Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

POWER SERVICES

AUG 3 1 2011

In reply refer to: PGP-5

Renata Kurschner
Director, Generation Resource Management
BC Hydro and Power Authority
6911 Southpoint Drive, E15
Burnaby, B.C., Canada V3N 4X8

Dear Ms. Kurschner:

It now appears that the proposed long term Non-Treaty Storage Agreement will not be completed by August 31, 2011, the date proposed in the 2011 Non-Treaty Storage Agreement Term Sheet. In order to achieve the flexibility desired by the Bonneville Power Administration (BPA) and the British Columbia Hydro and Power Authority (BCH), this letter Agreement between our organizations confirms our commitment to the mutually agreeable storage and release of water, and deliveries of energy pending completion of the proposed long-term Non-Treaty Storage Agreement. For accounting purposes, this Agreement is assigned the Bonneville Power Administration contract number 11PB-21385.

The Parties agree that the principles and procedures contained herein do not set a precedent concerning any current or future dispute over Treaty or Non-Treaty rights and obligations, nor do they set a precedent for power or non-power purposes, objectives or target objectives and contents.

Accordingly, the parties agree to the following term and conditions:

1. **Term**
   This Agreement will be effective at 2400 hours 2 September 2011, and will remain in effect until 2400 hours 25 November 2011; provided however that any outstanding obligations on 25 November 2011 with regard to any account established under this Agreement will be fulfilled in accordance with Section 7 of this Agreement.

2. **Changes to this Agreement**
   Changes may be made to the terms and conditions of this Agreement only by mutual consent of the Parties.

3. Availability of Non-Treaty Accounts

BCH shall establish an account for each Party set at 1.233 km^3 (1.0 million acre-feet (Maf)) with an initial balance in each Party's account of 1.233 km^3 (1.0 Maf) of water.

4. Coordination of Water Transactions

All water transactions will be by mutual agreement. Water volumes and accounting for the upcoming Saturday through Friday period will be as agreed in advance and will be finalized by 1200 hours on Thursday, or the day prior to the preschedule day according to the WECC preschedule calendar, if earlier. Any limitations on water transactions declared by either Party pursuant to this Agreement shall be shared equally between the Parties.

Any mid-week changes to water transactions will be by mutual agreement.

Except as described in Section 8, BPA Head Loss Payments, no energy transactions will be associated with BPA water transactions under this Agreement. Energy associated with BCH water transactions will be accounted in accordance with Section 6 of this Agreement.

5. Changes to Arrow Outflows

Water transactions under this Agreement shall be effected by BCH adjustment of the Arrow outflow from what would otherwise occur by the sum of the Parties' water transactions on a weekly flat basis (a uniform rate of flow over the applicable Saturday through Friday period).

6. Energy Accounting

a. Energy associated with all BCH water transactions under this Agreement will be tracked in an Energy Value Account, and calculated based upon the daily effective incremental (reduced by spill) U.S. Federal Columbia River mainstem generation discharge factor (h/k). Water transactions that reduce Arrow outflows will be recorded as a negative value and those that increase Arrow outflows as a positive value.

b. The Energy Value associated with BCH water transactions will be calculated as the product of the energy in MWh determined in accordance with Section 6a. and flat prices calculated from the Intercontinental Exchange (ICE) mid-C preschedule Daily Peak and Off-Peak Indexes.

c. For purposes of determining energy value in Section 6.b, prices will be limited to a minimum of $0.00 for all periods including both Peak and Off-Peak periods when using the Intercontinental Exchange (ICE) mid-C preschedule Daily Peak and Off-Peak Indexes to determine a flat price. If BPA's policy and/or practices change with regard to participation in negative markets, the Parties will amend this limitation accordingly.

d. Accounting under Sections 6.a and 6.b will assume a 1-day lag between water transactions and the resulting change in generation on the U.S. Federal Columbia River Mainstem hydrosystem. The energy and value calculations will therefore use both federal h/k and energy prices lagged by one day from the water transaction.

e. There will be no energy deliveries concurrent with BC Hydro water transactions.

7. <u>Refill of Accounts</u>

a. If the Parties complete negotiation of and execute the proposed long-term Non-Treaty Storage Agreement, balances in non-Treaty accounts established under this Agreement and Energy Values in the Energy Value Account will be transferred to the new long-term Non-Treaty Storage Agreement.

b. If the Parties fail to complete negotiation and execution of the proposed long-term Non-Treaty Storage Agreement prior to the expiration of this Agreement, then the Parties shall schedule mutually-agreed water transactions in accordance with Section 4 as necessary to return accounts to their starting balance in Section 3, as soon as possible, but no later than 23 November 2012.

   i. Following completion of water transactions under this Agreement, the Energy Value balance in the Energy Value Account associated with BC Hydro water transactions and the value of head loss energy associated with BPA water transactions specified in Section 8. will be verified by both Parties. A combined positive balance reflects energy owed to BCH, a combined negative balance indicates energy owed to BPA. It is intended that energy owed be delivered at the maximum rate specified in Section 7.b.iv. until the obligation is fulfilled.

   ii. Energy deliveries will commence the next Treaty week after the Energy Value Balance has been verified by the Parties.

iii. Energy deliveries will be shaped flat for the subsequent Sunday through Saturday and shall be agreed by 1200 hours on Thursday, or the day prior to the preschedule day, if earlier.

iv. The weekly energy schedule will be determined using the estimated MWh owed calculated from the Energy Value Account balance and the expected weekly average price. Schedules will be the lesser of 240 MW flat, or a flat schedule of the estimated remaining MWh owed.

v. The value of energy delivered will be calculated after-the-fact using the index price in accordance with Sections 6.b. and 6.c. and the Energy Value Account updated accordingly.

vi. In the event of generation capacity limitations on the U.S. Federal Columbia River Power System during periods when the Canadian Columbia River Treaty Entity is exercising concurrent Arrow provisional draft rights under the Libby Coordination Agreement (LCA), LCA provisional draft rights will take precedence and energy deliveries under this Agreement will be shaped in a mutually-agreed fashion so as to maintain the value of the energy delivered under this agreement.

vii. The point of delivery of energy shall be the U.S.-British Columbia border. Each party will be responsible for transmission scheduling and costs on its side of the U.S.-British Columbia border related to energy delivered under this agreement. Energy transactions will be limited to transmission capacity available on a preschedule basis.

viii. In the event of transmission or generation capacity limitation(s) on either Party's system which curtail deliveries of energy under this Agreement, curtailed deliveries shall be rescheduled for delivery within seven days after clearance of the limitations, unless otherwise agreed.

8. <u>BPA Head Loss Payments</u>

If BPA's balance in its account established pursuant to Section 3 of this Agreement is less than 1.233 km^3 (1.0 Maf), then BPA shall compensate BCH for head losses on the BCH system. Head losses, as daily average energy, shall be determined in accordance with the calculations defined in Attachment 1, Head Losses. The value of the head loss energy shall be determined daily using the same procedure described in Sections 6.b and 6c.

9. Other Conditions

a. BPA and BC Hydro water transactions under Section 4 of this Agreement shall be limited equally so as not to cause actual or forecast discharges to exceed the daily flow rate change of 424.8 m^3/s (15 kcfs) at Arrow or exceed 4672.3 m^3/s (165 kcfs) at the water level gauge at Birchbank on the Columbia River. Flow changes that exceed 424.8 m^3/s (15 kcfs), will be ramped at the BCH maximum ramp rate requirement of 424.8 $m^3/s/day$ (15 kcfs/day). As mutually agreed, ramping will either commence immediately prior to the start of the Treaty week, or may be delayed to the completion of the Treaty week, preserving the agreed volume of water.

b. BPA hereby agrees to indemnify and hold BC Hydro harmless from any claims and costs (including reasonable legal fees and disbursements), including any judgments or settlements resulting thereof, that may be asserted against BCH related to the Wells, Rocky Reach, Rock Island, Wanapum, and Priest Rapids projects (commonly referred to as the Mid-Columbia Projects) arising from the storage and release of water, and deliveries of energy, during the period 3 September 2011 through 23 November 2012 conducted pursuant to this Agreement. Any such BCH settlements shall be subject to prior approval of BPA.

c. Nothing in this Agreement shall be deemed to establish any right or provide a basis for any action, either legal or equitable, by any person or class of persons against the United States or Canada, their departments, agencies, instrumentalities or entities, or their officers or employees, challenging a government action or a failure to act.

10. Force Majeure

a. If either Party is prevented or delayed in performing any obligation under this Agreement by any cause the specific or particular occurrence of which it cannot reasonably anticipate and which is beyond its reasonable control, performance by that Party of such obligation shall be excused to the extent that it is so prevented or delayed until such cause has been removed or overcome. To the extent that such causes are beyond the reasonable control of such Party, those causes shall include, without limiting the generality of the foregoing, flood, earthquake, storm, lightning, fire, epidemic, war, riot, civil disturbance, labor disturbance, sabotage, and the act or failure to act by a court, administrative authority or other lawful authority; but such causes shall not include lack of financial means.

b. A Party excused under this Section from performance of any obligation, or reasonably anticipating that it will be so excused, shall promptly give notice to that effect to the other Party and shall make all reasonable efforts to remove or overcome the cause of the prevention or delay as soon as is practicable.

11. Charges

Unless provided otherwise under this Agreement, no storage fees, charges, tolls or assessments for transactions under this Agreement will be charged by either Party to the other.

If the above terms and conditions are acceptable to BC Hydro, please indicate your approval by signing the three (3) originals of this Agreement and returning two (2) of them to BPA. The remaining original is for your files.

Sincerely,

Stephen R. Oliver
Vice President, Generation Asset Management

ACCEPTED:

BC HYDRO AND POWER AUTHORITY

By Matthew Matthews

Title Acting Director Generation Resource Management

Date 6 Sep 2011

ATTACHMENT 1

HEAD LOSSES

1. HEAD LOSS CALCULATION

Two shadow contents, S_1 and S_2, shall be determined daily as follows:

Storage contents S_1 and S_2 are expressed in ksfd and are defined by the following formulas:

$$S_1 = M_{Base} + M_{TRT} + 2*ABi$$
$$= 6339.851 + M_{TRT}$$
$$S_2 = M_{Base} + M_{TRT} + AB_{BPA} + AB_{BCH}$$
$$= 5331.517 + M_{TRT} + AB_{BPA} + AB_{BCH}$$

WHERE: All balances are as of 2400 hours on the day for which the calculation is made and are in units of ksfd.

M_{Base} is the Mica dead storage space and other storage space not impacted by this agreement set equal to 5331.517 ksfd;

ABi is the Initial Account Balance set to 504.167 ksfd each for BPA and BCH;

M_{TRT} is equal to the Mica Treaty content pursuant to the Detailed Operating Plans including any Supplemental Operating Agreements in effect;

AB_{BPA} is the BPA Account Balance ($\leq$ 504.167 ksfd); and

AB_{BCH} is the BCH Account Balance ($\leq$ 504.167 ksfd).

Provided, however, that if either content S_1 or S_2 exceeds the maximum content at which Mica could be operated on such day, such content shall be set equal to the maximum content. Such maximum shall be the lowest of the following contents:

i) Mica's normal full content, which is 10121.100 ksfd;

ii) Mica's maximum content at 2400 hours on such day as prescribed in the Columbia River Treaty Flood Control Operating Plan; or

iii) Any other limits on maximum contents at Mica as determined by BCH.

The amount of total head loss energy shall be determined daily according to the following formula:

$$HLE_T = (HK_1 - HK_2) \times Q_{DOP} \times 24 \text{ hours}$$

WHERE HLE_T is the total head loss in megawatthours;

ATTACHMENT 1

HK_1 is the water to energy conversion factor for Mica in MW/kcfs at content S_1 in ksfd as determined by linear interpolation from Column (3) of Attachment 2;

HK_2 is the water to energy conversion factor for Mica in MW/kcfs at content S_2 as determined by linear interpolation from Column (3) of Attachment 2; and

Q_{DOP} is the turbine discharge in thousand cubic feet per second (kcfs) at Mica on such day pursuant to the Detailed Operating Plan currently in effect including any supplemental Treaty operating agreements.

If the amount of total head loss is not zero, the portion of such total allocated to BPA on such day shall be determined according to the following formula:

$$HLE_{BPA} = \frac{HLE_T \times (ABi - AB_{BPA})}{2*ABi - (AB_{BCH} + AB_{BPA})}$$

WHERE HLE_{BPA} is the amount of head loss energy in megawatthours allocated to BPA on such day;

and

all other terms are as defined above.

Provided, however, that if the resultant HLE_{BPA} is negative, such amount shall be set to zero.

BPA head loss compensation shall be delivered to BCH as per Section 6 of this Agreement.

ATTACHMENT 2

MICA PLANT CHARACTERISTICS
August 26, 2011

Column (1)	Column (2)	Column (3)
Reservoir Elevation (feet)	Storage Contents (kcfs-days)	Water-to-Energy Conversion Factor (kW/cfs)[1]
2475.0	10121.1	45.09
2470.0	9854.8	44.77
2465.0	9592.7	44.42
2460.0	9334.8	44.06
2455.0	9081.0	43.69
2450.0	8831.4	43.31
2445.0	8586.0	42.92
2440.0	8344.8	42.53
2435.0	8107.8	42.13
2430.0	7874.9	41.74
2425.0	7646.2	41.33
2420.0	7421.6	40.93
2415.0	7201.3	40.53
2410.0	6985.1	40.13
2405.0	6773.0	39.75
2400.0	6565.1	39.36
2395.0	6363.4	38.95
2390.0	6170.1	38.55
2385.0	5984.8	38.14
2380.0	5806.7	37.73
2375.0	5635.2	37.32
2370.0	5469.9	36.91
2365.0	5310.2	36.50
2360.0	5155.7	36.09
2355.0	5005.8	35.67
2350.0	4860.1	35.26
2345.0	4718.3	34.83
2340.0	4580.0	34.41
2335.0	4444.1	33.98
2330.0	4310.2	33.54
2325.0	4178.2	33.11
2320.0	4048.1	32.67

[1] Tailwater elevation assumed to be 1880.7 feet based on 30,000 cfs Mica discharge with Revelstoke in-service.