

## **United States Entity**

### **US Department of Energy, Bonneville Power Administration US Army Corps of Engineers, North Pacific Division**

#### **Columbia River System Operation Review Final Environmental Impact Statement**

#### **Canadian Entitlement Allocation Extension Agreements Record of Decision**

### **Summary**

The Administrator and Chief Executive Officer (CEO) of the Bonneville Power Administration (BPA), acting for BPA, and, as Chairman of the United States Entity (the Administrator and the Division Engineer, North Pacific Division of the United States Army Corps of Engineers), acting on behalf of the United States Entity, has decided to adopt for the Canadian Entitlement Allocation Extension Agreements (CEAEA) a federal hydroelectric projects allocation of 72.5 percent and a non-Federal hydroelectric projects allocation of 27.5 percent.

The Columbia River Treaty (Treaty), ratified in 1964, required the construction of three storage dams in Canada. These storage dams provide regulated stream flows that enable hydroelectric projects downstream in the United States to produce additional power benefits. The Treaty requires the United States to deliver to Canada one-half of these downstream power benefits (known as the Canadian Entitlement).

The Canadian Entitlement Allocation Agreements (CEAA), also executed in 1964, established how the Canadian Entitlement was to be attributed collectively to the six downstream Federal hydroelectric projects and to each of the five downstream non-Federal projects. The CEAEA will begin to replace the existing CEAA when the first portion of the Canadian Entitlement is returned to Canada in 1998. The new allocation agreements, the CEAEA, extend to 2024, since the United States' obligation to return the Canadian Entitlement continues to 2024, the first year the Treaty can be terminated with 10 year's notice.

The Columbia River System Operation Review (SOR) Final Environmental Impact Statement (EIS) (DOE/EIS-0170, November 1995) evaluated the potential impacts of four alternatives that represent the likely range of allocations between the Federal and non-Federal projects. The selected allocation falls within this range of alternatives. None of the allocation alternatives influence power system operations under the system operating strategy selected in the Columbia River System Operation Review on Selecting an Operating Strategy for the Federal Columbia River Power System (SOS) Record of Decision (ROD), published February 1997.

**For Further Information Contact:** Mr. Phil Mesa - PGPL-DITT2, Bonneville Power Administration, at 360-418-2152. Copies of the SOR Final EIS, Appendix P of the EIS (which presents the environmental review for the CEAEA), the SOS ROD, and additional copies of this ROD are available from BPA's Public Involvement Office, P.O. Box 12999, Portland, Oregon 97212. Copies may also be obtained by calling the toll-free document request line, 1-800-622-4520.

## **Supplementary Information**

### **1. Background**

The Treaty, signed in 1961 and ratified in 1964, required the construction of three storage dams (Duncan, Keenleyside, and Mica), totaling 15.5 million acre feet (MAF) of storage, on the Columbia River in Canada and allowed the United States to construct one additional dam in the United States (Libby). The Treaty provides that the Canadian storage is to be used for flood control in both countries and for optimum power generation downstream in the United States. Under the Treaty, Canada and the United States share equally the downstream power benefits resulting from Canadian storage. The Treaty requires the United States to deliver to Canada one-half of these downstream power benefits (known as the Canadian Entitlement).

Canada initially sold the Canadian Entitlement to the Columbia Storage Power Exchange, a consortium of Pacific Northwest utilities, for 30 years. The 30-year sale expires in stages beginning in 1998. At that time, the United States is obligated to deliver the Canadian Entitlement to Canada. The Canadian Entitlement is estimated to be approximately 1,200 to 1,500 megawatts (MW) of capacity and 550 to 600 average megawatts (aMW) of energy. The delivery obligation was the subject of the Delivery of the Canadian Entitlement Final EIS (DOE/EIS-0197, January 1996) and RODs (March 1996 and November 1996).

The Treaty assumes that the operation of the United States hydroelectric projects located in the Pacific Northwest are coordinated in a fashion that maximizes these downstream power benefits. This coordination contemplated by the Treaty has been achieved since 1964 through the Pacific Northwest Coordination Agreement (PNCA).

The Canadian Entitlement is generated at six Federal hydroelectric projects (Grand Coulee, Chief Joseph, McNary, John Day, The Dalles, and Bonneville) and five non-Federal hydroelectric projects [Wells, owned by Douglas County Public Utility District (PUD); Rock Island and Rocky Reach, owned by Chelan County PUD; and Wanapum and Priest Rapids, owned by Grant County PUD], collectively known as the Mid-Columbia projects. The five CEAA, executed in 1964 by the Mid-Columbia project owners and the Administrator (acting for BPA and the United States Entity) established the Canadian Entitlement allocable collectively to the Federal hydroelectric projects and to each of the non-Federal Mid-Columbia projects. These agreements expire concurrently with the expiration of the 30-year sale of the Canadian Entitlement.

### **2. The SOR Final EIS**

A Federal interagency team prepared the SOR EIS. Lead agencies were the US Army Corps of Engineers, North Pacific Division; the US Department of Interior, Bureau of Reclamation, Pacific Northwest Region; and BPA. The US Department of Commerce, National Marine Fisheries Service and the US Department of Interior, Fish and Wildlife Service and National Park Service were cooperating agencies. The SOR Final EIS addressed four actions: a system operating strategy for managing the multiple uses of the Columbia River system, a forum for periodic review and update of system operations, renewal of the PNCA, and renewal of the CEAA.

A Notice of Intent to prepare the SOR EIS was issued on July 19, 1990. Fourteen scoping meetings were held between August 6 and August 23, 1990, in various locations throughout the Columbia River Basin. The comments received during scoping were considered in the preparation of the Draft EIS, which was circulated for review and comment in July, 1994. Comments on the Draft EIS were incorporated, where applicable, in the Final SOR EIS, which was published in November, 1995. There were no comments on the SOR EIS regarding the Canadian Entitlement allocation. The SOS ROD was issued on February 21, 1997.

### **3. Alternatives**

The four alternative allocations evaluated in the SOR Final EIS describe the Federal and non-Federal obligations in terms of the percentage of total allocation and represent the range of reasonable allocations. The differences among the alternatives reflect different ways of allocating the downstream power benefits of Treaty storage.

#### **Alternative 1 (No Action) - Entitlement Allocation: 100 percent Federal**

Under Alternative 1, the current CEAA would expire without renewal or replacement. The Federal hydroelectric projects would assume the total Canadian Entitlement delivery obligation beginning in 1998, and the Mid-Columbia projects would continue to generate with the improved stream flows resulting from Treaty projects. Thus, the United States Entity would not exercise its authority under Article XI of the Treaty to condition the use of improved stream flows resulting from Canadian Treaty storage.

Alternative 1 places the total Canadian Entitlement return obligation on the Federal hydroelectric projects and absolves the non-Federal obligation. Because there is no action taken to allocate the Mid-Columbia obligation, Alternative 1 is the no action alternative required to be considered by the National Environmental Policy Act.

#### **Alternative 2 - Entitlement Allocation: 55 percent Federal, 45 percent non-Federal**

Alternative 2 was developed by examining the studies used to compute the Canadian Entitlement. The percentages approximate the increase in annual average generation (over the 1928 through 1958 historical stream flow record) accruing to the Federal and Mid-Columbia projects as a result of downstream power benefit computations under the Treaty. Alternative 2 assumes that sufficient thermal resources have been installed in the Pacific Northwest region to ensure that secondary energy is fully usable. While this situation does not currently exist, it is feasible that secondary energy could become fully usable before 2024, the termination date of any new allocation agreements.

Alternative 2 nearly equalizes the Federal and Mid-Columbia Canadian Entitlement delivery obligation.

### **Alternative 3 - Entitlement Allocation: 70 percent Federal, 30 percent non-Federal**

Alternative 3 represents the percentage of generating capability of the Federal and Mid-Columbia projects. Alternative 3 assumes that for each unit of water released from Treaty storage, the Federal projects are capable of generating approximately 70 percent of the Canadian Entitlement, and the Mid-Columbia projects about 30 percent.

The allocation in Alternative 3 most closely matches the relative generating capabilities of the downstream hydroelectric projects.

### **Alternative 4 - No Agreement**

This alternative assumes that the Federal parties and Mid-Columbia project owners are unable to reach agreement on allocation of the Canadian Entitlement. In this case, the United States Entity would exercise its authority under Article XI of the Treaty and condition the Mid-Columbia project owners' use of the improved stream flows resulting from the Treaty storage.

The United States Entity would employ rulemaking to set the percentage of Canadian Entitlement generated at the Mid-Columbia projects so the non-Federal project owners contribute equitably for benefits received from Canadian Treaty storage. The analysis used in any rulemaking to determine the Mid-Columbia projects' percentage would be the analysis used in Alternatives 1 through 3. The percentage determined in any rulemaking would be within the range examined in Alternatives 1 through 3.

Alternative 3 is essentially the same as the CEAEA allocation of 72.5 percent Federal and 27.5 percent non-Federal that has been proposed by the Administrator and the Mid-Columbia project owners.

## **4. Environmental Analysis**

In order to evaluate potential environmental effects of these alternatives for allocation of the energy component of the Canadian Entitlement obligation, a version of the System Analysis Model (SAMII) was used. SAMII is a monthly energy model that simulates the Pacific Northwest hydroelectric and thermal power systems. The SAMII simulates the actions of Federal, investor owned, and public utilities. The alternatives were analyzed using 200 simulations for each year, with random water conditions selected from the 50-year stream flow record (1928-1978). For energy analysis, expected values of stream flows at The Dalles Dam and elevations at Grand Coulee, Libby, and Hungry Horse were examined. Flows at The Dalles were used because of their importance for the migration of anadromous fish. The reservoir elevations were used because of their importance for cultural resources, recreation, and resident fish.

Environmental impacts potentially resulting from the allocation of the Canadian Entitlement capacity obligation were examined by analyzing the stream flows required to generate the entire capacity Entitlement obligation. Assuming that the entire Canadian Entitlement capacity obligation would be borne by the hydropower system allowed the maximum environmental effects on stream flows to be evaluated.

Potential hydrosystem impacts were evaluated by analyzing the changes in hydrosystem operations for the alternative allocations. None of the allocation alternatives were expected to influence hydrosystem operations.

## **5. Environmental Effects of the Alternatives**

The analysis showed that the allocation alternatives had virtually no impact on Columbia River flows or reservoir elevations. There is also no change in project operation. All of the alternatives are consistent with the SOS selected in the February ROD. Therefore, there is no significant environmental difference among the alternatives. (See SOR EIS; Appendix P, Table of Elevations and Outflows.) Any of the allocation alternatives can be considered the environmentally-preferred alternative.

## **6. Decision Factors**

The purpose and need identified in a Final EIS are used as decision factors to evaluate alternatives. The underlying need to which the SOR EIS was responding was to review the multipurpose management of the Columbia River system. One of the four actions in meeting this overall need was renewing the current CEAA or developing new allocation agreements. The stated goal for the new allocation agreements is to equitably distribute the Canadian Entitlement obligation between the downstream Federal and non-Federal parties that benefit from the upstream Canadian Treaty storage dams.

The EIS identified three categories of purposes to be used in balancing the multiple uses of the Columbia River system--resource purposes, institutional purposes, and legal/regulatory purposes. The purposes applicable to the CEAA decision were included as the decision factors.

- **Provide an economic and reliable power system.** Allocating the Canadian Entitlement obligation between the Federal and Mid-Columbia projects ensures that the Federal system is not burdened with generating or procuring additional power to meet a delivery obligation that exceeds its fair allocation and to meet native load requirements.
- **Provide an environmentally sound power system.** Selecting an alternative with fewer environmental impacts resulting from operation of the hydropower system is an important consideration.
- **Develop an allocation of the Canadian Entitlement obligation that is acceptable to both the Administrator and the Mid-Columbia project owners.** Any alternative allocation must adequately reflect both the Federal and non-Federal Canadian Entitlement obligation.

## **7. The Administrator's Decision Regarding the Preferred Alternative**

The preferred alternative in the Final EIS was Alternative 3 - Entitlement Allocation: 70 percent Federal, 30 percent non-Federal. Because this alternative is based on the percentage of downstream generating capacity, it most closely represents the actual allocation of Canadian Entitlement between the Federal and Mid-Columbia projects. It also mostly closely reflected the expected outcome of the discussions between BPA and the Mid-Columbia project owners.

Alternative 3 - Entitlement Allocation: 70 percent Federal, 30 percent non-Federal is consistent with the proposed CEAEA. It is also consistent with the purposes of action:

- **Provide an economic and reliable power system.** Alternative 3 is a cost-effective alternative. It ensures the Administrator's obligation is not inflated and protects the Administrator from having to generate or procure additional power to meet a delivery obligation that exceeds BPA's fair allocation and to also meet native load requirements.
- **Provide an environmentally sound power system.** There are no changes in elevation or discharge for the Federal hydroelectric projects and no differences in the operations of the projects.
- **Develop an allocation of the Canadian Entitlement obligation that is acceptable to both the Administrator and the Mid-Columbia project owners.** This alternative most closely reflects the proposed CEAEA that was the outcome of the discussions between BPA and the Mid-Columbia project owners.

The allocation in Alternative 1 was eliminated because it placed an unreasonable share of the Canadian Entitlement on the Federal projects and there was no technical basis to justify the disproportionate allocation. The allocation in Alternative 2 could not be supported by the relative generating capabilities of the downstream hydroelectric projects and was contested by the Mid-Columbia project owners. Selection of Alternative 2 would have required the Administrator to use rulemaking to implement. Alternative 4 was not selected because it was a last resort alternative to be used if the Administrator could not reach tentative agreement with the Mid-Columbia project owners on an agreeable allocation.

Therefore, the Administrator has decided to extend the Mid-Columbia projects' obligation and establishes their allocation to be 27.5 percent of the Canadian Entitlement.

Issued in Portland, Oregon on: April 29, 1997.

/s/ Randall W. Hardy  
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Administration, and  
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