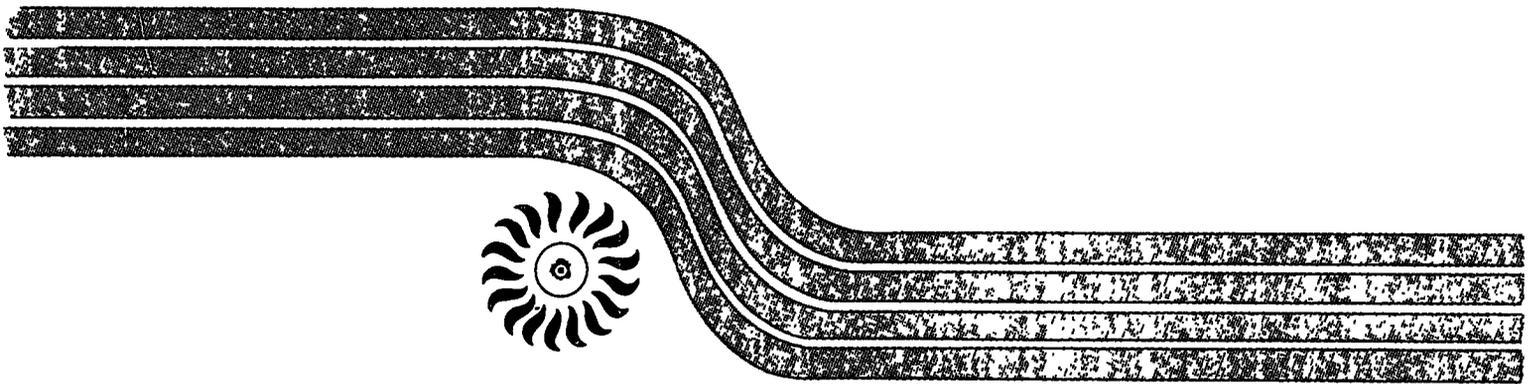


**National
Hydroelectric Power
Resources Study**

Volume V
March 1981



**Legal and Institutional Aspects
of Hydroelectric Power
Development and Operation**

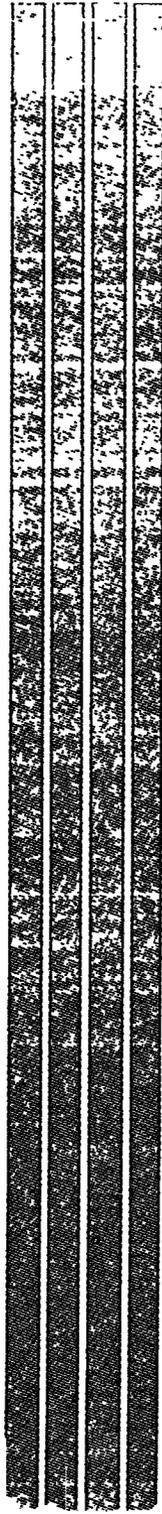
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NATIONAL HYDROELECTRIC POWER RESOURCES STUDY
LEGAL AND INSTITUTIONAL
ASPECTS OF
HYDROELECTRIC POWER DEVELOPMENT
AND OPERATION

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FOREWORD

Until the work of river improvement is undertaken in a modern way, it cannot have results that will meet the need of this modern nation. These needs should be met without further dilly-dallying or delay. The plan which promises the best and quickest results is that of a permanent commission authorized to co-ordinate the work of all Government departments relating to waterways, and to frame and supervise the execution of a comprehensive plan. Under such a commission the actual work of construction might be entrusted to the reclamation service; or to the military engineers acting with a sufficient number of civilians to continue the work in time of war; or it might be divided between the reclamation service and the corps of engineers....The essential thing is that the work should go forward under the best possible plan, and with the least possible delay. We should have a new type of work and a new organization for planning and directing it. The time for playing with our waterways is past. The country demands results.

--President Theodore Roosevelt, December 3, 1908¹

Theodore Roosevelt's words have a familiar ring, only now they apply equally to energy and water. The problem he identified in 1908, although ostensibly solved by the Federal Water Power Act of 1920,² is still with us. Although the 1920 Act provided a comprehensive framework for planning and developing waterways, that framework has become splintered into many fragments and has been layered over with new types of regulation that represent changing social values. Finally, the recent push for renewable energy development has put new strains on an already overburdened governmental framework, stimulating calls for "reform". This study examines the problems, needs, and opportunities for reform that can help encourage hydropower development without undermining the competing social values that have been articulated in the 60 years since the Federal Water Power Act of 1920.

This legal/institutional policy study is designed to provide guidance to decisionmakers in the executive and legislative branches of the federal government concerning the legal framework within which hydropower expansion will be conducted. Because this analysis is national in scope, it is necessarily general, particularly in its treatment of state law issues. With respect to federal law, there is only one system to describe, while there are fifty state systems.

There are several caveats in order. First, hydropower is by its physical nature a resource that must be analyzed in depth at a site-specific level. The prominent legal and institutional factors involved may be somewhat different at different sites, especially where federal authorizations are involved. Second, the role played by hydropower in water resource planning and energy supply will vary from state to state and region to region, depending on such factors as water availability, competing uses, environmental constraints, and energy mix. These varied conditions are expressed in state law and administrative practice, interstate compacts, and federal legislation authorizing

specific projects. This report cannot comprehensively describe all of these unique situations, but it will attempt to outline significant types of regional and state law variations. Third, attempts to generalize on a national basis about institutional behavior are inherently risky because the same institutions may not behave the same way in different parts of the country.

In recognition of the inherent limitations in this type of study, we have focused on federal law, which is uniform, and we have discussed state law systems to the extent necessary in order to analyze the relationships between state and federal law. Where appropriate, we have attempted to highlight significant regional differences that affect specific subject matter under discussion.

The primary purposes of this study are as follows:

1. To present recommendations and options for change and to analyze them in light of the conclusions reached in subsequent chapters of the report.
2. To identify and describe the legal and institutional policy framework of hydropower development and regulation.
3. To analyze the basic differences between federal and non-federal development processes and their application to different types of sites.
4. To analyze the impact of various forms of environmental regulation on hydropower development.
5. To analyze federal-state and regional issues that impact upon hydropower development.

The structure of the five chapters of the body of this report reflects these five purposes. Detailed descriptions of certain key aspects of the institutional framework have been placed in Appendices to make the overall report more readable. These appendices are designed to provide factual information supporting the analysis contained in the body of the report.

It should be noted that the subject matter of this report is changing continually, particularly in the field of non-federal development. The authors expect this flux in the institutional framework to continue in the coming months and years and to include new developments in federal development policies, environmental regulation, and federal-state relations. Indeed, in the short time that elapsed between completion of the draft and final versions of this report, the Pacific Northwest Electric Power Planning and Conservation Act was passed and FERC promulgated important new rules streamlining licensing and exempting small dams from licensing. The reader is cautioned that this report should be considered to be current only as of February, 1981.

¹Quoted at 32 Iowa L. Rev. 339, fn. 1 (1947).

241 Stat. 1063 (1920), 16 U.S.C. § 791 et seq. (1976).

LEGAL AND INSTITUTIONAL ASPECTS OF
HYDROPOWER DEVELOPMENT AND OPERATION

EXECUTIVE SUMMARY

I. The Legal and Institutional Context for Hydropower Development

The legal and institutional context for hydropower development is shaped by four major roles that law and government play in societal decision making. These roles correlate with specific decisions that any developer or regulator must make concerning a particular project or development program.

First, legal institutions set the context for deciding who among the large numbers of possible developmental entities will have the opportunity to develop a given site. This decision is influenced by the law of property and by the overlay upon that law created by the licensing provisions of the Federal Power Act. This is the process of allocation of the right to develop the resource.

Second, the process of deciding whether a particular site may be developed allocates the resource itself. The legal and institutional framework for this decision consists of a multitude of laws, mostly designed for choosing between competing uses and protecting the environment, which interact in a highly fragmented way to affect the decision as to whether to develop and how to mitigate adverse effects. The federal licensing process, insofar as it coordinates these laws, also performs the function of deciding whether to develop a site, a function which can be separated analytically from the decision as to who receives the right to develop a site.

Third, a complex set of federal and state institutions determine how to market the output of the facility. Electric utilities are pervasively regulated because of their "natural monopoly" characteristics, and the nature of that regulation will affect resource development.

Fourth, public expenditures through loans, grants, tax incentives, technical assistance, and public works construction affect resource development. Power marketing arrangements and public expenditures play a crucial role in securing the financing necessary to develop the hydropower resource. Of course, the rising market price of alternative sources of energy is also a crucial determinant.

This report examines in detail the first two concerns, the choices of who may develop and whether a site may be developed. The effects of power marketing options and of public expenditures on these two concerns have been integrated into the analysis. This executive summary will provide a capsule description of the institutional system, its problems and its opportunities for improvement. The focus will be on the developmental and regulatory mechanisms of the federal government and on the non-federal development process. The roles of state law and of regional entities will also be discussed.

II. Federal and Non-Federal Development Mechanisms

At the outset, it is important to note that the American institutional system puts the decision as to who may develop the site before the decision as to whether that site may be developed. This is because a development entity must undertake the development process before a specific site comes under scrutiny regarding its suitability for development. It is therefore common for a developer to commit resources to securing a site before knowing whether development will be permitted or whether the conditions under which development will occur will be highly burdensome or prohibitive.

There are two routes development may take: (1) development by a federal water project construction agency under an Act of Congress, or (2) development by a non-federal developer, private or governmental, under a federal license. Recently, an alternative route, non-federal development under a license exemption, was also created. These two principal development processes occur independently of one another with little co-ordination or deliberate allocation of sites to one process or the other. Historically, federal development projects have been large, multi-purpose dams where hydropower was an incidental purpose. Non-federal development has generally been for smaller projects where power generation is a primary purpose. The institutional arrangements in the two processes differ significantly.

Federal development is performed by the two major dam construction agencies, the Army Corps of Engineers (Corps) and the Water and Power Resources Service (WPRS or BuRec.)* The Tennessee Valley Authority (TVA) has constructed significant hydropower facilities in the past, but is unlikely to do much more in the future. TVA's development process is far more streamlined than that of the Corps and WPRS, due to the sweeping powers granted to TVA by Congress.

The Corps and WPRS must follow a lengthy planning and approval process. This process involves exhaustive planning studies required by the Principles and Standards and Procedures of the Water Resources Council, multilevel agency review, and submission of plans to Congress for authorizations and appropriations at several stages in project development. The net result of this lengthy process is that lead times for federal projects are significantly longer than for non-federal projects. This greater lead time is due in part to the fact that the projects are typically larger and more complex, and involve multiple purposes and direct appropriations from the U.S. Treasury. Although much of this money is ultimately repaid through sales of water and power, direct "on-budget" expenditures require congressional appropriation while individual "off-budget" tax expenditures to the private sector do not.

*When this project was commenced the Bureau of Reclamations's name had just been changed to Water and Power Resources Service. Just after this report was finished, the name was changed back to BuRec. The acronym WPRS has been used throughout this report, reflecting the name of agency at the time of writing.

The federal development process is only governed by state law to the extent federal law requires such compliance. Congressional authorizations require federal agencies to follow state property and water law and the federal Clean Water Act makes state water quality law applicable to federal projects. With these limited exceptions, the federal government can pre-empt state and local law. However, the delicate balancing of federal-state relationships creates a political check on the use of federal power to force federal development. Generally, local support and leadership from state leaders and Congressmen is necessary for Congress to support a federal project. Local governments must also share in the cost of the facility to a limited extent.

Power produced at federal projects is marketed through the power marketing agencies at low cost with preference to public and co-operatively owned utilities. Thus, public power entities have a particular stake in federal development while investor-owned utilities may benefit more from non-federal development.

The principal avenue for environmental review and court challenge to federal projects is through the National Environmental Policy Act's (NEPA) Environmental Impact Statement (EIS) process. Since Congress specifically authorizes federal projects they are difficult to attack under other laws also passed by Congress. While there is a multitude of environmental laws that apply to federal agencies, the most common avenue of judicial challenge is through the EIS. Courts will review the EIS for its adequacy in showing agency concern for a wide range of factors involving the natural and human environment. Federal projects cannot be reviewed "on the record" of an administrative proceeding as occurs in the non-federal process, because there is no independent federal regulatory body that reviews federal projects in the manner that non-federal projects are reviewed by the Federal Energy Regulatory Commission (FERC).

Non-federal development is regulated by a larger number of government entities at all levels. This process is co-ordinated and "funneled" through the licensing process of FERC. Under the Federal Power Act (FPA), FERC has jurisdiction over almost all hydroelectric projects built in the United States. In order for a developer who is not a federal agency to construct a hydroelectric project, he must obtain a license or exemption from licensing from the FERC. A developer may apply for a preliminary permit which secures the exclusive right to study a site and gives the applicant preference when seeking a license to construct. Under current FERC regulations, as between equally suitable preliminary permit applications, the first in time to apply receives the permit. In this manner FERC decides "who gets" the site. However, as between a municipality or state agency developer and a private developer, the governmental entity receives a statutory preference to the right to develop. Permit and license applicants need not have a property interest in the site. Should they be awarded a license, the Federal Power Act permits them to use the federal power of eminent domain to acquire the property interests necessary to develop the site.

This unusual power to override state property law was originally intended as an anti-monopoly measure to keep large private utilities from

monopolizing the resource. This rationale is no longer valid since electric utilities are now pervasively regulated and hydropower site ownership is no longer the basis for electric utility monopoly status. The power to decide who gets the site may still be a way to help insure expeditious development of the resource, but is it no longer needed to promote competition in the utility industry.

In 1978 and 1980 certain limited exemptions from FERC permitting and licensing were enacted for certain sites 5 MW and under and for conduit hydro of 15 MW or less. These exemptions hold the promise of streamlining the process of developing these parts of the resource base, provided that state law mechanisms can adequately discharge necessary responsibility and that appropriate federal environmental review can be managed efficiently. As presently written, the 5 MW exemption provides for less flexible environmental review than that involved in licensing.

The FERC licensing process involves extensive environmental review as well as analysis of the engineering and financial aspects of the project. An integral part of the licensing process is extensive interagency co-ordination, both with other federal agencies and with state, regional, and local entities. Sometimes this co-ordination process creates conflicts which may impede the expeditious grant of a license. However, the status of FERC as the "coordinating" agency helps pull divergent interests together into one proceeding for more efficient conflict resolution. FERC's status as the coordinating agency has never been questioned, but conflicts have developed with other agencies over such issues as who has final authority to grant dredge and fill permits (FERC or the Corps), to issue right-of-way permits over federal lands (FERC or the land management agencies), and to set streamflow conditions (FERC or other agencies that regulate waterways, such as River Basin Commissions created by compact, state water resources agencies, or the U.S. Fish and Wildlife Service).

FERC licensing decisions are subject to both the EIS process and judicial review of the agency decision. Courts may overturn a FERC decision if it is not based on substantial evidence or does not comport with the vague standard FERC must apply in reaching a decision, i.e. that a licensed project must be consistent with the plan best adapted to the comprehensive development of the waterway. Non-federal developers are also subject to a multitude of regulatory obstacles at the state and local levels. While FERC has the power to pre-empt state law it does so only rarely. Normally, FERC requires the applicant to satisfy all provisions of state law before a license may be granted.

FERC has recently undertaken important reforms to streamline the licensing process and better tailor it to the size and environmental impact of the project. These reforms include shorter license applications that reduce documentation requirements for developers of small projects and of projects at existing sites, certain licensing exemptions for projects of 5 MW or less, and internal reforms designed to speed up the review of applications. See Table on p. III-21,22.

Financing projects is a crucial aspect of non-federal development because hydropower is highly capital intensive. There are several

problems developers face in financing projects. Utility developers have had increasing difficulty gaining access to capital through their traditional financing methods. For developers that are not utilities, the key problems involve the initial cost of the licensing process which must be borne whether or not the project is ever approved and built, and the intricacies of negotiating the power purchase contracts with utilities that are often necessary in order to secure debt financing. The licensing loan provisions of Title IV of the Public Utility Regulatory Policies Act (PURPA) (which are not presently funded) helped solve the first problem. Title II of PURPA, which requires utilities to buy power from qualifying small hydropower producers at rates that reflect the marginal cost of electricity, is helping to spur the negotiation of power purchase contracts. Since the principal security for a loan to a hydropower facility is the stream of revenues from the power produced, lenders and investors need assurances that the power will be purchased at a rate that guarantees repayment of debt and provides a return on equity commensurate with the risk taken by the investor. The 21 percent investment and energy tax credits for hydropower created by the Crude Oil Windfall Profits Tax of 1980 (COWPTA) have done a great deal to spur investor interest in small hydropower. COWPTA also makes low-interest debt capital available to public developers in certain circumstances, thus subsidizing publicly developed small-scale hydropower as well.

The principal differences between federal and non-federal development relate to relative lead times and the different institutional actors involved. Federal development generally takes longer to move through the design and approval process. Non-federal development can proceed more quickly, especially for small sites, through expedited licensing or exemption procedures and by using private financing. While federal development may be more appropriate at large sites, where the multiple use benefits can be captured through the federal planning process, to get power on line quickly at small sites, the non-federal route appears to be more expeditious.

The issue of non-federal development at federal sites (locks, irrigation dams, etc.) is one that the federal development agencies must resolve. Their policy is to co-operate with non-federal developers, but many developers appear to have problems in resolving issues of shared use of federal facilities. Non-federal developers can bring these sites on line more quickly than the federal agencies under current law. The federal owners must impose requirements on project operations to assure that non-federal project operation is consistent with the authorized purposes of the federal project. The FERC licensing process is the forum currently used to resolve operational conflicts and assess fees. WPRS claims the right to assert a "falling water charge" independent of the FERC system for assessing the fee a developer must pay for use of the federal facility. This conflict poses an obstacle to developers seeking a clear signal concerning how much they will have to pay.

III. Environmental Regulation of Hydropower

Since the passage of the major laws regulating hydropower development, a plethora of regulation at the federal and state level has

developed to protect competing uses of waterways and environmental interests. While basic water law and the protection of navigation predate hydropower, the bulk of the regulatory framework has grown up in recent years in response to public desires to protect and enhance the environment. Many laws have been passed with specific, narrow objectives in mind and these laws overlap and sometimes conflict with one another. In addition, they are frequently duplicated at the state level. The result is a tangled web of regulations, each directed at specific objectives, but which as a system is a confusing and inefficient way to manage resources.

These criticisms of the environmental regulatory process apply to it generally, not just to the case of hydropower. In general, there is a need to tailor processes so that they are appropriate to the size and scope of a project, to streamline procedures, to eliminate unnecessary duplication and delays, and to ensure the finality of decisions to build a project and mitigate its impacts.

In the case of hydropower, the inflexibility of some regulations with respect to project size and impact can result in excessive regulatory burdens on small projects. The number of regulatory approvals required of small non-federal developers creates delay and reflects the duplication of functions among federal agencies and between state and federal agencies. The ability of project opponents to challenge repeatedly decisions made in one forum in other administrative or judicial forums adds uncertainty and delay to the process, e.g. when a FERC license is issued but the project is challenged for failure to get a dredge and fill or federal land right-of-way permit.

Notwithstanding these inefficiencies in the process, it is important to note that the regulatory process has important substantive goals which should be effectively achieved. These substantive goals are reflected in the brief descriptions of the laws which follow. (See also Figure 2 on pages II-10,11) As the system currently operates the focus on "procedure" over "substance" has resulted in unnecessary delays and inadequate environmental protection. A system which focused on substantive problems and effective conflict resolution might better serve the environment than the current tangled web of regulatory procedures.

States, through their basic property law of water, allocate water resources in the first instance. In the east, the "riparian" system has little impact on hydropower since it does not allocate specific quantities of water to users, but permits "reasonable use". Western systems, called "prior appropriation," allocate water to users in specific amounts according to specific terms and conditions. Depending upon the nature of the state system and its treatment of hydropower, these systems may or may not serve as incentives to hydropower development. They will have significance, however.

There are a number of overlays upon basic water law which affect hydropower development. Many of these laws have both federal and state law counterparts which sometimes work in tandem and sometimes at cross-purposes.

Interstate compacts allocate water among states and states then allocate this water according to their own systems. Federal "reserved" lands have water rights associated with them to ensure adequate water for the purposes for which the lands were reserved (e.g. national parks, forests, monuments, etc). Indian tribes have potentially vast claims to water and fishing rights according to the specific treaties they signed with the United States. These Indian treaty rights cast a cloud over all state water allocation systems, since most Indian treaty rights predate state allocations and therefore supersede state regulation. Indian treaty rights may play a significant role in the affected western river basins. There is currently a large amount of litigation pending which seeks to determine the scope of Indian water rights.

Public rights to navigation and safety are protected under federal and state law, through both judicial decisions and statutes. The pre-eminent law that seeks to balance all public interests in waterways is the Federal Power Act (FPA), which applies only to non-federal development. Various federal laws made applicable to federal projects also outline the environmental requirements federal projects must meet.

Important laws that apply to all hydropower projects built or licensed by the federal government include the National Environmental Policy Act (NEPA), Fish and Wildlife Co-ordination Act (FWCA), Clean Water Act (CWA), Wild and Scenic Rivers Act, Endangered Species Act, and National Historic Preservation Act (NHPA). NEPA is the most all-encompassing law and it attempts to bring together all environmental concerns through the Environmental Impact Statement (EIS) process. Other laws have a more narrow focus as their names indicate. Some, such as the Endangered Species Act, have considerable substantive power, while others (NHPA, NEPA, FWCA) primarily involve procedural consultation and taking "consideration" of environmental factors. Both the FPA and the FWCA require consideration of recreational interests in project decision making.

Another critical area of regulation of hydropower is the minimum flow release required of dams. These are subject to varying requirements under FWCA, CWA, FPA, Endangered Species Act, federal project authorizations and state water law. This confluence of different laws and agencies interacting on the same issue creates conflict. Similarly, fish passage requirements, also affected by a wide range of laws, create uncertainty and add costs to hydropower facilities. Flow regulation, which affects project operation and energy production, and fish passages, which affect capital costs, are conflict areas in which important public interests in energy and the environment must be balanced effectively.

The land use impacts of hydropower (e.g. flooding of bottomland) are often a crucial aspect of project opposition, yet they are not specifically accorded significant legal protection. People concerned about such impacts (loss of homes, farms, businesses) often assert their concerns using other legal tools, such as fisheries protection, water quality, EIS adequacy, etc.

IV. Regional Issues and Federal-State Relations

Hydropower is the type of resource most effectively regulated and developed at the river basin level. This means that state control is too limited and federal control too distant. Regional organizations, such as River Basin Commissions, are the best suited ideally to deal with hydropower. However, because these regional organizations lack a political constituency and therefore have little or no substantive power, they are not likely to take on this role for which they are a logical choice. Indeed, where they have become involved, they have sometimes become yet another layer of governmental authority involved with hydropower, further complicating the regulatory system.

The nature of our federal system requires both federal and state governments to protect their sometimes compatible and sometimes divergent interests. Federal-state relations, which vary in significance and focus around the country, are an important institutional factor in both expediting and retarding resource development. Various mechanisms can be devised to smooth the conflicts, but these conflicts are intrinsic to our governmental system.

A unique federal-state accommodation was recently enacted by Congress for the Pacific Northwest. A Planning Council composed of representatives of four states will plan the energy-environmental future of the region and control the electric power acquisition practices of the federal Bonneville Power Administration. The Council has substantive mandates to protect fisheries and also to favor renewable resources, including hydropower, over conventional forms of electrical generation. This experiment in federal-state relations and in integrated environmental-energy planning may create an opportunity to resolve some of the institutional problems confronting energy resource development in the Pacific Northwest. The experience in that region may also have some value to other regions which are grappling with similar problems using a more traditional institutional framework.

Chapter 1. RECOMMENDATIONS OF THIS REPORT AND A DISCUSSION OF IMPORTANT FINDINGS AND OPTIONS

An important and fundamental assumption of this report is that there will be some hydropower development in the United States in the next ten years. If the present activity is any guide to the future there will be development by non-federal developers of a large number of small, less than 25 MW, sites in the next few years.

The question addressed in this report is not whether to develop any hydropower but whether the hydropower that is or could be developed is developed by the appropriate entity and confronts a rational regulatory and institutional framework. The authors are confident in stating as general propositions that the process of selecting the appropriate development entity is quixotic and the regulatory and institutional framework is far from rational and in much need of reform.

This chapter will set forth recommendations to deal with the problems discussed in the latter part of the report. Each recommendation will be accompanied by a series of findings which support the recommendation and are discussed in the body of the report and appendices. The recommendations and their attendant findings will be discussed and policy options will be presented in order of preference.

The preference for the policy options is established by having the most preferred option being presented as the "First Option" with the remaining options presented in descending order of preference. Options are preferred on the basis of their cost, ease of implementation and perceived effectiveness in dealing with a problem.

The recommendations themselves track the chapters in the main body of the report. Accordingly, Recommendations 1 through 3 deal with the role of federal development agencies in hydropower development. This role is discussed in Chapter 3. Recommendations 4 and 5 deal with problems of non-federal development and the role of the Federal Energy Regulatory Commission. These problems are also discussed in Chapter 3. Recommendations 6 through 9 deal with special problems of environmental regulation of hydropower and these problems are discussed in Chapter 4. Recommendation 10 deals with problems of state, regional and federal relationships as discussed in Chapter 5. Recommendations 11 and 12 deal with the special relationship of the Indian tribes to the regulatory systems, agencies and institutions involved in hydropower development. Appendix 5 deals extensively with this subject.

Recommendation 1: CLEAR POLICIES AND PROCEDURES SHOULD BE ESTABLISHED WITH REGARD TO DEVELOPMENT OF EXISTING FEDERALLY OWNED SITES.

Findings:

- a. The United States Army Corps of Engineers (Corps) and the Water and Power Resources Service of the Department of Interior (WPRS), among the principal federal agencies, presently control approximately 400 sites on which there are existing structures and which presently generate power, are capable of generating power or should be studied for purposes of determining if they are capable of generating power.
- b. There is no uniform, federal policy with respect to development of these sites by non-federal developers or by the agencies charged with maintaining the sites. The Corps has "encouraged" non-federal development at these sites and WPRS may encourage development.
- c. WPRS has performed environmental assessments and benefit cost ratios for some of its sites and the Corps has data on many of its sites. However, there is no comprehensive listing of the federally owned sites containing information on environmental, design and operating constraints and indicating which sites would be suitable for non-federal development. There are also no procedures in place pursuant to which regional and field personnel of the Corps and WPRS are to be guided in working with non-federal developers.
- d. The non-federal development process will take considerably less time under the current procedures of the Federal Energy Regulatory Commission (FERC) than federal development under the present system of congressional authorization.

First Option

To deal with the problems presented by the findings, the President should establish by Executive Order an interagency working group consisting of representatives of the Department of Interior, the United States Army Corps of Engineers, the Department of Energy and the Federal Energy Regulatory Commission. This group could easily serve as a subgroup of the new Natural Resources and Environmental Subcommittee recently established at the Cabinet level by President Reagan. The purposes of this group would be to establish clear standards and policies for determining whether a federal hydropower site is to be developed by a federal agency or non-federal entity, to compile a list of sites and to establish detailed procedure for field personnel to follow in working with non-federal developers.

The working group, in light of the large amount of data amassed to date on the problems and potential for hydropower development, should be mandated to complete its work and publish policies and guidelines within six months. The information on the sites should set forth the operational and design constraints necessary to preserve the original purposes of the sites.

Once the sites are listed with the necessary information, each site should be designated as a candidate for federal or non-federal development. The bulk of the sites would be designated for non-federal development under certain selection criteria. Suggested criteria for selection would be economic feasibility at optimal capacity and the nature and extent of environmental impacts. Sites which are clearly economically feasible and the development and operation of which would have minimal environmental impacts would be sites so listed. Federal sites at which there are presently hydropower installations which can be expanded would not be listed because of the obvious problems of coordination caused by dual construction and operation.

With respect to sites designated for non-federal development, the present FERC process should operate to determine who develops the site among non-federal developers and how it is to be developed. The Corps and WPRS should be mandated to waive any "dam use" fee, "reservoir" fee or "falling water" charge in favor of a uniform determination of the fee formula by FERC. To the extent that legislation is necessary to resolve the "fee" or "charge" controversy, it should be enacted and should provide that FERC is the exclusive agency to determine such charges.

Sites designated for federal development should be developed pursuant to the recommendation and options under Recommendation 2.

Second Option

As with the First Option information concerning federally owned sites should be compiled, procedures established and specified sites designated for federal and non-federal development by an interagency working group. The selection criteria for the choice between federal and non-federal development should be the same as under the "First Option".

Once the list is prepared, legislation should be enacted to establish a lottery system whereby the sites would be assigned to non-federal developers. The legislation should establish prequalification criteria for participation in the lottery and a minimal lottery entry fee to cover the costs of administering the lottery. The Federal Power Act (FPA) should be repealed for FERC permitting, licensing or exempting the sites, with the exception, however, of FERC dam safety requirements, dam safety fees and inspections.

Third Option

All of the proposals contained under the Second Option are proposed with the exception that instead of a lottery there should be an auction upon open bidding for the sites designated for non-federal development with the sites going to the highest qualified bidder. Legislation amending the FPA would be needed and the FERC dam safety requirements, fees, and procedures would be retained.

Recommendation 2: THE FEDERAL DEVELOPMENT PROCESS, ESPECIALLY FOR SMALLER EXISTING SITES, SHOULD BE REFORMED AND EXPEDITED.

Findings:

- a. The development process for the principal federal development agencies, the Corps and WPRS, takes from ten (10) to fifteen (15) years from initial study through construction for most hydropower sites and involves the Congress in the enactment, typically, of three separate pieces of legislation authorizing separately study, design and construction.
- b. The development process and regulations governing it make no distinction between a hydropower purpose of a proposed development and other purposes. The process of review of projects also makes no distinction based on the size of the hydropower installation.
- c. Non-controversial projects, including non-controversial hydropower projects, are frequently included in "omnibus" water projects legislation which contains authorizations for a number of controversial water projects. The result is that non-controversial hydropower projects, especially federal projects utilizing existing sites, tend to be delayed and caught up in the political opposition generated by the controversial projects.

First Option

Even if any of the options are pursued under Recommendation 1, presumably there will be a role for federal hydropower development at certain sites. With respect to sites targeted for federal development, legislation should be enacted which grants continuing authority to federal development agencies to develop hydroelectric power at these sites. The criteria for sites for which continuing authority should be granted would be: (1) sites presently owned by the federal government at which hydropower is presently being generated and which are capable of expansion or added capacity; (2) sites, of less than 25 MWs at existing impoundments, for which the benefit-cost ratio of hydropower additions is greater than one but which have substantial environmental effects requiring mitigation; (3) sites of less than 25 MWs at existing impoundments for which the benefit-cost ratio of hydropower additions is greater than one but the addition of hydropower capability will seriously interfere with the purposes for which the structure was originally built; and (4) sites listed for non-federal development under any of the options listed under Recommendation 1, and which were not developed or under construction by non-federal developers within five years of their being listed for non-federal development.

The authorizing legislation should be severed from any controversial legislation on federal water projects development. For example, legislation to grant continuing authority introduced in the 96th Congress ended up being part of the very controversial block grant proposal for state participation in water project development. The

authorizing legislation should also explicitly authorize construction within the budget constraints contained in the legislation.

At the same time the authorizing legislation is introduced, the Principles and Standards and Procedures and agency procedures should be further simplified to permit less cumbersome and more expeditious internal review of the proposed development.

Sites which do not meet the criteria established under the legislation to provide continuing authorization for development would continue to be handled in the manner of present federal water development projects. These projects would presumably be large multi-purpose development projects which would require more protracted review.

Second Option

Legislation should be enacted providing continuing authority to federal development agencies to develop certain hydropower sites. This legislation should proceed through a two step process. The first step of the process would be identification and selection of the sites by Corps and WPRS for federal development. This list, after internal review by the Corps, WPRS and the Office of Management and Budget would be sent to Congress for its review and approval. Selection and review by the agencies involved would be based on criteria suggested under the First Option. Congress would either approve the list in total or strike certain projects from the list and approve the remaining projects by joint resolution.

The second step in the process would be the introduction and passage of legislation granting the Corps and WPRS continuing authority to develop projects on the list approved by joint resolution. Presumably the sites not subject to the continuing authorization would be developed by non-federal developers. The Principles and Standards and Procedures and agency procedures should be modified to expedite projects authorized for federal development of projects less than 25 MWs or involving relatively minor environmental impacts.

Third Option

Legislation should be enacted whereby Congress would approve certain listed projects for federal development and grant continuing authorization to develop in the manner set forth under the Second Option, supra. In addition, the legislation would establish independent project review at the stage of advanced design and engineering. The independent project review could be conducted by the newly created Office of Water Policy, Department of Interior, or some other especially created agency, in the context of proceedings based on a record which would be open to participation by the interested members of the public. The reviewing agency would have to complete its review within a certain period of time, otherwise the project would be approved as presented by the development agency. Judicial review of the reviewing agency's decision would be available to all participants, including the federal development

agencies. Review would be the exclusive remedy available to participants in the process to challenge or otherwise modify or defeat the process.

As with the First and Second Options, supra., changes should be made to the Principles and Standards and Procedures and internal agency procedures.

Recommendation 3: THE ROLE OF FEDERAL DEVELOPMENT AGENCIES IN THE NON-FEDERAL DEVELOPMENT PROCESS SHOULD BE CLARIFIED

Findings:

a. Federal development agencies, especially the Corps, often engage in information transfer and technical assistance activities to benefit non-federal entities interested in hydropower development. These activities are often conducted on an ad hoc basis as a consequence of sporadic, but direct congressional mandates. The result is that the benefits of these activities are distributed unevenly across the country and create uncertainty as to what is available to non-federal developers for assistance. To some extent this problem is mitigated by the Intergovernmental Cooperation Act which permits the Corps and WPRS to assist state and local governments on a continuing basis. However, assistance under this legislation is not available to private entities.

b. Certain activities, such as the national inventory conducted by the Corps are very useful and have wide, evenly distributed benefits and the Corps and WPRS have provided valuable information to non-federal developers in two widely circulated documents: Feasibility Studies for Small Scale Hydropower Additions: A Guide Manual, U.S. Army Corps of Engineers, July, 1979 and Reconnaissance Evaluation of Small, Low-Head Hydroelectric Installations, U.S. Department of Interior, Water and Power Resources Service, July 1, 1980.

First Option

The Corps should be granted ongoing authority and the necessary funding to continue to refine and update the National Inventory of Hydropower Sites.

The Corps and WPRS should be granted ongoing authority and funding to update the Feasibility and Reconnaissance manuals.

The Corps and WPRS should be granted ongoing authority and funding to hold workshops on the technical requirements for non-federal developers, especially those non-federal developers which have established interests in development at federally owned sites.

Second Option

In addition to the items contained in the First Option, the Corps and WPRS would be given limited authority and funding to provide

technical assistance to non-federal developers and their engineering firms for feasibility studies and advanced design and engineering. The limitations on such assistance should be that such assistance would be provided only in the event that private engineering firms were unwilling or unable to provide the services or if the private engineering firm requested such assistance in the context of a feasibility study or advanced design.

Recommendation 4: THE NON-FEDERAL DEVELOPMENT PROCESS SHOULD BE FURTHER REFORMED AND THE CHOICE OF "WHO" DEVELOPS THE SITE LEFT TO MARKET DECISIONS AND STATE LAW

Findings:

- a. The Federal Power Act (FPA) not only regulates the environmental impacts of hydropower development but also requires FERC to choose which, of a number of developers, shall develop the site.
- b. With the intense interest in small scale hydroelectric development at existing sites, FERC is heavily burdened with a large and growing caseload of competing applications for sites and applications for preliminary permits.
- c. The historical rationale for that part of the FPA which requires FERC to choose among competing developers is probably no longer applicable. Under present conditions small scale sites are owned by a variety of interests and no single group, such as the investor owned utilities, controls a majority of the sites.

First Option

There are several features to this option but the option essentially requires a major amendments to Part I of the Federal Power Act. The following amendments should be enacted to the FPA.

The eminent domain provisions of the FPA should be repealed and the duties and authority of FERC to select developers for non-federally owned sites and sites not located on federal lands should be eliminated. The provisions allowing for preliminary permits should also be repealed. They would be unnecessary for development at non-federally owned sites and would cause delays in development at federally owned sites.

FERC should retain the authority to select developers for federally owned sites and sites located on Federal lands (subject to the second and third options presented under Recommendation 1). FERC should also retain the authority to review the plans for development of all sites (federal and non-federal) from the standpoint of the environmental and interstate effects of the development.

However, the decision as to who is entitled to develop a site should be a state decision (except where federal land is involved) to be handled as the states see fit, as part of their property and/or licensing laws.

Alternatively, FERC should also be permitted to delegate its authority for environmental review to appropriate state agencies. FERC would delegate its environmental review function of hydropower applications to state agencies if the state had a plan or program for hydroelectric project review which met standards established by FERC. The review standards to be established by FERC would require state agency hydropower expertise, an expedited process, finality of the agency decision and adequate funding for the state agency. States would not be permitted to review projects on Indian lands.

Fees for hydroelectric project approvals should be increased and revenues generated by these fees would be appropriated to FERC to maintain the appropriate staff and to assist the state agencies to which FERC had delegated responsibility for environmental review.

Second Option

Legislation should be enacted authorizing FERC to exempt individual projects or classes of projects of 25 MWs or less at existing structures from all or part of the provisions of Part I of the FPA. The legislation should clearly authorize FERC to establish a preference for exemptions in favor of site owners and should limit the authority of the Fish and Wildlife Service and state fish and game agencies to filing comments, as opposed to imposing conditions, on exemptions.

Fees for all hydroelectric permits, licenses and exemptions should be increased and revenues should be appropriated to FERC to provide FERC with additional staff to process applications.

Third Option

Additional funds should be appropriated to FERC and FERC permit and license fees should be increased to enable FERC to double its hydroelectric staff. FERC should also issue a regulation eliminating preliminary permits for sites of 25 MWs or less.

Recommendation 5: FERC SHOULD BE ESTABLISHED AS THE "TRUE" LEAD AGENCY FOR NON-FEDERAL HYDROELECTRIC DEVELOPMENT

Findings:

a. Currently, FERC must coordinate hydroelectric permitting, licensing and exemptions with several federal and state agencies. The federal agencies have missions different from FERC and are anxious to protect

their programs from interference from FERC and other organizations and persons.

b. Conflicts have arisen between FERC and federal agencies concerning hydroelectric permits, licenses and exemptions. These conflicts cause delay and increase costs of compliance to applicants for hydroelectric permits, licenses and exemptions.

c. With the significant increase in caseload of FERC, the burdens of reviewing applications for hydroelectric licenses and exemptions have significantly increased for the coordinate federal and state agencies. To the extent that coordinate federal agencies are unable to comment on a hydroelectric application in a timely or thorough manner, conflict between FERC and coordinate agencies is exacerbated and environmental review functions fail.

First Option

Under guidance of a cabinet level group such as was suggested under Recommendation 1, First Option, a memorandum of understanding (MOU) should be executed among FERC and coordinate federal agencies, such as the Fish and Wildlife Service, WPRS, the Corps and the Bureau of Land Management. Under the MOU, FERC's role as the lead agency would be recognized and the signatories would agree on deadlines for comments and resolve jurisdictional disputes in favor of FERC having the final authority to resolve conflicts. The MOU should also contain a formula whereby funds generated from hydroelectric fees would be allocated by FERC to the coordinate federal agencies to assist them in any evaluation necessary for their review of a proposed project.

Second Option

Legislation should be enacted establishing FERC as the lead agency in hydroelectric approvals. This legislation should restrict federal agency participation in the process to making comments and should prohibit any cooperating federal agency from issuing any separate or independent approval for any project under FERC jurisdiction. Review of the project should be restricted to participation in the FERC process and in any appeals to Courts of Appeals from FERC orders. The fees for hydroelectric approvals should be increased and, from these fees, funds should be appropriated to assist coordinate federal agencies in project evaluation.

The legislation should also provide that in the event of a delegation of hydroelectric review authority to a state agency, that state agency would acquire the "lead" agency status described above for FERC. In other words, the state agency to whom authority was delegated, should have the power to limit federal agency review to comments presented within specified deadlines. The state agency, assuming access was assured, should also be the only forum for review of the agency decision. The proposed statute should also provide for judicial review within the state judicial processes.

In the event that the First Option cannot be implemented due to present statutory conflicts between FPA and other statutes, e.g., Clean Water Act or FLPMA, this Option would be necessary, and legislation enacted under it would have to resolve any statutory conflicts in favor of FERC.

Recommendation 6: AN EQUITABLE, UNIFORM POLICY FOR PAYING COSTS SHOULD BE ESTABLISHED FOR FISH PASSAGES AND OTHER FISH MITIGATION MEASURES.

Findings:

- a. Public policies presently support the restoration and protection of fisheries and, where Indian treaties are involved, such restoration and protection may be legally required.
- b. Fisheries mitigation costs, most importantly fish passages, can make an otherwise feasible project infeasible.
- c. In the non-federal process, the developer must bear the full cost. This cost is imposed on developers who retrofit an existing site. The danger here is that the costs of the fish passage will make the project infeasible and society will end up with neither a fish passage nor hydropower.
- d. Federal projects pay the cost of fish protection out of federal project appropriations.

First Option

While it is appropriate for non-federal developers at new sites to bear the full costs of mitigation, a developer retrofitting an existing site should not have to build fish passages at his own expense since the site already precludes fish passage.

Therefore, governmental assistance should be made available in instances where a developer cannot afford fish passages, but where the passages are needed to enhance fisheries. The simplest mechanism would be to fund, through adequate appropriations, existing migratory fish conservation and restoration programs, and make that assistance available to non-federal developers at existing sites through state fisheries enhancement programs.

With respect to federal development at new and existing sites, existing law already provides that the public pays the cost of fisheries mitigation as part of the total project cost. This practice should be continued.

Second Option

Fish passage and other mitigation costs should be borne by non-federal developers at new sites and by federal developers at new and existing sites as stipulated in the First Option.

With respect to non-federal development at existing sites, legislation should be enacted which imposes a tax on beneficiaries of the fisheries resource, i.e., commercial and sport fishing interests. This tax could take the form of an excise tax on fishing equipment or increase in fishing license fees. The revenues derived would be used to fund in whole or in part, fish passages at existing sites developed by non-federal entities.

As noted, Indian fishing rights may be protected by treaty. To the extent that the revenues derived from the special taxes or license fees outlined above are inadequate to protect these Indian treaty rights to fisheries, the revenues must be supplemented by appropriations to federal fisheries enhancement programs.

Recommendation 7: THERE IS A NEED FOR A BETTER LEGAL MECHANISM TO ASSURE PUBLIC ACCESS TO DECISIONS CONCERNING FEDERAL HYDROPOWER DEVELOPMENT.

Findings:

- a. If federal development is to occur, the decision determining "who gets" the site is made at the outset. Environmental review then focuses on whether and how to build the site.
- b. The federal process offers numerous opportunities for informal public comments, but no opportunity for public opposition to be expressed in a formal proceeding with a written record upon which an agency must base its decision. The FERC process does offer this opportunity. This failure to provide formal review in the federal development process has motivated project opponents to invoke various provisions of environmental statutes to trigger formal review and try to "stop" a project.
- c. Because of the length of time involved in the federal development process and the fact that opportunities for formal, judicially reviewable public participation are limited primarily to the NEPA process, challenges to the initial decision to construct a project are frequently raised after substantial resources have been committed to a project.

First Option

Congress should provide for an impartial agency review (by an entity other than the development agency) of the environmental aspects of proposed new projects with full opportunity for local participation and judicial review. This independent review should occur after advanced

engineering and design but before construction is authorized. The decision should be final, absent major changes in law, policy, or other circumstances. This process should be equally open regardless of the scope of the project, but the scope of actual environmental review should be tailored to the probable impact of the project, pursuant to NEPA's "scoping" process. Local preferences, particularly where federal largesse is being dispensed, should be weighed and adverse social and land use impacts should be given the recognition that present law sometimes fails to afford.

The independent agency review should be similar to a FERC hearing, requiring a record to support the agency decision. An agency decision against a project should automatically deauthorize that project. Judicial review of agency decisions should be limited to whether there is substantial evidence in the record for the agency's decision. This review should encompass agency determinations under all applicable environmental statutes and should be the final and exclusive remedy for environmental disputes concerning federal hydropower projects. The statute creating this project review agency should make explicit the fact that this agency has the authority to make determinations, with the input of the relevant agencies, under all environmental statutes, in the same manner as FERC under Recommendation 5.

To avoid protracted hearings, the agency should have the capability to appoint neutral mediators to help resolve conflicts of a primarily local character in the region. Where there is no opposition to a project, agency review should be based on the documentation already prepared, with a time limit of 15-60 days, depending on the project size. This independent review could substitute for one or several of the layers of internal agency review which currently delay project development.

Second Option

Congress should delegate responsibilities for the process recommended in the First Option to the development agencies themselves. The review process should remain as stated in the First Option.

This option recognizes that agencies have the most knowledge of and interest in their own projects. It eliminates a possibly duplicative layer of review that creation or use of an independent agency would involve, but sacrifices the independence that would be desirable.

Third Option

The President's Cabinet Subcommittee on Natural Resources and Environment should undertake federal project review, using agency staff as needed.

**Recommendation 8: FEDERAL PROJECTS THAT HAVE ALREADY BEEN
AUTHORIZED AND ARE STALEMATED SHOULD BE RE-EVALUATED
AND DECISIONS SHOULD BE MADE TO PROCEED OR TERMINATE.**

Findings:

- a. Many projects that were proposed years ago and are presently in the design or construction phases are targets of litigation because the design decisions were made before major environmental legislation had been passed.
- b. New projects are more likely to be designed with cognizance of environmental parameters because they have followed the Principles and Standards and NEPA from the beginning.

First Option

Congress should, through legislation, identify those projects that have been mired in controversy and subject them to independent review on their merits, economic and environmental, regardless of their local political appeal. Other authorized projects should be moved onto a "faster track" for expedited authorization and environmental review. The guiding principles should be:

1. Where consensus exists that a project is environmentally acceptable, reduce the environmental regulatory barriers as much as possible.
2. Where there is moderate disagreement or disagreement over a single, non-crucial issue, provide rapid, focused and intense environmental review.
3. Where significant controversy exists, make a decision as to whether further pursuit is appropriate and either terminate the project, turn it over to a non-federal entity, or subject it to a comprehensive re-evaluation, pursuant to Recommendation 7.

Second Option

The development agencies themselves should undertake a "first cut" review to divide presently authorized projects into the three categories described in the First Option.

Third Option

The President's Subcommittee on Natural Resources and Environment should review authorized projects as above, using agency staff as needed.

Fourth Option

States should undertake this review. All projects would be automatically deauthorized after a specified period of time, e.g., five years, unless states undertook a review function and specifically requested them. Problems might arise with respect to projects of interstate significance. Resolution of these problems would require the involvement of federal executive, regional, or congressional entities.

Recommendation 9: HYDROELECTRIC DAMS SHOULD NOT BE REGULATED AS POINT SOURCES UNDER THE CLEAN WATER ACT.

Findings:

- a. Environmental groups have raised the issue of whether or not large federal dams are point sources.
- b. EPA has not designated dams to be point sources and the issue is currently in litigation.
- c. The legal determination as to whether or not a hydro dam is a point source turns on statutory interpretation of the Clean Water Act.
- d. Point source regulation of dams would create a new procedural hurdle that might not distinguish between large and small dams and certainly would not distinguish between federal and non-federal dams.
- e. The "point source" controversy may be a way that opponents of federal projects seek in-depth environmental review of a project by a court, a remedy otherwise unavailable for federal projects.
- f. Comprehensive, on the record environmental reviews, as proposed in recommendations 5 and 7 would include the determination required under Section 402 and would apply appropriate Clean Water Act criteria in reviewing all hydropower projects.

First Option

EPA should promulgate a rule declaring that dams either are not point sources under the Clean Water Act, or defining clear criteria to determine which dams are point sources. Since this issue is currently being litigated, the court's decision may limit EPA's discretion.

Second Option

Congress should exempt hydropower dams from Section 402 and incorporate Section 402 permitting authority into the revised FERC and federal development processes as recommended in the first options of Recommendations 5 & 7. This would make the review more stringent (presently Section 402 does not necessarily require a decision on the record), but would keep it in a single forum.

Recommendation 10: STATE AGENCIES, REGIONAL ENTITIES AND REGIONAL OFFICES OF FEDERAL AGENCIES SHOULD BE GIVEN A GREATER ROLE IN HYDROPOWER DECISION MAKING.

Findings:

- a. Greater regionalization of federal decision making improves public access to the process and creates better opportunities for federal-state co-ordination.
- b. Where a regional entity has no substantive powers it can help facilitate state-federal co-operation by bringing decisions closer to the people affected by them.
- c. Where a regional entity has powers that duplicate existing state or federal powers, it can create added conflict.
- d. If a regional entity has plenary powers, it can be a superior forum for conflict resolution. However, our federal-state tradition has not favored such entities, with the limited exceptions of TVA and the Pacific Northwest.

First Option

For hydroelectric licensing, FERC should decentralize its offices so that full environmental review is available at the regional level. This will allow fuller participation by affected groups in situations where FERC environmental review has not been delegated to states. Independent review of federal projects should also occur in the region as much as possible.

Whenever possible decision making authority should fall to the lowest level of government truly competent to make a decision; local, state, regional, federal regional office, or federal central office, in that order. This assures that decisions are made closest to where their effects will be felt. Determining whether the lower level of government is "competent" may be difficult, but criteria can be set for such determinations. Higher levels of government can provide technical assistance to increase competency. Particular care should be given so that federal requirements do not conflict with state or regional plans or priorities, unless a national interest is at stake or the federal government is implementing its nationally uniform environmental protection mandates.

The designation of river stretches as "available" or "unavailable" for hydropower or for particular types of hydropower should be undertaken through state, local and regional agencies. This designation process should involve extensive public participation and, possibly, mediation. Agreements reached and designations made with regard to such issues as the appropriate balance among competing uses of rivers, minimum flows and mitigation strategies should be given considerable weight by FERC when it considers "whether" and "how" a developer may build a project. The value of clear designations made before projects are designed is that they put

developers and the public on notice as to what are reasonable expectations about the future of river segments. This can be done aside and apart from the wild and scenic rivers designation process which is fulling binding but administratively more rigid and cumbersome than a flexible state and local process would be.

Second Option

River Basin Commissions (RBC's) should be delegated substantive mandates for FERC licensing and independent review of federal projects. This option would require considerable change in existing political arrangements. It would also require that RBC's substantially amplify their staff capabilities and stature in the region. The RBC's would also have to develop procedures that would assure fair decisions based on an adequate record. As an alternative to the RBC, some other type of entity could be created.

Other suggestions contained in the First Option would be incorporated under this Option, under the general supervision of the RBC's.

Third Option

Non-federal and federal project review should be delegated to a regional entity created to do comprehensive energy, water, and environmental planning. The substantive work and composition of such an entity would be similar to that of the new Planning Council in the Pacific Northwest, but the actual regulatory authority would be plenary, modeled in part on present FERC licensing and proposed independent water project review. For energy analysis, the models of state energy siting agencies would be appropriate. These regional entities would displace federal review and much state review, but both state and federal governments would participate. While this approach may be theoretically attractive, its incursion on existing state and federal powers might make it impracticable.

Recommendation 11: INDIAN TRIBES SHOULD HAVE THEIR RIGHTS MORE CAREFULLY OBSERVED BY ALL HYDROPOWER DEVELOPERS WHOSE PROJECTS MAY AFFECT INDIAN FISHERIES OR WATER RESOURCES.

Findings:

- a. Present legal and policy trends give emphasis to Indian self-determination and protection of Indian water and fishing rights.
- b. Federal agencies, states and developers have frequently failed to take cognizance of these recently expanded interpretations of Indian rights.

- c. These rights are in most cases not clearly defined.
- d. In certain affected basins Indian treaty rights to fish protection and water use may preclude or severely impede hydropower development.

First Option

Where development occurs off the reservation but impacts on Indian water or fishing rights, FERC should require potential developers in the first instance to ascertain whether Indian rights pose a potential problem and:

1. Negotiate an Agreement;
2. Drop the project; or
3. Seek declaratory relief in court.

By resolving disputed Indian claims early on, development can proceed without unresolved legal problems. The U.S. Justice Department in its capacity as trustee for Indian tribes, together with the tribes, can negotiate with states and developers to reach solutions that permit an amount and type of development consistent with Indian needs and priorities.

Where off-reservation federal development may affect Indian rights, the federal agency should do the same as proposed above for non-federal developers. However, there may be a problem of conflict of interest in the federal government's role as both project developer and trustee for Indians. Therefore, the federal government should pay for independent representation retained by the tribes to protect their treaty rights.

There is no other option proposed.

Recommendation 12: ALL HYDROPOWER DEVELOPED ON INDIAN RESERVATIONS SHOULD BE BY OR WITH THE EXPRESS CONSENT OF THE TRIBES.

First Option

All hydropower development on Indian reservations should be the sole province of the Indian tribes subject only to federal laws enforced by FERC.

FERC, under Recommendation 4, would no longer have the power to decide "who gets" a site. Therefore, all sites on Indian Reservations would be controlled by the tribes. Tribal development of hydropower would be regulated primarily by the tribe with FERC approval required for aspects of a project that affect states, municipalities, individuals, or other federal agencies. A FERC license for an Indian project would recognize the tribe's sovereign status by considering only

off-reservation impacts of the project.

Second Option

If the "who gets" decision remains in the hands of FERC, FERC should interpret the FPA or the FPA should be amended to enable Indians to veto any hydroelectric project proposed to be built on an Indian reservation. The purpose of allowing a tribe to veto a project is to avoid litigation and to give a clear signal to any developer at the beginning of the development process. The policy towards Indians should encourage self-determination. Amending the Act would formally recognize the current place of Indians in the United States.

Chapter 2. AN OVERVIEW OF THE SYSTEMS OF REGULATION AND DEVELOPMENT OF HYDROELECTRIC POWER IN THE UNITED STATES

The Energy Law Institute (ELI) has been asked, in its part of the National Hydropower Study, to examine federal and state hydropower regulations and the legal and institutional problems which beset hydroelectric power development in the United States and to recommend solutions, in the form of policy options, to these problems. The difficulty, as with most studies of complex systems, is that the researchers tend to become deeply involved in the subject matter of their research to the extent that subtle biases and preconceptions creep into their "worldview" and detail tends to overwhelm important forms and general trends in policy. This section of the report is an attempt by its authors to take a "step back" from the subject matter and to develop a longer range perspective of the problems of hydroelectric development.

There are three principal concerns of this report -- the processes of hydropower development by federal and non-federal entities, the impact of environmental regulation on hydropower development and the present and potential role of state and regional entities in hydropower regulation and development. Accordingly, the three main sections of the report (Chapter 3, 4 and 5) deal with each of these concerns in detail. There are also six appendices to the report which will be referenced in the text. Four of these appendices are descriptions and analyses of the four principal institutions involved in hydropower regulation and development (the Army Corps of Engineers, Water and Power Resources Service, the Tennessee Valley Authority and the Federal Energy Regulatory Commission), two of the appendices deal with developing bodies of law which will have a significant bearing on hydropower development, i.e., "reserved" water rights and proposed legislation to expedite the federal development process.

In this section of the report, the three major concerns will not be treated separately. However, problems of federal development, environmental regulation and the role of the states in hydropower development will be obvious from the discussion that follows. This section will describe the legal, regulatory and institutional context of the development of hydropower in the United States. This section will also discuss important policy trends which have a significant bearing on hydroelectric development.

A. Hydropower - A Diverse and Dispersed Resource

The potential hydropower resources in the United States have varying characteristics. For purposes of regulatory and institutional analysis the important characteristics of the resource are the ownership of the sites, likely developers of the sites and potential environmental impacts of hydroelectric power development at the sites. This study examines the regulatory problems associated with the development of large new sites including pumped storage projects,¹ expansion of existing hydroelectric capacity, rehabilitation of existing sites, development of small scale projects at new sites and installation of hydropower capacity in conduits and other man-made water diversion structures. Developers of

these sites are diverse and include the Army Corps of Engineers (Corps), Water and Power Resources Service (WPRS), the Tennessee Valley Authority (TVA), public and investor owned utilities, state power authorities, municipalities, entrepreneurs, and manufacturing or industrial concerns with access to a site. Ownership is similarly diverse. In the west, federal land and site ownership is important. In the east many owners, including a number of municipalities, acquired sites at little or no cost when the sites were abandoned by local electric utilities. Environmental impacts of hydropower development will be the most serious at large new sites, including pumped storage projects, and the least serious at conduit or other man made diversion sites. While site specific environmental data are always important and broad assumptions concerning environmental impacts are dangerous, it is reasonable to suppose that there will be some but not significant, environmental impacts resulting from expansion of existing sites and development of small, new sites.

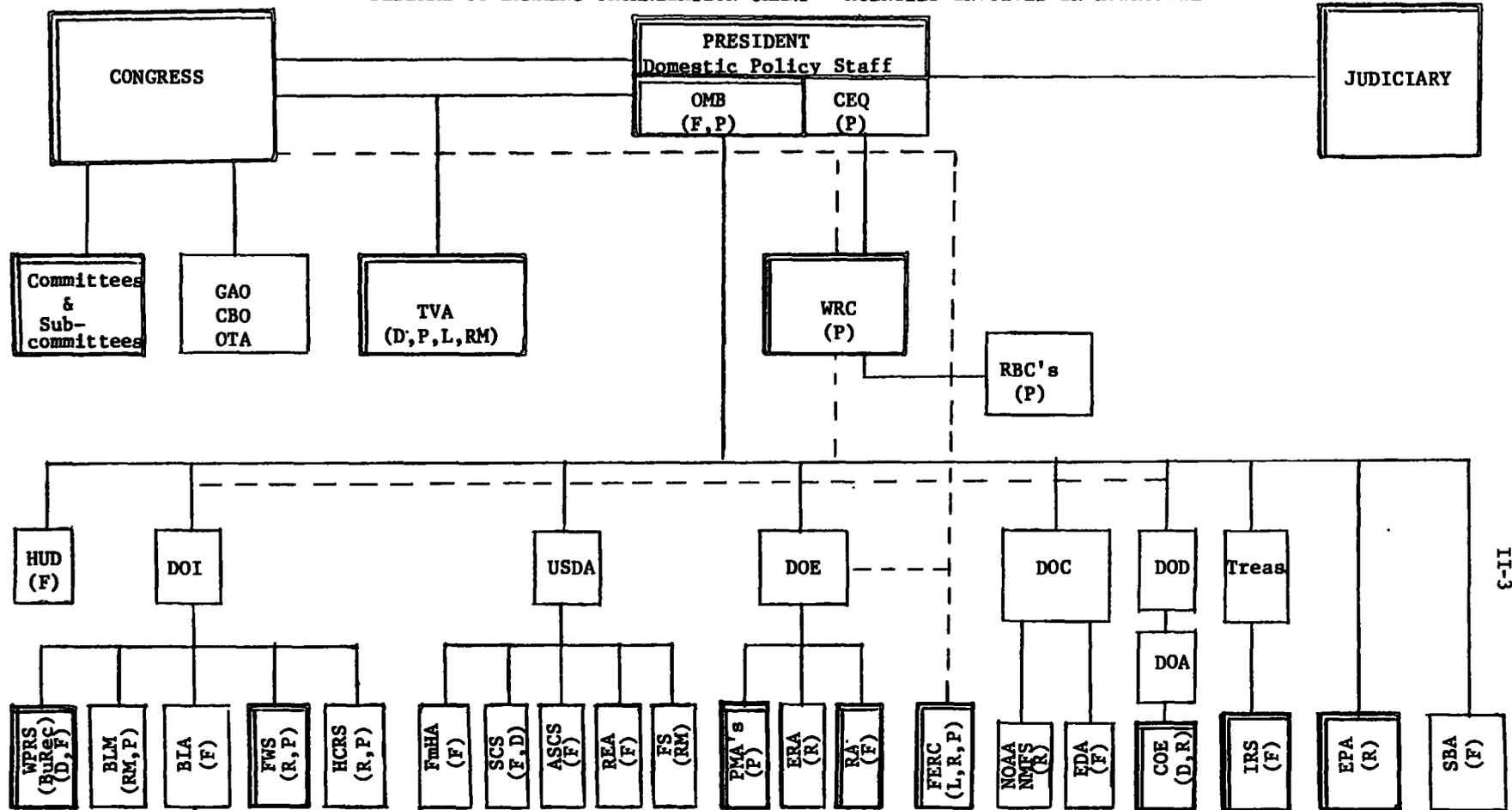
According to available inventories and studies there are, with the exception of Alaska, few feasible, large scale sites in the United States. The regions with the largest potential capacity at existing sites are the northeastern United States and the Pacific Northwest. There is also considerable potential in the Southeastern and Rocky Mountain states.²

B. The Legal, Regulatory and Institutional Context for Hydropower Development

Although hydropower resources in the United States are diverse and dispersed, common features of development can be identified. These features are the problems created by the complex process of selecting who will develop the site, the process of environmental regulation, the selection and availability of the market for the output and the use of public subsidies for development.³ For purposes of this overview, the legal, regulatory, and institutional system in which hydropower is developed will be examined in the light of these common features. Figure 1 on page II-3 is an organization chart which shows the large number of federal agencies in the institutional framework and shows their basic functions.

Every proposed development must initially decide to devote resources (land and water, capital, etc.) to the development of a hydropower project. In the American system, the choice of who undertakes the project is burdened by complex laws, regulations and institutional traditions. Given the extensive system of environmental regulation in this country, every project will involve an examination of environmental impacts and will be required to mitigate all or a portion of those impacts. Each development, to assure its economic feasibility, will be required to determine the market for its output. Because hydropower projects are perceived as increasing this country's energy independence, improving its national security, providing recreational opportunities and flood control benefits, there have been public expenditures (subsidies) in support of development in general and of specific projects. These subsidies occur in forms of outright public grants, budget appropriations of governments, low interest public loans, loan guarantees and "tax breaks", e.g., tax credits, tax exempt bonds and depreciation allowances. The availability of these subsidies is obviously important to development

FEDERAL GOVERNMENT ORGANIZATION CHART - AGENCIES INVOLVED IN HYDROPOWER



Indian Tribes

LAWS THAT IMPINGE GENERALLY:	
NEPA (P,R)	Water Law (R,RM)
FLPMA (P,RM)	FWCA (P,R)
Endangered Species (R)	P&S (P)
Wilderness (R)	International & Indian Treaties (R,R)

- FUNCTIONS:**
- D - Development
 - R - Regulation
 - F - Funding
 - RM - Resource Management
 - L - Licensing
 - P - Planning

NOTE: Most important agencies are indicated by double lines.

of the resource.

1. The Choice of "Who" Develops

In the American legal system property interests are defined by rules established, for the most part, by the states. The exception to this general proposition involves the definition and determination of property interests of the federal government and the Indian tribes. In the case of the federal government there is a developing body of law concerning federal water rights.⁴ There have also been very recent attempts to redefine the property interests of the federal government in several western states.⁵ Similarly, there is a developing body of law concerning Indian land and water rights and recent court decisions have significantly extended those rights.⁶ Generally, under the American system, the person who "owns", i.e., has the requisite bundle of legal rights to property, will choose to use and develop what he or she owns based on his or her preference.

For purposes of hydroelectric development, there are in place state systems of property law which may be used to determine ownership of a site and the necessary water rights. With respect to water rights, however, two different legal systems have been developed. The first system is called "riparianism" and is utilized principally by states east of the Mississippi. Under "riparianism" riparian owners (persons who own land bordering a stream, pond or river) have the right to use the reasonable flow of the waters flowing past the property. A reasonable use is hydroelectric power generation. Out-of-stream diversions are not permitted under the riparian doctrine unless a substantial portion of the water diverted is returned to the stream.

The second system is called the "prior appropriation" system and is utilized principally in states west of the Mississippi. Under this system, a state agency issues a permit or a certificate to a person who wishes to use or consume (appropriate) a quantity of water for some beneficial use. The categories of beneficial use vary from state to state but generally include domestic uses, agricultural uses and mining uses. The appropriation certificate or permit in many states requires that water be diverted from the stream and "consumed" by the appropriator. The rights to the water are subject to the rights of persons who have perfected their water rights earlier in time. Failure to "use" the quantity of water appropriated for the purpose prescribed in the permit will result in a forfeiture of the water right.⁷

In the east, the system of water law does not appear to pose obstacles for development of hydropower. A developer may acquire the requisite property interest, including water rights, by purchase and utilize those water rights for hydropower production.

The system of water law in the west would not, at first blush, appear to pose an obstacle to development. Although the water used for hydropower production is an "in-stream" use, in almost all states an appropriation certificate will be necessary. In these states, water rights for hydropower production may be subject to a number of prior uses but they nevertheless can be obtained through a complex administrative process.

Under either system of water law, hydropower projects which seek to store large quantities of water for release through turbines at times of system peak load, will encounter difficulty. Under the riparian system, "store and release" may be an unreasonable use of the flow of water. Under the appropriation system, "store and release" projects may conflict with existing water allocation schemes.

Considerable new law is being made in the area of federal and Indian property law and, most particularly, water rights. This emerging body of law will affect water law systems of the western states to a considerable extent. The federal government, either through its power to regulate interstate commerce or in its capacity as a proprietor of large amounts of property in the west, is seeking to regulate minimum stream flows notwithstanding existing appropriation certificates permitting a "consumptive use". Indian water rights, which have consistently been recognized by the courts, may grant to Indian tribes, because of their sovereign status and treaties with the United States government, rights to water which will diminish substantially or render worthless water rights recognized by state appropriation systems. To a great extent the quantity of water owned by Indian tribes is unknown at this time. The uncertainties created by the assertion of federal water interests and the recognition of Indian water rights are obvious problems for hydropower development.

Given this body of property law and the American traditions of property ownership, one would assume that decisions to use a particular site and water rights to develop a hydropower project would be made by persons who were willing to "purchase" the necessary property interests. If the price asked for the property were too high, given the risk and expected return to the hydropower project, presumably the hydropower project would not be built and there would be higher valued uses to which the property would be put. Ordinarily, markets tend to operate in this manner and society, for the most part, accepts the choice made by the market to allocate a resource for one purpose over another.

With respect to hydropower development, the decision as to who will develop the resource is not as simple as the market choice and, in fact, the market is not permitted to make the choice. Intervention in the market decision in the case of hydropower development is a product of a long and contentious history of federal hydropower regulation and development, federal land ownership - especially in the west, and the public benefits (public goods) aspects of hydropower development.⁸

The Federal Power Act (FPA),⁹ passed in 1920 after a long struggle between conservationists and private development advocates, in major respects determines whether a hydropower project will be built and who will build it. Under the provisions of this act, the Federal Energy Regulatory Commission (FERC) is given the authority to determine whether any particular site will be developed by non-federal developers and which of a group of potential developers will be chosen. FERC and its predecessor, the Federal Power Commission, have developed a complex system of permitting and licensing for non-federal development of virtually all sites in the country. Appendix IV contains a description of the FERC system. At the present time FERC has jurisdiction to issue a preliminary permit, a minor project license for a project of 1.5 MWs or

less, a major project license at an existing site, a major project license at a new site, an exemption for certain conduit hydropower facilities, an exemption for hydropower facilities at existing sites of 5 MWs or less, and a new license upon expiration of a preexisting license for a project.¹⁰ With the exception of the exemptions for conduit hydro projects and existing sites of 5 MWs or less, state and municipal entities, assuming their plans for development are equally well adapted to the comprehensive development of the water resource, are granted a preference for a preliminary permit or license.¹¹ Any developer selected must develop a project which is best adapted to the comprehensive development of the water resource.¹² This requirement imposes responsibility on the developer to provide for recreational uses of the site, mitigate environmental impacts, assure dam safety, provide fish passageways or other fish protection or enhancement facilities where necessary, and maximize capacity and output in the context of the physical and environmental characteristics of the site.

The process by which FERC issues a permit or license is open to intervention by interested groups and individuals and must be coordinated with other federal and state agencies. In the event that the developer selected for the license does not own the requisite property interest to construct and operate the project, that licensee-developer is empowered under FPA to exercise eminent domain powers.¹³ In the event that federal lands or other property are utilized in developing or operating the project, FERC is empowered to issue permission to the licensee-developer to use those federal lands. The powers and requirements of the FPA and FERC also extend to federally owned structures and impoundments capable of generating electricity. FERC may issue a permit or a license to a non-federal developer to study or develop a site owned by the federal government and under the management of a federal agency.¹⁴ The principal federal agencies which maintain sites on behalf of the federal government are the Corps, WPRS and the TVA. However, if a site owned by the federal government is authorized by Congress for study as a potential hydropower project, FERC will not issue a license.¹⁵ Moreover, FERC, on its own motion, may refrain from issuing a permit or license on a federally owned site and recommend that Congress authorize a federal development agency to study the hydropower potential of the site.¹⁶

The extraordinary powers contained in FPA and conferred on FERC obviously create a system whereby market choices favoring development are substituted by FERC through its permitting and licensing process. Because of the pervasive jurisdiction of FERC to regulate interstate commerce, virtually every site in the United States in which there is interest by non-federal developers is subject to FERC's allocation rules and decisions. Very recently, through powers granted to FERC under Title II of the Public Utility Regulatory Policies Act (PURPA)¹⁷ and Section 408 of the Energy Security Act¹⁸ to exempt conduit hydro projects of 15 MWs or less and projects at existing sites of 5 MWs or less, FERC may choose to exempt certain sites or classes of sites from the licensing process. The effect of such exemptions will be to remit to the market the choice of who is to develop a site or sites subject to an exemption; i.e., to non-federal developers who have acquired the necessary ownership of the sites under preexisting state property law and have made the investment decision.

The permitting and licensing system created by the FPA and administered by FERC is premised on the view that hydropower sites are "public" resources¹⁹ or have so many of the attributes of public goods²⁰ to warrant allocation of the resource by the government rather than the market. The consequences which flow from this view are a complex licensing and permitting system which is accessible by a variety of interested parties. There is no question that the system is a burden on developers and invites conflict. However, there is also no question that FERC takes its responsibilities seriously and invariably seeks to assure that the hydropower project confers additional benefits on the public in the form of recreational opportunities, environmental enhancement and public safety.

There is another complex system which operates to allocate hydropower resources and, accordingly, substitute for market choice. This additional complex system is the federal water projects development process which has evolved over the entire history of the United States. Appendices I, II and III describe federal water project development agencies. In the past, Congress has authorized hundreds of water projects, some of which have included hydroelectric projects. In the 1930's Congress also established the Tennessee Valley Authority (TVA),²¹ a major function of which is to construct and operate various water projects including hydroelectric projects in the Tennessee Valley. Congress, acting directly or through TVA, in all instances which involve federal construction and operation of water projects, has made the choice to devote federal capital to construction of these projects. Again, as with the premises of FPA, the natural resources associated with water projects have historically been viewed as "public" resources or have important attributes of "public goods" so as to warrant federal (i.e., governmental) development.

A designation of a natural resource as a "public resource" immediately implies that the "public" has a right to determine how that resource should be used and that state property law systems which have heretofore decided "who gets" the resource will be superseded by use of the eminent domain powers of the United States. Theoretically, the public is represented by the Congress which enacts legislation which authorizes or fails to authorize a particular water project. Theoretically the "public", in the case of TVA, is represented by the Board of Directors of TVA who are appointed by the President with the advice and consent of the Senate. However, as surrogates for the "public", Congress and the TVA Board have been viewed as inadequate in some quarters. Other critics have observed that regardless of whether Congress and the TVA Board truly represent the public, the public interest is composed of such divergent interests as to require greater public participation in the process. What has emerged from this debate and other conflicts surrounding federal water project development is a complex authorization process for Corps and WPRS projects.

Water projects directly authorized by Congress typically proceed through three phases of administrative and legislative review.²² Each phase will involve a different federal budget cycle and enactment of separate legislation. The first phase of any project involves a request by Congress for a federal development agency, typically the Corps or WPRS,²³ to study a site. The request for authorization to study will be

referred to the appropriate House and Senate committees. An authorization for funding the study will be included in the legislation. In all probability the authorization for study will become part of an "omnibus" water projects bill which will contain various authorizations for study, design or construction for a number of water projects. If the legislation is passed and funds are appropriated for the study, the development agency proceeds with the study.

The study is conducted pursuant to the Principles and Standards and Procedures promulgated by the Water Resources Council (WRC) of the United States.²⁴ These regulations have been revised recently and most notably to require careful consideration of non-structural alternatives to the project. The major result of the study is a benefit-cost analysis which, if greater than one, causes the site to be deemed feasible for advanced design. Because advanced design is the next step contemplated, a draft environmental impact statement (EIS) is prepared.²⁵ The draft EIS examines in detail the environmental impacts of the project and is circulated for review by interested state and federal agencies and the public. Upon receiving comments on the draft EIS, the study agency prepares a final EIS and submits to Congress a request for authorization to undertake advanced design and engineering.

The Congressional process is repeated for the authorization for advanced design. If design is authorized and funds are appropriated, the development agency proceeds to design the project pursuant to the Principles and Standards and Procedures of the WRC and its own design requirements. Depending on the length of time and changes in circumstances between preparation of the final EIS at the study phase and development of the project design, the developing agency may prepare another draft EIS or a supplemental draft EIS and circulate it for comment. Upon receiving comments, a final EIS will be prepared and submitted to Congress along with the request to authorize construction.

The Congressional process is repeated for authorization of construction. If construction is authorized and funds are appropriated, the development agency, in all probability, will proceed to prepare a supplemental or second draft EIS. The draft EIS will be circulated for comment and upon receiving comments a final EIS will be prepared. Construction will commence and, assuming sufficient subsequent appropriations from Congress during the construction period and no litigation resulting in court orders staying construction, the project will be completed.

Study, design and construction of TVA projects proceed under the Principles and Standards and Procedures of WRC and will likely involve the preparation and circulation of a draft and final EIS. The major difference in the development process for TVA projects is, of course, the absence of the requirement of Congressional legislation to authorize various phases of the project. Moreover, because TVA has access to its own funds supported by revenues generated by supplying electrical services to its service territory, TVA does not need an appropriation from Congress to construct a project. There is, of course, internal review of a project within TVA and by the Board of TVA.

The foregoing discussion is a simplified and somewhat stylized description of a complex, costly and extremely lengthy process of direct congressional authorization of federal projects. The TVA process is obviously less time consuming but is complex. With respect to the direct congressional authorization process, public participation occurs during the commenting period for at least two draft EISs and, in the form of lobbying, with the Congress during the legislative process. Ultimately, the public and public interest groups may gain a stronger voice through litigation over the adequacy of the impact statement or some other provision of environmental law or regulation. While this litigation may concern immediately the adequacy of an EIS or a question concerning a particular provision of one of the several environmental regulatory statutes applicable to federal water projects, it may also be the most effective way for a public interest group to insist that it have a say in the decision to build the project or to prevent the project from being constructed.

Although the detailed procedures and steps to be followed for development of non-federal and federal projects are very different and the institutions, FERC, Congress, the Corps, WPRS and TVA, are all different, there are a number of common traits of each process which are particularly useful for policy analysis. First, each process determines "who" builds the project and is premised on the view that the resource is a "public" resource or has attributes of a "public good". Second, the process which results in the decision is open to public participation. Third, the process of deciding to develop a project invites conflict. If one accepts the premise that the natural resources of a particular site are "public" resources, one can hardly deny individuals and groups the right to insist that their views on how "their" resources should be used are the correct views on a particular project. Fourth, the processes can ultimately disregard state property law in that FERC or the federal development process may replace the owner of the site with a FERC licensee or a federal agency.

2. Environmental Regulation and Hydropower Development

In the last several years, major pieces of legislation enacted at the federal and state levels have attempted to identify and mitigate the environmental impacts of a variety of human activities. Figure 2 on pp. II-10 and 11 summarizes not only important environmental laws but other federal legislation as well. During the process of environmental review, decisions will be made whether to proceed with development of the site at all and what the design of the project will be. Some environmental laws are directed at specific aspects of project design, while others address not only project design, but also the basic decision as to whether to undertake hydropower development at all. In any situation in which design modifications cannot obviate serious environmental objections, the process of environmental regulation becomes a decision process over whether to develop hydropower in the first instance.

Because the environmental review frequently occurs at the same time the decision is made as to "who" gets to build the project in both the federal and non-federal development process, there is a tendency to fail to distinguish among the decision as to "who gets", the decision whether

Figure 2

Significant Legislation Affecting Hydropower

Legislation	Purpose	Effect on Hydropower Development
Federal Power Act	To license non-federal hydropower facilities; to protect fish passage and habitat; to provide recreational benefits to the public.	FERC licensing process decides who develops non-federal hydropower resources; FERC may recommend sites for federal study.
Public Utility Regulatory Policies Act (Titles II & IV)	To encourage small scale power production facilities.	Exempts projects of 30 MW or less from some requirements of FPA; requires utilities to purchase small scale hydropower at their avoided cost; requires licensing reforms; provides loan and grant authority to DOE for small scale hydropower development.
Energy Security Act	Exempts SSH from some licensing requirements.	Hydropower projects of 5 MWs or less may be exempted from aspects of FERC licensing.
Water Resources Planning Act	To provide a comprehensive planning framework for federal water projects.	Authorizes Principles, Standards, and Procedures; creates Water Resources Council and River Basin Commissions, authorizes planning grants.
Crude Oil Windfall Profit Tax	To provide tax incentives to SSH.	Allows tax credits for fish ladders and energy tax credits for other qualifying SSH property.
Clean Water Act §401	To ensure federal and non-federal compliance with state water quality standards.	FERC requires state certification that the project will meet state water quality standards before issuing a license.
§402	To regulate releases of pollutants from point sources.	May require the EPA or states to issue NPDES permits to hydro dams if they are determined to be point sources of pollution.*
§404	To regulate water quality impacts of dredging and filling.	Requires dredge and fill permit before undertaking project.**

*Will only affect hydropower if dams are determined to be a point source, presently an unresolved question.

**Whether Corps has independent permitting authority is still not clear. The most recent case, Monongahela Power, indicates that FERC can make the final decision.

<u>Legislation</u>	<u>Purpose</u>	<u>Effect on Hydropower Development</u>
Endangered Species Act	To protect listed endangered species and their critical habitat.	Federal agencies can deny licenses or permits and federal projects may be halted if a project threatens an endangered species or its habitat.
Fish and Wildlife Coordination Act	To ensure equal consideration of fish and wildlife protection in the activities of federal agencies.	Federal agencies are required to consult state and federal fish and wildlife protection agencies to mitigate impacts on fish and wildlife.
National Environmental Policy Act	To ensure that environmental considerations are systematically taken into account by federal agencies.	Federal agencies are required to prepare Environmental Assessments or Impact Statements which integrate environmental concerns with project purposes.
Wild and Scenic Rivers Act	To protect rivers in their natural state by excluding them from consideration as hydro sites.	Forbids FERC from licensing projects that directly affect designated rivers or rivers being studied for inclusion in the system.

to build the project, and the decision as to the design of the project. Moreover, because of perceived defects in the decisionmaking process as to "who gets" and whether to build, groups and individuals have tended in the past to attempt to defeat projects altogether by using one or another of the environmental laws and regulations. An example of this latter activity possibly is found in the Tellico Dam litigation where the main objection to the project by its opponents was its impact on agricultural land and a free-flowing river but the project was delayed over litigation concerning the snail darter. For purposes of analysis, however, the authors of this report think it useful to maintain the distinctions among the decisions as to "who gets", whether to build, and the design of the project. Different laws, regulations and institutional practices are involved in each of the three decisions. These differing laws, regulations and practices create different complexities and warrant differing approaches to reform.

At the risk of oversimplifying the main purposes and effects of environmental legislation and regulation, environmental legislation, the institutions and agencies which the legislation creates and regulations emanating from these agencies are based on three principal premises. The premises are that economic markets tend to ignore the off-site environmental impacts of a particular project with the effect that third parties who are not participants in the market transaction bear these costs. The failure of the market to internalize these environmental "costs" results in a subsidy by the affected members of society.²⁶ A second premise of some of this legislation is that there are certain values inherent in the natural environment which are absolute and any attempt to mitigate the harmful effects of a project or activity on these values will be unsuccessful. The third premise is that the persons who will be affected by a particular activity but who are not parties to the market transaction giving rise to the project should have the right to participate in the decisionmaking process and, under certain circumstances, compel changes in the activity or project or be able to prevent the activity or project from going forward altogether.

With respect to the attempt to regulate the environmental impacts of a particular project or activity, the National Environmental Policy Act of 1969, the Federal Water Pollution Control Act of 1972 and the Clean Water Act Amendments of 1977, the Fish and Wildlife Coordination Act, the Anadromous Fish Conservation Act, the National Historic Preservation Act, the Federal Land Policy and Management Act of 1976²⁷ and state legislation, which in many states is modelled on this federal legislation, are designed to identify and regulate the environmental impacts of particular hydro projects and activities. Many involve agencies in balancing their primary missions with environmental protection, thus inducing design changes or abandonment of proposed projects. The Wilderness Act, the Wild and Scenic Rivers Act and the Endangered Species Act²⁸ are examples of legislation which establish as absolute values the aesthetic and natural environments of wilderness areas, certain rivers and the continued existence of certain animal and plant species. Projects or activities which intrude on the natural and aesthetic environments of wilderness areas or wild and scenic rivers or endanger the continued existence of certain animal and plant species will be prohibited altogether. The Federal Administrative Procedure Act,²⁹ FERC regulations, the statutes described above and judicial decisions³⁰

have provided opportunities for participation by individuals and groups in the decisionmaking process of federal and state administrative agencies, federal development agencies and other non-federal private and public entities. Direct participation in the political process of the Congress of the United States and the state legislatures is, of course, also available to individuals and groups.

Again, at the risk of some oversimplification, our system of regulation has, for the most part, consigned the responsibility of environmental regulation to state and federal administrative agencies. For example, the Council on Environmental Quality has established regulations to guide agency implementation of the NEPA process by which environmental impacts are to be identified and mitigation alternatives examined.³¹ The responsibility for complying with NEPA remains in the hands of each agency. The Environmental Protection Agency of the United States government (or, in the case of a delegation of authority, a state water quality agency) has the responsibility of administering the Clean Water Act and assures that adverse environmental impacts on water quality and water supply are mitigated by project developers. The Fish and Wildlife Service, the Heritage Conservation and Recreation Service, and the Bureau of Land Management all have the responsibilities of assuring that adverse environmental impacts on fish species, historic places and sites, natural areas, and federal lands held in federal trust are mitigated or eliminated. Value judgements made by state and federal legislatures are represented by the Wild and Scenic Rivers Act and the Endangered Species Act. Of course, administrative agencies responsible for administering environmental legislation make more subtle value judgements with respect to individual projects and classes of projects.

The Congress and state legislatures are institutions whose very natures involve public participation in their processes. Administrative agencies are also required to provide opportunities for participation under various administrative procedure acts enacted at the federal and state levels and under the Constitution of the United States. Various statutes conferring jurisdiction on the federal courts and similar bodies of law in the states involve courts in the decisionmaking process.

Because, in the final analysis, it is the courts that enforce environmental laws, it is important to bear in mind that the discussion of environmental regulation takes full account of judicial interpretations of the law. The relative significance of various laws, and their ability to delay projects through litigation, make the courts an important part of the institutional system. The ability of litigants to seek judicial review of agency action, require strict procedural standards of government agencies and seek interpretations of the statutes may be critical to the success or failure of a project.

The system of laws and regulations discussed above, and the institutions created to develop and administer the system, all have a substantial bearing on the development of hydropower projects. With respect to a particular hydropower project, the impact of the system of environmental regulation and its institutions will have a greater or lesser effect on the development depending upon two characteristics of

the project. If the project has been identified as imposing significant adverse environmental impacts, the system of environmental regulation will subject that project to intense scrutiny and elaborate and lengthy administrative review. If the project is one with respect to which there is intense local opposition or public objection, the project will also be subjected to intense scrutiny and lengthy administrative processes by the institutions charged with responsibilities of environmental regulation. Lesser environmental impacts and strong local or public support will tend to reduce administrative scrutiny and procedural delay. Although there are some important procedural differences in how the system of environmental regulation bears on non-federal development and federal development, the system asks identical questions of each group of developers.

There can be no question that the system of environmental review involves significant costs of compliance over and above the cost of identifying and mitigating the environmental impacts of a particular project. The environmental concerns are almost identical for federal development and FERC licensing. Whether the environmental regulatory system described above properly compels environmental impact to be internalized by a project cannot be answered in the abstract. Most certainly, the layered review of hydropower projects by state and local agencies at the first level and the federal coordinating agencies at the second level impose "unnecessary" compliance costs. Moreover, the environmental regulatory system welcomes participation and, accordingly, invites conflict.

Three major problems in the environmental regulation of hydroelectric power have emerged in this study. These concern the regulatory process itself, as distinguished from substantive environmental requirements. Substantive requirements are matters of social, political and administrative choice. The regulatory process itself may be criticized for its duplication, overlap, and unnecessary delays, its failure to consistently distinguish between projects with major and minor impacts, and its lack of finality. The general types of solutions recommended include measures to streamline regulation, tailor it to project scope, and make it final.

To the extent that developers and regulators devote their labor and capital resources to the process of compliance with an inefficient regulatory system rather than to substantive measures to protect and enhance the environment, environmental regulation fails to do its job adequately. Additionally, if the regulatory system sends contradictory signals to developers, hydropower development will be hampered for no good reason.

That there may be good reasons for changing or rejecting projects on environmental grounds is not disputed. This report discusses ways that the process of making decisions can be improved so that developers can understand what they must do to safeguard the environment.

In addition, the regulatory system should reflect a reasonable notion of the comparative values that society places on energy and the environment. While economic theory can help in making this judgment, it is ultimately a value judgment a democratic society makes through its political and administrative processes. The decisions as to whether to build and how to mitigate impacts are sometimes controversial aspects of environmental regulation. It is the purpose of environmental regulation to help assure that market decisions are made with adequate consideration of social values not represented in the market. The important role played by environmental regulation has been analyzed with a view toward maximizing its efficiency, effectiveness, and appropriateness.

3. The Marketing Conditions for the Output of Hydropower Projects

A few observations are in order here concerning the marketing of electric power from hydropower projects for two reasons.

First, the principal purpose of any hydropower development is to market electric power. To the extent that there are constraints on the marketing of power, there will be constraints on development. To the extent market constraints are eased, there will be an increase in hydropower development. As will be discussed briefly below, market constraints for small scale non-federal developers have eased considerably in recent years.

Second, the way power is marketed will influence substantially which type of developer, federal or non-federal, develops the project. Under present law, power developed by a federal development agency is marketed by regional federal power marketing agencies which are required by law to transport power and to sell at low cost to certain preference customers, i.e. municipal, state and rural electric cooperative entities.

The industry which generates, transmits and distributes electrical power to persons and entities in the United States has been subject to pervasive economic regulation by state and federal regulatory agencies. Traditional economic theory, until recently, viewed the industry as a "natural monopoly."³² Under this theory the industry was perceived as an industry with continuing declining average costs over the long run. Under these circumstances, competition could not exist and one firm would come to dominate the market. The legislative response to this phenomenon in the early part of this century was to recognize the inevitable, i.e., the emergence of a dominant firm in the electric utility market, and to license that firm as a state franchised monopoly and to subject that firm to pervasive economic regulation. Under the system of economic regulation the firm would have the obligation to serve all customers in its franchise territory, could not abandon service without permission of the regulating agency, would have its prices reviewed by the regulatory agency and would be limited to "reasonable" profits derived from its business. To administer this system of pervasive economic regulation, the states established public utility commissions. Public utility commissions are administrative agencies which administer the system of rate of return and price regulation of electric utilities doing business in their states.³³

In 1935, Part II was appended to the Federal Power Act.³⁴ Part II authorized and required the Federal Power Commission (FPC) to regulate the interstate transmission and sale of electric power. What this legislation failed to make clear was the relationship of the FPC to state regulatory commissions when a utility subject to state regulation also was engaged in interstate sales and transmission of electrical power. For a period of twenty-nine (29) years the FPC and state agencies were uncertain about their relationship. In the Colton case,³⁵ the relationship was clarified. It was determined that the FPC had jurisdiction over investor owned utilities which were interconnected with interstate electric grids and sold electric power at wholesale and that state regulatory commissions had jurisdiction over electric utilities which sold electric power at retail. Given that the bulk of revenues derived from the sale of electric power are derived from retail sales,³⁶ the most significant regulatory effort is by the state regulatory commissions. Moreover, under Part II of the FPA, states continue to regulate the siting and construction of non-nuclear facilities exclusive of the FERC and determine the extent of the regulated utilities' franchise territory.³⁷

There are exceptions to the system of pervasive economic regulation by administrative agencies of electric utilities. While the investor owned utilities have close to eighty percent (80%) of the retail sales of electric power in the nationwide electric power market, there are public entities and rural electric co-ops which also sell electric power at retail in substantial quantities. Public utilities are state authorized entities, political subdivisions or municipalities which are engaged in the electric utility business. Much like their private counterparts, they market power to a service territory defined by state law or regulation. Many states have chosen not to subject public utilities to regulation by the utility commission of the state but rather have chosen to leave the determination of rates to the political process.

In 1935, by executive order, the President of the United States established the Rural Electrification Administration (REA). Shortly after the establishment of REA, Congress enacted legislation confirming the establishment of REA and expanding its power.³⁸ REA is an agency within the Department of Agriculture which provides financing and other technical assistance to non-profit co-operatives engaged in the distribution of electric power to their membership. As with public entities, many states have chosen not to subject co-operatives organized within their states to the regulation by the state regulatory commission.

The market relationship between investor owned utilities and public and co-operative utilities is one of unequal market power. Investor owned utilities control 80% of the generating capacity in the United States and 70% of the miles of high voltage transmission lines within the United States. There are certain sectors of the United States, such as the State of Washington, where the public utilities are dominant and have access to or control a substantial portion of the hydroelectric generation capacity in their regions. The relationship between the investor owned utilities and the public and rural co-operatives, for the most part, is regulated by FERC, the sales from investor owned utilities

public and co-operative utilities being wholesale sales of electricity in interstate commerce.³⁹ The public utilities and electric co-operatives have been critical of FERC regulation of wholesale rates. One criticism is that FERC permits the investor owned utilities to price discriminate against public utilities and rural co-operatives.⁴⁰ This price discrimination takes the form of permitting the investor owned utility to charge high wholesale rates to wholesale customers while, at the same time, state regulatory commissions which regulate the retail rates of that same investor owned utility will permit lower retail rates to the same classes of customers. Another criticism directed at FERC is that it does not subject requests for wholesale rate increases by investor owned utilities to careful regulatory scrutiny. A third criticism is directed more at the system of federal regulation of the electric utility industry than at FERC. Public utilities and co-operatives may have available electric power from remote sources. However, in order to obtain delivery of that power, it must be shipped over transmission lines owned by an intervening investor owned utility. Pursuant to a number of legal theories, public and co-operative utilities have sought to impose an obligation on the intervening investor owned utility to "wheel" the power to the purchasing public or co-operative utility.⁴¹ The position of the investor owned utility industry and FERC has been that the Federal Power Act does not authorize FERC to order "wheeling" under these circumstances.⁴²

Viewed from the perspective of an economist, the electric utility industry of the United States is a highly concentrated industry where considerable market power resides with the investor owned utility portion of that industry. The regulatory system imposed on the industry by the administrative agencies charged with regulation is complex and time consuming. Rate cases before state agencies often take six to nine months to decide and involve voluminous exhibits and extensive testimony by experts. In recent years the economic literature has questioned the description of the electric utility industry as a "natural monopoly".⁴³ This literature has pointed out that the industry, especially the generating portion of it, no longer appears to be a declining average cost industry. This literature further suggests that the generating portion of the industry be deregulated and that the transmission portion of the industry, which continues to bear natural monopoly characteristics, be regulated as a common carrier. The electric power market is as noted, not an open market which is accessible by persons wishing to purchase and sell electric power.

In an attempt to overcome the structural deficiencies of the electric power industry, Congress has established a number of institutions which directly benefit public and co-operative utilities and has enacted legislation which provides preferences for public and co-operative utilities. The institutions are the five federal power marketing agencies which are under the administration of the Department of Energy. These power marketing agencies provide transmission services for electric power generated at federally owned stations. The principal source of federally generated power is, of course, hydroelectric power from federal hydropower projects. The rates for the transmission service and the rates for the power itself are set by DOE and are subject to review by FERC.

Under the Flood Control Act of 1944⁴⁴ and the Bonneville Project Act,⁴⁵ public utilities and electric co-operatives are granted a preference to the power marketed by the federal marketing agencies. In the event that co-operative and public utilities are unable to utilize all of the power generated at federal projects, the excess is sold to industrial and investor owned utility customers. Given the weaker market position of public utilities and co-operatives in most parts of the United States, the existence of the marketing agencies and the "public power" preference under the Flood Control Act of 1944 and the Bonneville Power Act are of vital interest to public and co-operative utilities. These institutions and policies suggest that public utilities and cooperatives will strongly support federal development of hydropower.

Until recently access to the electric utility market was, for the most part, prohibited by virtue of the existence of monopoly enterprises and pervasive state and federal regulatory systems. Accordingly, hydropower development was confined by this market structure to private, public and co-operative utilities, federal development agencies or, in rare instances, a manufacturing plant which had access to a nearby site. For the investor owned utility, access to the market was easy since it controlled the market. For the public utilities and co-operative utilities, if a site was located in their service territory, there was a ready market for the power. If the site was not located in the service territory of the public or co-operative utility, then the public or co-operative utility confronted the difficulties of persuading the private utility to wheel power from the site to the public or co-operative utility's service territory. With respect to those sites owned and operated by manufacturing establishments, the manufacturing establishment would use the bulk of the power itself with the excess being sold to the electric power system in its territory at "dump" (very cheap) power rates.⁴⁶ There was, however, little room for the private entrepreneur who sought to develop generating capability and to sell the output to a customer or customers at fair rates.

Title II of PURPA, enacted in 1978,⁴⁷ contains the potential for significant change in the market structure of the electric utility industry in the United States. By that legislation, development of electric generation capacity by persons not engaged in the electric utility business is encouraged and developers of this capacity are guaranteed access to a market at fair rates. The access to the market provided by PURPA, however, is limited to certain forms of generation. Electrical capacity developed by cogeneration technology is guaranteed access to electric power markets. Generating capacity 80 MWs or less in size and utilizing renewable energy sources will similarly be provided access to the market at fair rates.⁴⁸ Under FERC regulations promulgated pursuant to the requirements of Title II of PURPA, hydroelectric generating stations at existing and new sites qualify for the protections of Title II of PURPA.⁴⁹

Since the enactment of Title II of PURPA, FERC has promulgated extensive regulations defining those entities and persons who qualify for the protection of the Act, establishing formulas and standards for the determination of the rates for the exchange of power between the small power producer and the electric utilities and exempting the small power

producers from traditional forms of state and federal electric utility regulations.⁵⁰ Implementation of the FERC regulations is presently underway within the various states. It is too early to tell precisely what the effect of the legislation and the FERC regulations will be on the development of hydroelectric power at sites of 80 MWs or less. However, there can be no question that the passage of the legislation and the promulgation of the regulations by FERC address a significant market imperfection and make accessible a market which otherwise would not be accessible to private utility developers of electric generation.

The market structure of the electric utility industry in the United States and the recent developments under Title II of PURPA are instructive for future hydropower development in the United States.

Given the market structure of the industry, the federal power marketing agencies were a rational response to the problem of marketing federally developed power. The public power preference under the Flood Control Act of 1944 and the Bonneville Power Act can also be seen as the attempt by Congress to redress an imbalance in market relationships. The existence of the marketing agencies and the public power preference has stimulated support for federal hydropower development among public and co-operative utilities. It is likely that this support will continue even after the enactment of Title II of PURPA. PURPA provides no special benefits to public and co-operative utilities but rather makes electric power markets accessible to non-utility public and private developers.

4. Public Expenditures Favoring Hydropower Development

In the past, large expenditures of federal funds have been made to support hydropower development in the United States. These expenditures are best illustrated by federal development in the Columbia River Basin in the 1930's, Hoover Dam and development by TVA in the Tennessee Valley. Most recently, provisions in the Internal Revenue Code⁵¹ and programs authorized by Title IV of PURPA⁵² have committed public funds to support hydroelectric development or authorized tax expenditures favoring such development. In terms of developing further public policies which commit public funds to support hydropower development, it is necessary to examine the rationale for these public expenditures.

As discussed earlier, there is a tradition in the United States that hydroelectric sites are public resources and should be owned, developed or administered by public agencies. If one assumes that all hydroelectric sites are a public resource, then it obviously follows that public funds should be used to develop some if not all of these sites. A second rationale is that hydropower sites are "public goods" or have attributes of public goods. A working theory is that public goods cannot be allocated by a market and, accordingly, must be allocated by the government. Most certainly, especially in the case of an impoundment which provides recreational and flood control benefits, a dam or impoundment is a public good or has significant attributes of a public good. A third rationale supporting public expenditures in favor of

hydroelectric power development acknowledges that hydroelectric power development confers external benefits on society. Again, microeconomic theory holds that market transactions will fail to take into account the external benefits of a particular project or human activity. In the case where the external benefits are not taken into account, microeconomic theory holds also that the resources of society will be misallocated.⁵³ In order to correct for the misallocation created by the market failure, it has been suggested that public funds and expenditures be made on behalf of the activity which creates the external benefits.⁵⁴ In the case of hydroelectric power development there can be no question that such development represents exploitation of renewable indigenous energy resources of the United States. To the extent that these indigenous and renewable resources are developed, the dependency of the United States on foreign oil is reduced. Furthermore, to the extent that dependency on foreign oil is associated with reduced national security, hydropower development will increase national security.⁵⁵

At this point, one is tempted to categorize hydropower development as either development of a public resource, development of a public good or development of a resource with extensive external benefits. No single categorization, however, is helpful to policy analysis and a single categorization will ignore the accuracies implicit in the other two categorizations.

As noted briefly above, there have been various types of public expenditures to foster the development of hydropower in the United States. Federal development of hydropower sites under various pieces of water resource development legislation involves appropriating funds raised substantially through federal taxation. Under water resources development procedures, the Congress of the United States traditionally appropriates the necessary funds for the study, design and construction of Corps and WPRS projects. Notwithstanding that there is a local or state contribution to the project from the locality or the state to be immediately benefited by the project and that the power output of the hydropower project is to be marketed on the basis of the "lowest cost consistent with sound business principles", there is a substantial commitment of public funds to such projects. Insofar as these projects provide pure public goods, i.e., flood control benefits and recreational benefits, it is highly probable that the federal government (or a state or local government) would be the only possible developer of the project and provider of these public goods. With respect to the hydropower aspects of multi-purpose federal water projects, it may be argued that there is a ready market for the development of that part of the project. The justification for federal development of the hydropower aspects of the project is, of course, that the hydropower project confers external benefits on society which would go unrecognized in any market transaction. If, however, public funds are already being spent to support hydropower development by the non-federal sector, then there may be serious doubts concerning the commitment of federal funds to federal development.⁵⁶ Most recently, with the burgeoning interest in small scale hydroelectric development, there has been an increase in public expenditures supporting development of small scale projects at existing sites. To the extent that public expenditures are supporting non-federal

development of small scale projects at existing sites, expenditures of federal development funds for small scale federal development may be unnecessary to capture the external benefits of small scale hydropower and may even over-compensate such benefits.

The first commitment of public funds to small scale hydroelectric development occurred with the passage of Title IV of PURPA.⁵⁷ Under provisions of that statute, low interest loans for feasibility studies, licensing applications and construction were to be made available by DOE to developers of hydroelectric projects at existing sites of 30 MWs or less in capacity.⁵⁸ However, at this writing these programs are scheduled for termination under the New Economic Program.

In May of 1979, the White House announced its Rural Energy Initiatives (REI).⁵⁹ These initiatives, based on a memorandum of understanding among a number of federal agencies, promised to commit the available resources and funding mechanisms of several federal agencies to support small scale hydroelectric development. The principal agencies with available funding mechanisms included in the memorandum of understanding were the Farmers Home Administration, the Department of Housing and Urban Development--Urban Development Action Grant Program, the Rural Electrification Administration and the Economic Development Administration. The REI and the Memorandum of Understanding committed these agencies to adapt programs designed principally to finance and fund projects other than hydropower projects to small scale hydropower development. The future of this program is in serious doubt in that many of the programs, and even some of the agencies operating under it, are scheduled for termination.

The most significant commitment of public funds to small scale hydroelectric development occurred with the passage of the Crude Oil Windfall Profit Tax Act of 1980 (COWPTA). Under the provisions of that Act, an eleven percent (11%) energy tax credit was made available to developers who would undertake to develop hydroelectric projects at existing sites of 125 MWs or less. The full eleven percent (11%) tax credit was available for projects of 25 MWs or less at existing sites and a declining percentage of the eleven percent (11%) energy tax credit was made available for projects between 25 MWs and 125 MWs. The Act also contained a provision which made fish ladders and other fish passageway investments at hydroelectric facilities eligible for the basic investment tax credit of ten percent (10%) and the eleven percent (11%) energy tax credit. The energy tax credit under COWPTA is available for small scale hydroelectric facilities through 1988. COWPTA also contained provisions which secured tax exempt status for publicly issued debt instruments to support small scale hydroelectric development at sites owned by public entities and municipalities.

There is one other type of public expenditure, which is represented by the National Hydropower Study and a number of the activities of the Corps and DOE, which, in effect, provides a public good. This public expenditure is designed to provide broadly disseminated information about about complex systems and processes is probably a classical public good. To reiterate, markets will fail to provide such a public good.

In the last two to three years several national and regional conferences under Corps and DOE auspices have been held on various aspects of hydroelectric development. In addition, the Corps has published manuals to guide developers and provide an inventory of sites. DOE has funded several consulting firms, established outreach programs in regional offices and established model commercialization programs in two of its regional offices. Given the complexity of the licensing process, the system of environmental regulation, the systems of marketing the output of hydroelectric power and the various financing assistance mechanisms available to hydroelectric developers, public dissemination of information concerning hydroelectric development is most certainly warranted.⁶⁰ Whether or not the expenditures on this form of information transfer are adequate, inadequate, or more than adequate is unknown and probably unknowable.

In terms of development of large, new sites or new multi-purpose sites, there is a strong justification for public expenditures in this regard. Presumably, these projects will be multi-purpose projects in the tradition of federal water resource project development. Undoubtedly the projects will have flood control and recreational purposes. These purposes will not be served by market transactions which focus solely on hydroelectric development. With respect to existing sites, the development of which will involve large environmental impacts (external costs), public development may be appropriate for the reason that markets will not support projects which would have to incur the capital costs necessary to internalize the environmental impact. To the extent that the systems of environmental regulation presently in place overregulate, *i.e.*, they require the developer to bear the costs of mitigating environmental impacts to which society as a whole is indifferent, public development of these sites may be appropriate. It should be noted that the need for public development of large multipurpose sites does not dispose of the question of whether federal or regional, state or local entities develop a large or environmentally intrusive project. In this regard, given that there are in place federal agencies which have the expertise and experience in building such projects, federal development of large multi-state or regional projects may be appropriate.

With respect to existing sites where the environmental impacts are not great, it would appear that development by market choices to invest would readily occur. There are in place the public expenditure programs of COWPTA to support non-federal development.

C. Policy Trends in American Water Policy and Energy Development

In the preceding part of this chapter, hydroelectric development in the United States has been examined in the context of the systems which decide "who gets" the site, environmental regulation, market regulation of the output of hydroelectric plants and public expenditures tending to favor hydropower development. From the preceding discussion certain policies and trends in policies are discernible. However, this section will make explicit some of the major policy trends which will have an effect on and which have affected hydropower development in the United States.

In light of the preceding discussions two trends in policy need only briefly be noted here. The first trend is the apparent stalemate in large federal water projects and the lack of consensus concerning the role of federal development in large scale water projects. At this writing, federally sponsored water projects are taking longer and longer periods of time to proceed from study through construction and operation. Documentation of the Corps and WPRS indicates that water projects now take approximately 12 - 16 years and even longer from study through actual construction. (See charts at the end of Chapter 3.) The second trend has been the emerging concern of the effect of human activity on the environment. This concern is perhaps prompted by greater understanding of environmental impacts fostered by increased technology and methods of communication. It is also prompted by a better understanding of how the market economy of the United States often fails to take into account the adverse effects of particular activities on persons not parties to the market transactions. To the extent that activities such as federal water development projects are perceived as developing "public" resources, individuals and groups have insisted and will insist that their preferences for or against development of public resources be considered in any decisionmaking process.

A third development in American society at this time is an increasing disillusionment with government and its ability to substitute for or regulate economic markets. During the period of 1935 - 1980, the federal government experimented with various forms of government regulation of economic markets. Recently, however, several initiatives have been undertaken to deregulate the domestic passenger airline industry,⁶¹ the motor carrier industry,⁶² portions of the electric utility industry,⁶³ the railroad industry⁶⁴ and the communications industry.⁶⁵ Economic literature has increasingly exposed the failures of government economic regulation and underscored the belief that unregulated economic markets best allocate scarce societal resources.

The fourth development was precipitated by the series of shocks to the American economy occasioned by two energy crises of the 1970's. These crises were caused by the increasing dependency of the United States on oil imported from a few countries located in the Middle East and South America and the ability of those countries to form and maintain a cartel to influence substantially the price and supply of oil sold to the world. During the period of 1973 - 1980 the United States imported roughly forty percent (40%) of its oil needs from these countries or approximately 8 million barrels per day. During this period also, the real price of a barrel of oil increased by almost four hundred percent (400%).⁶⁶ Moreover, some of the oil supplying nations embrace political ideologies hostile to American views or are deeply opposed to certain American policies in the Middle East. During this same period there have been two major wars in the region with the second war between Iraq and Iran presently in progress.

These events have prompted a major reexamination of the energy policy of the United States. The principal goal of that energy policy is to reduce substantially American dependency on imported oil and to substitute for that oil conservation and energy from indigenous sources. Substantial evidence of this policy is found in several places of

legislation which have been enacted in the last six to seven years. The principal legislation is the National Energy Act of 1978, the COWPTA and the Energy Security Act of 1980.⁶⁷ Very little of this legislation has addressed hydroelectric development and what few provisions there are, are addressed to the problems of non-federal development of small scale hydroelectric sites. The Public Utility Regulatory Policies Act of 1978 exhorted the FERC to simplify its licensing process for small scale facilities and provided, as noted above, low interest loans for feasibility studies, licensing activities and construction at those sites. COWPTA has provided tax expenditures for non-federal development and the Energy Security Act permits FERC to exempt sites of 5 MWs or less capacity from federal licensing requirements.

Each of these policy trends will affect hydroelectric development in major ways. The environmental movement for the most part is opposed to the development of nuclear generating plants. Its position is substantially aided by the nuclear accident at Three Mile Island. A part of the environmental movement and groups which support private initiatives on a small scale favor development of small renewable dispersed energy sources. The environmental movement continues its opposition to large scale federally developed water projects including large scale hydroelectric plants. The reform of federal economic regulation and greater reliance on the economic market to make investment decisions also affect energy policy. After a relatively brief experiment with price and supply regulation of domestic oil markets and a longer term experiment with price regulation of natural gas production, federal energy policy has recently abandoned these approaches in favor of the market. The consensus is that prices and supplies of oil and natural gas will increase and, in fact, that is what is happening. Of course, removal of price ceilings on oil and natural gas have made alternative energy resources more attractive.

Regulation of the electric utility industry, long considered one of the most appropriate subjects of pervasive economic regulation because of its perceived "natural" monopoly characteristics, has recently been changed. By the National Energy Act of 1978, (Title II of PURPA) entry into the electric generation market is assured for cogenerators and developers of small generating plants which utilize renewable energy resources.

The two attributes of hydroelectric development favored by American energy policy at this time are, of course, that hydropower is a renewable and indigenous energy source. A third characteristic of hydropower development attributable to rehabilitation or expansion of capacity at existing dams is that these projects are comparatively environmentally benign. This latter characteristic of certain forms of hydropower development may reduce substantially opposition to these projects by environmental organizations. Moreover, small scale hydropower development at existing sites has engendered support by groups and organizations favoring development of small dispersed renewable energy resources. There is evidence that these trends and initiatives have prompted a response by the market. In the last two years, FERC has experienced an explosion of permit and licensing applications by various

organizations, agencies, local governments and private entrepreneurs. The bulk of these license applications and permit applications are for sites less than 25 MWs of installed capacity presently in existence. A somewhat lesser percentage of these permit and license applications, but still greater than fifty percent (50%) of the total, are for existing sites of 5 MSs of capacity or less.⁶⁸

¹The authors have found no major legal distinctions between the regulation of pumped storage and other types of hydropower. Therefore, no separate analysis of pumped storage projects is contained in this report.

²See, NHS, Main Report, draft, 1981.

³For purposes of this discussion several related microeconomic concepts are used. An external cost is a cost borne by a third party who is not a party to the market transaction which imposes the cost. A prime example of an external cost would be an adverse environmental impact such as the deterioration of water quality caused by a hydropower project. An external benefit is a benefit conferred on a third party who is not a party to the market transaction. An example of an external benefit would be reduced use of imported oil and an attendant increase in national security. The economics literature recognizes that market transactions fail to take these "externalities" into account. The result is that third parties who bear the external costs, in fact, subsidize the project. Assuming all external costs are internalized in a competitive market, if an activity confers external benefits on third parties, markets will tend to underallocate resources to the activity (i.e., less development than is desired by society will occur). See generally Public Finance and the Price System, Browning and Browning, Macmillan, N.Y., 1979, at pp. 1-54, (hereinafter Public Finance).

⁴The most recent, authoritative statement on federal reserved water rights is found in U.S. v. New Mexico, 438 U.S. 696 (1978). Federal reserved water rights arise when the federal government has reserved federal lands for certain purposes. Courts have held that the federal government has reserved water rights necessary to carry out the purposes of the reservation. The appropriation of these water rights dates back to the establishment of the reservation. See Cappaert v. U.S., 426 U.S. 128 (1976). The implications of the federal reserved water rights doctrine to western state "appropriation" systems are serious. Under the doctrine, the federal government may be deemed a prior appropriator even though it never perfected its water rights under state law.

⁵These attempts are part of the "Sagebrush Rebellion". With the enactment of the Federal Land Policy and Management Act of 1976 (FLPMA), several western states passed or considered legislation which attempted to assert state title to all public lands and minerals not previously appropriated or reserved. These states include Nevada, New Mexico, Utah, Washington and Wyoming.

⁶Winters v. U.S., 207 U.S. 564 (1908) is the seminal decision. The case of Arizona v. California, 373 U.S. 546 (1963) expanded Indian reserved water rights. The most recent cases are described in Appendix V.

⁷There are numerous treatises on water law. For a general reference to the two systems, see Clark, R.E., Water and Water Rights: A Treatise on the Law of Waters and Allied Problems (The Allen Smith Co., Indianapolis, Ind., 1967-72).

⁸For an early history, see Kerwin, Federal Water Power Legislation, (1926) and for a somewhat biased view see Pinchot, The Long Struggle for Effective Federal Water Power Legislation, 14 Geo. Wash. 2 L. Rev. (1945).

⁹16 U.S.C. §§791 et seq. (1976).

¹⁰See generally 18 C.F.R. §4.30 et seq., and 45 Fed. Reg. 58371 (1980).

¹¹16 U.S.C. §800(a) (1976).

¹²16 U.S.C. §803(a) (1976).

¹³16 U.S.C. §814 (1976).

¹⁴16 U.S.C. §803(e) (1976).

¹⁵16 U.S.C. §797(e) (1976).

¹⁶Id.

¹⁷16 U.S.C.A. §824 (1979).

¹⁸Pub. L. 96-294, 94 Stat. 611.

¹⁹The view that hydropower sites are public resources is based on the history of the FPA and federal water projects development policies. It implies that there has been sufficient sentiment among persons inside and outside of government over a long period of time that hydropower sites are owned by the "people" and should be allocated by the servants of the people.

²⁰A public good is defined by economists as a good the consumption of which by one person does not diminish another persons's consumption of it. This condition also means that a person cannot practically exclude another person from consuming the good. The flood control benefits of a dam are, of course, a public good when they inure to benefit of a large number of people. Economic theory holds that markets fail to allocate "public goods". See Public Finance, pp. 1-54.

²¹16 U.S.C. §§831Y-1 et seq. (1978). (See Appendix III.)

²²The Water Resources Planning Act of 1965, 42 U.S.C. §1962 (1974).

²³For a detailed description of the Corps and WPRS, see Appendices I and II to this report.

²⁴Principles and Standards: 38 Fed. Reg. 24,788 (1973). Procedures: 44 Fed. Reg. 72,892 (1979).

²⁵The National Environmental Policy Act of 1969, 42 U.S.C. §§4321 et seq. (1976).

²⁶See Public Finance, pp. 1-54.

²⁷42 U.S.C. §§4321 et seq. (1976) (NEPA); 33 U.S.C. §§1251 et seq. (1978) (Clean Water); 16 U.S.C. §661 (1976) (Fish and Wildlife Coordination); 16 U.S.C. §757a (Supp. 1978) (Anadromous Fish Conservation Act); 16 U.S.C. §470-470m (1976) (Historic Preservation); 43 U.S.C. §§1701 et seq. (1976) (FLPMA).

²⁸16 U.S.C. §1131-1136 (1976) (Wilderness Act); 16 U.S.C. §1271-1281 (1976) (Wild and Scenic); 16 U.S.C. §§1531 et seq. (1976) (Endangered Species).

²⁹5 U.S.C. §§551 et seq. (1977).

³⁰See United States v. Students Challenging Regulatory Agency Procedures (SCRAP), 412 U.S. 669 (1973) in which the Supreme Court gave expanded status to groups to challenge administrative action.

³¹43 Fed. Reg. 55,978 (1978) (CEQ regulations).

³²The early economic literature developed the natural monopoly theory. For the classical treatment of this theory see Zeuthen, F., Problems of Monopoly and Economic Welfare, Routledge, London, 1930.

³³Any number of general treatises discuss electric utility regulation. See Priest, Principles of Public Utility Regulation, Michie Co., Charlottesville, 1969.

³⁴16 U.S.C. §824(a) - 824(h) (1976).

³⁵FPC v. Southern California Edison Co., 376 U.S. 205 (1964).

³⁶About 90% of all revenues from sales of electric power are at retail. See Statistics for Privately Owned Electric Utilities in the United States - 1978, DOE/EIA-0044(78), 1979, p. 24.

³⁷16 U.S.C. §824(b).

³⁸7 U.S.C. §§901 et seq.

³⁹The Colton decision clarified FPC (now FERC) jurisdiction in this regard. If the wholesale-electric utility is interconnected with a grid which interchanges power on an interstate basis, FERC jurisdiction exists. With the exception of Alaska, Hawaii and a major portion of Texas, all electric utility systems in the U.S. are connected to interstate grids.

⁴⁰In FPC v. Conway Corp., 426 U.S. 271 (1976) the Supreme Court held that the FPC had to examine the anticompetitive effects of higher wholesale rates for public utilities.

⁴¹In Otter Tail Power Co. v. U.S., 410 U.S. 366 (1973) the Supreme Court held, under circumstances of anticompetitive practices, that Otter Tail could be forced to wheel power.

⁴²Recent changes in the FPA under PURPA make wheeling available on a limited basis. See discussion infra., at pp.

⁴³Recent work in the broad area of production function specification has produced mixed results as to the economies of scale in production with large fixed cost.

⁴⁴16 U.S.C. §825s (1976).

⁴⁵Bonneville Project Act, 16 U.S.C. §§832 et seq. See also 41 Op. Att'y. Gen. 236 (July 15, 1955).

⁴⁶Under these circumstances the manufacturer-developer confronted the classic "monopsony" market, i.e., a market dominated by a single purchaser. See Ringo, M., Monopsony and the Supply of Power from Small Generating Stations, Energy Law Institute, Concord, NH, (1980).

⁴⁷Pub. L. No. 95-617, 92 Stat. 3117 (1978) (hereinafter PURPA).

⁴⁸PURPA, §201.

⁴⁹45 Fed. Reg. 17,965 (1980).

⁵⁰45 Fed. Reg. 17,965 (1980) and 45 Fed. Reg. 12,236 (1980).

⁵¹Title II of the Crude Oil Windfall Profit Tax Act of 1980 (COWPTA) contains the provisions amending the Internal Revenue Code, (Pub. L. 96-817).

⁵²See Energy for Rural America, Rural Development Initiatives, the White House, May, 1979.

⁵³See Public Finance, pp. 1-54.

⁵⁴The misallocation assumes that the market is competitive and all external costs (environmental costs) have been internalized.

⁵⁵In the past all of the large successful federal projects conferred the additional benefit of providing a basic, physical infrastructure (water supply, flood control and power) for the economic development of certain regions of the country. Such economic development at the time was perceived to be in the national interest.

⁵⁶This argument, of course, does not address the serious question of whether the "federal", as opposed to some other governmental entity (regional, state or local) should continue developing water projects even when the water project confers flood control and recreational benefits.

⁵⁷16 U.S.C. §§ 2701-2708 (1978).

⁵⁸DOE has promulgated regulations (45 Fed. Reg. 3544 (1980)) for the feasibility study and licensing application processes. Loans issued under these regulations are forgivable if the project is infeasible or if the developer cannot obtain a license.

⁵⁹For a general discussion of Title IV of PURPA and the REI see, Federal Obstacles and Incentives to the Development of the Small Scale Hydroelectric Potential of the Nineteen Northeastern United States, ELI, July, 1980, (Federal Report) at pp. 221-234.

⁶⁰This statement is not without its critics. However, to the extent that broadly disseminated information reduces barriers to entry into the hydropower development market and increases competition society gains. Information generated by present occupants of the market can hardly be expected to be shared with potential occupants.

⁶¹49 U.S.C. § 1301 et seq. (Supp. 1980).

⁶²Pub. L. 96-296; 93 Stat. 793.

⁶³Title II, PURPA.

⁶⁴49 U.S.C. § 1 et seq. (Supp. 1978).

⁶⁵The deregulation of the communications industry has largely been by administrative fiat of the Federal Communications Commission with an assist from the Courts. Re: The Carterfone Device, 13 F.C.C.2d 420 (1968); Re: The Specialized Common Carrier Services, 29 F.C.C.2d 870 (1971).

⁶⁶The nominal price of crude oil went from around \$3.00 in 1973 to around \$32.00 in mid 1980. Over that period the GNP deflator increased from 110 to 240. Hence, the real price rose about 385% ($\$32.00 (240 / 110 \times \$3.00) = 4.85$ or a 385% increase).

⁶⁷

42 U.S.C. 8701 et seq. (Supp. 1980).

⁶⁸Interview with Mr. Ron Corso, Director, Division of Hydroelectric Licensing, Federal Energy Regulatory Commission, Washington, D.C., March 2, 1981. As of December, 1980, FERC and pending 105 license applications and 772 permit applications for the year. By comparison, in all of 1978, there were 12 license applications and 37 permit applications.

Chapter 3. FEDERAL AND NON-FEDERAL DEVELOPMENT MECHANISMS

This chapter analyzes and contrasts the federal and non-federal development processes which determine whether and under what conditions hydropower will be developed. We will examine the mechanisms of resource development and regulation, the principles behind these mechanisms, and the conflicts generated by the institutional relationships that characterize these development processes. We then confront the ultimate question for this study and for the Congress which is what the appropriate federal role should be in hydropower development.

The most important institutional issue that has emerged in this study is the question of the extent to which the federal government or non-federal entities should develop the hydropower resource. In the case of federal development, the mechanisms are in place and are complex.¹ Non-federal development is a moving target. As noted in the previous chapter, it has undergone significant changes, particularly for small scale projects. As a result of these changes, the institutional framework has developed a bias which would tend to favor non-federal development at small scale sites. However, there is significant room for improving the federal development process so that federal development could also be a more efficient, cost-effective way to produce hydropower. Part of the reason for the discrepancy between federal and non-federal development is that a recent vigorous revival of interest in small scale hydropower (which has been traditionally more of interest to non-federal developers) has precipitated movement to reduce institutional barriers to its development, while no such revival has occurred for large water projects (where federal hydropower development typically occurs).

Because non-federal hydropower development has traditionally been relatively small scale and for a single purpose, while federal development has been large-scale and multi-purpose, the development mechanisms that have grown up for each process reflect the scale and complexity of the projects. Non-federal development processes tend to be better tailored to project size partly because a variety of different sized projects have engaged the interest of the non-federal sector. The federal government has developed a system oriented toward large, multi-purpose projects designed to optimize a variety of benefits of which hydropower is only one. This proclivity for large, complex projects builds in a tendency toward highly complicated planning and review processes as well as a risk of significant conflict over environmental, social, and budgetary impacts. The Corps and WPRS are currently developing processes to streamline the approval process for hydropower additions to their existing dams, in recognition of the opportunity these dams present and the inappropriateness of complex planning processes for seizing that opportunity.²

The institutional barriers to large scale hydropower remain in place and, if anything, appear to be increasing. Environmental regulation has been the most serious damper on large scale development, but there is also a widespread perception that the actual potential for large scale development is not that great.³ The National Hydropower Study (NHS) should clarify the extent to which potential future

hydropower can be large scale rather than small scale development. When undertaken by the federal government, large scale development involves front end expenditures of substantial amounts of federal money. The environmental and budgetary impacts of large projects, as well as their visibility and symbolism, have made them primary targets of environmental activism. Whether or not large scale hydropower is necessarily more harmful to the environment than small scale is a question that the NHS will be looking at afresh.

Another assumption which needs to be examined is that large scale development should be undertaken by the federal government, while small scale development should be undertaken by non-federal entities. There is a need to develop a variety of alternatives whereby non-federal entities might undertake large scale projects and the federal government might consider smaller scale projects.⁴ Chapter 2 has attempted to wipe the slate clean and re-examine the rationale behind the differences between federal and non-federal development of the resource. This re-examination helps set the context for understanding how the existing mechanisms might be changed to achieve the development and conservation goals the NHS may articulate.

A. Federal Development Process

The rationale for federal development has been that waterways are a public resource, best developed for multiple purposes, some of which, especially navigation, have traditionally been a federal responsibility. Additionally, since the Great Depression, major water projects have been viewed as a means to promote economic development and create public works jobs where private capital is inadequate or unavailable. This was especially true since only the federal government had been able to efficiently raise the large amounts of capital necessary for these projects. This rationale is no longer widely accepted. Private energy developments which are capital-intensive (e.g., oil refineries or nuclear power) have frequently been able to raise the capital necessary for development. Private development of major projects may not be confronted with as serious problems of capital formation as was formerly the case. The problems that arise may be remedied by a level of government intervention that is less than actual project construction, but rather takes the form of incentives and subsidies.

The traditional rationales for federal development should be reexamined to see whether they are appropriate today. The "economic development" rationale is no longer widely accepted due to today's social climate and the perception that opportunities for large-scale waterway development such as occurred on the Tennessee, Columbia, and Colorado Rivers are probably no longer available.⁵ The "public resource" rationale retains some vitality, especially in the western United States. The rise of governmental regulation raises the question of whether federal development or federal regulation of non-federal development is a better way to accomplish hydropower development in the public interest.

The federal development process involves complex and exacting planning requirements, reporting requirements to Congress, and

multi-staged authorization and appropriation cycles within the Congress which involve several committees and subcommittees. Federal development has characteristically been multi-purpose and hydroelectric development has traditionally been a secondary purpose of projects.⁶ Because hydropower has been a secondary purpose, federal development has not always maximized power generation. However, federal projects provide a wide range of multiple purpose benefits which non-federal developers would prefer to minimize to reduce project cost. The federal development process has been sketched in the previous chapter and detailed descriptions are presented in the first three Appendices. What follows are salient observations concerning the effectiveness of the federal development process.

1. Role of Executive Branch

a. Principles and Standards and Procedures

The Principles and Standards and Procedures promulgated by the Water Resources Council establish a uniform method of planning and analyzing water projects.⁷ These planning tools are complex, and their value has been disputed.⁸ The National Economic Development (NED) Procedures, in particular, which were promulgated in late 1979, appear to make project justification more difficult than was the case in the past. The Principles and Standards and Procedures apply to all of the federal construction agencies, including the three principal agencies of concern in this study, the Corps of Engineers, the Water and Power Resources Service, and the Tennessee Valley Authority.⁹ It is not clear how effective these requirements are in facilitating the design of good projects or to what extent their requirements impede project design and construction. Other problem issues involve the extent to which they are capable of meaningful enforcement,¹⁰ and the biases, if any, that may exist either in favor of, or against hydropower.

All federal hydropower projects come under these regulations and guidelines, but they are designed for the evaluation of all types of water projects. This grouping of hydropower projects with other water development exemplifies the split between water policy and energy policy, in the sense that hydropower projects are assessed primarily, if not exclusively, in the context of water resource policy, rather than in the context of both water policy and energy policy.

The Principles and Standards and Procedures are the planning tools of federal agencies in trying to maximize benefits and minimize costs of federal projects. While they provide uniform criteria for all federal development agencies, their level of detail has led to some criticism and to the perception of them as an obstacle. Recent changes emphasizing water conservation and "non-structural" alternatives are also seen as contributing a bias against the types of construction projects that would be able to produce hydropower. These changes represent a shift toward greater environmental sensitivity. A by-product of this shift is a de-emphasis on the types of projects that would include a hydropower component.

It is worthy of note here that "water conservation" means different things in different parts of the country. In the east, it refers primarily to reducing both water demand and leakage from water supply systems and is considered to be an alternative to large-scale structural supply augmentation projects. In the west, water conservation refers to capturing and storing run-off, conserving it for future use and avoiding wasteful use of the water. Thus, structural development may be compatible with water conservation for storage in the west while incompatible with water conservation as practiced in the east. The construction of storage facilities in the west would complement a hydropower development program, as has been demonstrated by the projects of WPRS and non-federal irrigation districts.

Federal water planning tools are intended to be comprehensive. However, because they address all types of water project activities and their impacts on National Economic Development (NED), Environmental Quality (EQ), Regional Economic Development (RED), and Social Well-Being (SWB), they are not designed to expedite and encourage a specific type of development, e.g., hydropower. They also force the subject matter of hydropower development, which involves both water and energy, into a water planning framework, thereby de-emphasizing the primary energy benefits.¹¹ Methodological difficulties inherent in all benefit-cost analyses that involve intangible values contribute to doubts about the utility of these tools.¹²

b. Cost-Sharing

Cost-Sharing is another aspect of federal development which is currently embroiled in significant controversy. Traditional cost-sharing practice involved having the federal government pay most of the engineering and construction costs of a project, while local governments paid for acquisition of the real property interests necessary to make the project possible. New proposals to reform cost-sharing involve bringing state legislatures into the process for the first time, requiring up-front financing, and changing the basic conceptual framework whereby the federal government and non-federal entities share the costs for federal development projects.¹³

The basic change envisioned in the new cost-sharing proposals gives state legislatures responsibility for funding a fixed percentage (5% or 10% depending on the project) of project costs. The rationale for this change is to assure state review and support of a project and to give the states a uniform financial stake in the project. While these goals may be salutary, the proposed mode of implementation has some consequences that could paralyze project development. This is because every project would be subject to the uncertainties not only of Congressional appropriations, but also of state legislative budget processes. Therefore, Congress may be reluctant to appropriate money for fear that a state might "pull the plug" on its share of a project that may already be underway, leaving an uncompleted project which depends on the independent initiatives of state and federal budget processes for completion. When the uncertainty of federal budgetary policy is overlaid upon the changing budgetary priorities of each state, the cumulative uncertainty may be enough to paralyze development. Present cost-sharing policy, while

inconsistent in dollar contributions, is simpler to implement because it involves purely local contributions, primarily "in kind", rather than as part of a complex budgetary cycle. Cost-sharing reform is therefore widely perceived to be a force that will frustrate federal development of water projects in general and hydropower in particular.¹⁴

c. Executive Branch Planning

The executive branch planning process is itself an obstacle to federal development because of its excessively complex nature. All proposals must go through multi-tiered levels of review within the development agency and then through the Executive Office of the President.¹⁵ This all occurs before the proposals are even transmitted to Congress. They must then be transmitted to Congress for authorization and appropriation several times in the planning and development process. See Fig. 3 & 4 at pp. III-6 and 7 for diagrams of two different versions of the Corps Planning Process. This planning process is designed to insure that the Principles and Standards and Procedures are followed, that cost-sharing and budgetary policies are observed, and that appropriate balances are struck among local, regional, and national interests in water resources development.

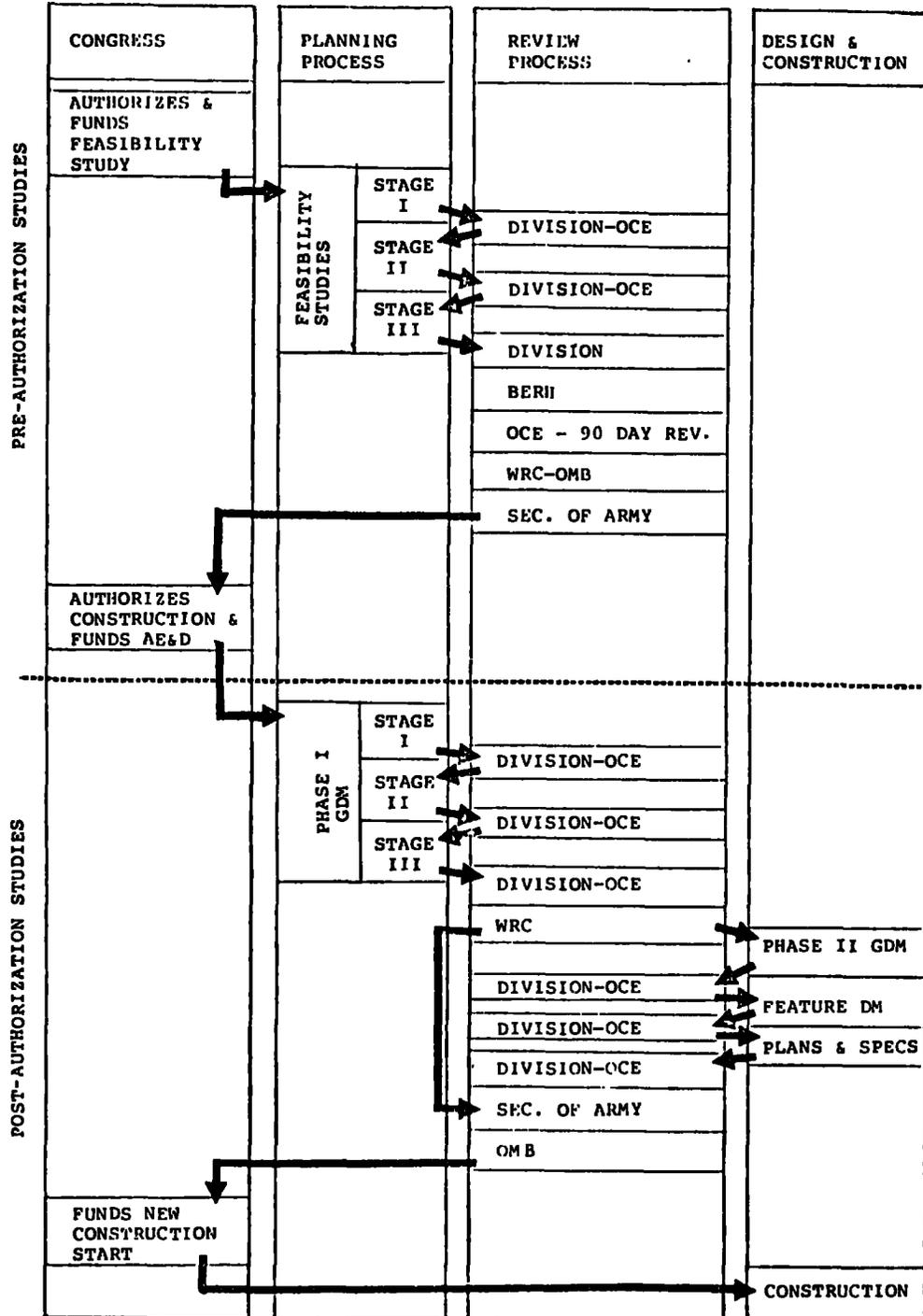
Most of the planning and evaluation which occurs at the early stages is performed by the construction agency itself. Proposals have been made for an independent water project review process which would involve a disinterested body in evaluating projects.¹⁶ It may well be that disinterested evaluation of projects could facilitate the approval of sound projects and lead to early rejection of imprudent projects. Independent analysis could be considered as an alternative to multi-level, complex procedural processing by an agency with an interest in the outcome of the planning and approval process, rather than as simply "another layer" of review. Although the Office of Management and Budget (OMB) performs this function to a certain extent already, its closed mode of operation does not lend itself to the public participation desirable for independent policy review.

d. Role of FERC in Federal Development

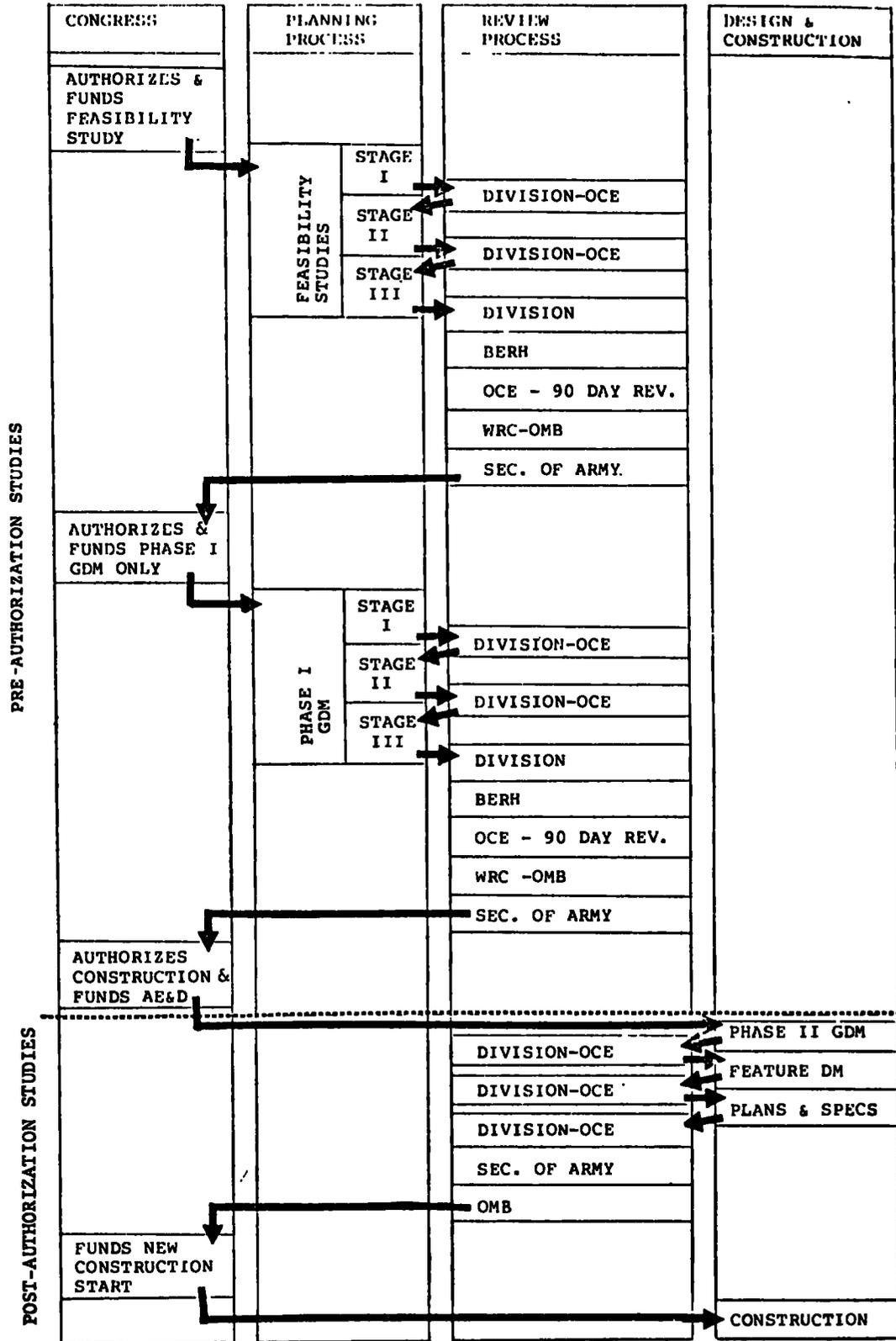
The role of the Federal Energy Regulatory Commission (FERC) must be looked at briefly in the context of the federal development process, because FERC represents the alternative means for developing projects through non-federal entities, and because FERC does its own basin planning studies and comments on federal construction agency proposals.¹⁷ In addition, FERC plays a limited role in such areas as setting power values to be used in computing the benefits which will accrue from federally constructed hydropower projects. Finally, FERC has the power to deny a non-federal license and recommend that Congress consider having a particular site developed by the federal government rather than by non-federal entities.¹⁸ This power has been extended by the courts to include the authority to deny a license and request that the federal government look at a site with a view toward not developing it.¹⁹

III-6
 IMPLEMENTATION STUDY PROCESS
 (WITH ADMINISTRATIVE - REAFFIRMATION
 PHASE I GDM)

Figure 3



From Corps, Manual for Water Resource Planners, May 1980



2. Congressional Processes - Planning, Authorization and Appropriation

Congress plays the key role in federal development because it authorizes and appropriates money for projects. By analogy to the non-federal process, Congress acts as both the licensing agency and the project banker making the financing possible. The Congressional process involves several aspects which complicate federal development. There is little in the way of continuing planning by the Congress for hydropower. By contrast, FERC and the construction agencies engage in considerable planning activities to insure that their proposals meet the requirements for rational development of a waterway.²⁰

Congress acts both on fully developed and analyzed proposals which come out of the construction agencies and on much less well-developed proposals which it can initiate on its own. Projects which have been thoroughly studied or are non-controversial are sometimes combined with unstudied or controversial projects in an omnibus bill which must either be approved in its entirety or be rejected.²¹ The construction agencies undertake a thorough planning process, but the Congress has complete discretion, unreviewable in court, with respect to what it does with proposals transmitted to it by the construction agencies. This discretion includes the power to approve unstudied projects and to waive or preempt substantive federal or state law.²² The development agencies and FERC are different from Congress because they adhere to substantive rules and standards, which do not apply to the Congress.

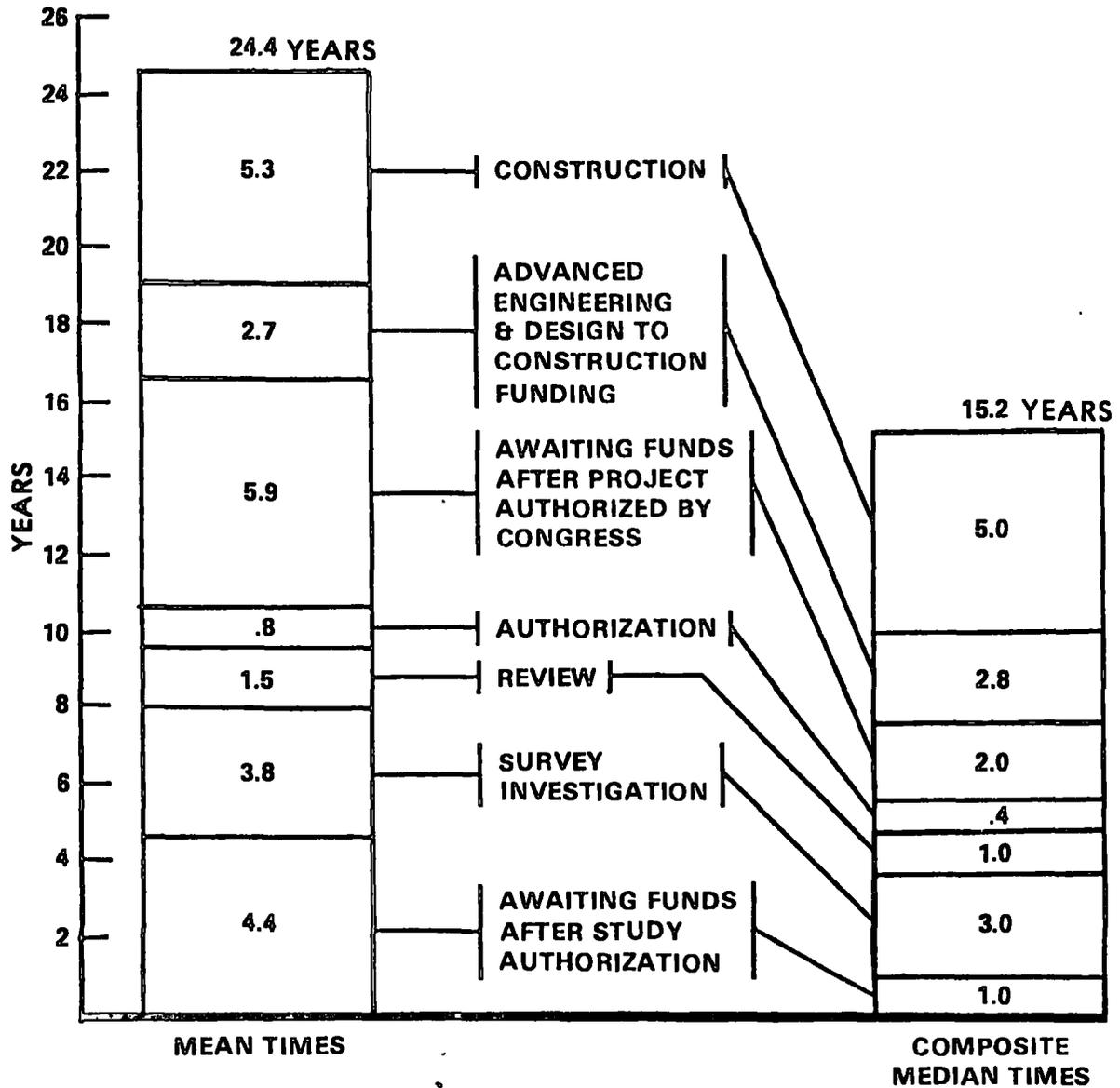
In addition, the Executive Branch may help promote projects by shepherding them through Congress. However, all projects may be delayed whether or not they have been adequately studied, due to the fact that the projects reach the President in the form of an omnibus water bill. The Executive veto of such a bill does not differentiate between the projects. Thus, the President must veto projects he favors as well as projects he does not support. This conflict between the executive and legislative branches may create a stalemate in federal hydropower development.

Congressional action on hydropower projects may also be complicated by the fragmentation of responsibility among committees. There are several committees of both houses of Congress that have jurisdiction over energy and water resource development.²³ This overlapping and conflicting jurisdiction, and the specialized interests which committees have in particular kinds of projects, also may impede rational development of the resource. The Corps and WPRS go through different authorizing committees in each house of Congress for hydropower projects,²⁴ although most all of the committees involved are primarily concerned with water resource development. The only exception to this is that the Senate Energy Committee considers bills involving WPRS.

The net result of the complexities of the congressional process is that project lead times are typically very long and the outcome is highly unpredictable, often hinging on factors that may be extrinsic to the merits of the project. See Fig. 5 on p. III-9 for mean and median Corps of Engineers project completion times.

Figure 5

MEAN AND COMPOSITE MEDIAN COMPLETION TIMES FOR MAJOR COMPONENTS IN THE PLANNING, DESIGN AND CONSTRUCTION OF CIVIL WORKS PROJECTS (YEARS)



TIMES BASED ON 36 PROJECTS COMPLETED IN FY 1973, 1974 AND 1975

From Corps, Manual for Water Resource Planners, May 1980

3. Multi-Purpose Projects and Multi-Mission Agencies

Federal water resources projects are traditionally multi-purpose in nature. From a social and economic perspective, this feature helps maximize project benefits, minimize the negative impacts, and improve the justification for economically marginal projects.²⁵ Historically, hydropower was considered to be constitutionally permissible as a project purpose only where it was one element of a multi-purpose project that involved navigation, flood control, or irrigation of public lands as a primary purpose. Prior to 1937 single purpose hydropower projects were thought to be constitutionally impermissible. The constitutional authority for the federal government to build single purpose water projects for "general welfare" purposes such as hydropower was not firmly established until 1950.²⁶ Thus, the tradition of multi-purpose project construction by federal agencies is founded on both constitutional and socio-economic principles. Since the constitutional principle has changed, only the socio-economic rationale remains valid.

The construction agencies are also agencies with more than one mission. The Corps' primary missions have been navigation and flood control and WPRS's primary mission has been irrigation. These agencies are becoming increasingly interested in water supply and both have promoted recreation as an important aspect of their projects.²⁷ In contrast, hydropower has usually been an incidental benefit of their projects and, as a result, it has not figured as a motivating force in building the projects. As the cost of energy increases, hydropower should provide a greater impetus than in the past.

During the last thirty years, energy was relatively inexpensive and hydropower was not considered a significant aspect of either energy development or water resources development. Since primary purpose hydropower projects became constitutionally acceptable at about the same time as their economic advantages began to wane, the construction agencies maintained their traditional policy of multi-purpose water project construction with hydropower as an incidental benefit. Current energy economics dictate that hydropower may be economically justified as the primary purpose of a project. Thus, the federal government should consider exercising its authority in this area.²⁸ There are, of course, constraints on the massive use of the federal government as a builder of hydroelectric facilities. These constraints are no longer constitutionally based, but are based on economic, political and historical considerations. The basic constraints on federal exercise of power in hydropower development reflect a basic premise of American federalism. This premise is that the federal government should refrain from becoming involved in the political and economic affairs of the states unless the states are unable to handle these affairs adequately. The federal government has become increasingly involved in many areas formerly left to the states. Water and energy projects, with exception of multi-purpose projects and the small projects described in Appendices I and II, have traditionally been left to states, local governments, special districts and the private sector.

4. Comparison of Water and Power Resources Service, United States Army Corps of Engineers, and Tennessee Valley Authority

The three major construction agencies of the federal government are alike in some respects but their differences can be instructive in understanding how federal development works. The Corps and WPRS have similar planning and legislative approval processes. They must conduct detailed studies and go through funding cycles with the Congress.²⁹ Every hydropower project undertaken by the Corps and WPRS must be authorized by Congress.

WPRS appears to have more of an ongoing program to assess water resources (within its jurisdiction which encompasses the seventeen western states) than does the Corps. Also, because WPRS is an agency within a department that administers a number of water and energy related programs, it enjoys some budgetary flexibility resulting from the Secretary's discretionary authority over the Interior Department budget. Any mandate to the Secretary of the Interior which concerns water or power resources could theoretically be delegated to WPRS.

In contrast, as a result of the Corps being the only agency with a water-resource related mandate within the Department of Defense, it is limited to performing those functions for which Congress has given it a specific authorization.³⁰

By striking contrast, TVA has almost total authority over how it spends its money.³¹ This is particularly true in the area of hydropower because since 1959 the hydropower program of TVA has been self-financing. Before that, TVA had to go to Congress for funds for hydropower. Moreover, TVA has never had to go to Congress for authorizations, but only for appropriations. TVA, as a federal corporation with an independent Board of Directors, has extremely broad discretion in its activities with very little oversight.

TVA also is the only federal development agency which has for an extended period of time made hydropower a primary purpose of its developments. These activities occurred from the period from 1933, when TVA was created, until the late 1940's. Since then TVA has moved into fossil and nuclear electricity generation. Now TVA is exploring conservation and solar energy sources.

TVA has vast power over energy development and economic development within its region, unparalleled by any federal or non-federal entity in any other region of the country. For political reasons, this massive federal presence is unlikely to be replicated. Indeed, the debate over the Pacific Northwest Power Legislation (See Chapter 5) raised the specter that the Bonneville Power Administration (BPA) would become "another TVA." In reality BPA and the new Council that oversees it will be nowhere near as powerful as TVA although the federal presence in the Pacific Northwest will be (as it has been historically) greater than in any region other than that of TVA. TVA has been very effective in accomplishing its objectives, although it represents a deviation from the normal American federalist governmental structure.

Another significant aspect of TVA is that although it is a federal entity, it is based within the region in which it operates, and its ties to Washington are minimal. Because of its strong regional base, it has developed a large regional constituency. This makes it unusual from the federal/state relations perspective as well, since it is a federal entity which appears to have the respect and trust of a large number of people within the region.

TVA illustrates what the federal government can do when it takes primary purpose hydropower development seriously and provides leadership and a regional constituency to back such development. The contrast between this federal role and the much less comprehensive one represented by WPRS and the Corps provokes interesting comparisons. It is important to isolate the various aspects of TVA's success because some of them may be replicable in other regions while others may not. Most particularly, the massive federal control within the region that TVA exerts is unlikely ever to be politically palatable anywhere else. However, the self-financing nature of TVA's operation, its ability to sell its own revenue bonds, and its regional constituency could be looked upon to provide examples of what can be done in other regions of the country. Regional entities that are not part of the federal government could be devised to plan and implement regional water, energy, and economic development programs.³²

5. Impacts of State Law: Roles of State and Local Institutions

State law has a variety of different impacts on federal development. The single most important impact is that federal development by the terms of authorizing legislation, must comply with state property and water law. This deference to state law results from congressional decisions not to pre-empt state law in acquiring certain property rights such as water rights for a project. The potential for state-federal conflict in this area varies depending upon which water law system is involved. In eastern states, where water rights are closely related to rights in adjacent land, the impact is relatively small. However, in western states, where rights to use water are based on a body of law involving prior appropriation and beneficial use, state law may conflict with federal law concerning such issues as what types of development are entitled to water appropriations, what conditions may be imposed on water resources development projects and whether there is sufficient water available for the proposed project. Here the state is often regulating in the same area as the federal government, but because the state is regulating in the area of state property law, federal law may not necessarily be supreme. Thus, Congress elects to follow state water law.³³

Other state/federal impacts on federal development include requirements for cooperative planning between the state and federal governments, the important role that local support or local opposition may play in fostering or frustrating the project, and the relationship between comprehensive planning that may be done at the state and local levels and that done by federal development entities. Also, some federal

environmental regulation, through delegations by EPA to state agencies, is administered by state agencies. These state agencies gain regulatory power over federal projects because the state agency is acting under a federal law made specifically applicable to federal projects. The federal government is thus required to receive certain important permits from the state agency. This state permitting power may be the most potent for state control over federal action.

6. Marketing Institutions

Although separate studies are being conducted specifically on federal power marketing, it is necessary to give this subject some attention in this study because of its important role in the institutional framework. The most important issues are the preference in sale of federal power to certain customers, the availability of transmission from the site of power generation to customers, and the role that federal power marketing institutions play in planning and coordinating power development and operations within a given region. The ongoing debate over public preference is important because of the profound implications it has for federal as opposed to non-federal development decisions. Since federal development involves marketing the power to preference customers, a set of consequences flow from federal development which impact in a variety of ways upon both publicly and privately owned utilities. Thus, the preference policy in marketing power provides an incentive for publicly owned utilities and rural co-operatives to support federal development of hydropower.

The Bonneville Power Administration is a marketing institution which has taken a more significant role within its region than is the case of the other federal power marketing agencies. This is partly due to the massive amounts of power for which BPA is responsible, but it is also because BPA has a complicated set of institutional relationships to other transmission, marketing, and generating entities in the Pacific Northwest. The recently enacted Pacific Northwest Electric Power Planning and Conservation Act (PNEPPCA) has changed BPA's role to give it more authority over hydropower, water and energy decisionmaking in the region.³⁴

7. Interagency Relationships

In the conduct of federal development there are a variety of problems created by the fact that a great number of agencies with conflicting missions and jurisdictions must collaborate in planning and approving a project. The most significant agencies involved in federal development are, besides the construction agencies and FERC, the EPA, Fish and Wildlife Service, and a multitude of state agencies which include water quality, fish and game, public utilities, water allocation, historic preservation, etc. The interagency relationships problem, therefore, is a state/federal relationship question as well.

The network of interagency relationships involved with federal development is structured by Memoranda of Understanding and informal consultation, co-ordinated through the various agency planning processes and their procedures for complying with the consultation requirements of

laws such as the Fish and Wildlife Coordination Act and NEPA. Conflicts that arise are usually worked out through the informal processes of interagency bargaining. In specific instances these conflicts may be more or less difficult to work out depending upon the conflicting agency missions, their relative power and budgetary strength, and the individuals involved in the negotiations.

8. Conclusions

Federal development, in theory, has a variety of incentives. The incentives include nearly complete pre-emption of state and local law, direct funding from the federal treasury, decisionmaking by a democratically constituted body (the Congress), fewer procedural requirements for environmental law compliance, and a comprehensive approach to river basin planning in the public interest, described by the Principles and Standards. The disadvantages relate chiefly to the extraordinarily long delays in planning, authorization, and appropriation cycles, created in part by the political nature of the decisionmaking and its use of tax dollars. Federal development occurs outside of market tests and financial checks and balances, relying instead on the checks and balances of the political process and on complex planning, engineering and economic analyses.³⁵

The Columbia River System and TVA are illustrative of how federal development can maximize development of the resources when a "dominant use"³⁶ philosophy guides the development. The contrast between the large federal dams and the smaller Columbia River projects built by utilities during the "partnership" era of the 1950's (and considered by many to be less than optimal in harnessing the resource) illustrates how dominant use federal hydropower development may be the best way to maximize hydropower resource development. Where large scale sites are available, it may be increasingly attractive to pursue development with the dominant purpose of producing hydropower.

B. Non-Federal Development

Significant hydropower development has been accomplished and will be accomplished by non-federal entities. Non-federal development has become increasingly important given the stalemate in federal water policy and a number of incentives and regulatory reforms to stimulate small scale hydroelectric development by the non-federal sector.

Non-federal development occurs almost entirely within the context of regulation by FERC under the provisions of FPA.³⁷ As noted in Chapter II, the overview discussion, the FERC licensing process performs two essential functions. The first function is to determine who, among competing developers, will develop and operate the site. The second function is to assure that development of any hydropower project subject to FERC regulation mitigates environmental impacts. The FERC licensing process applies to a wide variety of developers including investor owned utilities, private entrepreneurs, industrial establishments and municipalities, state power authorities, irrigation districts and electrical cooperatives. The FERC regulatory process, of course, does not apply to the Corps, WPRS, or TVA when they function as developing agencies.

1. FERC Jurisdiction

FERC jurisdiction over hydroelectric sites and hydroelectric development in the United States is pervasive. FERC jurisdiction arises under four sets of circumstances. Those circumstances are: when projects are located on navigable waterways, when projects affect interstate commerce, when projects utilize federal land, and when projects utilize surplus water from government dams.³⁸ Although the three other headings of jurisdiction are important, the greatest extension of FERC power is its jurisdiction over projects which affect interstate commerce. Under the Taum Sauk decision,³⁹ FERC has jurisdiction over a hydroelectric project if the output of the project will be sold to a grid system which transmits, wheels or distributes electric power in interstate commerce. Since most grid systems in the United States, with the exception of Hawaii and portions of Alaska and Texas, are interconnected, most hydroelectric sites located in the United States will be subject to FERC jurisdiction under these court decisions.

2. FERC Permits, Licenses and Exemptions

Under the provisions of FPA, FERC issues several different forms of authorization for hydroelectric development.⁴⁰ These forms are: a preliminary permit, a minor project license, a major project license at an existing site, a major project license at a new site, an exemption for a conduit hydroelectric project, and an exemption for a project at an existing site of 5 MWs or less of capacity.⁴¹ (See Flow Chart at page III-37).

The preliminary permit is an authorization by FERC for a potential developer to study a site for purposes of determining whether the site is feasible for hydroelectric development.⁴² Permits are issued for a specific term, no more than three years under provisions of FPA. FERC has discretion to reduce the term to less than three years. Acquisition of a preliminary permit gives the potential developer priority status when seeking to obtain a license for that site.

A minor project license will be issued on sites of 1.5 MWs of capacity or less. Pursuant to changes in FERC regulations in September of 1978, there is a short form license application that is available to minor project license applications.⁴³ Under the short form license regulations, applicants must file an initial statement describing the project's two exhibits, an environmental report and copies of the state Section 401 water quality certificate, any water rights certificates or other approvals required by state law.

The major project license at existing dams is also the result of regulatory reform by FERC.⁴⁴ This license form is applicable to any project which has a generating capacity in excess of 1.5 MWs and will be located at an existing site. The application for a major project at an existing site includes an initial statement and seven lettered exhibits. The most significant exhibit is Exhibit E which is an environmental report and must be prepared in consultation with local, state and federal agencies with expertise in environmental matters.

The third license issued by FERC is the major project license at new sites. Such licenses apply to projects in excess of 1.5 MWs to be developed at new impoundment areas and sites. Because of the nature of these projects (i.e., construction of new impoundments) more detail is required in the license application and exhibits. However, as with the other license applications, Exhibit "E", the environmental report is of crucial importance.⁴⁵

In addition to the permits and license issued by FERC, FERC is empowered to issue two forms of exemptions. The first form of exemption authorized by Title II of PURPA, concerns conduit hydroelectric facilities of 15 MWs or less.⁴⁶ Conduit hydroelectric facilities are those installed in man-made conduits such as municipal water systems conduits or man-made irrigation canals within irrigation districts. Under the provisions of FERC regulations for such projects an applicant may apply to FERC for an exemption from its licensing process for such a project. Under FERC regulations, if FERC does not respond to the exemption application within ninety (90) days, the exemption is automatically issued.

The most recent exemption authorization is contained in Section 408 of the Energy Security Act of 1980.⁴⁷ Under the provisions of that Act, FERC is authorized to exempt individual projects and classes of projects located at existing sites of 5 MWs or less from the FERC licensing process. At this writing, regulations in final form have been promulgated by FERC for exemptions of specific projects of 5 MWs or less at existing dams.⁴⁸ Under the regulations, only those persons having the "requisite property interest" in the site may apply for an exemption. The exemption is granted if FERC has not acted on the application within 120 days of filing.

3. Standards for FERC Permits, Licenses and Exemptions

Under FPA, there are two principal requirements which FERC must obey in issuing permits, licenses and exemptions. The first requirement, which is a broad standard, is that any licensed project must be best adapted to the comprehensive development of the waterway.⁴⁹ The second requirement which is a specific requirement, is the "municipal preference".⁵⁰ Under this requirement, FERC must issue a permit or license to a public entity (i.e., a state or municipal entity) if the public entity can show that its plan for development is equally well adapted to the comprehensive development of the waterway. Recently, in the City of Bountiful case, FERC construed FPA to require the municipal preference upon relicensing after an original license had expired.⁵¹ For obvious reasons, the existence of a preference invites competing applications. To the extent it can, FERC has attempted to establish relatively simple methods for resolving any questions presented by competing applications.⁵² However, assuming timely filing of a competing preliminary permit application or a competing license application, FERC must apply the preference provision of the FPA. The one exception to this latter rule is in conjunction with the exemption regulations for conduit hydropower development and projects at existing sites of 5 MWs or less. Under these exemption regulations, site owners receive a "qualified" preference in that FERC will not consider a license application, even one

filed by a municipality, if the owner has previously filed a proper exemption application.

In terms of applying the standard of "comprehensive development of the waterway", FERC attempts, by its information requirements for license applications, to take into account the recreational, esthetic, environmental and safety aspects of every project. FERC will also condition licenses it issues on subsequent development of downstream or upstream sites.

4. Interagency Coordination and the State Role in the Licensing Process

Given the extent of environmental regulation in the United States, it is obvious that FERC must coordinate its licensing process with a number of federal agencies. The principal federal agencies with which FERC must undertake coordination are: the Fish and Wildlife Service, the Corps, the Advisory Council on Historic Preservation, the Bureau of Land Management, the National Forest Service and the Environmental Protection Agency. All these agencies will be involved in the commenting process to a draft EIS should one be necessary.⁵³ The Fish and Wildlife Service has independent authority to comment on permit, license and exemption applications under the Fish and Wildlife Coordination Act.⁵⁴ To the extent that dredge and fill activity is involved in the project, the Corps has the authority under Section 404 of the Clean Water Act.⁵⁵ In the event that any site involved in location is included on the national register of historic sites or is nominated for designation as a historic site, the FERC must coordinate the license process with the Advisory Council on Historic Preservation.⁵⁶ If any federal lands are to be used in conjunction with the development of the project, FERC must coordinate its activities in the licensing or exemption process with the federal land management agencies.⁵⁷ The principal agencies involved in federal land management are: the Bureau of Land Management with the Department of the Interior and the National Forest Service of the Department of Agriculture.

At the present time, there are several outstanding disputes between FERC and coordinate federal agencies. These disputes have arisen in conjunction with the FERC licensing process.⁵⁸ Fig. 6 on page III-18 summarizes these conflicts. At the present time the Council on Environmental Quality insists that FERC is required to adhere to CEQ's regulations concerning the EIS and environmental assessment process. FERC has taken the position that it is an independent administrative agency chartered by Congress and is not subject to line control by an executive agency, the Council on Environmental Quality. FERC has promulgated its own regulations concerning the EIS and environmental assessment process and has chosen to follow those regulations in subsequent licensing processes. Fortunately, the CEQ and FERC processes do not differ materially.

A second conflict involves Fish and Wildlife Service and its authority under the Fish and Wildlife Coordination Act.⁵⁹ The Fish and Wildlife Service has contended that it has authority to comment on all preliminary permit applications filed with FERC. FERC has taken the

Figure 6

FERC Conflicts With Other Agencies

National Forest Service
and Bureau of Land
Management

Issue: Whether FERC has sole authority to issue right of way permits over federal lands.

NFS and BLM Positions: NFS and BLM have the authority under FLPMA to issue special use permits for hydropower projects crossing federal lands.

FERC Position: FERC has sole authority under FPA to issue right of way permits.

Water and Power Resources
Service

Issue: Whether FERC has sole authority to assess falling water charge.

WPRS Position: WPRS has the authority to assess a fee, separate from any other agency charge.

FERC Position: FERC has the sole authority under the FPA to assess a dam use fee or water charge.

Council on Environmental
Quality

Issue: Whether CEQ's NEPA regulations bind FERC.

CEQ's Position: FERC must adhere to CEQ's NEPA regulations.

FERC Position: FERC is an independent agency and not subject to direct executive agency control.

Fish and Wildlife Service

Issue: Whether FERC must allow FWS to comment on preliminary permit applications.

FWS Position: FWS must comment on all preliminary permit applications filed with FERC, as part of FWS' authority under the Fish and Wildlife Coordination Act.

FERC Position: It is unnecessary for FWS to comment because the permitting is merely a preliminary procedure.

Advisory Council on
Historic Preservation

Issue: Whether FERC must follow ACHP's
process of reviewing projects.

ACHP Position: ACHP has its own process of
reviewing projects which may have an effect
on historic sites.

FERC Position: FERC is the lead agency for
review which incorporates the concerns of
all other agencies.

Army Corps of Engineers

Issue: Whether Corps has independent
jurisdiction to issue 404 permits.

Corps Position: 404 permits must be
granted by Corps regardless of FERC action
on a license.

FERC Position: FERC's comprehensive review
includes 404 consideration and Corps has
adequate input through the FERC process.

position that given the preliminary nature of a preliminary permit, it is not necessary for FWS to comment on all such permits and FERC will not await FWS comments before it issues one.

A third dispute exists between the Advisory Council on Historic Preservation and FERC concerning the authority of the Advisory Council to comment on FERC permission licenses. Essentially, the Advisory Council has established a procedure whereby it reviews federally approved projects which may affect historic sites. FERC takes the position that it has its own procedure for licensing hydroelectric projects and that its procedure is the one that should be followed for purposes of obtaining comments from the Advisory Council.

There also exists a conflict between FERC, the National Forest Service and the Bureau of Land Management concerning FERC's authorization under FPA and the authorization of BLM and NFS under the Federal Land Policy and Management Act of 1976 (FLPMA).⁶⁰ In this dispute, FERC contends that it has sole authority under FPA to issue right of way permits across federal lands in conjunction with licensed projects. BLM and NFS take the position that under the recently enacted FLPMA, they have the jurisdiction to issue special use permits for hydroelectric projects crossing federal lands. This stalemate is unresolved at this writing.

There also appears to be an emerging conflict between FERC and WPRS, concerning the assessment of dam use, water storage or "falling water" charges at federal lands which are licensed for development to non-federal developers under the FERC licensing process. Under FPA, FERC has the authority to assess a dam use fee. Under various authorizations, both statutory and contractual, WPRS and Corps claim the right to assess an additional charge for use of a structure under their jurisdiction.⁶¹

In addition to the requirements of coordination with other federal agencies, FERC has taken the position that state and local agencies must be consulted in conjunction with the issuance of any federal permit license or exemption.⁶² Under the system of state coordination as administered by FERC, it will require a developer to obtain a Section 401 water quality certificate from the appropriate state water quality agency. In addition, FERC will require the potential developer to consult with existing state agencies which are involved with natural resource management, environmental protection and other matters of the state or local interest. FERC is serious about its state and local coordination requirements. Failure of a developer to coordinate with existing state agencies will prompt FERC to reject as deficient that developer's application. Moreover, based on experience with past projects, FERC is deferential to state processes and will be tolerant of delay to assure that they are fulfilled. As a last resort only, will FERC assert its federal supremacy in the area of federal hydroelectric licensing and supersede state requirements. A typical state regulatory process which a developer must follow is shown in the flow chart beginning on page III-41.

One very recent case bears review at this time for the reason that it may transform FERC into a true lead agency for non-federal hydroelectric development. The case is Monongahela Power Co., et al. v. Alexander et al. (Civil Action No. 78-1712, Dist. Ct., D.C., December 19, 1980). In that case, the Corps denied a §404 (dredge and fill) permit to three power companies who had obtained a hydroelectric license from the Federal Power Commission (now "FERC") to construct a pumped storage project (the "Davis Project"). The court held that the Corps had no authority to issue or to refrain from issuing a §404 permit to an already licensed project. In so holding the court cast doubt on the ruling in the Scenic Hudson⁶³ case. It based its reasoning on the legislative history accompanying the Department of Energy Organization Act of 1977,⁶⁴ and the Supreme Court decision in Train v. Colorado Public Interest In Research Group⁶⁵. In Scenic Hudson the court held that the Federal Water Pollution Control Act amendments, including the requirements for dredge and fill permits under §404, were applicable to projects licensed by the then FPC. The Monongahela case holds that FERC has "exclusive" jurisdiction over licensed projects and the Corps, at least, has no concurrent authority. An extension of the holding in Monongahela could confer authority on FERC to resolve some of the interagency conflicts discussed above.

5. Regulatory Reforms Within FERC

A number of recent reforms in the regulations for the licensing process have occurred. See Fig. 7 on page 21. These reforms have been designed to reduce the costs of obtaining a permit, license or exemption from FERC and to reduce the delay and complexity of the licensing process. The first reform was the promulgation of regulations establishing the short form license for minor projects at existing sites of 1.5 MWs or less of capacity. The second reform was the reduction in the documentation requirements of major project licenses for existing sites. The third reform, carried out pursuant to Congressional mandate under Title II of PURPA, was the establishment of exemptions for conduit hydroelectric projects of 15 MWs or less. The fourth reform, accomplished by FERC pursuant to Section 408 of the Energy Security Act of 1980, involved the establishment of individual exemptions for projects of 5 MWs or less at existing sites.

There are also three licensing and exemption reforms pending they are (1) proposed regulations to extend the short form license to projects at existing sites between 1.5 MWs and 5 MWS of capacity; (2) proposed simplification of requirements for licensing major new sites and (3) proposed class exemptions for sites of 100 KW or less and certain classes of sites which have only slight environmental impacts.

Perhaps the most significant reforms of the FERC licensing process have involved internal delegations of authority from the Commission to the staff of FERC and general procedural rules governing the filing and treatment of competing permit and license applications. With respect to delegation of authority, the commission has delegated to the staff of FERC the authority to issue licenses in uncontested cases.⁶⁶ A person aggrieved by the decision of the staff in issuing the license may appeal the decision to the Commission. However, as noted, it is the staff in

Figure 7

<u>Regulatory Reforms</u>	<u>Rule Summary</u>	<u>Statutory Authority</u>	<u>Effect On Development</u>	<u>Status</u>
<u>Licenses</u>				
Minor Project Existing Site	Short form minor project license for under 1.5 MW capacity.	FPA PURPA	Shortens the time for application preparation; makes compliance less burdensome.	Final
Short Form License	Short form license for projects of 5 MWs or less.	FPA PURPA	Shortens time for application preparation.	Proposed
Major Project Existing Site License	Licenses projects of at least 1.5 MW capacity installed at existing dams.	FPA PURPA	Reduces documentation requirements for major project licenses.	Final
Major Project New Dam License	Licenses new projects of at least 1.5 MW capacity.	FPA	Reduces documentation requirements for new major project licenses.	Proposed
<u>5 MW Exemption</u>				
Case by Case	Exempts projects of 5 MW or less from all or part of Part I FPA.	Energy Security Act	Shortens the time for application preparation; removes municipal preference; makes environmental compliance mandatory.	Final
Generic	Exempts projects of 100 Kws or less; and projects of between 100 Kws and 5 MWs where no environmental impacts exist.	Energy Security Act	Shortens the time for application preparation; removes municipal preference; makes environmental compliance mandatory.	Proposed
Conduit Exemption	Exempts conduit hydro projects of 15 MWs or less from Part I of the FPA.	FPA PURPA	Shortens the time for application preparation.	Final

<u>Regulatory Reforms</u>	<u>Rule Summary</u>	<u>Statutory Authority</u>	<u>Effect On Development</u>	<u>Status</u>
<u>Internal Procedures</u>				
Delegation	Gives staff authority to issue uncontested licenses and permits.	PURPA	Shortens time for application processing.	Final
Filing Requirements	Prescribes general filing requirements and evaluation procedures for both preliminary permit and license application.	FPA	Simplifies the procedures for application preparation.	Final

the first instance which may issue the license or the permit.

With respect to the treatment of competing applications for permits, licenses and exemptions, significant changes have also occurred. FERC, as part of its reform efforts, has established rules assigning priority status to preliminary permits and licenses. These rules establish preferences for initial applications and can be divided into the following three categories. (a) competition between a preliminary permit applicant and a license applicant; (b) competition between two preliminary permit applicants or two license applicants; and (c) competition between a priority applicant and any other applicant.⁶⁷ This is a special set of rules for exemption application.

The rule for selection between a preliminary permit applicant and a license applicant is that the FERC will favor the license applicant provided it demonstrates an ability to carry out its plans. Competing applications of the second type present three possible situations. First, where both applicants are municipalities or states, the Commission will favor the one whose plans are better adapted to development. Second, if both applicants are municipalities or states or neither applicant is a municipality or a state and both applicants' plans are equally adapted to development, then the Commission will favor the applicant whose application was first accepted for filing. The final situation is where only one applicant is a municipality or a state. In this event the Commission will favor the municipality or state applicant provided its plans are at least equal to the plans of the other applicant. The Commission will afford the municipality or state applicant a reasonable time to amend its plans in the event that they are not as good as those of the other applicants.

The third and final category of preference rules involves competition between a priority applicant and any other applicant. A priority applicant is a holder of a preliminary permit whose license application has been accepted for filing during the permit period. In this event, the Commission will favor the priority applicant, provided its plans are at least as well adapted to development as those of the other applicant. The Commission will also afford a priority applicant an opportunity to amend its plans.⁶⁸

By the establishment of these rules concerning competing applications specific guidance is given to FERC staff and to potential applicants for licenses and permits. The first important guidance is that municipalities and states, because of the preference, will be given the opportunity to amend their plans to be at least equal to those of other applicants. The second rule of guidance is that among applicants of equal status, the applicant who files first will be given the preference, and, as noted above, a license application which carries with it a prospect for more immediate development of hydroelectric power, will be given preference over a preliminary permit application which implies that the applicant is only going to study the site.

The special rules for exemption applications operate as follows:
 (a) an exemption application bans consideration of a later filed permit

or license application; (b) an exemption application will ban consideration of a previously filed permit application; and (c) a previously filed license application or granted preliminary permit will take priority over an exemption application. There is one other observation of significant importance in the context of the FERC permit, exemption and licensing process. With respect to the issuance of preliminary permits, FERC generally will undertake an environmental assessment and make a declaration of a Finding of No Significant Impact (FONSI). With respect to minor project licenses, licenses at existing sites in excess of 1.5 MWs in capacity, conduit hydroelectric exemptions and exemptions of 5 MWs or less, FERC will undertake an environmental assessment and prepare a FONSI. The upshot of these rules is that for most small scale projects at existing sites and exemptions, the relatively lengthy environmental impact statement process is avoided.

It remains to be seen whether the FERC reforms have accomplished "significant" reductions in the costs of licensing, constructing and operating a site in the non-federal sector. There can be no question that licensing costs have been reduced. In fact, given the present caseload, FERC, of necessity, had to engage in reform. However, the problem lies not in the paperwork requirements of FERC, (the paperwork required for a license contains little more than what is required of a good feasibility study). Rather the major problem lies with the fact that FERC under the FPA must decide "who gets" and, for the moment, must coordinate its licensing, permitting and exempting processes with a large number of coordinate agencies. The decision as to "who gets" invites conflict, especially given the current popularity of small hydropower sites. Interagency coordination also involves conflict and the inevitable "turf" battles among varying agencies with varying agendas.

Moreover, FERC cannot directly curtail its caseload, and the higher oil and other fuel prices rise, the more attractive hydropower facilities will be. Given its present staff it cannot possibly handle its burgeoning caseload. FERC is making a valiant attempt to provide options to licensing through the class exemption for sites of 100 KW or less and larger sites less than 5 MW, environmentally benign sites under the Energy Security Act. The difficulties with this approach are inherent in any environmental assessment required under NEPA for such a dispersed and diverse resource and the difficulty of defining, with some precision, the "class" of sites to be exempt.

6. Public Expenditures, Financing and Marketing Considerations of Non-Federal Hydroelectric Development

Most non-federal developers approach hydroelectric development within the FERC licensing system as single purpose development. In other words, non-federal developers are concerned with bringing a hydropower project on line as quickly as possible. FERC, given its coordinating responsibilities with federal and state agencies, forces developers to consider the non-hydroelectric aspects of any project. To the extent that additional costs are imposed on the project by virtue of the requirements imposed on the project by FERC and federal and state coordinating agencies, these costs raise additional problems in financing.⁶⁹

Financing, of course, depends upon the type of developer involved in the project. Investor owned utilities and public utilities have access to capital markets and are fully familiar with the problems associated with the financing of electric generation in other capacities. Investor owned utilities will seek to finance their projects through conventional debt and equity financing. To the extent that the project shows cost advantages over other forms of generation and to the extent that the investor owned utility needs additional energy or generating capacity, the financing of a project by an investor owned utility should be relatively straightforward. Similarly, public utilities have access to debt capital. To the extent that a project to be financed by a public utility shows cost advantages over other forms of electric generation, the financing of this project should be relatively straightforward.

The difficulties in financing adhere in the situations involving small entrepreneurs, industrial establishments whose main business is not the generation of electricity and public entities who are not engaged in the sale or distribution of electric energy. With respect to these developers, the problems of financing can be categorized into three parts. The first problem of financing is the problem of undertaking the study of the site, and the licensing process. Depending upon the nature of the site and whether or not there are competing applications or persons opposed to the issuance of a license, the study and the licensing process may involve outlays of \$100,000 - \$200,000.⁷⁰ Obtaining funds to support investments of this nature when the developer is confronted with uncertainty as to whether the project is viable is a matter of some difficulty.

The second problem in financing is the negotiation of a construction contract and subsequent long term financing. Negotiation of a construction contract should occur when it appears likely that the developer will receive the license. At this point, the developer must negotiate with the financing institution to underwrite a construction loan. The financing institution will want to know how the developer will pay off the construction loan and what available sources of capital will be used for long term financing if that is necessary. As viewed by the financing community, the asset to be financed in any hydroelectric project is the stream of revenues of that project over the period during which the project is financed. Because this stream of revenues may be uncertain, being based on rates set by state utility commissions, financing institutions may be reluctant to finance a hydroelectric project. Moreover, because of the high capital cost associated with the initial hydroelectric investment, many projects will show revenue shortfalls in the first five years of operation. Such revenue shortfalls create additional financing difficulties.

Under these circumstances, several options are available to the developer. The first option is to provide equity and supplement developer equity with debt which the financing institution regards as relatively secure as a result of the equity investment of the developer. A second possibility would be to have the developer syndicate the project and to sell tax shelters to a syndicate of investors. A third possibility of the developer is to negotiate a long term, "take or pay"

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or "Hell or High Water" power purchase contract with the utility in whose service territory the project is located. There are, of course, difficulties inherent in any of these methods of financing. Equity investment in hydroelectric projects, because of the uncertainty of the stream of future revenues, is expensive. Moreover, equity investors have alternative opportunities for investments which may yield greater rates of return. Syndication of investment depends upon the availability of tax shelters to the syndicate of investors. A take or pay contract depends upon the ability of the developer to negotiate a "good deal" with the purchasing utility.

In very recent years, a number of provisions of federal law have attempted to reduce the difficulties of financing small scale hydroelectric projects. Some of these provisions appear to be effective while others are not or are in the process of being abolished under the President's New Economic Program. Under Title IV of PURPA enacted in 1978,⁷¹ low interest feasibility and licensing study loans and construction loans are to be made available from DOE to non-federal developers of small scale hydroelectric projects of 30 MWs or less. However, the construction loan authorization has never been funded and at this writing, the feasibility and licensing study loan programs are being terminated.

One of the new pieces of legislation which appears to have had its intended effect is the Crude Oil Windfall Profit Tax Act of 1980 (COWPTA).⁷² COWPTA, through its expanded energy tax credit provision and the designation of certain publicly issued debt instruments as tax exempt, makes available low interest debt for certain projects and less expensive equity in the form of tax shelter syndicated investments. The energy tax credit provisions of COWPTA have had a perceptible impact on the amount of interest in small scale hydroelectric development, especially in the Northeast. Because of certain narrowing provisions concerning the industrial development bond provisions of COWPTA, the industrial development bond provisions of COWPTA will be of less utility to financing small scale hydroelectric development. Notwithstanding the provisions of COWPTA, hydroelectric development confronts significant problems of high investment risk in the initial stage of the development and uncertainties associated with a future stream of earnings over a long period of time.

There is one other major provision of federal legislation which, although it does not directly deal with financing problems, has a significant bearing on the ability to finance a hydroelectric project. Title II of PURPA⁷³ contains significant provisions which assure a market for the sale of power from certain hydroelectric developments. Under these provisions, hydroelectric projects of 80 MWs or less of capacity are guaranteed a market for the sale of the output of the plant. Under Title II, hydroelectric projects of 80 MWs or less which are not owned by a company or public entity engaged in the electric utility business, may sell all or portions of their output to the electric utility in whose service territory the project is located at rates which are just and reasonable. The statute prescribes that the rates at which the power will be sold shall be no less than the "incremental cost of purchasing

alternative power or generating alternative power by the purchasing utility". The purchasing utility is also obligated to sell "backup" power to the hydroelectric project at rates that are just and reasonable and "nondiscriminatory". In other words, the hydroelectric facility is entitled to backup power at rates that are equivalent to rates charged other customers of like consumption characteristics. State regulatory commissions and unregulated utilities are to establish rates or rate setting processes pursuant to FERC standards and regulations.

FERC has promulgated the regulations⁷⁴ which among other things, establish rate standards and formulae for rates to be established for the purchase and sale of electricity between electric utilities and facilities which qualify for the benefits of PURPA. In establishing the standards and formulae, FERC has stated that state regulatory commissions must set a rate at no less than the purchasing utility's "avoided costs". Avoided cost is the cost that the purchasing utility would otherwise have incurred but for the purchase of power from the eligible facility. Secondly, FERC has established by regulation that the qualifying facility is entitled to recover not only the energy costs avoided by the purchasing utility but also the capacity costs avoided by the purchasing utility. In addition FERC has stated that regulatory commissions and unregulated utilities have the option of utilizing the avoided costs of the purchasing utility as measured by the short run (daily, monthly, or annual costs) or the avoided costs of the purchasing utility as measured in the long run (over a period of five to ten years sufficiently long enough to include changes in generation capacity of the purchasing utility).

The existence of Title II of PURPA gives bargaining leverage to developers and will make it easier for them to negotiate power contracts. Once the power purchase contract has been negotiated, the developer will have less difficulty financing the project.

7. Post Licensing Operation of Non-Federally Developed Hydroelectric Projects and Some Concluding Observations.

Assuming the non-federal hydroelectric developer obtains a license from FERC or an exemption, the developer will be subject to operating conditions of the FERC license. These conditions may require the subsequent installation of a fish passageway when access by migratory fish to the licensed project has been accomplished as a result of downstream fish passage construction. The conditions of the license will most certainly regulate minimum flows and the storage and release of water from any impoundment reservoir. The license will also have a term of years, no greater than 50 years. If substantial construction were involved in the site, in all probability the license will be 50 years. The licensee will be required to pay FERC a fee on an annual basis for the cost of administering the FERC license and the dam safety inspection program. The dam will be subject also to periodic inspections by FERC, approximately once every three years. If the project is owned by an investor owned utility or a public utility, obviously that utility will be selling the power from the project to "itself". If the project is owned by a non-utility public entity, a private entrepreneur or

or industrial concern, in all probability the power from the project will be sold at rates based on those established under Title II of PURPA or on the terms and provisions of a power purchase contract with a purchasing utility.

The foregoing is a brief description of the non-federal development process with a view towards differentiating it from the federal development process. One salient observation of the non-federal development process is that even given a controversial project, the FERC licensing procedure and the construction process will be considerably shorter than the study, design and authorization of federal development projects. Secondly, most, if not all, non-federal developers approach the problem of hydropower development from the standpoint of developing hydropower. They have no other purpose aside from constructing and operating the generation station. It is FERC that forces other considerations on license, exemption, permit applicants, and on developers by its own regulation and through an elaborate coordinating mechanism. Thirdly, FERC and Congress are engaged in significant attempts to reform the FERC licensing and permitting process and to reduce its costs and delays. Significant attention has been given to small scale hydroelectric development at existing sites by FERC and Congress. Fourthly, financing difficulties may be significant especially for private entrepreneurial developers and public developers who are not engaged in the electric utility business. Some financing incentives have been provided under COWPTA. The substantial reform of the electric generation market precipitated by Title II of PURPA is also an incentive to non-federal development.

C. Key Differences Between Federal and Non-Federal Development

The principal differences between federal and non-federal development at the present time focus on time considerations, and on the different entities involved in leadership, planning, decisionmaking, regulation, financing, power distribution, and engineering design. These observations apply only to the Corps and WPRS, but generally not to TVA.

Federal development relies on political leadership in the Congress and on coalitions of public officials, utilities, labor, industry, and recreational interests. Leadership in non-federal hydropower development falls to a wide range of possible development entities at the local and state levels, both public and private. While public support and coalition-building are important, the crucial role that Congressmen play in federal development is lacking in the non-federal process.

Planning of federal projects is centralized in the development agencies themselves which work with River Basin Commissions and state agencies in formulating comprehensive and detailed plans. They follow the Principles and Standards and Procedures of the Water Resources Council. Non-federal planning is scattered among the multitude of developers, state, regional, and local planning entities, and FERC in its consideration of the plan best adapted to the comprehensive development of the waterway. Both federal and non-federal planning require extensive coordination among interested parties and agencies, but

non-federal planning lacks uniform planning standards, proceeding case-by-case through local, state and federal approval processes. While each of these processes involves planning, engineering, and licensing criteria, they may be different at each level.

The key decisionmaker in federal development is the Congress, and in particular, the authorizing committee. The parallel role in non-federal development is played by FERC. The decision document for federal development is a specific Congressional authorization, while for non-federal development it is a FERC license or an exemption for certain sites.

Regulatory decisions are made by several entities under both development scenarios, but the processes are somewhat different under each. In federal development, the number of regulators involved is smaller, and most of their input is through commenting rather than permitting. Exceptions are water quality certificates, issued by the state water quality agency or EPA, and any state or federal permits that a local non-federal "partner" must obtain according to project authorization legislation. For non-federal development, regulation is exerted by many federal and state agencies, both through their own permit processes and as commenters on FERC license applications. Federal projects are financed directly out of the federal treasury, although portions of their costs may be paid by local government. The costs of the projects are repaid to the federal government in varying amounts over long payback periods through sales of power and water. Non-federal projects must be financed by capital raised in financial markets, i.e., venture capital equity, corporate equity, and corporate, municipal, and state bonds. Frequently, federal assistance is available through a wide range of grant and loan programs administered by a multitude of agencies. More of these subsidies are available for small scale than for large scale projects because of PURPA and COWPTA.

Federal power is distributed through federal power marketing agencies generally at the lowest cost consistent with sound business practice, with preference for purchase given to public power entities and cooperatives. This means that although the general public pays the initial costs, only certain entities benefit. Non-federal power is distributed through a regional utility grid by a public or private utility company which either generates the power itself or purchases it from the project developer. Only a non-federal entity can qualify for the rates of sale established under PURPA.

Finally, engineering design for federal projects is almost always done by the federal development agency. Non-federal entities usually contract for this work with architect-engineer firms. Both federal and non-federal development involve contracting out actual construction work. In a few instances a federal development agency has provided technical assistance to a non-federal public entity in order for that entity to retrofit its own site. This technical assistance role in which federal development agencies perform services similar to those provided by private firms may be an appropriate federal role. The Intergovernmental Cooperation Act (See Appendix I) provides authority for federal agencies to provide certain types of technical assistance to non-federal public

entitites. In general, however, specific Congressional authorization is required.

D. Issues to Consider in Determining the Appropriate Federal Role

1. General Considerations

There are a range of issues that affect the choice between federal and non-federal development. This formulation is somewhat misleading, however, in the sense that no one actually makes a conscious choice about the development entity. If Congress acts, then federal development occurs. If someone else wants to develop a site, the FERC licensing process is set in motion. Only on the rare occasion when FERC recommends federal study of a site for which someone has sought a license is there a situation that even resemble a conscious choice between federal and non-federal development.⁷⁵

A national development strategy should have criteria for determining whether federal or non-federal development is appropriate for specific situations. However, these criteria will be ineffectual if there is no institutional mechanism to facilitate rational choice. The FERC licensing process is a mechanism for choosing among non-federal entitites, but it is ill-equipped to choose between federal and non-federal development, since federal development is a legislative, not administrative, prerogative. If a mechanism existed to make rational choices,⁷⁶ the discussion that follows indicates criteria appropriate for guiding such choices.

2. Historical Perspective

The history of a bifurcated federal and non-federal development process for hydropower is the result of years of debate on the most efficient method to develop waterways and hydroelectric power. Prior to 1899, non-federal projects were not regulated by the federal government. By 1899, competing uses of navigable waterways had shown a marked increase. To deal with these competing uses, the Rivers and Harbors Acts of 1884 and 1890 had been enacted. Their emphasis was on national security needs. Since American society was dependent upon rivers as a principal means of commerce and ships as a primary line of defense, these Acts had as their purpose the elimination and prohibition of unauthorized obstructions in navigable waterways. The infant electric power industry grew in the twenty years from 1879 to 1899 to an installed capacity of two million kilowatts generating nearly two billion kilowatt hours of electricity annually. Evidencing a concern for the effect of competing demands, such as hydropower, on the use of navigable waterways, Congress assumed greater control over the nation's waterways by requiring approval of the Chief of Engineers, the Secretary of War, and Congress for the construction of obstruction in navigable waterways.⁷⁷

The Federal Water Power Act of 1920⁷⁸ provided for a separate authorizing mechanism for non-federal hydroelectric development. The Act created the Federal Power Commission (FPC) (now FERC) composed of the

Secretaries of the Army, the Interior and Agriculture. The Commission licensed non-federal projects while the Commissioners in their secretarial roles guided the federal hydropower development programs of their respective line agencies (Corps, BuRec, SCS). In 1935, the Federal Power Commission was made an independent commission with Commissioners appointed for fixed terms by the President with Congressional approval.

The result of the creation of a FPC which is independent of the federal construction agencies is the present bifurcated development framework. While cooperation exists in the planning processes due to NEPA and commenting procedures, these procedures do not remedy the problem of two development frameworks that proceed independently of one another.

The historical experience suggests that the hydropower planning process may have been better coordinated when both federal and non-federal development were supervised by the same administrators. The multitudinous agendas existing in hydropower planning today suggest that it may be appropriate for one planning and decisionmaking body to oversee development either nationally or regionally.

3. Type of Project

Typically, small projects do not merit the extensive study and Congressional deliberation usually afforded major water projects. Also, small projects are more easily conceived, financed, and constructed by local entities. Additionally, they tend to be more environmentally benign. No pressing need exists for federal development, unless the project is economically marginal and might not otherwise be able to be financed. The external benefits of the project would justify development in such instances, although the market would not, thereby making a government role appropriate.

The federal government could undertake a program of rapid development of small sites,⁷⁹ but the best sites would probably be developed anyway by the non-federal sector. If a small hydropower program were undertaken by the federal government, the legislation authorizing it could provide various streamlining measures so that lead time could be as short as, or even shorter than, that required for non-federal development.

Large scale projects involve more significant environmental requirements as well as problems of raising capital. Both federal and non-federal large projects have foundered on environmental and associated political grounds, but the Congress, when the political desire exists, retains ultimate superiority in raising capital and maximizing the multiple use aspects of a project. However, the current political climate does not favor large scale federal public works spending. This climate puts a significant damper on federal large scale projects.

Since large scale projects are capable of paying for themselves over a fifty-year period, one way to view them is as a regional subsidy in the form of long-term low-interest capital. This same subsidy could be provided to qualified non-federal developers in the form of direct

long-term loan guarantees. This would retain the same basic subsidy structure, but would put the non-federal entity in control as the equity owner. If public policy suggests eliminating even interest subsidies, loans or loan guarantees could be provided at market rates.

Federal development at new sites may be preferable where sites are already in federal ownership or are part of a system of federally controlled dams. Since there are usually more environmental problems with new sites, federal development has the advantage of requiring fewer formal environmental approvals.⁸⁰ However, this absence of formal steps can result in insensitivity to environmental concerns leading ultimately to project delay. On the other hand, federal development usually includes more substantial funding of environmental analysis and mitigation studies. The FERC process brings developers into earlier contact with their potential opponents through pre-application consultations and state permitting processes. This early contact can accentuate conflict, but the early issue clarification can also help resolve conflicts early in the decision process.

Existing sites can be developed by either federal or non-federal entities. The logic of unified project management suggests that the current owner, if he wants to add or expand hydropower capacity, should do so. However, other factors such as the availability of financing, lead time for approvals, the quality of the competition, etc., may tip the balance from one entity to another. FERC makes the choice between non-federal entities. Between federal and non-federal entities, as stated earlier, there is no adequate mechanism for choice.

4. Lead Time

Currently, lead time for federal projects is significantly longer than for non-federal ones, particularly in the case of small projects. This tips the balance toward non-federal development if time is critical. Several legislative proposals would reduce lead time for federal development of small projects⁸¹ or at existing federal facilities.⁸² Where lead time is not a crucial concern and where maximizing the resource development may be more important than rapid development, federal development, because of its greater comprehensiveness, may be preferable. It should also be noted that any rapid development of small sites ought not to be undertaken without consideration of whether it might foreclose later development of substantially greater capacity by another entity in the same location or on the same waterway.

Comparative lead times for federal, non-federal, and proposals for streamlined federal projects are depicted in charts appearing at pages III-43 to 53. These lead times are based on estimates, approximations, and predictions and are shown primarily to illustrate the differences among the processes.

5. Economics/Finance/Tax

Federal development requires an economic analysis of the project which attempts to internalize external costs, while non-federal development hinges on financial analysis of profitability. The

externalities of non-federal development are theoretically internalized by the complex FERC licensing system. Federal development requires appropriation of federal funds raised through federal taxation or borrowing. Much of this money is ultimately repaid through the sale of vendible project outputs.

Non-federal development will also involve expenditures of public funds. Where public entities (municipalities, etc.) develop projects, state or local funds will be heavily involved. Private entities (entrepreneurs, investor-owned utilities, etc.) will receive federal subsidies in the form of tax credits and write-offs and low interest loans and guarantees. While the immediate fiscal impact on the United States treasury will be greater when a federal agency develops the project because of upfront capital appropriations, it is not entirely clear whether the net fiscal impact over time is greater for federal or non-federal development.

6. Balancing Local, Regional and National Priorities

Federal development attempts to conduct a balancing of priorities through multi-level agency review and Congressional initiative and approval. Non-federal development is a process involving interaction among a multitude of local, regional, state, federal, and private entities which seek to achieve their goals through permits and intervention in the FERC proceedings. Federal development attempts consciously to strike a balance, yet it appears to have benefited different regions in varying degrees.⁸³ FERC balances local and regional needs in its criteria for licensing, choosing the plan best adapted to the comprehensive development of the waterway. This balancing is conducted largely without reference to other national priorities except insofar as FERC views the licensing of hydropower as a national priority.

Neither developmental process adequately accounts for the situation where one group reaps disproportionate benefits and another pays disproportionate costs in dollars, environmental quality, power availability, etc., e.g., where peaking power is developed in Montana for the benefit of Seattle, Washington.⁸⁴

7. Other Considerations

In deciding between federal and non-federal development, an important consideration is to balance managing the resource for maximum economic performance with protection of the public interest. It is assumed that the private sector is best equipped to maximize economic performance, although the Columbia River System and TVA may appear to be exceptions to this assumption.⁸⁵ However, government involvement is generally considered necessary for the protection of the public interest. This is frequently the justification for public development. There is, however, room for disagreement as to whether public development protects the public interest any better than publicly regulated private development.⁸⁶

Interagency and intergovernmental conflicts may affect development by federal and non-federal entities differently. For example, a federal project built on federal land will be able to avoid becoming embroiled in the FLPMA-FERC controversy⁸⁷ because federal developers do not need to get permits from land management agencies. This controversy over whether the FERC or the land management agencies have ultimate authority to grant right of way permits over federal lands in connection with non-federal hydropower development creates uncertainty only for non-federal developers. Federal development involves extensive coordination and conflict among federal agencies while non-federal development involves all of the federal agencies as well as significant inter-governmental conflicts between state, local and federal government.

The present ownership of the site and the water rights that may be associated with it may also be a factor in choosing between federal and non-federal development. If a non-federal entity that is well equipped to develop a site already owns the site, there would be a natural preference to giving that entity the right to build the dam. The recently passed SSH licensing exemption law and the regulations under it apply this preference to projects under 5MWs.⁸⁸ If the site is already federally owned, then federal development would seem more logical. However, as will be discussed below in the section on non-federal development of federal sites, non-federal development may be advantageous even though a site is owned by the federal government.⁸⁹

Traditionally the benefits flowing from the development of waterways have been considered to be public benefits. This is the philosophy that underlies the Federal Power Act's preferences for public entities to have access to sites for licensing and for the purchase of power from federally developed sites.⁹⁰ If this general preference for public ownership of the benefits of hydropower development continues, it will affect who develops the resource. This preference policy encourages federal development which benefits the publicly owned entities and co-ops which would purchase the power, and non-federal development by publicly owned entities (not co-ops) which would have licensing preferences.

State law will impact differently on federal and non-federal development. Non-federal development proceeds within the framework of state law provisions. Depending upon the state, and its emphasis on hydropower development, state law will either create significant incentives or pose obstacles to hydropower development.⁹¹ Federal development, however, proceeds in much the same way regardless of the state in which it occurs. The only exception to this is the traditional requirement that federal development agencies follow state property law in acquiring sites and water rights for federal development.

Generally, the leadership and constituency that support a project are different for non-federal and federal development. Non-federal development is spurred primarily by the developing entities and any allies that they may have within the community. Federal development, on the other hand, tends to be led by the political establishment and local Congressmen. While the constituency for each type of development may include some of the same people, the thrust of leadership will be different in each case.

E. The Special Problem of Non-Federal Development at Federally Owned Structures⁹²

One way in which the federal government can facilitate rapid retrofiting of existing structures is by opening up its own facilities to non-federal development. There are inherent conflicts in attempting to do this, because the original Congressional authorizations for these projects may limit the extent to which hydropower can be developed.⁹³ In addition, operational and institutional considerations may make the agencies that operate the projects reluctant to cooperate with a non-federal entity. The FERC has formulas for determining what fees a non-federal developer should pay the federal government for the use of its facility.⁹⁴ If the non-federal developer can pay the fee and operate the project in accordance with its original function, then it would seem desirable to permit rapid development by non-federal entities at federal sites.

There will be situations, however, where non-federal involvement at a federal site may not be desirable. It may be necessary to change the authorization for the project in order to get significant hydropower benefits from it. This will require Congressional action. If the development is to be by a non-federal developer, though, Congressional action should be swifter because no money will need to be appropriated. However, if the operational characteristics of a facility are particularly complex or sensitive to changes in the river, it may be unmanageable to have a non-federal entity and federal agency cooperate in developing and producing power at the same site.

While non-federal development at federal structures poses some unique problems, it also present an opportunity for partnership between the federal government and non-federal entities.⁹⁵ A strong policy encouraging such partnership and permitting non-federal financing of significant improvements to federal sites could help to bring the federal and non-federal development processes closer together and maximize the hydropower development at federal sites in the shortest possible time. The Corps has recently articulated such a policy. Rapid development by the non-federal sector must be weighed against slower but possibly more comprehensive, power-maximizing development by the federal government.

A non-federal developer may in certain circumstances be able to qualify for the avoided cost power purchase rate under PURPA as well as the tax subsidies under COWPTA. Non-federal power would thus be sold to local utilities at a marginal cost rate. By contrast, federal development would involve marketing the power by a federal power marketing agency at low cost, probably to preference customers. Thus, one would expect to find preference customers favoring federal development of these sites and entrepreneurs favoring non-federal development. Ultimately, the local ratepayers would pay more for non-federal development, while the nation's taxpayers would subsidize local ratepayers under the federal development scenario.

FEDERAL REGULATION OF HYDRO DAMS
by the
FEDERAL ENERGY REGULATORY COMMISSION

HYDROELECTRIC PROJECT

I. File: Declaration of Intent to allow FERC to determine jurisdiction
-mandatory for all new projects and renovated pre-1935 projects
-optional for existing facilities

II. Is Project under FERC Jurisdiction
-is project located on or does it affect navigable waterway?
-is project connected to the interstate transmission grid?
-is project located on federal lands?
-does project utilize water from government dams?

Yes

appeal to U.S.
Court of Appeals

Appeal
Successful

Comply with state
and local requirements

No

III. Consider Regulation Options:
-Preliminary Permit - Licensing Rate
-Exemption from Licensing

IV. File Application for:

or

Preliminary Permit

or

Exemption from Licensing

-protect priority of application for site
-preference to public entities
-unexpired preliminary permit license application maybe converted to exemption if applicant is permittee or licensee

-for facilities of 5 MW or less
-exemption is from all or part of Part I of FPA

Comply with:
-terms of the Exemption
-state Licensing system
-Any Terms and conditions that any federal or state Fish and Wildlife agency determines to be appropriate

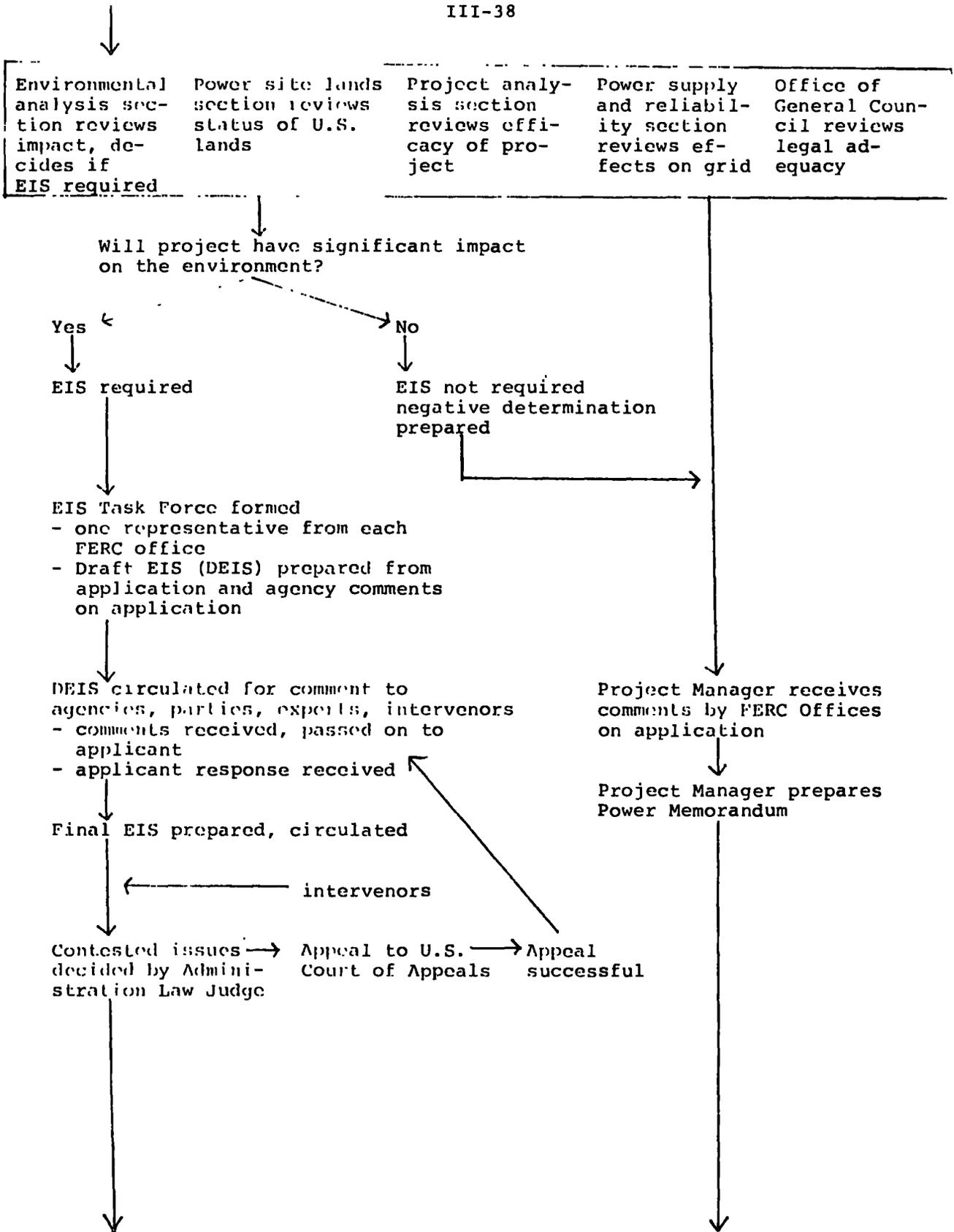
Permit granted
(or permit process bypassed)

Permit denied: appeal to U.S. Circuit Court of Appeals

Exemption Granted

Exemption Denied
↓
Appeal Process

Appeal Successful



V. Prepare FERC License Application

- is project larger or smaller than 1.5 MWs?

larger

smaller

- is project located at an existing dam or new dam?

Prepare Short Form (minor) License (check status of proposal to permit existing dams - 5 MWs to use Short Form License)
- secure data
- briefly describe environmental impact, AND

Existing Dam
Prepare Major Project existing dam license
- secure data
- prepare exhibits
AND

New Dam
Prepare Major License
- secure data, perform studies
- prepare exhibits through W, AND

- acquire land, water rights
- sign contract for sale of power
- consult with Fish and Wildlife agencies
- consult with Historic and Archaeological Preservation agencies
- consult list of Endangered Species
- consult Wild and Scenic Rivers designations
- consult National Trails System
- obtain § 404 dredge and fill permit
- obtain § 401 state water quality certification and other state permits

VI. File: License application with FERC

- FERC offices review for deficiencies

Accepted and Docketed

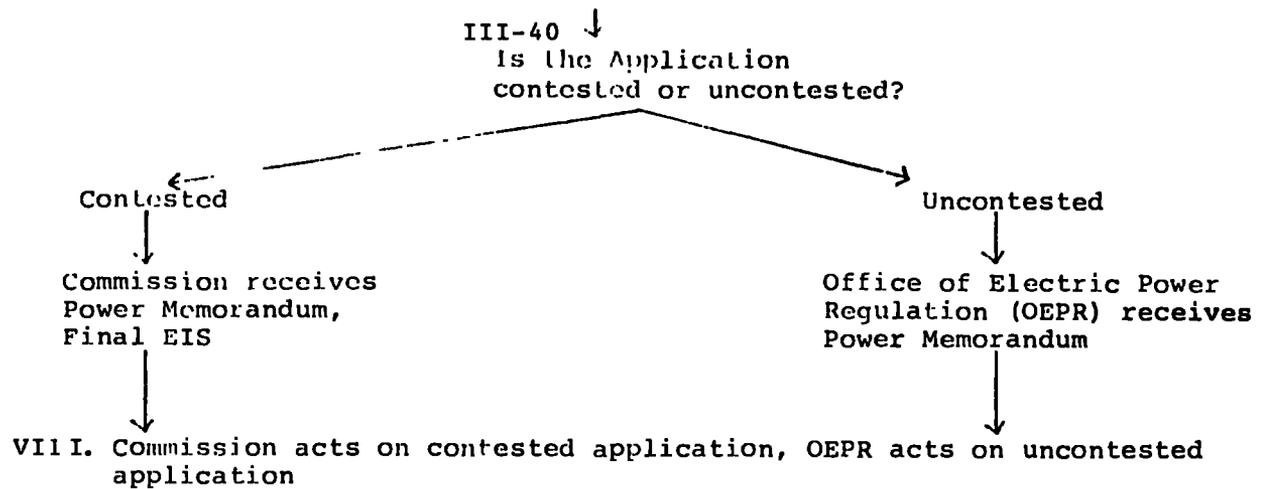
Rejected--

returned with → corrected application
deficiency letter refiled with FERC

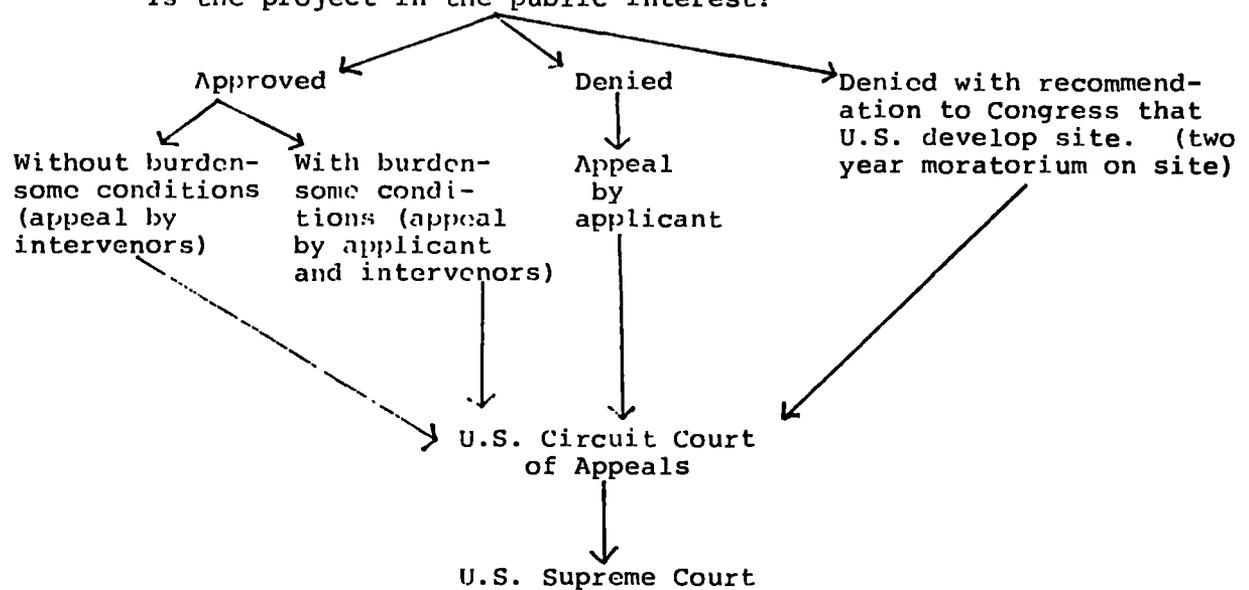
FERC solicits comments from EPA and CEO

VII. FERC begins processing license application

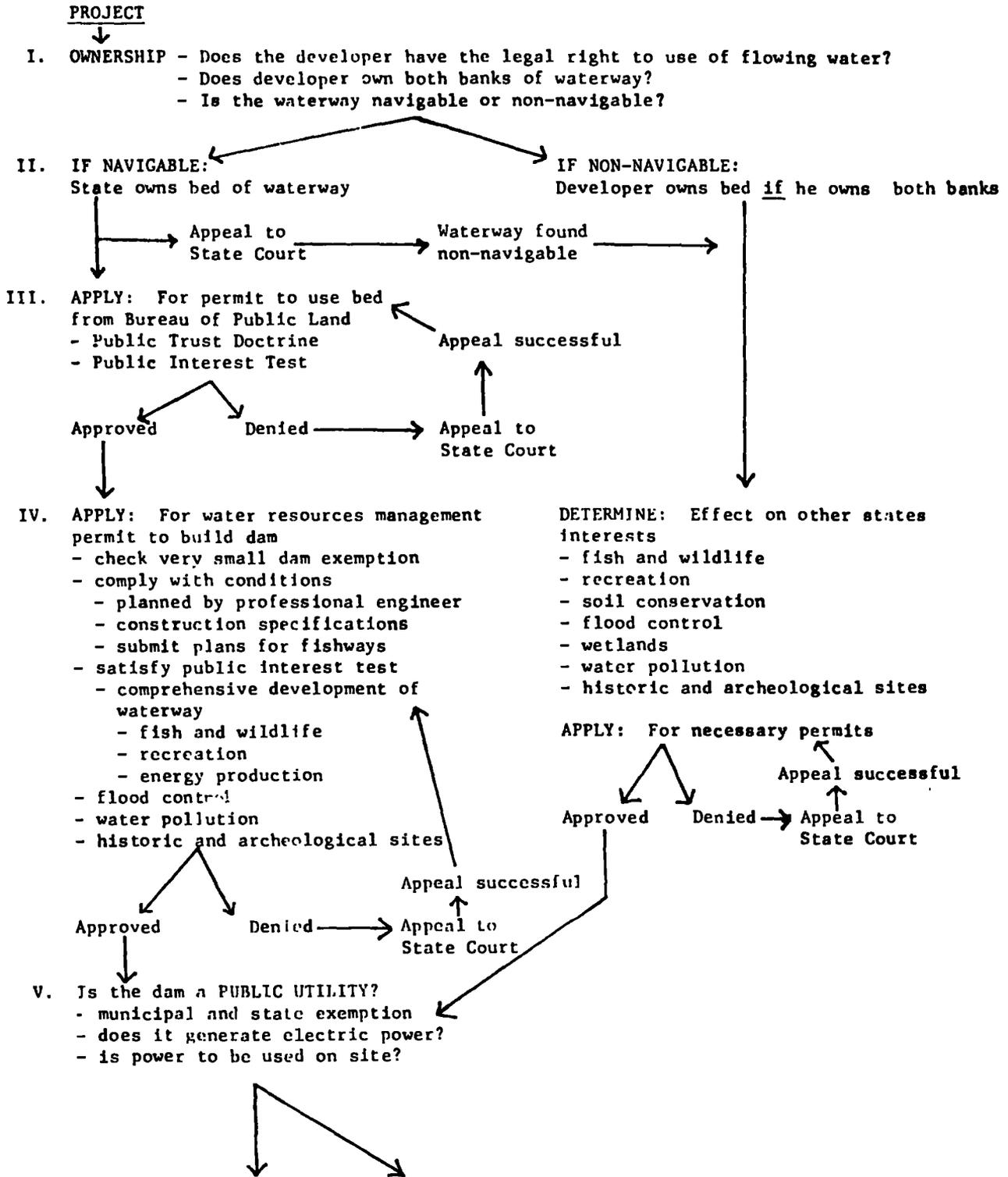
Application section appoints project manager, reviews for general adequacy

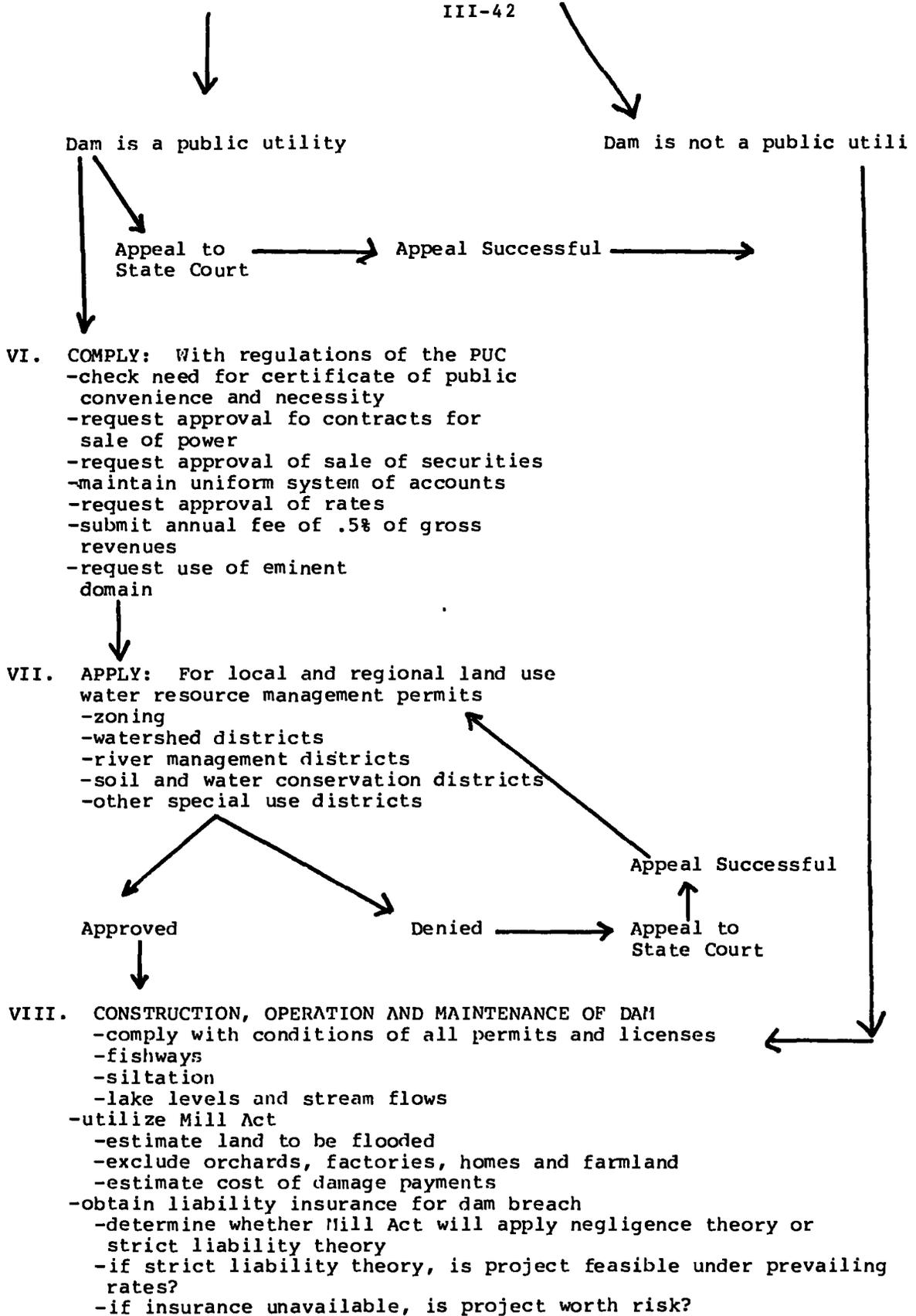


- is the project that best adapted to the comprehensive development of the waterway?
- is the project best developed by the federal government?
- is the project in the public interest?



FLOW DIAGRAM OF REGULATION OF
HYDRO IN A TYPICAL STATE





ESTIMATED DEVELOPMENT TIMETABLES:

FEDERAL

NON-FEDERAL

PROPOSED FEDERAL (S. 1641)

FEDERAL Large 25 MW Project at New Site

MONTHS	
1	Legislation Introduced
24	Legislation Passed
26	Environmental Studies Commenced
45	Study Reviewed, Draft EIS Circulated
50	Final EIS Prepared, Internal Review Exec. & OMB
74	Legislation Passed
76	Environmental Studies Arranged, Advanced Design Commenced
90	Draft EIS Supplement Circulated, Internal Review Exec. & OMB
96	Final EIS Supplement Prepared, Internal Review Exec. & OMB
126	Legislation Passed
166	Project on Line

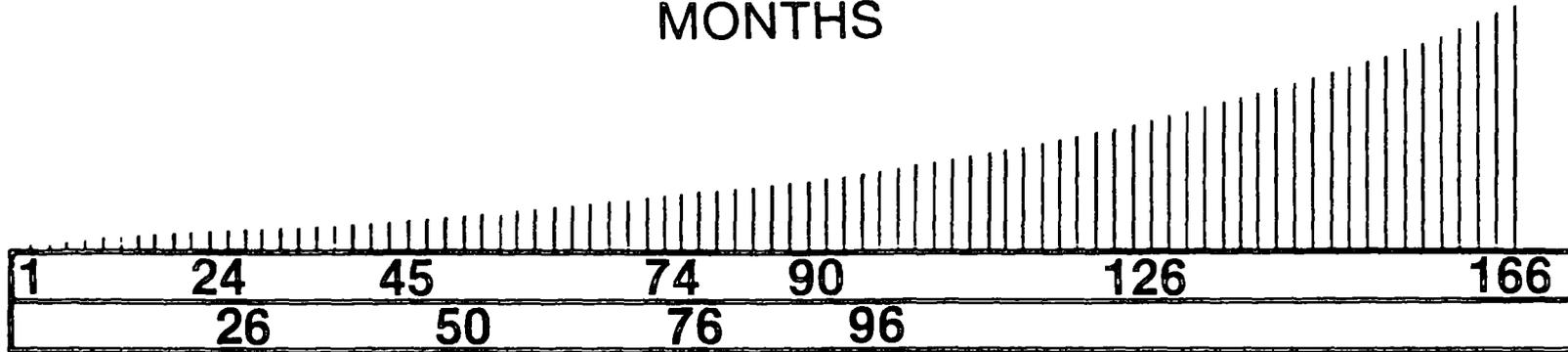
**NON-
FEDERAL**

Large 25 MW Project at New Site

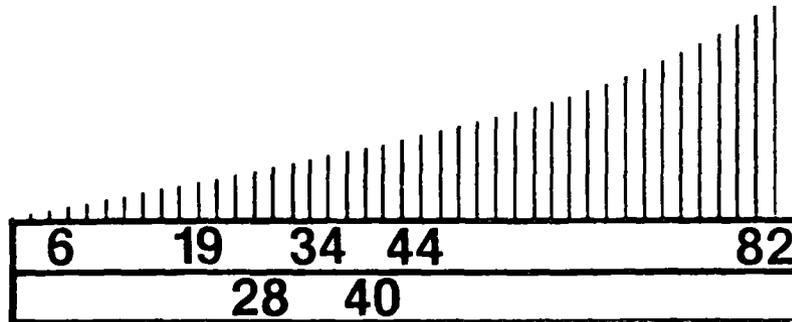
MONTHS	6	Contact with Federal, State and Local Agencies
	19	License Application Filed
	28	FERC Prepares and Circulates Draft EIS
	34	Draft EIS Returned with Comments
	40	Final EIS Prepared, Staff Approves License
	44	License Issued
	82	Project on Line

Large 25 MW Project at New Site

MONTHS



FEDERAL



NON-FEDERAL

FEDERAL 10 MW Plant at an Existing Site

MONTHS	1	Legislation Introduced
	18	Legislation Passed
	20	Environmental Studies Arranged
	27	Study Completed, Draft EIS Prepared
	28	Study Reviewed Internally, Draft EIS Circulated
	32	Final EIS Prepared, Internal Review
	35	Advanced Design Legislation Introduced
	59	Legislation Passed
	60	Environmental Review
	69	Advanced Design Review, Draft EIS Supplement
	75	Final EIS Supplement Prepared, Internal Review
	77	Construction Legislation Introduced
	101	Legislation Passed
	104	Construction Commenced
	104	Project on Line

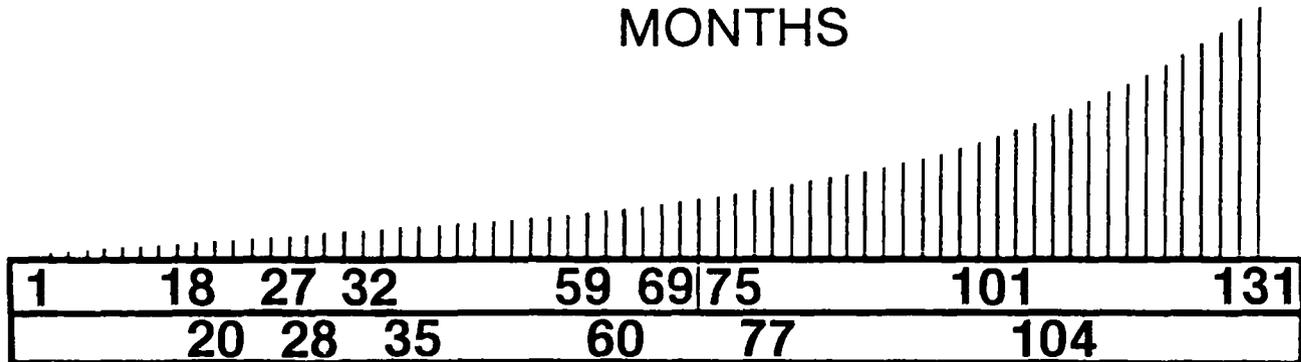
NON-
FEDERAL

10 MW Plant at an Existing Site

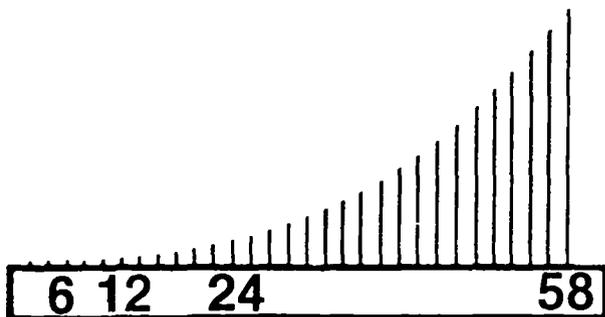
MONTHS	
6	Contact with Federal, State and Local Agencies
12	FERC License Application Filed
24	FERC Prepares FONSI
58	Project on Line

10 MW Plant at an Existing Site

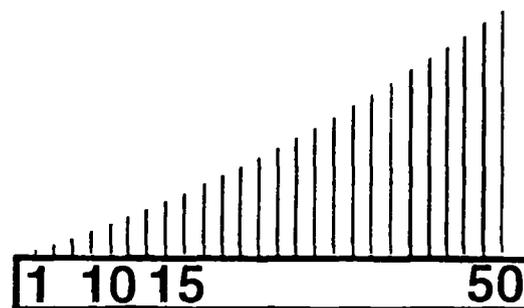
MONTHS



FEDERAL



NON-FEDERAL



FEDERAL S. 1641

FEDERAL**<5 MW Plant at Existing Dam**

MONTHS	1	Legislation Introduced
	18	Legislation Passed
	20	Environmental Studies Arranged
	24	Study Completed, Draft EIS Prepared
	25	Study Reviewed, Draft EIS Circulated Internally
	29	Final EIS Prepared, Internal Review Exec. & OMB
	56	Advanced Design Legislation Passed
	58	Environmental Review Arranged
	63	Advanced Design Completed
	65	Draft EIS Supplement Prepared and Circulated
	70	Draft EIS Supplement Returned with Comments
	72	Final EIS Supplement Prepared
	74	Construction Legislation Introduced
	86	Construction Legislation Prepared
	88	Construction Commenced
	110	Project on Line

NON-FEDERAL

<5 MW Plant at Existing Dam

MONTHS	6
	17
	36

Contact With Federal, State
and Local Agencies
FERC Prepares FONSI
Project on Line

**FEDERAL
S. 1641**

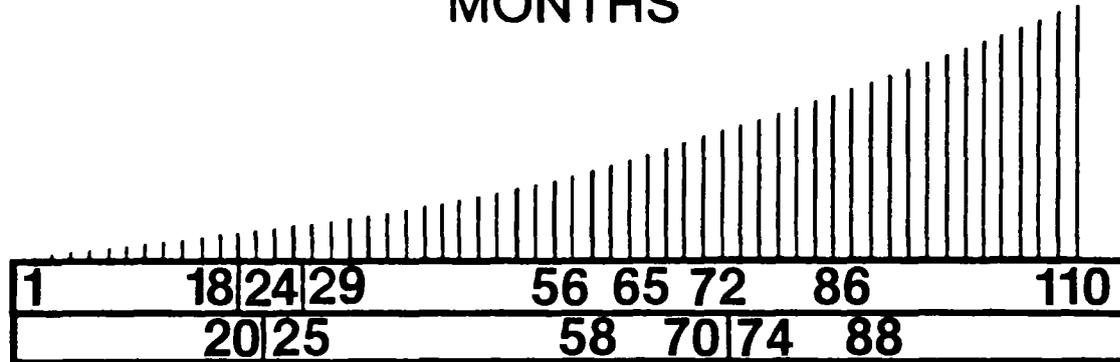
< 5 MW Plant at Existing Dam

MONTHS	7
	11
	45

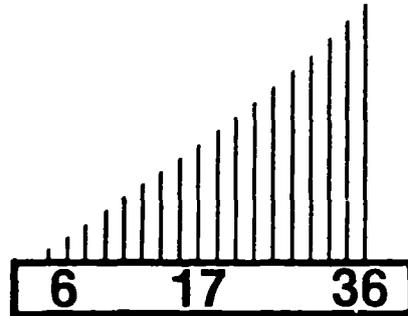
Draft EIS Prepared and Circulated
Final EIS Prepared
Project on Line (If Licensed)

< 5 MW Plant at Existing Dam

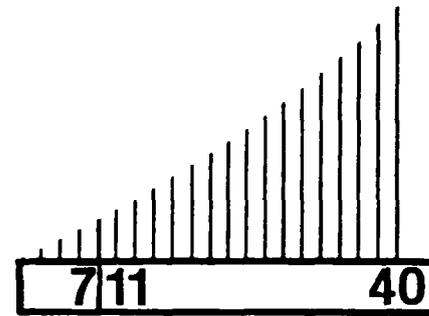
MONTHS



FEDERAL



NON-FEDERAL



FEDERAL S.1641

¹See: The Army Corps of Engineers, Water and Power Resources Service and Tennessee Valley Authority Appendices (I, II, and III).

²Interviews with Richard Nash, WPRS and Carl Gaum, Corps, April 1980.

³E.g.,: Lynn Morehouse, Assistant General Counsel, TVA (January, 1980) stated that the TVA has developed most of the large scale hydropower site within its region. Officials of the major hydro-related organizations in the Pacific Northwest agree that there are few practical large scale sites left in that region. See also: Corps data from NHS Inventory for national data base which indicates that there is still development potential in the Pacific Northwest, but that much of it is presently infeasible for either economic or environmental reasons.

⁴E.g.,: If one views large-scale federal construction primarily as a subsidy in the form of large quantities of long-term capital, then large-scale non-federal projects could be built with the use of federal long-term loan guarantees and interest subsidies. This would involve a comparable subsidy level but would permit use of private capital markets by non-federal developers.

⁵Interview with John Ehrenfeld, Chairman, New England River Basins Commission.

⁶While the federal process may or may not be the most effective way to build large water projects, the need for lengthy review, analysis, and public participation is warranted by the ambitious scale of these projects. If viewed from the perspective of maximizing hydropower (energy) potential, however, the process appears to be overly concerned with extrinsic factors. This result is to be expected since the purpose of the planning process is to maximize multiple uses, not hydropower. Most large dams cannot be justified economically for hydropower alone.

⁷38 Fed. Reg. 24,778 (1973). The new regulations are gradually being promulgated. See, e.g.,: 44 Fed. Reg. 72,892 (1979) (to be codified at 18 C.F.R. 713).

⁸Interviews with a variety of federal water planners indicated a wide disparity in viewpoints concerning the value and usefulness of the Principles and Standards and Procedures.

⁹The Soil Conservation Service also builds dams but they appear to have minimal hydropower potential.

¹⁰There has never been a reported judicial decision that relies on the Principles and Standards as legal authority. Although one case has raised the issue, the decision was based on NEPA rather than Principles and Standards. Libby Rod and Gun Club v. Poteat, 457 F. Supp. 1177 (1978), modified, 594 F.2d 742 (1979).

¹¹The Principles and Standards do not consider benefits from energy saved by using hydroelectric power rather than fossil fuels. 44 Fed. Reg. 72,938 (1979).

¹²See: footnote 2, Ch. 4, at page IV-16.

¹³S. 1599, 96th Cong., 2d Sess. (1979). A proposed cost-sharing bill would require either a 5 percent or a 10 percent financing share from the non-federal project participant depending upon whether the project resulted in either "vendible" or non-vendible outputs. Hydropower is defined by the bill to be a "vendible" output.

¹⁴Cost-sharing aspects of the President's Water Policy Initiatives, before the sub-committee on Water Resources of the House Committee on Public Works and Transportation, 96th Cong., 1st Sess., at 1137 (1979).

¹⁵See: Army Corps of Engineers, Water Power and Resource Service and Tennessee Valley Authority Appendices.

¹⁶1978 Water Policy Message.

¹⁷33 U.S.C. 701f-1, 701(j) (1978).

¹⁸16 U.S.C. 800(b) (1976).

¹⁹Udall v. FPC, 387 U.S. 428 (1967).

²⁰Id. 16 U.S.C. 803(a) (1976), requires that the project adopted "shall be such as in the judgment of the commission will be best adapted to a comprehensive plan for improving and developing of a waterway . . . for the utilization of water power development, and for other beneficial uses"; See also: Corps, WPRS and TVA Appendices.

²¹See, e.g.: H.R. 4788, 9th Cong., 1st Sess. (1979) and the Report of the Committee on Public Works and Transportation on H.R. 4788, REP. No. 96-588.

²²See, e.g.: the final resolution of the Tellico Dam controversy involved a blanket Congressional exemption of the project from environmental law requirements.

²³The Senate Committees that impact on energy and water resources are: Agriculture, Nutrition and Forestry; Appropriations; Finance; Energy and Natural Resources; and Environment and Public Works.

The House Committees are: Agriculture, Appropriations; Government Operations; Interior and Insular Affairs; Interstate and Foreign Commerce; Public Works and Transportation; Science and Technology; and Small Business.

²⁴The Corps is primarily subject to the Senate Committee on Environment and Public Works and the House Committee on Public Works and Transportation.

WPRS is primarily subject to Senate Committee on Energy and Natural Resources and the House Committee on Interior and Insular Affairs.

²⁵The most controversial aspect of multi-purpose projects has been the recreational benefits claimed for them which some have argued distort the benefit-cost analyses.

²⁶United States v. Gerlach Live Stock Co., 339 U.S. 725 (1950) provides an expansive interpretation of the "general welfare" power.

²⁷The Federal Water Project Recreation Act, 16 U.S.C. 460 1-12 (1976) requires federal development agencies to consider the opportunities for outdoor recreation and fish and wildlife enhancement in planning water resources projects. The provisions of other statutes, most notably the Fish and Wildlife Coordination Act and NEPA, also require similar consideration.

Section 301 of the Water Supply Act of 1958 provides that storage may be included for present and future water supply in Corps and WPRS. 43 U.S.C. 390b (1976).

²⁸The most successful federal hydroelectric development projects have been those where power was perceived to be a primary purpose. E.g.,: the TVA projects, the Columbia River projects, and Hoover Dam. These projects, when first conceived, needed a constitutional "anchor" in navigation, flood control, and irrigation as primary purposes, although this is no longer necessary.

²⁹See: Corps and WPRS Appendices.

³⁰The Corps can exercise some discretion within the context of conducting Level A (National or Regional) or Level B (River Basin) Studies and in the few areas where it has continuing authority, e.g., small flood control projects. However, the discretion is only as broad as the authorizing language for the study or program. See Corps Appendix.

³¹See: Appendix III.

³²In the Pacific Northwest, such an entity was created in late 1980. See: Chapter 5.

³³Congressional deference to state water law particularly in the western states is due to the unique set of laws designed to develop the West. See generally: HUTCHINS et al, WATER RIGHTS LAWS IN THE WESTERN STATES I chapter 6 and III chapter 21; F. TRELEASE, FEDERAL-STATE RELATIONS IN WATER LAWS (1971).

³⁴Pub. L. No. 96-501. See: Chapter 5 for a fuller discussion.

35The economic analysis of federal projects does require a market comparability test, but not one of financial feasibility in the marketplace. See: NHS report on economic aspects of hydropower development.

36"Dominant use" hydropower development is federal development that is multi-purpose but seeks to maximize hydropower output, consistent with other project purposes and the constraints of applicable law. In the 1950's, President Eisenhower turned back development responsibility in the Columbia Basin to non-federal entities which built smaller "primary purpose" hydropower projects which did not maximize available hydropower potential. See: LEE, KLEMKA, and MARTS, ELECTRIC POWER AND THE FUTURE OF THE PACIFIC NORTHWEST, (1980), for a fuller discussion.

3716 U.S.C. §§791-823 (1976).

38Id. §797(e).

39FPC V. Union Electric Co., 381 U.S. 90, reh. denied, 381 U.S. 956 (1956).

40See: for a general, detailed discussion of FERC approval processes the ELI Report FEDERAL OBSTACLES AND INCENTIVES at pp. 16-65.

41In the past, FERC has issued informal letter opinions indicating to developers whether or not a particular project is subject to FERC jurisdiction. The informal letter opinion is rarely useful under present circumstances.

4216 U.S.C. §798 (1976).

4318 C.F.R. §131.6 (1979).

4444 Fed. Reg. 67,644 (1979) (to be codified in 18 C.F.R. §§4.50 et seq.).

4518 C.F.R. §131.6 (1979).

4616 U.S.C.A. §824 (Supp. 1979).

47Energy Security Act, §408 (1980).

4845 Fed. Reg. 58,368 (1980).

4916 U.S.C. §803 (1976).

50Id. §800(a) (1976).

51City of Bountiful, Utah, FERC Opinion No. 88 (1980).

5244 Fed. Reg. 61,336 (1979) (to be codified in 18 C.F.R. §4.33(f)).

5344 Fed. Reg. 50,052 (1979).

5416 U.S.C. §661 (1976).

5533 U.S.C. §1344 (1976). Monongahela Power Co. v. Alexander, (Civil Action No. 78-1712, Dist. Ct., D.C., December 19, 1980).

5616 U.S.C. §§469(a) et seq. (1976).

5743 U.S.C. §§1701 et seq. (1976).

58See generally: Federal Obstacles and Incentives at 13-44, 91-160.

59Id., at 113-117.

60Id., at 137-147. See: infra, at page IV-14.

61Opinion by Associate Solicitor, Energy and Resources, U.S. DEP'T. OF INTERIOR, ASSESSMENT OF CHANGES AND CONDITIONS FOR NON-FEDERAL USE OF SERVICE FACILITIES FOR HYDROPOWER PURPOSES (Oct. 16, 1980), Concurrence by SECT'Y OF THE INTERIOR, Cecil Andrus (Dec. 19, 1980).

6243 Fed. Reg. 40,218-19 (1978).

63Scenic Hudson Preservation Conference v. Calloway, 499 F.2d 127 (2d Cir.).

6442 U.S.C. §7172 et seq. (1976).

65426 U.S. 1 (1976).

6644 Fed. Reg. 46,451 (1979).

6744 Fed. Reg. 61,336 (1979).

68Id.

69FEDERAL OBSTACLES AND INCENTIVES, at 36-44.

70Interview with F. Lowell Magleby, September 17, 1980, Idaho National Falls Research Laboratory, Idaho Falls, Idaho. Mr. Magleby is charged with responsibilities to review feasibility studies and licensing loan applications.

7116 U.S.C. §§2701-2708 (1978).

7226 U.S.C.A. §48 (1980).

73Pub. L. No. 96-223, 94 Stat. 229 (1980).

7445 Fed. Reg. 12,236 and 17,965 (1980) (to be codified 18 C.F.R. §292.204 and 292.401).

75¹⁶ USC 797(e) (1976).

76^{Under current institutional arrangements it is difficult to envision an entity that could make this choice effectively. There are basically three options: 1) Congress could take back the power delegated to FERC and handle licensing itself; 2) Congress could delegate federal authorization to FERC; or 3) Congress could create a new entity to make a first-cut decision concerning federal or non-federal development. A River Basin Commission might be an appropriate new entity.}

77^{See generally: PRICE, HYDROELECTRIC POWER POLICY, Background Report to the National Water Commission (1971); ELI, FEDERAL LEGAL OBSTACLES AND INCENTIVES, at 8-13.}

78^{16 U.S.C. §§791a-835r (1976). See: Foreword.}

79^{S. 1641, 96th Cong., 2d Sess. (1980), would authorize the Secretary of the Army to use seventy-five million dollars to plan, design and construct small scale projects.}

80^{The primary federal environmental control is the construction agencies' compliance with NEPA. Non-federal entities not only must comply with NEPA, but also must obtain a multitude of permits.}

81^{S. 1641, supra. See: Appendix VI.}

82^{H.R. 6042. See: Appendix VI.}

83^{This is in part due to accidents of history and geography. The major federal development programs such as the TVA and Columbia River Projects were constructed in the best hydropower regions of the nation at a time when the regions needed assistance in economic development.}

84^{The Libby Dam Controversy.}

85^{In his book, MANAGEMENT: TASKS, RESPONSIBILITIES, PRACTICES, management expert Peter Drucker cites TVA as a prime example of a government agency that has been able to maximize economic performance, despite the prevalent belief that only private business can do so.}

86^{In fact federal development is subject to greater political pressures and thus may not protect the public interest as well as a non-federal development process regulated by exacting administrative standards designed to insure the internalization of external costs.}

87^{See: pp. 31-32.}

88^{See: pp. 25-27.}

89^{See pp. 59-61.}

⁹⁰16 U.S.C. §8755 (1976).

⁹¹E.g.,: some states with prior appropriation doctrines place hydropower lower in the hierarchy of uses than thermal power production, a consumptive use of water. This can make it difficult to obtain a meaningful permit for hydropower development.

⁹²See: NON-FEDERAL DEVELOPMENT OF HYDROELECTRIC RESOURCE AT FEDERAL DAMS -- NEED TO ESTABLISH A CLEAR FEDERAL POLICY, General Accounting Office EMD-80-122, Sept. 26, 1980 for a fuller discussion of this issue.

⁹³Federally developed water projects are authorized to be built for one or more purposes, e.g., irrigation, flood control, etc. The extent to which retrofitting a given project to take advantage of its hydropower potential interferes with the authorized purposes of that project corresponds to the potential legal conflict which could arise.

⁹⁴At present, however, there is some controversy concerning whether WPRS can charge certain fees to the non-federal entity in addition to the FERC assessed fees. WPRS claims the authority to levy "falling water charge" pursuant to the Reclamation Act of 1939. This charge, unlike FERC assessed fees, would go into the Reclamation Fund (See: Appendix II), rather than the U.S. Treasury.

⁹⁵The potential at these sites varies tremendously. It appears, based on preliminary studies (WPRS, 1980 and New England River Basins Commission, 1980) that the potential at Western storage projects is far greater than at Eastern flood control projects, primarily because hydropower is more compatible with storage than with flood control.

Chapter 4. FEDERAL AND NON-FEDERAL RESOURCE AND ENVIRONMENTAL
REGULATION OF HYDROPOWER

A. General Considerations

Hydropower is highly regulated by a plethora of agencies at the state, federal and local levels.¹ The rationale for this regulation is that there are important public interests in water and its competing uses which vary at different levels of government and reflect varying needs and demands of society. These regulations have accumulated piecemeal and their sheer number and complexity appear to be overwhelming in some situations. This section will describe the most significant regulatory obstacles to hydropower and will attempt to suggest ways that the legitimate objectives of regulation can be met in the least burdensome ways.

After some preliminary discussion of the purposes of regulation and proposed regulatory reforms, the chapter will discuss various aspects of water resource regulation, other environmental regulation and federal resource management to highlight where the most significant regulatory obstacles to hydropower development lie. The regulatory system is dual, involving both federal and state laws. In most cases these laws are similar in purpose and effect. Where significant differences exist among states or between state and federal regulation, these differences will be discussed.

Regulation falls into a number of major categories. These include environmental protection, economic regulation of water and electricity, regulation of safety, regulation of commerce, and land use regulation. The broadest and most important area of regulation for the purposes of this study is environmental regulation. Environmental regulation encompasses a wide range of concerns which have come to be considered as linked together. However, they have evolved as separate regulatory schemes which require different compliance procedures. These concerns may be broadly divided in two groups: resource allocation concerns and pollution control. Most regulation that affects hydropower is of the resource allocation type and addresses questions of how trade-offs among competing values are to be made. The layering and fragmentation of regulation is intended to protect the interests of different constituencies defined both by geography and by the substantive environmental concerns of specific interest groups.

The overall approach of using regulatory tools individually to meet specific articulated societal needs may be challenged for its inefficiency. While the current debate on "regulatory reform" is not likely to be resolved in the near future, the issues under discussion in this section are all implicated in that ongoing debate.² At the heart of the debate is a recognition that there is a need for regulation that is both simpler and more comprehensive than is currently the case with our fragmented, layered multi-level "system". A few states have begun experimenting with "lead agency" or "one-stop" systems. These approaches may hold promise for both state and federal regulatory reform and are less drastic measures than the proposed "Energy Mobilization Board."³

Another aspect of the regulatory reform debate concerns whether the objectives of regulation can be better met by the substitution of different approaches to achieve the same regulatory goals. The chief substitute for regulation would be systems of penalties, fees, taxes, and/or subsidies which would provide incentives and sanctions to persons otherwise subject to direct regulation. These measures would induce behavior that would further the goals for which current regulation exists, e.g., internalizing external costs by charging a fee rather than issuing a command.

The basic goal common to both regulation and its incentive-based alternatives is the proposition that the external costs of a given activity should be borne by that activity. One way to "internalize" these costs is by ordering that certain measures be taken by a developer. The alternative is to provide an incentive to that developer that would both permit him to internalize costs in his own way and also adequately serve the social goals for which the incentive was created. Incentive systems can stimulate creative solutions and cooperation, but they lack the precision, comprehensiveness, and coercion of regulations.⁴ Another type of alternative to formal coercive regulation which is under discussion involves the increased use of informal bargaining techniques such as negotiation and mediation. There is significant potential with this approach although barriers exist to successful implementation of informal solutions.⁵

A number of non-governmental organizations representing a variety of constituencies and interest groups participate in the regulatory process. Many of these organizations play an important role in enforcing regulations.⁶ While various government agencies have been entrusted with the responsibility of regulatory enforcement, they frequently are pushed to action through the lobbying and litigation efforts of these interest groups. Indeed, the priorities set by enforcement agencies and the thrust of legal interpretations is often a direct result of the efforts of these organizations. The role that these interest groups play in stimulating regulatory action, both through the administrative process and through the courts, is important in understanding the current institutional situation and the evolution of regulatory law. Environmental groups have played a major role in stopping or altering large hydroelectric projects through litigation and congressional lobbying. They also have played a major role in the doctrinal evolution of various environmental regulatory schemes such as the National Environmental Policy Act, Wild and Scenic Rivers Program, Endangered Species Act, and the Clean Water Act. Of course, these organizations are able to sway federal action in part because of the availability of governmental institutions which have mandates to carry out the same goals that these organizations advocate.⁷

Environmental regulatory requirements are frequently used by project opponents as a means of raising costs, increasing political awareness, and delaying or sometimes stopping projects altogether. Projects may be stopped by regulations which are being implemented according to their original intent. Frequently, however, the regulatory levers are merely a means by which an environmental interest group attempts to foster its objective, which is to stop a dam for a variety of

reasons, not all of which are given equal or even any weight in the law. This approach raises the question of the "hidden agenda" which is frequently pursued by an environmental group. Much of the opposition to large dams results from a variety of considerations such as disturbance of the natural environment, flooding of farm land, displacement of people, and other issues of concern to a variety of project opponents. The means by which a project is stopped, however, may have more to do with discovering an endangered species about which only a relatively small constituency is concerned, following the procedural aspects of NEPA (which is rarely at the heart of a controversy) or insuring that complex consultation requirements are followed, than with the substantive goals of project opponents. They rely on these tangential concerns because they provide the best legal grounds for stopping a project. In general, most environmental opposition to hydroelectric projects has been successful because of procedural maneuvering, when in reality the concerns of the opponents are largely substantive. Therefore, the goals of federal reform of environmental regulation should be to take adequate account of substantive concerns and to de-emphasize preoccupation with procedural techniques. Mediation processes tend to focus the attention of parties on substance as opposed to procedure.

A related need is to establish more finality in environmental decisions so that developers can proceed without fear of being challenged in another forum. The licensing process mandated by the Federal Power Act (FPA) is a comprehensive regulatory scheme that encompasses both environmental and economic considerations. As the focal point of the non-federal regulatory process, the licensing process administered by FERC can be a vehicle for the integration of divergent environmental and other regulations, including NEPA. The NEPA process is the primary means of co-ordinating interagency and public input into federal development proposals.

Finally, since the United States government owns vast amounts of the land and associated water rights where hydropower potential may exist, the regulation of its own land and water becomes a significant factor in hydropower regulation. The implications of federal resource management, then, will also be treated as a form of federal regulation of hydropower.

B. Water Resources Regulation

1. Water Law

The regulation of water resources is primarily a state function. There are two basic approaches to water resources regulation, the riparian and prior appropriation systems, which are characteristically found in the East and West, respectively.⁸ The impact of these two different types of regulatory systems may be important to hydropower development in specific situations. In general, riparianism is less important to the regulation of hydropower than is prior appropriation. The riparian doctrine which associates water rights with adjacent rights to land, evolved in states which water allocation was not a serious problem because of a relatively sufficient supply of water. Prior appropriation evolved in response to chronic scarcity of water.

It is a much more conscious attempt to establish specific quantified property rights in water and to allocate the resource among competing uses. There are also considerable differences among the many prior appropriation states, making it more difficult to generalize about prior appropriation jurisdictions than about riparian ones.

In riparian jurisdictions a developer must own both banks of a river in order to make use of the flow for hydropower. Generally, the developer is entitled only to "reasonable use" of that water. Reasonable use means that the water user cannot adversely affect water use by other riparians either above or below him. However, other kinds of water rights such as flowage rights may be created and transferred in riparian jurisdictions, usually without a state permit requirement. It is therefore necessary for a developer to insure that he has collected all the necessary water rights before he proceeds.⁹

In prior appropriation states, generally speaking, the first appropriator of water has priority for its use. The system evolved in order to protect users of water for off-stream consumptive purposes in order to better allocate a scarce resource. Therefore, there are requirements for diversion and beneficial use of the water. In addition to the "first in time" rule, some states have also created a priority system whereby certain beneficial users take priority over others. Frequently, the actual property right to the water is subject to various kinds of conditions which may make the water unavailable to the water right holder under certain circumstances. Finally, these states generally give a state water official, usually the State Engineer, significant powers to allocate water in times of shortage.

The complexities of administering prior appropriation systems create some uncertainty as to the nature of the water right held by a hydropower facility owner. Hydropower is accommodated in different manners by the various western systems. Some systems have made special accommodations for it and others have not. Generally, hydropower is ranked below agricultural and municipal uses of water. Due to its position in the state hierarchy more water for hydropower purposes may be available in wet years than in dry years.¹⁰

In general, whether the developer is federal or non-federal makes little difference with respect to the water resources regulation system of the state. This is because most federal project authorizations require the federal government to obtain water rights in compliance with state law. However, if such compliance would make the project impossible to accomplish, the federal government can preempt state water law in order to insure that the project is built. While this preemption is constitutionally permissible,¹¹ the implications for state-federal relations of engaging in such preemption may be grave, particularly when a state has a sophisticated and complex system for allocating water which the federal project may disturb. For example, if a state has allocated all the waters in a river basin and the federal government wants to construct a project in the basin, the federal government can condemn the water rights for the project. Thus, the condemnation will adversely impact the state's ability to plan for the best use of its resources. Even where federal preemption occurs, compensation must be paid to owners

of "vested" water rights under the Fifth Amendment of the U.S. Constitution.¹²

The issue of competing uses of water resources is another important aspect of water resources regulation. This issue does not fit into any single regulatory framework but rather is implicated in all of them. To the extent that a regulatory or property law or a project authorization commits water to one use to the exclusion of other uses it represents an allocation among competing uses. Federal, state and local governments all act in allocating water to specific uses, whether agricultural, public water supply, recreation, hydropower, natural preservation, etc. A great variety of mechanisms perform this function independently of one another, although there are coordination mechanisms among state and federal water resource agencies, e.g. Water Resources Council, state water commissions, etc.

There are two other important levels of water resources regulation which transcend state regulation.¹³ The first is the interstate compact which allocates water among states in the same river basin. These compacts may be among the states or they may also bind the United States government through Congressional action. The terms of the compacts vary depending upon the river and the states involved. Compacts generally indicate how much water is available to each state or group of states and on what terms and conditions they may establish a framework for resolving future water disputes. The states then allocate the water according to their own water allocation systems. Hydropower projects may be impacted by these interstate compacts in much the same way that they are impacted by state regulation.

The second overlay of water resource regulation is federal water rights. (See Appendix V) Since the 1908 case of Winters v. U.S.¹⁴ the Supreme Court has held that water rights may be held by the federal government in connection with lands that the federal government has withdrawn from the public domain for a specific purpose.¹⁵ At the present time, it appears that most of these water rights are essentially riparian in nature and are not significant to hydropower development. Indeed, because most federal water rights exist in the upper regions of watersheds and are non-consumptive, they tend to result in greater streamflows which improve the feasibility of hydropower. The only major exception is the case of those federal water rights that may be associated with energy resource development. If these are found to exist, they may be highly consumptive and could have a severe impact on hydropower along with other uses.

Indian reserved water rights must be distinguished from other federal reserved water rights because they are far more important.¹⁶ These rights derive from both treaty obligations and obligations arising under the "trust" doctrine. Indian reserved water rights are consumptive since they are defined by the amount of irrigable acreage on an Indian reservation. They exist regardless of whether they have actually been exercised. Additionally, the water right can be used for most endeavors that will promote the economic well-being of the reservation without regard to the "acceptable" uses under state law. Indian rights may thus be in direct conflict with basic state

appropriation law principles, which require that water actually be used for a recognized beneficial purpose in order for a water right to exist.¹⁷

Indian rights are generally not yet quantified and the federal government is presently attempting to quantify them. Because these rights potentially involve very large amounts of water which may be consumptively used, and because their scope is highly uncertain, Indian water rights cast a cloud over all water rights which have been issued under state law in the affected basins. While their impact is probably much greater for other consumptive uses, such as irrigation, Indian water rights clearly will have a significant impact on hydropower.

Besides federal property rights in water and federal power over interstate allocations, the federal government also regulates water use in important ways. Significant confusion has arisen over the application of federal regulatory law to Eastern and Western water systems. Federal regulation of water fits Eastern systems better than Western ones because it assumes a limited individual property interest in water (characteristic of riparianism) and a lack of comprehensive water resources management at the state level, both common in the East but rare in the West.

To the extent that Eastern states have regulated water, it has been through their "police powers," i.e. for the protection of public health, safety and welfare. The federal government, acting as a regulator pursuant to its power to regulate interstate commerce, can always preempt state police power laws. Western states, by contrast, use a "property" system, whereby water use conditions (regulations) are part of a vested individual property right that fits into a comprehensive management scheme. Federal attempts to "regulate" these "property" interests run into trouble because they may conflict with state property law as well as with comprehensive state water management systems. Federal preemption of property interests usually requires the payment of compensation. The Tenth Amendment of the United States Constitution also raises problems for Congressional interference with state property law systems. Thus, federal regulation that attempts to supersede state regulation is more effective when overlaid on eastern regulatory systems than on western property systems.

2. Water Quality

Since hydropower development may affect water quality, a number of provisions of the Clean Water Act of 1972 and its amendments of 1977 are involved.¹⁸ FERC will require each license applicant to obtain a Section 401 water quality certificate from the authorized state water quality agency or, in the absence of an authorized state water quality agency, from EPA. Federal development agencies must obtain the water quality certificate from a state water quality agency, if the project is located in a state to which authority to issue 401 water quality certificates has been delegated.¹⁹ For the most part water quality certificates prescribe minimum streamflows which must be maintained in the stream on which the impoundment structure is located in order to preserve water quality.

These flows are generally lower than those required for fish and other purposes.

Section 404 of the Clean Water Act²⁰ confers jurisdiction on the Corps to regulate the dredging and discharge of fill material into waters of the United States. FERC requires every license applicant which is planning a project involving dredge and fill activities to obtain a Section 404 permit from the Corps.²¹ Federal development agencies in their construction of hydropower projects are bound by the standards implicit in Section 404 and the standards and requirements imposed by the Corps as conditions of its permits. Obviously the Corps does not require a Section 404 permit from itself for a hydropower project that it is constructing. Similarly, WPRS is not required to obtain a 404 permit from the Corps. Pursuant to a memorandum of understanding between the Corps and WPRS, WPRS, upon consultation with the Corps, will agree to abide by the terms and conditions of the Corps with respect to dredge and disposition of fill material. TVA is also not required to obtain a 404 permit from the Corps but agrees with the Corps to abide by the requirements imposed by the Corps on dredge and fill material.

Water quality regulation is a relatively minor obstacle for the most part in connection with hydropower projects. Hydropower dams do have some water quality impacts. While these impacts have been dealt with by the regulatory system through Sections 401 and 404 of the Clean Water Act, the issue of whether or not dams are a point source of pollution under Section 402 of the Clean Water Act is currently in litigation.²²

3. Minimum Stream Flow Regulation

One of the most important impacts that a hydro plant can have on a river is its effect on stream flow levels. Different states and the federal government have developed a wide range of new strategies for maintaining minimum stream flows for various purposes. Until recently, Section 401 water quality criteria were the primary means of minimum flow regulation. Frequently these new stream flow requirements conflict with optimal operation of a hydropower plant, especially if it is to be operated in peaking or pumped storage mode. Minimum flow regulation also may require spilling of water in derogation of primary power needs. In the East, stream flow regulations are generally asserted through either state environmental regulation or license conditions recommended by the Fish and Wildlife Service to FERC. In the West, these approaches may be used, but the comprehensive nature of Western water resource allocation frequently involves the release of a minimum flow as a condition of a water right. As noted above, the Western systems often use the property system of water rights in order to perform the regulatory functions which, in Eastern states, are typically performed through regulatory processes exercised under the state police power. This difference in approach between East and West, where the same or similar functions are performed in one case through a property system and in the other case through the regulatory system, is a source of some confusion when the federal government attempts to impose uniform regulatory policy on streamflows throughout the country, but seeks to avoid interference with property rights.

4. Wild and Scenic Rivers

One of the most significant impediments to hydropower development is the Wild and Scenic River System.²³ In addition to the wild and scenic rivers program there are also similar programs such as the wilderness areas program which have essentially the same impact.²⁴ These regulatory schemes represent a social choice that particular river or natural areas are to be preserved in their natural condition and are not to be developed for any purpose.

The Wild and Scenic Rivers Act establishes a system whereby rivers or segments of rivers may be designated as wild, scenic or recreational. Rivers or segments of rivers may be nominated for designation by federal and state agencies and private individuals and groups. Designation occurs by resolution of Congress. Designation of a river or a section of a river as wild or scenic prohibits the issuance of a FERC license for a hydropower project on that river.²⁵ Similarly, federal development agencies will be barred from developing sites on wild and scenic rivers.²⁶ The status of development on recreational rivers (rivers which have already been impounded) is in doubt at this writing. FERC has taken the position that nomination of a river or a segment of a river as a recreational river will prohibit it from issuing a license on that river.

Because of the interest of local agencies, organizations and groups and state agencies in hydropower development and in environmental regulations, both FERC and the federal development agencies are required to follow a process of coordinating the licensing or development of a project with state and local agencies. Under the FERC licensing process, as a precondition for filing a license application, FERC will require a license applicant to consult with and seek approvals from interested state agencies.²⁷ These agencies will typically be state water quality agencies, state departments of natural resources with jurisdiction over fish and wildlife protection, state agencies concerned with dam safety and state agencies concerned with historic preservation. Federal development agencies are required to coordinate any federal hydropower project with state and local entities pursuant to the processes established by Part II A-95, of the OMB Circular A-95.²⁸ Under A-95 review the federal plans for development will be reviewed by state and local agencies. Comments received by the state and local agencies must be considered and must accompany any final EIS prepared and submitted by the federal development agency.

Similar responsibilities are imposed on the federal development agencies and FERC under the National Wilderness Preservation System, the National Trail System and the National Wildlife Refuge System legislation. As the titles of these statutes imply, these statutes attempt to protect wilderness areas, hiking trails systems and wildlife refuges within the United States. FERC and Federal development agencies must confer with the Secretaries of the Departments of Agriculture or the Interior with respect to projects that may affect wilderness areas. Under the Wilderness Act, FERC no longer has the power to license a project in a wilderness area. Rather, the authority to authorize development of hydropower projects in wilderness areas has been transferred to the President. Under the National Trail System

legislation, FERC and the federal development agencies must confer with the Secretaries of the Interior and Agriculture concerning projects that may affect trails established by those secretaries on lands within their respective jurisdictions. FERC and the federal development agencies will be required to confer with FWS on any projects which may adversely affect a wildlife refuge maintained under the National Wildlife Refuge System.

The Wild and Scenic Rivers System, unlike many other environmental laws, has the advantage of making a "bright line" distinction between where development is and is not permitted. A developer knows at the outset if his site is in an area "withdrawn" from development and he can thus proceed accordingly. This "primary use" designation approach to regulation is much simpler to administer than complex procedural regulations and provides greater certainty and quicker decision than regulatory methods that involve time-consuming weighing of the pros and cons of specific projects in light of vague mandates or unclear legal standards.

Preservation may not necessarily foreclose future development if changed circumstances make development appear to be the wisest course.²⁹ Under current law, it would be necessary to pass new legislation in order to develop in a Wild and Scenic area. However, this is also the case for retrofitting federal sites for which hydropower is not a project purpose. Clearly the difference is that in the present political climate, hydropower retrofits are far more acceptable than constructing dams in wilderness areas. Changes in the political climate over time could alter social priorities enough to allow development in previously protected areas. While decisions to develop foreclose the possibility of protection of a river in its natural state, a conservation decision keeps open long-term options.

5. Navigation

Another form of regulation of waterways which can affect hydropower is the strong interest of the federal and state governments in navigation. Most hydropower projects that affect navigation are built by the Army Corps of Engineers, since navigation is a primary mission of the Corps. Where navigation is an important consideration, therefore, provisions will have to be made for appropriate civil works to permit it to continue. Navigation facilities also offer opportunities for hydropower retrofit.

This overriding right of the public to navigate rivers is known as the "navigation servitude". The enforcement of the navigation servitude permits the government to regulate water and associated land uses without paying compensation to those whose property may be damaged.³⁰

The navigational component of a multi-purpose project does not require repayment, unlike the irrigation and hydropower components.³¹ The navigation aspect of a project may be very expensive. Where commercial navigation is at stake, there may be an argument that those that benefit should pay some of the cost. Where recreational navigation is the only interest at stake, the situation is not dissimilar from sport fish protection, where a particular recreational interest asserts a right

to have its interest protected at public expense. This is basically a matter of social choice. The choice should be made explicitly rather than as it has been made in the past, through a traditional treatment of water-based transportation (navigation) as a public good which should be paid for out of the public treasury.

6. Safety

Damming a river to produce hydropower creates risks to public safety. These risks relate primarily to the dangers associated with dam breach and flooding. Dam safety regulation is undergoing significant institutional reorganization at the present time.³² While dam safety regulation is necessary for effective hydropower development, it does increase costs. Effective dam safety programs also should encourage the insurance industry to provide adequate dam insurance. In the past, different kinds of developers, federal and non-federal have been held to different safety standards. Liability laws vary from state to state and generally are inapplicable to the federal government.

National policies concerning flood control have also changed over the years. One approach has been to construct flood control dams, which may present some potential for hydropower retrofit.³³ More recently, the trend has been to avoid the risk of flooding by prohibiting development in floodplain areas. Additionally, non-development of floodplains preserves the ecological values of a floodplain.³⁴ Thus, floodplain protection strategies offer fewer opportunities for new hydropower development. However, the existence of many presently populated areas that are flood prone may still require the construction of more flood control facilities which could produce power if they were constructed in a way that optimized both functions.

C. Other Environmental Regulation

1. General Environmental Quality Acts: NEPA and State Environmental Policy Acts

The National Environmental Policy Act (NEPA)³⁵ is a law broadly aimed at insuring that the federal government takes adequate account of environmental concerns. Attention has focused on the environmental impact statement (EIS) requirement³⁶ which increases the time and transaction costs required for projects. However, the basic policy behind NEPA is to incorporate environmental considerations into all stages of project or program planning. Under regulations issued by the Council on Environmental Quality (CEQ) in November, 1978,³⁷ the NEPA process has been streamlined and better integrated into project planning.

Preparation of EIS's, where required, should begin to pose less of a problem to project developers than in the past and may even prove to be an opportunity to maximize coordination among environmental and other agencies. Many states have also passed environmental protection acts modelled in varying degrees on NEPA. The new NEPA regulations require that federal NEPA compliance be coordinated with state compliance. This state-federal coordination requirement offers the opportunity for better

management of the relations between federal and state entities. In the past the existence of both state and federal environmental quality documentation requirements has led to seemingly unnecessary duplication of effort and delay. Agencies which take advantage of the opportunities explicitly contained in the CEQ regulations should be able to use the environmental policy compliance process as a way to better manage a project and reduce its environmental impact.

NEPA requirements have presented primarily procedural problems to agencies since courts have generally not found any substantive requirement for environmental protection in the Act. Primarily, agencies must take account of environmental factors in planning and reflect that consideration in the development of documents. Opponents of projects have used NEPA's procedural requirements as a tactic for delaying projects which they consider to be undesirable.³⁸ As the art of preparing a judicially sustainable EIS improves, challenges to such projects on NEPA grounds are likely to be less effective.

2. Fish and Wildlife Protection

The protection of fish and wildlife is probably the single largest environmental obstacle to hydropower development. It is very difficult to generalize about the particular problems because they tend to be site specific. However, it is safe to generalize that many sites have potential fish and wildlife impacts. Problems concerning fish involve streamflow, migration, and specific habitat destruction. Fish protection interests are asserted primarily through the Fish and Wildlife Coordination Act (FWCA)³⁹ which applies to all federal and federally licensed projects. The FPA and NEPA also require the consideration of fish as one of many factors involved in the "comprehensive" development of the waterway and the "human environment" respectively. Fish are also protected by other more specific legislation, such as the Endangered Species Act, anadromous fish enhancement programs, and state fish protection laws. Finally, the power of the Secretary of the Interior to prescribe fish passageways on licensed dams under the FPA,⁴⁰ although not formally asserted in practice, is one of the most powerful legal authorities for the protection of fish where migration conflicts with power production. Fish and wildlife protection is a significant obstacle because it can greatly increase the cost of a project by requiring the construction of passageways and other mitigation measures and because in certain cases it can stop a project altogether if an endangered species cannot be protected.

Under the Fish and Wildlife Coordination Act, the Fish and Wildlife Service (FWS) of the Department of the Interior must be given the opportunity to comment on any FERC license or federal development project with the exception of a TVA project. Both FERC and the federal development agency must give careful consideration to the comments of FWS. Through memoranda of understanding between the Corps and FWS and between WPRS and FWS, FWS has agreed to undertake certain environmental studies involving protection of animal, fish and plant species which may be affected by a hydropower development project. Under these arrangements, funds are made available to FWS out of the funds appropriated to the Corps or WPRS by Congress. If the FERC licensing program is involved, FWS is not funded to perform environmental studies.

Under the FERC licensing process it is expected that the licensee and FERC will perform the necessary studies. The comments of FWS and interest of FWS under the Fish and Wildlife Coordination Act have concerned maintenance of base streamflows and construction and maintenance of fish passageways or other fish protection and enhancement devices.

The Endangered Species Act bars development if it is determined that the development will adversely affect an endangered plant or animal specie. As a result of the Tellico Dam litigation,⁴¹ Congress in 1979 amended the Endangered Species Act to authorize exemptions from the Act in certain narrowly prescribed circumstances. Notwithstanding the narrow exemption provision of the amendments to the Endangered Species Act, it remains a bar to hydropower development in those instances where endangered and threatened species will be adversely affected.

The choice between fish and power is a form of political and social choice which transcends simple mechanical administration through the legal process. Presently, the balances are struck on a case-by-case basis as specific dams come up for either congressional authorization or FERC licensing. This may be appropriate since each dam has problems that are site-specific. An alternative might be to conduct an analysis of streams with hydropower potential and to designate those which are especially productive for fish as primary fish streams limiting or excluding hydropower. Other streams that are particularly good for hydropower and are not as important to fishing, could be designated as primary hydropower streams with such fish protection as is economically feasible and advantageous.

Finally, it is difficult to overestimate the significance of Indian treaty rights on fisheries and water regulation, particularly in the Pacific Northwest. Appendix V details how Indian rights create major substantive duties on the part of federal agencies to protect and enhance fisheries, often at the expense of hydropower. In addition, the federal trust responsibility requires that the federal government assert Indian fishing rights against non-federal developers and regulators.

3. Historic Preservation

Historic sites which may be affected by dam construction or expansion are protected through a consultation process and a variety of specific statutes which require primarily procedural steps for the consideration of impacts on historic and archeological sites.⁴² Like the general environmental requirement, the costs associated with historic preservation compliance are primarily transaction costs due to the time and documentation requirements. Existing dams that have historic value may derive incentives from federal tax measures designed to make rehabilitation of historic structures economically attractive.

4. Recreation

Recreational interests present one of the more perplexing issues in hydropower regulation. Recreation may be asserted either in defense of or in opposition to hydropower projects, depending upon the type of

recreation and the interests of the parties. Flat water boating is frequently compatible with dam construction, while stream and white water boating are not. Recreation may be an important aspect of a multi-purpose project, and its use in benefit-cost analysis has been frequently criticized because it can skew the overall benefit calculation by exaggerating recreational benefits.⁴³

The evaluation of recreation in the cost or benefit of a project is highly subjective and therefore creates serious analytical problems.⁴⁴ It may be appropriate to conduct a benefit-cost analysis which omits recreation, and then to evaluate recreation separately on a more qualitative basis. It is important to note that both FPA and the FWCA give recreation a significant role in project design and evaluation. However, neither law is explicit as to how recreation is to be factored in except that the FPA requires that it be considered and the FWCA requires that it be given "equal consideration" with the primary purposes of the project.⁴⁵ NEPA also requires consideration of recreation.

It should be noted that during the 1960's and early 1970's when power was a less important factor in water project development, recreation was seen as one of the primary benefits to be gained from project development. Now that a large number of recreational projects have been constructed and there is increasing pressure on the federal budget to avoid outlays for recreation when more pressing national needs such as energy exist, it may be necessary to rethink and rewrite legislation which appears to give recreation a higher priority than energy in evaluating projects. While energy production clearly has national benefits in displacing oil, recreation generally has primarily local or regional benefits, which might more appropriately be borne by taxpayers or ratepayers in the region.⁴⁶

5. Land Use

Land use regulation occurs at many levels of government and in many different contexts. There is flood plain and wetlands protection regulation at the federal, state, and local levels of government and coastal zone management planning pursuant to federal law but conducted by state government. However, local governments exercise the most extensive control over land use within their jurisdictions. Although all land use regulations can be preempted both by the provisions of federal authorizations and through the FERC licensing process, land use concerns are frequently central to the opposition to projects.

The coalitions that form in opposition to projects frequently comprise not only regional and national environmental groups, but also those local people whose property is going to be adversely affected by dam construction, i.e., the owners of farmland, businesses, and homes which will be flooded or subjected to water level fluctuations. Where projects will impose significant land use impacts and will dislocate people, opposition may be expected to be strong. However, there is very little "hard law" to protect people faced with relocation and loss of part or all of their communities. They receive compensation and various relocation benefits, but they lose what they may value most: their homes, lands, and businesses. Because certain environmental laws have

more legal "teeth" than the interests of displaced individuals, these individuals frequently will resort to environmental arguments to try to stop a project since those are the best arguments for winning a case. Thus, sometimes environmental laws are manipulated to fulfill another legitimate social purpose which has not been protected by the legal system in the way that environmental concerns have. Revisions to law which take better account of the destruction of farmland, communities, homes and businesses might at least help focus the site-specific debate on the issues which are of most concern to many people affected by the projects,

D. Federal Resource Management

1. Lands

Federal lands are administered under a number of legislative schemes which were brought together in 1976 in the Federal Land Policy and Management Act. (FLPMA).⁴⁷ Previous laws have permitted the government to reserve sites for electrical power generation under the "Pickett Act".⁴⁸ Once lands have been withdrawn for power purposes, they come under FERC jurisdiction.

Federal lands are administered by one of several federal resource management agencies which have been given jurisdiction over federal lands. The resource management agencies are the Forest Service which is part of the Department of Agriculture, the Bureau of Land Management (BLM) which is part of the Department of the Interior and manages all non-reserved federal lands, the National Park Service which manages National Park land and the Fish and Wildlife Service which manages National Wildlife Refuges. There are few restrictions on hydropower development under BLM jurisdiction, some restrictions where National Forests are involved and significant restrictions in the case of National Parks and Refuges.

The overriding conflict at the present time is between the land management agencies acting under FLPMA and the FERC acting under the FPA. As discussed in the previous chapter, both sides have claimed the right to issue permits for transmission lines that cross federal lands.⁴⁹ There is a continuing stalemate between FERC and the land management agencies as to whether there is dual permitting or whether the FERC under the FPA has sole permitting authority. The FERC asserts that Congress by enacting FLPMA intended only to consolidate the existing authority of the Secretaries of Interior and Agriculture over the use of federal lands for those electric energy facilities that are not non-federal hydroelectric projects, and there is support for this contention.⁵⁰ On the other hand, the land management agencies are attempting to manage their resources comprehensively, as FERC does with hydropower. The continuing stalemate created by this collision between two comprehensive regulatory programs can only delay licensing of projects which involve rights-of-way across federal lands.

Another aspect of federal land management which affects hydropower development is related to the wilderness concern, i.e., the withdrawal of lands from development. Lands so withdrawn can only be used for purposes

stated in the withdrawal document. Some of these withdrawals would forbid development of hydropower.

Lands that have been withdrawn for Indian reservations also create special problems. Indian treaties protect tribes from government action that interferes with the purpose of the reservations. Since hydropower development may interfere, the tribes frequently find themselves in conflict with FERC and the development agencies.

There has been an oscillation throughout the history of federal land management between "multiple use" and "dominant use" approaches. In multiple use schemes there is an attempt to maximize diverse benefits from all kinds of lands. This results in a lack of clear standards for decisionmaking and a tendency not to utilize lands in order to maximize a particular purpose. The reconciliation of varying demands under the multiple use concept is highly subjective and difficult, frequently subject to political pressures and pleas from special interests. Dominant use theories emphasize the designation of land for particular primary uses and the protection of them for other compatible secondary uses. A dominant use approach which emphasized hydropower development where it was appropriate, would probably help facilitate hydropower development in the best locations. Under the FLPMA attempts are being made to reconcile the conflicting trends of the past which have utilized both the multiple and dominant use theories of land use. It remains to be seen how successful these attempts will be.

2. Water

Federally controlled water may be viewed as a federal resource subject to resource management law. There are several ways that this resource is managed. One is by the land management agencies which control the land through which the water runs. Their right to use water must be established by courts acting under the reserved rights doctrine. These rights may be adjudicated in state court under the "McCarran Amendment".⁵¹ Indian tribes have the right to significant amounts of water under treaties and federal law.⁵²

The Water Resources Planning Act of 1965⁵³ provides a totally different framework for looking at water as a federal resource. It establishes the Water Resources Council which attempts to coordinate water planning among the many federal agencies that are involved in water resources, and it also sets up grant programs and the river basin commissions which act to help facilitate water resource planning. Thus, federal resource management may be viewed as two different kinds of resource management activities: one is by the government as proprietor of its own water, and the other is as the sovereign manager of the nation's water resources, all of which are affected with a public interest. This sovereignty over water is shared between the federal and state governments.

¹For a complete description of regulatory systems see the NHS Environmental Study and Federal Legal Obstacles and Incentives for the Development of the Small Scale Hydroelectric Potential of the Nineteen Northeastern States, Energy Law Institute, 1980.

²There is a large and growing body of literature on regulatory reform. An especially thorough analysis is contained in the "Proceedings of the National Conference on Federal Regulation: Roads to Reform", 32 Ad. L. Rev. No. 2 (1980).

³The "lead agency" concept primarily attempts to coordinate and simplify the regulatory hurdles that a project must clear, while the EMB, as proposed, would have authority to override such requirements.

⁴There is a large body of literature on fees as opposed to regulation-based pollution control, e.g. Council on Law-Related Studies, "Effluent Charges on Air and Water Pollution", Environmental Law Institute mono. no. 7 (1973); Roberts, "River Basin Authorities: A National Solution to Water Pollution", 83 HARV. L. REV. 1527 (1970); ABT Assoc., Inc., "Incentives to Industry for Water Pollution Control: Policy Considerations" (1967).

⁵At least one hydropower dispute, in Swanville, Maine, has been successfully mediated. One of the major problems in mediation is that all interests may not be able to be represented at a bargaining table. Therefore, a government agency must assure that informal solutions satisfy substantive and procedural criteria for institutional decision-making. Officials have frequently been hesitant to use informal dispute resolution techniques because these techniques appear to conflict with the increasingly rigorous procedures the law imposes on agency decisionmaking.

⁶Most organizations of the type referred to have a full or part-time staff that monitors legislation and regulatory developments and possesses a means (newsletter, etc.) of communicating with members and other interested groups and individuals. Also, much litigation has been initiated by some of these organizations, e.g. Sierra Club, Environmental Defense Fund, and National Wildlife Federation.

⁷The Environmental Protection Agency, Fish and Wildlife Service, Council on Environmental Quality, and the various state environmental agencies are some of the institutional actors who interact both with outside interest groups and with the other agencies that they come into conflict with because of differing missions.

⁸The two regulatory systems are enforced differently. The riparian doctrine is judicially enforced. On the other hand, the majority of prior appropriation jurisdictions provide that water allocation be supervised by the State Engineer, an executive branch administrator.

⁹A flowage right is the right to flood lands behind a hydroelectric facility. The facility's operator pays one time damages to the flooded property owner.

¹⁰For a summary of state appropriation systems see W. HUTCHINS, WATER RIGHTS LAWS IN THE NINETEEN WESTERN STATES, at 141-640 (Vol. 3 1977). It should be noted that state laws do not appear to provide incentives for joint uses of water such as using hydropower as an adjunct to a reservoir or an irrigation system.

¹¹Federal preemption is based on the Supremacy Clause of the U.S. CONST. art. VI, cl. 2. FERC can also pre-empt state laws. See First Iowa Hydroelectric Corp. v. F.P.C., 328 U.S. 152 (1946).

¹²An exception exists to the rule of compensation. If the waters in question are subject to the "navigation servitude", the United States can take water rights without compensation. This does not generally apply in the development of hydropower. See: F. TRELEASE, FEDERAL-STATE RELATIONS IN WATER LAW, at 176-196 (1971).

¹³Interstate water disputes can be adjudicated by a decree of the United States Supreme Court using a doctrine called "equitable apportionment." See: Kansas v. Colorado, 206 U.S. 46 (1907); Wyoming v. Colorado, 259 U.S. 419 (1922); Nebraska v. Wyoming, 325 U.S. 589 (1945).

¹⁴207 U.S. 564 (1908).

¹⁵Arizona v. California, 373 U.S. 546 (1963); Cappaert v. United States, 426 U.S. 128 (1976); United States v. New Mexico, 438 U.S. 696.

¹⁶See Appendix V.

¹⁷The three river basins primarily affected are the Columbia, Colorado and Missouri, with the most severe water quantity impacts in the Colorado and Missouri basins. As of this writing, the primary issues in the Columbia Basin relate to fisheries protection. However, tribal groups have indicated a growing interest in gaining more control over other aspects of water use as well.

¹⁸33 U.S.C. §1251 et seq. (1978).

¹⁹18 C.F.R. §4.51 (1979). Section 401 water quality certificates may be used by state agencies to impose conditions that are only marginally related to water quality, but which make a project infeasible. Section 401 conditions can be used by a state agency to "veto" a project because these conditions are binding on other agencies, including federal agencies.

²⁰33 U.S.C. §1344.

²¹For a discussion of the conflict between FERC and the Corps over Section 404 jurisdiction see supra p. III-19.

²²The National Wildlife Federation has instituted suit against the EPA for failing to regulate dams under its §402 authority. See also, South Carolina Wildlife Federal v. Alexander, 457 F. Supp. 118 (1978). The EPA to date maintains that dams are not point sources. The EPA has stated its position on at least two separate occasions: Comments on National Wildlife Federation Petition and Litigation Concerning EPA's Jurisdiction Over Hydroelectric Dams. Utility Water Act Group, Sept. 8, 1978 at 23, 24; See also the letter from Alan G. Kirk III, Acting Assistant Administrator for Enforcement and General Counsel to Mr. S. Leary Jones, Division of Water Quality Control, Dept. of Public Health, Nashville, Tenn., (June 14, 1978).

²³16 U.S.C. §1271-1281 (1976).

²⁴16 U.S.C. §1131-1136 (1976).

²⁵16 U.S.C. §1278(a) (1976).

²⁶It should be noted that rivers under study for inclusion in the Wild and Scenic River system are also not subject to development.

²⁷18 C.F.R. §131.6 (1979).

²⁸41 Fed. Reg. 2053 (1976).

²⁹Of course, the purpose of "withdrawal" legislation is seen permanent conservation, making subsequent development highly unlikely.

³⁰F. TRELEASE, FEDERAL STATE RELATIONS IN WATER LAW, at pp. 176-196 (1971).

³¹Repayment provisions are typically found both in specific authorizing legislation and in certain general reclamation statutes such as the Patents and Water Rights Act of 1912 (37 Stat. 265), the Reclamation Extension Act of 1914 (38 Stat. 686), the Miscellaneous Purposes Act of 1920 (41 Stat. 451) and the Flood Control Act of 1944 (58 Stat. 887, 16 U.S.C. §§825 et seq.).

³²See generally: Binder, Dam Safety: The Critical Imperative, 14 Land and Water Review 341 (1979); Federal Coordinating Council for Science, Engineering and Technology, Federal Guidelines for Dam Safety (June 25, 1979).

³³33 U.S.C. §701(j), (1976), authorizes the Army Corps of Engineers to build flood control facilities with provisions for future development of hydropower facilities.

³⁴Executive Order 11,988 requires that all agencies consider potential effects on flood plains and should not undertake any actions that directly or indirectly induce growth except where there is no practical alternative. Executive Order 11,990 provides that adverse impacts on wetlands be minimized. Wetlands are frequently associated with floodplains, thus probably precluding development in those areas.

³⁵42 U.S.C. §4321 et seq. (1976).

³⁶Id. §4332(c).

³⁷43 Fed. Reg. 55,978 (1978).

³⁸Environmental Defense Fund v. Tennessee Valley Authority, 339 F. Supp. 806 (E.D. Tenn. 1972), the first of the Tellico Dam cases was a suit to enjoin further construction of the project on the basis that the TVA had filed an inadequate environment impact statement.

³⁹16 U.S.C. §661 et seq. (1974).

⁴⁰16 U.S.C. §811 (1976).

⁴¹TVA v. Hill, 437 U.S. 153 (1978).

⁴²The National Historic Preservation Act, 16 U.S.C. §§470-470M, created the National Register of Historic Places, a register of places of local, state, regional and national significance, and requires consultation with the Advisory Council on Historic Preservation, also created by the Act.

⁴³See: critique of use of recreational benefits calculation in the GAO Tellico Dam Report of October 14, 1977 (EMD-77-58).

⁴⁴The Corps formula for the evaluation of recreation benefits is discussed in the DIGEST OF WATER RESOURCES AND AUTHORITIES at pg. 16-14(b); Pamphlet No. E.P. 1165-2-1, (September 28, 1979). The evaluation of recreation is also rooted in the Separable Costs - Remaining Benefits method, a rationale adopted by a number of federal agencies including the Corps, DOI and FERC.

⁴⁵16 U.S.C. §661 (1976).

⁴⁶If a dam is licensed by FERC with requirements for recreation, the costs of this recreation will be internalized and passed on to the ratepayers. If the dam is developed by state or local government, taxpayers at those levels will also share the cost of recreation. Both groups correspond better to the "user group" than do all United States taxpayers.

⁴⁷42 U.S.C. §1701 et seq. (1976).

⁴⁸43 U.S.C. §141 (1976).

⁴⁹FLPMA, 43 U.S.C. §1761(a) (1976), provides that "(t)he Secretary, (of Interior) with respect to the public lands and the Secretary of Agriculture, with respect to lands within the National Forest System (except in each case land designated as wilderness) are authorized to grant . . . rights-of-way over . . . such lands for . . . systems for generations, transmission, and distribution of electric energy, except that the applicant shall also comply with all applicable requirements of the Federal Power Commission under the Federal Power Act of 1935.";

The FPA, 16 U.S.C. §797(e) (1976), grants the FERC authority "(to) issue licenses for the development, transmission and utilization of power across, along, from or . . . upon any part of the public lands and reservations of the United States. . . ." See e.g.,: FPC v. Oregon, 349 U.S. 435, 445-46 (1955 which held that authorization of a water power project using public lands and reservations of the United States" is within the exclusive jurisdiction of the Federal Power Commission. . . . " Cf.: FPC v. Idaho Power Co., 344 U.S. 17, 23 (1952) (a commission license constitutes a "grant of permission . . . to use the public domain ").

⁵⁰See H.R. REP. NO. 94-1163, 94th Cong., 2d Sess. 29-31 (1976); S. REP. NO. 94-583, 94th Cong., 2d Sess. 84, 86.

⁵¹43 U.S.C. §666 (1976).

⁵²See Appendix V.

⁵³42 U.S.C. §§1962 et seq. (1976).

Chapter 5. THE ROLE OF REGIONAL ENTITIES IN FEDERAL-STATE RELATIONS

The preceding two chapters have analyzed the institutional barriers and incentives to hydropower development created by the federal and non-federal development processes and by environmental regulations. Most of the recommendations in Chapter 1 are based upon the analyses of these two important areas.

There are certain common threads concerning federal-state relations that have a pervasive effect on the institutional framework. These common threads can be traced through the two preceding chapters. This final chapter will set these common threads in the perspective of federal-state relations generally and look at the present and potential role of regional entities in mediating between the federal and state governments. The chapter will then conclude with a brief discussion of how the new institutional configuration in the Pacific Northwest¹ will attempt to deal not only with federal-state relations, but also with many of the other concerns discussed elsewhere in this report.

While federal-state conflict is intrinsic to the federal system, there are several ways to reduce conflict and to resolve it better. These include clearly delineating state and federal roles, leaving to states the responsibilities they can undertake adequately themselves. Decentralizing federal decisionmaking to regional offices and using regional organizations as forums to bring state and federal officials closer together can help in conflict resolution, as can maximizing co-ordination as required by NEPA regulations. Where a suitable mechanism is available (as in the Pacific Northwest), the close cooperation of state and federal officials in joint planning and management of resources may be an effective tool for federal-state cooperation, as long as the implementing institution has adequate authority. That authority must be clearly delineated so that the regional entity does not end up adding yet another layer of duplicative power, thereby creating rather than resolving conflicts.

A. General Issues in Federal-State Relations

Previous chapters have detailed how the overlapping and duplication of regulatory authority of the federal and state governments cause delay and impose costs on the development process. This duplication of responsibility reflects the values our constitutional system places on both federal prerogatives and states' rights. Satisfying both federal and state interests poses institutional obstacles which are characteristic of many government activities, not just hydropower. Because water and energy projects characteristically excite interest at both levels of government, hydropower development is more prone to federal-state conflicts than many other issues. Also, the intricate web of federal pre-emption, deference, delegation, and abstention with respect to state law that has evolved in the area of hydropower has further complicated this picture.²

American federalism frequently produces situations in which federal involvement becomes necessary when states, for various reasons, cannot solve problems alone. In the hydropower context, this is the case with federal regulation of hydropower through the FERC. Federal development is a somewhat atypical case, since its historical roots are in providing navigation for national defense and interstate commerce, and in opening up federal lands for settlement. These are two functions that have traditionally been federal responsibilities. Whether or not this should remain the case, particularly where primary waterways are not involved, may be open to question. However, both federal regulation and federal development have produced federal-state conflicts, although these conflicts have usually focused on the regulatory aspects of federal action.³

A special issue involving federal development is the role of the regionally dominant federal power marketing agency, BPA, in the Pacific Northwest. The last section of this chapter discusses the new role of BPA under the Pacific Northwest Electric Power Planning and Conservation Act (PNEPPCA)⁴. It should be noted at this point, however, that the dominant and recently expanded role of the federal government in the BPA region is rooted in federal economic development and land reclamation projects. These projects have resulted in federal electric power dominance unequalled anywhere outside the TVA region. Because the TVA region was "set aside" for federal control almost fifty years ago, its unique federal-state relations have stabilized over time. The more ambiguous and pluralistic institutional configuration in the Pacific Northwest has created a more complex set of institutional arrangements than in the TVA region.

Although all regions have unique characteristics in their federal-state relations, there are certain general issues in federal-state relations that any national hydropower development program will have to address.

Some of the problems in state-federal relations are created by the dispersed, regional nature of the hydroelectric resource. These problems include the appropriate geographical forum for decisionmaking, the roles of federal regional entities and regional offices of centralized agencies, equity among different regions, and the effect on federal-state relations of unique historical traditions of different regions.

Problems in federal-state relations may be quite different in various regions of the country. Whatever issues are of most prominent local interest will be the rallying point behind the assertion of state authority against federal intrusion. Generally speaking, there are more of these issues in the West, the South, and Alaska, areas with a traditionally prominent federal presence, than in the Northwest and Midwest. Some of the federal-state conflicts are rooted in historical antagonisms while others relate to specific conflicts over who should allocate resources.

Another basic federal-state relation issue focuses on the appropriate geographical forum for certain types of decisions. Many decisions that affect water resources and energy are of interstate significance. Interstate issue resolution justifies federal involvement. However, Washington-based federal agencies are not always well equipped to address impartially interstate regional problems in other parts of the country. For example, regional offices of federal agencies in the Colorado River Basin are in constant contact with state officials over water allocation and management issues. The central offices of these federal agencies in Washington are frequently ill-informed on the details of controversies and the perspectives of the inhabitants of the region. Indeed, the federal presence itself is a source of state-federal conflict. It is important that issues that primarily affect a given region be addressed by officials familiar with regional issues.

Federal agencies themselves might be more responsive to state needs if additional decisionmaking authority were delegated to regional offices and if those regional offices were accountable to people within their regions. For example, EPA delegates considerable authority to its regional staffs, while DOE and FERC do not. Thus, major decisions by DOE and FERC are almost always made in Washington, while many important decisions of EPA are made in the regions, allowing considerable local input into the decision-making process. FERC is a particularly good candidate for delegation to regions. The majority of FERC proceedings are in Washington even though they may concern small dams in distant parts of the country. While an alternative solution to this problem would be to eliminate the FERC role or to delegate licensing authority over such dams to the states or regional entities, an effective FERC presence within the regions would permit FERC proceedings to occur in their entirety in the regional center. Greater regionalization or decentralization of the federal government would address federal-state conflict issues at least to the extent that these conflicts sometimes result from poor communications between executive agencies and states or private citizens. This regionalization might, however, be more expensive and less efficient in the use of presently centralized FERC expertise.

Another inherent problem of federal-state relations is that the federal government is charged with balancing the national interest with state and local interests while states are concerned primarily with looking after their own interests. Energy and water resource issues almost always transcend the boundaries of a single state, justifying the involvement of both the federal government and state governments in decisions concerning these resources. Frequently, in protecting their respective interests, the two levels of government have legitimate conflicts over how resources are to be used, who is to pay the cost and who is to reap the benefits. These conflicts are to a certain extent unavoidable, but there is room for improvement in the institutional mechanisms designed to resolve these conflicts. Greater regionalization of federal authority, improved federal-state coordination, and strengthening of state-federal regional entities could improve the existing institutional mechanisms.

Another theme frequently heard in the federal-state relations context is that water resources projects have tended to benefit certain

parts of the country more than others. This regional equity issue must be addressed if a broad base of support for hydropower programs is to emerge. The needs of all regions of the country should be considered in future programming of federal assistance to hydropower projects. It is inevitable that more attention and money will go to those regions that have the greatest hydropower potential. There is at least some potential throughout the country and federal assistance is best targeted where the potential is most marginal. The marginal potential is widely scattered. While regions with little hydro potential can receive other federal assistance to meet their specific energy needs, the construction of marginal projects anywhere benefits the nation as a whole inasmuch as it reduces national dependence on imported fossil fuels.

Different regions of the country have different patterns in their federal-state relations histories. The South has a history of antagonism to the federal government, even though it has been able to channel many federal public works projects into the region because of the power of its senior Congressmen. The Pacific Northwest has a unique partnership relationship, since the federal government is largely responsible for the development of the Columbia River System in cooperation with the states. In other parts of the West where most of the land is federally owned, there is more of a tradition of conflict over the use of federal lands and the control of scarce water resources. The Tennessee Valley region is unique because of the social experiment of TVA which is a comprehensive federal presence that dominates the region but also has a strong regional constituency. Alaska is also unique in its considerable amount of federal ownership and state resistance to federal control. Finally, New England and the Midwest present situations where there is probably the least overt federal-state conflict. These regions are the ones most concerned about the traditional channelling of water projects to the West and South, and therefore favor a block grant approach.⁵

The amount of federal-state conflict or cooperation will vary from state to state depending on the specific political situation within the state and its relation to the federal government. Many federal environmental programs have been designed with the view toward the type of federal-state relationship embodied in the New England and Midwestern regions. When some of the regulatory schemes are applied to regions where federal-state relations are more problematical or have unique features, they produce unanticipated implementation problems. For example, as noted in the previous chapter, federal enforcement of minimum streamflows causes less controversy in the wetter riparian states than in the dry prior appropriation states where comprehensive state water management programs exist.

The extent of federal presence in the West generates characteristic controversies. These focus on federal land policy which involves considerable federal control over large amounts of land that might otherwise be controlled by the state; federal and Indian reserved water rights which remove considerable amounts of water from state control; the presence of federal water development projects which confer significant benefits but also impose controls on how water and power is to be used in those states; new federally sponsored energy development projects which

may have significant impacts on water supply; and the federal government's trust responsibilities in protecting Indian water and fishing rights from state abridgement. These controversies will make federal-state cooperation in any future water or energy development project in the West a cause of continuing concern to federal agencies desiring both smooth federal-state relations and fulfillment of a mandate.

There is an increasing trend in federal law to have the federal government attempt to influence states to make their own decisions in accordance with federal standards. This is true of a wide variety of programs. Some of these programs are regulatory in nature such as the Clean Air Act, Clean Water Act and Resource Conservation and Recovery Act. Others are characterized by a public works or grant-in-aid design such as the housing programs, highway programs, and water resource development programs. Federal incentives, if properly structured, can influence states to make decisions that are in the national interest. This type of incentive structure is similar to the type of incentive whereby government prods the private sector to do what is in the public interest by means of financial incentives. Federal agencies and the Congress could offer hydropower benefits to states and impose such conditions as may be necessary to insure that the hydropower is developed in a way which is consistent with national needs. However, experience shows that both incentive-based and coercive attempts by the federal government to influence state behavior may cause more conflict than they solve.⁶

B. Regional Organizations

Although two layers of government actively regulate, (and in some cases develop) hydropower, institutional gaps may exist in the overall framework. These gaps are in one sense caused by the multi-levelled system of federalism which, in allocating authority among levels of government, may either duplicate authority or fail to allocate due to the impossibility of allocating every element of governmental authority. Where authority is plenary, (as in federal regulation by the Federal Communications Commission of broadcasting, or state establishment of property law), gaps are less likely to exist. Where authority is bifurcated, as with hydropower, problems of duplication or omission may breed conflict. This conflict leads to calls for better "coordination".

Certain types of decision making are peculiarly unsuited to either federal or state authority. Hydropower is the type of regional resource that tends to fit into this category. The federal level of regulation may be too distant and sweeping to be effective and the state role may be inherently too limited to deal with waterways whose drainage basins cross state lines. Thus, there is a need to find ways to "mediate" between the federal and state levels to help assure that the overlapping jurisdictions work smoothly and lead to better decisions rather than additional conflict.⁷ Just as mechanisms for deciding between federal and non-federal development are inadequate, so are mechanisms to decide upon and coordinate appropriate federal and state roles.

Some of the newer kinds of regionally based federal agencies may have an increasingly useful role to play in solving regional problems that involve more than one state but that do not require the full-fledged presence of the federal government. There are a range of such "regional federal" organizations. These include the models of the Tennessee Valley Authority, the Bonneville Power Administration, the River Basins Commissions, Federal Regional Councils, Federal Regional Commissions, and the A-95 Review Process. Some of these schemes are attempts to coordinate federal action with state action, while others give a measure of control to a regionally based federal entity. These entities all have the potential to function effectively as "mediators" between the state and federal governments, because their official members and staffs are familiar with the region and have local ties as well as loyalties to the federal government.

Because of the delaying effect of federal-state controversies and their different characteristics in different regions, it may be appropriate to strengthen the interstate regional entities which operate to mediate between state and federal interests. Different parts of the country have developed different kinds of accommodations. For example, the River Basin Commissions are confined almost exclusively to the northern half of the country from East to West. Southern parts of the country have resisted any type of formal River Basin Commission. However, the Colorado River Basin, which has some of the most intense federal-state water conflicts, has been able to manage its problems through an informal working relationship among federal and state water officials. This informal network, built on the framework of an interstate compact and the Mexican Treaty, has worked out reasonable accommodations over water allocation to date. Whether this will continue in the future as water demands increase remains an open question and is the subject of lively debate at the present time.

There is always the danger that regional or interstate entities will become "just another layer" of bureaucracy and that they will actually hamper the effective functioning of existing state and federal entities.⁸ However, at least three types of regional institutions have proven to be of significant value: interstate compacts,⁹ River Basin Commissions, and TVA.¹⁰ The Bonneville Power Administration has pushed against the outer limits of what it can do as a federal PMA in its region. PNEPPCA establishes a new model for interstate and federal co-ordination.

The River Basin Commissions, some established under Subchapter II of the Water Resource Planning Act (WRPA) of 1965¹¹ and some by specific acts of Congress have general planning and research functions and may also have regulatory powers if so granted by Congress.¹² Most River Basin Commissions have considered hydropower to be one of the many uses of waterways for which they undertake basin plans and information gathering. The Commissions are generally composed of a federally appointed chairperson and appointees of the governors of the various states in the basin(s).

There is presently a conflict between FERC and the Susquehanna River Basin Commission (SRBC) over whether or not SRBC has the power to prescribe conditions which FERC must insert in a license.¹³ The legal issues turn on whether specific conditions proposed by SRBC and rejected by FERC would result in a conflict with SRBC's comprehensive plan and whether those conditions can bind FERC if SRBC's process for determining proposed conditions does not comply with the procedural rigors of the FERC process (substantial evidence based on a fully developed record).

From a policy perspective, the SRBC-FERC conflict seems to be a solution that merely creates a new problem. The added layer of SRBC creates an obstacle. However, SRBC may be in a better position to set conditions than FERC, since it is more closely connected to the river basin involved. If FERC were formally bound by SRBC conditions and the formulation of those conditions were required to be based on a record adequate for the purposes of FERC licensing, then SRBC would be the appropriate decision maker and there would be no conflict. Lacking full authority and failing to provide full procedural safeguards, SRBC has only "half a loaf" and finds itself in conflict with FERC. Once again we find that shared, duplicative authority creates unnecessary conflict, where clearly delineated authority would not.

By contrast, the New England River Basin Commission (NERBC), a WRPA Title II Commission with no substantive authority, has undertaken a hydropower study program designed to determine the actual potential for hydropower development and to understand the resource conflicts such development would entail. In the process of performing this study, the NERBC has provided a forum for representatives of various state, federal and other organizations to discuss regional issues relating to hydropower development and river basin management. Thus, NERBC has been a "mediating" institution as well as a planning organ. What remains unclear is what practical effect a regional hydropower "plan" produced by NERBC will have. NERBC has no authority to implement any of its recommendations. The plethora of state, local, private and federal entities mentioned elsewhere in this report would still have the responsibility for all aspects of hydropower regulation and development. Perhaps the lack of substantive authority permits NERBC to mediate more effectively since it cannot actually force any action.¹⁴ On the other hand, the question of what such a regional entity with power to implement would be like is intriguing. The Planning Council provided for by PNEPPCA is, among other things, such an entity.

It would be naive to highlight the similarities between NERBC and the Pacific Northwest Electric Power and Conservation Planning Council (Council) in a discussion of PNEPPCA. However, the Council's substantive powers do make it, among many other things, the functional equivalent of a planning commission with substantive implementation powers.

C. The Pacific Northwest Electric Power Planning and Conservation Act (PNEPPCA)

An in-depth analysis of PNEPPCA (the Act) is beyond the scope of this report. Therefore, this section will briefly describe the basic purposes of the Act, its probable effect on hydropower development, and

the nature of the regional organization and substantive powers that the Act has created.

The Act was passed as a result of a lengthy debate over the energy future of the Pacific Northwest.¹⁵ Its basic purpose is to guarantee an adequate, rationally planned supply of electricity in a region that relies heavily on federal hydropower, combined with power produced by IOU's and large publicly owned systems. The keystone to the Act is its grant of authority to BPA to purchase the generating capability of non-federal plants. This purchase authority encourages the development of a fully integrated system and, most importantly, provides the financial backing of BPA for non-federal projects.¹⁶ This is the first time that Congress has specifically given a PMA authority to purchase generation in order to meet regional loads.

The Act has been controversial because it gives significant federal backing to non-federal projects, permits BPA to have considerably greater powers than any other PMA, and gives BPA ultimate control over those non-federal generating utilities with which it signs power purchase contracts. Most importantly, it gives BPA more control over electrical generation in the region than any other federal entity has ever had, with the major exception of TVA. Unlike TVA, BPA is not empowered to own or construct any generating facilities. However, the purchase authority is functionally very close to authority to construct, although it leaves major responsibilities in the hands of the region's utilities. The fact that BPA's contracts also reduce the cost of borrowing raises significant issues concerning regional subsidy.

The Act has a number of measures designed to check BPA's major new authority.¹⁷ The basic check on BPA, besides Congressional oversight, is the Council. The Council is mandated to prepare a comprehensive energy conservation and development plan that includes significant environmental protection and fish and wildlife enhancement provisions. The plan must also favor conservation, renewables, and waste heat or high efficiency plants (in that order) over conventional generation. Major power acquisitions by BPA must be consistent with this plan and active public participation and co-ordination with other entities is required.

The Council is composed of eight members, two appointed by each of the governors of Oregon, Washington, Idaho, and Montana. It is not a federal agency. In the event the governors fail to appoint a Council,¹⁸ the Secretary of Energy can do so from lists of nominees provided by the governors, and the Council then becomes a federal agency.

The primary check on BPA discretion thus consists of a state-appointed non-federal council with power to bind BPA to a comprehensive energy plan. The Council and BPA must follow substantive energy planning and environmental protection criteria described in the Act. This is an unprecedented move in the direction of comprehensive energy-environmental planning with substantive implementation authority. However, implementation power is limited to BPA's power purchase authority. How effective a vehicle this will be for implementation of a comprehensive plan remains to be seen.

The Act's impact on hydropower consists of:

1. Its environmental protection mandates requiring that fish protection and other environmental measures be undertaken and be borne by ratepayers to the extent that these measures mitigate environmental costs imposed by power projects; and
2. Its placement of hydropower on a par with other renewables in the "second tier" of priority energy resources.

Conservation costing up to 110% of the next available alternative must be achieved first, followed by renewables. How the Council and BPA will plan and implement this priority system is not clear. However, the Act explicitly elevates hydropower to a priority position in comprehensive energy planning.

The Council, if it functions effectively, will combine river basin planning and energy planning in a comprehensive framework. Since its implementation power hinges on the power of BPA, it is difficult to see how any similar framework could be established in any other region of the country. In other regions, utilities are traditionally more independent of federal generation and transmission. They therefore are reluctant to allow a federal or non-federal central planning agency to interfere with their affairs. The Northwest has long reaped the benefits of heavy federal hydroelectric investment, resulting in a dependence on the federal power marketing system. This system is now the linchpin for comprehensive energy planning and management.

The Council's powers over BPA and the utilities were part of a political compromise designed to give the utility sector the financial backing it felt was necessary to meet loads, while providing comprehensive planning and oversight as the price for that backing. Utilities in other areas have recently begun to have problems of the same magnitude as those in the Northwest in building new generation. As construction delays for new power plants in other regions continue, a need may emerge for comprehensive regional energy planning co-ordinated with other resource planning.

By contrast, PURPA Title II represents a step in a different direction. PURPA seeks to give small power producers access to markets in a decentralized fashion. PURPA's emphasis on readjusting the market and then relying on it to allocate resources is in marked contrast to PNEPPCA's emphasis on comprehensive planning tied to the federal purchase authority for implementation. Both statutes result in a mandate to utilities to purchase economically feasible hydropower, but in radically different ways.

PURPA's strength may be in its reliance on voluntary actions, entrepreneurship, and regulated market mechanisms. Its weaknesses include its fragmentary nature, involving only certain elements of energy and resource allocation with no comprehensive planning framework drawing these elements together. PNEPPCA's strength lies in its comprehensiveness and attempt to co-ordinate the interdependent features of energy and environmental policy with active public participation. Its

weaknesses lie in its potential to be administratively cumbersome, its emphasis on central planning which may sap private and local initiative, and the danger that BPA backing will remove market incentives for cost effective utility performance.

The conflict between philosophies of development and regulation by "participatory bureaucracy" (PNEPPCA) and by regulated markets (PURPA) permeates the ideological, political, and practical debates of our historical era. The approaches of PNEPPCA and PURPA embody these divergent philosophies. The current debate is, in turn, an outgrowth of the earlier debate over public power that created TVA and BPA on the one hand, and the predominant regulated IOU electric utility industry on the other.

Regional solutions to federal-state problems concerning hydropower can probably work only where a "bureaucratic" model is politically acceptable, since only an entity with implementation powers consented to by most citizens of a region can succeed. It is possible that the TVA and BPA areas are the only such regions at the present time.

The NERBC model can be used elsewhere as a forum for communication, research, information sharing, mediation and interagency coordination. These functions may be more important than "planning" in the absence of any effective implementation mechanism. If a NERBC-type planning study were suited to regional implementation, what would an appropriate mechanism be? Any approach modelled on PNEPPCA would be faced with the lack of any regional entity with powers to implement. The Council without BPA would be no more than an interstate planning commission. Only an interstate compact or an Act of Congress binding states to the decisions of such a Council could make it effective. In the current political climate favoring local and states' rights, private initiative, and market mechanisms, such a regional planning and implementation mechanism appears highly unlikely to be approved. Nevertheless, the unfolding experiment in the Pacific Northwest may provide the nation a valuable opportunity to learn about its potentials and problems.

¹The Pacific Northwest Electric Power Planning and Conservation Act of 1980, Pub. L. No. 96-501, 94 Stat. 2697, (PNEPPCA), was passed between the time the draft and final versions of this report were written. The authors consider this law to be sufficiently important to warrant a preliminary analysis for purposes of the final report.

²For a fuller treatment of these issues, see FEDERAL LEGAL AND INSTITUTIONAL OBSTACLES, pp. 1-5.

³Federal development may involve regulatory aspects such as acreage limitations for sale of irrigation water and public preference for sale of power. Federal development may produce regional conflicts when regions with few projects (Northeast) oppose projects for other regions (West and South).

⁴Supra, note 1.

⁵Senator Moynihan's amendment to S.1641 (Title II of that bill) sets up a block grant approach giving money to states for water projects and letting them determine how it is to be spent.

⁶For example, the formulation of State Implementation Plans under the Clean Air Act has created tremendous state-federal conflict particularly over mandating auto emissions inspection/maintenance programs. Statutory penalties for not complying with EPA requirements include growth restrictions and loss of federal grants in aid for public works projects.

⁷Eliminating either the federal or state role would obviate the need for such "mediation". However, such drastic change is both unrealistic and would result in an imbalance of power at whichever level retained control. Note that, "mediation" in this context is more a matter of ensuring communications and a cooperative relationship than of resolving specific disputes.

⁸See the discussion of the conflict between the Susquehanna River Basin Commission and FERC, infra. at page V-7.

⁹See: page IV-5.

¹⁰See: Appendix III.

¹¹42 U.S.C.A. §1962b (1976).

¹²Delaware River Basin Commission and Susquehanna River Basin Commission are the so-called "Compact Commissions" because Congress has granted them substantive powers.

¹³See, e.g., FERC Order on Rehearing, Project Number 1025.

14 This view was expressed in an interview by John Ehrenfeld, Chairman of NERBC.

15 For an in depth analysis of the historical background, see LEE, KLEMKA, and MARTS, ELECTRIC POWER AND THE FUTURE OF THE PACIFIC NORTHWEST, 1980.

16 This financial backing is not the same as a guarantee by the U.S. Treasury because BPA is self-financing and the Act specifically states that the credit of the U.S. is not being pledged. However, BPA's ability to borrow from the Treasury and its virtually unlimited ability to pass costs on to the ratepayers makes BPA purchase authority a key factor in financing generation facilities and in lowering the cost of borrowing.

17 There are many other very important features to the Act not discussed here. These include furnishing low-cost power to residential and agricultural customers of IOU's, provisions for new contracts with Direct Service Industries (DSI's), ratemaking provisions, etc. See the Act and Legislative History.

18 There is some concern that state appointments to positions that control a federal agency, BPA, might violate the Appointments Clause of the U.S. Constitution, Art. II, §2, cl. 2.

GLOSSARY OF ACRONYMS

- ACHP - Advisory Council on Historic Preservation
 AFCA - Anadromous Fish Conservation Act
 ASCS - Agricultural Stabilization and Conservation Service

 BERH - Board of Engineers for Rivers & Harbors
 BIA - Bureau of Indian Affairs
 BLM - Bureau of Land Management
 BPA - Bonneville Power Administration

 CAA - Clean Air Act
 CBO - Congressional Budget Office
 CEQ - Council on Environmental Quality
 COE - U.S. Army Corps of Engineers
 COWPTA - Crude Oil Windfall Profit Tax Act
 CSA - Community Services Administration
 CWA - Clean Water Act

 DOA - Department of the Army
 DOC - Department of Commerce
 DOD - Department of Defense
 DOI - Department of the Interior

 EDA - Economic Development Administration
 EIS - Environmental Impact Statement
 ELI - Energy Law Institute
 EMB - Energy Mobilization Board
 EPA - Environmental Protection Agency
 EQ - Environmental Quality
 ERA - Economic Regulatory Administration
 ESA - Endangered Species Act
 ESA - Energy Security Act

 FERC - Federal Energy Regulatory Commission
 FLPMA - Federal Land Policy and Management Act
 FmHA - Farmers Home Administration
 FONSI - Finding of No Significant Impact
 FPA - Federal Power Act
 FPC - Federal Power Commission
 FRC - Federal Regional Council
 FWCA - Fish & Wildlife Coordination Act
 FWPCA - Federal Water Pollution Control Act
 FWS - Fish & Wildlife Service

 GAO - General Accounting Office

 HCRS - Heritage Conservation and Recreation Service
 HUD - Housing & Urban Development

NED - National Economic Development
NEPA - National Environmental Policy Act
NERBC - New England River Basins Commission
NFS - National Forest Service
NHPA - National Historic Preservation Act
NHS - National Hydropower Study
NMFS - National Marine Fisheries Service
NOAA - National Oceanic & Atmosphere Administration
NOSR - Naval Oil Shale Reserve
NPDES - National Pollutant Discharge Elimination System
NPS - National Park Service

OMB - Office of Management & Budget
OTA - Office of Technology Assessment

P&S - Principles and Standards
PNEPPCA- Pacific Northwest Electric Power Planning and
Conservation Act
PURPA - Public Utility Regulatory Policies Act

RA - Resource Applications
RBC - River Basin Commission
REA - Rural Electrification Administration
REI - Rural Energy Initiatives

SBA - Small Business Administration
SCS - Soil Conservation Service
SRBC - Susquehanna River Basin Commission
SWB - Social Well Being

TVA - Tennessee Valley Authority

USDA - U.S. Department of Agriculture

WPRS - Water & Power Resources Service
WRC - Water Resources Council
WRPA - Water Resource Planning Act
WSRA - Wild & Scenic Rivers Act

APPENDICES

- I. ARMY CORPS OF ENGINEERS
- II. WATER AND POWER RESOURCES SERVICE
- III. TENNESSEE VALLEY AUTHORITY
- IV. FEDERAL ENERGY REGULATORY COMMISSION
- V. RESERVED WATER RIGHTS AND INDIAN TREATY RIGHTS
- VI. H.R. 6042 and S. 1641, 96th CONGRESS: A DESCRIPTION AND DISCUSSION

The purpose of these Appendices is to provide the reader with more detailed descriptions of certain subjects of critical importance to this report. Descriptions of the four key federal agencies in Appendices I-IV are designed to show the hydropower functions of these agencies and not to describe their operations comprehensively. Appendix V contains a detailed description of a subject that has generally received inadequate attention in connection with hydropower. Finally, Appendix VI describes two approaches to expediting federal hydropower development which were introduced, but not enacted, during the 96th Congress. The subject matter of all of these Appendices is analyzed in the main text.

APPENDIX I - ARMY CORPS OF ENGINEERS

A. INTRODUCTION

The Army Corps of Engineers (Corps) has the main responsibility for regulating the use of the navigable waters of the United States.¹ Congress has granted to the Secretary of the Army jurisdiction over federal investigations and improvements of rivers, harbors and other waterways.² The jurisdictional authority is exercised by the Chief of Engineers of the Corps. The historical basis for the military authority over civilian waterways is that the United States used to depend on waterways for military transport and national defense. The constitutional basis for this far-reaching jurisdiction is the Commerce Clause of the United States Constitution³ which has been held to include the regulation of navigable waterways.⁴ In addition, the construction of multi-purpose flood control projects by the federal government has been considered a legitimate exercise of the commerce power.⁵ Almost all of the Corps' Civil Works Programs have some connection with this authority over navigable waters.

The Corps is the only nationwide federal water project construction agency. It plans and constructs multi-purpose water projects which include many of the major hydroelectric facilities in the country. Since Corps projects are multi-purpose in nature, they are not constructed for a single objective such as hydroelectric power development. However, through various statutes, Congress has directed the Corps to consider hydroelectric power as one of the many possible uses a particular project may be built to serve (e.g., flood control, navigation, recreation, etc...)⁶ Analyses of potential inclusion of hydroelectric facilities in water projects is guided by the Water Resources Council's Principles and Standards for Planning Water and Related Land Resources (Principles and Standards).⁷ Corps dams that do not presently generate electricity but could have hydroelectric facilities installed and those that already have hydroelectric components but can be retrofitted to increase their capacity must follow the guidelines established in the Principles and Standards.

This Appendix describes the Corps' development and planning processes for multi-purpose projects including its interrelationships with other federal agencies and Congress. A diagram of these processes appears on page, III-6 and III-7 of the main text. Given the current energy problem, these lengthy planning processes may not be the most efficient method to develop additional hydroelectric capacity.

For instance, generally, the Corps may not undertake a study or project including a hydropower retrofit without specific authorization from Congress.⁸ Its authorization process makes no procedural distinctions between new construction, retrofitting, large scale or small scale projects⁹ - all require Congressional approval.¹⁰ Congress, on occasion, has granted the Corps continuing authority to develop specific types of smaller projects that do not generate power (e.g., small flood control projects which do not exceed \$2,000,000) or those costing less than \$15,000,000.¹¹ These projects may be conducted simply upon the

recommendation of the Secretary of the Army and the approval of the Senate Environment and Public Works Committee and the House Public Works and Transportation Committee.¹² It should be noted that the Secretary of the Army has suspended use of this authority pending enactment of proposed cost-sharing legislation.¹³

The Corps does not have continuing authority for hydroelectric development and the need for Congressional authorization at several stages of each project is a major obstacle to expeditious development. Development of a project, from the time Congress authorizes a Reconnaissance Report until ground is actually broken at the site can take from eight to twelve years, or longer for particularly large projects.¹⁴ In addition, the hydropower portion of a dam must pay for itself over a fifty year repayment period¹⁵ whereas the costs of the other portions are shared in part by other participants and beneficiaries of the project (e.g., state and local governments and other federal agencies).¹⁶ Legislation has been introduced to grant the Corps continuing authority to add hydroelectric facilities at Corps-owned projects.¹⁷

B. COORDINATION WITH OTHER FEDERAL AGENCIES DURING THE PLANNING PROCESS

The Corps must coordinate its activities during the planning process with the Water Resources Council (WRC), the Federal Energy Regulatory Commission (FERC), the Department of Energy (DOE), the Secretary of the Army, and the Water and Power Resources Service (WPRS) and the Fish and Wildlife Service (FWS).

The Corps, like all other federal water resources development agencies, must use the Principles and Standards¹⁸ as well as the Procedures¹⁹ promulgated by the WRC for feasibility and planning studies.²⁰ The WRC is also, by Executive Order, empowered to conduct an impartial technical review of the Corps' studies. However, funding has not been authorized to date for this function.

1. FERC

The Corps is involved with FERC in the following ways: (1) Section 4(e) of the Federal Power Act gives FERC the authority to regulate the non-federal development of Federal sites;²¹ (2) All of FERC's license applications for non-federal hydroelectric projects are referred to the Corps for its comments and recommendations under its authority over navigable waters;²² (3) The Corps uses FERC's unit power values in evaluating power benefits;²³ (4) The authorizing legislation for specific projects has given responsibility for allocation of costs to FERC;²⁴ (5) In certain circumstances, installation of hydropower facilities at or adjacent to Corps dams may be authorized by a FERC license;²⁵ and, (6) FERC may recommend that provisions for future power be included at an authorized Corps site.²⁶

2. Department of Energy

Under the provisions of Section 5 of the Flood Control Act of 1944²⁷ and other acts, power developed at multiple-use reservoirs under the jurisdiction of the Corps is marketed by the Power Marketing Agencies (PMA's) which are currently within the Department of Energy (DOE).²⁸

3. Secretary of Army

The Rivers and Harbors Act of 1912 authorizes the Secretary of the Army upon recommendation of the Chief of Engineers to provide in any authorized dam such foundations, sluices and other works as may be considered desirable for future power development.²⁹

4. Water and Power Resources Service (WPRS)

The Corps in its development of hydroelectric power interacts with the principal federal construction agency in the contiguous western United States, the WPRS. This relationship is necessitated by legislation, geography, functions, and interagency agreements.

Interactions between the Corps and WPRS which involve jurisdictional considerations of hydropower development throughout the nation are established by both statutory requirements and less formal interagency agreements and practices. The Corps jurisdiction for hydropower development, however, extends to all 50 states. Pursuant to the Reclamation Act of 1902, the WPRS's jurisdiction is geographically limited to the 17 western states and Hawaii. Although these statutorily imposed geographic jurisdictions create overlap in the authority allowing either agency to develop water resources in the western states, interagency agreements serve to alleviate potential conflicts. For example, pursuant to interagency agreements, the WPRS has primary jurisdiction to develop the Colorado River Basin, whereas, the Corps maintains development jurisdiction for the Missouri River Basin, although both agencies participate in projects in these areas. The Corps retains, for the most part, sole jurisdictional responsibility for federal development of water resources in the eastern states.

Interagency agreements between the Corps and the WPRS not only address geographic conflicts in western water resource development, but also functional responsibilities for planning and construction activities at particular projects. These agreements are, for the most part, directed at division of responsibilities for "major" projects which encompass comprehensive water resource development plans for an entire river basin.³⁰ Interagency agreements may, of course, address both functional and geographic responsibilities for a particular project, thereby providing designation of development responsibilities for mainstream and tributary projects, in addition to those for planning and construction activities.³¹ Joint agreements may provide a unified plan for development of a multi-purpose project incorporating irrigation, flood control, and power objectives.³²

In addition to interagency agreements for particular projects authorized by Congress, legislative mandates create certain interrelationships between the Corps and the WPRS relative to respective programs administered by each agency. Section 9(b) of the Reclamation Project Act of 1939³³ permitted the WPRS to allocate part of reclamation project costs to flood control and navigation purposes. This Act stipulated that such allocations be made in consultation with the Chief of Engineers and that the Secretary of the Army perform necessary investigations or studies. The Flood Control Act of 1944³⁴ authorized the WPRS to utilize any Corps dams or projects for irrigation purposes where feasible, upon approval by the Secretary of the Army.

Similarly, Corps flood control civil works could be made an incidental part of a WPRS reclamation project. In addition, the Small Reclamation Projects Act of 1956,³⁵ as amended, provides for cooperation between the Corps and the WPRS in the analysis and evaluation of any federal interests in proposed projects which have effects on flood control.

Interrelationships arising from legislative mandates for coordination among agencies are generally limited to assistance in the analysis and evaluation of certain aspects of a proposed project which affect water resource development. These interrelationships appear to be less defined in terms of agency interactions and project involvement than those of interagency agreements for "major" projects.

5. Fish and Wildlife Service (FWS)

The Corps and FWS interact extensively concerning hydropower planning and operation. FWS receives funds transferred from the Corps' appropriations to conduct the studies necessary to design mitigation features into projects. Because FWS receives funds to conduct mitigation studies itself, it is in a better position to judge Corps projects knowledgeable than would be the case with non-federal projects, where FWS depends more on developers and state agencies for data.

C. NON-FEDERAL DEVELOPMENT AT CORPS FACILITIES

The Corps encourages non-federal hydroelectric development at its facilities. The Corps provides technical assistance to developers who wish to develop facilities at Corps sites.³⁶ Technical assistance to public entities at federal sites is provided pursuant to the Intergovernmental Cooperation Act.³⁷ This Act provides general authority for federal agencies to provide technical assistance or services to non-federal public entities in certain situations. Assistance other than that specifically authorized by the Act must be authorized by Congress.

The Corps has developed criteria before it will support development at specified sites. The non-federal developer of a Corps dam must consider its total power potential. Non-federal hydroelectric development must be compatible with the authorized purposes of the federal facility. The non-federal power facility's design, construction, and operation must be approved by the Corps. The Corps may require a

memorandum of understanding with the non-federal developer to assure that multi-purpose water projects are not affected by the non-federal licensee. The Corps will require reimbursement for use of lands, facilities, and falling waters. These fees are assessed by FERC. Power must be furnished at no cost to the United States for operation and maintenance of project facilities in the project's vicinity. Finally, the Corps will require a Section 404 permit under the Clean Water Act.

D. PLANNING INVESTIGATIONS

The Corps conducts three basic types of planning investigations which vary according to the purpose of the study, the size of the area being considered, the level of detail required, the priority of the need and the number of the agencies participating.³⁸ These types are as follows:

1. Framework Studies and Assessments (Level A)³⁹

These studies are directed by the WRC with the Corps generally a major participant. They investigate water and land related problems, indicate general approaches to their solution and identify specific geographic areas needing further study. They also consider federal, state and local means of implementation and are multi-objective in nature. However, the studies do not recommend specific action (such as placing a dam at a certain location).

2. Regional or River Basin Studies (Level B)⁴⁰

These studies are also directed by the WRC with participation by the Corps and are prepared to resolve complex long-range problems identified by the Level A studies. They recommend action plans to be pursued by individual federal, state and local entities. The studies are concerned with a broad array of multi-objective component needs and the identification of the more urgent elements of the plan requiring easier action are used to guide subsequent implementation studies.

3. Implementation Studies (Level C)⁴¹

These are detailed program or project feasibility studies generally undertaken by the Corps which recommend authorization or initiation of plans to solve water resource problems. They are usually conducted to implement findings of Level A and Level B studies. The Corps conducts three types of Level C implementation studies⁴² which may be related to hydroelectric power development.

The largest class of Corps implementation studies is called the Survey, Review and Interim Studies or Feasibility Studies. They are concerned with the need for and desirability of undertaking specific projects and are detailed in nature.

Legislative Phase I studies are authorized by Congress in the Water Resource Development Acts of 1974⁴³ and 1976.⁴⁴ They are the first phase of a two stage process. Certain predetermined criteria have been established for projects which must be evaluated during the Phase I

studies. Under the provisions of the two Acts, Congress will only authorize Phase II studies if the project meets the criteria as evaluated by the Chief of Engineers and the designated Congressional committees.⁴⁵

The third category, Studies Under Continuing Authorities, differ from other implementation studies because they do not require specific Congressional authorization. The Detailed Project Reports prepared under these studies serve as a basis for approval by the Chief of Engineers of a project for construction. Additionally, there are two other types of implementation studies which do not relate to hydroelectric development: special investigations and urban studies.⁴⁶

E. PLAN DEVELOPMENT⁴⁷

This is the second phase in the Corps planning process and it is designed to comply with the objectives of the WRC's Principles and Standards. In general, this process requires systematic preparation and evaluation of alternative ways of addressing problems, needs, concerns and opportunities to meet the Principles and Standards National Economic Development (NED) and Environmental Quality (EQ) objectives. It provides the necessary information to make effective choices regarding resource management under existing and projected conditions. Alternative plans should be formulated without bias to structural or nonstructural measures. In addition, recent revisions to the Principles and Standards require the formulation of a primarily nonstructural alternative.⁴⁸

Specifically, there are four Plan Development Stages⁴⁹ for each project. During each stage four functional planning tasks-- problem identification, formulation of alternatives, impact assessment and evaluation are accomplished as discussed subsequently. A higher level of detail for data and analysis and more precise alternative plans are obtained as the study progresses through each of the following plan development stages.

Stage 1 - Reconnaissance Reports⁵⁰

The general purpose of the Reconnaissance Reports is to make an initial analysis of water and related land resource management problems and how they could be solved.

Stage 2 - Intermediate Plans⁵¹

This stage identifies and analyzes the range of alternatives for addressing the planning objectives. They are outlined and refined without concentration on detailed engineering and design considerations. The alternatives developed provide choices concerning the different viable resource management options for more detailed studies in Stage 3. An Environmental Impact Statement (EIS) is usually prepared here.⁵²

Stage 3 - Detailed Plans⁵³

This stage produces detailed implementation plans from which an effective choice and decision can be made. The draft report and draft

EIS are circulated during this stage to the public and other agencies. After all comments are received the draft report and draft EIS are revised to reflect these concerns. The revisions are then submitted for review.

Stage 4 - Post-Feasibility Stage⁵⁴

After the feasibility study is completed and construction is authorized by Congress, a General Design Memorandum (GDM) is prepared. This study is called the Phase I GDM. This document is essentially an updated feasibility report prepared in the same three stage process as the planning document. After the Phase I GDM is approved, the Phase II GDM which is the final design document is prepared. After the Phase II GDM is approved, construction funds have to be Congressionally authorized before construction can begin.

1. Functional Planning Tasks

Planning tasks are similar for each stage of activity in the feasibility and post-feasibility stages. While emphasis may be on a particular activity at a given point in the process, successful accomplishment of each task, as well as the planning process in general, requires continuous integration of all activities. Each task is briefly outlined below:

a. Problem Identification⁵⁵

This task determines the range of problems a study will address. It is implemented by identifying resource management problems and public concerns, analyzing them to determine the physical resource conditions of the area and synthesizing this information into specific planning objectives.

b. Formulation of Alternatives⁵⁶

This task involves the development of different resource management plans to address the planning objectives of the Principles and Standards, i.e., National Economic Development (NED) and Environmental Quality (EQ). Plans which best address NED and EQ objectives individually and a mix of the two are identified. Where the NED and the EQ plan are significantly different, the Corps formulates alternatives reflecting significant trade-offs between them so as not to overlook the best overall plan. Nonstructural measures are considered and where relevant to addressing public concerns, "no development" plans are also formulated.

c. Impact Assessment⁵⁷

Impact assessment involves the identification, description, and if possible, measurement of the impacts of the alternative plans. The impact assessment of Stage 3 of the plan analyzes the significant effects of each alternative to make certain they are in compliance with the requirements of the Principles and Standards, Section 102(2)(c) of NEPA⁵⁸, and Section 122 of the River Harbor and Flood Control Act of 1970.⁵⁹ Impact assessment forecasts are made where and when significant

effects could result from implementing a given alternative. To assess impact the Corps analyzes monetary and nonmonetary changes, for each alternative in an objective manner based on professional and technical judgement of the resources. The effect on the NED and EQ objectives, of nondevelopment of a particular site (the "without condition"), is assessed during this task as well.

d. Evaluation⁶⁰

Evaluation is the analysis of each plan's impacts. Whereas impacts are identified through an objective undertaking based largely on professional analysis, evaluation should determine the subjective value of these changes. The Corps judges plans by conducting "with and without" analysis of the alternatives. Such analysis is based on the changes identified in impact assessment and by ascribing values to the impacts through integration of public and the planner's input. The process begins by establishing the contributions of each alternative and the NED, EQ, Regional Economic Development (RED) and Social Well-Being (SWB) accounts of the Principles and Standards. From this information judgments are made concerning the beneficial and adverse nature of the alternatives in order to establish a plan's overall desirability. Alternatives that do not result in the improvement of the "without condition" are eliminated from further consideration.

F. THE CORPS AND THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The Corps carefully considers environmental needs from the initiation of project planning through design, construction, operation and maintenance. According to its NEPA regulations, in assessing environmental concerns, the Corps uses interdisciplinary methodologies; engages in an early and continuous interchange of views with interested agencies, groups and the public; integrates NEPA and all other environmental planning and consultation requirements; prepares necessary environmental documents; and explores all reasonable alternatives, including non-structural ones.⁶¹

The Corps normally prepares an Environmental Impact Statement (EIS) for the following activities:

- 1) A legislative proposal to Congress recommended by or with significant support of the Corps (an EIS is not made for appropriations legislation.)⁶²
- 2) Corps feasibility studies in the planning process including Survey Reports, Phase I General Design Memorandum and Detailed Projects Reports.⁶³
- 3) All other significant actions where the Corps makes a determination that an EIS is required.⁶⁴

The draft EIS (DEIS) is prepared during Stage 2 (Intermediate Stage) and is released to the public in Stage 3 (Final Stage) of the Corps plan development process.⁶⁵ The plan development process involves a long period of time. Thus different stages of a given project may

require supplemental EIS's. These statements need only be made for proposed project changes or modifications that create new environmental concerns. Draft supplements circulate like DEIS's.⁶⁶

When an EIS is not or may not be required, the Corps prepares an Environmental Assessment (EA). An EA at minimum addresses the need for action, environmental impacts of the proposed action and the other alternatives as well as an analysis of whether the action will significantly affect the quality of the human environment.⁶⁷ If the Corps determines from an EA that no significant environmental impact will result, a Finding Of No Significant Impact (FONSI) will be made.⁶⁸

G. PROCEDURE FOR DETERMINING COSTS AND BENEFITS⁶⁹

The purpose of this evaluation procedure is to determine whether a project is economically justifiable by comparing estimated costs with estimated benefits. A benefit-cost analysis for each alternative plan is conducted. The Corps uses its own analysis (based on the Principles and Standards) to determine project feasibility. However, the Water Resources Council (WRC) is currently promulgating procedures which will supersede the Corps benefit-cost analysis. Because the WRC's procedures are not yet complete,⁷⁰ the Corps analysis still remains significant. The considerations used by the Corps to determine whether or not to include hydropower in a multi-purpose project are:

1. Marketability. The power should be usable in, and adaptable to, the requirements of the overall regional power load. The FERC is consulted on regional power needs.
2. Net Benefits. Total project benefits should equal or exceed total project costs. The economic costs of a project with power are expressed as an average annual cost. The annual cost consists of interest on the investment, amortization of project investment up to 100 years (for large multi-purpose projects) and all operation and maintenance.
3. Benefits. The value of power should be priced at its marginal cost. In the absence of marginal cost pricing, the benefits are measured by a comparability test. The comparability test uses the most likely alternative project which is usually a thermal power plant. Additionally, other alternatives are considered including non-structural ones.
4. Financial Feasibility. Potential net revenues should be sufficient to repay power costs with interest. This repayment period is administratively set at 50 years.⁷¹

H. PLANNING SELECTION FOR RECOMMENDATIONS TO CONGRESS.⁷²

The planning process provides the basis for selecting one of the detailed plans and if appropriate, recommending it for authorization. Under the Principles and Standards the selected plan is in the best public interest regardless of whether it is within the existing general

authority of the Corps to implement and the Corps must abide by this rule when recommending a plan. Plans authorized for Corps implementation must be within its authority and the net costs must not exceed the benefits.

Even after an alternative has been identified as the most economically feasible and therefore most likely to be recommended by the Corps to Congress for implementation, there are still additional considerations which must be evaluated. The most important of these is local cooperation in sharing the cost, assuming operation and maintenance of the project, regulating the use of the flood plain, holding the United States harmless for accidents and so forth.⁷³

When all aspects of the planning feasibility studies outlined above are complete and an alternative has been found to be recommendable, the District Engineer writes a pre-authorization report which documents the results. This report is then circulated among agencies and branches of government for comment and review⁷⁴ in the following manner:

1. Corps Division Review.

The principles and procedures prescribed in The Engineering Manuals and Regulations are the basis for the Division review.

2. The Board of Engineers for Rivers and Harbors (BERH)⁷⁵ Review.

Public notice of the recommendations and the conclusions in the report is made at this point and interested parties may send their views to BERH for consideration. When the Board completes its review, its recommendations to the Chief of Engineers are also made public.

3. Referral to States and Other Agencies⁷⁶

The proposed reports of the Chief of Engineers, the District Engineer, the Division Engineers, the BERH and other pertinent papers are submitted by the BERH to the governors of the affected states and to federal agencies which have a general or specific interest in the investigation, for their review and comment. Comments on the reports may be given within 90 days.

4. Submission to the Secretary of the Army.⁷⁷

Upon receipt of the comments of other federal agencies and states, the final report of the Chief of Engineers is prepared. This completed report is forwarded in two packages, one for WRC and one for OMB, to the Assistant Secretary of the Army for Civil Works.

5. WRC Review⁷⁸

The report will be furnished in accordance with Exec. Order No. 122113 to WRC by the Secretary of Army for impartial technical

review. Funds have not been appropriated for this review.

6. Consideration by OMB⁷⁹

The entire proposal and comments are given to the OMB for its determination of the project's relationship to the President's programs and policies.

7. Submission to Congress by the Secretary of the Army⁸⁰

The Secretary of the Army's letter transmits the report of the Chief of Engineers, with accompanying papers to Congress. This constitutes the final step in the processing of planning feasibility studies authorized by Congress.

J. CONGRESSIONAL AUTHORIZATION AND APPROPRIATION⁸¹

Projects undertaken by the civil works program receive specific authorization by legislative action of the Congress, except if they are under the continuing or special authorities. Upon Congress' receipt of a report, it is referred to the Senate Environment and Public Works Committee and the House Public Works and Transportation Committee. Normally, the reports are combined and considered by both committees for inclusion in an omnibus authorization bill, usually at two year intervals. However, projects of less than \$15 million in federal expenditure may be approved by resolutions of both committees.

¹33 U.S.C.A. § 1 et. seq. (1957).

²33 U.S.C.A. § 540, § 701a-1 (1970).

³U.S. CONST. art. I, § 8, cl. 3.

⁴Gibbons v. Ogden, 22 U.S. (9 Wheaton) 1 (1824).

⁵Arizona v. California, 373 U.S. 546 (1963).

⁶Office of the Chief of Engineers, Department of the Army, DIGEST OF WATER RESOURCES POLICIES AND AUTHORITIES, Pamphlet No. EP1165-2-1, para. 15-1 (September 28, 1979) (hereinafter cited as DWR). The Rivers and Harbors Act of 1912 authorized the Secretary of the Army on Recommendation of the Chief of Engineers to provide in any authorized dam such foundations, sluices and other work as may be considered desirable for future water power development. U.S.C.A. § 609 (1960); and the Flood Control Act of 1917 required that all examinations and surveys of projects relating to flood control shall include data on the possible economical development and utilization of water power. 33 U.S.C.A. § 701 (1960).

⁷Water Resources Council, PRINCIPLES AND STANDARDS FOR PLANNING WATER AND RELATED LAND RESOURCES, 38 Fed. Reg. 24779 (1973) revised, 44 Fed. Reg. 72978 (1979) (hereinafter cited as PRINCIPLES AND STANDARDS).

⁸DWR, para., 5-1.

⁹Telephone interview with Richard DeSimone, Project Manager, Army Corps of Engineers, Hydroelectric Studies Branch New England Division, (617)894-2400 ext. 510 (March 20, 1980).

¹⁰Id.

¹¹DWR, para., 5-1.

¹²DWR, para., 6-3(b), 42 U.S.C.A. § 1962d-S (1978).

¹³

Id.

¹⁴DeSimone interview and interview with Carl Gaum, Planning Division, Army Corps of Engineers, Office of the Chief of Engineers.

¹⁵DWR, para., 15-2(a)(50).

¹⁶Id., para., 15-3. It should be noted that President Carter, in his June 6, 1978, Water Policy Message, proposed changes to the existing cost-sharing formulas presently being utilized by Federal agencies. The change, if enacted by Congress, would require either that a 5 percent or 10 percent financing share to be provided by the non-federal project participant prior to the beginning of any construction depending upon whether the project has vendible or non-vendible purposes (vendible purposes are hydropower and irrigation) FEDERAL WATER POLICY, 15 WEEKLY COMP. OF PRES. DOC. 1045, (June 6, 1978).

¹⁷See: Appenix VI.

¹⁸PRINCIPLES AND STANDARDS, 78 Fed. Reg. 24778 (1973) revised, 44 Fed. Reg. 72978 (1978).

¹⁹DWR, para., 15-1.

²⁰42 U.S.C.A. §1962 (1965).

²¹16 U.S.C.A. § 797(e).

²²DWR, para., 24-13.

²³Id., para., 15-4; For a discussion of FERC's power values see: DOE/FERC, Hydroelectric Power Evaluation (August, 1979), at 3-1 - 3-10.

²⁴Id.

²⁵Id., para., 15-7, Sec. 10 FPA.

²⁶Id., para., 15-8.

²⁷16 U.S.C.A. §825 1/2.

²⁸DWR, para., 15-5.

²⁹33 U.S.C.A. 609 (1960). See also: DWR, para., 15-8.

³⁰See, e.g., U.S. Army Corps of Engineers and Department of Interior (WPRS) interagency agreements for: Missouri River Basin, S. Doc. No. 247, 78th Cong. (October 16-17, 1944); Middle Rio Grande Project, H.R. Doc. No. 653, 81st Cong. (July 25, 1947); Columbia River Basin, H.R. Doc. No. 431 and 473, 81st Cong. (April 11, 1949); Snake River Basin (September 9, 1953); Central Valley Basin, California (December 31, 1958); and Texas River Basins Projects (March 1962).

³¹See, e.g., Missouri River Basin Interagency Agreement, S. Doc. No. 247, 78th Cong. (October 16-17, 1944) (Agreement on the coordination of plans and responsibilities for development of both mainstream and tributaries of Missouri River Basin); Alaska, Columbia and Missouri River Basin Interagency Agreements, (March 14, 1962) (Agreement on the principles, procedures, and designation of responsibility in planning and carrying out federal water resource development activities in Alaska, the Columbia River Basin, and the Missouri River Basin); and Procedures for Planning Formalized Free Exchange of Design Information (July 13, 1967) (Agreement to reinforce the coordination of engineering design and construction practices and to provide for information between the Corps and WPRS.)

³²See, e.g., Interagency Agreement for Middle Rio Grande Project, H.R. Doc. No. 653, 81st Cong. (July 25, 1947) (a comprehensive plan of the two agencies, in substantial accord with a unified plan for development through a joint agreement, was approved by Congress in the Flood Control Act of 1948).

3343 U.S.C. §485(h).

3433 U.S.C. §701-1 et seq.

3543 U.S.C. §422a-k.

36Comptroller-General, Non-Federal Development of Hydroelectric Resources and Federal Dams -- Need to Establish A Clear Federal Policy, 5, 6 (September 26, 1980). See also: letters from Lt. Gen. Bratton, Chief of Engineers to Col. Charles L. Shreves, and from Gen. Heiberg to Corps field offices.

3742 U.S.C. §4201.

38DWR, para., 5-2.

39PRINCIPLES AND STANDARDS, 38 Fed. Reg. at 24790.

40Id.

41Id.

42DWR, para., 5-2(c)(1).

43Pub. L. No. 93-251, 78 Stat. 12 (March 7, 1974).

44Pub. L. No. 94-587, 90 Stat. 2917 (October 22, 1976).

45See, e.g., authorization for UMPQUA River Basin, Pub. L. No. 93-251 § 1(b).

46DWR, para., 5-2(C)(3).(4).

47DWR, para., 5-3 et. seq.

48PRINCIPLES AND STANDARDS at 72979.

49DWR, para., 5-3(a) and (b).

50Id., para., 5-3(b)(1).

51Id.

52DeSimone interview.

53Corps, Manual for Water Resources Planners, 3-18, (May, 1980) (hereinafter Manual).

54Manual at 1-13.

55DWR, para. 5-3(b) 3.

56Id.

57 Id., para., 5-3(c)(3).

58 42 U.S.C.A. §4332 (1971).

59 Pub. L. No. 91-611, §122 (1970).

60 DWR, para. 5-3(c)(4).

61 44 Fed. Reg. §230.5 at 38,292 and 38,293 (June 29, 1979).

62 Id. §230.6.

63 Id. §230.6(b).

64 Id. §230.12 at 38,296.

65 Id. Appendix C §1(b)(c) at 38,312.

66 Id. §230.12 at 38,296.

67 Id. §230.8 at 38,295.

68 Id. §230.9 at 38,295.

69 DWR, para. 5-8 and S-2.

70 The PROCEDURES are being developed in two parts: (1) procedures for computing the costs and benefits for the National Environmental Development (NED) account of the PRINCIPLES AND STANDARDS and (2) similar procedures for the Environmental Quality (EQ) account. 44 Fed. Reg. 72892, December 14, 1979. The EQ procedures are to be completed in late 1980 and will apply to all projects not under construction. However, the Secretary may exempt projects not yet authorized for which preauthorization planning is now complete or will be complete by the end of FY 1980 and those authorized projects requiring postauthorization planning if such planning is now complete or will be completed by the end of FY 1980. The Secretary's discretionary authority ends on July 31, 1981.

71 Manual at 2-20-21.

72 DWR, para., 5-7.

73 Id., para., 5-10 and 5-12.

74 Id., para., 6-2.

75 Id., para., 6-2(c).

76 Id., para., 6-2(d).

77 Id., para., 6-2(e).

78Id.

79Id., para., 6-2(g).

80Id., para., 6-2(h).

81Id., para., 6-3.

APPENDIX II - WATER AND POWER RESOURCES SERVICE

A. INTRODUCTION

The Water and Power Resources Service (WPRS), formerly the Bureau of Reclamation (BuRec) constructs multi-purpose water projects in the seventeen western states and Hawaii. Although its original function was the reclamation of arid lands, WPRS has evolved into a water project development agency.

Historically, the WPRS's major responsibility has been the construction of dams for irrigation systems, but it has been given specific statutory authority to produce hydropower at reclamation sites. Hydropower production originally was authorized only as an incidental phase of reclamation and never as a primary or independent purpose. Congress has expanded the scope of the WPRS's statutory authority in recent years to address the broader objective of water resources development and power production in administering the reclamation laws. The renaming of the Bureau of Reclamation (BuRec) to the Water and Power Resources Service (WPRS) "to more appropriately reflect the mission of the organization..."¹ demonstrates, to some extent, this expansion of the WPRS's jurisdiction.

The WPRS's main functions now include: (1) design, construction, repair and rehabilitation of Congressionally authorized water resource development projects;² (2) operation and maintenance of WPRS facilities; (3) review of operation and maintenance of WPRS constructed facilities which have been transferred to state or local organizations; (4) administration of loans for construction and rehabilitation of irrigation facilities under the Small Reclamation Projects Act of 1956³; (5) negotiation, execution and administration of contracts for project repayment, irrigation water use and maintenance with state and local entities; and (6) investigation and preparation of plans for the development, conservation and utilization of water and related land resources to be used for irrigation, municipal and industrial water supplies and hydropower generation.

This appendix describes the WPRS's authority, its relationships with other federal agencies and its Congressional authorization process for new hydropower projects and retrofits of existing projects. This authorization process is a slow and unpredictable mechanism to use in developing hydropower potential.

B. WPRS FUNCTIONS RELATING TO HYDROPOWER DEVELOPMENT

The WPRS develops both "major" and "minor" projects which include hydropower facilities. "Major" projects involve large water diversions on the mainstems of rivers through the construction, operation and maintenance of dams. They are developed and maintained as federal projects, funded primarily by the Reclamation Fund and the General Fund of Congress. The Reclamation Fund was established to enable the reclamation of the arid western lands and was initially supported by

sales of public lands of the United States. It has been augmented by a percentage of royalties from oil and mineral leases on lands of the United States as well as revenues from WPRS irrigation and power projects. The Fund has been depleted and it now receives additional funding from the General Fund.⁴

"Minor" projects involve the WPRS development on river tributaries or at locations other than on mainstreams. They differ from their "major" counterparts because contractual agreements with the project beneficiaries provide for repayment to the federal government of all reimbursable construction, operation, and maintenance costs.⁵ Non-reimbursable costs⁶ are paid for by Congressional appropriation. The WPRS "minor" projects also differ from "major" ones as the Secretary of the Interior has the discretion to transfer the management, operation, and maintenance of any part or all of the project works to the water users.⁷ These provisions apply to project works for municipal and industrial water supply service uses, as well as to irrigation uses, which may include hydropower facilities.

In addition to new construction projects, the WPRS may undertake activities for the rehabilitation or betterment of existing WPRS projects constructed under its authority.⁸ These activities encompass maintenance and replacement of facilities which cannot be financed under operation and maintenance costs of the project.⁹ Specific appropriations are required for rehabilitation and betterment.

Finally, the Small Reclamation Projects Act of 1956¹⁰ authorizes the WPRS to administer grants and direct loans to non-federal organizations for the rehabilitation and betterment, or construction of water resources development projects. Under the provisions of the Act, public non-federal entities organized under state law¹¹ that can contract with the federal government and demonstrate project engineering and financial feasibility are eligible for WPRS grants or direct loans. Eligible projects include single purpose irrigation, or drainage, or multi-purpose objectives such as hydropower development.¹²

Projects developed by the WPRS have always required that the non-federal participant would assume a portion of the costs or repay all costs over the life of the project. Hydropower at WPRS projects is repaid by power revenues.

C. COORDINATION WITH OTHER FEDERAL AGENCIES

The WPRS must coordinate its activities with the Federal Energy Regulatory Commission (FERC), the Department of Energy (DOE), the Fish and Wildlife Service (FWS), and the Army Corps of Engineers (Corps) as described below.

1. The Federal Energy Regulatory Commission (FERC)

The FERC regulates non-federal hydropower facilities under the Federal Power Act (FPA).¹³ Pursuant to its authority to regulate the

sale of electric energy, the FERC works with the WPRS in evaluating power benefits. WPRS allocates power costs itself for the projects it develops.

Non-federal hydropower facilities developed with the WPRS funding or using WPRS civil works are required to obtain FERC licenses. In addition, FERC may issue a preliminary permit for study of non-federal development of hydropower at existing WPRS dams even if the dam is concurrently being examined by the WPRS.¹⁴

2. The Department of Energy (DOE)

Prior to the Department of Energy Organization Act¹⁵ which established DOE, the WPRS marketed power from dams under its administration, as well as from certain Army Corps of Engineers projects and the International Water and Boundary Commission dams. These marketing functions were then transferred to the Secretary of Energy by DOE Act.¹⁶ Rates for sale of power from WPRS projects are now established by the DOE marketing agencies subject to approval by the FERC.

3. The Corps and FWS

The WPRS in its development of hydropower interacts with other federal agencies but principally with the Army Corps of Engineers (Corps). The WPRS's interrelationship with the Corps is described in Appendix A. WPRS also works with FWS in much the same way that the Corps does, using FWS expertise to help incorporate fish and wildlife concerns in project planning.

D. THE PLANNING, AUTHORIZATION AND APPROPRIATION PROCESS

1. Project Planning Investigations

Investigations into project proposals by the WPRS are generally initiated at the direction of Congress and often at the request of state, county, and municipal governments or other local interests. Planning investigations for projects are conducted at three levels: (1) appraisal studies; (2) feasibility studies; and (3) definite plan reports. Each level varies in the degree of detail of data and evaluations that it furnishes for project selection and justification. Additionally, each level requires Congressional authorization and appropriation for its initiation and continuance, thus providing Congressional oversight throughout the planning process for all aspects of a water resource development project.

a. Appraisal Studies

These studies are the first level in the WPRS planning investigations. They provide a preliminary investigation of the water and water-related needs of an area to determine sufficiency of need for the project in order to warrant further investigation. They are based on existing data from state, county, or local water plans and usually contain a brief environmental assessment, but no environmental statement accompanies them.

Feasibility Studies

This second level presents a detailed plan to support authorization for project construction. These studies need prior Congressional authorization and appropriation before implementation. These include the engineering and economic evaluations of the proposed alternatives, physical project works and an environmental impact statement. Interested local, state and federal agencies and the public can review and comment on the studies prior to preparation of the final one which is submitted to the Secretary of the Interior for approval and adoption. The Secretary's final study is submitted to the Congress through the Office of Management and Budget (OMB) for authorization.

c. Definite Plan Reports

The third level provides advance planning studies which further refine previous ones for a particular plan. Preparation of a definite plan report is subject to the appropriation of funds for its initiation. An updating of benefit and cost estimates of the projects and the accompanying environmental impact statement is undertaken to the extent necessary to assure the technical adequacy of the project study.

2. Multi-Objective Planning

All planning for the WPRS projects is done within the framework provided by the Principles and Standards for Planning Water and Related Land Resources¹⁷ and Procedures for Evaluation of National Economic Development (NED) Benefits and Cost in Water Resources Planning¹⁸ established in the Water Resources Council (WRC) regulations. These regulations are developed by the WRC and are the executive policy followed by the WPRS.¹⁹

These guidelines provide for "multi-objective" planning of the WPRS projects which include:

- (a) a two objective formulation process in which plans are formulated to meet both National Economic Development (NED) and Environmental Quality (EQ) objectives;
- (b) a system for measuring beneficial and adverse effects in terms of NED, EQ, regional development, and social well-being;
- (c) an emphasis on involving the public in the planning process; and,
- (d) an emphasis on developing project plan alternatives.

Prior to the development of "multi-objective planning" procedures, various goals such as fish and wildlife enhancement, recreation, water quality, flood control, and irrigation, were considered in project planning. However, only one project objective - national economic development - predominated and the primary test of economic feasibility was the benefit-cost ratio. Thus, only those project functions whose benefits were equal to or greater than their costs were being included in the project.²⁰

The "multi-objective" planning approach under the Principles and Standards shifted the WPRS emphasis from the "optimizing" to the "emphasizing" of project objectives. In the "optimized" planning approach, a particular objective is focused on with little regard for other ones. The multi-objective approach emphasizes the most meaningful and implementable choices among competing objectives. "Incidental" objectives such as hydropower capacity are more likely to be included in a project under an "emphasizing" approach than an "optimized" planning approach.

3. Small Scale Hydropower Planning

The WPRS, unlike the other major construction agencies, builds small projects that include hydropower components. These small projects are also subject to the Principles and Standards requirements like a "major" WPRS project. Thus, unless authorized by Congress, proposals to expand, retrofit, or rehabilitate an existing WPRS dam with hydropower are subject to the WPRS planning procedure. However, it should be noted that non-federal project development under the "Small" Reclamation Projects Act is not subject to the Principles and Standards planning procedures.

While small scale hydropower projects are not exempt from the WPRS planning process, the WRC Procedures allow "short-cuts" or substitute methods to determine the national economic development (NED) benefits. For example, an analysis of the marketability may be substituted,²¹ for determination of the need for future power generation required for other "major" projects. In addition, small scale hydropower development may involve many values and benefits which are not subject to marketplace analysis but which are important in determining whether these projects are justified.

144 Fed. Reg. 71826 (December 12, 1949).

243 U.S.C. §§391, 491 (1976). See: Burley Irrigation District v. Ickes, 116 F.2d 529, cert. denied, 312 U.S. 687 (1940).

343 U.S.C. §422 a-k, (1976).

4Water and Power Resources Service, The Reclamation Funds, Its History and Status as of September 30, 1979.

5"Reimbursable" project costs are those construction, operation, and maintenance costs incurred for purposes from which the users of the project derive benefit. About 84 percent of all project costs are reimbursable to the government.

6"Nonreimbursable" project costs are those incurred for purposes in the interest of the national welfare (e.g., flood control structures).

743 U.S.C. §§498, 499, 499b, (1976).

843 U.S.C. §504, (1976).

9Id.

1043 U.S.C. §§422 a-k, (1976).

11Id. Private individuals are not eligible for those funds, 43 U.S.C. §422b(c) (1976), defines "organization" to mean "a state or a department, agency, or political subdivision thereof or a conservancy district, irrigation district, water users' association, an agency created by interstate compact, or similar organization which has capacity to contract with the United States under the Federal reclamation laws."

12H.R. REP. NO. 92-571 (to accompany H.R. 7854), 92d Congress, 1st Sess., U.S. CODE CONG. & AD. NEWS 1768.

1316 U.S.C. §791 et seq., (1976).

14See: FERC Order Issuing Preliminary Permit, The City of Redding, Project No. 2888 (Issued March 25, 1980), where WPRS development of the hydropower potential remained speculative.

15Para. 95-91, 42 U.S.C. §7152 et seq., (1976).

16Id.

1738 Fed. Reg. 24778 (September 10, 1973).

1844 Fed. Reg. 72892 (December 14, 1979).

¹⁹Telephone interview with Wayne Ferneluis, Water and Power Resources Service, Office of Planning Policy.

²⁰These guidelines were established in Bureau of the Budget issued in 1952 as executive policy relative to water resource development planning.

2144 Fed. Reg. 72938, (December 14, 1979).

APPENDIX III - THE TENNESSEE VALLEY AUTHORITY

A. INTRODUCTION

The Tennessee Valley Authority (hereinafter TVA) was created for the purpose of:

"maintaining and operating the properties now owned by the United States in the vicinity of Muscle Shoals, Alabama, in the interest of the national defense and for agricultural and industrial development, and to improve navigation in the Tennessee River and Mississippi River Basins."¹

Although TVA's authority is broad in scope, the Tennessee Valley Authority Act of 1933² (hereinafter referred to as TVA Act) which created the TVA was held to be constitutional.³ The TVA was created primarily for the promotion of both navigation and flood control which provided the basis for its constitutional permissibility.⁴

The TVA is a corporation wholly owned by the United States of America.⁵ It is controlled by a three member Board of Directors who are appointed by the President with the advice and consent of the Senate.⁶ Each Board member serves for a term of nine years. The Board directs the exercise of powers of the corporation.⁷

The TVA has a corporate seal and by-laws, has the power to sue and be sued in its corporate name, to make contracts, to purchase, lease, and hold any real and personal property it deems necessary or convenient for the transaction of its business.⁸ The authority may acquire real estate by eminent domain for the construction of dams, reservoirs, transmission lines and powerhouses from private sources and from federal agencies. In addition, the TVA may actually construct dams, reservoirs, powerhouses, power structures and transmission lines.⁹ Finally, it may convey by deed, lease or otherwise, any real property in possession or under the control of the corporation.¹⁰ This appendix describes TVA's authority, its relationships with other federal agencies, and its planning and financing process for the power program. It further discusses TVA's connection with environmental laws as well as the possibility of future development of hydropower facilities by the TVA.

B TVA FUNCTIONS RELATING TO HYDROPOWER DEVELOPMENT1. Authority, Multipurpose Nature of Projects; Hydropower's Percentage of TVA's Overall Production

The TVA Act empowers the Board of the TVA to "produce, distribute and sell electric power, as particularly specified."¹¹ The Act further states: "The Board is hereby directed in the operation of any dam or reservoir in its possession and control to regulate stream flow primarily

for the purpose of promoting navigation and controlling floods. So far as may be consistent with the above purpose, the Board is authorized to provide and operate its facilities for the generation of electric energy for the use of the corporation and the United States".¹²

The power generated at the TVA's multi-purpose dams comprises only a relatively small percentage of the TVA's total yearly power production. In 1978, total TVA sales amounted to 118 billion kilowatt hours, somewhat less than the 122 billion sold in 1977. Of the TVA's total power production, power produced at hydroelectric facilities represented 15.9 percent.¹³ The bulk of its power is generated by steam generators fueled by coal.¹⁴

2. Sale of Power

Power not used for TVA's own operations is to be sold by the TVA with a preference for states, counties, municipalities and cooperative organizations of citizens or farmers not organized or doing business for profit.¹⁵

A significant component of the TVA's ability to develop and market hydropower and other power is its authority to set rates for the power which it sells. It is authorized to set all rates, including resale rates (affecting its wholesale customers) and to include any terms or conditions which in its judgement are required.¹⁶ Rates established by the TVA are to be as low as feasible¹⁷ in order to particularly encourage domestic and rural uses.¹⁸

In addition, the TVA has complete control over the rate schedules established for every energy consuming person or industry in its region.¹⁹ The TVA Act also requires that any person or organization wishing to construct, operate or maintain a dam, appurtenant works or other obstruction affecting navigation, flood control, or public lands within the TVA region must first obtain TVA's approval.²⁰ However, this approval authority is not a substitute for the requirements of any other law of the United States.²¹ Non-federal projects constructed and operated in the TVA territory also require the approval of the Federal Energy Regulatory Commission (FERC). TVA regulations spell out in more detail how its permitting or approval process is conducted.²² The authority to approve or disapprove applications has been delegated to the Director of the Division of Property and Services.²³ But, the Director may submit any application to the Board of Directors of the TVA for its approval or disapproval.²⁴

C. COORDINATION WITH OTHER FEDERAL AGENCIES DURING THE PLANNING PROCESS

The TVA must coordinate its activities with the Water Resources Council (WRC) and the Federal Energy Regulatory Commission (FERC) as described below.

1. Water Resources Council (WRC)

The WRC's Principles and Standards (P&S) for Planning Water and Related Land Resources as established and modified on an ongoing basis apply to the water and related land resource projects developed by the TVA.²⁵ The P&S require that federal and federally-assisted water resource projects be planned with the achievement of National Economic Development (NED) and Environmental Quality (EQ) as co-equal national objectives.²⁶

2. Federal Energy Regulatory Commission (FERC)

The TVA has a similar interagency relationship with FERC as does the Army Corps of Engineers.

b. PURPA and Non-federal Development

On November 9, 1978, the former President signed into law the Public Utility Regulatory Policies Act of 1978²⁷ (PURPA). Several sections of Title II will affect the TVA's relationship with the FERC and small hydroelectric developers. Section 201 amends the Federal Power Act to define "electric utility" as "any person state or federal agency that sells electric energy."²⁸ Section 202 of PURPA amends the Federal Power Act to empower the FERC to order any electric utility to interconnect with a qualifying small power producer, including a small scale hydropower developer.²⁹

While Section 210 of PURPA does not amend the Federal Power Act, it empowers the FERC to promulgate rules requiring electric utilities to offer to buy electricity from or sell it to qualifying small power production facilities.³⁰ The rates at which an electric utility must purchase power produced by a small power producer are to be just and reasonable and nondiscriminatory, but cannot exceed incremental costs of the purchasing utility. Thus, under Section 210, the TVA is required to purchase power from small scale hydroelectric dam developers.

In addition, the FERC, pursuant to a provision of the Federal Power Act (FPA), can recommend that federal development take place at a site within the territorial jurisdiction of the TVA.³¹ Upon such a recommendation by the FERC, the TVA may develop the particular site, however, it is not compelled to do so.

D. FINANCING THE POWER PROGRAM

TVA is financed in three ways, through: (1) appropriations; (2) its own revenues; and (3) the sale of electric power bonds.³² The agency's internal financial structure is divided into two parts; power programs and non-power components.³³ Non-power components are not described herein.

Currently, the TVA power operations are financed solely by bonds and through revenues earned from power sales. This is a result of Section 15(d),³⁴ an amendment to the TVA Act passed by Congress in 1959.

The amendment also provided that power bonds were to be secured solely by revenues obtained through power sales and not by the United States Treasury.³⁵

Prior to 1959, the TVA power programs were financed by Congressional appropriations in addition to bond sales and revenues.³⁶ Such appropriations totaled \$1.2 billion by 1953 and did not have to be paid back to the Treasury.³⁷ However, the 1959 Amendment required the TVA to repay the entire amount over a period of time to the United States Treasury.³⁸ As a result, the TVA has returned its revenues in excess of bond repayment obligations and operational expenses to the Treasury since that date. In 1978 alone, the amount of repayment equalled \$86 million.³⁹

Until recently the debt ceiling of the program was \$15 billion. In December, 1979, Pub. L. No. 96-97 was enacted, which raised it to \$30 billion in order to finance additions and improvements to its power facilities.⁴⁰ The additional ceiling will enable the TVA to add 7,200⁴¹ megawatts of generating facilities, although only a small amount of this will go to hydroelectric power development.⁴²

E. THE TVA AND THE ENVIRONMENT

The development activities of the TVA and their potential environmental impacts are regulated by federal laws as are those of the Corps and the WPRS. However, there is one major exception, the TVA is specifically exempt from the provisions of the Fish and Wildlife Coordination Act.⁴³

The National Environmental Policy Act (NEPA) applies to the activities of the TVA. NEPA requires that federal agencies prepare environmental impact statements (EIS) when they undertake major actions significantly affecting the quality of the human environment.⁴⁴ The first stage of litigation involving the TVA's Tellico Dam and Reservoir Project concerned the adequacy of the EIS prepared by the TVA for the project.⁴⁵ Traditionally TVA projects have been large-scale and as such were "major" actions. Whether the TVA will develop small-scale projects remains an open question.

Section 7 of the Endangered Species Act of 1979⁴⁶ also is applicable to the TVA, which is well known as a result of TVA's encounter with the snail darter when constructing the Tellico Dam. The TVA began building the dam on a section of the Tennessee River in 1967, soon after Congress appropriated initial funds for development. Subsequently, after passage of the Endangered Species Act the Secretary of the Interior, acting pursuant to Section 4 of the Act, declared a species of small fish popularly known as the "snail darter" to be an "endangered species". Environmental groups then brought suit in the United States District Court for the Eastern District of Tennessee to enjoin completion of the Tellico Dam on the ground that it would destroy the snail darter's habitat. The U.S. District Court refused to grant the injunction and was reversed by the U.S. Court of Appeals for the Sixth Circuit.⁴⁷ The Court of Appeals's decision to enjoin construction of the dam was upheld by the U.S. Supreme Court in 1978.⁴⁸ However, on September 25, 1979, an energy and water appropriations bill was signed into law containing a provision

that exempted the Tellico Dam from Section 7 of the Endangered Species Act and "any other law".⁴⁹

Other environmental statutes which the TVA must comply with are the Clean Air Act⁵⁰ and the Federal Water Pollution Control Act.⁵¹

F. FUTURE DEVELOPMENT OF HYDROPOWER FACILITIES BY THE TVA

During the first ten years of its existence the TVA was concerned with the development of hydropower facilities.⁵² However, hydropower development has given way to the use of fossil fuel and nuclear plants. Today only 15.9 percent of TVA's power supply is from hydropower plants,⁵³ while 59.8 percent is generated by coal-fired plants. An additional 12.1 percent is from nuclear plants, 2.2 percent is from combustion turbines (oil) and 10 percent is power imports.⁵⁴

According to at least one attorney for the agency, the TVA has developed most of the hydropower capacity in its region.⁵⁵

¹16 U.S.C.A. §831 (1976).

²16 U.S.C.A. §831 et seq. (1976).

³Goodpasture v. TVA, 434 F.2d 760 (D. Tenn. 1970).

⁴Grant v. TVA, 49 F. Supp. 564 (D. Tenn. 1942).

⁵TVA Annual Report, 1978; U.S. ex sel. TVA v. Logan County, 246 F. Supp. 263 (D. Ky. 1965), aff'd. 375.

⁶16 U.S.C.A. §831a(a) (1976).

⁷Id. §831a(g).

⁸Id. §831c.

⁹Id.

¹⁰Id.

¹¹16 U.S.C.A. §831d(1) (1976).

¹²16 U.S.C.A. §831b (1976).

¹³TVA Annual Report, FY 1978.

¹⁴Id. at 4.

¹⁵16 U.S.C.A. §831(i) (1976).

¹⁶Id.

¹⁷16 U.S.C.A. §841n-4 (1976).

¹⁸16 U.S.C.A. §831(i) (1976).

¹⁹Id.

²⁰16 U.S.C.A. §831y-1 (1976).

²¹Id.

²²See generally: 18 C.F.R. §§304 et seq. (1979).

²³18 C.F.R. §304.101 (1979).

²⁴Id.

²⁵42 U.S.C.A. §1962 et seq.

²⁶38 Fed. Reg. 24778 (1973).

²⁷16 U.S.C.A. §§796 (1976).

²⁸16 U.S.C.A. §796 et seq.

²⁹Section 202 of PURPA amends the Federal Power Act by adding a new section, Section 210.

³⁰16 U.S.C.A. §824A-3 (Supp. 1979).

³¹16 U.S.C.A. §800(b) (1976).

³²16 U.S.C.A. §831i (1976).

³³Jones, "The Financing of the TVA," 26 LAW AND CONTEMP. PROBLEMS 725 (1961).

³⁴16 U.S.C. §831n-4 (1976).

³⁵Jones, supra, at 738.

³⁶Id.

³⁷Id.

³⁸Id. at 739.

³⁹TVA Annual Power Report, 1978. Twenty million was a return on principal amount. The appropriation of \$66 million was for interest.

⁴⁰S. REP. NO. 95-175.

⁴¹Id.

⁴²Telephone interview with Attorney Lynn Moorehouse, Assistant General Counsel, the TVA, Knoxville, Tennessee, January, 1980.

⁴³16 U.S.C.A. §666c (Supp. 1976).

⁴⁴42 U.S.C.A. §4332(2)(c) (1974).

⁴⁵Environmental Defense Fund v. TVA, 339 F. Supp. 806 (D. Tenn.) aff'd,
⁴⁶ 549 F.2d 1164 (6th Cir. 1978).

⁴⁶Pub. L. No. 93-205, 87 Stat. 884.

⁴⁷549 F.2d 1064 (1977).

⁴⁸437 U.S.C. 153 (1978).

⁴⁹Pub. L. No. 96-69. See also: 321 ENVER. L. REP. (1979).

⁵⁰42 U.S.C.A. §§1857-1858a (1974).

⁵¹33 U.S.C.A. §§1251-1376 (1978).

⁵²Writz, "The Legal Structure of the Tennessee Valley Authority", 43 TENN. L. J. 513 (1976).

⁵³TVA Power Report, 1974 at 4.

⁵⁴Id.

⁵⁵Telephone interview with Lynn Moorehouse, Assistant General Counsel, the TVA, Knoxville, Tennessee, January, 1980.

APPENDIX IV - THE FEDERAL ENERGY REGULATORY COMMISSION

A. INTRODUCTION

The Federal Energy Regulatory Commission (FERC) is the primary federal agency involved in the regulation of dams used to generate electricity. The FERC regulates the construction and operation of hydropower dams under Part I of the Federal Power Act¹ and the sale of electricity in interstate commerce under Part II of the Act.² The FERC enjoys jurisdiction over four varieties of hydropower projects: Projects located on navigable water ways, projects affecting interstate commerce, projects which utilize federal lands, and projects which utilize surplus water or water power from government dams as described in the following section. This appendix describes the FERC's authority, its relationship with other federal agencies and its licensing process for new hydropower projects and retrofits of existing projects.

B. THE JURISDICTIONAL AUTHORITY OF THE COMMISSION OVER HYDROPOWER PROJECTS1. Projects Located on Navigable Waterways

The FERC must license any hydropower project to be constructed on any waterway which has ever been, is, or may become navigable for purposes of commerce, such as floating logs to a mill.³

2. Projects Affecting Interstate Commerce

The FERC must license hydropower projects located on non-navigable waterways if they affect interstate commerce. Commerce may be affected in either of two ways:

- a. the operation of the project affects the flow of water in a navigable waterway of which the non-navigable waterway is a tributary,⁴ or
- b. the project is interconnected to an interstate transmission grid, even though the project has no interstate sales. Clearly, any hydropower project with interstate rates would trigger the jurisdictional requirements of both Parts I and II of the Act.⁵

3. Projects Which Utilize Federal Land

The FERC must license hydropower projects which utilize public lands and reservations belonging to the federal government. These terms do not include all federal lands. Public lands are those which may be devoted to private use under the public land laws.⁶ Such lands are generally administered by the Department of the Interior. Reservations include national forests, Indian reservations and other federal lands withheld from private use.⁷ Neither term includes national parks or

national monuments.⁸ The FERC has the power to reserve federal lands for hydropower development; however, because of the enactment of the Federal Land Policy and Management Act of 1976 (FLPMA),⁹ this power to reserve has led to conflict with a number of federal agencies.

4. Projects Which Utilize Surplus Water or Water Power from Government Dams

The Property Clause of the United States Constitution has been construed to apply to both electricity generated and water made available at a government dam.¹⁰ Consequently, the FERC licenses the use of federal tangible property, just as it licenses the use of federal real property to be utilized for the generation of hydropower.

C. DETERMINING THE JURISDICTION OF THE FERC

As the previous section reveals, the jurisdiction of the FERC reaches to most hydropower dams. However, when the developer is uncertain as to FERC's jurisdiction, two methods are available to settle the issue.

1. The Letter of Opinion

The developer may seek an informal letter of opinion from the FERC. However, the letter has little legal significance.

2. The Declaration of Intent

The developer may file a declaration of intent with the FERC providing it with sufficient data to formally determine whether it enjoys jurisdiction over a particular project. The declaration of intent is mandatory for all new projects and for all projects constructed prior to 1935 which are undergoing significant modifications.¹¹

D. THE ISSUANCE OF HYDROPOWER LICENSES BY THE FERC

Once the jurisdictional uncertainty has been resolved, the prospective developer may file for either a preliminary permit¹² or a license¹³ with the FERC.

1. The Preliminary Permit

If a developer wants to secure his claim to a particular site and to protect the investment required to complete the studies required to file a license application, he may file an application for a preliminary permit with the FERC.¹⁴ Granting of the permit gives the recipient a priority of application for the particular site. As with licenses, preference is given to public entities where they are equally qualified. The application is brief and easy to complete. Where no opposition is voiced to issuance of the permit, the Director of the Office of Electric Power may issue the permit without a hearing or Commission action.

2. Licenses

Presently, the FERC licensing process consists of three license types: (1) one for projects smaller than 1.5 MWs of capacity (minor project); (2) one for projects located at existing dams with a capacity in excess of 1.5 MWs; and (3) one for new projects with a capacity in excess of 1.5 MWs.

a. The Licensing of Minor Projects

The minor license application requires basic information, an environmental report and copies of the state Section 401 Water Quality Certificate, and evidence of compliance with other state law requirements. Additionally, the applicant must consult with and receive comments from federal, state and local resource agencies during the preparation of the application. Notice of the application must be given to several federal agencies and the public by publication. Interested parties may intervene in FERC minor license proceedings.¹⁵ A final decision by the FERC may be appealed to the U.S. Circuit Court of Appeals.¹⁶

b. The Licensing of Major Projects - Existing Dams

To qualify for the major project - existing dam license, the project must: (1) have a total generating capacity of at least 1.5 MWs; (2) not include any repair or construction resulting in a significant change in either the normal maximum surface area or elevation of the existing impoundment; and (3) not include any proposed new development or change in the project operation resulting in a significant environmental impact.¹⁷ A project which will result in significant change in surface area or elevation must follow the applicant procedure for major unconstructed projects.¹⁸ The existing dam application requires the applicant to prepare seven exhibits as opposed to the twenty-three exhibits required of new dam applicants. The contents of a major project - existing dam application include the basic information required of minor project applicants as well as detailed exhibits concerning construction and operation. The most significant exhibit is an environmental report prepared in consultation with pertinent federal, state and local agencies.

c. The Licensing Of Major Projects - New Dams

Major projects at new dams face the most burdensome regulatory and legal obstacles within the federal system. Major projects are defined as water power projects involving construction of a new dam and having a generating capacity of 1.5 MWs or more.¹⁹

The most important application requirements pertain to the environmental impact of the project. The environmental concerns addressed are: the project's impact on fish, wildlife and recreation, and on scenic, natural and historic values. A comprehensive environmental report is required of each applicant for a new major project license.²⁰

E. THE LICENSING ENVIRONMENTAL IMPACT STATEMENT PROCESS

1. The National Environmental Policy Act

The National Environmental Policy Act (NEPA)²¹ ensures that environmental impact factors will be considered by federal agencies in their decision-making processes. The law requires all federal agencies to include a detailed environmental impact statement (EIS) whenever they undertake "major actions significantly affecting the quality of the human environment." Prior to formulating the EIS, the federal agency must consult with and obtain comments from any other agency with jurisdiction over, or expertise relevant to the environmental concerns of the agency's proposed action.

2. The Council on Environmental Quality

The Council on Environmental Quality (CEQ) was created by NEPA²² to advise and assist the President in making national policies designed to improve the environment and to assist federal agencies in their planning. The CEQ also has the authority to oversee an agency's EIS proceedings, and to issue regulations, having the force of law, governing the prion of EISs by the agencies.²³ The regulations require lead and consulting agencies to meet early in the process to determine the important environmental issues and to allocate responsibility for investigating those issues.²⁴

a. FERC Compliance with the CEQ Regulations

The FERC maintains that all hydropower licensing issues are to be the sole prerogative of the Commission, thus CEQ recommendations and comments are treated as advisory opinions. Nevertheless, to maintain uniformity, the FERC has drafted NEPA regulations closely modeled after the CEQ guidelines.²⁵

3. FERC Environmental Evaluation Procedures

There are certain environmentally-oriented responsibilities that apply to all license applicants. One of these is to submit an environmental report (ER) to FERC as part of the license application process.²⁶ The level of detail required of an ER depends on the complexity and potential significance of the environmental effects; however, the ER must include all relevant data used in its analysis.²⁷ Specifically, they are required to: provide all needed information to FERC; conduct any studies FERC requires; consult with all relevant agencies, federal, state and local, to identify all possible environmental impacts; submit applications for all needed federal and state approvals, inform FERC of all other federal actions that are required, and refrain from taking any "steps, toward completion of a project that may cause significant environmental impact or foreclose alternatives available to the applicant or the Commission".²⁸

Failure to comply fully with all these requirements can only cause delay in the licensing process and could possibly result in rejection of the application.²⁹

a. Minor Projects

Under FERC's NEPA regulations, a minor project is classified as an action which requires an Environmental Assessment but which formally does not require an EIS. The FERC will utilize the applicant's ER and other relevant data to prepare a study of the project's environmental effects. On the basis of this EA, FERC will determine whether or not the project is a "major federal action significantly affecting the quality of the human environment"³⁰ which would necessitate preparation of an EIS for the project.

Substantively, the EA must address two main issues to determine whether an EIS will be required. These issues are:

1. the magnitude of the proposed action and the commitment to resources involved; and
2. the environmental impact of the action.³¹

The environmental impact of the project must be evaluated on the basis of five considerations:

1. the overall cumulative impact of relevant past, present, and reasonably foreseeable future actions by the Commission or other entities.
2. the potential for both short and long-term degradation of the quality of the human environment, and the curtailment of the range of beneficial uses of the environment;
3. the effects on management, allocation, or consumption of important, scarce or non-renewable resources;
4. the presence of responsible opposing views concerning the environmental impacts, and
5. the unique characteristics of the environment to be affected.³²

If, on the basis of the EA, FERC determines that an EIS is not necessary, then they must make a finding and give notice of no significant impact. This negative determination must show that the Commission took a "hard look" at the project to identify all relevant environmental concerns and to convincingly demonstrate that the impact is not significant.³³

There are four possible sources from which an EIS may be obtained in the event one is required.³⁴ FERC may adopt all or part of an EIS which was prepared by another agency, as long as the environmental assessment is still valid; the EIS may be prepared by the FERC staff, or

by a private contractor; or lastly, the EIS may be prepared by or with the assistance of another agency.

The information and emphasis in the EIS must be proportional to the importance of the environmental impact of the action. The EIS procedure involves a complete analysis of possible environmental effects, the results of studies relating to the need for such a project, evaluation of alternatives to the proposed action and the staff conclusion.

To complete the EIS, an EIS Task Force is assembled from among the staff of appropriate FERC offices. The Task Force prepares a Draft EIS (DEIS), utilizing information supplied by the applicant, including comments from agencies. The DEIS is then circulated for comment to federal, state and local agencies, as well as to interested parties and experts. The circulation process is similar to the A-95 review required of all federally funded projects.³⁵ The circulation is the only opportunity for comment on the DEIS. Comments must be filed in writing.³⁶ Upon receipt of the comments, the DEIS is revised as necessary by the Task Force. A party will intervene in the proceeding on the basis of the DEIS. If environmental issues remain unresolved upon preparation of the final EIS, the issues may be decided by an administrative law judge. The applicant, the FERC staff and intervenors must file briefs and submit evidence on all contested issues. The FERC must specifically accept or reject the administrative law judge findings on the points contested in the EIS.³⁷

The EIS is an obvious obstacle to the development of small dams. The procedural requirements are ponderous and the substantive requirements can be expensive. However, it should be noted that FERC regulations and administrative practices are relatively straightforward and not burdensome. Minor projects require an EIS only in highly unusual circumstances. Expansions or retrofits of existing projects seldom cause any significant environmental impact and an EIS is required only infrequently. In the case of a new small dam, the FERC staff will require more information from the developer on environmental impact than it would in the case of an existing dam, but will require an EIS only if the impact is found to be significant.³⁸

b. Major Project - Existing Dam

A license application for a major water power project at an existing dam is also classified by FERC's NEPA regulations as an action that requires an EA but which does not usually require an EIS.³⁹

FERC will prepare an EA from the applicant's ER⁴⁰ to determine whether or not the project constitutes a major federal project having a significant impact on the environment. The EA evaluation process is the same as for minor projects.

c. Major Project - New Dam

A license applicant for a major project at a new dam confronts the most stringent requirements for preparation of an ER.

The ER must include a thorough analysis of all possible environmental effects from the proposed action. Specifically the applicant must describe the proposed action in detail including construction plans; describe the existing environment including descriptions of land, air, water, plant and animal life; describe possible effects on the existing environment; discuss preventive and monitoring measures of potential environmental impacts and discuss adverse environmental effects; compare benefits of the project with long-term effects of the project; reveal any irreversible commitment of resources; discuss alternatives to the proposed action; list all federal, state and local permits required and the steps taken to comply with them; and provide a complete list of all sources of information used in the ER.⁴¹

Pursuant to the regulations, an EIS must be prepared unless FERC determines that there is not a significant impact.⁴² The regulations do not provide for preparation of an EA for a license applicant for a major project at a new dam. The Commission believes⁴³ that in the majority of cases, these projects will be major federal actions that will have a significant impact and therefore will require preparation of an EIS.⁴⁴

F. EVALUATION OF THE PROJECT BY FERC

Upon filing, the application is docketed and sent to appropriate FERC offices. If the offices find deficiencies, the applicant is given thirty (30) days to correct them. Once the application is complete, the Application Office assigns a Project Manager (PM). The PM prepares a project description for circulation and comment to appropriate federal, state, regional and local agencies. Comments received are forwarded to the applicant for response. The PM combines the comments and report from FERC offices to create a Power Memorandum, the FERC decision-making document. The Power Memorandum is circulated to offices for comment, then to the Office of General Counsel for preparation of a Commission Order denying or granting the license. The Order, the Power Memorandum and the final EIS are forwarded to the Commissioners for a decision, if the application is contested. However, the Office of Electric Power Regulation renders decisions on uncontested applications. FERC's decision may be appealed to a U.S. Circuit Court of Appeals.⁴⁵

G. THE PROBLEM OF COMPETING APPLICATIONS FOR SITES

1. Statement of the Problem

As the development of hydropower becomes more popular, a growing number of license applicants find that they are competing with others for the same site. When competing applications are filed, delays in processing occur and expenses for both applicants increase. Negotiated settlements of such conflicts are favored because if the FERC is required to adjudicate the conflict lengthy hearings result.

2. Competing Application Selection Rules

Recently, the FERC promulgated regulations delineating the decision-making for selecting among many competing applicants for the

same site. Any citizen, corporation or government entity may file a competing application within the stated time limit.⁴⁶

a. Preference Rules for Initial Applications

The regulations pertain only to applicants competing for an initial license. Preference rules for initial applications can be divided into three basic categories. First, when competition between a preliminary permit applicant and a license applicant arises, the license applicant is favored. Second, when two preliminary permit applicants or two license applicants are competing the FERC makes three distinctions: (1) where both applicants are states or municipalities, the Commission will favor the applicant whose plans are best adapted; (2) where both applicants are states or municipalities, or neither applicant is a municipality or state, and both plans are equally well adapted, the Commission will favor the first to file; (3) in a situation where one of the competing applicants is a municipality or state, the municipality or state applicant will be favored, if its plans are at least equal to those of the other applicant. The third category of the preference rules favors priority applicants over all others.⁴⁷

b. Relicensing Preferences

The FERC has not issued regulations governing the process of selection in the context of a relicensing scenario. Nevertheless, the FERC recently ruled that in the context of relicensing a competing state or municipal entity will prevail, if upon close examination of the public entity's plans the Commission finds that its plans are equally well adapted and that it will be in the public interest to make such a reallocation of water resources.⁴⁸

3. Competition by Federal Construction Agencies for Sites

Another problem which may be encountered by an applicant for a FERC license is competition from a federal dam construction agency, e.g. the Army Corps of Engineers or Water and Power Resource Service. The FERC licensing process does not provide a forum for resolving such competition because federal construction agencies receive their approval from Congress. While Congress is studying a site for development, a moratorium is placed on the FERC process.⁴⁹ If Congress authorizes federal development, the site is ineligible for licensing by the FERC.

H. MISCELLANEOUS FERC AUTHORITY IMPORTANT TO HYDROPOWER PROJECTS

1. Small Conduit Hydropower Facilities

The FERC exempts certain small conduit hydropower facilities from the requirements of Part I of the FPA⁵⁰ but one must apply to the FERC for such exemption. Exemptions are granted only to small conduit hydropower facilities which: (1) are located on non-federal lands; (2) have a capacity no greater than 15 MWs; (3) are not an integral part of a dam; and (4) release water used only for consumption or into a natural body of water meeting certain specifications.⁵¹

2. 5 MW Exemption

The FERC as a result of the Energy Security Act of 1980⁵² has the discretion to grant either whole or partial exemption from Part I of the FPA for certain small hydropower projects consisting of 5 MWs of installed capacity or less. These exemptions are available on a case-by-case basis. There is also a proposed exemption for categories of small scale hydropower projects, although it is receiving some criticism and may not be adopted as a final rule.⁵³ If adopted, this exemption would have two classes: one of projects of 100 KWs or less, and the second consisting of projects between 100 KWs and 5 MWs, where no environmental impact exists.

3. Other FERC Powers

The FERC has the power to waive certain conditions, that are ordinarily required, for the licensing of a minor project. Waiver of this condition (e.g. multiple uses of the project requirement) represents an incentive for the development of power at small dams. Nevertheless, certain conditions must not be waived (e.g. fifty-year maximum term of license). Additionally, the FERC has the authority to dedicate public lands for use as hydropower sites and the FPA gives the licensee, who has made an unsuccessful effort to purchase needed project property, the power of eminent domain to acquire that property.⁵⁴

I. ANNUAL CHARGES

The FERC has the authority to levy annual charges upon the developers of certain water power projects, however, the FERC may waive these fees for projects having no more than 2,000 horsepower capacity.⁵⁵

1. Administrative Charges

The FERC assesses an administrative charge against all larger licensees. It covers the costs of administering all licenses, excluding state and local licensees. The charge is levied in a manner which is based upon the size of the project.⁵⁶

2. Use of Government Lands

A licensee using government lands is assessed an annual charge by the FERC. The charge is computed by the value of land per acre multiplied by an average interest rate on United States securities which have at least fifteen years or more remaining to reach maturity.⁵⁷

3. Dam Use Fee

A fee is charged to a FERC licensee who uses a government dam. State or municipal users may be exempt from this fee.⁵⁸

4. Headwater Benefits

The FERC levies an annual charge upon any non-federal downstream hydropower facility which derives benefits from an upstream headwater improvement. Both downstream and upstream operators must submit data from which the charge will be calculated. When the owner of the upstream headwater improvement is a FERC licensee, the assessment will be paid to that licensee.⁵⁹

5. Water Storage Fee

When the Army Corps of Engineers operates a dam which a non-federal developer retrofits for the purpose of generating electricity, that developer may be required to pay a water storage fee. This fee will be charged and calculated on a case-by-case basis.

116 U.S.C. §§791-823 (1976).

²Id. §824 (a-h) (amended 1978).

³Connecticut Light and Power Co v. FPC, 9 F.P.C. 606 (1976), aff'd, Connecticut Light and Power Co. v. FPC, 557 F.2d. 394 (1st Cir. 1977).
See also: Kaiser Aenta v. United States, 48 U.S.L.W. 4045 (1980);
Broussard v. Vermillion, 48 U.S.L.W. 4053 (1980).

⁴Citizens Utilities v. FPC, 279 F.2d. 1 (2d Cir. 1960) cert. denied, 364 U.S. 893 (1960).

⁵FPC v. Union Electric Co., 381 U.S. 90, reh. denied, 381 U.S. 956 (1965).

⁶16 U.S.C. §796(1) (1976).

⁷Id. §796(2).

⁸Id.

⁹43 U.S.C. §§1701 et seq.

¹⁰16 U.S.C. §797(e) (1976).

¹¹Id. §817. Project is defined as a complete unit of improvement or development. 16 U.S.C. §796(11) (1976).

¹²Id. §797(f).

¹³Id. §797(e).

¹⁴Id. §798.

¹⁵43 Fed. Reg. 40,218-19 (1978).

¹⁶16 U.S.C. §825(1)(b) (1976).

¹⁷44 Fed. Reg. 67,651 (1979).

¹⁸18 C.F.R. §4.40, 1312 (1976).

¹⁹44 Fed. Reg. 61,329 (1979).

²⁰18 C.F.R. §4.41 (1979).

²¹42 U.S.C. §§4321 et seq (1976).

²²Id. §4344.

²³Exec. Order No. 11,991; 3 C.F.R. §123 (1976).

²⁴40 C.F.R. §1500 et seq (1979).

²⁵44 Fed. Reg. 50,052-53 (1979).

²⁶Id. 50,052, 50,055.

²⁷Id. 50,058.

²⁸Id. 50,057.

²⁹18 C.F.R. §4.31(o) (1979).

³⁰Id. §131.6 (1979).

³¹44 Fed. Reg. 50,060 (1979).

³²Id. 50,056.

³³Nader v. Butterfield, 373 F. Supp. 1175 (D.D.C. 1974).

³⁴44 Fed. Reg. 50,052-058; 50,060 (1979). The FERC is not totally free to accept an EIS prepared by a private party. See: Green County Planning Board v. FPC, 455 F.2d 412 (2d Cir. 1972), cert. denied. However, non-agency preparation of an EIS has been upheld by the courts. See, e.g., Essex County Preservation Ass'n v. Campbell, 536 F.2d 956 (1st Cir. 1976); Conservation Soc'y of S. Vt. v. Sec. of Transp., 531 F.2d 637 (2d Cir. 1976).

³⁵See C.F.R. §1500.10(a) (1979). The review is required by a joint Council on Environmental Quality and Office of Management and Budget Circular.

³⁶18 C.F.R. §2.81(c) (1979).

³⁷Id. §2.81(e).

³⁸Interview with Quentin Edson, Environmental Analysis Section, FERC (November 1, 1978).

³⁹44 Fed. Reg. 50,052, 50,056 (1979).

⁴⁰The applicant's ER must conform to Exhibit E.

⁴¹18 C.F.R. §2 App. A (1979).

⁴²44 Fed. Reg. 50,052, 50,056 (1979).

⁴³Telephone interview with Mr. James Hoecker, office of the General Counsel, FERC, Washington, D.C. (May 9, 1980).

⁴⁴Id., 50,056; 18 C.F.R. §2 App. A (1979).

⁴⁵Energy Law Institute, FEDERAL LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF THE SMALL SCALE HYDROELECTRIC POTENTIAL OF THE NINETEEN NORTHEASTERN UNITED STATES. (DOE Contract RA-23-216.00:0, 1980), 41-44.

46⁴⁴ Fed. Reg. 61,328 et seq. (1979).

47^{Id.}, 61,336. The FPA preference requirements are at 16 U.S.C. §800(a), (1976).

48^{City of Bountiful, Utah}, FERC Opinion No. 88 (1980).

49^{16 U.S.C. §800(b)} (1976).

50^{16 U.S.C.A. §824} (Supp. 1979).

51^{45 Fed. Reg. 28,080} (1980).

52^{Pub. L. No. 96-294} (June 30, 1980).

53^{45 Fed. Reg. 58,368} (1980).

54^{16 U.S.C. §803(i)} (1976).

55^{Id.}, §§(e), (i).

56^{Id.}, §(e); 18 C.F.R. §11.20 et seq.

57^{Id.}, §11.21 et seq. In 1979 the fixed value per acre was \$150.00.

58^{16 U.S.C. §803(e)} (1976).

59^{16 U.S.C. §803(f)} (1976).

APPENDIX V - RESERVED WATER RIGHTS

A. INTRODUCTION

This appendix examines federal reserved water rights and their effect on hydroelectric development. There are two distinct federal reserved water rights; the first, commonly called the Winters Right or Doctrine, springs from Indian treaties and the ensuing federal trust policies. The other federal water right, non-Indian federal reserved water rights, was created by the judiciary. The general perception is that the two water rights derive from the same sources. Judicial precedent has been used interchangeably. This perception has led to confusion. The non-Indian federal reserved water right was asserted to supply water for the various federal reservations such as national monuments or national parks. The Indian water right on the other hand was created to supply sufficient water for an Indian reservation's entire domestic and productive needs. While the extent of the non-Indian federal reserved water right has been delineated by the United States Supreme Court, the scope of the Winters Right has not been as well defined. It, therefore, poses the greater potential obstacle to hydropower development. This appendix examines these doctrines and their effect on hydroelectric development.

Both reserved water rights theories developed from the same case law. The most recent Supreme Court pronouncement on reserved water rights was a non-Indian federal reserved rights case. Therefore, the non-Indian federal reserved right will be discussed first. Next, Indian reserved rights will be examined.

Additionally, Indian fishing treaty rights will be analyzed. These rights are principally limited to the Pacific Northwest region where historically Native Americans depended on catching anadromous fish for their livelihood. The Pacific Northwest is also one of the regions most highly dependent on hydroelectric power and has potential for further development of the resource. The assertion of fishing treaty rights can make further hydroelectric development extremely costly due to mitigation measures. It can also affect current hydroelectric production if tribes can successfully assert rights to have greater quantities of fish migrate upstream. Thus, this treaty right needs to be understood because of its significant potential impact on any hydroelectric producer.

B. NON-INDIAN FEDERAL RESERVED WATER RIGHTS1. The Development of the Right

Non-Indian federal reserved water rights (NIFRWR) attached to federal reservations when the land was removed from the public domain by various Congressional and Executive actions. In the eleven western states forty-six percent of the total land area is federal land. The federal reservations are usually situated high on the watersheds of these states and the percentage of water that originates or flows through these

reservations is more than sixty percent of the region's annual water yield.¹ These water rights are not subject to state water appropriation laws when the water right is exercised for the purpose of the reservation.

The reserved rights doctrine was first articulated by the United States Supreme Court in Winters v. United States² which construed the treaty between the Gros Ventre and several other Native American tribes and the United States.³ After the establishment of the reservation, upstream settlers appropriated Milk River waters in compliance with Montana state law. However, the Supreme Court held the waters were reserved for present and future uses of the tribes and could not be lost due to nonuse.⁴ In short, the reservation was fundamentally exempt from state appropriation law.

Until 1963, states assumed that the reserved rights doctrine was a species of Native American treaty rights. In Arizona v. California⁵, the United States Supreme Court acknowledged that reserved water rights also attach to non-Indian federal reservations. The case interpreted the Boulder Canyon Project Act of 1928⁶ which authorized the Secretary of the Interior to construct, operate and maintain a dam and other works in order to control floods, improve navigation, regulate the river's flow, store and distribute waters for reclamation and other beneficial uses, and generate electrical power. It provided "a complete statutory apportionment intended to put an end to the long-standing dispute over Colorado River waters".⁷ Nevertheless, water rights disputes arose after the Act. The United States asserted claims to waters for use on Indian reservations, national forests, recreational and wildlife areas and other government lands and works. The Court approved the Special Master's decision:

We agree with the Master that the U.S. intended to reserve water sufficient for the future requirements of the Lake Mead National Recreation Area, the Havasu Lake National Wildlife Refuge, the Imperial National Wildlife Refuge and the Gila National Forest.⁸

In 1964 in Arizona v. California,⁹ a decree was issued implementing the Court's opinion of 1963. The decree enjoined the United States from releasing water for the benefit of the Lake Mead National Recreation Area, the Havasu Lake National Wildlife Refuge, the Imperial National Wildlife Refuge,¹⁰ and the Gila National Forest¹¹ except "in amounts reasonably necessary to fulfill the purposes of the Federal Reservation."¹² The priority date for reservation purposes was the withdrawal date for each area within which water is used.¹³ The Court did not provide a specific measure to ascertain "reasonably necessary" quantities.

The Arizona v. California decisions created vast uncertainties about the extent of the NIFRWR and the effect federal exercise of these rights would have on state water law systems. The Supreme Court clarified the outlines of the NIFRWR doctrine in Cappaert v. United States.¹⁴ The case involved the amounts of water reserved for the pool

at Devil's Hole National Monument. The pool is significant as it is a remnant of a prehistoric lake and the pupfish, an extremely rare desert fish, inhabits only this body of water. Seventeen years after the National Monument had been reserved, the Cappaerts drilled wells to pump groundwater from their property for irrigation purposes. This groundwater came from the same source that supplied the Devil's Hole pool. The continued pumping lowered the pool and endangered the pupfish's breeding grounds. The Court held that since the explicit purpose for reservation of the pool was to maintain the pupfish, the Cappaerts could not pump water beneath the level necessary to sustain the fish.¹⁵ Additionally, the Court clarified the amount of water the federal government reserves by implication. The water reserved is the amount of unappropriated water appurtenant to the reservation needed to accomplish the purpose of the reservation.¹⁶

The question of what reservation purpose meant for NIFRWR was answered in United States v. New Mexico.¹⁷ The reservation in dispute was a national forest. The federal government sought a broad definition of reservation purpose. The United States argued that the purposes of national forests included reservations of water for aesthetic, recreational, wildlife preservation and stock watering purposes. The Supreme Court disagreed and held that the reserved water rights doctrine applied only to the primary purpose of the reservation. Reservation intent is found by examining the enabling legislation or the executive action creating the reservation. The Court found that the primary purpose of the national forest reservation was watershed management and timber preservation.¹⁸ All water needed for secondary purposes of the reservation which were established by subsequent legislation must be acquired pursuant to state laws.¹⁹ Thus, the Supreme Court completed the contours of the federal non-Indian reserved water rights doctrine; the federal government can only claim reserved waters either explicitly or implicitly reserved for the original purpose of the reservation.

2. Extent of Federal Claims and Hydropower Development

Federal agencies, pursuant to the former President's Water Policy, examined their reserved water rights. The Interagency Task Force on Non-Indian Reserved Water Rights recommended in its report that "a comprehensive and systematic effort by federal agencies to identify and quantify their water rights holds the promise of dampening much of the controversy, and narrowing state-federal conflicts, while still protecting federal interests."²⁰ The Final Report is optimistic that these federal reserved water rights will not substantially impact on the non-federal water user. The authors found:

(1) Federal reservations are primarily located high in the watersheds, meaning that the establishment of a federal reserved right will not impair many upstream users as there are not many users above the federal reservations.

(2) The majority of federal reserved rights do not involve substantial consumptive uses. Typical consumptive uses (stock watering, recreation, human consumption) are minimal compared to the total available water supply.

(3) The non-consumptive uses primarily involve instream flows, which preserve the water for appropriation under state law at points downstream from the federal reservation.

(4) Federal agencies' assertions of water rights are, and will continue to be, tempered by political reality, i.e., full extension of the reserved rights doctrine will usually not be asserted if a substantial threat to rights under state law is likely.²¹

The Solicitor of the Department of Interior in his recent opinion, Federal Water Rights of the National Park Service, Fish and Wildlife Service, Bureau of Reclamation and the Bureau of Land Management,²² similarly concluded that the federal government's exercise of its reserved water rights has not significantly displaced non-federal water rights.²³ Finally, it should be noted that Dean Trelease, the noted water law expert, believes that the exercise of non-Indian federal reserved water rights has had only minimal effect on state water users.²⁴ However, the hydropower developer should have a broad understanding of which federal reservations have associated water rights to facilitate the planning process for his hydroelectric facilities.

The federal agencies that have non-Indian federal reserved water rights are the National Park Service, Fish and Wildlife Service, Bureau of Land Management, Department of Energy, Naval Oil Shale Reserves, National Forest Service, and the Departments of Army and Air Force. This section will review these agencies' water rights and assess the potential for hydropower on these lands and the right to use federal waters in the development.

The National Park Service (NPS) administers approximately 145 sites including national parks, historic sites and recreational areas in the nineteen western states including Alaska and Hawaii.²⁵ Each individual reservation and the executive orders and/or legislation reserving the NPS land must be examined to determine how reserved water rights can be used on NPS sites. The National Park Service's Organic Act of 1916 said "(t)he fundamental purpose of said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."²⁶

The Solicitor believes that this statement of fundamental purpose encompasses a variety of consumptive and non-consumptive water uses. He concluded that water was reserved for scenic, natural and historic uses; wildlife conservation uses; sustained public enjoyment uses and NPS personnel use.²⁷ When there is insufficient unappropriated reserved water necessary to fulfill the purpose of a national park, the NPS is authorized to obtain water in accordance with state law.²⁸ NPS administers other areas such as national monuments, national historic parks, recreation areas, scenic trails, etc. These reservations must be examined in light of the 1916 Organic Act and the enabling action that reserved the specific site.²⁹

The Organic Act does not include purposes that are generally considered compatible with hydroelectric purposes.³⁰ While hydropower may be compatible with the regulation of stream flow, it can be destructive of other purposes such as wildlife protection. A non-federal hydropower developer is not likely to find a site on NPS lands that is compatible with hydropower development.³¹

The Fish and Wildlife Services (FWS) of the Department of the Interior, manages a number of wildlife refuges. There are approximately seventy-two wildlife and game refuges, migratory bird refuge and breeding areas, and fish hatcheries,³² which have reserved waters for the primary purpose of those reservations, i.e. wildlife preservation.³³ Given the specific purposes of these types of reservations and the fact that a hydroelectric facility will impact to some degree on a refuge's ecology, it is unlikely that a developer will be able to construct a facility in a refuge.

The Water and Power Resources Service (WPRS), formerly the Bureau of Reclamation, does not have any reserved water rights connected with any of its projects. The WPRS is required by Section 8 of the Reclamation Act of June 17, 1902 to comply with state law in acquiring water rights for its projects.³⁴ This requirement applies not only when WPRS purchases or condemns vested water rights, but also when unappropriated waters are used for a project even if the waters used came from federal reserved lands.³⁵ Any non-federal developer using a WPRS site would be bound by the same constraints (i.e., state laws) as WPRS in obtaining water rights.

The Department of the Interior's Bureau of Land Management (BLM) manages lands with reserved water rights. These lands include public springs, water holes, stock driveways, and oil shale reserves. Most BLM lands are non-reserved public domain lands which do not have any reserved water rights.³⁶

However, BLM does manage a group of lands that may have significant hydroelectric potential. These lands are the lands temporarily withdrawn under the Pickett Act of 1910 as power site and reservoir reserves.³⁷ The BLM manages the land uses of these lands and the Federal Energy Regulatory Commission (FERC) administers the power sites. There are 1,011 powersite reserves, classifications and water power designations which total 13,883,806 acres. Additionally, there are 114,393 acres withdrawn for reservoir purposes.³⁸

The Solicitor believes that no reserved water rights attach to the non-power purposes of these sites.³⁹ There may be a question as to whether there are any implied reserved water rights attached to power site withdrawals. Federal reserved rights associated with hydropower sites would conflict with existing hydroelectric development policy. When the United States develops its hydropower sites through the Corps or WPRS it obtains water rights through the state systems.⁴⁰ The Federal Energy Regulatory Commission (FERC) requires licensees to obtain water rights through state systems.⁴¹ Reservation theory indicates that a strong argument could be developed that a federal reserved water right attaches to these power sites.

The argument that there is a non-Indian federal reserved water right at a Pickett Act or other federal power site withdrawal is predicated on United States v. New Mexico⁴² which examines the original purpose of the reservation to ascertain whether an implied reservation of water exists. Since the site was reserved for water power purposes, water should be reserved to preserve the purpose of the reservation. Thus, the federal government, if it developed such a site, would be entitled to use sufficient water for water power purposes without obtaining water rights under state law. Since Congress has followed Reclamation Act policy and traditionally deferred to state water law in authorizing federal hydroelectric project development, it is not likely that Congress would choose to exercise the dormant Pickett rights.

An additional question surrounding Pickett Act withdrawals is whether a non-federal developer at a Pickett Act site could use the federal water right to develop the project because he would be fulfilling the purpose of the reservation. The federal government might attempt to authorize the use of its water for the project, but transfer of federal water rights may be legally impermissible. If this scenario came to pass, the legal expenses of judicially testing the theory might render it too costly for entrepreneurs.

The other major extensive federal land holder is the United States Forest Service (FS). Water is reserved in national forests for watershed and timber management unless the specific enabling legislation withdraws water for other purposes.⁴³ Hydroelectric development is a permissible use in national forests and the developer must apply to the FERC to withdraw the site.⁴⁴ If hydropower is not a primary purpose of the reservation, the developer would have to obtain water rights from the state.⁴⁵

The Department of Energy Naval Oil Shale Reserves (NOSR) are highly specialized oil shale reserves. They occupy approximately 125,000 acres in Colorado and Utah. The reserved water right has been asserted to develop the NOSR. The NOSR development scheme if fully developed will need between two and seven barrels of water to produce one barrel of oil. These lands can produce (estimated) 200,000 barrels of oil per day for twenty-five years. The water will come from the Colorado River and from groundwater sources.⁴⁶ NOSR, if developed, will become a competing use with other users of the water-scarce Colorado River Basin. Development of NOSR may adversely affect hydroelectric power development by reducing the amount of water available for appropriation for hydroelectric development.

Thus, the issue for hydropower developers is whether the non-Indian federal reserved water right will adversely affect the development of a hydroelectric facility or impede the operations of an existing facility. As shown above, the exercise of most federal reserved water rights is non-consumptive, and thus will not impact on hydroelectric use. The NOSR reserved water rights present the greatest uncertainty to the users of the Colorado River. The uncertainty stemming from the NOSR use is in itself speculative as the DOE does not presently intend to develop these reserves.⁴⁷

Finally, two recent decisions should be noted that can potentially affect non-Indian federal reserved water rights. Both cases involve the non-exercise of the right. In Sierra Club v. Andrus,⁴⁸ the district court held that the federal government did not have to identify and quantify its reserved water rights in spite of a potential conflicting consumptive use by an energy development company. The court ruled that any water right the energy company obtained under state law would be junior to the federal government's right.⁴⁹ A Colorado district water judge reached a different conclusion in In the Matter of Water Divisions, 4, 5, 6.⁵⁰ The water judge ruled a claim of equitable estoppel could be successfully asserted against the United States for not using its waters.⁵¹ This case is currently on appeal to the Colorado Supreme Court.

Thus, the question of non-Indian federal reserved water rights does not appear to be a significant deterrent for either the federal or non-federal hydroelectric power developer. The developer, especially the non-federal, should carefully research the historical background of the reservations and utilize the United States v. New Mexico analysis to ascertain how reserved water rights will affect the proposed project.

C. NATIVE AMERICAN RESERVED WATER RIGHTS

1. Winters Rights

Treaties between the various Native American tribes and the federal government are usually extremely vague and ambiguous. Rights are frequently implied rather than explicit. The United States Supreme Court resolves treaty ambiguities in favor of the tribes.⁵² Since tribes were at a distinct disadvantage in negotiating with the United States, treaty ambiguities led the federal courts to find implied rights. Winters v. United States⁵³ established the doctrine of an implied reserved water right. Unlike western state water rights established under doctrines of prior appropriation, Winters rights are appurtenant to the land and are not lost due to nonuse.

The United States Supreme Court created the Winters Doctrine in its interpretation of the May 1, 1888 treaty between the Gros Ventre and several other Native American tribes and the United States Government.⁵⁴ After the establishment of the Reservation, upstream settlers appropriated and diverted Milk River waters in full conformance with Montana state law. The United States in its capacity as trustee for the Indians argued that the tribes did not cede or relinquish their water rights in the Milk River by non-use. The tribes reserved the right to appropriate the water for agricultural and other beneficial use.⁵⁵ The Supreme Court agreed.

The Court's opinion needs to be examined to understand the framework of Winters rights. The reservation once had been part of a much vaster tract of land. The tribes used these lands to maintain their nomadic lifestyles. When the Indians accepted the government's policy to become a "pastoral and civilized people," the tribes moved onto the

without irrigation. The Court ruled that since the tribes had previously commanded all the land and water they needed for their beneficial use, they did not give up lands and the waters which made the lands valuable and adequate. The Court ruled, "that the Government did reserve them... and for a use which would be necessarily continued through years."⁵⁶

The Supreme Court acknowledged that it was interpreting an ambiguous agreement. The rule of interpretation of treaties and other agreements with Native Americans resolves ambiguities in their favor as the Indians could not possibly be alert to all the nuances and implications which the United States could put into an agreement.⁵⁷ Even admitting Montana, with its doctrine of prior appropriation, into the Union did not change the Native Americans' rights. Congress could not remove "the consideration of their grant," and leave the tribes without the ability to develop their new lands.⁵⁸ Thus, the Indians received rights to water flowing through and appurtenant to their reservation. These rights are superior to all water rights created by state allocation after the effective date of the treaty.

The Supreme Court reaffirmed and extended the Winters Doctrine to Indian reservations, not created by treaties, in Arizona v. California.⁵⁹ This litigation adjudicated the water rights in the Colorado River Basin among the parties affected by the Boulder Canyon Project Act. Five Native American tribes were among the parties vying for water. The Court held that the non-treaty reservations created under the Commerce Clause, U.S. CONST. art 1, § 8 and the Property Clause, U.S. CONST. art. IV, § 3, also had reserved water rights.⁶⁰ Agreeing with the Winters court, the Court declared that Native American water rights dated from the creation of the reservation. The Court expanded the doctrine to include reservations created by congressional acts and executive orders.⁶¹ The Court held that the present and future water needs of these lands also had to be met. Finally, since these were reservations created for agricultural purposes, the Court measured the amount of water needed by irrigable acreage i.e., the amount of water necessary to grow crops.⁶²

While the doctrine is clearly embedded in the law, the dimension of the Winters right varies from reservation to reservation. Each reservation's water rights must be analyzed by examining treaties and executive and congressional actions that define the relationship between the individual tribe and the federal government. The scope of allowable water uses is an open question. The Ninth Circuit Court of Appeals recently affirmed a federal district court decision that the Colville Tribe could use reserved water rights for maintenance of fishing grounds but not for fish propagation. It also affirmed that the Tribe could use water previously used for irrigation purposes for fish spawning purposes.⁶³ In addition, the Oregon federal district court ruled that members of an officially "terminated" tribe had a "time immemorial" water right to maintain their traditional fishing and hunting grounds.⁶⁴ Finally, a tribe's "time immemorial" water right has been recognized to require maintenance of a minimum instream flow to preserve the water temperature of a creek, part of which flowed through the reservation.⁶⁵ The holdings in these cases represent a new beginning in an attempt to establish the ultimate scope of the Winters Doctrine.

The Ninth Circuit, in reaching its decision in Colville,⁶⁶ said it applied the United States v. New Mexico⁶⁷ test to determine the scope of the tribes' water rights. The Court said that it could not define the purposes of an Indian reservation as narrowly as the purposes of the national forest adjudicated in United States v. New Mexico. The Court cited three reasons for declining to make a limited ruling. The specific purposes of Native American reservations were often unarticulated. The general purpose of a reservation to provide a home for Indians is a broad purpose and must be liberally construed. Finally, reservations were created by the government for Indians and not on behalf of the government.⁶⁸

The Court said it was important to consider the tribes' need to maintain themselves under changed historical circumstances. Allowing only nineteenth century water uses would trap the tribe in that century.⁶⁹ Thus, the Court declined to limit use of reserved water to historic purposes, as such a limitation "would serve no purpose except to frustrate the Indian's economic development."⁷⁰ Future Winters rights decisions will likely follow the Colville court's reasoning, which indicates that tribes will be able to use water reserved in Winters rights for any purpose to develop the reservation.

2. Winters Rights and Hydroelectric Development

Many reservations are located high in watersheds and provide potential opportunities for hydropower development; however, most of the tribes have not quantified their water needs, thus the amount of water available for hydropower development is not clear.⁷¹ Competing consumptive water uses exist. Tribes have discovered valuable mineral resources, unknown when the reservations were created, which, if developed, would consume large amounts of water. Industrial uses could be created. Finally, the exercise of any heretofore unused inchoate water rights is certain to generate litigation by any adversely affected party.

Tribes can change water uses to further the economic well-being of the reservation.⁷² Thus, a tribe could use its waters for hydroelectric power development. While tribes are potential power producers, traditionally tribes have opposed hydroelectric developments because of adverse impacts on reservations and the Indians' traditional cultural and religious life.⁷³

Hydroelectric power developers can be affected by the tribal exercise of Winters rights. For example, if a hydropower facility is built downstream under a state appropriation system on a river in which a tribe can exercise Winters rights the tribe could use "their" water for any use that benefits the economic development of the reservation. For example, if the tribe uses all its water consumptively for a new irrigation system, the downstream hydroelectric facility can be rendered valueless. The hydroelectric project would not be entitled to any compensation as the project obtained its water right with notice of the Winters right.⁷⁴ Thus, Winters rights can prove to be either an incentive or obstacle to hydroelectric power development depending on how the

rights are exercised, where the dams are located, and who develops the facilities.

3. Hunting and Fishing Rights and Hydropower Development

Indian fishing and hunting treaty rights also impact directly on hydroelectric development. The fishing treaties have their major impact in the Pacific Northwest where the tribes depend on anadromous fish for their livelihood and for religious and cultural purposes.⁷⁵ However, hunting and fishing rights attach to most Indian treaties. The rules of treaty interpretation dictate that all ambiguities of treaty interpretation be resolved in favor of Indians.⁷⁶ Thus, hydroelectric developers must assess the likelihood that a project may impact on treaty rights if there has been an historic Native American presence in their region.

Fishing rights can be affected in several ways by hydroelectric development. A project can stop or halt the upstream migration of anadromous fish, destroying the tribe's ability to fish in historic tribal waters. The hydroelectric facility can inundate off-reservation fishing locations. Hydroelectric projects can affect the instream flow of a river and thus affect the fish's ability to propagate.

In recent years tribes have successfully asserted their fishing rights in courts. In Washington v. Washington State Commercial Passenger Fishing Vessel Association⁷⁷ the Supreme Court affirmed the tribes' rights to a harvestable catch.⁷⁸ The Army Corps of Engineers has been prevented from damming Catherine Creek in Oregon because the congressional authorization did not include inundating fishing and spawning grounds.⁷⁹ Spawning grounds can be preserved by requiring the maintenance of instream temperatures.⁸⁰ A basic and substantial environmental right for fish protection was recently declared in United States v. Washington (Phase II).⁸¹ In addition, FERC recently modified spill requirements at non-federal hydroelectric dams on the Columbia River to enable salmon to migrate more safely.⁸²

Finally, traditional hunting rights have been protected by the courts. The cases that are of most interest to hydropower development are those where a reservation was terminated but traditional hunting rights were protected by the courts.⁸³ The courts do not abrogate any treaty right created by implication even though the tribe may be terminated by congressional action. Each treaty must be individually abrogated by Congress.⁸⁴ Thus, if a hydroelectric facility will impact in a traditional hunting or fishing area, regardless of whether the tribe has been terminated, the developer must ascertain what rights are extant, as any existing treaty rights can affect whether a project is improved, built, or halted.

D. CONCLUSIONS

This appendix has shown that hydroelectric development must proceed with an awareness of non-Indian federal reserved water rights, Indian water rights and other Indian treaty rights. The non-Indian federal

reserved water right has been judicially limited. Even before its limitation it had not created any adverse impacts on state water rights. The treaty rights create more uncertainty for developers. The exercise of these rights has had important effects on hydroelectric projects. The full extent of treaty rights is still being explored and treaty obligations have been repeatedly sustained by courts. Both federal and non-federal developers must work within the constraints imposed by these rights.

¹United States v. New Mexico, 438 U.S. 696, at 699 n. 3 (1978).

²Winters v. United States, 207 U.S. 564 (1908).

³25 Stat. 124 (1888).

⁴See: infra. at § B for a fuller discussion of the case.

⁵373 U.S. 546 (1963).

⁶45 Stat. 1057 (1928).

⁷373 U.S. at 560.

⁸Id. at 601.

⁹376 U.S. at 340 (1964).

¹⁰Id. at 341.

¹¹Id. at 350.

¹²Id. at 345-346.

¹³Id. at 350.

¹⁴426 U.S. at 128 (1976).

¹⁵Id. at 138-143.

¹⁶Id. at 138.

¹⁷438 U.S. at 696 (1978).

¹⁸Id. at 705-713.

¹⁹Id. at 700-702.

²⁰Task Force 5a, DRAFT REPORT OF FEDERAL TASK FORCE ON NON-INDIAN RESERVED RIGHTS (June, 1979) (hereinafter Draft Report).

²¹Task Force 5a, REPORT OF THE TASK FORCE ON NON-INDIAN FEDERAL WATER RIGHTS at 25-26 (June, 1980) (hereinafter Final Report).

²²Solicitor's Opinion, M-36914 (June 25, 1979).

²³Id. at 72.

²⁴F. Trelease, Federal Reserved Water Rights Since PLLRC, 54 DEN. L. J. 473 (1977).

²⁵National Park Service, Preliminary Inventory of National Park System Units administered by the National Park Service in 19 states, Appendix to Draft Report (April 1979).

²⁶39 Stat. 535 (1916), as amended, 16 U.S.C. §1 (1970).

²⁷Solicitor's Opinion, at 43.

²⁸16 U.S.C. §17(2)(g) (1970), Solicitor's Opinion at 46-47.

²⁹Id. at 48-50.

³⁰See: Text of this Appendix at n. 26.

³¹Telephone interview with Gary Fisher, Special Assistant to the Associate Solicitor for Energy and Resources, June 12, 1980.

³²Fish and Wildlife Service, Inventory of Fish and Wildlife Units administered by the Fish and Wildlife Service in 11 states. Appendix to Draft Report (1979).

³³See: Solicitor's Opinion at 51-58.

³⁴See: 43 U.S.C.A. §383 (1976).

³⁵California v. United States, 438 U.S. 645, 674-679 (1978); See also: Solicitor's Opinion at 63-64, WPRS Appendix (II).

³⁶Solicitor's Opinion at 19-40.

³⁷43 U.S.C.A. §141 (1976). The Act says: the President may at any time in his discretion, temporarily withdraw from settlement, location, sale, or entry any of the public lands of the United States, including Alaska, and reserve the same for water power sites, irrigation, classification of lands, or other public purposes to be specified in the orders of withdrawals, and such withdrawals or reservations shall remain in force until revoked by him or by an Act of Congress.

³⁸Letter from Vernon C. Indemuhle, Acting Deputy Conservation Manager, Waterpower, United States Geological Survey June 12, 1980.

³⁹Solicitors Opinion at 35.

⁴⁰SeeL discussion at n. 34.

⁴¹16 U.S.C.A. §821 (1976).

⁴²38 U.S. at 696.

⁴³Id.

⁴⁴Telephone interview with William Boring, National Forest Service (NFS).

⁴⁵Forest Service Progress Report in responding to the President's Directive Relative to Federal Reserved Rights, Appendix 4 to Draft Report of Federal Task Force on Non Indian Reserved Rights (1979). It is interesting to note that the Forest Service prefers that permittees on its land obtain water rights in the name of the United States whenever possible.

⁴⁶Telephone interview with Bill Goode, Project Manager of the DOE Predevelopment Plan for the Naval Oil Shale Reserves, June 30, 1980. See also: Naval Petroleum and Oil Shale Reserve Response to the Presidential Task Force on Non-Indian Federal Reserved Water Rights, Appendix 4 to Draft Report (1979).

⁴⁷Goode interview, supra.

⁴⁸Civil Action No. 78-2213 (D.D.C. March 21, 1980).

⁴⁹Id. at 11-14.

⁵⁰March 9, 1978, Supplemental Order, October 2, 1978.

⁵¹In the Matter of Water Divisions, 4, 5, 6, Civil No. W-425, etc. at 55-58 (Colo. Dist. Ct., March 6, 1978), appeal pending (Nos. 79-SA99 and 100, Colo. Sup. Ct.).

⁵²United States v. Winans, 198 U.S. 371, 380-381 (1905).

⁵³270 U.S. 564 (1908).

⁵⁴25 Stat. 124 (1888).

⁵⁵207 U.S. 564 at 565-573.

⁵⁶Id. at 577.

⁵⁷Id.

⁵⁸Id.

⁵⁹373 U.S. 546 (1963).

⁶⁰Id. at 598.

⁶¹Id. at 600. It should be noted that the United States Court of Appeals had previously ruled that tribal reservations created by executive order were entitled to Winters rights. United States v. Walker Irrigation District, 104 F.2d 334 (9th Cir. 1939).

⁶²Id. at 600-601.

⁶³Colville Confederated Tribes v. Walton, (West) Wash. Adv. Sh. 4874, 4882-84 (August 20, 1980).

⁶⁴United States v. Adair, 478 F. Supp. 336, 345-346 (D. Or. 1979), appeal pending. A terminated tribe is a tribe which is terminated by Congress; reservation lands are distributed to tribal members.

⁶⁵United States and Spokane Tribes of Indians v. Anderson, No. 3643 at 10-11 (E.D. Wash., July 23, 1979).

⁶⁶Colville Confederated Tribes v. Walton, at 4882.

67438 U.S. 696 (1978).

68Colville Confederated Tribes v. Walton, at 4882.

69Id. at 4882-83.

70Id. at 4885.

71The Bureau of Indian Affairs (BIA) has recently embarked on a ten year program to quantify water needs and identify potential uses on the various reservations. The Tribes do not have to accept the results of the BIA's program. See: President's Water Policy Implementation - 10 Year Plan for Review of Indian Water Claims (1979).

The adjudication of water rights in a full-stream adjudication can be compelled by an action in state or federal court under the McCarran Amendment, 43 U.S.C. 6666 (1964). If the suit is to be heard in state court, the state must have a comprehensive system for adjudication of water rights. United States v. District Court for Eagle County, 401 U.S. 520 (1971) and United States v. District Court for Water Division No. 5, 401 U.S. 527 (1971). Colorado River Conservation District v. United States (Akin), 424 U.S. 800 (1976) held that the McCarran Amendment applies to Winters water rights, thus enabling states with appropriate adjudication procedures to bring quantification proceedings against tribes in state court. Water rights adjudication suits are extremely costly and lengthy procedures. Their efficiency in resolving water problems created by Winters problems is open to question.

72See: Colville Confederated Tribes v. Walton.

73The Federal Energy Regulatory Commission (FERC) regulates non-federal development of hydropower facilities on Indian reservations. 16 U.S.C.A. §797(e) (1974). Tribes do not have any veto over unwanted development nor can a tribe obtain preferences under the Federal Power Act like municipalities and states. E.g., Re Escondido Mututal Water Co., 28 PUR 4th, Opinion No. 36 (February 1979) and Re Escondido Mututal Water Co., 19 F.P.S. 5-658, Opinion No. 36 A (December 1979).

74The doctrine of estoppel cannot be asserted against the United States in its capacity as trustee for Indian tribes, State of New Mexico v. Aamodt, 537 F.2d 1102 (10 CA 1976), cert. denied 429 U.S. 1121 (1977). See also: United States v. Ahatnum Irrigation District, 236 F.2d 321 (9th CA 1956), cert. denied. 352 U.S. 989 (1956).

75Washington v. Washington State Commercial Passenger Fishing Vessel Assoc., 443 U.S. 64 (1979). See also: Blumm, Hydropower v. Salmon: The Struggle of the Pacific Northwest's Anadromous Fish Resources for a Peaceful Coexistence with the Federal Columbia River Power Systems, 11 ENVT. L. 211, 283 (1981); Schmidhauser, The Struggle for Cultural Survival: The Fishing Rights of the Treaty Tribes of the Pacific Northwest, 52 NOTRE DAM LAW 30, 31 (1976).

76United States v. Winans, 198 U.S. 371 (1905).

77443 U.S. 658.

⁷⁸Id. at 685-686. This decision is commonly called Boldt I or Phase I after the federal judge who first heard the case, Judge George Boldt. This original decision is United States v. Washington, 384 F. Supp. 312 (W.D. Wash. 1974).

⁷⁹Confederated Tribes, etc. v. Alexander, 440 F. Supp. 533 (D. Ore. (1977)). See also: Confederated Tribes v. Callaway, (Civil No. 72-211, D. Or., August 17, 1973) holding that Congress in its authorization to modify the Bonneville Power Project and other federal Columbia River projects did not authorize impairment or destruction of fishing resources.

⁸⁰Colville Confederated Tribes v. Walton, 460 F. Supp. 1320 (E.D. Wash. 1978); aff'd, (West) Wash. Adv. Sh. 4874 (9th Cir. August 20, 1980).

⁸¹Civil No. 9213-I (W.D. Wash., Sept. 26, 1980).

⁸²Order Approving Interim Offer of Settlement As Modified, DOC. No. E-9569 (March 20, 1980).

⁸³Menominee Tribe v. United States, 391 U.S. 404 (1968); United States v. Adair, 478 F. Supp. 336 (D. Or. 1979), appeal pending.

⁸⁴391 U.S. at 410-13.

APPENDIX VI - DESCRIPTION AND DISCUSSION OF H.R. 6042,
96th CONG. 1st SESS. (1979)
AND S. 1641, 96th CONG., 2nd SESS. (1980)

H.R. 6042, 96th Cong., 1st Sess. (1979).

Description: This bill authorizes the Secretary of the Interior and the Secretary of the Army to plan, design, construct, rehabilitate, operate, and maintain hydroelectric power facilities not specifically authorized by Congress at existing water resource projects under the jurisdiction of their respective departments (WPRS and Corps). A finding by the respective Secretary of economic, financial, and environmental feasibility must be made prior to undertaking any hydroelectric power project.

S. 1641, 96th Cong., 2nd Sess. (1980).

Description: Title I National Small Hydroelectric Power Development Act of 1980.

This Title authorizes the Secretary of the Army, acting through the Chief of Engineers, to plan, design, and construct small hydroelectric power projects not specifically authorized by Congress, at any site, new or existing.

The funds needed for these small hydroelectric power projects may be taken by the Secretary from any Congressional appropriation for water resource development when in the opinion of the Chief of Engineers such work is advisable.

Construction shall not commence until a legally constituted non-federal public entity has agreed in writing to take title, operate, and maintain the project in accordance with regulations promulgated by the Secretary of the Army and the Federal Energy Regulatory Commission (FERC). In addition, this entity must agree to charge an electric rate no greater than that which is necessary to repay construction, operation, maintenance, and rehabilitation costs of the project.

The federal costs of construction shall be repaid to the United States over a period of fifty years after the completion of construction of the project.

Projects are limited to those facilities with an installed capacity of 25 megawatts or less. No more than \$15,000,000 can be allotted per project at any single locality and the total nationwide program cost per year is limited to \$75,000,000 from the dates September 30, 1981 to September 30, 1985.

Other federal agencies with authority and responsibility to grant or review licenses or permits for any type of hydroelectric facility of 25 megawatts or less shall make every effort to expedite their

consideration. This applies to all such projects, not just those constructed pursuant to this Title.

The United States Comptroller General, within one year of the enactment of this title, must evaluate the program and make suggestions as to the institutional changes required to facilitate hydroelectric power development in a report to the Congress.

The Secretary of the Army, acting through the Chief of Engineers shall, upon request, aid local entities in surveying and designing projects to rehabilitate hydroelectric power sites.

An annual appropriation of \$5,000,000 from September 30, 1981 to September 30, 1983 is authorized to implement this Act.

Discussion of H.R. 6042 and S. 1641:

Under various continuing authorities, the Secretary of the Army, acting through the Chief of Engineers, currently may plan, design, and construct certain types of non-hydroelectric water resource improvements without individual Congressional authorizations. The basic objective of these authorities is to be more responsive to the immediate critical needs of local interests where only small undertakings are involved. For example, Section 208 of the Flood Control Act of 1954, as amended, allows snagging and clearing of debris for flood control. Similar authority is found for navigation in Section 3 of the Rivers and Harbors Act of 1945, as amended. The total federal cost per project and/or the total nationwide program costs per fiscal year are often limited.

Title I of S. 1641 creates a limited continuing authority for small hydroelectric power projects. Similar to the Corps' other continuing authorities, the proposed hydroelectric power authority is limited in scope and in per project and nationwide annual expenditures. Specifically, projects are restricted to those facilities with an installed capacity of 25 megawatts or less. Also, no more than \$15,000,000 can be allotted per project at any single locality and the total nationwide program cost per year can be no greater than \$75,000,000 for the five years the program is authorized.

The need for Congressional authorization at several stages of each project is currently a major obstacle to the expeditious development of hydroelectric power by the Corps. Development of a project, from the time Congress authorizes a Reconnaissance Report until ground is actually broken at a site can take from 8 to 12 years, or longer for larger projects. This bill appears to be an appropriate response to this problem.

In addition, the provisions for non-federal public assumption of authority and a program for repayment to the federal government conforms to the Corps' usual policy for the hydroelectric power facilities that it constructs. Thus, this bill is consistent with current Corps practices for other types of small projects. It should short circuit the complex planning and authorization process for major projects, using a process

better tailored to small hydropower project scale. The limited size of this program suggests a need for better defining where Corps development, as opposed to non-federal development, would be appropriate, to avoid unproductive contests between federal and non-federal developers.

In contrast, H.R. 6042 gives broad general continuing authority to both the Secretary of the Interior and the Secretary of the Army for design, construction, operation and maintenance of hydroelectric power facilities without any directive as to cost limitation. Therefore, even major projects would be eligible if either Secretary makes a finding that a particular project is economically, financially, and environmentally feasible. This gives broad discretion to the agencies, subject to Congressional review only at the appropriations stage, which is less thorough than authorization. The only major constraint is that the development must be at existing federal sites, while S. 1641 permits development at any type of site, new or existing, federal or non-federal.

In summary, while S. 1641 gives continuing authority limited by cost and number of projects, H.R. 6042 is limited only by the type of site. Both would significantly shorten the Congressional approval process and would not compromise environmental laws which would remain applicable. The decisionmaking power for authorizing projects would be transferred from the political environment of Congress to the administrative agency under both bills.