- 1.34** “**Force Majeure**” means any event or circumstance not within the control of the Party, or any of its Affiliates, claiming Force Majeure, but does not include:
- (a) any economic hardship or lack of money, credit or markets;
  - (b) an event or circumstance that is the result of a breach by the Party seeking to invoke Force Majeure of a Permit or of any applicable Laws;
  - (c) a mechanical breakdown or control system hardware or software failure, unless the Party seeking to invoke Force Majeure can demonstrate by clear and convincing evidence that the breakdown or failure was caused by a latent defect in the design or manufacture of the equipment, hardware or software, which could not reasonably have been identified by normal inspection or testing of the equipment, hardware or software;
  - (d) an event or circumstance caused by a breach of, or default under, this EPA or a wilful or negligent act or omission by the Party seeking to invoke Force Majeure;
  - (e) any BC Hydro System Constraint; or
  - (f) any acts or omissions of: (i) any Affiliate, employee, director, officer, agent or other representative of the Party invoking Force Majeure; (ii) any vendor, supplier, contractor, subcontractor, consultant or customer of or to the Party invoking Force Majeure; or (iii) any other Person for whom the Party invoking Force Majeure is responsible at law, unless the act or omission is caused by an event or circumstance that would constitute Force Majeure if the Person described above was a party to this EPA in place of a Party invoking Force Majeure.
- 1.35** “**Forced Outage**” means a partial or total interruption in the delivery of, or ability to deliver, Energy that is not a result of a Planned Outage or a Force Majeure invoked in accordance with this EPA.
- 1.36** “**Gains**” means an amount equal to the present value of the economic benefit (exclusive of Costs), if any, to the Seller resulting from the termination of this EPA, determined in a commercially reasonable manner and in the manner set out in section 10.5.
- 1.37** “**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 Western Electricity Coordinating Council region.

- 1.38** “**Governmental Authority**” means any federal, provincial, local or foreign government or any of their boards or agencies, or any regulatory authority other than the Buyer and the Seller and entities controlled by the Buyer or the Seller.
- 1.39** “**GST**” means the goods and services tax imposed under the *Excise Tax Act* (Canada) as that Act may be amended or replaced from time to time.
- 1.40** “**Hourly Limit**” means \_\_\_\_ MWh per hour, in any hour. *[Note: The blank in this section will be completed based on discussion between the Seller and BC Hydro.]*
- 1.41** “**Indemnatee**” has the meaning given in section 12.3.
- 1.42** “**Indemnitor**” has the meaning given in section 12.3.
- 1.43** “**Information Submittals**” means the documents and information in relation to the Seller’s Plant and the Project provided by the Seller to the Buyer in the period between *[insert]* and the Effective Date in connection with the negotiation and execution of this EPA, including provided documents and information in connection with First Nations, the Seller’s cost of service, Interconnection and Permits, and the condition assessment of the Seller’s Plant. *[Note: The blank in this section to be based on commencement of renewal discussions between the Seller and BC Hydro.]*
- 1.44** “**Interconnection**” means the facilities and procedures that enable the flow of electric power from the Seller’s Plant to the BC Hydro System and vice versa.
- 1.45** “**Interconnection Agreement**” means the Interconnection Agreement between the Seller and the Buyer dated *[insert]* in respect of the Interconnection, as amended from time to time. *[Note: The blank in this section will be completed based on Interconnection Agreement in place between Seller and BC Hydro as of the date of execution of the EPA.]*
- 1.46** “**Interconnection Review**” means the *[study]* in respect of the Interconnection dated *[insert]*, a copy of which is set forth in Appendix 4. *[Note: The blanks in this section will be completed based on date and nature of Interconnection Review.]*
- 1.47** “**Laws**” means any and all statutes, laws (including common law), ordinances, rules, regulations, codes, orders, bylaws, policies, directions, standards, guidelines, protocols and other lawful requirements of any Governmental Authority in effect from time to time
- 1.48** “**Lender Consent Agreement**” means a lender consent agreement in the form posted on the Buyer’s website as of the date the Seller submits the Lender Consent Agreement to the Buyer.
- 1.49** “**Line Losses**” means all losses of Energy associated with the transmission of Energy and other electricity, if applicable, on the Seller’s side of the POI:
- (a) that are recorded by the Meter; and/or
  - (b) that are associated with or otherwise result from multiple interconnections on the Seller’s side of the POI, as estimated by the Buyer in accordance with Good Utility Practice.

- 1.50** “**Major Damage**” means damage to the Seller’s Plant caused by Force Majeure where the cost to repair the damage exceeds the net present value (using the Present Value Rate) of the expected revenues under this EPA for the remainder of the Term less the net present value (using the Present Value Rate) of the estimated operating and maintenance costs for the Seller’s Plant for the remainder of the Term.
- 1.51** “**Meter**” means a meter leased by the Buyer to the Seller that is: (a) capable of accurately measuring the quantity of Energy generated by the Seller’s Plant and delivered to the POI in each hour independent of all other generation equipment or facilities and transmitting the information to the Buyer, and (b) capable of being remotely interrogated.
- 1.52** “**Network Upgrades**” means additions, modifications and upgrades to the BC Hydro System that are determined by the Buyer to be interconnection or transmission network upgrades under the applicable policies of the Buyer or under the Buyer’s Open Access Transmission Tariff in effect from time to time.
- 1.53** “**Network Upgrade Costs**” means all costs incurred by the Buyer before or after the Effective Date for the design, engineering, procurement, construction, installation and commissioning of Network Upgrades under the Interconnection Agreement.
- 1.54** “**Operating Plan**” means an operating plan for the Seller’s Plant that includes for the term of each operating plan, (a) a schedule of the expected total deliveries of Energy at the POI in each month, (b) a schedule of any Planned Outages of the Seller’s Plant expected by the Seller, and (c) such other information concerning the operations of the Seller’s Plant as the Buyer may from time to time request.
- 1.55** “**Order or Decision**” has the meaning given in section 9.1.
- 1.56** “**Original EPA**” means Electricity Purchase Agreement dated *[insert date]*, as amended, supplemented or otherwise modified from time to time, under which the Seller sells, and the Buyer purchases, electricity from the Seller’s Plant. *[Note: The parenthetical in this section will be completed based on the date of Original EPA between Seller and BC Hydro.]*
- 1.57** “**Outage**” means a Planned Outage or a Forced Outage.
- 1.58** “**Outage Notice**” means a notification of any Outage or revised notification of any Outage required to be delivered by the Seller to the Buyer under this EPA that describes the timing, frequency, nature and duration of the Outage and that is in a format that may be prescribed by the Buyer from time to time as posted on the Buyer’s website.
- 1.59** “**Party**” means: (a) the Buyer; or (b) the Seller, and “**Parties**” means both the Buyer and the Seller.
- 1.60** “**Permits**” means permits, certificates, licences, and other approvals required for the design, construction, ownership, operation, maintenance and decommissioning of the Seller’s Plant and the delivery of Energy to the POI.
- 1.61** “**Person**” means an individual, body corporate, firm, partnership, joint venture, trust, legal representative or other legal entity.

- 1.62** “**Planned Outage**” means a partial or total interruption in the delivery of, or ability to deliver, Energy for purposes of scheduled inspection, repair and/or maintenance in the Seller’s Plant.
- 1.63** “**Plant Capacity**” means the maximum electrical capacity of the Seller’s Plant expressed in MW as set out in Appendix 2 (as amended in accordance with section 4.5), being the numerical sum of the maximum electrical capacity of each individual generator that forms part of the Seller’s Plant, as established by documentation in respect of each generator that is satisfactory to the Buyer in its sole discretion. Where the capacity is expressed in MVA, the capacity will be multiplied by the power factor stipulated in the Interconnection Agreement to determine the capacity in MW.
- 1.64** “**POI**” or “**Point of Interconnection**” means the point at which the Seller’s Plant interconnects with the BC Hydro System, as described in Appendix 2.
- 1.65** “**Potential Impacts**” has the meaning given in section 9.1.
- 1.66** “**PPT**” means Pacific Prevailing Time, which means Pacific Daylight Time or Pacific Standard Time as applicable.
- 1.67** “**Present Value Rate**” means the annual yield on a Government of Canada bond having a term and maturity date that most closely matches the remaining Term (as at the date of the applicable calculation) and expiry date of this EPA, plus 3%.
- 1.68** “**Prime Rate**” means the floating prime interest rate announced from time to time by the main branch of Bank of Montreal in Vancouver, British Columbia, or any successor thereto, expressed as an annual rate, as the reference rate it will use to determine rates of interest payable on Canadian dollar commercial loans made in Canada.
- 1.69** “**Project**” means the financing, design, engineering, procurement, construction, commissioning, operation and maintenance of the Seller’s Plant.
- 1.70** “**Project Standards**” means:
- (a) all applicable Laws;
  - (b) the terms and conditions of all Permits, including land tenure agreements, issued in connection with the Seller’s Plant;
  - (c) Good Utility Practice;
  - (d) the description of the Seller’s Plant in Appendix 2;
  - (e) the requirement that Energy must qualify as Clean Energy;
  - (f) the terms and conditions of this EPA and the Interconnection Agreement; and
  - (g) the Contractor Standards for Ethical Conduct applicable to Buyer contracts, as it may be amended, revised or restated from time to time, that is posted on the Buyer’s website.

- 1.71** “PST” means British Columbia provincial social service or sales taxes and similar or replacement assessments, if any.
- 1.72** “Records” means all records and logs required to properly administer this EPA, including:
- (a) Energy generation records and operating logs; *[Note: if the Plant consists of multiple generators, this will be amended to add “for each generator comprising part of the Seller’s Plant, and for the Seller’s Plant on an aggregated basis”]*
  - (b) a log of all outages of the Seller’s Plant and other reductions in Energy output (specifying the date, time, duration and reasons for each such outage and each reduction in Energy output);
  - (c) Meter readings;
  - (d) maintenance reports;
  - (e) invoice support records;
  - (f) documents concerning compliance with Project Standards, but excluding any such documents that are protected by solicitor-client privilege;
  - (g) any avoided or avoidable costs during the period of any BC Hydro System Constraint or Dispatch/Turn-Down; and
  - (h) information relating to the Environmental Certification, information relating to the existence, nature and quality of Environmental Attributes, information required for the purposes of any Environmental Attributes or energy certification or tracking system, and any other information the Buyer requires to enable it or any of its Affiliates to obtain and realize the benefit of the Environmental Attributes,
- all consistent with Good Utility Practice.
- 1.73** “Regulatory Condition Expiry Date” means the date that is 180 days after the Effective Date, or such later date as the Buyer, in its sole discretion, may from time to time elect by notice to the Seller.
- 1.74** “Seller” means the Party so identified on page one of this EPA, and its successors and permitted assigns.
- 1.75** “Seller Confidential Information” means any of the Seller’s confidential technical or financial information provided by the Seller to the Buyer in confidence with express written notice to the Buyer of the confidential nature of the information, but excluding:
- (a) this EPA; and
  - (b) information that (i) is or becomes in the public domain, other than as a result of a breach of this EPA by the Buyer, or (ii) is known to the Buyer before disclosure to it by the Seller, or becomes known to the Buyer thereafter by way of disclosure to the Buyer

by any other Person who is not under an obligation of confidentiality with respect thereto.

- 1.76 **“Seller Indemnified Parties”** means the Seller and its Affiliates, and their respective directors, officers, employees, agents, representatives, successors and permitted assigns.
- 1.77 **“Seller’s Plant”** means the Seller’s Plant described in Appendix 2 and all rights, property, facilities, assets, equipment, materials, Permits and contracts required to design, engineer, procure, construct, commission, operate and maintain the plant described in Appendix 2 and to interconnect that plant to the BC Hydro System, whether real or personal and whether tangible or intangible including all land tenure and all books, Records and accounts with respect to the Seller’s Plant described in Appendix 2.
- 1.78 **“Term”** has the meaning given in Article 2.
- 1.79 **“UCA”** means the *Utilities Commission Act* (British Columbia).
- 1.80 **“Verification”** has the meaning given in section 9.1.

## 2. INTERPRETATION

- 2.1 **Headings** - The division of this EPA into Articles, sections, subsections, paragraphs and Appendices and the insertion of headings are for convenience of reference only and do not affect the interpretation of this EPA.
- 2.2 **Plurality and Gender** - Words in the singular include the plural and vice versa. Words importing gender include the masculine, feminine and neuter genders.
- 2.3 **Governing Law** - This EPA is made under, and will be interpreted in accordance with, the laws of the Province of British Columbia. Subject to section 8.5, any suit, action or proceeding (a **“Proceeding”**) arising out of or relating to this EPA may be brought in the courts of the Province of British Columbia at Vancouver, and those courts have non-exclusive jurisdiction in respect of any Proceeding and the Parties hereby irrevocably attorn to the jurisdiction of such courts in respect of any Proceeding.
- 2.4 **Industry Terms** - Technical or industry specific phrases or words not otherwise defined in this EPA have the well-known meaning given to those terms as of the date of this EPA in the industry or trade in which they are applied or used.
- 2.5 **Statutory References** - Reference to a statute means, unless otherwise stated, the statute and regulations, if any, under that statute, in force from time to time, and any statute or regulation passed and in force which has the effect of supplementing or superseding that statute or those regulations.
- 2.6 **Currency** - References to dollars or \$ means Canadian dollars, unless otherwise stated.
- 2.7 **Reference Indices** – Except as otherwise provided in section 2.9 of Appendix 1, if any rating, index, tariff or price quotation referred to in this EPA ceases to be published, or if the basis therefor is changed materially, there will be substituted an available replacement index, tariff

or price quotation that most nearly, of those then publicly available, approximates the intent and purpose of the index, tariff or quotation that has so ceased or changed. This EPA will be amended as necessary to accommodate such replacement index, tariff or price quotation, all as determined by written agreement between the Parties, or failing agreement, by arbitration under section 8.5.

**2.8 Conversions** - If a value used in a calculation in this EPA must be converted to another unit of measurement for purposes of consistency or to achieve a meaningful answer, the value will be converted to that different unit for purposes of the calculation.

**2.9 Payment Calculations** - All payments under this EPA will be calculated applying the following principles:

- (a) all payment calculations will be rounded to the nearest cent;
- (b) Energy will be expressed in MWh rounded to two decimal places; and
- (c) if Statistics Canada (or the then recognized statistical branch of the Government of Canada):
  - i. computes, at any time after the Effective Date, the CPI on a basis different to that employed at the Effective Date, then the CPI will be converted using the appropriate formula recommended by Statistics Canada (or the then recognized statistical branch of the Government of Canada);
  - ii. at any time ceases to publish or provide the CPI, then the provisions of section 2.7 of Appendix 1 will apply;
  - iii. has not published the CPI for a relevant period at the time the Seller is required to provide the Buyer with an invoice, the Seller will prepare the invoice based on the CPI in effect at the time the invoice is issued and when the CPI for the relevant period is published, the Seller will recalculate the invoice amounts in the next succeeding invoice and will include a credit or debit, without interest, in the next succeeding invoice based on the results of the recalculation; or
  - iv. recalculates the CPI within 36 months after an invoice affected by that CPI calculation has been issued, then the Seller will recalculate the invoice amounts for the relevant period in the next succeeding invoice and will include a credit or debit, without interest, in the next succeeding invoice based on the results of the recalculation.

**2.10 Additional Interpretive Rules** - For the purposes of this EPA, except as otherwise expressly stated:

- (a) “this EPA” means this EPA as it may from time to time be supplemented or amended and in effect, and includes the Appendices attached to this EPA;



- (b) the words “herein”, “hereof” and “hereunder” and other words of similar import refer to this EPA as a whole and not to any particular section, subsection or other subdivision;
- (c) the word “including” or “includes” is not limiting whether or not non-limiting language (such as “without limitation” or “but not limited to” or words of similar import) is used with reference thereto;
- (d) the words “year” and “month” refer to a calendar year and a calendar month;
- (e) any consent, approval or waiver contemplated by this EPA must be in writing and signed by the Party against whom its enforcement is sought, and may be given, withheld or conditioned in the unfettered discretion of the Party of whom it is requested;
- (f) all rights and remedies of either Party under this EPA are cumulative and not exclusive of any other remedies to which either Party may be lawfully entitled, and either Party may pursue any and all of its remedies concurrently, consecutively and alternatively; and
- (g) any notice required to be given, or other thing required to be done, under this EPA on or before a day that is not a Business Day, will be deemed to be given or done when required hereunder if given or done on or before the next following Business Day.

### **3. ADDRESSES FOR NOTICES**

#### **3.1 Notices to Buyer and Insurance** - Except as noted below, all notices addressed to the Buyer will be delivered to the following address:

To: Business & Economic Development  
333 Dunsmuir Street, 17<sup>th</sup> floor  
Vancouver, B.C.  
V6B 5R3  
Attention: Director, Business & Economic Development  
Email: IPP.Contract@bchydro.com

#### **Statements and Supporting Information**

To: Business & Economic Development  
333 Dunsmuir Street, 17<sup>th</sup> floor  
Vancouver, B.C.  
V6B 5R3  
Attention: Manager, Commercial Operations & Planning  
Email: IPP.Contract@bchydro.com

#### **3.2 Notices to Seller** - All notices addressed to the Seller will be delivered to the following address:

***[Note to Sellers: This information will be completed based on the information provided by Seller.]***

## APPENDIX 2

## SELLER'S PLANT DESCRIPTION

1. **Location:** The Seller's Plant is located at: *[Insert.]*

The approximate latitude and longitude of the site of the power house forming part of the Seller's Plant is: *[Insert.]*

The Seller's Plant is located on property legally described as: *[Insert.]*

2. **Principal Equipment:** The Seller's Plant includes the following principal equipment:

Type of Equipment	Description	Key Technical Parameters
Turbine		
Generator		
Transformer		
Transmission Line		
<i>[Insert other, as applicable.]</i>		

3. **Access Roads:** Access to the site on which the Seller's Plant is located is: *[Insert.]*
4. **POI and Interconnection Facilities:** As described in the Interconnection Review and the Interconnection Agreement.
5. **Plant Capacity:** The Plant Capacity is *[insert]* MW.
6. **Site Layout:** A depiction of the layout of the key facilities in the Seller's Plant is attached as Schedule 1 hereto.
7. **Interconnection Review:** The data and assumptions set forth in the Interconnection Review are attached as Schedule 2 to this Appendix 2 and Appendix 4.
8. **Energy Source:** The primary Energy Source used to generate Energy at the Seller's Plant is water which accounts for 100% of the annual Energy generated.

*BC Hydro – Specimen Hydro EPA (Renewals)*

**SCHEDULE 1**

**SITE LAYOUT**

*[Note: To be attached.]*

*BC Hydro – Specimen Hydro EPA (Renewals)*

**SCHEDULE 2**

**INTERCONNECTION REVIEW**

*[Note: To be attached.]*

*BC Hydro – Specimen Hydro EPA (Renewals)*

**APPENDIX 3**

**CONFIDENTIALITY AGREEMENT**

*[Note: To be attached.]*

*BC Hydro – Specimen Hydro EPA (Renewals)*

**APPENDIX 4**

**INTERCONNECTION REVIEW**

*[Note: To be attached.]*

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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix E**

**EPAs**

**PUBLIC**

**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix E-1**

**Sechelt Creek Hydro EPA**

**PUBLIC**



**CONFIDENTIAL**  
**ATTACHMENT**  
**FILED WITH BCUC**  
**ONLY**

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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix E-2**

**Brown Lake Hydro EPA**

**PUBLIC**

**CONFIDENTIAL**  
**ATTACHMENT**

**FILED WITH BCUC**  
**ONLY**

**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix E-3**

**Walden North Hydro EPA**

**PUBLIC**

**CONFIDENTIAL**  
**ATTACHMENT**  
**FILED WITH BCUC**  
**ONLY**

**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix F**

**Original EPA and Specimen EPA Renewal  
Comparison**

**PUBLIC**

	<b>1989 Call EPAs</b>	<b>Current Specimen EPA Renewal for Hydro Projects</b>
Energy Price	Escalated by █ per cent per year	Specified percentage of the price is escalated at annual CPI rate
Environmental Attributes	Not mentioned	Transferred to BC Hydro; Seller is responsible for certification
Exclusivity	Defined minimum threshold of Electricity to be delivered to BC Hydro. Any generation in excess of minimum shall be made available to BC Hydro.	BC Hydro has exclusive right to any Energy and any Environmental Attributes under the EPA except for Walden North where BC Hydro has exclusives rights but the IPP is allowed to supply Energy to an Existing Load which is defined under the EPA.
Aboriginal Consultation	Not mentioned	Upon request by BC Hydro, Seller agrees to consult and/or accommodate First Nations as may be required further to a legal order issued to BC Hydro or a threat of legal action against BC Hydro verified in accordance with the terms of the EPA, but may terminate the EPA if such consultation and/or accommodation would impose a commercially unreasonable cost or other obligation upon Seller
Revenue Metering	BC Hydro responsible for meter installation and maintenance at its cost	Seller responsible for installation, operation and maintenance of leased meter
Dispatch/Turn-Down Right	BC Hydro able to temporarily disconnect or reduce power for emergency or service needs	BC Hydro can require Seller to dispatch/turn-down its plant at any time subject to operational, technical or other constraints
Termination Rights	Termination for extended forced plant outages and Seller's failure to deliver suitable quality electricity	BC Hydro or Seller can terminate EPA for various reasons, including: failure to deliver or receive energy for an extended period; sale of energy to a third-party; changes to the generation facility or third party interconnection without consent

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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

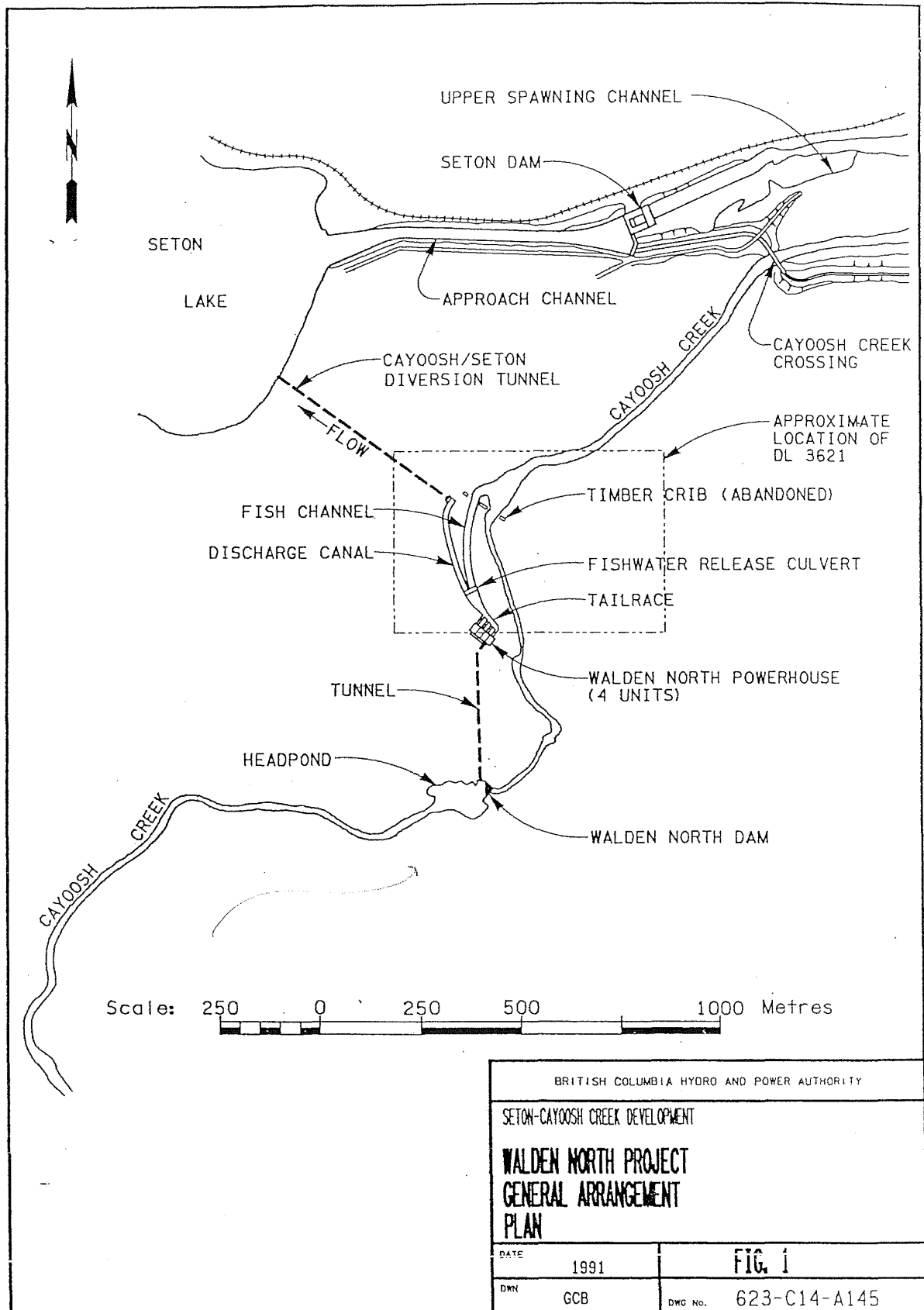
**Renewals**

**Appendix G**

**Walden North Site Layout  
and Adjacent BC Hydro Facilities**



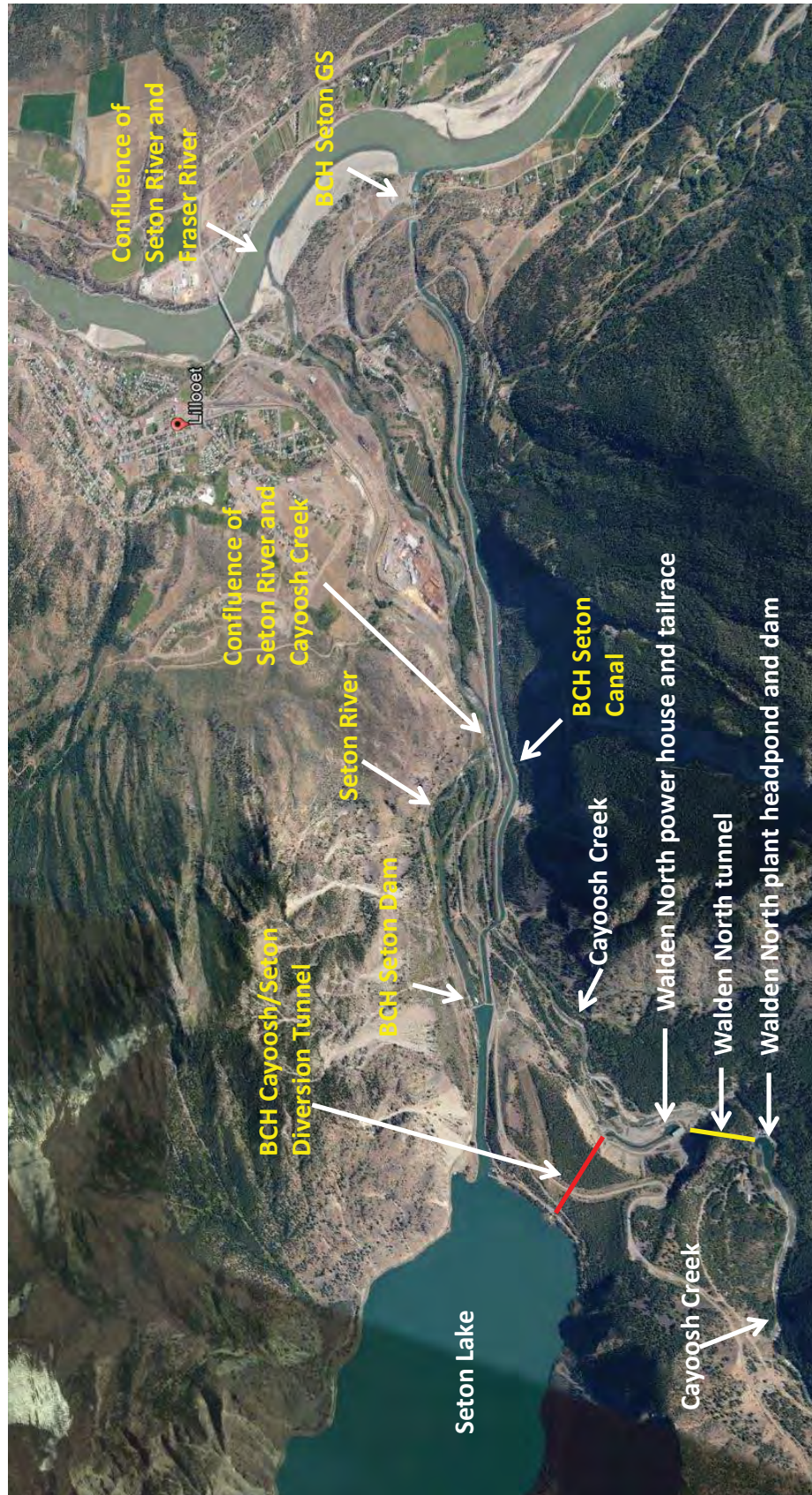
# Walden North Project General Arrangement Plan



USER: B&amp;W/1MAR 1991

REPORT NO.

# System overview





WDN Plant photo from Google Earth



Plant Photo from Google Earth. Yellow line represents BCH  
Cayosh/Seton diversion tunnel



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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix H**

**Walden North 1990 EPA**

**PUBLIC**

**CONFIDENTIAL**  
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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix I**

**Walden North Forbearance Agreement**

**PUBLIC**

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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix J**

**Walden North Diversion Agreements**

**PUBLIC**

**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix J-1**

**Walden North Diversion Agreement**

**PUBLIC**

**CONFIDENTIAL**  
**ATTACHMENT**  
**FILED WITH BCUC**  
**ONLY**

**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix J-2**

**Walden North Amendment Agreement  
(Diversion Agreement)**

**PUBLIC**

**CONFIDENTIAL**  
**ATTACHMENT**  
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**Sechelt Creek Hydro, Brown Lake Hydro and  
Walden North Hydro**

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**Electricity Purchase Agreement**

**Renewals**

**Appendix K**

**British Columbia's Energy Objectives**

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## **British Columbia's Energy Objectives (taken from the *Clean Energy Act*)**

The following comprise British Columbia's energy objectives:

- (a) to achieve electricity self-sufficiency;
- (b) to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;
- (c) to generate at least 93% of the electricity in British Columbia from clean or renewable resources and to build the infrastructure necessary to transmit that electricity;
- (d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;
- (e) to ensure the authority's ratepayers receive the benefits of the heritage assets and to ensure the benefits of the heritage contract under the *BC Hydro Public Power Legacy and Heritage Contract Act* continue to accrue to the authority's ratepayers;
- (f) to ensure the authority's rates remain among the most competitive of rates charged by public utilities in North America;
- (g) to reduce BC greenhouse gas emissions
  - (i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007,
  - (ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007,

- 
- (iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007,
  - (iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and
  - (v) by such other amounts as determined under the *Greenhouse Gas Reduction Targets Act*;
- (h) to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;
  - (i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently;
  - (j) to reduce waste by encouraging the use of waste heat, biogas and biomass;
  - (k) to encourage economic development and the creation and retention of jobs;
  - (l) to foster the development of first nation and rural communities through the use and development of clean or renewable resources;
  - (m) to maximize the value, including the incremental value of the resources being clean or renewable resources, of British Columbia's generation and transmission assets for the benefit of British Columbia;
  - (n) to be a net exporter of electricity from clean or renewable resources with the intention of benefiting all British Columbians and reducing greenhouse gas emissions in regions in which British Columbia trades electricity while protecting the interests of persons who receive or may receive service in British Columbia;
  - (o) to achieve British Columbia's energy objectives without the use of nuclear power;
  - (p) to ensure the commission, under the *Utilities Commission Act*, continues to regulate the authority with respect to domestic rates but not with respect to expenditures for export, except as provided by this Act.
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