

July 31, 1984

ISSUE PAPER
HYDROELECTRIC ASSESSMENT STUDY

ISSUE: Should the Council approve the proposal for a hydroelectric assessment study described in Attachments 1 and 2 as the basis on which the Council will designate protected areas, rank hydroelectric sites (including an interim ranking) and develop a hydropower supply curve?

INTRODUCTION

The attached issue paper describes a proposal for a hydroelectric assessment study which would help the Northwest Power Planning Council accomplish three objectives under its Columbia River Basin Fish and Wildlife Program and Northwest Conservation and Electric Power Plan.

First, the study would provide information to help the Council designate areas to be protected from hydroelectric development in the Columbia River Basin. Second, it would provide the Council with information to be used in the hydropower site ranking process described in the Power Plan. Third, it would provide the information on environmentally-sound hydroelectric sites which the Council needs to improve the "hydropower supply curve" it uses in its Power Plan to project the amount of hydropower likely to be available to the region in the future. In each

case the Council would consider information from this study of environmental values along with information on hydropower potential provided by other studies before making its decisions on protected areas, site ranking, and hydropower supply.

The hydroelectric assessment study proposal is based on the work of the Council's Hydropower Assessment Steering Committee (HASC) and Rivers Assessment Task Force (RATF) with the assistance of the Council staff and the National Park Service. HASC is composed of 16 members representing states, federal agencies, developers, utilities, and Indian tribes and has been meeting twice monthly since October 1983 to work on this proposal. RATF is composed of 19 members representing local governments as well as the aforementioned groups and has been meeting since May. Both groups meet in public and already have heard extensive public comments on their work.

The study proposal is outlined and analyzed in the issue paper and described in detail in Attachments 1 and 2. The proposed budget and schedule for the proposed study also are included. Major alternatives to the proposal are described as well.

The Council will accept written comments on the issue paper through 5 p.m. Tuesday, August 14. Comments should be addressed to Peter Paquet, Manager, Project Operations and Development, at 700 S. W. Taylor Street, Suite 200, Portland, Oregon 97205. Oral comments will be taken at the Council meeting on August 9 in Kalispell, Montana and at the HASC/RATF meeting at 9 a.m. on August 14 in Portland, Oregon. The Council staff will review the comments and recommend a Council decision on the study proposal at the Council's August 29-30 meeting in Portland.

BACKGROUND:

It is important for the Council to develop an overall approach to assess the hydropower potential of the region and to ensure that its development will be consistent with the Council's responsibility to protect, mitigate and enhance the fish and wildlife resources of the Columbia Basin.

Measure 1204(c)(1) of the Council's Fish and Wildlife Program calls on Bonneville, upon approval by the Council, to conduct a study which will provide the basis for designating certain streams and wildlife habitat in the Columbia River Basin to be protected from future hydroelectric development. Based on the results of that study, the Council, pursuant to Measure 1204(c)(2) of the program, will designate such protected areas. Action item 14.2 of the Council's Northwest Conservation and Electric Power Plan states that the Council will design a study to identify and rank potential hydropower sites throughout the region based on fish and wildlife concerns. Action item 14.3 calls on the Council to continue its efforts to refine the data base on existing and potential hydropower sites that are environmentally sound and cost effective. The HASC was established by the Council to advise the Council on the coordination of these actions.

In April and May of this year, the Council staff presented to the Council a draft prospectus for carrying out a Northwest rivers assessment study. As a result of these presentations, the Council authorized the formation of the Rivers Assessment Task Force (RATF) and directed it to develop a work plan for a river assessment study that would meet the Council's needs for supply curve estimates, site ranking and protected area designation.

Over the last two months the RATF, in consultation with the HASC, has identified various steps and options likely to be necessary to meet the Council's needs as defined in the Fish and Wildlife Program and the Power Plan. This issue

paper provides a synthesis of these steps and options.

BUDGET/ECONOMIC IMPACTS

The proposed maximum cost of this study is \$1.2 million. Of that amount, \$243,000 is expected to come from FY 1984 Council funds already budgeted for hydro assessment studies. The remainder would come from Bonneville funds that have been budgeted for a protected areas study and for supply curve estimates. A breakdown of expenditures is detailed in Attachment 1.

ANALYSIS

The policy issues that need Council action at this time to initiate the hydro-electric assessment studies are described below.

A. Protected Area Designation and Site Ranking.

For anadromous fish, the proposed study would characterize stream reaches on the basis of their productivity. The data for this characterization would be provided by the fish and wildlife agencies and tribes. HASC would ensure consistency of the data. Once productivity has been established, the Council staff would review the data and prepare recommendations to the Council on alternative uses of that data to establish "break points" for designating protected areas and for ranking hydropower sites among the three categories specified in the Power Plan.

For resident fish and wildlife the process described below under "Hydro Supply Curve" would be used to provide the data which again would allow the Council staff to recommend alternative "break points" for protected areas and site ranking.

Alternatives to characterizing the value of rivers to anadromous fish based on productivity include:

1. Make the policy decision now that until past damage by the hydro

system is corrected, no new hydro should be developed on streams with anadromous fish, either currently or potentially. The advantage of this approach is that it ensures that no options to protect, mitigate or enhance the anadromous fisheries of the Columbia River Basin would be foreclosed by new hydrodevelopment. This kind of decision would preclude essentially any new hydroelectric development on the Columbia River and its tributaries for an indefinite period of time. It is conceivable that nothing ever could be developed if past damage by the hydro system cannot be corrected. Following this approach, no recognition would be given to specific project types, some of which may have no impact or positive impacts on fish and wildlife.

2. Adopt criteria for Categories I, II, and III as proposed, or as modified, then allow fish and wildlife agencies and tribes to apply the criteria. This alternative would provide a rapid method for categorizing proposed projects. However, it would be difficult to develop criteria for Category II sites (sites which have significant impacts on fish and wildlife that can be mitigated) without having some sort of review process for evaluating individual projects.

3. Simply ask the fish and wildlife agencies to use their judgment as to the significance of each stream reach for anadromous fish. This alternative is analogous to the process used by the agencies and tribes in making their original recommendations to the Council for protected areas. It has the advantage of being rapid and inexpensive, but it likely would result in non-uniform recommendations which would not be based on common criteria.

B. Interim Report on Project Ranking.

The above action will not be completed for a year or more. In the interim, the Federal Energy Regulatory Commission (FERC) and developers will be making

decisions on new hydro projects. Some of these decisions may foreclose further Council action, particularly for anadromous and migratory resident fish where a project may have an impact beyond its immediate area. Therefore, it may be useful for the Council to make an interim statement on new hydro.

There is disagreement about how interim ranking should be accomplished. Originally the HASC tried to reach consensus on criteria which would further distinguish between sites which have insignificant impacts (Category I) and those that have significant impacts (Category III). Attachment 2 lists criteria based on proposals by HASC members. The difficulty with Attachment 2 is largely that Category III is imprecise as to what levels of habitat loss or downstream migrant loss is acceptable.

As an alternative, the Pacific Northwest Utilities Conference Committee (PNUCC) suggested that fish and wildlife agencies and tribes apply the criteria of Attachment 2 to identify only those sites which are acceptable for development (Category I). It was implied that in the interim no Council statement would be made about non-Category I sites. Fish and wildlife agencies believed that this approach was not equitable because, while sites were open for development, no commitment was made to BPA to protect sensitive habitat, for example.

A third alternative contained in the proposed study would apply only the criteria for Category I sites listed in Attachment 2 to identify Category I sites, i.e., those hydro projects which the Council believes can be developed without further study of their impacts on anadromous and migratory resident fish. The proposed criteria are conservative in that they probably overprotect the anadromous and migratory resident fish resources. It is anticipated that the study described above will identify additional Category I sites.

The Council staff believes that simply identifying Category I sites alone on

an interim basis may be insufficient without a statement about other stream reaches which contain anadromous or migratory resident fish. It recommends that the Council should state that development of Category I sites will not adversely affect anadromous and migratory resident fish. Development at other sites should not proceed until completion of the above study to identify protected areas and each site. The staff also proposes that at the time the Council adopts an interim ranking, it should also request that FERC provide an extension of preliminary permit and license applications until the Council completes its broader study. In addition, the staff believes the Council should state that the interim ranking will expire one year after adoption whether or not the broader study is completed.

ALTERNATIVES

1. No interim ranking. This is attractive because power and fish interests cannot reach agreement, and the Council otherwise would be placing itself between these groups to solve a problem which will have to be addressed with once again in one year at the end of the Hydroelectric Assessment Study. The argument against the no action alternative is that the Council will have existed for nearly five years before providing clear guidance for new hydro development.

2. Identify developable sites only. This approach may demonstrate to developers that some new hydro can be built. However, fish and wildlife interests are given no equivalent assurances that fish and wildlife resources will be protected.

3. Adopt but not apply criteria. The Council could adopt the proposed criteria and let others use them as a means of choosing suitable projects. However, other than Category I, criteria themselves are controversial; thus, greater consensus is not achieved. Further, each group could apply the criteria differently which would result in no clearer direction to FERC.

4. Ranking by fish and wildlife agencies and tribes of all sites into Cate-

gories I through III. The difficulty with this approach is that criteria are not agreed upon sufficiently to avoid widely varying judgments. Without unequivocal criteria, it would be difficult for agencies and tribes to allow hydro development on anadromous and migratory resident fish streams.

C. Hydro Supply Curve.

A realistic estimate of hydropower development will be developed by identifying the electrical capability and cost of all protected hydro projects in the Northwest (to be supplied by work currently underway by the Corps of Engineers, the Bonneville Power Administration, and the Council), then reducing this estimate by an amount consistent with the Council's designation of protected areas and site ranking. The estimate will be reduced further by actions of federal land managers (Bureau of Land Management and U. S. Forest Service), licensing agencies (federal, state and local), resource managers (fish and wildlife, historic and archeology, recreation, etc.), and the public. The purpose of this portion of the Hydroelectric Assessment Study would be to evaluate the impact of the decisions of these entities on hydro availability. The Council would use this information to obtain a realistic estimate of hydropower; it would not substitute its judgment for that of the other decisionmakers on whether a resource could be developed.

The process for collecting the views of the decisionmakers has three elements: (1) The states would compile, but not screen, the views of all the institutional decisionmakers; (2) Decisionmakers would be asked to respond in a way that allows interstate comparisons; and (3) The public would be asked to participate in Council hearings held jointly with the decisionmakers.

Step 1 envisions a state-managed approach. Two exceptions are proposed -- anadromous fish would be treated regionally. So would Indian cultural values. Be-

cause Indian cultural values are unique and sensitive, the staff believes they should be considered by direct arrangement with the Council.

Step 2 would ask each decisionmaker to identify the significance of each stream for several river values as is appropriate to the responsibility of each. River values to be considered would be institutional (e.g., Wild and Scenic Rivers), resident fish, wildlife, recreation, cultural (e.g., historic and archeological), and natural features. The net result of information from all decisionmakers would be one or more statements about the significance of each river value for each stream. From this data the Council can judge the likely impacts on hydro development.

An alternative to the state-managed approach (except for anadromous fish and Indian cultural values) would be a regional approach. The tribes and some federal agencies have indicated that they prefer this approach. However, the staff believes that, except for anadromous fish and Indian cultural values, the other resources that are proposed for study are for the most part under control of the states, and therefore, the staff believes it is appropriate that the states make recommendations to the Council.

ALTERNATIVES

The above allows the Council to address new hydro development. Alternatives to the above include:

1. No action. This alternative appears to be unsatisfactory since the Council needs to address the role of new hydro, both in terms of fish and wildlife impacts and as a new energy resource.

2. Rely on the original recommendations of the fish and wildlife agencies and tribes for protected areas. The Council already rejected these recommendations based on the fact that they were incomplete and not based on a uniform

approach.

3. Site-by-site approach. Following this alternative, the Council would do a detailed analysis of each proposed and potential hydro site identified in the Regional Data Base. This does not appear to be feasible due to the large number of sites (over 2,000) and the cost that would be involved.

D. Relationship to other Council studies.

The Council has called for a "goals" study (Program Section 201) and a cumulative impact study (Section 1204). Neither of these studies has been initiated, so it is not possible to ensure that the Hydroelectric Assessment Study is consistent. However, the Hydroelectric Assessment Study has been designed so that it stands independent of whether these other studies proceed and so that it can be adjusted to be compatible with a range of possible approaches to these other studies.

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PROPOSED CRITERIA TO BE USED
FOR RANKING HYDROELECTRIC SITES

Category I. Sites at which the construction and operation of hydro-power facilities will have insignificant adverse effects on fish and wildlife population and habitat.

A. Sites upstream of existing un-laddered storage projects with no potential for future fish passage facilities and no existing migratory fisheries and not causing adverse impacts to areas previously designated as contributing to mitigation for other existing hydroelectric projects.

B. Undeveloped sites outside the migration limits of anadromous and resident fish where development will not jeopardize the continued use of fish or wildlife at or downstream from the site.

C. Projects which would utilize an existing water conveyance (pipeline, canal, flume, etc.) and be developed as an in-line conduit project without changing the period of operation associated with the primary use, periodicity or volume of flows in the affected stream or water quality of the affected stream.

D. New powerhouses at existing storage dams which have no fish passage facilities and no potential for fish passage facilities and where operation of the project will have no adverse impact on downstream fish and wildlife.

Category IIA. Sites at which the construction and operation of hydro-power facilities will have significant adverse effects on fish and wildlife

populations and habitat but which may be reduced to an insignificant level by development and implementation of proven mitigation techniques.

A. Projects which have been reviewed by the appropriate fish and wildlife agencies and where all such agencies certify in writing that the conditions of development found at Section 1201(a) and (b) of the Columbia River Basin Fish and Wildlife Program and Appendix E of the Regional Conservation and Electric Power Plan have or can be met by the proposed project and that no cumulative impacts are expected from project construction or operation.

B. Projects that would provide significant anadromous fish, resident fish or wildlife enhancement which outweighs losses and which are consistent with the management objectives of the fish and wildlife agencies and tribes. Potential cumulative impacts must be identified and mitigatable, with the responsible parties and the role of each identified.

Category IIB. Projects for which site specific or cumulative impacts are not clearly determinable now. Additional information will be required to determine which of these projects would be reclassified as Category I or Category III projects.

Category III. Sites at which the construction and operation of hydro-power facilities will have significant adverse effects on fish and wildlife populations and habitat which cannot be reduced satisfactorily because of the critical nature of the habitat or populations affected, the lack of proven mitigation techniques, expense and delay, or any other reason.

A. Projects which would impact threatened or endangered species of fish and wildlife or their critical habitat.

B. Projects that would block anadromous fish or a significant migratory resident fish routes or inundate spawning or rearing areas.

C. Run-of-the-river projects that divert flow volumes that are too large to screen so as to provide full protection to juvenile fish.

D. Projects for which fish passage is infeasible.

E. Projects that divert water from stream channels without allowing adequate flows for fish production, fish passage, or a fishery.

F. Projects with reservoirs which cause stored water to warm excessively, create adverse temperature changes downstream, degrade desirable fish habitat through the gradual accumulation of sediment, make desirable fish habitat unuseable by unacceptably reducing river velocities or provide habitat suited to undesirable fish species.

G. Projects which would inundate wildlife fawning, rearing, nesting, and wintering ranges or migration routes which are necessary to sustain local and migratory populations.

H. Any project which proposes to use off-site mitigation to compensate for fish and wildlife losses resulting from project construction or operation.

I. Any project which proposes to use stocking or planting of hatchery reared fish to mitigate losses to anadromous or resident fish populations or habitat resulting from project construction or operation.

J. Any project that does not satisfy all the conditions of development found in Section 1201(a) and (b) of the Columbia River Basin Fish and Wildlife Program and Appendix E of the Regional Conservation and Electric Energy Plan.