
ENVIRONMENTAL ASSESSMENT

**Proposed Agreements to Resolve Revelstoke
Filling Issues and Access Reservoir
Storage Space in Canada**



**Office of Power and Resources Management
BONNEVILLE POWER ADMINISTRATION**

OCTOBER 1983

APPENDIX D

PROPOSED AGREEMENT BETWEEN BPA AND THE MID-COLUMBIA PURCHASERS

DRAFT

CONTRACT

executed by the

UNITED STATES OF AMERICA

DEPARTMENT OF ENERGY

acting by and through the

BONNEVILLE POWER ADMINISTRATION

and

MID-COLUMBIA PURCHASERS

Relating to Federal and Canadian

Columbia River Storage

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This CONTRACT, executed _____, 1983, by the UNITED STATES OF AMERICA (Government), Department of Energy, acting by and through the BONNEVILLE POWER ADMINISTRATION (Bonneville), PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY, WASHINGTON, a municipal corporation of the State of Washington (Chelan); COLOCKUM TRANSMISSION COMPANY, INC., a corporation (Colockum); PUBLIC UTILITY DISTRICT NO. 1 OF COWLITZ COUNTY, WASHINGTON, a municipal corporation of the State of Washington (Cowlitz); PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY, WASHINGTON, a municipal corporation of the State of Washington (Douglas); the CITY OF EUGENE, OREGON, a municipal corporation of the State of Oregon (Eugene); the CITY OF FOREST GROVE, OREGON, a municipal corporation of the State of Oregon (Forest Grove); PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY, WASHINGTON, a municipal corporation of the State of Washington (Grant); PUBLIC UTILITY DISTRICT NO. 1 OF KITTITAS COUNTY, WASHINGTON, a municipal corporation of the State of Washington (Kittitas); the CITY OF McMINNVILLE, OREGON, a municipal corporation of the State of Oregon (McMinnville); the CITY OF MILTON-FREEWATER, OREGON, a municipal corporation of the State of Oregon (Milton-Freewater); the PUBLIC UTILITY DISTRICT NO. 1 OF OKANOGAN COUNTY, WASHINGTON, a municipal corporation of the State of Washington (Okanogan); PACIFIC POWER & LIGHT COMPANY, a corporation (Pacific);

PORTLAND GENERAL ELECTRIC COMPANY, a corporation (Portland); PUGET SOUND POWER & LIGHT COMPANY, a corporation (Puget); the CITY OF SEATTLE, WASHINGTON, a municipal corporation of the State of Washington (Seattle); the CITY OF TACOMA, WASHINGTON, a municipal corporation of the State of Washington (Tacoma); and THE WASHINGTON WATER POWER COMPANY, a corporation (Water Power), (each hereinafter called "Purchaser," and collectively, "Purchasers") who are owners or purchasers of the output of the Mid-Columbia hydro projects, Wells, Rocky Reach, Rock Island, Wanapum, and Priest Rapids (Projects),

W I T N E S S E T H :

WHEREAS Bonneville and the British Columbia Hydro and Power Authority (B.C. Hydro) wish to provide additional flexibility and other benefits in the operation of their systems by storing water in Columbia River storage facilities in Canada pursuant to Exhibit A; and

WHEREAS Bonneville and the Purchasers wish to coordinate the operation of generation and storage facilities on the Columbia River in the United States in order to implement Exhibit A for the benefit of Bonneville and the Purchasers; and

WHEREAS Bonneville and the Purchasers wish to settle a dispute which has arisen with B.C. Hydro concerning past and anticipated initial filling of B.C. Hydro reservoirs and to provide a means for Bonneville to obtain the right to give B.C. Hydro a release and discharge from any and all claims for water and energy associated with the dispute; and

WHEREAS Bonneville is authorized pursuant to law to dispose of electric power generated at various Federal hydroelectric projects in the Pacific Northwest, or acquired from other resources, to construct and operate transmission facilities, to provide transmission and other services, and to enter into agreements to carry out such authority;

NOW, THEREFORE, the Parties hereto mutually agree as follows:

1. Term.

(a) Term of Contract. This Contract shall become effective at 2400 hours on September 30, 1983, and continue in effect until the last date on which any of the provisions of Exhibit A are in effect.

(b) Notice. Bonneville shall immediately forward to the Purchasers copies of any notices Bonneville gives or receives pursuant to sections 2(a)(1) or 2(a)(2) of Exhibit A.

2. Definitions.

(a) Any capitalized terms in this Contract that are not defined herein shall have the definitions stated in Exhibit A.

(b) "Coordination Agreement" shall mean the Agreement for Coordinated Operations among Power Systems of the Pacific Northwest (BPA Contract No. 14-03-48221), as amended or replaced.

(c) "Storage Account(s)," including "BCH Storage Account(s)" and "BPA Storage Account(s)" shall mean those accounts established pursuant to sections 6(c) and 7(c), respectively, of Exhibit A.

(d) "Workday" shall mean any day during which Bonneville and the respective Purchaser normally prepare schedules for delivery of power.

3. Exhibits. Exhibits A through D, attached hereto, are by this reference incorporated herein and made part of this Contract.

4. Revision of Exhibit B.

(a) In the event that the shares of any Purchasers in any of the Projects change and, as a result, such Purchasers' water-to-energy conversion factors listed in Exhibit B change, each Purchaser having a changed share shall notify Bonneville in writing of the amount of the share change and of its corresponding water-to-energy conversion factor(s) and of the effective date

of such change. Prior to such effective date, Bonneville shall issue a revised Exhibit B incorporating the changes.

(b) In the event the Purchaser who is the owner of a Project reasonably determines that it is necessary to change the water-to-energy conversion factor of such Project, and either the balances in all BPA and BCH Storage Accounts which are not Inactive Storage Accounts are zero or Bonneville agrees to such change, such Purchaser shall notify Bonneville in writing of the amount of the change in the water-to-energy conversion factor for the Project. Bonneville shall issue a revised Exhibit B incorporating the change.

5. Storage and Release of Water by B.C. Hydro. Bonneville shall notify each Purchaser by 1000 hours of each Workday before any storage or release of water pursuant to section 6 of Exhibit A which would decrease or increase the flow of the Columbia River at the Purchaser's Project(s).

(a) Storage by B.C. Hydro. Whenever the flow at the Purchaser's Project(s) decreases due to storage of water by B.C. Hydro pursuant to section 6(a) of Exhibit A, Bonneville shall deliver to each Purchaser, at delivery rates and times agreed upon in advance by Bonneville and the Purchaser, the energy which the stored water would have produced at the Purchaser's Project(s) on the day of the change of flows at the Purchaser's Project(s) based on the water-to-energy conversion factors listed in Exhibit B and the available turbine capacities of the Project(s) on such day.

(b) Release by B.C. Hydro. Whenever the flow at the Purchaser's Projects increases due to release of water by B.C. Hydro pursuant to section 6(b) of Exhibit A, each Purchaser shall deliver to Bonneville, at delivery rates and times agreed upon in advance by Bonneville and the Purchaser, the energy which the released water is able to produce at the Purchaser's Project(s) on the day of the change of flows at the Purchaser's Project(s) based on the

water-to-energy conversion factors listed in Exhibit B and the available turbine capacities of the Project(s) on such day.

(c) Effects of Water Stored by B.C. Hydro on the Coordination Agreement.

Water stored by B.C. Hydro in BCH Storage Account(s) shall neither increase nor decrease any of the rights or obligations of any of the parties to the Coordination Agreement. The normal full, normal empty, and rule curve elevations of BCH Storage Reservoirs, as such elevations are used in the Coordination Agreement, shall be increased by the amounts of water stored by B.C. Hydro into such accounts pursuant to section 6(a) of Exhibit A and shall be decreased by the amounts released by B.C. Hydro from such accounts pursuant to section 6(b) of Exhibit A.

6. Storage and Release of Water by Bonneville. Bonneville shall notify each Purchaser by 1000 hours of each Workday before any storage or release of water pursuant to section 7 of Exhibit A which would decrease or increase the flow of the Columbia River at the Purchaser's Project(s).

(a) Filling of the BPA Inactive Storage Space. Whenever the flow at the Purchaser's Project(s) decreases due to storage of water by Bonneville into the BPA Inactive Storage Account or into a BPA Active Storage Account for the purpose of meeting Bonneville's obligation to leave water in Inactive Storage Space, Bonneville shall deliver to the Purchaser at delivery rates and times agreed upon in advance by Bonneville and the Purchaser, the energy which the stored water would have produced at the Purchaser's Project(s) on the day of the change of flows at the Purchaser's Project(s) based on the water-to-energy conversion factors listed in Exhibit B and the available turbine capacities of the Project(s) on such day. The first water stored by Bonneville into the BPA Inactive Storage Account or a BPA Active Storage Account up to an amount equal

to Bonneville's obligation as of that time to leave water in Inactive Storage Space shall be considered stored for such purpose. Bonneville's obligation to leave water in Inactive Storage Space as of any time shall be Bonneville's one-half of the Revelstoke non-Treaty storage space in excess of 2.0 million acre-feet declared available at such time pursuant to section 4(a)(1) of Exhibit A, plus Bonneville's one half of up to 2.0 million acre-feet as determined at such time pursuant to section 4(a)(2) of Exhibit A, plus Bonneville's one-half of any storage space at Murphy Creek or any storage space between elevations 1715 and 1730 feet at Seven Mile declared available at such time pursuant to section 4(a)(3) of Exhibit A. As such obligations increase from time to time, the next water stored into such accounts after such increase shall be considered stored for the purpose of meeting Bonneville's obligation to leave water in the Inactive Storage Space.

(b) Release by Bonneville from the BPA Inactive Storage Account. There are no provisions in Exhibit A for the release of water stored in the BPA Inactive Storage Account except when such releases are required to provide on-call flood control space pursuant to the Treaty or when required by an emergency. In the event such releases are required, the provisions of section 5(b) for release of water by B.C. Hydro shall apply.

(c) Storage into and Release from the BPA Active Storage Account(s). Whenever the flow at the Purchaser's Project(s) decreases due to storage of water by Bonneville into the BPA Active Storage Account for other than the purpose set forth in section 6(a), the Purchaser shall be responsible for any reduction in generation at the Purchaser's Project(s).

Whenever the flow at the Purchaser's Project(s) increases due to release of water by Bonneville from the BPA Active Storage Account(s) pursuant to section 7(b) of Exhibit A, the Purchaser shall retain for its own use the energy which the water released from the BPA Active Storage Account(s) is able to produce at the Purchaser's Project(s).

Except for the Purchaser's rights to in-lieu energy and obligations to return in-lieu energy, as provided by section 6(f) hereof and the Coordination Agreement, no energy shall be delivered by Bonneville to the Purchaser or the Purchaser to Bonneville when Bonneville releases water from or refills water into BPA Active Storage Account(s).

(d) Storage into and Release from the BPA Recallable Storage Account(s) or the BPA Mica Storage Account. Whenever the flow at the Purchaser's Project(s) decreases due to storage of water by Bonneville into the BPA Recallable Storage Account(s) or the BPA Mica Storage Account pursuant to section 7(a)(2) of Exhibit A, each Purchaser shall be responsible for any reduction in generation at the Purchaser's Project(s).

Whenever the flow at the Purchaser's Project(s) increases due to release of water by Bonneville from the BPA Recallable Storage Account(s) or the BPA Mica Storage Account pursuant to section 7(b) of Exhibit A, the Purchaser shall retain for its own use the energy which the water released from such account(s) is able to produce at the Purchaser's Project(s).

Except for the Purchaser's rights to in-lieu energy and obligations to return in-lieu energy, as provided in section 6(f) hereof and the Coordination Agreement, no energy shall be delivered by Bonneville to the Purchaser or by the Purchaser to Bonneville when Bonneville stores water into or releases water from the BPA Recallable Storage Account(s) or the BPA Mica Storage Account.

(e) Storage into and Release from the BPA Mica Surplus Storage Account.

Whenever the flow at the Purchaser's Project(s) decreases due to storage of water by Bonneville into the BPA Mica Surplus Storage Account pursuant to section 7(a)(2) of Exhibit A, Bonneville shall deliver to the Purchaser at delivery rates and times agreed upon in advance by Bonneville and the Purchaser a percentage of the energy which such decrease in flow would have produced at the Purchaser's Project(s) on the day of the change of flows at the Purchaser's Project(s) based on the water-to-energy conversion factors listed in Exhibit B and the available turbine capacities of the Project(s) on such day, and the Purchaser shall be responsible for the balance of the reduction in generation at the Purchaser's Project(s). Such percentage shall be the same as the percentage of the energy deducted from the energy delivered by Bonneville to B.C. Hydro pursuant to section 7(c)(2) of Exhibit A as compensation for the storage service

Whenever the flow at the Purchaser's Project(s) increases due to release of water by Bonneville from the BPA Mica Surplus Storage Account pursuant to section 7(b) of Exhibit A, the Purchaser shall retain for its own use the energy which the water released from such account(s) is able to produce at the Purchaser's Project(s).

Except for the percentage of the energy delivered by Bonneville to the Purchaser pursuant to this section (e) and the Purchaser's rights to in-lieu energy and obligations to return in-lieu energy, as provided in section 6(f) hereof and the Coordination Agreement, no energy shall be delivered by Bonneville to the Purchaser or by the Purchaser to Bonneville when Bonneville stores water into or releases water from the BPA Mica Surplus Storage Account.

(f) Effects of Water Stored by Bonneville on the Coordination Agreement.

Water stored by Bonneville in the BPA Inactive Storage Account shall neither increase nor decrease any of the rights or obligations of any of the parties to the Coordination Agreement. The normal full, normal empty, and rule curve elevations of BCH Storage Reservoirs, as such elevations are used in the Coordination Agreement, shall be increased by the amounts of water stored by Bonneville into such account.

Water stored by Bonneville in the BPA Mica Storage Account or the BPA Mica Surplus Storage Account shall be treated the same as any other water stored in Treaty space in Mica for the purpose of determining all rights and obligations, including in-lieu energy rights and obligations, under the Coordination Agreement. If the Coordination Agreement Annual Operating Procedures then in effect provide for accounting water stored in Federal reservoirs upstream from the mid-Columbia Projects in a composite pond, Bonneville shall include water stored in the BPA Mica Storage Account or the BPA Mica Surplus Storage Account as water stored in Treaty space in Mica and included in such composite pond.

Water stored by Bonneville in the BPA Active Storage Account(s) and the BPA Recallable Storage Account(s) shall be subject to the terms of subsection 9(k) of the Coordination Agreement for the purpose of determining the rights and obligations of the parties to in-lieu energy, but such stored water shall have no effect on other rights and obligations of the parties to the Coordination Agreement, including but not limited to interchange energy rights and obligations and headwater benefit payments. Bonneville shall maintain a separate account for each BPA Active Storage Account and each BPA Recallable Storage Account for the purposes of determining in-lieu energy rights and obligations under the Coordination Agreement, however the conversion factors

and relative discharge maximums associated with the composite pond shall be used if the Coordination Agreement Annual Operating Procedures then in effect provide for accounting water stored in Federal reservoirs upstream from the mid-Columbia Projects in a composite pond. The energy content curve used in the Coordination Agreement for the purpose of determining in-lieu energy rights and obligations shall be considered to be equal to a zero balance in each BPA Active Storage Account and each BPA Recallable Storage Account. The Purchaser's rights to terminate its further requests for release of water from such accounts and to designate water releases as assigned water releases for the purpose of returning in-lieu energy shall be limited to those times when and to the extent that Bonneville can, pursuant to Exhibit A, store water into the BPA Storage Account to which in-lieu energy is being returned or can decrease its release of water from such account.

7. Adjustment of In-lieu Energy Rights for Changes in Exhibit B. Each time a revision in Exhibit B becomes effective, the rights of each Purchaser having a decrease in its total water-to-energy conversion factor, as set forth in column 6 of Exhibit B, to in-lieu energy based on water in BPA Storage Accounts shall be decreased in proportion to such Purchaser's decrease in total water-to-energy conversion factor, and the rights of each Purchaser having an increase in such total conversion factor to such in-lieu energy shall be increased in proportion to such Purchaser's increase in such total conversion factor. To the extent that such decrease causes the amount of in-lieu energy which such Purchaser then has outstanding to exceed such Purchaser's rights to in-lieu energy, such Purchaser shall promptly return such excess to Bonneville at rates and times mutually agreed by Bonneville and the Purchaser, but in no case later than 30 days after such Exhibit B is effective.

8. Transfer of Stored Water. Transfers of stored water between BPA Storage Accounts as permitted by sections 7(d) and 10 of Exhibit A and as required by section 4(a)2 of Exhibit A may cause a change in the Purchaser's rights to water in such accounts. If Bonneville makes such transfers, the account from which water has been transferred shall be decreased by the amount of water transferred, and the account into which water has been transferred shall be increased by the same amount on the date the transfer is effective; provided, however, that for the purpose of accounting the Purchaser's rights to receive energy pursuant to section 6(a) and the Purchaser's rights to receive and obligations to return in-lieu energy pursuant to section 6(f) hereof and the Coordination Agreement, Bonneville shall, beginning on the day such transfer is effective, treat the transfer from one account to another as a release from the one account at the rate of 10,000 second-foot-days per day and a simultaneous storing in the other account at the same rate until the first account has been reduced by the amount transferred. Bonneville shall not deliver to the Purchaser, as provided in section 6(a), the energy which the water being transferred into the BPA Inactive Storage Account would have produced at the Purchaser's Project(s) to the extent such water is transferred from a BPA Active Storage Account on which such deliveries have already been made.

9. Purchase of Stored Water.

(a) Purchase by B.C. Hydro. Purchase by B.C. Hydro, as permitted by section 9(a) of Exhibit A, of water stored in a BPA Storage Account will have an effect on the Purchaser's rights to the water stored in such accounts and the Purchaser's right to receive part of the money received by Bonneville from B.C. Hydro. If B.C. Hydro purchases water stored in a BPA Storage Account,

such BPA Storage Account shall be decreased by the amount of water purchased, and the BCH Storage Account designated by B.C. Hydro shall be increased by the same amount on the date the purchase is effective; provided, however, that for the purpose of determining the Purchaser's obligation, if any, to return in-lieu energy to Bonneville pursuant to section 6(f) hereof and the Coordination Agreement, Bonneville shall, beginning on the day such purchase is effective, treat the water purchased as though it had been released from such BPA Storage Account at the rate of 10,000 second-foot-days per day until such BPA Storage Account has been reduced by the amount purchased. Bonneville shall pay the Purchaser pursuant to section 12(b) its prorata share of the money received by Bonneville from B.C. Hydro.

(b) Purchase by Bonneville. Purchase of water by Bonneville, as permitted by section 9(b) of Exhibit A, of water stored in a BCH Storage Account may have an effect on the Purchaser's rights to such stored water and may result in the Purchaser paying to Bonneville part of the money paid by Bonneville to B.C. Hydro.

If Bonneville purchases water stored in a BCH Storage Account and uses such water for the purpose of meeting its obligation to leave water in Inactive Storage Space, the BPA Storage Account designated by Bonneville shall be increased by the amount of the water purchased, the appropriate BCH Storage Account shall be decreased by the same amount on the date the purchase is effective, and Bonneville shall bear all the costs of such purchase.

If Bonneville purchases water stored in a BCH Storage Account and uses such water for other than the purpose of meeting its obligation to leave water in Inactive Storage Space, the BPA Storage Account designated by Bonneville shall be increased by the amount of the water purchased, and the appropriate BCH Storage Account

shall be decreased by the same amount on the date the purchase is effective. Promptly after such purchase, or in advance if practicable, Bonneville shall notify each Purchaser in writing of the terms of such purchase. Within 30 days after the receipt of such notice, each Purchaser shall notify Bonneville in writing whether the Purchaser elects to participate in such purchase. If the Purchaser elects not to participate, the Purchaser's obligations to return in-lieu energy to Bonneville shall be increased as if the Purchaser had already exercised its in-lieu energy rights on all of the water so purchased and stored in such BPA Storage Account. If the Purchaser elects to participate, no such increase to in-lieu energy obligations shall be made, and the Purchaser shall pay Bonneville pursuant to section 12(c) its pro rata share of the amount of money paid by Bonneville to B.C. Hydro for such purchase.

10. Provisions Relating to Scheduling. Schedules for delivery of power between Bonneville and each Purchaser will be effective at mid-Columbia points of delivery defined in the Purchaser's contract as listed in Exhibit C. Except as modified herein, scheduling of energy hereunder shall be subject to the appropriate terms of the Purchaser's contract listed in Exhibit C.

11. Priority on the Use of Facilities.

(a) Priority of the Columbia River Treaty. The use of Treaty space and the use of all other facilities at Mica and Arrow and Downstream U.S. Projects to fulfill the requirements of the Treaty shall receive priority over all uses provided for in this Contract.

(b) Generating Facilities.

(1) Priority of Own Use - The Purchaser shall have the right to determine which requests can be met between requests under this Contract and other conflicting third party requests for use of its generating facilities. The Purchaser shall take reasonable efforts to return energy hereunder; however, the Purchaser shall not be obligated to return energy at a rate of delivery in excess of the generating capacity of the units at its Project(s) available for that purpose, or to operate its system in such a manner as to affect adversely its sales to utilities or service to its customers.

(2) Generating Unit Availability - The Purchaser responsible for operating each Project shall take reasonable efforts to have generating units (turbine capacities) available for the purpose of converting water releases to energy and thereby avoiding spill of water released pursuant to sections 6(b) and 7(b) of Exhibit A. Bonneville shall give the Purchaser as much notice of the release of stored water as practicable, and the Purchaser shall give Bonneville as much notice of the nonavailability of generating units as practicable.

(3) Return of Energy - The Purchaser shall take reasonable efforts, but shall not be obligated, to return energy to Bonneville at uniform hourly rates within each day; however, if Bonneville requests the return of energy at hourly rates that are other than uniform because the Receiving Party (Bonneville or B.C. Hydro) cannot use the returned energy at a uniform rate, the Purchaser shall take reasonable efforts to return the energy as requested by Bonneville.

(4) Return of Energy When Exporting - If the generating capacity available to the Purchaser limits the amounts of energy which can be generated hourly at its Project(s) to return energy during any day as provided in paragraph (3) above, the Purchaser shall, unless the Receiving Party (Bonneville or B.C. Hydro) is making nonfirm energy sales to entities outside its Normal Service Area, forego all or a portion of its nonfirm energy sales during such hours to entities outside the Bonneville Normal Service Area to the extent necessary to return energy as required by paragraph (3) above.

(5) Other Return of Energy - Energy not returned pursuant to paragraphs (3) and (4) above will be returned at times and rates as agreed by Bonneville and the Purchaser.

12. Payments.

(a) Payment of Service Charges by Bonneville. Bonneville shall disburse to each Purchaser its pro rata share of any service charges Bonneville receives from B.C. Hydro pursuant to section 14(b) of Exhibit A for energy returned from release of water from the BCH Mica or Arrow Storage Accounts. The share for Bonneville and each Purchaser shall be prorated based on the number of kilowatthours generated for return at each party's generating facilities. Bonneville shall make such disbursement promptly upon receipt of payments from B.C. Hydro.

(b) Payment for Purchase of Storage by B.C. Hydro. Bonneville shall disburse to each Purchaser its pro rata share of any payments Bonneville receives from B.C. Hydro pursuant to section 14(c) of Exhibit A for the purchase of water stored in BPA Storage Accounts. The share for each Purchaser shall be prorated based on the ratio of: (1) the water-to-energy conversion factors for such Purchaser's Project(s) which were included in the

water-to-energy conversion factors set forth in section 14(c) of Exhibit A; to (2) the total of those water-to-energy conversion factors set forth in section 14(c) of Exhibit A which were used as the basis for payment to Bonneville by B.C. Hydro. Bonneville shall make such disbursement promptly upon receipt of payments from B.C. Hydro.

(c) Payment for Purchase of Storage by the Purchaser. The Purchaser shall pay Bonneville its pro rata share of the payments Bonneville is required to make to B.C. Hydro for the purchase of water stored in one or more BCH Storage Accounts if the Purchaser elects, pursuant to section 9(b), to participate in such purchase. Such Purchaser's share of the cost to Bonneville for such purchase shall be prorated based on the ratio of: (1) the water-to-energy conversion factors for such Purchaser's Project(s) which were included in the water-to-energy conversion factors set forth in section 14(c) of Exhibit A; to (2) the total of those water-to-energy conversion factors set forth in section 14(c) of Exhibit A which were used as the basis for payment to B.C. Hydro by Bonneville. Bonneville shall bill the Purchaser for its share of the cost of such purchase in a manner consistent with Bonneville's obligation to pay B.C. Hydro pursuant to section 14(c) of Exhibit A and the Purchaser shall pay Bonneville in full on or before the thirtieth day after the date of such bill.

13. Release and Discharge of Claims. The Purchaser hereby gives Bonneville the right to release and discharge B.C. Hydro on the Purchaser's behalf, pursuant to sections 3(b) and 3(e) of Exhibit A, from any claim which may be asserted by the Purchaser against B.C. Hydro arising from B.C. Hydro's filling of Inactive Storage Space in a BCH Storage Reservoir to the extent such filling is accomplished pursuant to Exhibit A. The Purchaser agrees not to assert any claim arising from such filling against B.C. Hydro or Bonneville in any court or tribunal.

IN WITNESS WHEREOF, the parties have executed this Contract in several counterparts.

UNITED STATES OF AMERICA
Department of Energy

By _____
Bonneville Power Administrator

MID-COLUMBIA PURCHASER

By _____

Title _____

Date _____

ATTEST:

By _____

Title _____

Date _____

(WP-PKI-1672c)

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PURCHASER'S SHARES (Percent)

Utility	(1) <u>Wells</u>	(2) <u>Rocky Reach</u>	(3) <u>Rock Island</u>	(4) <u>Wanapum</u>	(5) <u>Priest Rapids</u>
Chelan	0	10.63	5.58	0	0
Colockum	0	23.0	0	0	0
Cowlitz	0	0	0	6.03	5.33
Douglas	13.2	2.77	0	0	0
Eugene	0	0	0	3.24	2.36
Forest Grove <u>1/</u>	0	0	0	1.93	1.37
Grant	0	0	0	26.24	28.2
Kittitas <u>1/</u>	0	0	0	0	0.4
McMinnville <u>1/</u>	0	0	0	1.93	1.37
Milton-Freewater <u>1/</u>	0	0	0	1.93	1.37
Okanogan	6.0	0	0	0	0
Pacific	9.0	5.3	0	21.0	15.6
Portland	26.5	12.0	0	18.7	13.9
Puget	40.8	43.4	94.42	10.8	8.0
Seattle	0	0	0	0	8.0
Tacoma	0	0	0	0	8.0
Water Power	<u>4.5</u>	<u>2.9</u>	<u>0</u>	<u>8.2</u>	<u>6.1</u>
Total	100	100	100	100	100

PURCHASERS' WATER-TO-ENERGY CONVERSION FACTORS (kW/CFS).

Utility	(1) <u>Wells</u>	(2) <u>Rocky Reach</u>	(3) <u>Rock Island</u>	(4) <u>Wanapum</u>	(5) <u>Priest Rapids</u>	(6) <u>Total</u>
Chelan	0	0.7813	0.1603	0	0	0.9416
Colockum	0	1.6905	0	0	0	1.6905
Cowlitz	0	0	0	0.314	0.309	0.623
Douglas	0.594	0.2036	0	0	0	0.7976
Eugene	0	0	0	0.168	0.137	0.305
Forest Grove <u>1/</u>	0	0	0	0.100	0.079	0.179
Grant	0	0	0	1.366	1.637	3.003
Kittitas <u>1/</u>	0	0	0	0	0.023	0.023
McMinnville <u>1/</u>	0	0	0	0.100	0.079	0.179
Milton-Freewater <u>1/</u>	0	0	0	0.100	0.079	0.179
Okanogan	0.270	0	0	0	0	0.270
Pacific	0.405	0.38955	0	1.092	0.905	2.79155
Portland	1.192	0.8820	0	0.972	0.806	3.852
Puget	1.836	3.1899	2.7127	0.562	0.464	8.7646
Seattle	0	0	0	0	0.464	0.464
Tacoma	0	0	0	0	0.464	0.464
Water Power	<u>0.203</u>	<u>0.21315</u>	<u>0</u>	<u>0.426</u>	<u>0.354</u>	<u>1.19615</u>
Total	4.500	7.350	2.873	5.200	5.800	25.723

1/ These utilities' shares have been exchanged to Bonneville pursuant to their services and exchange agreements with Bonneville.

Exhibit C, Page 1 of 1
Contract No. DE-MS79-83BP90945
Mid-Columbia Purchasers
Effective 2400 hours
July 31, 1983

Purchaser Contracts With Bonneville

<u>Purchaser</u>	<u>Contract Number</u>
Chelan	DE-MS79-81BP90487
Colockum	14-03-83061
Cowlitz	DE-MS79-81BP90493
Douglas	DE-MS79-81BP90494
Eugene	DE-MS79-81BP90456
Forest Grove	DE-MS79-81BP90445
Grant	DE-MS79-81BP90498
Kittitas	DE-MS79-81BP90501
McMinnville	DE-MS79-81BP90448
Milton-Freewater	DE-MS79-81BP90459
Okanogan	DE-MS79-81BP90507
Pacific	14-03-29245
Portland	14-03-37017
Puget	14-03-37050
Seattle	DE-MS79-81BP90460
Tacoma	DE-MS79-81BP90455
Water Power	14-03-29242

(WP-PKI-1672c)

APPENDIX E
GLOSSARY

Active Storage Space - Space is a reservoir which may be filled and lowered upon need of the user.

Anadromous - Species of fish (such as salmon) that are hatched in fresh water, mature in salt water, and return to fresh water to spawn.

Coordinated System - The Coordinated System consists of the Corps, Bureau, and BPA, and 14 of the area generating utilities who signed the Pacific Northwest Coordination Agreement in August 1964. The object of the Coordinated System is to operate projects as if operated by a single entity to make optimum use of the water and storage resources of the region.

Critical Period - An application of historical lowest streamflows to current storage capacity to determine the maximum firm load-carrying capability of the present system under "worst-case" condition; the interval during which all reservoirs are drafted from maximum to minimum elevations without failing to meet a given firm load requirement.

Firm Energy - Electric energy which is intended to have assured availability to the customer to meet all or any agreed upon portion of customer load requirements over a defined period. FIRM POWER is power which is guaranteed by the supplier to be available at all times except for reason of certain uncontrollable forces or continuity of service provisions.

Firm Energy Load Carrying Capability (FELCC) - The level of energy capable of being produced by the hydrogeneration system using all of the reservoir storage in combination with critical period streamflows.

Head - The vertical height of the water in a reservoir above the tailwater (the water surface immediately downstream from a dam or hydroelectric powerplant). The difference between the elevations of the reservoir and the tailrace at the foot of the dam.

Hydroregulation Study - A computer model which simulates the operation of the hydroelectric system. The studies are used to measure effects of alternative methods of operating major power storage reservoirs.

Inactive Storage Space - Space in a reservoir which is kept filled to produce head.

KCFS - THOUSAND CUBIC FEET PER SECOND - A measure of water flows or discharge equal to a thousand cubic feet of water passing a given point in one second's time.

KSFD - THOUSAND SECOND FOOT DAYS - The volume of water produced by a flow of one thousand cubic feet per second over the period of 24 hours.

MAF - MILLION ACRE FEET - An acre foot is the volume of water needed to cover one acre of land one foot deep.

Nonfirm Energy - Energy supplied or available under an arrangement which does not have the guaranteed continuous availability feature of firm power.

Non-Treaty - Storage space that was not included as part of the Columbia River Treaty.

Salmonid - Member of the family SALMONIDAE.

Secondary - Excess energy above firm energy (or power) to be furnished to a customer when, as, and if available.

Surplus - Water which cannot be used to generate salable energy or to meet project constraints of firm nonpower commitments.

Treaty - Storage space that both the United States and Canada agreed to develop and operate, for flood control and power production, to the benefit of both countries.

Water Budget - Concept developed by the Regional Council in its F&W Program to provide certain volumes of water to achieve desired flows at Priest Rapids and Lower Granite control points during April 15 to June 15 to increase the flow velocities of the water between dams.

APPENDIX F
REFERENCES

- Bonneville Power Administration, 1980, The Role of the Bonneville Power Administration in the Pacific Northwest Power Supply System, Final Environmental Impact Statement, December.
- Bonneville Power Administration (BPA), 1983, Environmental Assessment on Proposed Power System Changes to Implement the Water Budget, May.
- British Columbia Hydro and Power Authority, 1982, letter to Mr. Charles Cancilla re "Proposed Filling of Revelstock in September 26, 1983; August 10.
- Sims, Carl W. and David R. Miller, 1982, "Effects of Flow on Migratory Behavior and Survival of Juvenile Fall and Summer Chinook Salmon in John Day Reservoir", June.
- Northwest Electric Power Planning and Conservation Council, 1982, Final Fish and Wildlife Program, November 15, 1982.
- U.S. Congress, 1980, Public Law 96-501, "Pacific Northwest Electric Power Planning and Conservation Act," 16 U.S.C. 839, December 5.