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A CASE STUDY ANALYSIS OF LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF THE HYDROELECTRIC POTENTIAL AT GOOSE RIVER, MAINE

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FLOW DIAGRAM OF THE GOOSE RIVER
REGULATORY PROCESS

PROJECT

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I. OWNERSHIP:

- Does the developer have the legal right to use the water?
- Does the developer own both banks of the water course?
- Is the waterway navigable or non-navigable?

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Waterway is classified non-navigable under State law. Developer owns bed and water rights due to lease from Sherman Co.

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II. MUNICIPAL REGULATION:

- Developer secures two building permits from Town of Belfast. Zoning is no problem as site is located in an unrestricted area. (Ms. Moses, City Clerks Office, Belfast, Me.)

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III. STATE REGULATION:

- Apply for all relevent State level permits.
- Check for statutory and site specific exemptions from the State licensing requirements.
- Goose River Project is exempt from:
  - Site location of Development Act and Great Ponds Act (Henry E. Warren, Commissioner, Dept. of Environmental Protection)
  - Stream Alteration Act (Maynard F. Marsh, Commissioner Dept. of Inland Fisheries and Wildlife)
  - Fishladder Requirement (Id.)
  - Neglected Dams Act (Frank Richer, Soil and Water Conservation Commission)
  - Land Use Regulatory Commission Jurisdiction
  - Coastal Wetlands Regulation
- Goose River Project must comply with:
  - Annual Registration under Abandoned Dams Act (Frank Richer, Soil and Water Conservation Commission)
  - Section 401 Water Quality Certificate (Henry E. Warren, Commissioner Dept. of Environmental Protection)

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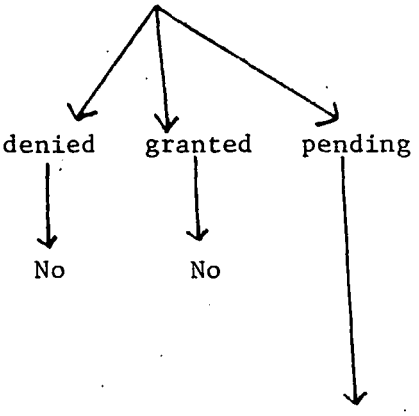
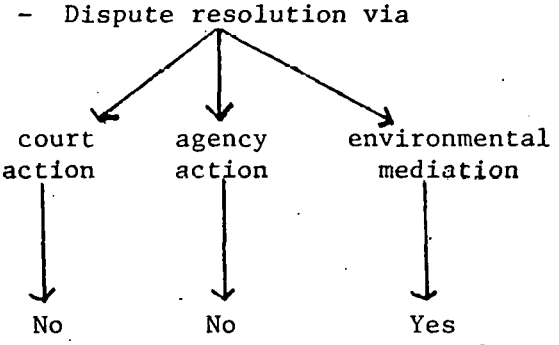
IV. FEDERAL REGULATION:

- FERC has jurisdiction over project because federal government considers water course to be navigable.
- Submit preliminary permit application to FERC
- Project is less than 1.5 MW in capacity

- File for minor project license with the FERC
- license is



- Due to Intervention by the Town of Swanville to enforce the comprehensive development requirement of the FEDERAL POWER ACT concerning the lake level fluctuation issue.
- Dispute resolution via



Results of process are pending.

- Project encounters no other significant Federal Regulatory issues

V. POWER MARKETING:

- Developer has good working relationship with Central Maine Power Co. (Charles Monty, Vice-President CMP)
- Developer reached private agreement with CMP on sales from other sites, Goose River Contract still pending
- Developer did not utilize federal PURPA or state "mini-purpa":
- C.M.P. prohibited by P.U.C. from passing on cost of purchased hydro via fuel adjustment clause to ultimate consumers

VI. FINANCING:

- Developer must obtain sufficient financing
- Consider use of limited partnership to enhance financing ability.
- Determine whether project is feasible
  - Can developer use a futures contract given that price cannot exceed incremental cost?

VII. OPERATION:

- Developer must comply with license and permit terms
- Maintain dam safety and complete any required reconstruction
- Taxes

I. INTRODUCTION

This case study is an analysis of the legal, institutional and financial incentives and obstacles to the development of the hydroelectric potential on the Goose River in Maine. It is important to note that neither the term "obstacle" nor the term "incentive" are value-laden. The terms are merely descriptive of a system from a particular viewpoint. Essentially, an obstacle consumes human labor and capital as a cost of producing electricity from a small dam. Incentives decrease the investment capital and labor required to produce the same amount of electricity.

This study is one of five studies prepared pursuant to contract between the Energy Law Institute and the National Conference of State Legislatures. Each of the five studies views dam development by different developmental entities. These entities are a municipality, a public utility, a state, a cooperative and a private developer.

The Goose River study concerns development by a private developer. Therefore, its format and analysis of obstacles and incentives is geared to highlight those cost consuming and cost decreasing factors which have particular impact to the private developer. Likewise, the conclusions and recommendations part of this study presents suggestions for improvement of the system from the perspective of the private developer.

By nature, the study cannot be a complete one, because the project is still in the developmental stages. Thus, the project's future may include difficulties and issues which are not present as of the date of this writing.

Finally, those areas of the state and federal regulatory systems which have not directly impacted on the developer are omitted from this study. For a detailed general discussion of those environments the reader is directed to: Legal and Institutional Obstacles and Incentives to the Development of Small Scale Hydroelectric Power in Maine; and Federal Legal Obstacles and Incentives to the Development of the Small Scale Hydroelectric Potential of the Nineteen Northeastern States.[1]

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[1]Reports prepared by the Energy Law Institute, Concord, N.H. for submission to the US Department of Energy.

II. PROFILE OF THE GOOSE RIVER PROJECT

A. Physical Descriptions and History of the Site

The Goose River hydroelectric project is located on the Goose River in Maine, which flows from Swan Lake in the Town of Swanville through the city of Belfast to the sea. The project is comprised of a five dam system, with the first dam located at Swan Lake and the fifth dam about one mile from the sea.

The town of Swanville, located on one side of Swan Lake, has a population of 487 residents, many of whom are summer residents. Located halfway between Augusta and Bangor, the town is surrounded by many lakes, some of which are artificially created by other dams.

Lawrence Gleeson, President of Maine Hydro-Electric Development Corporation (hereinafter MHEDC), approached this quiet Maine landscape with the idea of utilizing the 7,500 acre-feet of storage capacity of Swan Lake to run the four downstream power stations. The system is designed to generate 430 KWs of total capacity or 2,700 MWs annually, which would then be sold to Central Maine Power, (hereinafter CMP), the local investor-owned public utility.

Gleeson's proposal involves using the Swan Lake dam, an existing 10 foot high, 250 foot-long concrete and stone dam, to regulate water flow four miles downstream to Mason's dam. Mason's dam will be geographically the first dam in the system to generate electricity. In the past, it contained turbines and operated 20 hours a day, six days a week until it burned down in 1944.

The dam has a storage capacity of 1,621 acre-feet, a 31 foot head and is constructed of rocks and masonry. The planned capacity for the dam is 75 KWs at an overall 80% efficiency factor.

From Mason's dam, the water flows one mile downstream to Kelly Dam. The Kelly Dam, used previously only with a waterwheel, has a 15 foot head and its 135 foot long frame is constructed of rock and masonry. Gleeson estimates that with improvements, including an increased storage area, a 305 foot penstock, a 22 foot head and a 55 KW generating system, that an 80% efficiency factor can be achieved at the dam.

One half mile downstream from Kelly Dam is the Mill Dam. This dam was installed with a still usuable 94 KW water turbine in 1887. The system needs some reconstructing due to a fire in 1976. Mill Dam is the smallest dam in the system, with 7 acre-feet of storage capacity, a 6 foot head and a 70 foot long masonry frame.

The final dam in the series is the Central Maine Power Co. Dam (hereinafter the CMP dam). The CMP dam is one half mile downstream from Mill Dam. It has a storage capacity of 72 acre-feet, a 21 foot head and is 231 feet long.

All of the dams in the system require some amount of renovation and new construction. Swan Lake Dam will require minor repairs to its regulatory gates. Repair to Mason's dam will be more extensive, requiring reconstruction of the penstock and powerhouse, and replanking the face of the dam. The CMP dam needs a new powerhouse, a new 200 KW generator and repairs to the penstock.

To implement this proposal, Lawrence Gleeson leased the land, dams, appurtenant works, and water rights at Goose River from their current owner, the Sherman Co.. He also filed a license application with the Federal Energy Regulatory Commission in 1978 (hereinafter the FERC).

Gleeson's application for a FERC license coincided with a record drought the following summer. The lake level at Swan Lake dropped, causing some residential water systems to be exposed to air, creating machine damage and an eyesore. The townspeople became worried about their property values and their ability to lease in the summer months. On another section of the lake, the concern was altogether different. Water levels were too high, causing some to fear they would be "flooded in their sleep." Claims that property value was diminishing rapidly due to high water damage were presented to Gleeson on the same days that he received complaints of low water levels. These concerns have culminated in a lake level controversy that has continued to threaten the future of the project. The details of this controversy are treated below, but it should be noted here the successful resolution of this controversy is of vital importance to the development effort.

B. A Brief Biography of the Developer

Larry Gleeson's education is not, as one would expect, in engineering; rather, he has an undergraduate degree in math and chemistry, with graduate work in math. While in the Air Force, he gained experience as a Systems Analyst developing operation schedules. After further experience with mathematical modeling with the Rand Corporation, Gleeson moved to Philadelphia where he was employed as a Systems Planning Administrator for Sun Oil.

Realizing that the energy problem was soon to become a more prominent concern, Gleeson began to consider the possibilities for hydroelectric development.

Sun Oil allowed Gleeson time to work on a hydro development proposal. He began seriously investigating it as a business proposition in 1975. Although he is technically still employed by Sun Oil, Gleeson has been on leave since 1977. During that year, the Sherman Company contacted him, he inspected the site, and decided there was good potential for development.

In 1977, Gleeson moved his family into a small cottage on Swan Lake and began the development process. The difficulties he has encountered in the various aspects of the project are discussed in later sections of this study.

Having developed hydroelectric projects before, Gleeson is conversant with the legal requirements of licensing. When necessary, he hires an attorney to handle a specific problem, and up to this point, he has spent about $15,000 total on legal fees for his developments. The Goose River project has cost him $200 so far in legal fees. For the most part he has attempted to resolve the sensitive lake level issue through public relations rather than legal action.

His attitude about any problem is to assume it can be resolved and then meet it head on. He has publicly opened his office from the beginning of the project and has always been willing to speak with interested parties. His shy, unassuming manner seems to have won the confidence of many town officials, including the selectmen and their attorney.

Gleeson becomes discouraged at times about the Goose River project. His hope is that in the future regulation will become less burdensome, tax incentives will encourage development, and cheaper standardized

equipment will be available. He hopes to see more projects like the Goose River system established, and hopes to contribute substantially to such development. He would like to make hydroelectric power "as common as McDonalds."

C. The Financial Situation of the Developer

Obtaining information from Mr. Gleeson regarding his personal financial situation has been an understandably sensitive process. His prior work record indicates that he has received middle management level salaries, but his present precuniary worth is not known.

In the structuring of Maine Hydro-Electric Corporation, Gleeson has made a Sub Chapter S election.[2] Basically this election gives Gleeson, as majority stockholder, two benefits. First, it gives him the corporate sheild to liability, i.e., any liability incurred by the corporation can only be satisfied from corporate wealth not personal wealth.[3] The second benefit of the Sub Chapter S election is in the area of taxation. The election permits the stockholders of the corporation to take any income or losses of the corporation as personal income or losses. The Sub Chapter S corporation itself is not taxed.

The Corporation's present financial resources are limited. Gleeson has invested over $50,000 of his personal resources in the Corporation. The Corporation has accumulated additional equity from the following sources:

1) a $2,500 grant from the Maine Energy Office to investigate developable sites;

2) a D.O.E. grant for alternative technology to develop turbines; and,

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[2] I.R.C. §1371 et seq.

[3] See Walkovszky v. Carlton, 18 NY2D 414, 276 NYS2D 585, 223 NE2D 6 (1966); discussing the doctrine of piercing the corporate veil.

3) consulting fees from the Energy Law Institute and John Hopkins University.

Thus, it is evident that, at this point, the Corporation does not have a dependable source of income. Its continued viability will require Gleeson to work out licensing difficulties and bring the hydroelectric facilities on line as soon as possible.

The financial status of the corporation redound to Lawrence Gleeson. He does not draw a salary from the Corporation and this lack of personal income has created personal hardships for his family. This past winter, they were forced to move into the small one room office of the Corporation because they could no longer afford to heat their nearby home. Hence, Gleeson's personal financial future is extremely dependent upon the success of his hydro projects, a fact which undoubtedly gives him a strong incentive to tackle any problem which threatens those developments.

D. The Political Environment

To understand Maine Hydro-Electric Development Corporations's concerns on the Goose River, one must not only look inward to view the Corporation's perspective of itself, but one must also consider the manner in which the Corporation and dam development is viewed by various interests in Maine.

In Maine, hydroelectric generation is a technology that is familiar to investor-owned utilities and large industries. Central Maine Power Co. has a favorable view toward hydroelectric generation. They have agreed to purchase the Corporation's power output at its Barker's Mill site and are in the negotiation stage for power purchases from Goose River. CMP feels that small scale hydro-

electric power has a future in Maine depending upon the fuel cost for replacement energy.[4] Great Northern Paper Company utilizes hydroelectric generators to produce 114 MW to aid in satisfying its average load of 160 MW and system peak of 250 MW. Their system contains nineteen dams, the last of which was constructed in 1950. The company expects that any new dam construction would be opposed by environmental groups.[5]

The general attitude toward hydroelectric power changes as the size of the project increases. For 10 years, the rallying point of anti-dam sentiment in Maine has been the Dickey-Lincoln project. The proposed Dickey Dam has a 335 foot head, is 10,200 feet long and would flood some 88,650 acres of timberlands and wilderness area of the St. John River system in Northern Maine. A number of groups, in voicing opposition to the project, have stated that small scale hydropower is a preferred alternative.[6]

Such statements of support, however, should not leave the reader with the impression that small scale hydropower is without its share of opponents. Certain parties have stated that they are all for small dams until Dickey-Lincoln is stopped. The implication is that their support would then turn into opposition. Other groups have indicated

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[4] Small Hydro Developments in the State of Maine, prepared by Henry Bacon, Engineer CMP.

[5] Interview with Paul McCann, Manager of Public Affairs (June 12, 1977).

[6] E.g., Formal Response to the Revised Draft Environmental Impact Statement Dickey-Lincoln School Lakes, prepared by Natural Resources Council of Maine (Feb. 9, 1979); Interview with Cheryl Ring, Public Policies Coordinator Maine Audobon Society (June 18, 1979); and 125 CONG. REC. 56 (May 7, 1979) (Remarks of Senator Cohen).

that they support small dams but only on a case-by-case basis.[7]

When one moves from the anti-dam feelings generated by Dickey-Lincoln to the specific situation of the Goose River Project another type of opposition presents itself, that of local opposition. On more than one occassion the statement has been made that part of Gleeson's problem is that he is not a native of Maine or that he drives around in a car marked Maine Hydro-Electric Development Corporation with a Pennsylvania emblem on the door.

The general attitude in the town of Swanville toward the project appears to be one of distrust. At least one of his dams has been fire-bombed and release gates have been blocked by rocks. Recently, a town meeting was held in Swanville to iron out difficulties created by the Corporation's fluctuating of levels on Swan Lake. Those townspeople in attendance were generally antagonistic towards Larry Gleeson and his project.

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[7] Interview with Cheryl Ring, Public Policies Coordinator Maine Audobon Society (June 18, 1979).

III. REGULATION AT THE FEDERAL LEVEL

Federal regulation of the Goose River project is a potentially complex process. For example, a project may be confronted with licensing issues, environmental issues, wildlife preservation issues, and electrical sales issues. Each issue represents, at a minimum, a certain amount of regulatory delay and hence presents an additional financial burden for the developer. However, the impact of federal regulation on the Goose River project has been relatively minor. Those federal issues raised by this license application are examined in this part.

This part of the report is divided into two sections. First, a brief survey of the federal system is presented to give the reader a frame of reference. For a more detailed presentation of the workings of the federal process the reader is directed to Federal Legal Obstacles and Incentives to the Development of Small Scale Hydroelectric Potential of the Nineteen Northeastern States.[8] The second section presents the specific issues that confront development at Goose River.

A. A Survey of the Federal System

1. The Federal Energy Regulatory Commission

The primary regulatory agency having jurisdiction over the development of hydroelectric projects is the Federal Energy Regulatory Commission (hereinafter FERC). The FERC regulates the construction and operation of hydroelectric dams under Part I of the Federal

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[8] Draft report by the Energy Law Institute, Franklin Pierce Law Center, Concord, New Hampshire (January 30, 1979).

Power Act and the sale of electricity in interstate commerce under Part II of the Act. This jurisdiction is based on the ability of Congress to regulate navigable waters.[9] Additionally, the fact that the project will be connected to an interstate grid may invoke FERC jurisdiction under an "affecting interstate commerce" rationale.[10]

Regulation by the FERC is in the form of a license requirement. At present the FERC issues two types of licenses: one for projects of less than 1.5 MW in capacity (minor projects), and one for projects greater than 1.5 MW in capacity (major projects).[11] The Goose River project will develop .43 MW of capacity and hence the Corporation has applied for a minor project license.[12]

The significance of the license types is in the complexity of the required application procedures. Minor projects do not require an environmental impact statement. The minor project application requires basic information on size, location, use and ownership of the project, and evidence of compliance with state laws and comments from federal agencies consulted prior to filing the application. Upon filing, notice of the application is published in the Federal Register. During the comment period, interested parties may intervene in the licensing proceedings. FERC decision-making time on a minor license has averaged about two years.

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[9] Gibbons v. Ogden, 22 US (9 Wheat) 1, 84 (1824).

[10] See F.P.C. v. Union Electric Co., 381 US 90, reh. denied, 381 US 956 (1965).

[11] The FERC has published a proposed rulemaking for a third license form for major projects at existing dams. 44 Fed. Reg. 24095 (1979).

[12] FERC LICENSE APPLICATION, Project #2804.

In contrast, a major project application is a very complicated process. It requires filing a completed application form and Exhibits A through W. The more significant exhibits are Exhibit R, describing the impact of the project on recreations; Exhibit S, describing project impact on fish and wildlife; Exhibit V, describing project impact on natural, historic and scenic values; and Exhibit W, the project environmental impact report. These exhibits are designed to facilitate FERC compliance with provisions of the Federal Power Act, the National Historic Preservation Act, and the National Environmental Policy Act.

The FERC also has regulatory authority pursuant to the Public Utilities Regulatory Policies Act of 1978 (hereinafter PURPA). Under that Act, the FERC must promulgate regulations requiring utilities to purchase power generated by small power producers. The Act also permits petitions to the FERC to force a utility to wheel power from a small power producer to another utility and to permit the small power producer to interconnect with the grid. Finally, the Act requires that the price paid to the small power producer for the energy not exceed the incremental cost to the utility of obtaining the power elsewhere.

2. Other Regulatory Agencies

A number of statutes grant to various agencies certain regulatory authority over aspects of hydroelectric development.

The Army Corps of Engineers issues permits for the discharge of dredge and fill material into any waters of the United States pursuant to § 404 of the Clean Water Act. Further, under § 10(e) of the Federal Power Act, the FERC may not issue a license until the Corps has approved the project.

Section 401 of the Clean Water Act gives the Environmental Protection Agency authority to issue water quality certificates. This authority may be delegated to state agencies where the state program complies with federal standards. The § 401 certificate must be acquired prior to filing for the license. In Maine, the Department of Environmental Portection has been delegated the authority to issue § 401 certificates. The Goose River project complied with this requirement without any problems.

Finally, the Departments of Interior and Commerce impact on the regulatory process via mandates from the Fish and Wildlife Coordination Act, the Endangered Species Act and acts preserving historic, archeological and scenic sites. Significantly, none of the above acts have presented any regulatory problems for the project. This is due in part to site location factors, specifically, the project is not located in a National Forest, or on any lands of the U.S. and affects no such lands and has no effect upon any sturctures or site of historic significance.[13]

B. Specific Federal Issues Re: The Goose River Project

1. Intervention by the Town of Swanville

Maine Hydro-Electric Development Corporation's primary federal regulatory concern is an outgrowth of the lake level fluctuations issue and requirements of the Federal Power Act.

The Act requires that a developer comply with state law, including state water law[14] when seeking a FERC license. The Corporation has

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[13] Id. at 6.

[14] See First Iowa Hydroelectric Coop. v. F.P.C., 328 U.S. 152 (1946).

adhered to this requirement and in so doing has encountered a difficulty. Under state water law the corporation has acquired all the water rights to Swanville Lake. This acquisition is significant as it permits the corporation to fluctuate the lake level without regard to any other riparian rights.[15] Thus, the town and its residents have no remedy under state law for resolution of the lake level problem.

However, the Federal Power Act permits an interested party to intervene in a licensing process. The Town of Swanville has intervened in the licensing process of the Goose River Project to express its concern regarding the fluctuating lake level of Swan Lake. While intervention cannot be used to protect rights the intervenors do not have, the Federal Power Act does contain certain requirements which may be utilized by the Town of Swanville to achieve the end of lake level regulation. The Act requires that the applicant for a license demonstrate that the project will be part of a comprehensive plan for the optimum development of the entire watercourse.[16]

The Town of Swanville, in its petition for intervention, maintains that the comprehensive development requirement dictates that the Corporation must consider and mitigate the effect of lake level fluctuation on other uses of the watercourse, notwithstanding the ownership of all relevant water rights. The FERC, in agreement with the town's position, has required the Corporation to settle the lake

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[15] For a more detailed discussion of the water law of Maine see Part IV of this study.

[16] 16 USC §§ 797, 803(e) (1976).

level issue before it will grant a license condition.

The process of resolving the substantive components of the lake level problem is discussed in Part V of this report.

2. Public Utilities Regulatory Policies Act of 1978

PURPA's significance in terms of the Goose River project lies not so much in what the Act was intended to accomplish but rather the manner in which it has been viewed by the developer.

The Act requires that a utility must purchase the power output of a small power producer at a rate set by the state public utility commission. This mandate is significant because it represents an attempt to prevent an investor-owned utility from adopting a "no-purchase" attitude toward the small scale hydroelectric developer. The mandate also assures the developer a just and reasonable rate for his power.

However, the PURPA mandate has not been significant to the Corporation for a number of reasons. First, the purchasing utility, Central Maine Power, has a history of small power purchases. Thus, it was not necessary for the Corporation to use the federal act to force the purchase. In fact, Larry Gleeson claims it would be undesirable to force the utility to purchase his power output because it might damage the goodwill that currently exists between the parties. His fear is that the use of force in the purchase negotiations may create an adversarial atmosphere and thus convert an amicable negotiation process into a potentially protracted and expensive legal struggle. Such a dispute resolution process would be an intolerable financial burden for most developers.

Second, the Corporation has found it necessary to utilize the PURPA price mandate. Central Maine Power has negotiated contracts with the Corporation for other sites at prices ranging from 22 mills a KWH to 36 mills a KWH. Their prices may be less than what the project could demand under PURPA, but given MHDC's low development costs, are sufficient to make the project economically viable.[17]

Larry Gleeson's policy appears to be one of avoiding the regulatory process if at all possible, including those times when the process purports to react favorably to his project. It reflects a profound skepticism about the ability of an individual to receive a net benefit from a pattern of regulation apparently designed to favor him. Thus, he feels that attempting to get a higher price under PURPA will involve expenditures of time and money in the regulatory system which probably would not be warranted by the end result of the process.

Thus, due to the complexity of PURPA and the listed resources of a private developer, an act intended to promote development of small power production facilities has, at Goose River, been viewed as another component of leviathan regulatory system. The message from the private developer regarding PURPA is clear; the soon to be written regulations and guidelines implementing the Act must be carefully drafted and construed to avoid the creation of uncertainties which encourage protracted and costly litigation. Generally, private developers cannot bear that burden and thus may have to settle for

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[17] Compare Rates for Sale of Power by Limited Electrical Energy Producers, NH PUC Order No. 13,589; requiring a price ranging from 40 mills to 45 mills.

prices much lower than those to which they are apparently entitled under the Act, or refrain from development altogether.

IV. REGULATION AT THE STATE LEVEL

A. Introduction

The State of Maine has an extensive regulatory system governing the development of hydroelectric dams. However, this system is not specific to hydroelectric generation. Rather, Maine has two specific regulatory systems which produce a de facto regulatory system for small dams. The first and most complex system is that which Maine has developed to govern the multiple uses of its waterways. The second system regulates the production and distribution of electric energy. The interaction of the two creates a system for the regulation of hydroelectricity.

In placing the Goose River Project on line, Maine Hydro-Electric Development Corporation must contend with this regulatory system. In addition, the Corporation must contend with the fact that this system is in a metamorphic state. Thus, this section of the study will examine the interaction of the Corporation and the Maine regulatory environment from the perspective of the present system, amendments to the present system, and proposed changes to the present system.

The three perspectives highlight a major concern facing the Corporation in its developmental efforts, that of the energy-environment conflict. In a time of large centralized fossil fuel plants, the waterways of the state became the subject of ever increasing environmental regulation. The re-emergence of hydroelectric development has prompted legislative debate, and in some instances, reassessment of those values. Maine Hydro-Electric Development Corporation has been affected, and at times detrimentally, by this process.

B. The Present System

As stated above, the regulatory system is not specific to the case of hydroelectric development. Thus, the specific jurisdictional requirements of each law must be met before the statute or law in question becomes a part of the regulatory process. The development of the Goose River Project has capitalized on the nonspecific nature of the regulatory system and in so doing has been able to by-pass most of that system. This by-pass has been accomplished by the use of statutory exemptions and a somewhat artful selection of the project site.[18]

Thus, at the outset it is appropriate to note that two major Maine regulators, the Land Use Regulatory Commission[19] and the Department of Environmental Protection's regulation of coastal wetlands[20] do not have regulatory authority over the project because the project is not within the geographic areas regulated by the Acts.

The following sections will discuss the laws applicable to the Corporation's project and where appropriate, those which would have been pertinent but for an exemption.

1. Regulation by the Department of Environmental Protection

a. Site Location of Development Act[21]

The Act, administered by the Board of Environmental Protection, regulates the location and environmental impact of inter alia, "devel-

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[18]The use of exemptions, specifically under the Stream Alteration Act, has prompted discussion relative to their repeal. Interview with Nancy Cowan, Resource Planner, Maine Energy Office (June 14, 1979).

[19]ME. REV. STAT. tit. 12, § 681 (1965).

[20]ME. REV. STAT. tit. 38, § 471 et seq. (Cum. Supp. 1978-1979).

[21]ME. REV. STAT. tit. 38, § 481 (1965).

opments." A development includes a complex which occupies a land or water area in excess of 20 acres. Thus, four of the five dams comprising the project would appear to incur regulation pursuant to the Act. Mill Dam, with an impoundment area of 7 acre feet, would be exempt.

However, due to a statutory exemption, the entire project escapes the regulation of the Act. Any developments in existence on January 1, 1970, are not subject to regulation under the law.[22]

b. Great Ponds Act[23]

The Act requires that a developer obtain a permit from the Board prior to engagning in any construction, repairing, dredging or filling in a great pond. For statutory purposes, a great pond is any inland body of water which in its natural state has a surface area in excess of 10 acres or any body of water artificially formed which has a surface area in excess of 30 acres, the shore of which is owned by two or more legal entities.

The Goose River Project, in its present state of development, has yet to engage in any statutorily covered activity. Should any such action be required, a permit will be needed based in part, upon the impoundment areas of the project's dams. The five dams comprising the project have the following impoundment areas:

1. Swan Lake: 7,500 acre-feet;
2. Mason's Dam: 1,621 acre-feet;
3. Kelly Dam: 200 acre-feet;
4. Mill Dam: 7 acre-feet; and,
5. CMP Dam: 72 acre-feet.

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[22] Id. § 488.

[23] Id. § 391 et seq.

The Mill Dam impoundment area, regardless of a natural/artificial creation distinction, would not require a permit as it is below the impoundment area standards of both classes. Any regulated activity on the remaining four impoundment areas would require the permit as they exceed the impoundment area standards of both class.

However, contingent on the manner in which the Corporation conducts its actions, it may engage in acts similar to those which are regulated and yet not require a permit. The Act prohibits dredging and filling below the normal high water mark and bulldozing land in such a manner as to cause the material to wash into the pond. Thus, the Corporation may dredge and fill and bulldoze land without a permit provided it does so above the normal high water mark and takes precaution to avoid backwash into the pond.

2. Regulation by the Department of Inland Fisheries and Wildlife

a. Stream Alteration Act[24]

The Act requires a developer to obtain a permit from the Commissioner of Inland Fisheries and Wildlife prior to any dredging, filling or construction above the head of the tide.

"Above the head of the tide" is that area of a watercourse not susceptible to the ebb and flow of the tide.[25] Obstructions in the watercourse can prevent the waters from being subject to tidal action. Such is the case with the Goose River Project. The CMP Dam, approximately one mile inland, is the tidal head point on the Goose River.[26]

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[24]ME. REV. STAT. tit. 12, § 2206 et seq. (1965).

[25]See Wilson v. Harrisburg, 107 Me. 207, 77 A 787 (1910).

[26]Telephone interview with Lt. Walter Bishop, Dept. of Inland Fisheries and Wildlife (July 7, 1979).

Thus, the entire project is above the tidal head and hence within the Department's jurisdiction.

At present, the Corporation has not been required to seek the permit mandated by the Act. Once again this is due to the Corporation's use of statutory exemptions. The Act exempts from permit requirements private dam projects which do not alter more than a total of one hundred feet in any mile of shore.[27] The Corporation's use of the exemption is quite evident in its correspondence inquiring as to the need for the profit. It is careful to point out to the Department that acts of cleaning sludge and debris from the mill dam tailrace will involve "slightly less than one hundred feet" on one bank.[28]

b. Fishladders

The Commissioner of the Department may require fishladders in any dam above tidewater where the waters are frequented by salmon, shad, alewives or other migratory fish.[29] At the present time, the Department does not plan to require fishladders at the Goose River Project.[30] This decision appears to be due to steep falls at the lower end of the river, making natural passage of fish unlikely, and the warm sluggish nature of the river's flow through upstream marsh areas.[31]

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[27] ME. REV. STAT. tit. 12, § 2212 (1965).

[28] Letter from Maine Hydro-Electric Development Corporation to Teco Brown, Department of Environmental Protection. April 28, 1978, attached to FERC license application.

[29] ME. REV. STAT. tit. 12, § 2201 (1965).

[30] Letter from Maynard R. Marsh, Commissioner of Inland Fisheries and Wildlife, to Maine Hydro-Electric Development Corporation (May 18, 1978).

[31] FERC LICENSE APPLICATION, Project #2804, Exhibit S page 2.

Construction of fishladders is a major expense that can make an otherwise viable project economically unsound. In view of this, it is clearly to MHDC's advantage to select a site with a barrier, natural or otherwise, that would prevent the need for a fishladder.

3. Regulation by the Soil and Water Conservation Commission

The pertinent statute administered by the Commission, the Neglected Dams Act,[32] comprises a portion of the water management component of Maine's regulatory system. In this area, perhaps more than any other, the interface of the water management system and the energy regulatory system is less than complete due to a major statutory exemption.

The Commission may regulate the water levels on bodies of water impounded by dams. However, the Commission has no jurisdiction over the water management activities of dams operated for a beneficial use. Beneficial operations include the generation of electricity.[33] The significance of exemption from lake level regulation is compounded because no other state agency has the authority to regulate lake levels. Hence, it should come as no surprise that the major environmental objections to MHDC's project have concerned lake level fluctuation.[34]

Thus, regulation of the project by the Commission is confined to two relatively minor provisions of the Act. First, the Corporation must submit an annual registration form to the Commission on or before

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[32] ME. REV. STAT. tit. 12, § 301 et seq. (Cum. Supp. 1978-1979).

[33] Id. § 304.

[34] See the section of this study on Environmental Issues for a detailed discussion of the problem.

January 1st. This requirement has been met by the Corporation.[35] The second requirement is that the Commission be given 90 days notice when a beneficial use is to be discontinued. Obviously the Corporation is not presently constrained by this requirement.

4. Regulation by the Courts: Water Law

Maine water law as it concerns the Goose River Project is primarily derived from two sources. These sources are the common law and the Mill Dam Act.[36]

Purusant to common law, the Maine Hydro-Electric Corporation as leasee from the Sherman Co., does not have an exclusvie prossessory interest in the water that flows through or is impounded by the project's dams. Their rights in the water are circumscribed by the riparian law doctrine of reasonable use.[37] This rule of law gives to every landowner whose estate includes an interest in the streambed, a right to make a reasonable use of the water as it flows past the riparian land, taking into account a like reasonable use by all riparians above and below.[38] The reasonable use doctrine permits the damming of a watercourse.[39] Thus, the series of dams that comprise the project are a permissible use of the watercourse.

In addition, the storage of the running water by the dams must be a reasonable detention in relationship to riparians above and

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[35]Interview with Mr. Frank Ricker from Soil and Water Conservation Commission (June 15, 1979).

[36]ME. REV. STAT. tit. 38, § 651 et seq. (1965).

[37]Kennebunk Water District v. Maine Turnpike Authority, 145 ME 35, 71 A2d 520 (1950).

[38]Id. See Bradford v. Cressey, 45 Me. 9 (1859).

[39]Blanchard v. Baker, 8 Me. 253 (1832).

below the project.[40] However, that determination only applies to the situation where the upper and lower riparians have a right to a reasonable use, i.e., their riparian estate touches the watercourse and includes an estate in the pond or streambed. Such an estate will also contain water rights.

Through a process of deed consolidation, which began in the 1880's, the water rights pertinent to the project have vested in a single owner, the Sherman Company.[41] Thus, upper riparians to the project have, over time, sold their water rights and hence have no right to a reasonable use. Once again, the Corporation has been prudent in selecting a site at which they could completely control the legal rights in the water.

The second source of Maine's water law is the Mill Dam Act. While the Act does not directly concern the project, it bears mentioning as it is perceived by legislators as a cause of the project's major obstacle, fluctuating lake levels.

The Act permits a developer to backflood an upper riparian's land for the creation of an impoundment area upon payment of damages. The developer, utilizing this process, does not gain title to the flowing land, it remains the property of the original owner.[42]

Thus, under the Mill Act the upper riparian retains the estate in the bed of the watercourse and also retains his riparian rights. The retained riparian rights include the upper riparian's right to

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[40] Davis v. Getchell, 50 Me. 602 (1862).

[41] FERC Application for Minor Project License, Exhibits, Project #2804.

[42] Otis Co. v. Ludlow Mfg. Co., 201 U.S. 140, 153 (1904). See In re Opinion of the Justices, 118 Me. 503 106 A 86 A (1919). (Developer gains easement upon flowing.)

a reasonable use of the watercourse. In this circumstance, the upper riparian would be protected from unreasonable fluctuations in water level.

As discussed above, the Act has not been utilized at the Goose River Project. All water rights are vested in the project and hence the owners, or their leasee MHDC, have the legal right to fluctuate the water level to the extent they wish. However, residents of the Town of Swanville and other parties claiming a right to control the lake level fluctation have failed to appreciate the import of such legal distinctions. That situation will be discussed in the environmental issues section of this study.

C. Legislative Amendments to the System

Two important pieces of legislation were recently passed by the 109th Maine Legislature. They are entitle "An Act to Facilitate the Licensing of Small Hydroelectric Generating Facilities"[43] and "An Act to Encourage Industrial Cogeneration and Small Power Production Facilities Using Renewable Sources of Energy."[44]

Due to their recent origin, neither Act has contributed to the regulatory systems affecting the Goose River Project. However, as the Acts are generally significant to hydroelectric development they merit consideration. The regulatory impact of the Acts will be demonstrated by hypothetically applying their provisions to the Goose River Project.

1. The Licensing Act

The Act provides for a single license application for small hydro-

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[43] L.D. 1472, engrossed as 1979 ME. ACTS ch. 465, hereinafter "the licensing act."

[44] L.D. 1002, engrossed as 1979 ME. ACTS ch. 421, hereinafter "small power production facilities act" or "mini-purpa."

electric facilities on existing dams to be filed with the Board of Environmental Protection. It is significant because it represents the beginning of a regulatory system unique to hydroelectric development, a system that combines the considerations of water management activities and energy activities.

Representative of this new interface is the Board's criteria for project approval. The Board must, as a minimum for approval, consider inter alia, the "total energy and capacity the facility will provide and the amount of fossil fuel generation that will or may be displaced." Additionally, during an appellate hearing to the Board, it may receive testimony on the economic effect of the proposed facility.

The above criteria are important since the Board is mandated to approve a project where the "advantages outweigh the adverse impacts over the life of the facility." The life cycle of the project appears to be the appropriate time frame for measuring advantages and adverse impacts as fossil fuel costs continue to rise and replacement fuels become scarce or undesirable, a hydro facility that would be uneconomical in its early life may be quite viable in its middle and later life phases. Thus, lifetime energy and economic factors, the more positive aspects of hydroelectric development, must be specifically weighed against the lifetime effect on environmental considerations, fish and wildlife and flow regulation.

Whether the Act will actually promote or retard hydro development in Maine is not presently known. At this point, the "advantages-adverse impacts" balancing process has yet to be implemented. Needless to say, the administration of that standard could be crucial to the future of hydroelectric generation in Maine.

However, in terms of the application of the Act to the Goose River Project, it appears that the legislature has continued to provide "built-in" statutory exemptions.

The Act states that any person initiating construction or operation of any "small hydroelectric power project" after January 1, 1980, will be subject to the Act. The "built-in" exemption exists in the manner in which the Act defines a small hydroelectric power project.

Such projects are defined as an existing dam of not more than 1.5 MW and which will be subject to permit requirements under any of the following:

1) Site Location of Development Act;
2) Wetlands Act;
3) Great Ponds Act; and,
4) Stream Alteration Act.

As described above, under the present regulatory system, the Goose River Project is not regulated by any of the above laws. Thus, the project is not a "small hydroelectric power project" and would not be subject to the licensing Act. This exemption is significant since it could provide developers with some useful alternatives. Should the Act be administered in an "anti-dam" manner, it could be avoided by the artful developer. By the same token, were the Act interpreted to favor hydroelectric development, the developer could easily submit to its jurisdiction by utilizing inter alia, the Great Ponds Act to dredge below the high water mark.

2. Small Power Production Facilities Act

This Act, patterned after the federal PURPA is potentially a significant incentive to hydroelectric development in the state. It permits a small power producer to sell electricity to any electric public utility or cooperative without prior approval by the

state PUC. However, depending upon the manner in which the federal PURPA is finally implemented, the state Act may present two areas of conflict.

The first area concerns that section of PURPA which has been said to generate a "financing flaw." PURPA requires the electric utility to offer to purchase the output of the small producer.[45] It does not however, mandate the point in time at which the electric utility must make the offer. Specifically, must the utility offer to purchase the energy prior to the plant coming on line or must it only make the offer after the plant is capable of energy production? The answer to the question is important because the offer and ensuing acceptance will greatly enhance the ability of the private developer to obtain bank financing of the project.

The issue is compounded by the conservative nature of banks toward the legal and regulatory process. Generally, a bank will require that the developer have a contract in-hand before it will consider financing the project. Of primary concern to a bank is the uncertainty generated by the new law and regulations of PURPA. Hence, the institutions prefer an actual contract before financing rather than recourse to litigation to vindicate rights.

The state law, however, offers a possible remedy to this situation. It requires that in the event the parties are unable to agree to a contract for electricity or to a price for the electricity or to a

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[45] PURPA, title II § 210(a) (2). See generally STAFF PAPER, 44 Fed. Reg. 38863 et seq. (1979).

price for the electricity purchased the commission may require the utility to purchase the power and determine the price.[46] Thus, the state PUC has the discretionary authority to require a utility to enter into a purchase contract with the small power producer, theoretically at a sufficiently early point in the development process to facilitate project financing.

The Commission's ability to order a purchase contract may prevent a reluctant utility purchaser from indirectly killing a project by holding out to prevent its financing.

The second area in which the two laws may differ is in the pricing of the power. PURPA requires that the rate paid for the power not exceed the incremental cost to the electric utility of alternative electric energy.[47] The federal law, in limiting the price to incremental cost, does not specify at what point in time that cost is to be measured; whether it is at any given point in the contract or over the life of the contract is not clear.

The distinction is an important one. Pricing over the life of the contract permits the use of a "futures contract." Such a contract is valuable to development because it permits the producer to be paid a higher-than incremental cost-price in the early years of the project when production cost may be high due to the start up costs. A lower than incremental cost price may then be paid in the later years when the project need only cover operating and maintenance expenses. The average of the price paid over the

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[46] ME. REV. STAT. tit. 35, § 2326 (1979).

[47] § 210(b)(c).

whole contract will result in the incremental cost price.

Limitation of the price to any point of the contracts existence prohibits a "futures contract" and thus may leave the developer short of capital in the early phases of the project. That capital shortage coupled with an inability to acquire bank financing may effectively kill a project.

The Maine Law offers a remedy to the situation. It states that the rates paid by the utility for the power shall not exceed, over the term of the purhcase power contract, the alternative cost of energy to the utility.

The above language appears to express the intent that the price paid over the life of the contract must average not more than the incremental cost of alternative power. Hence, the state law will permit the use of the "futures contract" concept and in so doing aids the financial and developmental cost problems of small scale hydroelectric projects.

At present, Maine Hydro-Electric Corporation has not been directly affected by Maine's "mini-purpa." The Corporation has two contracts which predate the Act; one at the Mill Dam site on Goose River for 22 mills per KWH, and one at the Barkers Mills site on the Little Androscoggen River for 36 mills per KWH.[48]

However, in contract negotiations for power sales from Goose River, the Corporation may take advantage of the state law to aid in bank financing.

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[48] Compare Rates for Sale of Power by Limited Electrical Energy Producers, N.H. PUC Order No. 13,589. The implementation of New Hampshire's "mini-purpa" requires that the producer receive 40-45 mills per KWH.

D. Proposed Legislative Amendments

In addition to the hydroelectric legislation enacted during the last session, a number of other bills, regulating or affecting hydro projects in some manner, were proposed, but not enacted. This section will briefly discuss these proposals and their potential effect on hydro development in Maine.

1. Taxation

The last legislative session produced a number of tax bills which if passed, would have stimulated hydroelectric development. One bill called for the exemption of used machinery from the state sales tax.[49] Renovation costs of an existing dam could be lowered by such an exemption, particularly where used turbines would be purchased. Another bill would have eliminated the sales tax on fuel used to generate electricity and the sales tax on the sale of that electricity.[50] A final bill would seek to encourage hydroelectric development by the use of three tax devices.[51] First, it would provide for complete property tax relief for small hydroelectric power facilities for five years. It would have also provided a one-time investment tax credit to any taxpayer who invested in a hydroelectric project. The credit would have been 20% of the taxpayers liability to the state for the year in which the investment is made, not to exceed $1,000. The final form of the bill included a sales tax exemption for new equipment used for the production of

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[49] L.D. 629.

[50] L.D. 453.

[51] L.D. 1072.

hydroelectric power.

2. Mill Act Amendments

As mentioned in the water law section of this sutdy, the Maine Mill Act has been the subject of considerable comment. During the recent legislative session this criticism materialized in the form of two bills to amend the law. These proposed amendments reflect a lack of understanding of water law and mill acts in Maine since they attempt to regulate fluctuating water levels in impoundments created by Mill Act flowage. Regulation of fluctuating water levels by statute is not necessary, as a riparian estate flowed by the Mill Act process retains its water rights. Thus, the riparian owners could legally object to any fluctuation of water levels by the dam owner which could be regarded as an unreasonable use of the water.[52]

One bill would give the Public Utilities Commission authority to establish water levels on impoundments controlled by hydroelectric dams.[53] Presumably this regulation would include Mill Act dams as well as dams where the owner controls all pertinent water rights. As stated above, the former need not be regulated by statute and the latter may well present constitutional problems.[54]

A second bill would amend the Mill Act by requiring that mill privileges be restricted or regulated by verdict of jury or report of the commissioners.[55] Once again, the existing law secures the

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[52] Davis v. Getchell, 50 Me. 602 (1862).

[53] L.D. 1074.

[54] See State v. Johnson, 265 A2d 711 (Me. 1970); regulatory order rendering wetland commercially valueless declared to be a taking for which just compensation must be paid.

[55] L.D. 1531.

right of riparian owners to place restrictions on the dam owner. This same bill would also regulate water levels on bodies of water classified as great ponds. Such regulation is duplicative of common law regulation and hence unnecessary.[56]

It is interesting to note that in past legislative sessions bills have been introduced to completely repeal the Mill Act.[57] Such bills highlight the intuitive political process at work in this area. The perception is that by removing the ability to flow, lake level fluctation will cease. However, this will not end lake level fluctuation as the developer still has recourse to purchasing the land. A repeal of the Mill Act will only serve to divest the abutting land owners of their right to reasonable use.

3. The Fuel Adjustment Clause

a. Statement of the Problem

Maine, like a growing number of states, permits the cost of fuel and the cost of power purchased to meet load demands to be passed on to the consumer in a monthly fuel adjustment clause.[58] Generally, this is accomplished by placing an average fuel cost in base rates. A monthly adjustment is made to reflect any increase or decrease in the average.

The Maine fuel adjustment clause is an important element in the promotion of the Goose River Project's sales to Central Maine Power.

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[56] See Fernald v. Knox, 82 Me. 48, 19 A 93 (1889); and, Smedberg v. Moxie Dam Co., 148 Me. 302, 92 A2d 606 (1952).

[57] E.g., L.D. 521 filed on February 17, 1977.

[58] ME. REV. STAT. tit. 35, § 131 (Cum. Supp. 1978 - 1979).

Theoretically, CMP's purchases of hydroelectricity from Goose River represent purchased power and hence should be susceptible to pass-through to the consumer via the fuel clause. However, at present this is not the case. The difficulty in Maine is not the fuel clause per se, but rather the manner of its construction by the state Public Utility Commission. The Commission's position, discussed below, attributes no fuel value to hydroelectricity and hence prohibits pass-through.

A failure to allow pass-through means that CMP must absorb the cost of the purchase until the time of its next rate hearing. At the rate hearing, CMP can move to have the cost of purchase included in its rate base. Because Maine law does not permit recoupment, the cost of power purchased from MHDC prior to a rate hearing cannot be recovered by CMP.

Not surprisingly, CMP is less than enthusiastic about absorbing the loss caused by the prohibited pass-through. It recently threatened to break off negotiations concerning MHDC's Barker's Mills project unless the PUC interpreted the fuel clause to permit pass-through. The Maine PUC refused that construction of the fuel clause.[59]

MHDC and CMP subsequently reached an agreement on the Barker's Mill site. However, the pass-through restriction remains an obstacle to developments like the Goose River Project. Inability to pass-through operates as an obstacle because it tends to discourage a

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[59] Re: Proposed Contract Between Maine Hydro-Electric Development Corporation and CMP, Advisory Ruling by Maine PUC (July 10, 1979).

utility's voluntary purchase of power from the small power producer, except where the initiation of plant operation can be timed to coincide with a rate hearing. The rationale which created this obstacle is the subject of the following section.

b. Analysis of the Position of the Maine PUC

The position of the PUC is based on two express rationales. This section will examine that reasoning and offer counter-arguments in favor of pass-through.

i. The "Regulatory Principle" Rationale

The Commission has stated, in reference to pass-through, that it would be abandoning its obligations to ensure just and reasonable rates if it were to permit a change in rate based only upon an increase in an isolated expense.[60] The concern of the Commission is, "that examining only the utility's increased expenses without examining changes in its cost of capital or revenues distorts its revenue requirements in a manner that can be expected to redound most typically to the advantage of the utility and to the detriment of the ratepayer.[61]

This argument is seemingly undercut by the Commission's view that the fuel adjustment clause represents an aberration of normal regulatory principles.[62] The implication is that the clause exists to permit pass-through of any increases or decreases in the isolated expense of fuel. Recognition of this implication should permit pass-through of fuel costs.

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[60] Id. at 5.

[61] Id.

[62] Id. at 6.

ii. The "Hydro-has-no-Fuel Cost" Rationale

The second rationale for denying pass-through of the cost lies in the Commission's interpretation of the clause. The clause reads:

> [A]n electric utility shall adjust its electricity charges to customers to recover increases and to credit for decreases in the cost of fuel used in generating and supplying of electricity...[63]

Cost of fuel is defined to include two components:

> [f]uel consumed in the electric utility's generating stations and the cost of power purchased, excluding capacity charges... [64]

Obviously, the energy purchased from the Goose River Project does not comprise that element of "cost of fuel" which is fuel consumed in the utilities generating stations. Thus, if hydro is to pass, it must do so under that component labled "power purchased", excluding capacity charges.

The Maine PUC concedes that CMP will be purchasing something from the corporation but disagrees with CMP as to what "something" includes. The PUC views hydro as not having a fuel value. This is consistent with prior law.[65] Thus, the PUC reasons that because hydro has no fuel value, and the contract calls for the purchase of all the output of the plant it cannot be a purchase of power; and hence must represent a purchase of capacity. Since capacity charges are expressly

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[63] ME. REV. STAT. tit. 35, § 131(3) (Cum. Supp. 1978-1979).

[64] Id. § 131(2).

[65] E.g., Re: New England Power Co., 97 PUR 3rd 41, 46 (1972); Penn. PUC v. Metropolitan Edison Co., 13 PUR 3rd 29, 85 (1956); United Ice & Coal Co. v. Penn. Power & Light Co., 89 PUR (NS) 432, 449 (1951). See also 18 C.F.R. § 35.14 (1978).

forbidden to pass through in the fuel clause,[66] the PUC reasons that no part of the contract price paid to MHDC can be recovered through the fuel clause.

The terms and express policy of PURPA provide an overlay to the Maine fuel adjustment clause that should alter the PUC's reasoning. PURPA requires that the price for sales of energy from small power producers not exceed the incremental cost of the purchasing utility.[67] Thus, the utility's cost of producing the increment of energy that the small power producers supply replaces must be calculated to determine the appropriate price of that power. This represents a notable departure from conventional cost of service rate regulation, in favor of what can most conveniently be termed a value of service approach. By directing that the mandated price of a small power producer's output must be determined by reference to the cost of producing the power it replaces, PURPA reveals a congressional intent to change the regulatory rules for renewable resource power producers. That change involves valuing the energy they produce in terms of the cost of the energy they replace. Under this approach, hydroelectric power would seem to have an energy value (or cost) equal to (or no greater than) the cost of the energy the utility would have to produce or purchase but for the existence of the output of the hydro facility. Thus, the enactment of PURPA compels a new regulatory perspective on the cost

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[66] Re: Bangor Hydro-Electric Co., 6 PUR 4th 48, 56 (1974).

[67] PURPA Title II § 210.

of energy from small power producers. Its value of service concept imputes a fuel replacement cost to hydroelectricity and hence a fuel cost equivalent. That fuel cost, like any other fuel cost, should be capable of pass-through under a "purchased power" clause.

In some instances, the cost paid for the hydroelectricity will also include a capacity charge. PURPA does not affect the law pertinent to these charges, they continue to be excluded from pass-through.

iii. The Problem of Distinguishing the Energy Component and Capacity Component

Acceptance of the PURPA value of service concept discussed above, requires an ability to separately identify and price energy value and capacity value. This is necessary because only the energy component may pass-through in a fuel clause. CMP has stated that it has this capability and utilizes it as a factor in its New England Power Exchange purchases.[68] However, the state PUC stated that it did not find such a distinction possible.[69]

The PUC position is curious, especially in light of two recent Acts of the Maine Legislature: the Licensing Act and the Small Power Production Facilities Act.[70] Both Acts utilize an energy and capacity distinction.

The Licensing Act, in its criteria for approval requires a consideration of "the total energy and capacity" the facility will pro-

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[68]Interview with Mr. Charles Monty, Senior Vice President, CMP (June 13, 1979).

[69]Interview with Steve Johnson, Staff Attorney, Maine PUC (June 13, 1979).

[70]See generally Part IV(c) of this study.

vide and the amount of fossil fuel generation that will or may be displaced."[71]

The Small Power Production Facilities Act requires that the purchase price not exceed the cost to the utility of the energy, which, but for the purchase from the small producer, the utility would generate or purchase from another source.[72] This cost determination must also include consideration of the cost of additional generating capacity which is displaced by the small producer and the reliability of the power of the small producer. Thus, the rate paid reflects a charge for the energy value and a charge for the capacity of the small producer.[73] It is significant to note that these acts express a legislative understanding that renewable resources, including hydroelectricity, have an energy value and a capacity value. Interestingly, one of these acts, the Small Power Production Facilities Act, involves regulation by the commission.

iv. Analogy to New England Power Pool Purchases

The fuel adjustment process is similar to transactions that take place in economic dispatch organizations, such as the New England Power Pool. These organizations treat the cost of energy purchased from members as

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[71] 1979 ME. ACTS ch. 465 enacting ME. REV. STAT. tit. 38, § 626 (1).

[72] 1979 ME. ACTS ch. 421 enacting ME. REV. STAT. tit. 35, § 2327 (2).

[73] Compare Rate for Sale of Power by Limited Electrical Energy producers, N.H. PUC Order No. 13.589. The order implements New Hampshire "mini-purpa" and requires that 40 mills be paid for energy value and where appropriate, 5 mills for capacity value.

fuel costs. Energy sales are credited as fuel savings. The primary component of these purchased power costs is fuel cost, but charges for operation and maintenance expenses are typically included.[74] The members of the Pool engage in these transactions to supplement their power output or to purchase energy at a rate less than "in-house" production costs.

The energy provided by a small producer is analogous to the Pool's economic exchange. PURPA requires that the price paid to the small power producer not exceed the incremental cost to the utility of the power it would produce. The implication is that the small power producer output is less expensive and hence should be utilized.

Thus, the net effect of power purchased from the small power producers is similar to the economy exchange transactions of the Pool. As stated above, the Pool members benefit from these fuel savings or in the alternative, bear the burden of their cost. Hence, the PUC should permit at least pass-through of the fuel savings equivalent of the purchased hydropower on the basis of the above rationale.

c. The Proposed Legislative Remedy

The remedy to this situation was recently sought in the form of a statutory amendment to the fuel clause. The amendment proposed that:

> [c]harges in the cost of purchased power . . . shall include capacity charges, except to the extent that these charges are included in the cost of power purchased from a small power producer . . . to the extent the commission deems just and reasonable, considering the displacement of fossil

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[74] See The New England Power Pool: Descriptions, Analysis, Implications. Executive Summary, New England Regional Commission (1976).

fuel which can be made possible by the use of renewable resources.[75]

The bill would have given the commission the discretionary authority to include capacity charges in the cost of purchased power. It is significant to note that the bill justified the inclusion by referring to the ability of renewable resources to displace fossil fuel. It is evident that the bill sought to remedy the fuel clause problem, but did not go so far as to abandon the notion that hydroelectricity does not have an energy component. However, in recognizing that hydroelectric generation does displace fossil fuel, the bill seems to compel the abandonment of that notion. Under the PURPA rationale, that displaced fossil fuel value represents the energy component of hydroelectric power.

The bill was tabled in the last days of the recent legislative session. The effect of tabling is similar to the defeat of the bill. This action appears to be a political reaction reflecting a general dislike for fuel clauses. The principal reason for this dislike is the perception that there would be no incentive for the utility to attempt to obtain an economical supply of fuel nor to increase efficiency.[76] However, such an argument, in a time of rising fossil fuel costs, ignores the liklihood that hydroelectric usage may result in a fuel cost savings to the consumer. It also ignores the fact that the not to exceed incremental cost standard insures that only

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[75] L.D. 1567, Committee Amendment "A" § 3.

[76] See Re: Southern California Edison Co., 94 PUR 3rd 252, 257-258 (1972) for an examination of the arguments in favor of and against fuel clauses.

economical (break-even or cost saving) purchases will be ordered under PURPA.

E. Observations Regarding the State System

As the above part of the study points out, the developer has avoided much of the state regulatory system by use of site selection and statutory exemptions. These techniques raise two concerns regarding hydroelectric development in Maine: first, the value of a system so easily circumvented and second, the quality of the sites that will be developed under such an approach.

One can only question the value of the justice administered by a system that is viewed by the developer as so complex as to prompt avoidance of its rules. In circumventing the system, the developer also avoids the values that such a system seeks to enforce. Implicit in that avoidance is a presumption that the developer does not consider the regulatory system to administer justice. Perhaps a more streamlined system, one specific to hydroelectric regulation is needed. Maine's new licensing act is a step in the direction of remedying this concern. However, in its drafting, it appears to continue the traits of complexity and susceptibility to circumvention.

A solution to the first concern will do much to remedy the second concern of site quality. At present, it appears that the private developer engages in a site selection process that will result in a favorable financial return as well as minimize contact with the regulatory system.

Generally, such an approach would seem wise. However, in studying its use by the private developer, one must keep in mind the differences in resources available to private developers and large corporations or public utilities. Typically, the private developer cannot bear the legal and

regulatory costs that the system may impose. Thus, site selection by the private developer may involve selection of sites which minimize regulatory impact to the detriment of quality and quantity of power production.

V. ENVIRONMENTAL IMPACT: THE LAKE LEVEL ISSUE

A. Introduction

The environmental issues raised by the Goose River project are directly related to the raising and lowering of the level of Swan Lake. In attempting to solve the issues surrounding the lake level question, Mr. Lawrence Gleeson has been caught in a Catch - 22 situation with the lakefront property owners. The people want the water level to remain more or less constant, but the residents on the north shore of the lake differ with the south shore residents as to what is an appropriate level. Frequently, Mr. Gleeson has received telephone calls during the same day complaining that the water level is too high and too low.

The problems raised by residents ranged from exposed mud along the shore to flooding with attendant property damage. Naturally, the residents become angered when the water, or lack of it, interfers with recreation, water supply, sewer systems and the resale value of lakefront property. Additional complaints include the impact of fluctuating lake levels on fish and wildlife generally, and in particular, the impact on the spawning habitat of the togue fish.

Resolution of the lake level controversy and its consequent environmental effects is compounded by the fact that, downstream, the river provides the water supply for the town of Belfast. The gates of the dam cannot be completely closed to raise the lake level because a minimum flow must be maintained for this downstream use. A final complicating factor is Gleeson's ownership of the legal right to fluctuate the level of Swan Lake.[77]

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[77] The issue of water rights is discussed in Part IV (B)(4) of this study. How a party owning all water rights can be pressed into negotiating those rights is the subject of discussion in Part II (B)(1) of this study.

The problem of lake level fluctuation has been almost exclusively responsible for delaying the development of the Goose River project. This part of the study will examine the parties to the issue and the method of dispute resolution utilized by the parties.

B. The Parties

The parties of the controversy are Maine Hydro Development Corporation, which is represented by Lawrence Gleeson, and the Town of Swanville. Mr. Gleeson has consistently indicated a willingness to compromise and accommodate the interests of the lake front owners. In November of 1978, he offered to limit his usage of the lake during the summer after the level had dropped lower than 5.0 feet from the top of the impoundment. This, he estimated, would result in a level lower than 6.5 feet from the top only once in every five years. The town selectmen did not respond to his offer. During the same month, Mr. Gleeson advertised an open house for the people of Swanville for the purpose of discussing the lake level problem. Two persons attended. In January of this year, someone attempted to firebomb the dam. Although Gleeson has stated that his biggest problem is the Byzantine thicket of governmental regulations, the hostility of the local residents to his project must be regarded as a close second.

The Town of Swanville's formal opposition to the Swanville hydro development was concentrated in a petition for intervenor status in the licensing of Gleeson's project. The petition cited environmental concerns, as well as concern over property values and recreational uses. FERC granted the requested status.

A third entity, while not a direct party to the Swan Lake controversy, bears mentioning because of its potential state-wide influence and its potential for intervention in similar situations.

The recreational users of Maine's lake have organized forty to sixty local lake associations which have loosely joined together to form a larger umbrella organization, the Congress of Lake Associations (hereinafter COLA). COLA has not taken a formal position with regard to Gleeson's project at Swanville, but generally evidences a concern for summer drawdown levels that affect summer recreational usage of Maine's lakes. The group feels that local interests could best be protected by State legislation that would establish a procedure by which a minimum summer lake level would be set. This procedure would permit local input to counteract the perceived superiority of the developer, who, it is felt, is able to hire legal and technical expertise that enables him to gain an advantage over property owners. With regard to Swanville, it should be noted that Gleeson has had no outside assistance, whereas the town has been able to hire a hydrologist and an attorney. COLA envisions legislation similar to the Neglected Dams Act that would provide a hearing through which local concerns would be considered. The group appears to be distrustful of reaching agreements via mediation or arbitration because of the perceived advantage of the developer and the property owners' corresponding unequal bargaining position. Because the lake level controversy is not confined to Swan Lake, the events at Swanville should not be viewed as an isolated occurrence. Perhaps, if Gleeson is able to reach an equitable solution with the local residents, via private agreement, support for such legislation will wane.

Thus, Gleeson has entered into a private dispute resolution process with the town for the purpose of establishing a working relationship with the local people, and to avoid any unfavorable action locally or state-wide by COLA. Additionally, Gleeson hoped to reactivate his stalled

FERC licensing process.

C. Dispute Resolution: Environmental Mediation

The process selected for resolving the lake level issue and its subsequent environmental effects is that of environmental mediation. Environmental mediation is a relatively new and innovative approach to resolving conflicts presented by the impact of various proposed developments on the environment. Its primary advantage is the avoidance of a costly resolution through the courts, with costs measured not only in dollars, but in accompanying project delays. A secondary advantage is that of reaching an amicable resolution, out of the context of the adversarial system, upon which both parties can agree. However, for a variety of reasons, mediation is not always possible. One reason is that environmentalists as persons opposing a project are often able to effecitvely stop it by the cost overruns and project delays associated with taking the developer to court. This weapon, that has nothing to do with the merits of the case, has proven to be very effective. Thus, a necessary prerequisite for the success of any mediation effort is that of good faith on the part of both parties. Thus far, both Mr. Gleeson and the town selectmen of Swanville have evidenced this necessary good faith. Swanville entered mediation with reluctance; it had obtained intervenor status in FERC's licensing process and thus was assured input without any necessity of agreeing to negotiate. Mr. Gleeson, on the other hand, likely would have fared well in the licensing procedure by virtue of his ownership of the water rights at Swan Lake. Thus, both parties seemed to recognize that the interests of all had to be accommodated, and that accommodation could possibly be achieved best by a consensual effort, such as mediation. FERC was persuaded to permit the mediation process because its own hearing procedure is potentially long and costly. Although the

results are not binding on FERC, it is a reasonably settled understanding that they will be incorporated as a license condition. An environmental mediator from a non-profit research organization was hired and the effort commenced.

Since May, four meetings have been held and a tentative agreement is awaiting signatures. Almost immediately, both parties agreed upon a summer drawdown of five feet below the top of the dam, which had been Gleeson's original offer to the town selectmen the previous November. The two remaining agreements to be reached were the winter drawdown and maximum level to be permitted in the spring. Gleeson proposed 6.5 and 1.5 feet respectively. He indicated a need for at least a five foot variation between the two levels to insure the viability of his project. Records of water levels at Swan Lake indicated an average fluctuation of 4.9 feet per year. These records also showed that the lake had frequently risen above Gleeson's proposed 1.5 foot mark. The town, however, proposed corresponding levels of 5.0 and 2.0, which permitted only a three foot variation. From these two disparate positions a tentative agreement has been reached that will permit Gleeson a winter drawdown of 7.5 and a maximum spring level of 2.5, thus providing him with the needed five foot differential. The very low spring level of 2.5 (in comparison to the two original positions of 1.5 and 2.0) appears to be the result of a town meeting held on June 14th primarily for the purpose of informing the residents of the progress of the mediation effort. Several of the twenty-five property owners who attended were extremely upset about the high level of the water then flooding their land. Little concern was expressed over the problem of low levels in the late summer. The tentative agreement maintains the initial agreement of a 5.0 foot summer drawdown, which will require Gleeson to shut down his operation

during most of each summer.

During the four meetings, the only purely environmental issue raised was the preservation of togue hatching capability. The selectmen expressed concern that a winter drawdown of 7.0 feet would have resulted in a level too low to permit optimum spawning. Mr. Gleeson expressed doubts that this was a serious concern of the town selectmen, as the fish had only recently been introduced to Swan Lake through a stocking program. Mr. Gleeson's questioning of the seriousness of the selectmen's concern seems justified, since the final agreement would permit an even lower winter drawdown of 7.5, with no mention made of the hapless togue fish.

The Director of Maine's Soil and Water Conservation Commission feels that lake level hearings (under the Neglected Dams Act) contain little environmental testimony. Rather, they are full of selfish concerns about a problem that is more socio-economic than environmental. His conclusion is supported by the events at Swan Lake. The selectmen raised environmental concerns in their original petition to intervene in Gleeson's licensing process at FERC, maintaining that "the lowering and raising of the levels of the water . . . threatens . . . fisheries and waterfowl habitats," and that Gleeson "has not provided an adequate evaluation of the impact of the proposed projects on the fish and wildlife of the area." It would appear that these were not real concerns of the town, but were included to enhance the town's chances of gaining interventor status for the purpose of protecting recreational and property values. With the exception of the previously mentioned togue fish, there was apparently no reference to wildlife, fish or water quality at either the town meeting or the mediation meetings. Of course, this does not necessarily mean that the residents of Swanville did not have environmental concerns, but it does illustrate how the FERC

licensing intervention process can be used to pursue objectives markedly different from those expressed.

The future of the project on the Goose River remains unclear. Through an innovative and good-faith effort on the part of the town selectmen and Mr. Gleeson to solve their differences, via mediation, a tentative agreement has been reached in a relatively short period of time. It presumably represents a mutually agreeable solution to the lake level controversy. Whether it will be signed, put into effect, and be workable remains to be seen, and depends, in good part, upon the continued cooperation of Gleeson and the people of Swanville.

VI. POWER MARKETING

Maine Hydroelectric Development Corporation, is expected to sell its entire output of electric energy to Central Maine Power Corporation, the utility serving the Belfast area. Several contracts and letters of agreement for the sale of energy by MHDC and CMP, are currently in force.[78]

The first contract covers the sale of energy from the generator currently operating at the Mill Dam. Energy from this site is sold at twenty-two (22) mills per KWH. A more general letter of agreement with Mr. Gleeson commits CMP to purchase all energy available from MHDC hydroelectric generators with a total capacity of up to 11 MW. CMP has agreed to pay twenty (20) mills for all energy purchased pursuant to this letter. MHDC's third contract covers the sale of the entire output of the Barker's Mills site on the Little Androscoggin River.[79] This contract was signed on July 11, 1979. The Barker's Mills site is expected to begin producing energy on a commercial basis between January and May of 1980. The contract for this 1.5 MW facility runs for twenty (20) years.

In the Barker's Mills contract, Central Maine Power agreed to purchase the plant's entire output at a price of thirty-six (36) mills per KWH, as described below. When MHDC produces between 80 and 100 percent of the estimated energy output for the month, it will be paid 36 mills for this entire output. The estimated energy output is the average of the previous five years' production.

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[78] Information in this section, except as otherwise noted, came from an interview with Mr. Lawrence Gleeson (June 15, 1979).

[79] Contract between Maine Hydroelectric Development Corporation and Central Maine Power Company (July 9, 1979).

During the first five years "9,200 megawatt hours" will be used for years in which data is unavailable. MHDC will be credited, in a continuing account, for monthly production which exceeds one-twelfth of the annual estimate. When the account exceeds one-eighth of the annual estimate, MHDC will receive payment that month for the amount in excess of the one-eighth at the stated rate. If MHDC produces less than 80% of one-twelfth of the annual estimate, it will be paid as if it produced 80% of one-twelfth of the estimate. However, in that event, the difference between the actual output and the 80% will be deducted from the MHDC account. If the account falls below one-eighth of the annual estimate, MHDC will be paid for only 80% of one-twelfth of the annual estimate regardless of how much is produced, until the account has risen above the negative one-eighth mark. At that point, payment will continue per the above terms. Continued production above or below the 100% and 80% ranges, respectively, will be corrected by the changed value in the annual estimate.

If Maine Hydro has been paid for energy not actually delivered, in excess of one-eighth of the estimated annual output, it shall then be paid for (1) the energy actually delivered less any prepaid deliveries, or, (2) eighty percent (80%) of one-twelfth of the initial estimated annual deliveries, whichever is greater.

The thirty-six (36) mill price includes two escalator provisions. Forty-four percent (44%) of the unit energy price is to be escalated using a five year rolling average of CMP's maintenance costs on its small (five MW or less) hydroelectric facilities. Fifty-six percent (56%) of the annual unit energy price is to be adjusted, based on the previous two year bond yield average of the Moody's Investor Service, Inc.[80]

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[80] This 36 mill price is estimated to rise to 37.5 mills by May 1, 1980, when the clause becomes effective.

Other contract provisions are as follows:

1. Establish procedures for energy payments in the case of mechanical failure;
2. Define a mechanism for billing;
3. Give CMP the right of first refusal to purchase the plant, when it is available for sale;
4. Require MHDC to maintain the facility;
5. Outline arbitration procedures, in case of any disputes.

The Goose River project is in an earlier stage of development than the Barker's Mills project. MHDC has neither received a FERC license for the Goose River project, nor negotiated a contract for the sale of the project's energy. Thus, no definitive statement can be made about the Goose River marketing arrangements. However, MHDC already does have an excellent working relationship with CMP. In addition, since the Goose River project is in CMP's service area, Mr. Gleeson could avoid wheeling charges by selling to CMP.

Thus, MHDC is likely to sell the entire output of its Goose River development to CMP. The terms of such a contract cannot be precisely predicted. There are, however, two guidepoints. First, CMP is paying MHDC 36 mills for the energy produced at Barker's Mills. Second, Mr. Charles Monty, CMP's Executive Vice President has outlined the method CMP uses to determine rates for small producers. CMP develops a price for a small producer by allowing that producer a rate of return on the investment. First, all annual operating costs are covered. Second, interest payments are covered and depreciation is allowed. Finally, a rate of return of twelve and one-half percent (12 1/2%) per annum is allowed on any equity investments made by the developer. If the developer contributed no equity, a fifty percent (50%) equity is imputed by CMP. This procedure of price determination is similar to the method by which CMP's retail rates are set by the Maine Public Utility Commission. It should be noted that there is a ceiling price that CMP will pay reflecting the cost of alternative production. The contract notes that the escalator clause applied to the base

price shall not exceed the composite cost of producing power at Wyman 4, a steam plant. It is reasonable to presume such a ceiling level would exist for the Goose River project, although the associated plant may be different.

As noted above, the exact price MHDC will receive for energy produced on the Goose River is not yet known. For the purposes of this case study, a 38.7 mill per KWH initial rate in 1980 has been assumed. This assumption may be quite liberal. However, having once received this rate, Mr. Gleeson is in an excellent negoitating position to ask for an equal rate at Goose River. If this rate is optimistic, returns to MHDC on this project may be somewhat less than are projected later in this study. While this contract may prove to be quite profitable for Mr. Gleeson, some quick calculations projecting the last ten years fuel price increases over twenty years, would show that a price tied directly to the fuel replacement value of the electricity would be expected to be even more profitable.[81] However, this latter form leaves uncertainties in the revenue flows to MHDC which would seriously impair the fiancing of the project. Thus, this contract sacrifices some expected return for MHDC for a risk reduction to facilitate the financing.

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[81] The wholesale price index for fuel nearly doubled between the years of 1967 and 1977 in real terms. See wholesale price indexes by stage processing and by special groupings in Table S6, Department of Labor, Bureau of Labor Statistics. This implies a yearly increase of 6.45%. However, this is not to suggest that a similar increase should be expected over the next twenty years. In the event of fuel price increases which parallel historical trends, the value of a contract linked to a fuel replacement price would exceed the value of a cost of service contract like Mr. Gleeson's.

VII. FINANCIAL ANALYSIS

A. Introduction

The financial feasibility of the Goose River project will be discussed in this section. The analysis that follows includes estimates of project capital costs, including debt service costs and projected energy sale revenues. Project financing methods are discussed, and particular tax benefits associated with the project are analyzed.

A financial analyst attempts to determine if a project is feasible. The criteria to judge feasibility are different for each type of developer. An entrepreneur must, for instance, adequately cover debt service, provide adequate returns for any partners in the project, and, receive an adequate return on time and capital invested in the project. If these returns can be assured, the project is judged feasible.

Several financial aspects of this project, are unique, either to a private developer or to Maine Hydroelectric Development Corporation.

First, capital costs per KW of capacity of development on the Goose River are very low compared to other hydro projects. Second, the project may be financed with a high proportion of debt. Third, MHDC's revenues are calculated on a cost of service basis by CMP, the probable purchaser of the entire output of this facility. Fourth, for the purposes of this discussion, it is assumed that debt for the project was borrowed, using a project financing. Finally, tax losses and credits may play a crucial role in the feasibility of both the Swanville project and in MHDC's Barker's Mills development.

Since the Goose River project has not yet been developed, not all of the information needed to analyze this project was made available by MHDC. As a result, a number of assumptions have been made in order to complete

the analysis within the allotted time frame. These assumptions are explained in footnotes accompanying the text.

B. Capital Cost

The projected capital cost for the four hundred and thirty (430) KW's of capacity to be installed on the Goose River is approximately $340,000.[82] At nearly $791 per installed KW of capacity, the capital investment in this project is extremely low. In current dollars, this installed cost per kilowatt of capacity is smaller than for any other project examined by the case study team of the Energy Law Institute.

As a private developer, with his own future and resources linked to the success of MHDC, Mr. Lawrence Gleeson has had a large incentive to reduce the costs of hydroelectric development. Hence, MHDC has been quite successful in developing methods of keeping the costs of its Maine projects relatively low. For example, Mr. Gleeson has been able to reduce project capital costs by carefully selecting his sites. Some of the Goose River sites had previously been used to generate power and therefore installation costs could be minimized. In addition, by regulating water flow at Swan Lake, the Goose River can be operated as a co-dependent system. That is, one type of turbine and generator can be installed at each of the three dam sites that are not currently producing electricity. This will enable MHDC to engage in a bulk purchase of equipment for the sites that should substantially reduce project equipment costs.

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82 Interview with Mr. Lawrence Gleeson (June 15, 1979). Unless otherwise noted, all information in this section is from that interview and Preliminary Financial Feasibility Analysis for the Goose River Project, FERC Project No. 2804, Maine Hydroelectric Development Corporation (November, 1978).

MHDC also expects to reduce its project costs through its own contribution to hydroelectric generation technology. It proposes to build the turbines for the Goose River. With the aid of an Alternative Technology Office grant, Mr. Gleeson and Mr. Joseph Sawyer, (vice president of Tibbets Industries and a Director of MHDC) are developing a small asynchronous turbine with variable pitch runners. They propose to build these turbines using a small brass foundry and other machine tools owned by Sawyer. Turbine and generator costs are estimated to be less than $300 per kilowatt. Their units will be somewhat less efficient than commercially produced ones of comparable size (eighty percent versus eighty-six percent), but their cost will be significantly lower. Even those low cost units will not be needed at the Mill Dam site, since the currently operating turbine and generator can be refurbished and is expected to continue generating.

In another cost saving effort, MHDC has significantly reduced the cash outlays and delay times normally associated with licensing a hydroelectric project. Mr. Gleeson prepared the license application and feasibility study on Goose River with little assistance from consulting lawyers or engineers. As of June 1979, he had spent less than $200 in lawyers fees for Goose River licensing. In addition, MHDC applied for one license for the entire Goose River system, thus avoiding duplicative costs for preparing permits and licenses. MHDC's success in reducing the time delays involved in licensing is primarily attributable to the excellent relationships Mr. Gleeson has developed with state and federal regulators.

After obtaining a license, Mr. Gleeson intends to proceed quickly with construction. At his Barkers Mill's development, Gleeson expects to be selling energy to Central Maine Power within one year of licensing.

A good portion of MHDC's out-of-pocket cost reduction success at Goose

River has resulted from the large amount of uncompensated time Gleeson has contributed to the project. However, Mr. Gleeson's time does have a value, probably a fairly large value. Thus, to correctly analyze the project, some value must be imputed to Mr. Gleeson's time, with the assumption that he expects a reasonable return on that investment. Nevertheless, MHDC project development costs remain relatively low, even when a reasonable value is imputed to Gleeson's time investments.

C. Project Life

Before the debt service on Mr. Gleeson's investment in Goose River can be estimated, a project life must be defined. For the purposes of this analysis, the physical life of a project is the expected physical life of the plant or the term of leases or licenses on the project. The physical life of Goose River is expected to be forty years.

The useful life of a project is the period over which electricity from it will likely be sold. For the purposes of this analysis, a forty year useful life is used.

The term of any debt financing of a project is its debt life. After discussions with several bankers, the debt life used for Goose River has been set at fifteen years.[83] Finally, the financial life of a project is the period over which financial feasibility is analyzed. In this study, a financial life of ten years is used.

D. Financing and Debt Service

It is not known exactly how MHDC will finance the Goose River project.

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[83] Interview with Mr. Stephen Scheidel, Vice President, Canal Bank (July 13, 1979) and with Gorver Castle, Vice President, Chemical Bank (July 4, 1979).

MHDC is known to have very little internal equity capital. This should present few problems since at least three other methods of financing the project are available. First, venture capital could be brought in through the sale of shares in MHDC. Second, individuals could invest as limited partners in the Goose River project for expected profits and potential tax benefits. Finally, a bank might finance Goose River through a project financing. For the purposes of the analysis below, it is assumed that all financing is in the form of project financing from a regional bank.[84] Discussions with local and regional loan officers have confirmed that MHDC could obtain bank financing for Goose River. The basic terms of this financing are outlined below:

Term: Fifteen (15) years
Interest Rate: Thirteen percent (13%)
Type: Mortgage
Total Cost: $333,000
Amount Borrowed: $300,000
Annual Payment: $45,548

Gleeson's cost of debt as a private developer, using this type of financing, would be higher than that incurred by other types of developers. His thirteen percent (13%) interest rate is higher and his fifteen year loan term is shorter than the terms other types of developers have obtained through a variety of other methods. Below is a chart of the rates and terms other developers may obtain.[85]

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84 Id.

85 From research on other case studies completed by the Energy Law Institute.

Developer	Rate	Term
Municipal	7%	25 years
Utility	7 to 10%	30 years
Cooperative	9%	35 years
State	5.5%	30 years

E. Operating Expenses

Operating expenses for Goose River include: labor costs, equipment maintenance costs, real property tax payments, insurance costs, and administrative overhead. For Goose River, these are estimated to run about $7/MWH + $12,000 or a total of $31,000 in the first year.

Unlike debt service, operating expenses are expected to escalate over time. For the ten year financial life used in this case study, an eight percent (8%) annual increase in operating expenses is assumed. However, the portion of revenues committed to operating expenses for Goose River, as well as for other hydroelectric facilities, is quite small, Thus, unlike fossil fuel generation, the total costs of the output from the Goose River sites will not increase substantially over time.

F. Revenues

Projected revenues for the Goose River development were estimated after discussions with Central Maine Power Corporation.[86] Generally, CMP will voluntarily buy from a hydroelectric site if it can negotiate a fair price for the energy from the facility. CMP regards a fair price as one that provides a twelve and one-half percent (12 1/2%) after tax rate of return on a developer's equity.[87] If the developer's equity contributions

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86 Interview with Mr. Charles Monty, Executive Vice President, CMP (July 13, 1979).

87 This is the rate of return allowed CMP by the Maine Public Utilities Commission.

are quite small, CMP will impute a fifty percent (50%) equity investment. However, CMP will not pay any more than can be considered fair to CMP's customers. The maximum now paid for firm energy is 36 mills per kilowatt hours.

To develop a revenue figure for the Goose River sites, a $340,000 investment, fifty percent (50%) debt financing at thirteen percent (13%) interest per year is assumed. CMP would allow a twelve and one-half percent (12 1/2%) return on the fifty percent equity portion. First, operating expenses are estimated as described above. Second forty year straight line depreciation is used to reduce the book value of the plant on which return is earned. Amortization is assumed to equal depreciation. Finally, a return on capital adequate to cover interest expenses on the fifty percent debt portion and to result in an <u>after tax</u> return on twelve and one-half percent (12 1/2%) is calculated. The above are summed to result in an annual payment for energy production: a price in mills per kilowatt hour of energy production is developed. The price at Goose River would be 38.9 mills as shown on the chart that follows. The chart includes estimates for: operating expenses, depreciation, and, return on capital. These are summed to equal first year revenues. When the required revenues are divided by the estimated annual energy output, the estimated sale price is found. This rate, (38.9 mills/KWH), is then paid for all energy produced at the site.

For the purposes of this analysis, revenues are assumed to escalate at 3.52% per year to cover the annual increases in the operating expenses described above.

It is important to note that mandatory lake level regulation on Swan Lake may result in reduced output from the Goose River project. If output

is only somewhat restricted, the price CMP pays to MHDC for energy will rise. If greatly restricted, the project becomes infeasible. This output restriction is a real cost of regulation.

G. Taxes and Depreciation

Maine Hydroelectric Development Corporation (MHDC) is a subchapter S corporation. All profit losses and tax credits are passed through to the individual owners. Thus, any income on the project is taxed at individual ratios, rather than corporate rates.

In order to determine the taxes to be paid on this facility, net profits from its operation must be eliminated. In order to estimate profits, a depreciation schedule must be developed. After experimenting with two depreciation methods, it was found that the sum of the year's digits method results in the largest depreciation deductions in the early years. Since depreciation expenses reduce profits, but do not reduce cash flows, early year taxes can be reduced by choosing the method which results in the largest depreciation. Of course, the depreciation available for later years will be proportionately reduced, and hence later year taxes will be larger than if the straight line method had been elected. These later year disadvantages are more than offset by the early recovery of project expenses and contribution to early positive cash flow under the sum of the year's approach.

Assuming a forty year useful life, depreciation expenses using the sum of the year's digits method are nearly twice those that could be charged using straight line depreciation. Assuming a 50% personal tax bracket, Mr. Gleeson would reduce taxes by over $8,000 in the first year by using the sum of the year's digits method.

In addition, Mr. Gleeson will receive an investment tax credit of $32,200 for the development of Goose River. Accelerated depreciation and the investment tax credit both result in larger initial cash flows to MHDC. (This financial analysis is summarized in the chart on the following page.) Each is crucial to the feasibility of this project.

H. Financing

Although briefly discussed before, the financing of this project has not yet been completely addressed. In particular, the requirements for bank financing of the project have not been previously treated. These requirements are discussed below.

Normally, a bank requires a minimum of 50% equity financing in the corporation developing the project. A debt to equity ratio of one to two is preferred. MHDC, however, has little equity. In addition, any loan to MHDC will be repaid with the revenues from a very small number of projects. Thus, any loans for Goose River can be considered project financing. The repayment of the loan will be dependent on the success of the project, not of the larger corporation. A banker must look very closely at the projected revenues and expenses for the project. He/she must be doubly assured that any stream of revenue will cover debt service over the life of any loan. To assure continued debt payments, a bank normally requires that a proposed project have a coverage ratio of at least two. That is, revenues available for debt service must be at least twice debt service payments.

However, if receipt of revenues is quite certain, some of these requirements may be waived. If the following requirements are met, small equity involvement and lesser coverage ratios would be acceptable:

GOOSE RIVER RATE OF RETURN ANALYSIS[88]

Annual Operating Costs	Depreciation[89]	Return on Capital[90]	Total
$31,000	$ 8,500	$64,450	$104,500

Saleprice = 38.9 mills/KWH

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88 Fifty percent (50%) debt, fifty percent (50%) equity. Recovery of full debt cost at thirteen percent (13%) per year.

89 Straight line, 40 year, on $340,000.

90 Assuming a fifty percent (50%) tax rate on the fifty percent (50%) equity portion, and the returns described in footnote 88 above. $1,925 of original depreciated cost per annum.

GOOSE RIVER FINANCIAL FEASIBILITY: SUMMARY

PRO FORMA

Year	91 Revenues (+)	92 Operating Expenses (-)	93 Interest (-)	94 Depreciation (-)	95 Before Tax Profit (=)	96 Taxes (-)	97 After Tax Profit (=)
1981	104,950	31,000	38,580	16,585	18,785	-	18,785
1982	108,644	33,480	37,602	16,171	21,391	-	21,391
1983	112,469	36,158	36,501	15,756	24,054	115	23,939
1984	116,427	39,051	35,244	15,341	26,791	13,396	13,395
1985	120,526	42,175	33,816	14,927	29,608	14,804	14,804
1986	124,768	45,549	32,199	14,512	32,508	16,254	16,254
1987	129,160	49,193	30,336	14,098	35,533	17,767	17,766
1988	133,706	53,128	28,218	13,683	38,677	19,339	19,338
1989	138,413	57,379	25,827	13,268	41,939	20,970	20,969
1990	143,285	61,969	23,091	12,854	45,371	22,686	22,685
	91 Revenues = $(104,950)^x$ (1.0352^n)	92 ($7/MWH) (2,700 MWH) + (.035) ($340,000) (1.08^n)	93 Interest = interest portion of a 15 year, 13% mortgage	94 Depreciation - Sum of the Years Digits Method on $340,000 original investment. Over 40 years	95 Revenues minus operating expenses minus interest minus depreciation	96 Before tax profit (.5) - investment tax credit	97 Before tax profit minus taxes

GOOSE RIVER FINANCIAL FEASIBILITY: SUMMARY (Continued)

CASH FLOW ANALYSIS

98 Cash Flow Before Debt Service	99 Debt Service Coverage	100 Coverage	101 Cash Flow After Debt Service
73,950	45,548	1.62	28,402
75,164	45,548	1.65	29,616
79,196	45,548	1.74	33,648
63,980	45,548	1.40	18,432
63,547	45,548	1.40	17,999
62,965	45,548	1.38	17,417
62,200	45,548	1.37	16,652
61,239	45,548	1.34	15,691
60,064	45,548	1.32	14,516
58,630	45,548	1.29	13,082
98 Interest plus Depreciation plus after tax profit	99 equals annual payment on a $300,000, 15 year mortgage	100 Cash flow before debt service, debt service coverage	101 Cash flow before debt service minus debt service coverage

1. A license to produce energy at the site;
2. An energy sale contract that provides for minimum revenue payments regardless of output;
3. A fixed-price turn key construction contract;
4. Water rights to the site over the license period;
5. U.S.G.S. historical stream flow data;
6. A performance contract on turbine and generator equipment; and,
7. Low probability of regulatory intervention.

If these requirements can be met, a bank would be willing to finance a very large percentage of any facility, even given a low coverage ratio.

Mr. Gleeson should be able to meet most of these requirements at Goose River. A performance guarantee, however, is unlikely to be obtained if newly designed equipment is used. This would probably not preclude the possibility of bank financing for Goose River.

Mr. Gleeson has at least one other method of obtaining financing. MHDC could obtain limited partners to develop the project.

A limited partner is usually a high income individual with a relatively high (50 to 70 percent) marginal tax bracket. This person can use tax losses and investment tax credits from a limited partnership to shelter income that would otherwise be taxed. Thus, tax losses have a real value to a high tax bracket person. In addition, she/he would expect real cash returns on the project in later years. Investments in such projects are not without risk. The entire investment is at risk. In addition, if the venture fails, and the limited partner writes off her/his investment, the IRS may re-evaluate any income sheltered and require taxes to be paid on this income.

Under Maine law, limited partnerships may undertake any legal business.[102]

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102 ME. REV. STAT. tit. 31, § 153 (1965).

The limited partner's maximum liability for partnership losses is the original equity investment.[103] Maine Hydroelectric Development Corporation could serve as a general partner and sell limited partnerships to aid in Goose River financing. To serve as a general partner for federal tax purposes, MHDC must remain truly liable for any obligations of the partnership.[104] To incur such liability, MHDC must own substantial assets outside of its general partnership. MHDC's Barker's Mill's hydroelectric development contributes such a substantial asset.

MHDC and limited partners would agree on the disbursement of project cash flows. In addition to a portion of project cash flows, MHDC would likely receive a management fee. For tax purposes, profits and losses would differ from such cash disbursements. Each partner would recognize tax profits and losses in the year reported to the Internal Revenue Service and each limited partner receives tax losses in the following proportion: capital at risk/total capitalization.

As described above, the Goose River project is expected to show a profit for tax purposes in each year of operation. Investment tax credits eliminate tax liabilities in the project's first two years. If thirty-five percent (35%) equity is invested in Goose River, each limited partner could yield a post-tax internal rate of return of up to twenty percent (20%) on the project. Such a yield would be quite attractive to investors.

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103 Id. § 157

104 B. J. DEFREN, PARTNERSHIP DESK BOOK, §§ 1100-1104 (1978). The remainder of this section follows DeFren.

MHDC could increase the equity invested in the project substantially by selling limited partnerships. The increased equity investment results in larger cash flows available to cover debt service. With increased coverage ratios, a bank would be more likely to finance the remainder of the project.

The limited partnership increases the loan's security in one additional respect. If the project fails, a portion of any accelerated depreciation taken or investment tax credit used by a limited partner, may be re-evaluated as ordinary income for tax purposes. The limited partner would pay ordinary income taxes on this amount. Thus, the limited partner may be willing to supply the partnership with additional funds to prevent it from failing.

Unlike Goose River, many projects report tax losses in the early years of generation. The tax losses result from the use of accelerated depreciation (depreciation does not result in cash payments) and from an expected increase in the future value of energy. At the same time, real positive cash flows are received by the developer.

A tax loss reported in the early years of a development may make such a project attractive to upper-income investors. These investors can profitably use tax losses and investment tax credits to reduce their reported income and taxes payable. By bringing investors into the project, the developer increases his long-term cash flow. For instance, the following project results in tax losses, but a positive cash flow. This analysis was made assuming a 50% tax rate. An iteritive process was used to find the rate of return.

Hydrovania Project

Capital Investment	$ 1,650,000
Equity	100,000
Debt	1,550,000
Annual Debt Service (15 year 13% mortgage of $1,550,000)	235,355

Hydrovania Project (continued)

First Year Operation and Maintenance	$ 95,460
First Year Depreciation	80,487
Revenues	331,200
Tax Loss	44,077
Investment Tax Credit	106,465
First Year Net Cash Flow	405

The developer can decrease the debt financing and increase equity in the project by selling limited partnerships. Limited partners receive a share of tax losses and investment tax credits. These losses and credits may reduce the reported personal income of a limited partner. If a $200,000 limited partnership in Hydrovania were sold, the following project profile would result:

Hydrovania

Investment Cost	$ 1,650,000
Equity	300,000
Debt	1,350,000
Annual Debt Service	204,969
First Year Operation and Maintenance	95,460
First Year Depreciation	80,487
Revenues	331,200
Tax Loss	18,357
Investment Tax Credit	106,465
Net Cash Flow	30,771

The limited partner would receive two-thirds of investment tax credits and 12% of tax losses. On this $200,000 investment he would receive $70,970 in investment tax credits, $2,525 in first year tax losses and some part of the first year's cash flow. An individual in a 50% tax bracket could shelter $144,465 of income in the first year of the project resulting in tax savings of $72,232. In addition, the limited partner receives some real cash flow.

The developer has sold a $200,000 equity share in the project. In return, debt financing can be more easily obtained and the developer receives

larger cash flow. While tax losses and credits may not directly benefit the developer, they can indirectly increase his return on the project.

I. Observations Regarding Economic Assessment

Maine Hydroelectric Development Corporation's major economic assessment difficulty appears to be a result of financing problems.

Generally, financing costs, particularly interest rates, for the private developer are higher than those encountered by a large corporation or public utility. The latter entities have recourse to bond markets, while the small private developer must borrow from financial institutions. Typically, the cost of this capital from banks is more costly.

The risk of the Goose River project is substantially reduced by the minimum payment provision in the marketing contract. These revenues are, however, slightly jeopardized by the use of newly designed turbines. Use of these turbines increases the risk of the project. To offset this increased risk, a bank would likely demand more equity financing in the Goose River development or business interruption insurance.

MHDC could raise this equity by selling shares in the project to limited partners. A large return would be provided to these investors, while MHDC's return from the project might be reduced. The foregone return to MHDC may be necessary to finance and complete the project.

VIII. CONCLUSIONS AND RECOMMENDATIONS

This part of the study presents recommendations for policy makers based upon the experience of MHDC at its Goose River project. These recommendations are made with two objectives in mind: to generally promote the development of small scale hydroelectric facilities, and to facilitate that development by enhancing the ability of private developers to bring such projects on line.

A. PURPA Recommendations

As discussed above, this study highlights two difficulties inherent in PURPA; the "financing flaw" and the incremental cost time frame. The following sections present proposed remedies to these problems.

1. The "Financing Flaw"

PURPA has guaranteed the small project developer a market for energy produced from a small dam. A private developer, however, needs the additional advantage of a mandate to contract at a specific point in time, since it is difficult to obtain bank financing without the security of a firm contract. While a number of corrective measures would suffice, the simplest approach would be to get the FERC to promulgate a regulation under PURPA to accomplish that end. The language of such a regulation must strike a balance between the seller's need for a contract and the purchasing public utility's need to preserve the integrity of its future planning. Specifically, the public utility should not be forced to contract with the developer at a point in time when the project's future appears uncertain. Thus, selection of the point in time at which the offer to contract must be made should seek to minimize the risk associated with any project. For example, the offer to contract could be required no later than the point at which the developer has been licensed by the FERC.

2. The Incremental Cost Time Frame

The issue here is whether project life, the project's first year of operation, or some other period should be the time frame used for purposes of determining the incremental cost price. The Federal PURPA is silent on the subject, while the Maine mini-PURPA uses project life as the measuring frame. The distinction is important because a project life time frame permits the use of a "futures contract." Such contracts are clearly an incentive to the private developer, since they enable development of projects which might not be viable in the early stages, but which may be quite viable in the long-run. The ability to acquire a futures type contract is a sufficiently important incentive to private developers to warrant a rule-making under PURPA to clearly establish that incremental cost price may be measured over the life of the project.

B. State Recommendations

At the state level, the private developer's concerns center on the licensing process, interpretation of state statutes, and the interface of the political process in developing hydroelectric power. Remedies to the political process are outside the scope of this study. The following suggestions are offered as remedies for regulatory and statutory difficulties:

1. Licensing

Maine has adopted a one-stop licensing system. The private developer particularly benefits from one-stop licensing, because the regulatory process is most difficult for this type of developer. It is the private developer who is usually the most thinly capitalized,

and the least knowledgeable about the system. A one-stop process, in directing this developer to a central agency, reduces search costs, and provides the developer with an opportunity to become familiar with the regulatory requirements.

The Maine one-stop process, however, has certain aspects which should be modified to increase its effectiveness. First, the Act's requirement to consider energy values and environmental values in the licensing decision should be implemented only with a consideration of all relevant factors. In addition to replacement of fossil fuel, these factors should include: the value of using a renewable energy source, the diminution of air pollution which would result from replacing fossil fuel generation, and the reduction in acid-rain that may occur as the operation of fossil fuel plants is proportionately decreased.

A second recommendation is that the valuation of energy and environmental factors be done with a common denominator, or at least with an upfront ordering of policy priorities. Then, unlike values could be reduced to economic terms and analyzed with cost benefit principles, or the development could be analyzed in terms of its likelihood of achieving the value ordering assigned by the policy makers.

Either approach would foster a licensing decision that was optimally consistent with the legislature's determination of the appropriate energy and environmental policy mix, and yield a process that assists a potential developer's assessment of whether to pursue a particular hydro project. The reduction in uncertainty alone should promote development.

Finally, Maine must amend its one-stop law to make it truly one-stop. All major agencies involved in hydroelectric regulation must be included. In addition, the jurisdictional trigger should not be the status of the project under other state laws, but rather the broader jurisdictional scope of an "existing dam."

2. Mill Acts

In spite of their politically volatile nature, state Mill Acts should be retained in their present form. Exposing these acts to legislative debate could lead to an undesirable amendment or repeal of what is clearly a developmental incentive.

Repeal of the Mill Act would force the developer to seek alternative methods of accomplishing land acquisition, which as discussed below, may inhibit hydro development. Generally, the developer has three such alternatives.

First, the developer may acquire a power of eminent domain from the FERC pursuant to a provision of the Federal Power Act. However, such a grant of power is rare in practice because its use presents problems for federal-state relations. The use of federal eminent domain power might also antagonize local residents and regulators.

Another alternative is for the private developer to become established as a public utility. This would permit the developer to utilize the state-granted right of eminent domain. Public utility status is not, however, an attractive alternative since it would deprive the private developer of the benefits of PURPA, as well as expose the small producer to the full regulatory compliance burdens of the state public utility regulatory system.

Finally, the private developer could negotiate for the purchase of the land. This appears to be the developer's most viable alternative, but is certainly not problem-free. In addition to shouldering the financial burden of an additional land purchase at market price, the developer must contend with those landowners who do not wish to sell their land. Without recourse to the eminent domain powers mentioned above, the developer could be faced with hold-outs who could effectively kill the project.

3. Lake Levels

Lake level fluctuation is not a problem unique to this study; it is a source of conflict whenever hydroelectricity is generated on lakes valued for other uses. For the purpose of this study, the issue involves how to resolve the problem, and the choice as to which entity should be the decision maker. A number of alternatives are available.

First, the current decision maker is the judicial system in its construction of the reasonable use doctrine. This process is sound because the doctrine it employs is a flexible one, conducive to a decision of what is reasonable on a case-by-case basis. The case-by-case analysis is appropriate because the fluctuation issue will most often be site specific. The primary drawbacks to the use of the judicial system by the private developer are its complexity and costs.

The second alternative involves statutory modification of the Neglected Dams Act to permit the regulation of lakes impounded by hydroelectric dams. The benefits of this process are: the availability of agency expertise in the setting of lake levels, the flexibility of a case-by-case hearing and determination, and the relatively low cost as compared with the judicial system. However, this system is not

desirable for two reasons.

First, the administering agency, the Soil and Water Conservation Commission, claims that its regulation of lake levels on those water bodies not impounded by hydroelectric dams presents a burden, and generates such controversy that they do not wish to have their jurisdiction increased to include even more volatile subjects. Second, parties are generally dissatisfied with the outcome of lake level hearings and some may take recourse to modes of expression of a more violent nature (e.g., the fire-bombing of Mr. Gleeson's dam). To provide a workable solution, the decision making process must be perceived as legitimate by the public and affected property owners.

This concern for the legitimacy of the process introduces the third decision making process, environmental mediation. This was the process utilized at Goose River.

Generally, a private developer favors the mediation process since it is less costly and complex than a judicial or administrative process. It has the additional benefit of decision-making by those persons most involved, and most knowledgeable on the particular subject. This may be contrasted to the judicial system, where the decision maker may have little expertise in the area of inquiry. Finally, it is more likely to yield a decision that is perceived as responsive and fair. The process takes place at the local level, and involves the selectmen and towns people; it is not the result of a legal battle waged by opposing counsel or the product of agency discretion.

Environmental mediation would seem to be the favored process. Hence, it is suggested that an informal meeting be required to determine

whether a problem can be solved by environmental mediation prior to formal intervention or court action. Only upon a negative determination, or failure of the mediation process, should the other processes be invoked.

4. The Fuel Clause

Hydroelectric power purchased from the small producer by the public utility should be susceptible to pass-through in a fuel adjustment clause. This can be accomplished by a rulemaking under PURPA stating that in those states which have fuel adjustment clauses, the cost of power purchases from small power producers, or at least a sum equal to the fuel saved by such purchases, should be passed-through. It is important to note that at its next rate hearing, the utility can move to include these fuel costs in its base rate. Thus, pass-through prior to that time allows the utility to avoid losing the amount which it would spend for the purchase of small hydropower between test years. In terms of the utility's total expenditures, and in terms of retail electric rates, this represents a small sum. Permitting the pass-through, however, substantially reduces the purchasing utility's incentives and opportunities to refuse or delay purchasing the power of the private developer and appreciably enhances the private developer's financing ability.

5. Statutory Exemptions

The developer's use of the many statutory exemptions to avoid the state regulatory process indicates that the system ignores real regulatory costs. A scheme which encourages or invites developers to avoid the regulatory system presents at least two difficulties. First, it may lead to the selection of sites primarily for their adaptability to

regulatory circumvention, rather than their suitability as power sources. Second, the fact that these sites are outside state regulatory jurisdiction may create an unfavorable political climate for small developers or a specific project.

A balance must be struck to accommodate the various competing interests involved in the development of hydroelectricity. Thus, states should examine their regulatory systems to insure that exceptions are rational, necessary, and consistent with the purposes behind the regulation. Regulatory jurisdiction should be the product of reasoned choice, not inertia or accident. To the extent that the exemptions in question are intended to promote hydro development, states can achieve a more generally applicable reduction in regulatory delay and other costs on an across-the-board basis with the use of complete one-stop licensing systems. This would seem preferable to a piecemeal system of exemptions.

C. Financial Recommendations

1. Limited Partnership

Accelerated depreciation and investment tax credits enhance the value of limited partnerships in hydroelectric developments. These tax benefits may enable a developer to sell these partnerships in a marginal feasibility or financing situation. The sale of these partnerships then makes debt financing easier and may increase the developer's return on the project.

2. Developers' Incentive

Private developers pay higher interest rates and must repay debt principal over shorter periods. Although they incur higher financing

costs, private developers have been able to successfully develop small hydroelectric projects. These entrepreneurs have found more economic sites, and have substantially reduced licensing and development costs of these sites. The profit incentive to the entrepreneur must not be underrated as a stimulus to small scale hydroelectric development.

*U.S. GOVERNMENT PRINTING OFFICE : 1980 O-311-119/136