

## **ANCILLARY SERVICES**

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### **1.0 OVERVIEW**

Under Sections 3 and 15.7 of BC Hydro’s [Open Access Transmission Tariff](#) (OATT), Transmission Customers must have ancillary services as part of their transmission service as follow:

<b>Ancillary Service</b>	<b>Source</b>	<b>Rate Schedule</b>
Scheduling, System Control and Dispatch	Must purchase from BC Hydro	03
Reactive Supply and Voltage Control	Must purchase from BC Hydro	04
Regulation and Frequency Response	Can self supply, purchase from BC Hydro or purchase from a third party	05
Energy Imbalance	Can self supply, purchase from BC Hydro or purchase from a third party	06
Operating Reserve-Spinning	Can self supply, purchase from BC Hydro or purchase from a third party	07
Operating Reserve-Supplemental	Can self supply, purchase from BC Hydro or purchase from a third party	08
Loss Compensation	Can self supply or purchase from BC Hydro	09 and 10

If the Transmission Customer is purchasing Ancillary Services from a third party, the third party must be able to supply BC Hydro when called upon. The Transmission Customer must inform BC Hydro which Ancillary Services it will purchase from BC Hydro prior to the commencement of service requested. Refer to BC Hydro’s OATT Business Practice on *Becoming a BC Hydro Transmission Customer* for election requirements in the registration process.

These Business Practices provide clarification of the rules, standards and practices used by BC Hydro to implement its OATT. While the terms of BC Hydro’s OATT and these Business Practices govern, customers should also refer to the NAESB WEQ Business Standards, WECC Regional Criteria, and WECC Regional Business Practices, which BC Hydro has followed in most, but not all, respects. BC Hydro also complies with the Mandatory Reliability Standards adopted by the BCUC.

## 2.0 LOSS COMPENSATION

Per Section 15.7 of BC Hydro's OATT, BC Hydro requires the supply of losses for all transmission service. Transmission Customers may choose to self supply losses. The Real Power Loss Factor on energy transmitted over BC Hydro's system is specified in Rate Schedule 10 of the OATT. For Transmission Customers who have elected to purchase Loss Compensation Service from BC Hydro, BC Hydro will charge the Transmission Customer for the required Loss Amount pursuant to Rate Schedule 09 of BC Hydro's OATT.

### 2.1 Loss Factor Calculation

The amount of losses a Transmission Customer has to provide on its energy schedule is determined as follows:

$$\text{Required Loss Amount} = \text{Energy Schedule} \times [1 / (1 - \text{Power Loss Factor}) - 1]$$

#### Example

Energy Schedule = 100 MW for HE2

Power Loss Factor = 6.28% at Point of Receipt (POR)

$$\begin{aligned} \text{Required Loss Amount} &= 100\text{MW} \times [1 / (1 - 6.28\%) - 1] \\ &= 100 \text{ MW} \times 0.067 \\ &= 6.7 \text{ MW} \end{aligned}$$

For the Transmission Customer to receive 100 MW at the Point of Delivery (POD), the Transmission Customer is required to inject 106.7 MW into the BC Hydro transmission system at the POR.

Losses must be submitted in whole MWs, therefore, in the above example, the Transmission Customer would submit a Loss eTag for 7 MW. BC Hydro uses the round up and carry forward methodology for energy schedules with multiple hours. Refer to Section 2.2 below for an example.

### 2.2 Round Up and Carry Forward Methodology

Transmission Customers must use the "round up and carry forward" method to create the profile of the loss eTag to deal with loss obligations under 1 MW.

The following example demonstrates how the round up and carry forward method works and provides a brief illustration of how loss eTags will be evaluated.

Example #1

	HE01 (MW)	HE02 (MW)	HE03 (MW)	HE04 (MW)	HE05 (MW)	TOTAL
eTag	100	100	50	100	100	450
Loss eTag	7 round up (100 x 6.70% = 6.70) CF = -.30	7 round up (100 x 6.70% - 0.30 CF = 6.40) CF = -.60	3 round up (50 x 6.7% - 0.60 CF = 2.75) CF = -.25	7 round up (100 x 6.70% - 0.25 CF = 6.45) CF = -.55	7 round up (100 x 6.7% - 0.55 CF = 6.15)	31

\*CF = Carried Forward

The loss eTag in the example would be accepted because:

- In each hour, the loss coverage is within 1 MW of 6.70% of the eTag's profile;
- The last hour is rounded up to 7 MW because there is no partial losses (HE 05 is 6.15); and
- The total energy on the loss eTag (31 MW) is not less than 6.70% of the eTag (6.70% of 450 MW = 30.15 MW).

Example #2

	HE01 (MW)	HE02 (MW)	HE03 (MW)	HE04 (MW)	HE05 (MW)	TOTAL
eTag 1	100	100	50	100	100	450
eTag 2	50	50	50			150
eTag 3	10		10		10	30
eTag 4	5	5	5	5		20
Loss eTag	12 round up (165 x 6.70% = 11.06) CF = -.94	10 round up (155 x 6.70% - 0.94 CF = 9.45) CF = -.55	8 round up (115 x 6.7% - 0.55 CF = 7.17) CF = -.83	7 round up (105 x 6.70% - 0.83 CF = 6.21) CF = -.79	7 round up (110 x 6.7% - 0.79 CF = 6.58)	44

The loss eTag in the example would be accepted because:

- In each hour, the loss coverage is within 1 MW of 6.70% of all the total of the eTags;
- The last hour is rounded up to 7 MW because there is no partial losses (HE 05 is 6.58); and
- The total energy on the loss eTag (44 MW) is not less than 6.70% of the all the eTags (6.70% of 650 MW = 43.55 MW).

### 2.3 Self Supply of Losses or Purchase Losses From a Third Party

If a Transmission Customer has elected to self-supply energy losses, the following conditions apply:

1. The Transmission Customer must provide losses for each hour it has energy scheduled. The Transmission Customer can submit one loss eTag for each hour, one loss eTag that covers all hours, or one loss eTag for each eTag. The complete parent eTag number(s)/ID(s) must be entered in the Misc (Token/Value) field for successful linkage between the child and parent eTag,
2. A loss eTag must reference a valid confirmed OASIS Transmission ID (ARef) on an import or an internal path where the suffix of the POD is “.Losses”. Refer to Table 1 of BC Hydro’s OATT Business Practice on *Posting of Transmission Service Offerings* for valid Path Name and POR/POD combinations. If a loss eTag references multiple OASIS IDs (ARefs) on more than one path, it will be DENIED.
3. The loss eTag(s) will be subject to the scheduling timelines of energy schedules as defined in BC Hydro’s OATT Business Practices on *Submitting and Processing of Energy Schedules*.
4. Transmission Customers cannot submit partial losses, it must be in whole MWs. Refer to examples above.

### 2.4 Loss Calculator

To assist Transmission Customers in determining the amount of losses required for an energy schedule, BC Hydro has developed a [loss calculator](#).

### 2.5 Definition of the Three Strike Rule

Pursuant to Section 15.7 of the OATT, if a Transmission Customer fails to submit valid losses for its energy schedules associated with its transmission reservation(s), BC Hydro will:

- i. charge the Transmission Customer for loss compensation service pursuant to Rate Schedule 09 for the amount that was deficient in the loss supply; and
- ii. inform the Transmission Customer, via email and/or letter, that it has received a “strike” because it failed to submit a valid loss schedule and/or it did not adequately supply losses.

The Transmission Customer will receive a “strike” for every hour that it did not supply valid losses for its energy schedule(s) or there was a partial or full deficiency in supply.

If a Transmission Customer has received a “strike” three times, BC Hydro will:

- i. not permit the Transmission Customer to self supply losses until the next election period (refer to Section 2.6 below); and
- ii. notify the Transmission Customer, via email and/or letter, of the commencement date for Loss Compensation Service per Rate Schedule 09.

BC Hydro validates after the fact (next working day) if a Transmission Customer has submitted valid losses for its energy schedules on the previous day.

## **2.6 Election Procedure**

All Transmission Customers must renew their election for the supply of losses every year in April. On April 1<sup>st</sup> of every year, BC Hydro will notify Transmission Customers about the requirement for the election for the supply of losses. The Transmission Customer must upload the Losses Supply Election Form by April 15<sup>th</sup> on the BC Hydro Customer portal otherwise BC Hydro will deem the customer to have elected to purchase Loss Compensation Service from BC Hydro.

**Document Change History**

<b>Issue</b>	<b>Reason for Issue</b>	<b>Date</b>
4	Updated hyper links to tariff and loss calculator	July 22, 2015
3	Updated language.	December 9, 2013
2	Defined a valid loss tag.	December 31, 2010
1	Updated procedures to Loss Compensation. Previously Business Practice 11.	November 1, 2010

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