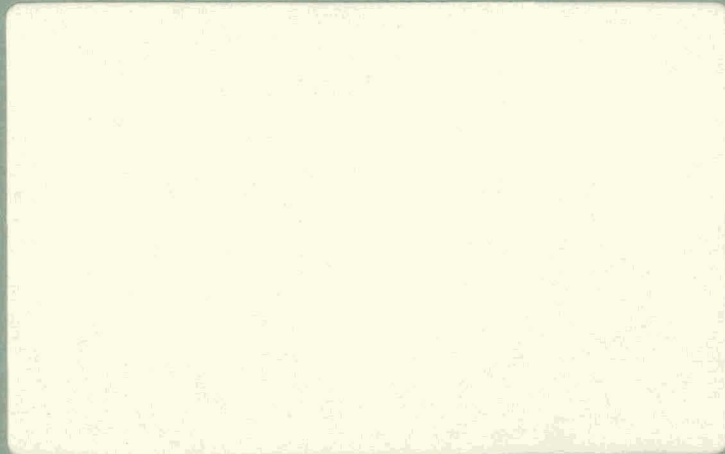


MASTER



ENERGY LAW INSTITUTE

**FRANKLIN PIERCE LAW CENTER
CONCORD, NEW HAMPSHIRE 03301**

There is no objection from the patent
point of view to the publication or
distribution of the Document(s)
referred in the letter

BROOKHAVEN PATENT GROUP

1/25 19 81 by WPC

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

DISCLAIMER

This book was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

PROGRESS REPORT

FOR THE FIRST TWENTY-ONE

MONTHS OF THE CONTRACT NUMBER

DE-AC02-78 RA04934

Formerly RA-23-216.00.0 and
ET-78-S-02-4934

PROGRESS REPORT

FOR THE FIRST TWENTY-ONE MONTHS OF THE CONTRACT PERIOD

Contract Between:

FRANKLIN PIERCE LAW CENTER

and

THE UNITED STATES DEPARTMENT OF ENERGY

CONTRACT NUMBER: RA-23-216.00.0

PROGRESS REPORT FOR THE FIRST TWENTY-ONE MONTHS OF THE CONTRACT PERIOD, CONTRACT NUMBER RA-23-216.00.0

I. INTRODUCTION

This report will describe the activities of the Energy Law Institute of Franklin Pierce Law Center pursuant to the contract with the United States Department of Energy and the Thayer School of Engineering at Dartmouth College. The Thayer School of Engineering is a subcontractor to this contract. The period covered by this report is July 1, 1978 to March 31, 1980. A summary of the proposed work of the Energy Law Institute for the remainder of the contract period will also be provided. The activities of the Energy Law Institute are divided into research and report activities, public participation and contract support activities.

II. RESEARCH AND REPORT ACTIVITIES

During the period of July 1, 1978, through March 31, 1980, the research staff assigned to the above numbered contract has performed indepth research of the legal and institutional obstacles and incentives to the development of small scale hydroelectric power in all of the nineteen northeastern states under study and the federal regulatory system. Research into economic issues associated with the development of small scale hydroelectric power has been undertaken by the project economist. Special research activities have been undertaken with respect to the federal dam safety programs, the National Pollution Discharge Elimination System requirements of the Federal Clean Water Act and the implications of those requirements to small scale hydroelectric power, riparian law on lake and reservoir fluctuation in

the State of Maine, and the implications of Title II and IV of the Public Utility Regulatory Policies Act of 1978 to the development of small scale hydroelectric power. The research has been conducted by the Senior Staff Researcher, the Project Economist, the Principal Investigator and some twenty research assistants-students who worked on the project at various times during the past twenty-one months.

A listing of the reports this research has yielded is attached as Appendix A. The principal reports of interest to the public have been, and are, the individual state reports for the nineteen northeastern states under study and the Preliminary Report of Legal Obstacles to the Development of Low Head Hydroelectric Power in the Northeastern United States; the report and Executive Summary on Federal Legal and Institutional Obstacles and Incentives to the Development of Small Scale Hydroelectric Power in the Northeastern United States and the three economic reports. As will be discussed more fully below, these reports have been used in conjunction with the public participation responsibilities of the Franklin Pierce Law Center under the contract and have been used by other DOE contractors in conjunction with their activities under DOE contract.

Members of the staff of the Energy Law Institute provided written comments and oral testimony on the Section 201 proposed regulations which were promulgated pursuant to the mandate of the Public Utility Regulatory Policies Act of 1978. Comments were also provided by the staff of the Energy Law Institute on the Section 210 proposed regulations. In both instances, the regulations, as promulgated in final form, contain several

provisions which substantially comply with the suggestions put forth in the Institute's comments.

The research staff of the Energy Law Institute has undergone extensive research in various specialized areas of small scale hydroelectric dam regulation. These special issue areas include wheeling of electric power; Federal Land Policy and Management Act; state and federal taxation of hydroelectricity; and the Federal Energy Regulatory Commission and Department of the Interior jurisdictional interface. Separate written reports have been provided for some of these special issues and the others will be addressed and discussed extensively in the final report to be submitted to the Department of Energy in June, 1980.

The Energy Law Institute has become increasingly involved in the area of taxation of small scale hydroelectric facilities and has completed a draft report on both state and federal taxation of small scale hydroelectricity. The Energy Law Institute staff has also provided technical assistance to the staff of U. S. Senator Gaylord Nelson (D., Wisc.) relating to amendments to the Internal Revenue Code designed to provide tax incentives to small scale hydroelectric developers. These amendments have been included in the Crude Oil Windfall Profits Tax Act.

The Energy Law Institute has most recently undertaken a revision of the six New England state reports which have previously been submitted to the Department of Energy. In addition, the Institute is presently working on the revision of the report dealing with the federal legal and institutional obstacles and incentives to small scale hydroelectric development. These seven reports, among the first ones completed by the

Institute, are now over a year old. This past year has seen many changes in laws and regulations that affect small scale hydro and these reports could benefit substantially by an updating.

The Energy Law Institute is presently working on a draft of the Final Report. This document, to be submitted pursuant to the DOE contract, will involve an analytic overview of the work of the Energy Law Institute during the previous two years. The essential goals of the Final Report are to: (1) describe the decision making processes that impact upon small scale hydro, (2) identify the obstacles to those decisions furthering the development of the resource, (3) analyze these obstacles and (4) recommend policy strategies that will effectively eliminate the obstacles and improve the decision making process.

Peter W. Brown, the Principal Investigator on the contract, has spent at least 50 percent of his time on the contract work during the periods September 1, 1978 to May 31, 1979 and September 1, 1979 to November 30, 1979; 32 percent of his time for the month of December, 1979; 100 percent of his time during the periods July 1, 1978 to August 31, 1978 and June 1, 1979 to August 31, 1979; and 25 percent of his time for the period January 1, 1980 to March 31, 1980. Mr. Brown will spend 25 percent of his time on contract work during the period April 1, 1980 to May 31, 1980, and will spend 75 percent of his time for the month of June, 1980, on the contract. Under the terms of the contract, Mr. Brown was to spend 100 percent of his time on contract work during the summer months (June-August) and 50 percent of his time on contract work during the academic year (September-May). Because Mr. Brown was asked to serve as Principal Investigator on a related hydroelectric studies

contract with the U.S. Army Corps of Engineers, his allotment of time on the Department of Energy contract during the academic year has been reduced from 50 percent to 25 percent and for the remaining summer month (June, 1980) from 100 percent to 75 percent. The contract manager at the Department of Energy headquarters was notified by letter in December, 1979 of this change.

III. PUBLIC PARTICIPATION ACTIVITIES

Under the contract, the Franklin Pierce Law Center and the Thayer School of Engineering have certain responsibilities to involve public participation in the research and examination of the legal and institutional issues confronting small scale hydroelectric development in the Northeastern United States. The Franklin Pierce Law Center is responsible for convening a group of advisors to its project for six meetings during the two-year contract period. The Law Center is also required to hold three regional conferences in the nineteen-state region during the contract period. The Thayer School of Engineering is responsible for convening a group of technical advisors to its project during the contract period and for assisting the Law Center in its public regional meetings.

During the first twenty-one months of the contract, the advisory committee to the Law Center project held five meetings: November 28-29, 1978; March 28-29, 1979; June 18-19, 1979; October 18-19, 1979; and March 13-14, 1980.

The first meeting was held at the New York Sheraton Hotel and agenda items included a presentation by the Thayer School of Engineering on the development of the HYDRO I computer model and a

committee discussion of its design; economic studies for small scale hydro on the problem of "monopsony" behavior, capacity credits and system reliability by the Energy Law Institute Economist; the relevance of new energy legislation (Public Utility Regulatory Policies Act of 1978) to small dams and legal and economic issues posed by this legislation by Peter W. Brown, Principal Investigator; and a presentation by Anthony Buxton, Senior Research Assistant, on legal research and analysis, state and federal regulatory burdens.

The March, 1979 advisory committee meeting was held at the Barbizon Plaza Hotel in New York City. Discussion at this meeting centered around policy options such as possible changes in the Federal Energy Regulatory Commission's jurisdiction and licensing process; possible changes in state licensing systems regarding small scale hydro development; recommendations regarding implementation of Title II and Title IV of the Public Utility Regulatory Policies Act; and recommendations regarding tax, loan and other direct subsidies to small scale hydropower. Thayer School of Engineering presented a progress report on the HYDRO I Model, along with a display and analysis of computer runs indicating the impact of policy options.

The June, 1979 advisory committee meeting was held at the Hanover Inn, Hanover, New Hampshire. Discussions at this meeting included: various ways to stimulate small scale hydroelectric development through federal, state and local incentive programs; the Presidential Rural Initiatives Program; a review and discussion of the computer model developed by the Thayer School of Engineering; a site visit to Wilder Dam and an evening discussion

of the relicensing conflict at that dam; and extensive discussion of the case studies that were being written by the Energy Law Institute.

The October 1979, meeting was also held in Hanover, New Hampshire. Substantial areas covered at this meeting included: discussion of the case studies performed by the Energy Law Institute and the executive summary of those case studies; discussion of the Energy Law Institute staff report dealing with proposed changes in the Federal taxation of hydroelectricity; general financing issues; discussion of technical assistance by the Energy Law Institute to the various state legislatures; and discussion of the ELI staff papers dealing with the proposed regulations under Sections 201 and 210 of PURPA.

The most recent small scale hydroelectric project advisory committee meeting was held at the Barbizon Plaza Hotel, New York, New York on March 13 and 14, 1980. The major area of discussion at this meeting involved the draft outline of the final report to be submitted to the Department of Energy in June, 1980. On the afternoon of the second day of the meeting the discussion focused on the final conference and an evaluation of the Energy Law Institute vis-a-vis the DOE mission.

Minutes of these meetings are available upon request, with the exception of the March, 1980 meeting. The minutes of this most recent meeting are being prepared at the present time. Attached hereto as Appendix B is a list of the Advisory Committee to the Small Scale Hydro Project of the Energy Law Institute, Franklin Pierce Law Center.

The Energy Law Institute of the Franklin Pierce Law Center has also held three large public conferences for the New England Region, the Mid-Atlantic Region and the Mid-Western Region. The New England Conference took place in Boston, Massachusetts on January 30-31, 1979. There were some one hundred and twenty participants at this conference. The Mid-Atlantic Regional Conference was held in Washington, D.C. on May 4-5, 1979, at which there were some one hundred and thirty participants. The third large conference was held for the Mid-Western Region in Detroit, Michigan, on November 14-15, 1979, with over one hundred persons attending. Extensive summaries of these three large public conferences have been prepared and printed for distribution. Attached to this report as Appendix C are the scoping papers for these regional conferences.

All advisory committee meetings and regional conferences were attended by the professional staff of the Energy Law Institute who participate in this small scale hydro project, and were moderated by Peter W. Brown, Principal Investigator.

The group of technical advisors to the Thayer School Project has met on five occasions in Boston, Massachusetts. Attached as Appendix D is the list of technical advisors to the Thayer School. Minutes are recorded for each of these meetings.

With respect to meetings of the group of advisors to the Law Center's work and the large regional public meetings, the reports described in the preceding section have been used as bases of discussion and have been disseminated to the advisory committee members and to participants at the conferences. With respect to the meetings of the group of technical advisors to the Thayer

effort, reports of the Systems Dynamics Process have been disseminated to members of that group. The Thayer School has also provided information to participants at the large public regional meetings on the Systems Dynamics Process and the model under development.

IV. SUPPORT ACTIVITIES.

Under the terms of this contract, the Energy Law Institute is required to contribute ten percent of its time on direct support activities to the Department of Energy. Accordingly, the staff of the Energy Law Institute has performed research and provided the Department of Energy with reports on the implications of the National Pollution Discharge Elimination System of the Clean Water Act for small scale hydroelectric development, as well as a report on the federal dam safety programs. The staff of the Energy Law Institute has, during the past twenty-one months, provided both individuals and organizations with legal information on potential and actual SSH projects. This information and support activity has been provided both in writing and through phone conversations. A list of representative contacts is appended to this report as Appendix E.

Members of the staff of the Energy Law Institute have appeared at various conferences sponsored by the Department of Energy and the National Conference of State Legislatures as guest speakers. Peter Brown, Director of the Energy Law Institute, spoke at a DOE sponsored conference in Portland, Oregon in July of 1979. Peter Brown and Tony Buxton, Senior Research Fellow of the Energy Law Institute, participated in the DOE-sponsored conference in Atlanta, Georgia in June of 1979. The staff of the Energy Law

Institute aided the DOE regional headquarters in establishing a commercialization program for small scale hydroelectricity in the Spring of 1979.

In January 1980, the staff of the Energy Law Institute provided the Department of Energy with a checklist of the regulatory processes in twenty-three states. The staff of the Energy Law Institute is in the process of preparing a fact sheet on Title II of the Public Utility Regulatory Policies Act of 1978 and will present this report to the DOE regional offices sometime in April, 1980.

V. ACTIVITIES OF THE THAYER SCHOOL OF ENGINEERING

Under the terms of a subcontract between the Law Center and the Thayer School of Engineering, the Thayer School of Engineering is responsible for carrying out an analysis of the legal and institutional obstacles and incentives to the development of small scale hydroelectric power in the Northeastern United States through use of a computer modeling technique known as the Systems Dynamics Process. By the end of the first year of the contract period, the Thayer School of Engineering had developed an operating Systems Dynamics Model known as "Hydro I". The staffs of the Law Center and the Thayer School have met on regular and frequent occasions to discuss the development of the model and the research of the Law Center. The Thayer School has also provided information concerning the model and the utility of the Systems Dynamics Process to the group of advisors and to public participants at various meetings conducted by the Law Center. Most recently, the Thayer group put the finishing touches on Hydro II. The result of the Hydro II model is a much improved

analytical tool. Unlike the Hydro I model, Hydro II starts from the premise of an accurate small scale hydroelectric-oriented supply curve. Hydro I used as its supply curve informed estimates based on the supply curves of other energy resources. Hydro II, on the other hand, has the advantage of the use of the extensive data developed for the New England region by the New England River Basins Commission's study on small scale hydroelectric potential in this region.

The future activities of the Thayer School of Engineering will focus on the development of various policy option runs as the Hydro II model is applied to the several issues identified by the Energy Law Institute for inclusion in the Final Report. As of this writing, it is expected that these policy runs will focus on the federal licensing process and its value as an allocation of resources (with its attendant externalities), the conflicts between energy development and environmental protection, power marketing, and public subsidies.

The final runs of the Hydro II model are expected to take place in May, 1980, in time for the Final Report. The work by the Thayer School of Engineering will be incorporated in the Final Report to DOE which will be presented in final form at the end of the current contract period.

VI. FUTURE ACTIVITIES

The future research activities of the Energy Law Institute include major revisions of the six New England state reports which were originally completed in the early stages of the contract. Significant legislative changes have taken place in many of these states since the original reports were completed, necessitating

substantial updating of the reports. The areas covered by the Federal Report on the Legal and Institutional Obstacles and Incentives to Small Scale Hydroelectric Development in the Nineteen Northeastern United States has undergone a great deal of revision in the last year and additional work will be undertaken to bring that document up to date. Of particular importance to the update of the Federal Report is the new final regulations which have been promulgated pursuant to PURPA.

Certain special issues of critical importance to small scale hydroelectric project development have been identified by DOE and the Energy Law Institute and extensive research will continue in those areas throughout the remainder of the contract period. Some of these special issues will be presented under separate cover while the remaining will be incorporated into the Final Report.

The Final Report will involve extensive analytical assessments of a number of areas of small scale hydroelectric development which have been identified as having a significant influence on the development of the resource. The Final Report will also suggest various policy recommendations designed to encourage the development of small scale hydroelectric projects at the various regulatory levels. The Final Report will incorporate, to the maximum extent possible, the methodology and results of the Hydro II model developed through the efforts of the Thayer School of Engineering's subcontract to this contract. The Hydro II model developed by Thayer will be completed by mid-May, 1980 and will be displayed at the final Small Scale Hydro Advisory Committee meeting to be held the latter part of May, 1980. This final meeting will be held for the purpose of analyzing and discussing

the substance of the Final Report and providing the Energy Law Institute and the Thayer School of Engineering with recommendations for improving the final draft.

VII. THE BUDGET

Attached as Appendix F is the total budget for the two year contract period showing line item expenditures for the first twenty-one months or 87.5 percent of the contract period. It should be pointed out that while certain line items have exceeded the budget, Total Salaries and Wages are at exactly 87.5 percent of the amount budgeted and Total Expenditures are 84 percent of the Total Budget.

Appendix A - ELI Reports

REPORTS AND PUBLICATIONS
OF THE
ENERGY LAW INSTITUTE

Rev. March 1980

Energy Law Institute
Franklin Pierce Law Center
2 White Street
Concord, New Hampshire 03301

(603) 228-1541

HYDROELECTRIC DEVELOPMENT REPORTS

State Reports:

- ELI-79-1 EXECUTIVE SUMMARY: LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN THE SIX NEW ENGLAND STATES, January 1979 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)
- ELI-79-9 EXECUTIVE SUMMARY: LEGAL OBSTACLES AND INCENTIVES TO SMALL SCALE HYDROELECTRIC DEVELOPMENT IN THE MID-ATLANTIC STATES, May 1979 (Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia)
- ELI-79-29 EXECUTIVE SUMMARY: LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POTENTIAL IN THE SEVEN MID-WESTERN STATES, August, 1979 (Illinois, Indiana, Kentucky, Michigan, Ohio, West Virginia, Wisconsin)
- ELI-79-38 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF THE SMALL SCALE HYDROELECTRIC POTENTIAL OF ALASKA, Rev. October 1979
- ELI-79-10 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN CONNECTICUT, Rev. July 1979
- ELI-79-16 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN DELAWARE, August 1979
- ELI-79-22 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN ILLINOIS, August 1979
- ELI-79-23 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN INDIANA, August 1979
- ELI-79-24 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN KENTUCKY, August 1979
- ELI-79-11 AN ANALYSIS OF LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF LOW-HEAD HYDROELECTRIC POWER IN MAINE, Rev. July 1979
- ELI-79-17 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN MARYLAND, August 1979
- ELI-79-12 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC PROJECTS IN MASSACHUSETTS, Rev. July 1979
- ELI-79-25 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN MICHIGAN, August 1979
- ELI-79-13 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN NEW HAMPSHIRE, Rev. July 1979

- ELI-79-18 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN NEW JERSEY, August 1979
- ELI-79-19 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN NEW YORK, August 1979
- ELI-79-35 LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN NORTH CAROLINA, September 1979
- ELI-79-26 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN OHIO, August 1979
- ELI-79-20 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN PENNSYLVANIA, August 1979
- ELI-79-14 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN RHODE ISLAND, Rev. July 1979
- ELI-79-15 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN VERMONT, Rev. July 1979
- ELI-79-21 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN VIRGINIA, August 1979
- ELI-79-27 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN WEST VIRGINIA, August 1979
- ELI-79-28 LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN WISCONSIN, August 1979

Federal and General Reports:

- ELI-79-6 PRELIMINARY ANALYSIS OF LEGAL OBSTACLES TO THE DEVELOPMENT OF LOW HEAD HYDROELECTRIC POWER IN THE NORTHEASTERN UNITED STATES, Rev. March 1979
- ELI-79-2 FEDERAL LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POTENTIAL OF THE NINETEEN NORTHEASTERN UNITED STATES, January 1979
- ELI-78-3 EXECUTIVE SUMMARY: FEDERAL LEGAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF SMALL SCALE HYDROELECTRIC POWER IN THE NORTHEASTERN UNITED STATES, December 1978
- ELI-78-2 DAM SAFETY, EIS INTERACTION, August 1978
- ELI-78-1 RECENT FEDERAL ACTION ON DAM SAFETY, August 1978
- ELI-79-4 LEGAL INSTITUTIONS AFFECTING LAKE LEVEL REGULATION IN MAINE, February 1979
- ELI-79-37 PROPOSALS FOR CHANGES IN THE TAXATION OF HYDROELECTRICITY, October 1979

Case Studies:

- ELI-79-30 A CASE STUDY ANALYSIS OF LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO THE POTENTIAL HYDROELECTRIC DEVELOPMENT AT HIGH FALLS STATE PARK, GEORGIA, September 1979
- ELI-79-31 A CASE STUDY ANALYSIS OF LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF THE HYDROELECTRIC POTENTIAL AT GOOSE RIVER, MAINE, September 1979
- ELI-79-32 A CASE STUDY ANALYSIS OF THE LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF THE HYDROELECTRIC POWER OF THE BOARDMAN RIVER AT TRAVERSE CITY, MICHIGAN, September 1979
- ELI-79-33 A CASE STUDY ANALYSIS OF THE LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF THE HYDROELECTRIC POWER AT THE MAXWELL LOCKS AND DAM, PENNSYLVANIA, September 1979
- ELI-79-34 A CASE STUDY ANALYSIS OF LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO THE DEVELOPMENT OF THE CORNELL HYDRO PROJECT AT CORNELL, WISCONSIN, September 1979

ECONOMIC REPORTS

- ELI-79-3 FUNDAMENTAL ECONOMIC ISSUES IN THE DEVELOPMENT OF SMALL SCALE HYDRO, January 1979
- ELI-78-4 TWO ECONOMIC PAPERS: (I) MONOPSONY AND THE SUPPLY OF POWER FROM SMALL GENERATING STATIONS; (II) A PRELIMINARY ECONOMIC ANALYSIS OF THE VALUE OF CONTRIBUTIONS BY SMALL DAMS TO SYSTEM GENERATION RELIABILITY, November 1978

PUBLIC UTILITY REGULATORY REPORTS

- ELI-79-8 REPORT TO THE NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION: RE THE IMPLICATIONS OF THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978 TO CERTAIN PROCEEDINGS BEFORE THE N. H. P.U.C., April 1979
- ELI-79-36 COMMENTS ON THE PROPOSED REGULATIONS UNDER SECTION 201 AND THE STAFF DISCUSSION PAPER ON SECTION 210 OF THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978 - FERC Docket No. RM79-54 and RM79-55, October 1979
- ELI-79-40 COMMENTS ON THE PROPOSED REGULATIONS IMPLEMENTING SECTION 210 OF THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978, FERC Docket RM79-55, December 1979
- ELI-79-41 PUBLIC TESTIMONY BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION CONCERNING THE PROPOSED REGULATIONS IMPLEMENTING SECTION 210 OF THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978, December 1979

NPDES REPORTS

- ELI-79-5* COMMENTS OF THE U. S. DEPARTMENT OF ENERGY ON THE PETITION OF THE NATIONAL WILDLIFE FEDERATION CONCERNING THE REGULATION OF HYDROELECTRIC DAMS BY THE U. S. ENVIRONMENTAL PROTECTION AGENCY PURSUANT TO THE CLEAN WATER ACT, February 1979
- ELI-79-7* MEMORANDUM OUTLINING AND DISCUSSING MAJOR LEGAL ENVIRONMENTAL AND ECONOMIC ISSUES RAISED BY THE PETITION OF THE NATIONAL WILDLIFE FEDERATION TO THE U. S. ENVIRONMENTAL PROTECTION AGENCY TO REQUIRE EFFLUENT STANDARDS FOR HYDROELECTRIC DAMS IN THE U. S., March 1979

WIND ENERGY REPORTS

- ELI-79-39 LEGAL AND INSTITUTIONAL OBSTACLES TO THE DEVELOPMENT OF LARGE SCALE WIND ENERGY CONVERSION SYSTEMS IN THE STATE OF NEW HAMPSHIRE, November 1979

CONFERENCE REPORTS

Summary of "A CONFERENCE FOR NEW ENGLAND: LEGAL AND INSTITUTIONAL OBSTACLES AND INCENTIVES TO SMALL SCALE HYDROELECTRIC DEVELOPMENT," January 30-31, 1979, Boston, Massachusetts

Summary of "SMALL SCALE HYDROPOWER IN THE MID-ATLANTIC STATES: RESOLUTION OF THE BARRIERS IMPEDING ITS DEVELOPMENT," May 4-5, 1979, Washington, D. C.

Summary of "SMALL SCALE HYDROPOWER IN THE MIDWEST: AN OLD TECHNOLOGY WHOSE TIME HAS COME," November 14-15, 1979, Detroit, Michigan

* These reports are undergoing review and accordingly are not available at this time.

Appendix B - List of Small Scale Hydroelectric
Advisory Committee Members

LISTING OF NAMES, ADDRESSES AND TELEPHONE NUMBERS

ADVISORY COMMITTEE MEMBERS

SMALL SCALE HYDROPOWER PROJECT

ENERGY LAW INSTITUTE

DOE GRANT

1. Dr. Richard Barringer
Commissioner
Department of Conservation
State House
Augusta, Maine 04330
Tel. 207-289-2212
2. Honorable Richard S. Bower
Commissioner
New York Public Service Commission
Empire State Plaza
Albany, New York 12223
Tel. 518-474-3779
3. Mr. Peter Burno
President
Wisconsin Edison Company
RL, Box 297
Edgerton, Wisconsin 53534
Tel. 608-873-8656
4. Anthony Buxton, Esquire
112 Pleasant Street
Concord, New Hampshire 03301
Tel. 603- 228-0670
5. Mr. Edmund Chapus
President
Alstom Atlantic Inc.
50 Rockefeller Plaza
New York, New York 10020
Tel. 212-751-1820
6. Mr. Norman Clapp
Apt. 407
309 Yoakum Parkway
Alexandria, Virginia 22304
Tel. 703-528-3492
7. Mr. Harley Collins
Vice President
Pennsylvania Power & Light Co.
2 North 9th Street
Allentown, Pennsylvania 18101
Tel. 215-821-4206
8. Dr. James C. Dunstan
Colgate-Darden School of Business
Administration
Box 6550
Charlottesville, Virginia 22900
Tel. 804-924-0311
9. Mr. John Ehrenfeld
Chairman
New England River Basins Commission
53 State Street
Boston, Massachusetts 02109
Tel. 617-223-6244
10. Mr. Al Garner
Lazard Freres
One Rockefeller Center
New York, New York 10020
Tel. 212-489-6600
11. Mr. Lawrence Hobart
Assistant Executive Director
American Public Power Association
2600 Virginia Avenue, N.W.
Washington, D.C. 20037
Tel. 202-333-9200
12. Mr. Jerome Katzin
Lehman Brothers Kuhn Loeb
1 William Street
New York, New York 10021
Tel. 212-558-2496

13. Honorable Frank R. Kenison
Chief Justice of the Supreme Court (Ret.)
184 Centre Street
Concord, New Hampshire 03301
Tel. 603-228-1541
14. Mr. Amory Lovins
c/o Friends of the Earth
9 Poland Street
London W1 V 3D6

also

- 124 Spear Street
San Francisco, California 94105
Tel. 415-495-4770
15. Mr. Gordon Marker
Essex Development Associates
6 Essex Street
Lawrence, Massachusetts 01840
Tel. 617-687-2312 (Lawrence)
617-536-0142 (Boston)
16. Mr. John Newsham
New England Power Service Company
New England Electric Systems
20 Turnpike Road
Westborough, Massachusetts 01581
Tel. 617-366-9011
17. Patrick A. Parenteau, Esquire
National Wildlife Federation
1412 16th Street, N.W.
Washington, D.C. 20036
Tel. 212-797-6882
18. David Sweet, Dean
College of Urban Affairs
Cleveland State University
1983 E. 24th Street
Cleveland, Ohio 44115
Tel. 216-687-2135

Rev. 12/1/79

jj

Appendix C - Conference Scoping Papers

FRANKLIN PIERCE LAW CENTER

A CONFERENCE

FOR NEW ENGLAND

LEGAL AND INSTITUTIONAL OBSTACLES

AND INCENTIVES TO SMALL SCALE

HYDROELECTRIC DEVELOPMENT

January 30 - 31, 1979

Copley Plaza Hotel

Boston, Massachusetts

A CONFERENCE
FOR NEW ENGLAND

LEGAL AND INSTITUTIONAL OBSTACLES
AND INCENTIVES TO SMALL SCALE
HYDROELECTRIC DEVELOPMENT

Purpose of Conference:

The purpose of this conference is to bring a variety of decisionmakers and interested persons together to examine and discuss certain, significant problems associated with small scale hydroelectric development in the New England Region.

The conference will not examine all of the issues and problems associated with small dams. Rather, the conference will examine the legal and institutional obstacles and incentives to small scale hydroelectric development. This emphasis is prompted by a consensus stated in earlier conferences, i.e., legal and institutional obstacles and the lack of rational incentives for development are the major impediments to small scale hydroelectric development at this time.* Secondly, the earlier conferences at the University of New Hampshire, in September of 1977 and Michigan State University in May of 1978 quite properly addressed the full range of issues from the technical to legal in order to expose participants to the myriad of concerns involving small scale hydroelectric development. The present conference will narrow the focus of participants and attempt to engage participants in in-depth discussion of legal and institutional issues. Accordingly, the conference presumes that small scale hydroelectric technology has arrived and that engineering methods and procedures are well understood and readily applied. The conference will also point out that, especially in New England, considerable, high quality work is being done on resource assessment by the New England River Basins Commission and that information is available on sites and their characteristics for interested persons in New England.

The specific objectives of the conference are:

- I. To provide information to conference participants about:
 - (a) federal and state regulatory systems directly or indirectly affecting small scale hydroelectric development in New England;
 - (b) institutional relationships affecting small scale hydroelectric development, primarily those relationships between small energy producers and integrated electric systems and state and local agencies and federal agencies such as the Federal Energy Regulatory Commission;

*See Report of Low-Head/Small Hydro-Electric Workshop, Center for Industrial and Institutional Development, University of New Hampshire, Durham, New Hampshire, September 6-9, 1977.

- (c) the systems dynamics approach to systems analysis of the Thayer School and the utility of this approach to decisionmakers;
 - (d) developments, studies and federal, state, local and private activities having a bearing on small scale hydroelectric development.
- II. To receive comments, criticisms and suggestions for additional research with respect to the Franklin Pierce - Thayer study and to assist the National Conference of State Legislatures in developing its technical assistance programs for State legislatures;
 - III. To receive information on developments and activities in small scale hydroelectric power in New England;
 - IV. To initiate discussion of policy options and the efficacy, rationality and acceptability of changes in legal and regulatory systems and institutional relationships; and,
 - V. To assist attendees in structuring and holding conferences, seminars or symposia or undertaking studies in their respective individual states on small scale hydroelectric power.

Participants:

The conference is sponsored by the United States Department of Energy in conjunction with the Franklin Pierce Law Center, Concord, New Hampshire, The National Conference of State Legislatures, Denver, Colorado, and the Thayer School of Engineering, Dartmouth College, Hanover, New Hampshire. Each institution has contractual responsibilities to DOE. These responsibilities will be explained by the introductory panel which will initiate the conference. (See Format description infra.). Persons working for each institution on their respective DOE sponsored research will act as facilitators and discussion leaders throughout the Conference. Representatives of Franklin Pierce will be Professor Peter Brown, Anthony Buxton, senior researcher and Martin Ringo, economist. Mr. Ronald Smith, principal investigator and Ms. Mary Hay, research associate will represent The National Conference. Dr. Paul Kirshen, Jeff Amlin and Glenn Berger will represent the Thayer School. Ralph Burr, Esquire, of Resource Applications of DOE and program manager for the research efforts of Franklin Pierce, The National Conference and Thayer will represent DOE.

Participation will be by invitation and invitations will be addressed to State legislators and their staffs who have expressed or evidenced an interest in energy problems in the region. State and local officials who have responsibility for energy matters or who manage programs affecting small scale hydroelectric development will also be invited. Invitations will also be sent to individual small dam developers, personnel of privately and publicly owned electric utility systems, representatives of regional agencies and other persons who have undertaken studies dealing with small scale hydroelectric development. Total participation, excluding conference facilitators, discussion leaders and sponsors is estimated at seventy (70) persons. There will be no registration fee or charge.

Format:

The conference will begin with registration from 7:00 A.M. to 9:30 A.M. January 30, 1979 and terminate on January 31, 1979 at 5:00 P.M. An introductory panel will commence formal conference proceedings. Members of the panel will be Ralph Burr, Esquire of the Department of Energy; Professor Peter Brown of Franklin Pierce Law Center; John Ehrenfeld, Chairman of the New England River Basins Commission, Mr. Ronald Smith, principal investigator for The National Conference of State Legislators and Dr. Paul Kirshen of The Thayer School of Engineering, Dartmouth College.

The panel will outline the work of the sponsors of the conference on small scale hydroelectric power, describe the materials available to conference participants and discuss the purpose and objectives of the conference. As with all activities of the conference, questions, comments, criticisms and volunteered information from participants at any point in the discussion will be strongly encouraged. Each activity is designed to be an informal, "roll up your sleeves", working session.

After lunch on the first day, participants will be divided into four (4) groups. Each group will attend four (4) workshop sessions in the afternoon of the first day and the morning of the second day. The four (4) workshops will involve discussion of the following areas:

- (a) Federal regulatory systems and small scale hydro, prospects and efforts at reform (Discussion leader, Anthony Buxton);
- (b) State and local regulatory systems, interfaces with federal systems, prospects and efforts at reform (Discussion leader, Peter Brown);
- (c) The economics of small scale hydro, relationships with electric systems, new economic analyses (Discussion leader, Martin Ringo);
- (d) Systems Dynamics and the systems dynamics model, Hydro I, a tool for analysis (Discussion leader, Dr. Paul Kirshen).

In the afternoon of the second day, January 31st, there will be a plenary session of the entire conference at which time discussion leaders will summarize workshop sessions and discussion on various new policies will be invited. The conference will end with closing remarks of Mr. Ralph Burr of DOE and Professor Brown.

Conference Material:

A variety of materials will be made available to conference participants at no charge. Certain material will be mailed to participants in advance of the conference. Other material will be available to be picked up by participants during the conference.

The material which will be mailed to participants in advance of the conference will be:

- (a) A paper describing the scope and purpose of the conference.

- (b) An agenda.
- (c) A Preliminary Report, "Legal Obstacles to Small Scale Hydroelectric Development in the Northeastern United States", Franklin Pierce Law Center, September, 1978.
- (d) Executive Summary: Report on Federal Regulatory Systems Affecting Small Scale Hydroelectric Facilities - Franklin Pierce Law Center.
- (e) Executive Summary: Report on Regulatory Systems Affecting Small Scale Hydroelectric Facilities in the Six New England States - Franklin Pierce Law Center.
- (f) An Introduction to Systems Dynamics, the Hydro I model and its utility as an analytical and decisionmaking tool - Thayer.

The following material will be made available at the conference to participants:

- (a) Project description paper. This paper will briefly describe the scope, time frame and expected results of research efforts presently underway through DOE grants and contracts, the NERBC, The Corps of Engineers and others in the field of small scale hydroelectric development. Names, addresses and telephone numbers of key people on each project will be listed.
- (b) An annotated bibliography of materials, monographs and papers published or available on all aspects of small scale hydroelectric power. Contact persons, subscription services (e.g., NTIS) and prices, where available, will be listed. This material will obviously include references to information on technology, engineering procedures and criteria, demonstration projects and other activities not exclusively concerned with legal and institutional problems.
- (c) Underlying detail memoranda for the state, federal, systems dynamics and economic reports of the Franklin Pierce Law Center - Thayer study. These memoranda will be:
 - (1) Part II of the Federal Report, the detailed analysis of federal regulatory systems, (Part I being the Executive Summary to be distributed in advance).
 - (2) The detailed legal analysis memoranda for each of the six (6) New England states.
 - (3) Three Economic papers, Basic Economic Issues of Small Scale Hydroelectric Power; Monopsony Power and Small Scale Hydroelectric Projects; and The Contribution to System Reliability of Small Scale Hydroelectric Facilities.
 - (4) Background materials on the system dynamics discipline and Hydro I, the system dynamics model.

- (d) Examples of the work of NCSL on other similar studies, e.g., the NCSL study on Geothermal Energy.

The decision to make available some of the materials at the conference is prompted by the bulk of materials to be produced and the perceived usefulness of this material to some, but not all, of the conference participants.

Each conference participant will be sent a report of the conference upon its completion. The report will summarize observations and information provided and reprint segments of particularly incisive or valuable discussion.

Conference Results:

In keeping with the objectives of the conference, the expected results of the conference are the transfer of information in manageable form on a variety of disparate activities and problems to decisionmakers and interested persons and the initiation of a continuing discussion and dialogue of ways to resolve problems affecting small scale hydroelectric power in New England.

The sponsors would expect that the following issues, among others, would be addressed, but not necessarily resolved, by conference participants.

1. What is the appropriate scope of the Federal role in regulating small scale hydro? Should there be a distinction in that role between existing small dams and new dam sites?
2. What can be done immediately to alleviate federal regulatory burdens, but at the same time accord proper recognition to the interests in the competing uses of and ecosystems created by New England's waterways?
3. What is the appropriate scope of the state role in regulating small scale hydro? What changes in that role will alleviate state regulatory burdens, but at the same time give proper recognition to other important interests? Again, should there be distinctions made between existing dams and new sites?
4. Is the present economic market for the goods produced by small scale hydroelectric facilities (e.g., peaking, cycling and base power, capacity and reliability) structured in such a way to assure production of these goods in a manner which efficiently allocates these resources? (In other words, what regulatory, institutional and economic constraints exist in the relationships between small scale hydroelectric facilities and integrated electric systems which affect small scale hydro development?)
5. Do conference participants view systems dynamics as a helpful tool in analysis and policy making? What improvements do the participants recommend in the Hydro I model? What can be done to make this tool more useful and more readily available to participants?

6. How can DOE and its contractors better disseminate current, accurate information to conference participants, public agencies and the citizenry as a whole? What information is particularly valuable to state legislators, state and local officials, and private citizens?
7. What information and research results would State legislators and their staffs find most helpful to them in addressing issues of hydroelectric power in their respective state legislatures?

Results not readily discernible will undoubtedly be obtained. For example, a number of associations will be established among individual participants. These associations will enable a person in one state to contact a counterpart in another state for information or advice. The staff of the Franklin Pierce, Thayer and National Conference projects will receive comment which, without question, will improve their work. DOE will also be able to understand more completely concerns of the states and private citizenry in an area where DOE is expending resources and effort. This understanding is all the more important because the efforts of DOE are designed to assist states and private citizens in understanding the system in which small scale hydroelectric power is to develop and overcoming and alleviating problems affecting small scale hydro development.

SMALL SCALE HYDROPOWER
FOR THE MID-ATLANTIC STATES

A RESOLUTION OF THE BARRIERS
IMPEDING ITS DEVELOPMENT

May 4-5, 1979
Washington Capitol Hilton Hotel
Washington, D. C.

SMALL SCALE HYDROPOWER
FOR THE MID-ATLANTIC STATES

RESOLUTION OF THE BARRIERS
IMPEDING ITS DEVELOPMENT

PURPOSE OF THE CONFERENCE

The purpose of this conference is to bring a variety of decision-makers and interested persons together to examine and discuss certain, significant problems associated with small scale hydroelectric development in the Mid-Atlantic Region.

The conference will not examine all of the issues and problems associated with small dams. Rather, the conference will examine the legal and institutional obstacles and incentives to small scale hydroelectric development. This emphasis is prompted by a consensus stated in earlier conferences, i.e., legal and institutional obstacles and the lack of rational incentives for development are the major impediments to small scale hydroelectric development at this time.* Secondly, the earlier conferences at the University of New Hampshire, in September of 1977 and Michigan State University in May of 1978, quite properly addressed the full range of issues from the technical to legal in order to expose participants to the myriad of concerns involving small scale hydroelectric development. The present conference will narrow the focus of participants and attempt to engage participants in in-depth discussion of legal and institutional issues. Accordingly, the conference presumes that small scale hydroelectric technology has arrived and that engineering methods and procedures are well understood and readily applied.

The specific objectives of the conference are:

- I. To provide information to conference participants about:
 - (a) Federal and state regulatory systems directly or indirectly affecting small scale hydroelectric development in the Mid-Atlantic Region;

*See Report of Low-Head/Small Hydro-Electric Workshop, Center for Industrial and Institutional Development, University of New Hampshire, Durham, New Hampshire, September 6-9, 1977.

- (b) institutional relationships affecting small scale hydroelectric development, primarily those relationships between small energy producers and integrated electric systems and state and local agencies and federal agencies such as the Federal Energy Regulatory Commission;
 - (c) the systems dynamics approach to systems analysis of the Thayer School and the utility of this approach to decisionmakers;
 - (d) developments, studies and federal, state, local and private activities having a bearing on small scale hydroelectric development.
- II. To receive comments, criticisms and suggestions for additional research with respect to the Franklin Pierce/Thayer study and to assist the National Conference of State Legislatures in developing its technical assistance programs for State legislatures;
 - III. To receive information on developments and activities in small scale hydroelectric power in the Mid-Atlantic Region;
 - IV. To initiate discussion of policy options and the efficacy, rationality and acceptability of changes in legal and regulatory systems and institutional relationships; and,
 - V. To assist attendees in structuring and holding conferences, seminars or symposia or undertaking studies in their respective individual states on small scale hydroelectric power.

PARTICIPANTS

The conference is sponsored by the United States Department of Energy in conjunction with the Franklin Pierce Law Center, Concord, New Hampshire, The National Conference of State Legislatures, Denver, Colorado, and the Thayer School of Engineering, Dartmouth College, Hanover, New Hampshire. Each institution has contractual responsibilities to the Department of Energy (DOE). These responsibilities are explained in the Project Description paper which will be available at the conference. Persons working for each institution on their respective DOE sponsored research will act as facilitators and discussion leaders throughout the Conference. Representatives of Franklin Pierce will be Professor Peter W. Brown, Anthony W. Buxton, Senior Research Fellow, and, Martin J. Ringo, Economist. Mr. Ronald Smith, Principal Investigator and Ms. Mary Hay, Research Associate will represent The National Conference. Dr. Dennis Meadows,

Dr. Paul Kirshen, Mr. Jeff Amlin, and, Mr. Glenn Berger will represent the Thayer School. Ralph Burr, Esquire, of Resource Applications of DOE and program manager for the research efforts of Franklin Pierce, the National Conference and Thayer will represent DOE.

Participation will be by invitation and invitations will be addressed to State legislators and their staffs who have expressed or evidenced an interest in energy problems in the region. State and local officials who have responsibility for energy matters or who manage programs affecting small scale hydroelectric development will also be invited. Invitations will also be sent to individual small dam developers, personnel of privately and publicly owned electric utility systems, representatives of regional agencies and other persons who have undertaken studies dealing with small scale hydroelectric development. Total participation, excluding conference facilitators, discussion leaders and sponsors is estimated at one hundred and fifty (150) persons. There will be no registration fee or charge.

FORMAT

The conference will begin with registration from 8:00 A.M. to 9:00 A.M., May 4, 1979 and terminate on May 5, 1979 at 5:00 P.M. An introductory panel will commence formal conference proceedings. Members of the panel will be Ralph Burr, Esquire of the Department of Energy; Professor Peter W. Brown of Franklin Pierce Law Center, and, Mr. Ronald Smith, Project Director for the National Conference of State Legislatures.

The panel will outline the work of the sponsors of the conference on small scale hydroelectric power, describe the materials available to conference participants and discuss the purpose and objectives of the conference. As with all activities of the conference, questions, comments, criticisms and volunteered information from participants at any point in the discussion will be strongly encouraged. Each activity is designed to be an informal, "roll up your sleeves", working session.

The panel will be followed by a luncheon and the first of two keynote addresses. After lunch, the conference participants will be divided up into five (5) groups who, for the afternoon of May 4th and the morning of May 5th, will attend workshop sessions. Each group will attend four (4) workshop sessions. Two (2) of the workshop sessions will discuss problems and policy responses to the problems raised by state and federal regulation. The remaining two (2) workshops will discuss economic issues confronting small scale hydro development and the operation and utility of the Systems Dynamics Model under development by the Thayer School. Because the economics workshops were oversubscribed at our last conference, there will be two (2) workshops on economic problems. Each group will attend one of the economics workshops in addition to the state,

federal, and systems dynamics workshops.

Following lunch and a second keynote address on May 5, 1979, there will be a plenary session summarizing workshop activities and recommendations and a final resource panel consisting of state legislators and state and federal officials who will review the work of the conference, answer questions from the floor and elicit a variety of policy recommendations from the participants. The conference will close with remarks from Peter W. Brown and Mr. Ronald Smith.

CONFERENCE MATERIAL

A variety of materials will be made available to conference participants at no charge. Certain material will be mailed to participants in advance of the conference. Other material will be available to be picked up by participants during the conference.

The material which will be mailed to participants in advance of the conference will be:

- (a) This paper describing the scope and purpose of the conference.
- (b) An agenda.
- (c) A Preliminary Report, "Legal Obstacles to Small Scale Hydroelectric Development in the Northeastern United States", Franklin Pierce Law Center, September, 1978.
- (d) An Outline of Basic Issues in Small Scale Hydropower Development.

The following material will be made available at the conference to participants:

- (a) Project Description Paper. This paper will briefly describe the scope, time frame and expected results of research efforts presently underway through DOE grants and contracts, the NERBC, the Corps of Engineers, and others in the field of small scale hydroelectric development. Names, addresses and telephone numbers of key people on each project will be listed.
- (b) An annotated bibliography of materials, monographs and papers published or available on all aspects of small scale hydroelectric power. Contact persons, subscription services (e.g., NTIS) and prices, where available, will be listed.

This material will obviously include references to information on technology, engineering procedures and criteria, demonstration projects and other activities not exclusively concerned with legal and institutional problems.

- (c) Executive Summary: Federal Obstacles and Incentives to Small Scale Hydroelectric Development.
- (d) Executive Summary: Obstacles and Incentives to Small Scale Hydroelectric Power of States in the Mid-Atlantic Region.
- (e) An Economic Paper, Basic Economic Issues of Small Scale Hydroelectric Power.
- (f) Background materials on the systems dynamics discipline and Hydro I, the Systems Dynamics Model.
- (g) Examples of the work of the National Conference of State Legislatures (NCSL) on other similar studies, e.g., the NCSL study on Geothermal Energy.
- (h) A List of Reports and Publications of the Energy Law Institute of Franklin Pierce Law Center on Small Scale Hydroelectric Power.

The decision to make available some of the materials at the conference is prompted by the bulk of materials to be produced and the perceived usefulness of this material to some, but not all, of the conference participants.

Each conference participant will be sent a report of the conference upon its completion. The report will summarize observations and information provided and reprint segments of particularly incisive or valuable discussion.

CONFERENCE RESULTS

In keeping with the objectives of the conference, the expected results of the conference are the transfer of information in manageable form on a variety of disparate activities and problems to decisionmakers and interested persons and the initiation of a continuing discussion and dialogue of ways to resolve problems affecting small scale hydroelectric power in the Mid-Atlantic Region.

The sponsors would expect that the following issues, among others, would be addressed, but not necessarily resolved, by conference participants.

1. What is the appropriate scope of the Federal role in regulating small scale hydro? Should there be a distinction in that role between existing small dams and new dam sites?
2. What can be done immediately to alleviate federal regulatory burdens, but at the same time accord proper recognition to the interests in the competing uses of and ecosystems created by the region's waterways?
3. What is the appropriate scope of the state role in regulating small scale hydro? What changes in that role will alleviate state regulatory burdens, but at the same time give proper recognition to other important interests? Again, should there be distinctions made between existing dams and new sites?
4. Is the present economic market for the goods produced by small scale hydroelectric facilities (e.g., peaking, cycling and base power, capacity and reliability) structured in such a way to assure production of these goods in a manner which efficiently allocates these resources? (In other words, what regulatory, institutional and economic constraints exist in the relationships between small scale hydroelectric facilities and integrated electric systems which affect small scale hydro development?)
5. Do conference participants view systems dynamics as a helpful tool in analysis and policy making? What improvements do the participants recommend in the Hydro I Model? What can be done to make this look more useful and more readily available to participants?
6. How can DOE and its contractors better disseminate current, accurate information to conference participants, public agencies and the citizenry as a whole? What information is particularly valuable to state legislators, state and local officials, and private citizens?
7. What information and research results would State legislators and their staffs find most helpful to them in addressing issues of hydroelectric power in their respective state legislatures?

Results not readily discernible will undoubtedly be obtained. For example, a number of associations will be established among individual participants. These associations will enable a person

in one state to contact a counterpart in another state for information or advice. The staff of the Franklin Pierce, Thayer and National Conference projects will receive comment, which, without question, will improve their work. DOE will also be able to understand more completely concerns of the states and private citizenry in an area where DOE is expanding resources and effort. This understanding is all the more important because the efforts of DOE are designed to assist states and private citizens in understanding the system in which small scale hydroelectric power is to develop and overcoming and alleviating problems affecting small scale hydro development.

PWB/dac

8/21/79

SMALL SCALE HYDROPOWER IN THE MIDWEST:

"An Old Technology Whose Time Has Come"

November 14-15, 1979

The Detroit Plaza Hotel

Detroit, Michigan

SCOPE OF CONFERENCE

SMALL SCALE HYDROPOWER

IN THE MIDWEST:

"An Old Technology

Whose Time Has Come"

Purpose of Conference:

The purpose of this conference is to bring together a variety of decision-makers and interested persons to examine and discuss certain significant problems associated with small scale hydroelectric development in the Midwestern region.

The conference will not examine all of the issues and problems associated with small dams. Rather, it will examine the legal and institutional obstacles and incentives to small scale hydroelectric development. This emphasis is prompted by a consensus stated in earlier conferences at Boston, Massachusetts, Washington, D. C., Atlanta, Georgia, and Portland, Oregon; i. e., legal and institutional obstacles and the lack of rational incentives for development are the major impediments to small scale hydroelectric development at this time.* Secondly, the conferences at the University of New Hampshire in September of 1977 and Michigan State University in May of 1978 quite properly addressed the full range of issues from the technical to legal in order to expose participants to the myriad of concerns involving small scale hydroelectric development. The present conference will narrow the focus of participants and attempt to engage participants in in-depth discussion of legal and institutional issues. Accordingly, the conference presumes that small scale hydroelectric technology has arrived and that engineering methods and procedures are well understood and readily applied.

The specific objectives of the conference are:

- I. To provide information to conference participants about:
 - (a) federal and state regulatory systems directly or indirectly affecting small scale hydroelectric development in the Midwestern region;

*See Report of Low-Head/Small Hydro-Electric Workshop, Center for Industrial and Institutional Development, University of New Hampshire, Durham, New Hampshire, September 6-9, 1977.

- 5-
- (b) institutional relationships affecting small scale hydroelectric development, primarily those relationships between small energy producers and integrated electric systems and state and local agencies and federal agencies such as the Federal Energy Regulatory Commission;
 - (c) the systems dynamics approach to systems analysis of the Thayer School and the utility of this approach to decisionmakers;
 - (d) developments, studies and federal, state, local and private activities having a bearing on small scale hydroelectric development;
- II. To receive comments, criticisms and suggestions for additional research with respect to the Franklin Pierce - Thayer study;
 - III. To receive information on developments and activities in small scale hydroelectric power in the Midwestern region;
 - IV. To initiate discussion of policy options and the efficacy, rationality and acceptability of changes in legal and regulatory systems and institutional relationships; and
 - V. To assist attendees in structuring and holding conferences, seminars or symposia, or undertaking studies in their respective individual states on small scale hydroelectric power.

Participants:

The conference is sponsored by the United States Department of Energy in conjunction with the Energy Law Institute of Franklin Pierce Law Center, Concord, New Hampshire, and the Thayer School of Engineering, Dartmouth College, Hanover, New Hampshire. Each institution's contractual responsibilities to DOE are explained in the Project Description paper which will be available at the conference. Persons who are working on their respective DOE-sponsored research from each institution will act as discussion leaders throughout the conference. Representatives of the Energy Law Institute of Franklin Pierce Law Center will be Professor Peter W. Brown, Director; Lawrence Plitch, Senior Research Fellow; Martin Ringo, Economist; and William Wilson, Research Fellow. Dr. Paul Kirshen, Research Assistant Professor, and Elizabeth Hicks, Graduate Research Assistant, will represent the Thayer School of Engineering.

Participation will be by invitation and invitations will be addressed to state and local officials who have responsibility for energy matters or who manage programs affecting small scale hydroelectric development. State legislators and their staffs who have expressed or evidenced an interest in energy problems in the region will be invited, as well as individual small dam

developers, personnel of privately and publicly owned electric utility systems, representatives of regional agencies and other persons who have undertaken studies dealing with small scale hydroelectric development. Total participation, excluding conference discussion leaders and sponsors, is estimated at one hundred fifty (150) persons. There will be no registration fee or charge.

Each activity of the conference is designed to encourage questions, comments, criticisms and volunteered information from participants at any point and will be an informal, "roll up your sleeves" working session.

Format:

The conference will begin with registration from 8:00 A.M. to 9:00 A.M. on November 14, 1979 and terminate on November 15, 1979 at 5:00 P.M. Mr. Hugh Gardner, Chief, Utility Programs, U. S. Department of Energy, Region V, Chicago, Illinois, and Professor Peter Brown of the Energy Law Institute will initiate formal conference proceedings at 9:00 A.M. with a welcome and introductions. Professor Brown will then outline the work of the sponsors of the conference on small scale hydroelectric power, describe the materials available to conference participants, and discuss the purpose and objectives of the conference.

Resource presentations will follow the introductions and continue until noon. After lunch and a keynote address by Mr. Ken Levine, Director, Office of Congressional and Public Affairs, FERC, Washington, D. C., participants will divide into four (4) groups. Each group will participate in four (4) workshop sessions which will be held in the afternoon of the first day and the morning of the second day. The workshops will involve discussion of the following areas:

- (a) Federal regulatory systems and small scale hydro, prospects and efforts at reform (discussion leader, Lawrence Plitch);
- (b) State and local regulatory systems, interfaces with federal systems, prospects and efforts at reform (discussion leader, Peter Brown);
- (c) The economics of small scale hydro, relationships with electric systems, new economic analyses (discussion leader, Martin Ringo);
- (d) Systems dynamics and the usefulness of the computer model to decision makers (discussion leader, Dr. Paul Kirshen).

Following lunch and a second keynote address by Senator John F. Kelly of Michigan's First District on November 15, there will be a plenary session to summarize workshop activities and recommendations. A panel consisting of Senator Kelly; Mr. Ronald Corso, Deputy Director, Division of Licensed Projects, FERC; Mr. Jerry Kripps, Executive Vice President-Operations, Northern States Power Company, Eau Claire, Wisconsin; Mr. Peter Burno, President of Wisconsin Edison Company, Edgerton, Wisconsin; Dr. Douglas Jones, Director, National Regulatory Research Institute, Ohio State University, Columbus, Ohio; and

The Honorable J. Leo Davis, Mayor of Carlyle, Illinois, will review the work of the conference, discuss workshop policy recommendations and answer questions from the floor.

The conference will close with remarks from Peter Brown.

Conference Materials:

A variety of materials will be made available to conference participants at no charge. Certain material will be mailed to participants in advance of the conference. Other material will be available to be picked up by participants during the conference.

The materials to be mailed to participants in advance of the conference are:

- (a) This paper describing the scope and purpose of the conference.
- (b) An agenda.
- (c) A Preliminary Report, "Legal Obstacles to Small Scale Hydroelectric Development in the Northeastern United States," Franklin Pierce Law Center, September, 1978 (Revised March 12, 1979).
- (d) An Outline of Basic Issues in Small Scale Hydropower Development.

The following material will be made available at the conference to participants:

- (a) Project description paper. This paper will briefly describe the scope, time frame and expected results of research efforts presently underway through DOE grants and contracts, the NERBC, The Corps of Engineers and others in the field of small scale hydroelectric development. Names, addresses and telephone numbers of key people on each project will be listed.
- (b) An annotated bibliography of materials, monographs and papers published or available on all aspects of small scale hydroelectric power. Contact persons, subscription services (e.g., NTIS) and prices, where available, will be listed. This material will obviously include references to information on technology, engineering procedures and criteria, demonstration projects, and other activities not exclusively concerned with legal and institutional problems.
- (c) Executive Summary: Obstacles and Incentives to Small Scale Hydroelectric Power of States in the Mid-Western Region.
- (d) An Economic Paper, Basic Economic Issues of Small Scale Hydroelectric Power.

- (e) Background materials on the systems dynamics discipline and Hydro I, the systems dynamics model.
- (f) A list of Publications and Reports on the Energy Law Institute of the Franklin Pierce Law Center on Small Scale Hydroelectric Power.

The decision to make available some of the materials at the conference is prompted by the bulk of materials to be produced and the perceived usefulness of this material to some, but not all, of the conference participants.

Each conference participant will be sent a report of the conference upon its completion. The report will summarize observations and information provided and reprint segments of particularly incisive or valuable discussion.

Conference Results:

In keeping with the objectives of the conference, the expected results of the conference are the transfer of information in manageable form on a variety of disparate activities and problems to decisionmakers and interested persons and the initiation of a continuing discussion and dialogue of ways to resolve problems affecting small scale hydroelectric power in the Midwestern Region.

The sponsors would expect that the following issues, among others, would be addressed, but not necessarily resolved, by conference participants.

1. What is the appropriate scope of the federal role in regulating small scale hydro? Should there be a distinction in that role between existing small dams and new dam sites?
2. What can be done immediately to alleviate federal regulatory burdens, but at the same time accord proper recognition to the interests in the competing uses of and ecosystems created by the region's waterways?
3. What is the appropriate scope of the state role in regulating small scale hydro? What changes in that role will alleviate state regulatory burdens, but at the same time give proper recognition to other important interests? Again, should there be distinctions made between existing dams and new sites?
4. Is the present economic market for the goods produced by small scale hydroelectric facilities (e.g., peaking, cycling and base power, capacity and reliability) structured in such a way as to assure production of these goods in a manner which efficiently allocates these resources? (In other words, what regulatory, institutional and economic constraints exist in the relationship between small scale hydroelectric facilities and integrated electric systems which affect small scale hydro development?)

5. Do conference participants view systems dynamics as a helpful tool in analysis and policy making? What improvements do the participants recommend in the Hydro I model? What can be done to make this tool more useful and more readily available to participants?
6. How can DOE and its contractors better disseminate current, accurate information to conference participants, public agencies and the citizenry as a whole? What information is particularly valuable to state legislators, state and local officials, and private citizens?
7. What information and research results would state legislators and their staffs find most helpful to them in addressing issues of hydroelectric power in their respective state legislatures?

Results not readily discernible will undoubtedly be obtained. For example, a number of associations will be established among individual participants. These associations will enable a person in one state to contact a counterpart in another state for information or advice. The staffs of the Energy Law Institute of Franklin Pierce Law Center and the Thayer School of Engineering projects will receive comment which, without question, will improve their work. DOE will also be able to understand more completely concerns of the states and private citizenry in an area where DOE is expending resources and effort. This understanding is all the more important because the efforts of DOE are designed to assist states and private citizens in understanding the system in which small scale hydroelectric power is to develop and in overcoming and alleviating problems affecting small scale hydro development.

Appendix D - List of Technical Advisors to the Thayer
School Project

MEMBERS OF THAYER SCHOOL LOW-HEAD HYDRO TECHNICAL ADVISORY COMMITTEE

Mr. Peter Brown, Esq.
Franklin Pierce Law Center
2 White Street
Concord, New Hampshire 03301
(603) 228-1541

Mr. Ralph E. Burr (Observer)
Department of Energy
12th & Pennsylvania, N.W.
Federal Bldg. (7104), Room 3344
Washington, D.C. 20461
(202) 566-7709

Mr. Robert Curran
Curran Associates, Inc.
182 Main Street
Northampton, Massachusetts 01060
(413) 584-7701

Dr. Alfred W. Eipper
U.S. Fish & Wildlife Service
One Gateway Center
Newton Corner, Massachusetts 02158
(617) 965-5100

Mr. Anthony Ferreira
NEPLAN
174 Brush Hill Avenue
West Springfield, Massachusetts 01189
(413) 785-5871

Ms. Phyllis Gardiner
Massachusetts Energy Office
73 Tremont Street, Room 700
Boston, Massachusetts 02108

Mr. Lawrence Gleeson
Box 402
Belfast, Maine 04915
(207) 338-2131

Ms. Elizabeth Hicks
Thayer School of Engineering
Dartmouth College
Hanover, New Hampshire 03755
(603) 646-3551

Paul H. Kirshen
Thayer School of Engineering
Dartmouth College
Hanover, New Hampshire 03755
(603) 646-3551

Mr. Thomas Klock
New England River Basins Commission
53 State Street
Boston, Massachusetts 02109
(617) 223-6244

Bill Knapp
U.S. Fish & Wildlife Service
One Gateway Center
Newton Corner, Massachusetts 02158
(617) 965-5100

Roger Lamson, Esquire
Box 414
North Hartland, Vermont 05052
(802) 295-3316

Mr. Curtis Mildner
New England Regional Commission
53 State Street
Boston, Massachusetts 02109
(617) 223-3750

Mr. Daniel Peaco
Thayer School of Engineering
Dartmouth College
Hanover, New Hampshire 03755
(603) 646-3551

Dr. Robert J. Taylor
Applied Physics Laboratory
John Hopkins Road
Laurel, Maryland 20810
(301) 953-7100

Mr. Michael R. Walsh
Institute for Water Resources
King Building
Ft. Belvoir, VA 22060
(703) 325-7129
(202) 325-7129

Mr. Richard Wheeler
Thayer School of Engineering
Dartmouth College
Hanover, New Hampshire 03755
(603) 646-3551

Appendix E - Sample Contacts of E.I.

A REPRESENTATIVE SAMPLE
OF CONTACTS OF THE ELI

I. DEVELOPERS

- (a) Ted Larder, Franklin, New Hampshire - Developer of two small dams, problems with marketing his power to the grid.
- (b) David Willer, Tudor Engineering, San Francisco, California - Represents California Irrigation Districts who are concerned with impact of PURPA and tax exempt status of bonds.
- (c) Larry Gleeson, Swanville Lake, Maine - A myriad of problems, chiefly concerning environmental and property law related to lake level regulation.
- (d) Al Simonson, Energy Systems Corporation, Nashua, New Hampshire - Represents Town of Peterborough, New Hampshire to perform study of possible projects in Peterborough.
- (e) Halliwell Associates, East Providence, Rhode Island - Represents Tupperware, Co.; possible rehabilitation of dam on Blackstone River, question of FERC jurisdiction.
- (f) Gary Mongeon, Strafford County Regional Planning Commission, Dover, New Hampshire - Attempting to establish an association to develop 17.5 MW of capacity on Salmon Falls River, seven (7) different dams, seven (7) different owners, complex water rights issues.
- (g) Carl Royce, Laconia, New Hampshire - His company's electric bill is \$30,000/year and they must expand their business. They are exploring relocating their business to a site in New Hampshire with potential hydropower.
- (h) Filtrine Corporation, Harrisville, New Hampshire - Filtrine owns dams suitable for rehabilitation. Complex water rights issues are involved.
- (i) Alex Grier, Anderson-Nichols, Concord, New Hampshire - Anderson-Nichols is performing a preliminary feasibility study for the City of Nashua, New Hampshire. A variety of federal tax and power marketing issues are involved.
- (j) Gaynor Bricewell, Monroe, Georgia - Mr. Bricewell owns a dam which is suitable for rehabilitation (700 KW). Issues involved are FERC minor project license and PURPA-marketing issues.

II. LEGISLATIVE CONTACTS

- (a) Michigan Senator Kelley, Detroit, Michigan - Senator Kelley is moving force behind effort to establish a Joint Committee on SSH of the Michigan legislature.

II. LEGISLATIVE CONTACTS (Continued)

- (b) New Hampshire General Court - Contact with several legislators and their aides regarding various advice on SSH legislation.
- (c) Massachusetts General Court - Contact with Representative Richard Roche, testimony on behalf of "lead agency" licensing bill and "little PURPA".
- (d) New York, Representative Maurice Henchey - Development of legislative proposals for SSH in New York.
- (e) Congressman Jeffords, United States House of Representatives, Vermont - Contact regarding FERC jurisdiction of SSH projects.

III. OTHER INSTITUTIONAL CONTACTS

- (a) Lazard Freres, New York, New York - Al Garner of Lazard is on the SSH Advisory Committee. They are a resource for financial advice and analysis.
- (b) New England Electric Systems, Westborough, Massachusetts - Mr. Robert Bigelow, Vice President, is a member of SSH advisory group and on the New England Power Pool Planning Committee - Resource on utility rates, planning, the power pool and private utility hydro development.
- (c) New England Municipal Center, Durham, New Hampshire - Technical assistance group to municipalities in New England. The Center has the contacts, needs expertise in alternative energy resource potential of New England Communities.
- (d) New Hampshire Public Utilities Commission, Concord, New Hampshire - Report to the Commission and the parties on the impact of Section 210 of PURPA in setting rates for the purchase of power from SSH projects.
- (e) American Public Power Association, Washington, D.C. - Lawrence Hobart, Assistant Executive Director is on SSH Advisory Committee. Resource for public power issues, especially interconnection and wheeling issues raised by PURPA.
- (f) See also Appendix "A", the membership list of the Advisory Committee to the SSH project of the Energy Law Institute.

Appendix F - Budget

BUDGET

	Total Two-Year Budget	Total Expenditures Through 3/31/80
1. Salaries and Wages		
A. Principal Investigator \$	66,847	\$ 53,231
B. Staff Wages	87,000	83,673
• Resource Economist		
Senior Staff Researcher		
Administrative Assistant		
C. Student Researchers	69,300	58,249
TOTAL SALARIES AND WAGES	223,147	195,193
2. Benefits	19,005	15,678
3. Material and Supplies		
Xerox	4,050	6,011
Telephone	2,400	5,700
Documents, Trade and Technical Monographs and Bulletins		
Office Supplies and Postage	6,046	8,966
4. Travel	22,900	14,086
5. Conference Costs and Advisory Committee	87,500	49,776
6. Publication Costs	4,300	9,655
7. Indirect Costs	136,120	117,028
8. Thayer Subcontract	<u>106,112</u>	<u>92,848</u>
TOTALS	\$ 611,580	\$ 514,901