NORTHWEST ENERGY POLICY PROJECT

INSTITUTIONAL CONSTRAINTS AND OPPORTUNITIES
STUDY MODULE V
Report on Tasks 4, 5, 6 & 7

FINAL REPORT
1977

Submitted to:

Northwest Energy Policy Project
1096 Lloyd Building
700 N. E. Multnomah Street
Portland, Oregon 97232

Submitted by:

Program in Public Administration
Lewis & Clark College
Portland, Oregon 97219

Donald G. Balmer
G. H. Mattersdorff
Kevin R. Kelly
Jeffrey H. Foote
Principal Investigators

DISCLAIMER

FOREWORD

This report was prepared by professional consultants under contract with the Northwest Energy Policy Project, sponsored by the Pacific Northwest Regional Commission. Neither the Project nor the Commission has approved the report, nor do they guarantee the accuracy or the completeness of the data. The statements, findings, conclusions, and recommendations contained in the report are solely those of the contractor and do not necessarily reflect the views of the Project or the Commission.

This report is the result of tax-supported research and as such is not copyrightable. It may be freely reprinted with the customary crediting of source.

This report represents a sequel to Institutional Constraints and Opportunities - Study Module V, Tasks 1-3, which was prepared by the Washington Energy Research Center, University of Washington, Seattle, Washington 98195 (William A. Brewer and Kai N. Lee, principal investigators).

Initial responsibility for the preparation was divided as follows, however, final editing was done by Professors Balmer, Mattersdorff and Kelly.

Task 4 - Donald G. Balmer and Jeffrey H. Foote

Task 5 - Guenter H. Mattersdorff and Timothy J. Flato

Task 6 - Kevin R. Kelly

Task 7 - William E. Hiatt, Jr.

TABLE OF CONTENTS

Note: For detailed Table of Contents of each Task, turn page.

TASK 4

PUBLIC PARTICIPATION

TASK 5

RATE-MAKING

TASK 6

SITING ENERGY FACILITIES

TASK 6

(continued)

TASK 7

UNCONVENTIONAL ENERGY SOURCES

EXECUTIVE SUMMARY

State governments, along with their counties, cities, public utility districts and other local units have important responsibilities in the energy field. Their institutions and policy processes offer both constraints and opportunities in the exercise of these responsibilities. The purpose of this study is to explore them in four rather different aspects: Task 4, Public Participation; Task 5, State Rate-Making; Task 6, Siting Energy Facilities; Task 7, Unconventional Energy Sources.

Public participation (Task 4) is basic to democratic systems which strive to develop policies in accord with, or at least not adverse to, the wishes of the people. First, it must be recognized that participation in decision making can be in the market place as well as in the voting booth or the halls of government. The forms that public policy takes as laws, regulations and court decisions, as well as the occasions and patterns of policy making, should be understood by all involved.

That there are qualitative as well as quantitative aspects of participation means that merely providing more ballot measures, more elective offices, and more public hearings are not necessarily an improvement for either the citizen or the policy maker. State agencies in the Pacific Northwest with energy policy responsibilities have, to varying degrees, provided for public participation through expanded administrative hearings processes which, in some cases, involve more informal procedures to enhance timely, effective and

competent citizen input. Experiments, innovations and proposed modifications in hearing procedures are also under consideration at the national as well as at the state and local levels. The goal is to respond to citizen desires to be heard and not intimidated, and yet not to allow a few to thwart the necessary movement ahead with the public's business.

In addition to the contributions to the policy making process by political parties, organized interest groups and citizen advisory boards, energy policy makers have also employed public opinion polls to secure guidance from the public. Further possibilities of participation similar to that provided by the jury system as well as improving the techniques associated with existing patterns are being explored. The problem of achieving the best blend of participation, responsibility and efficiency continues to challenge energy policy makers.

Setting intrastate utility rates is the subject of Task 5. The Federal Power Commission is the dominant agency in natural gas rate-making and has a lesser role in interstate electric rates. The state public utility commissions set rates for investor-owned utilities which supply some 23% of the electricity consumed in Washington, 72% in Oregon and 92% in Idaho. Rates for electricity supplied by publicly-owned systems are established by their elected governing bodies. For these and other reasons there are many and widely varying rates charged in the Northwest. To the extent that this is viewed as a problem there are several possible solutions ranging from establishing a regional council to set rates for all

three states.

The constraints and opportunities in rate-making include the legal requirement that investor-owned utilities receive a fair return on their investments. Rate structures can be arranged to encourage or discourage consumption both quantitatively, seasonally and hourly. Past patterns of lower rates for greater consumption are giving way to opposite trends along with concern for "lifeline" rates for low-income consumers of minimal amounts of energy. Rates can also encourage new generating facilities by permitting "construction in progress" to be included in the rate base, can have an impact on the attractiveness of new investments including utilization of alternative energy sources by basing rates on long-range incremental costs or by average cost pricing which blends newer, higher cost energy with older lower cost sources. It is also possible for states to create and to recapture "windfall profits" that may arise under new formulas and to encourage utilities to diversify into energy conservation programs. There is also the possibility of establishing regional rate-making at the wholesale level.

Rate-making is a complex process at best. The variations within and among the states, the different perspectives regarding growth, conservation energy sources, the uncertainties of federal policies and the range of established interests and patterns pose a significant challenge to the policy makers as they consider these variables and options.

Task 6 is concerned with siting energy facilities. Because

the development and operation of energy facilities impose costs on the surrounding environment, siting is a complex and controversial process. The political context of siting varies considerably among the states. There are three alternative generic models: state ownership of energy facility sites, one-stop state licensing systems, and the traditional mode of separate departments exercising their respective authorities. Maryland follows the first model wherein the state acquires, owns and leases space in an energy park. Oregon and Washington have one-stop arrangements, Oregon utilizing a citizen board appointed by the Governor and Washington operating through inter-agency council approach. Idaho retains the traditional pattern of separate agencies handling their specialties.

Alternative institutional frameworks may have to be considered as this region confronts the evolving energy supply situation. The possibility of nuclear energy centers which may make long-range construction more economical while reducing disruption of local community life must be considered in light of institutional patterns of property taxes, environmental regulations and economic rivalries. Floating nuclear plants and a host of other siting issues (e.g., pipeline and tanker routes, gas storage facilities) are certain to arise. Flexibility and responsiveness must be hallmarks of state energy siting arrangements.

Task 7 focuses on the institutional constraints and opportunities the states confront in seeking alternatives to the traditional pattern of looking to greater supplies of petroleum,

natural gas, coal and electricity generated by hydro or thermal installations. Energy conservation, while not actually an energy source, is often thought of as a policy alternative to installing more generating capacity. State and local governments can choose to do nothing and let the market place motivate search for other energy sources. Or they can employ negative incentives to discourage waste or failure to utilize efficiently present sources, and use positive incentives to reward efforts to meet needs by other than the additional consumption from conventional sources.

Policy models including economic incentives, indirect government efforts and direct government action can also be developed. The application of these models to the use of biomass and wind power as energy sources provides varied opportunities for state and local governments to adapt them to their unique circumstances of location and supply. In many situations, governmental action is a prerequisite to the effective utilization of these sources.

Geothermal energy seems to have potential mainly as a heat source in this region. Complex legal aspects will have to be sorted out in the matters of water rights, mineral rights and land leases and uses. Incentive systems will also have to be explored. Similar legal groundbreaking will have to be done regarding solar energy as access to sunlight may lead to conflicting claims by property owners. Legislation by state and local governments as well as their own purchasing policies can play an important role in the development of geothermal and solar power.

If the states are to share in their full constitutional role in the important field of energy policy, they are challenged to remove self-imposed constraints and to avail themselves of a wide range of opportunities to assist their citizens to meet the trying situation ahead.

TASK 4

PUBLIC PARTICIPATION

"Participation has come into vogue. It is on everybody's lips. But, like many vogue words, it is vague. Everybody wants it, but is not at all clear what 'it' is; and would-be participants are often dissatisfied with all attempts to meet their demands. This is not surprising. There is no one thing called participation, which can then be shown to be a good thing." 1/

I. Introduction

A. The Role of Government

Decisions regarding energy in the Pacific Northwest are among the most important public policy choices to be made in this region. For Constitutional reasons of jurisdiction over interstate streams and navigable waters the approval of public agencies has been required to develop the region's major indigenous energy source: hydroelectric power. Also, the enormous sums required for multiple purpose development of the Columbia River system could only come from Congressional appropriations. Vast planning and administrative efforts have been required of many agencies. The courts have often been involved. State and local legislative bodies had to participate as well. Thus, while much of the rest of the nation followed the general pattern of private development with government involvement only being a last resort, as in the energy crisis of the 1970's, the Pacific

---

1/ Lucas, J.R. (1976) Democracy and Participation. Penguin Books, Baltimore, Md., p. 136.

Northwest has a long and positive history of government participation in the energy field.

However, of utmost important to this discussion is the basic fact that "government" in this region consists of a bewildering array of separate institutions, not a system of coherently related bodies. The resulting decision making network is so complex that there is absolutely no possibility that more than a tiny handful of people out of the millions in the region grasp its intricacies. (See Appendix 1.)

> "The structural result of dealing separately with energy resources, politically speaking, has been the historical development of relatively isolated decision making units of the sort that Washington journalist Douglass Cater has termed sub-governments...expected and actual consequences of this political structure are unconnected and often contradictory."2/

Therefore, it is first useful to analyze the circumstances when a public policy decision is called for, and then to study several models of the decision making process. This provides a framework for the exploration of the scope and form of public participation in the public policy process in the Pacific Northwest.

B. Some Suggested Approaches

Public participation in energy decision making is not limited to the governmental or political sectors. Every decision,

---

2/ Gilmore, Robert S. (1975) "Political Barriers to a National Policy". Proceedings of the Academy of Political Science 31: p. 186.

whether by an individual, organization, firm or agency to use public or private transportation, to purchase small or large automobiles, to insulate homes or factories, to recycle products, or to use electricity for display lighting is, in a real way, indicating preferences and priorities. However, participation in the energy market is not entirely one involving freedom of choice by autonomous buyers and sellers. International, national, regional and local constraints imposed by governmental and private sources abound. Thus, there are situations where the people can advance their interests only through their governments because of the imperfections of the market place.

A recent analysis suggests four types of situations when a decision is called for.3/ These can be applied to the energy field in the Pacific Northwest.

1. "When something is amiss." A problem is perceived that requires a public solution since private actions do not suffice. Example: When reservoirs drop to low levels as in the Fall of 1973. How to allocate the water amongst competing users? Do the Atomic Cup hydroplane races go as scheduled? Or, is the water passed through to generate power?

2. "When the opportunity arises because there is a new capability, a new capacity to deal with matters previously beyond solution." Example: The convergence of technological, economical and political aspects of federal dam building as an

---

3/ Lindblom, Charles E. (1976) "Toward a Theory of Economic and Political Decision Making". For International Political Association Congress, Edinburgh, Scotland.

anti-depression program in the 1930's. Or, when there is "waste" heat as a byproduct of the Hanford atomic installation.

3. "When somebody else's solution becomes your problem." The Arab oil boycott is their solution to reducing support for Israel. Canada then decides to stop oil and gas exports. These create problems for us.

4. "When the 'schedule' previously agreed upon requires action." Some federal permits for dams on navigable waters expire after fifty years. At that time some decision must be made whether or not they will become public property. "Sunset Laws" are being considered which will call for the automatic termination of legislation and agencies unless renewed by legislative action.

The above is not meant to be merely an "interesting" exercise but to be useful in establishing the circumstances when participation can be most appropriate. Too often the public is asked to participate in "non-events" or "non-decisions" which can lead to cynicism and apathy and deter further public involvement. The League of Women Voters of Washington put it this way: "The issue must be one which people can grasp; one which has imminent impact on their lives." There are other issues which cannot be resolved by a particular governmental unit no matter how much public participation there has been. For example, the Pacific Northwest states cannot do much about the absence of natural gas deposits in their region or to change the half-life of radioactive substances.

But there are occasions when public policy decisions must

be made. The resulting policies take a variety of forms including emergence as:

(1) provisions of federal or state constitutions

(2) court decisions

(3) federal and state statutes

(4) city-county charters

(5) local ordinances

(6) administrative rules and regulations

(7) opinions of legal and financial officers

(8) decisions of administrative tribunals

(9) the exercise of administrative discretion in allocating scarce financial and personnel resources

The process by which these policies are made can be identified by tracing the steps involved at the national, state and local levels and within the several branches thereof. It might be helpful to first consider some other approaches to public policy making which can provide a broader perspective and may suggest some new forms of more effective public participation.4/

1. Institutionalism sees public policy centering around what the legislatures, courts and agencies do. The focus is on these institutions and their formal actions. If one knows how they work, then one knows the process. Attention is properly focused on the 1977 state governors and legislatures in the Pacific Northwest. Will Washington regulate oil tankers in Puget Sound? Will Oregon establish a statewide PUD-type entity? Will

---

4/ Dye, Thomas (1975) Understanding Public Policy, Second Edition. Prentice Hall, Englewood Cliffs, N.J.

Idaho change its water laws?

2. Group theory, noting that American political parties are notoriously weak, identifies private organizations and government agencies alike as "groups" who are the real actors in the public policy drama. Public power interests, private utilities, labor unions, environmental organizations and old and new agencies must be identified if one wants to know who makes public policy in energy or in any other field.

3. Elites dominate American life including our democratic governmental system, is another view. Many people do not even vote, most belong to no groups involved in politics, and groups themselves are run by a small power structure that is usually wealthy, well-educated, white and male whose self-interests actually coincide far more often than group, party and candidate competition suggests. Some holders of this view become discouraged with the possibilities of being effective and drop out of public affairs. Others plan their strategies around somehow gaining the support of these elites for their own causes. In the Pacific Northwest, there are elites on almost every side of every energy issue, and calls for more public participation may serve to substitute one elite for another.

4. Rationalism is the basis of most policies. Technically competent people in the public and private sectors dominate. Wealthy owners and elected political leaders do not understand most important operations. The technicians do. They know the realities, consider the options and the consequences thereof and generally cause the best possible choice to be made. Although

there may be exceptions the hundreds of thousands of decisions made daily fit this mode. If it does not rain and there is no water in the reservoirs, only a certain number of options are open. The real facts cannot be changed. Choices are narrow and more rational than advocates of conspiratorial theories like to admit. And, it can be argued, a part of what makes an energy policy rational is the taking into account the wishes of the public as well as physical and economic factors.

5. Incrementalism describes the activities of most governmental units. This year will be like last year - give or take a little due to inflation and the like. There are occasional jolts due to a natural disaster or some unanticipated political event, but most policies go on. Even new policies are made up of old ones. How much change has there been in energy consumption since 1973? In policies responses? Or, for example, changes in electric rates seldom involve recalculating basic formulas of rate bases and structures, but usually involve a percentage change in existing rates. Incrementalism makes it possible for the public to assume that most policies will remain unchanged for a time and enables the public to focus on the fewer issues which really require attention.

6. Game theory recognizes that public policy is developed within certain legal and traditional rules, that there are only so many real players who must devise strategies to achieve a maximum payoff at given level of risk. Some games are "zero-sum" - only one person can be elected governor, all others lose. Some are "non-zero-sum" games, participants can win partially

and lose partially - utilities may not get all of the increase they ask for but they need not receive nothing, there could be a compromise. The strategies of one type game do not apply to other games. Participants should know the game, the rules, the players, the strategy options and the payoffs.

7. The Systems approach suggests that all parts are interrelated and that public policy is the output of the system made in response to demands, which are inputs. The connection of various parts must be understood by participants. Participants must understand where various inputs are received, how they are perceived by decision makers to whom they are routed, how these persons decide what to do with these inputs, how outputs may have unintended outcomes, and how this leads to feedback into the system. An example of how an output may have different outcomes might be that a price increase in natural gas (an "output" of the Federal Power Commission) may result in either windfall profits and higher prices or in a renewed search for and discovery of more gas with long-run consumer savings or both, as the outcome. The public, of course, helps to generate inputs and by its reaction to "outputs" creates feedback.

Each of the above "models" should suggest to agencies and citizens a wider variety of patterns of effective public participation than would come to mind from a traditional approach.

II. Demands for Public Participation in Decision Making

A. Rise of Democratic Participation

Historically, changes in economic, technological, social

and political relationships have been intertwined. The Industrial Revolution created impersonal economic relationships and gave rise to the labor movement which demanded, and won, the right to vote for men regardless of economic status. The changing role of women brought about universal suffrage, and the civil rights movement won the vote for all races.

The expanded franchise resulted in government at all levels becoming more responsive to the "needs" of the people. Because of rapid change and the increasing complexity of life, legislatures have had to delegate their authority over specialized areas to regulatory and administrative agencies. Modern government has come to rely on the expertise of these agencies and placed them in a position to become the definers of the public good.

Thus the growth of the "administrative state" has been, in part, due to democratic demands for a more flexible and responsive government. Reliable, professional public administrators acting within guidelines laid down by the elected representatives of the people, it was assumed, would be able to fashion the appropriate responses to current problems. "Meddling" in administrative affairs by legislators and courts was often viewed as attempts by the privileged groups, who were defeated at the polls, to thwart the public will in behalf of their own selfish interests. Thus the main thrust of the period from roughly 1933-1963 seems to be that the administrative process was in the hands of competent trusted and sympathetic administrators who were more close in tune with the public than were "unrepresentative" legislators

and judges. There were always exceptions and there were criticisms in the field of civil liberties and civil rights.

However, for a number of years, both citizen groups and administrators have sought ways to increase public participation beyond that of voting in the elections of legislators and executives, ways that might be more appropriate to our complicated society. There are complex and mixed motives in these efforts. In some cases, increased complexity of government had separated some people from these decision makers. Some citizens became overwhelmed by a sense of helplessness. The public is now always able to determine who is responsible for the decisions affecting them or how to communicate its needs to those in power. The public has not always had access to the information on which decisions have been made. This has, along with other more apparent factors (i.e., Watergate), eroded trust in government. For example, in 1975, pollster Louis Harris found that "confidence in government at all levels in this country has hit rock bottom".5/ State energy agencies feel this distrust. A September, 1975 report of the Pennsylvania Senate Consumer Affairs Committee found that "public confidence in the utility regulatory process of this Commonwealth has waned so badly as to be almost nonexistent".6/

A major attitude shift may be underway as a response to

5/ Common Cause (1976) Money, Secrecy, and State Utility Regulation. Common Cause, Washington, D.C., p. 6.

6/ Ibid.

these feelings. The rising levels of education and the increasingly sophisticated linkages of media have created the means whereby the public can effectively participate in decision making. People have begun to seek security in involvement, in cooperation, and in a return to the concept of the community and the neighborhood. The current public participation phenomenon may differ from past historical movements in that it comes from many varied segments of society. The new belief is that experts and specialists should provide information and alternatives, but that the value judgments be public decisions.

B. Legislative Responses

Congress has long recognized the need for additional public participation. For example, in the area of public lands, as early as 1939 the Taylor Grazing Act[7/] provided that each grazing district have an advisory board of local stockmen and a wildlife representative and that this structure be drawn upon for a National Advisory Board Council. The Forest Service followed suit. Both the Bureau of Land Management and the Forest Service utilize advisory boards to ensure public participation in multiple-use planning. While not perfect, they supplemented the representative system.

Additional public participation was provided in 1946 when Congress recognized that the new government of decision by agency "required that due process be observed in the administrative process of all federal agencies". The Administrative

---

7/ 43 USC sec. 315-1.

Procedure Act[8] set up requirements for hearings based on an administrative record and access to government documents, and set standards for judicial review. The Act distinguished between due process requirements for adjudication and the public need for representation and information as to rule making. Agencies were required to make public proposed rules in the Federal Register and to give notice of hearings. In 1960 the Freedom of Information Act[9] provided access to certain administrative records and documents. Congress was moving to open up government.

Congress was being pressured into additional actions by the demands of the public. Some still felt excluded from the decision making process. The result was confrontation, either in the courts or on the streets. Confrontation often meant delay and expense in administration. For a variety of reasons, Congress began to incorporate provisions for public participation in administrative actions in the antipoverty and Model Cities Programs. In the environmental area, Congress responded in 1969 with the National Environmental Policy Act (NEPA).[10] Congress had recognized that "There is a new kind of revolutionary movement under way in this country...The stage of this movement is shifting from what had once been the exclusive province of a

---

8/ 5 USC sec. 551 et seq.

9/ 5 USC sec. 552 et seq.

10/42 USC sec. 4431 et seq.

few conservation organizations to the campus, to the urban ghettos, and to the suburbs."[11/]

NEPA is a "full disclosure" act and requires that the environmental impact of all major federal actions be studied and made public through the environmental impact statement process. The Council on Environmental Quality Guidelines provide at Sec. 10e that, "agencies have a responsibility to develop procedures to insure the fullest practicable provisions of timely public information...in order to obtain the views of interested parties. These procedures shall include, whenever appropriate, provision for public hearings...preceded by adequate public notice and information to identify the issues and obtain comments."[12/] The courts have created a public right to participate in the impact statement process.[13/]

In 1972 the Federal Advisory Committee Act[14/] gave a statutory right to citizens to be present at certain proceedings of advisory committees. By this time the federal agencies were realizing that Congress and the courts had mandated new governmental processes. Agency compliance may have been primarily based on the desire to avoid confrontation with its delay and

---

11/ 115 Cong. Rec. S17452 (Daily ed. Dec. 20, 1969).

12/ 36 Fed. Reg. 7724-9 (April 23, 1971).

13/ Anderson, F. R. (1973) NEPA and the Courts. Published for Resources for the Future, Inc., by the JohnsHopkins University Press, Baltimore, Md., p. 234.

14/ 5 USC App. I (Supp III) 1973.

expense. The agencies were now open to political attack based upon public information and to judicial action based upon NEPA procedural requirements on other substantive law.

C. Negative and Positive Effects of Participation

The factors pro and con to public participation can now be more easily examined.[15] There are reasons to discourage public involvement in the administration of government. Established political structures may have satisfied the majority of the citizens. The efficient, technological control of public administration may be incompatible with public participation. New systems are vulnerable to the manipulation of special interests, to the dangers of rising expectations, and to inefficiencies.

Additionally, there are good arguments in favor of limiting public participation to the traditional modes which include the formal hearing process and leaving the administration to competent experts. For example: (1) more participation can mean more power for the articulate and organized interests who may well have opposed unsuccessfully the legislative intent of programs they now would subvert at the administrative stage, (2) delays in the policy process are costly and the costs usually fall on those least able to avoid costs, (3) more participation means more government - more employees, more paperwork, more taxes, (4) more "consideration" does not automatically mean "better" (better for whom?) and wiser decisions, perhaps merely substituting one elite for another.

15/ Ontario Committee on Government Productivity (1972) Citizen Involvement, p. 17-29.

There are also reasons for encouraging participation. It appears that participatory demands may intensify. Participation does have positive effects on citizens: it is an educative process, it is an integrative process, it tends to bring about political equality, and it serves to neutralize dissidence. "Most decision making studies never examine the costs of overcoming consequences not foreseen in advance. There can be no better way of discovering these unforeseen consequences, long a major problem of administration, than by involving in the decision processes those likely to be affected by them."16/ Public participation ensures accountability for decisions and representation of the public.

Agencies have sought public participation to avoid confrontation with its concomitant delay. Public involvement generates information as to public opinion so that it can be accommodated. Public involvement can also generate information that is directly applicable to agency studies, such as quantifying recreation use or identifying environmental or other impacts. Public participation can supply an agency with needed outside expertise or with manpower that it could not otherwise afford. Successful public participation will create a base of public support for an agency which can establish its acceptance. Such support is needed in the interagency battle for appropriations.

Additionally, public involvement has been a factor in restructuring reactions of both regulators and the regulated

---

16/ See F.N. 15, p. 25.

industries. Staff attorneys for the Federal Trade Commission indicate that a significant contribution by public interest groups is to restructure incentives within the agency, by giving the staff a sense of scrutiny and a feeling of support when strong actions are taken.[17/]

D. Federal Consumer Representation Plans As Models

The Executive Branch of the federal government continues to respond to the new movement for public participation. In a Presidential memorandum of September 27, 1976, President Ford stated, "The consumer's right to be heard means that the consumer must be involved in the development of programs and participation in decision making mechanisms that affect his or her interest." Each federal agency accordingly promulgated Consumer Representation Plans.[18/]

Consumers are defined as "individuals and organizations, public and private, whose interests will be substantially impacted by departmental decisions or actions". The plans provide for the identification of consumers and impacts, the establishment of consumer/agency liasons, and the generation of the information required for effective public participation. Most agencies operate under the premise that the public right to know must be upheld. Other agencies, such as the Environmental

---

17/ Cupps, D. Stephen (August 1976) "The Impact of Public Interest Groups and Citizen Organizations on Bureaucratic Behavior: Lessons from the Experience of the Federal Trade Commission". For International Political Science Association Congress, Edinburgh, Scotland.

18/ 41 Fed. Reg. 42763 (1976).

Protection Agency, feel that the public needs to know and they affirmatively seek to inform the public. In either event, all branches of the federal government and the administrative agencies have recognized that for whatever motives or objectives, philosophical or practical, widespread or limited, public participation in some form is required for efficient government in the modern era.

III. Types and Forms of Participation

Public participation in the policy making process affecting energy policy encompass the usual array of opportunities including voting, lobbying legislative and administrative bodies and intervening before administrative and judicial tribunals. Each will be examined generally and then in a more detailed matrix of current patterns and possibilities.

A. Traditional Approaches

1. Elections

The most durable and basic form of public participation in policy making has been through exercising the right to select governmental decision makers by secret ballot in regular and timely elections. The voters choose those whose promise and performance is judged best and remove those who fall short. This hard won pattern of participation is still the exception in the world today. The search for additional avenues of participation often neglects the fundamental institution of democratic elections.

Citizens of the Pacific Northwest probably vote on more candidates for public office and on more state and local ballot measure than any other people in the entire history of democratic constitutional government: we have a long ballot providing for the nomination and election of an army of state executives, state legislators, "rows" of county, city and special district officials plus ballot measures referred by governing bodies and petitions of electors from at least four levels of government. (There is, of course, no federal provision for ballot measures.) Pacific Northwest voters are challenged with this chore/opportunity at least four times every two years and usually more frequently than that. Recall that only in the United States are voters invited to participate in the nomination of candidates. This is left to dues-paying party members in every other democracy.

In spite of these opportunities to participate in the selection of a large number of decision makers it is not always clear what policies the public supports. Nominations and elections hinge on a variety of issues, with the result that public input is diffused. Therefore, public officials take office with different mandates and different perceptions of the popular will and often selected by only a minority of the voting age population.

The politically appointed administrators are a step removed from the uncertain mandate of the elected officials. Even further removed are the vast bulk of career civil servants. Employed for their "neutral competence", they are in the difficult

situation of being expected to be responsive to the public will while being insulated from partisan pressures as manifestations of that will. How then should public input at the administrative level be designed to effectively supplement the elective process? One example was the unique use of the election process when an "advisory vote" was taken in Ada County, Idaho, on May 25, 1976.19/ The advice was directed to, but not binding on, the Idaho Public Utility Commission regarding an Idaho Power Company application to build a 1,000 megawatt coal-fired facility. The issue was put on the ballot by the county commissioners who reversed an earlier refusal after receiving petitions with 15,000 signatures obtained by a coalition called "Citizens for Alternatives to Pioneer". The vote was 56% to 31% against the project.

Finally, the Pacific Northwest states also provide for the use of the election process to enable the public to participate in the legislative process directly via the initiative and referendum, either by legislative action or by citizen petition. Over the years many energy policy matters have been so decided. The provision is for a "yes" or "no" vote on the measure presented, no matter how obscurely worded or confusingly presented to the public. However, it is theoretically possible to devise a series of questions or choices to be given that would have the voters indicate a sequence of preferences which might result in

---

19/ Idaho Conservation League (June 1976) "Voters Say NO To Pioneer." ICL Newsletter, Boise, Idaho.

major vote that more precisely reflects the wishes of the electorate. This has not been tried. In short, the Pacific Northwest voter has routinely had a rather imposing array of opportunities to participate in public policy making. That many do not vote, most never attend a legislative hearing and very few follow administrative proceedings is not lack of formal opportunities and even invitations to do so.

2. Political Parties

Parties are among the basic institutions of democratic government. The existence of a legal loyal opposition party ready to assume responsibilities of office and to criticize the government of the day is the single most important institutional evidence of a working democracy. However, party affiliation is declining and efforts to further weaken parties could be causes of concern.

The observation that political parties are weak in America should not lead to the conclusion that they are completely unimportant. To develop parties as an avenue of public participation one must understand that they exist in two rather separate structures: There is the formal structure outside the government generally composed of citizens who are not officeholders but participate in precinct, district, county, state and national committees and organizations. And, there is the organization within the government, most visibly in legislatures as majority and minority party organizations. In the Pacific Northwest there is almost no real connection between the inside and outside

parties nor is there much contact or coordination between the several levels. The Congressional caucuses never contact state legislative caucuses. In spite of these organizational weaknesse which include no real control over who "joins" and very little funding or staff capability, parties are durable. The Democratic Party in the United States is one of the oldest nonreligious organizations in the world! And parties have enough cohesion to mount efforts to control some of the personnel and some of the policies of a particular level or unit of government. Parties are flexible and can adapt to embrace new issues and a great diversity of opinion. They are of one mind only on the issue of which party should rule.

So, where do parties fit into the policy-making process? Party affiliation is one of the most lasting that people make. Party activists who are not officeholders hold more intensive opinions than do nonparty and rank and file members. Office-holders tend to be more willing to compromise since they have direct responsibilities for policy action. This can be a source of tension between the party outside the government and the one inside the government. It is not always clear who speaks for the party in any given situation. This is especially true at the national level of the party not holding the Presidency.

Because parties exist primarily to gain office they are potential participants in any policy field that might emerge. However, because party organization parallels the governmental structure they seek to control, there can be no focal point for

party expression on matters such as energy policies for the Northwest since there is no governmental focal point. Who speaks for the Democratic Party in this region? An incoming President who did not carry one state in the West? The Democratic Senators from Washington or its Democratic Governor or the several U.S. Representatives, some of whom represent the Seattle area and others the Tri-City area, or the state legislature, House or Senate, etc.? There is not much to be gained, and a lot to be lost, by the party organization or by the office-holders taking a stand until issues crystalize. Since parties are in a zero-sum game, that is one either wins or loses a given office, they are wary of premature commitments. In this situation parties function as "arenas of compromise" wherein those with more specific commitments on issues will seek to demonstrate that there are votes to be had by the party's adopting their stance. Thus parties themselves become objects to be influenced, though their platforms on the local level mean little (can anyone even locate copies of the party platform for the Northwest states in 1976?), and avenues of public participation. Once issues are focused, parties help bring others along who use the party as a point of reference in their own decision making. On occasion parties do serve as a link between the citizen and the elected official.

It should be noted that the decline of party affiliation, the rise of the independent voter and ticket-splitting may be related to the emergence of the public interest groups. Relevant

factors may include increased levels of education which make party recommendations less necessary, the rise of mass media which replaces the precinct worker as a source of information and as a way of reaching the electorate, the mobility of the population which breaks old local and regional ties, the failure of the parties to respond to pressing issues, the venality of some party organizations, the replacement of patronage with civil service and perhaps, the development by government itself of other ways of involving the public directly.

3. Interest Groups: Their Strengths and Tactics

Interest groups are also very significant actors in the American political process. Political parties, the major portals of access to legislative and executive decision makers in every other democracy, are notoriously weak in the United States and especially so in the Pacific Northwest where the direct primary is firmly rooted. Early in this century Arthur Bentley wrote that "when the groups are adequately stated, everything is stated". Analysts of almost any major domestic policy decision have invariably included a catalog of the organized interest groups active in the legislative, administrative or judicial processes as key parts of their case studies. Not all groups are private or are self-serving. The concept of a "group" encompasses public agencies as well. The Corps of Engineers can be considered a group for purposes of analysis as can the Seattle City Council.

While America is thought of as a "nation of joiners" and

the Yellow Pages of the Washington, D.C., and other major city phone books bulge with lists of associations, not everyone or even most persons are members of groups directly concerned with public policy in either a broadly defined or sustained fashion. Nevertheless, decision makers, desiring to reflect the public will and usually eager to avoid unnecessary conflict, seek out groups, if the groups haven't sought out the decision makers. There are a number of reasons for this: Groups are a source of information which cannot be obtained elsewhere (for example, technical data or the perspective of their members), and groups are a source of potential power that can be used for or against the policy under consideration. So vital are groups that not only are they protected under the First Amendment right to assemble to petition Congress for redress of grievances against government interference, but government agencies even go to the trouble of organizing and sustaining groups. They can help the administrators by representing various portions of the public as well as serving as a supporting cheering section for the agency. Alert officials know that there are "potential" groups as well as those already in being.

Whether sizing up a group's power or creating a group, decision makers need to be able to assess a group's real and potential effectiveness. A rough determination involves evaluating such factors as these:

a. Membership: How many belong? What portion of the total potential membership does this represent? What are the

reasons for membership: firm commitment to the group's stated purposes? compulsory membership required to hold the job or practice the profession? convenience which enables the member to shop at the co-op or buy low cost insurance? These questions help to assess the cohesion of the group.

b. The social status of the group in the eyes of the community. Welfare recipients though numerous, will usually have less influence than certified accountants or airline pilots, possibly even on matters of welfare policy. One Vancouver doctor opposed to expansion of the Portland airport might be more influential than low income residents in the flight path.

c. The organization structure of the group can determine its effectiveness. A highly centralized group may not be as effective as a federation type structure which can accommodate diversity and add to strength. Thus the powerful American Farm Bureau Federation organized along state lines enhances its strength and minimizes possible splits along commodity lines.

d. Leadership is situational and varies with time, place, issue and personality. It can be more important than many of the other factors listed here but is difficult to define in general terms. Its presence or absence must be assessed in each circumstance. The recent experience of the Oregon AFL-CIO is a case in point where the leadership was out of

touch with the membership and was ousted from office after the 1975 legislative session.

e. Money is only one element of power but it has been called "the mother's milk of politics" for good reasons. Candidates and parties need money and often lobby the lobbyists to get it! Funds are required for expert staffs to mount a sustained effort through the labyrinths of government. Obviously money is a good thing for a group to have, although "public interest" groups are finding that well-educated volunteers or dedicated persons willing to accept low pay are an asset that helps offset a shortage of actual cash. The long run staying power of these groups is yet to be demonstrated, however.

f. Unique access to policy decision makers can enhance an interest's influence. All groups seek access in general and some have some particular advantages that come with the American system. For example, there are banks, insurance companies and utilities in every state, county and city, and they make frequent use of the media and of lawyers in their routine affairs. Farmers, union members and certain racial and ethnic groups are concentrated in limited areas and may rely on rural overrepresentation in the U.S. Senate, the winner-take-all aspects of the electoral vote for President or peculiar Constitutional provisions regarding racial equality, religious liberty or treaty rights, respectively.

Many persons and groups have no present concern with public affairs. However, a turn in events can not only cause latent interests to emerge as organized groups but also can turn a presently indifferent organization into a fierce participant in public affairs. Suggestions to raise the driving age to eighteen or to license cats will cause interested and vigorous responses. The recent increases in electric rates have brought out many retired persons to public hearings. Siting of nuclear plants stirs a variety of emotions and concerns.

The intensity of group activity is closely related to but not tied exclusively to the economic stakes involved. As a general rule, Americans are more concerned with their income than with their outgo. Consumer movements have been fragile at best while income related groups have been very powerful. This is rational behavior for most working people. It is easier and more effective to secure a rise in income by a pay increase or doing additional work than to take time off to protest utility rates. The opportunity costs of the protests are not attractive except for retired persons who have time and only little prospect of increasing their income.

There have always been those who value things other than material rewards. Civil liberties and civil rights movements have always depended upon those who believe some things are not for sale and should not be sold even by willing sellers (e.g., freedom, the vote, fair trial, etc.). Over one hundred years ago successful efforts were made to preserve areas such as

Yellowstone Park and the movement to place certain natural resources in the "not for sale" category has grown since. The present involvement of a considerable number of educated persons whose concerns are for the longer-range implications of public policy has created a new type of group that many officials have had a difficult time assessing and responding to.

One of the major concerns in American politics has been to curb the influence of groups on the groundsthat the general and long-range public interest is not merely the resultant of different forces exerted by the organized pressure groups who are pursuing their own self-interest. While there may be no definition of the "public interest" in general or in particular that all or most could agree on, it is useful to aspire to a public policy that serves such an interest. If the public interest is not just that of the interest groups, it is also not simply the interest of the public officials of the moment either.

The "public interest" - however described - is, in America, protected by (1) groups seeking their self-interest and thereby counterbalancing each other on occasion or giving rise to new groups when old ones become too overbearing; (2) political parties and candidates seeking to obtain or retain office by appealing to those who may have been overlooked before and whose interests they promised will no longer be neglected (and, who may not have known they were overlooked until the candidate told them so); (3) and finally, the "public" administrator whose

professional and personal ethics gird him against assaults by the selfish upon the common good while keeping him aware of his subordinate position as a servant of the public which has spoken through elections, group activities and in other ways. A proper perspective on the role of groups in our system is essential to energy public policy making and administration.

B. Other Types of Public Participation

In addition to the ample opportunities to vote in many elections and the very open invitation to become involved in the loosely structured party organizations of the Pacific Northwest states, there are numerous other avenues of citizen participation.

This section will explore a number of them including public meetings, public hearings, advisory boards and committees, public opinion polling, the jury model and other techniques.

Before beginning that analysis, it should be recalled that citizens can and do approach elected executives to voice their views, do attend legislative hearings and can share in administrative determinations as well. And, access to the courts is a well-travelled road in America. Here are additional opportunities to participate in original and appellate processes. EPA seems to encourage this in one of its publications: "To Sue or Not to Sue? When all else fails, citizen groups often carry their environmental struggles to the courts. Citizen lawsuits should not be undertaken lightly, however. They can be expensive and time-consuming. And environmental lawsuits should never be

undertaken without competent, experienced attorneys."[20] The establishment of administrative tribunals to adjudicate disputes multiply this type of participation many fold.

1. Preface: The Role of Non-verbal Communication

Once it is determined (for whatever reason) to find additional ways to involve the public, there are several alternative arrangements which can be employed depending on the type of information sought, the "publics" involved, and the funding available. This section will explore a range of institutional patterns and arrangements designed to secure public participation.

Before discussing specific arrangements it may be appropriate to identify some common pitfalls which can operate to discourage or inhibit effective interchange rather than provide it. These fall into the general subject of non-verbal communication. Often times sincere efforts at achieving effective dialogue are blocked by agency officials unaware of some of the basic precepts of non-verbal communication. "...the non-verbal communication spoken of here goes far beyond the commonly accepted view of facial expressions, gestures, posture and the like. More properly obtained non-verbal communication exists as a supplement to the verbal while, at the same time, it functions quite apart from the verbal."[21] If you imagine that a gap exists between the

---

20/ U.S. Environmental Protection Agency (1972) Don't Leave It All to the Experts. U.S. Government Printing Office, Washington, D.C., p. 5.

21/ LaRusso, D.A. (1971) "Mind the Shadows, An Essay on Non-Verbal Communication". p. 5.

the agency and the individual which must be bridged before effective communication or interchange can occur, that bridge can be viewed as the type of participation program designed. More specifically the effective use of non-verbal communication can bridge the gap and facilitate the exchange.

There are four basic factors of non-verbal communication, all of which apply in public participation settings. They are time, space, form and action.[22/] We will briefly discuss each one.

Time is always a factor and includes dimensions of order, cycle, depth and rhythm. The amount of time can determine the quality of participation. More time is not always a guarantee of higher quality inputs. The order or presentations can effectively discourage a speaker before he appears, can also dictate a rhythm of speakers or a point of view. An opposing speaker breaking that rhythm can meet resistance. These factors can be consciously considered when planning for public involvement.

Space can be a major block to effective interchange. Hearing rooms designed with the hearing examiners placed above the speaker and behind large podiums suggest that the wisdom and authority is all with the agency. For the non-practiced witness, formal hearing rooms can be imposing indeed. Arrangements can be made to reduce barriers between participants and agency officials. The round table, that negotiators seem to settle on, suggests equality and is probably the most conducive to meaningful

---

22/ See F.N. 21

discussion. This, of course, may be inappropriate in a formal hearing, but the factor of space is one that should receive strong consideration.

Form is a factor that is often overlooked. Agencies could receive much more useful information simply by designating the form of the communications they seek. Is the agency seeking factual information to supplement agency staff work or are they interested in opinions? Is the agency presenting a problem and asking for options or how to solve it or are they presenting the solution and asking for a response? The latter course seems to shift a burden on to the public and may stifle effective communication. Agencies should decide what type of information they wish to achieve from a public participation program and arrange a format which most effectively encourages the flow of that information.

Form can arise in another important manner when it comes to selecting which type of format to use. A three hour round table discussion may, under some circumstances, produce a freer flow of ideas than a formal hearing. The former can be most useful early in an agency's process, while the latter may be necessary as decisions are being reached.

A participant's actions such as movements, gestures and facial expressions, are also important. They are often dictated by the factors of time, space, and form. If the spatial arrangements are such that the speaker is sitting at a chair behind a witness table, his use of action is limited.

This is not intended to be an exhaustive treatment of this most important factor, but aims to highlight an area that should receive further study by the agencies involved.

2. Public Meetings

Northwest decision makers have made extensive use of public meetings as avenues to secure citizen participation. Governor Straub has held town meetings across his state. Governor Evans of Washington regularly met the public in the capitol rotunda for question and answer sessions, Idaho water policy opinions have been the subject of several workshops and many public meetings.

When an agency is not required by statute to hold a formal "hearing" as such, there are numerous types of meetings which can be arranged to educate the public, gather factual data, gather policy options, or receive general public feedback. Utilization of some of the earlier discussed principles of non-verbal communication can help break down communication barriers often times imposed by formal hearings.

Depending on the type of information sought, a round table type discussion can be effective. This is a workable alternative if the "public" is identifiable and small in number and the subject matter is such that it lends itself to policy discussions. Larger publics can be divided and several discussions can occur. The advantages of this type of meeting are that there are no formal statements or formal barriers. The discussion can be free flowing, and out of an unrehearsed discussion can come valuable ideas.

Town hall type meetings can be useful for public education and to receive general feedback. Setting smaller town hall meetings in various locations can encourage public involvement that might stay away from more formal proceedings.

General informational meetings are useful to educate the public as to problems and possible solutions.

The possibilities for informal meetings are endless. The meetings can be designed to fit the particulars of the situation involved. Agencies can go into meetings with an impression of what type of information they wish to receive (i.e., fact, opinion, etc.) and design the meeting to facilitate the flow of that information.

3. Public Hearings

"No better instrument has been devised for aiming at truth than to give a person in jeopardy of serious loss notice of the case against him and opportunity to meet it. Nor has a better way been found for generating the feeling so important to a popular government, that justice has been done."23/ Public hearings, as we know them, are probably the most widely used and can be the most formal of the range of public participation alternatives available.

Judicial reaction to the function and necessity of public hearings has varied from holdings that hearing requirements are "intended to secure the individual from the arbitrary exercise of the powers of government, unrestrained by the established

---

23/ Fascist Refugee Committee v. McGrath, 341 U.S. 123 (1951).

principles of private rights and distributive justice"[24/] to an interesting statement that a public hearing is no more and no less than "...a gratuity on the part of the legislature."[25/]

It should be noted from the above comments that the controversy over the functions and necessity of public hearings takes place not only between administrative officials and consumer and environmental advocates arguing for a larger input into the agency decision making process, but also in the judicial forum where the controversy in many cases has been elevated to constitutional issues of notice and the requirements for notice and opportunity to be heard.

The constitutional ingredients of administrative due process are simple to state as a general rule: determinations that finally dispose of life, liberty, or property must be preceded by adequate notice and opportunity for a fair hearing. But like most general rules, this one has many exceptions and it leaves unanswered questions such as: What constitutes adequate notice? What is a fair hearing? What interests are included in the concepts of "liberty" or "property".

For the purposes of this section of the report, the constitutional due process issues should be seen as the minimum procedural requirements in determining whether a hearing is adequate and fair.

24/ Bank of Columbia v. Okely, 4 Wheat. 235 (1819).

25/ Green Mountain Post, Vol. v., Liquor Control Board, 117 Vt. 405, 94 A2d 230, 233 (1953).

Herewith is presented the authority and mandates delegated to state agencies by state legislatures and those agencies' views of the functions and requirements of public hearings set out in three subsections.

The first section summarizes the functions of the three states' various agencies and their public hearings requirements. The second section deals with the responses received from nine state agencies to a questionnaire submitted to them. The summary of those responses will be used to indicate what the agencies see as being their responsibilities in providing for public hearings and how they react to and utilize the information gathered.

The final section attempts to draw some conclusions as to the usefulness of public hearings. The emphasis here is to use the agency responses to the questionnaire, the agency enabling statutes, and agency procedures and regulations to formulate the current status of public hearings. This will be compared to possible alternative functions of public hearings utilizing alternatives suggested by the agencies themselves and alternatives suggested by the contemporary literature in the field of administrative law.

a. Statutory Requirements: Oregon, Washington, Idaho

"To an ever increasing extent, provisions are appearing in state statutes, requiring that before an administrative agency takes any action which will significantly affect private rights, the agency must give notice and afford interested parties an

opportunity to be heard. This legislative trend reflects a deep-seated conviction that as a matter of sound governmental policy, parties to be affected by administrative action should have a full opportunity to present their views before any official action is taken."[26/]

Public hearings are probably most noticeable (and perhaps most effective) in two general types of administrative procedure: rule-making and adjudication of contested cases. The statutory requirements for notice and opportunity to be heard vary according to whether the particular action to be taken by the agency is classified as rule-making or adjudication.

The functions of the agencies under consideration here (public utility commissions, departments of energy, and siting councils) fall basically into the categories of ratemaking, licensing (which includes site evaluation proceedings and the issuing of permits), and the establishing of agency rules, regulations, procedures and standards.

(1) Contested Cases

Pursuant to the Uniform Law Commissioners' Revised Model State Administrative Procedures Act (hereafter, Model State Act), "contested case" means a "proceeding, including but not restricted to ratemaking, (price fixing), and licensing, in which the legal rights, duties or privileges of a party are required by law to be

---

26/ Cooper, Frank E. (1965) State Administrative Law. Bobbs Merril, Indianapolis, Indiana, p. 135.

determined by an agency after an opportunity for hearing."[27/]

In determining whether a hearing is required, the Supreme Court has also distinguished administrative conduct which has a particularized effect from that which has widespread impact on a large number of persons similarly situated.[28/]

The Revised Model State Act requires that in a contested case: "all parties shall be afforded an opportunity for hearing after reasonable notice".[29/] Notice must include a statement of time, place and nature of the hearing, a statement of legal authority and jurisdiction, a reference to statutes and rules involved and a "short and plain statement of the matters asserted".[30/] The type of hearing provided must allow for presentation of evidence and argument on all issues involved and findings of fact must be "based exclusively on the evidence and on matters officially noticed".[31/]

27/ The Revised Model State Act differs in this respect from the Federal Administrative Procedures Act. Under the Federal Act the term "adjudication" is used instead of "contested case", and it excludes ratemaking from the general procedural framework of adjudication. Thus under the Federal provisions, the determination of whether ratemaking and licensing are included under the rubric of rulemaking or adjudication depends upon traditional judicial distinctions between legislative (and therefore rulemaking) and adjudicative (and therefore adjudication) facts. Section 1 (2), Model State Act.

28/ Londoner v. Denver, 210 U.S. 373 (1908) and Bimetallic Investment Co. v. Colorado, 239 U.S. 441 (1915).

29/ Model State Act S9.

30/ Ibid., S9 (b) (1)-(4).

31/ Ibid., S0 (g).

The Idaho APA[32/] is almost identical to the Revised Model State Act. Ratemaking and licensing are among those things which are considered "contested cases" provided that two other requirements are also met. The first is that the case must be one in which the "legal rights, duties or privileges of a party are required to be determined by an agency".[33/] The second requirement is that a hearing must be required by statute.[34/] It is also important to note that both the Revised Model State Act and the Idaho APA define "licensing" as including "the agency process regarding the grant, denial, renewal, revocation, ...or amendment of a license."[35/] Thus, not only the revocation or suspension of a license, but also the granting of one, constitutes a "contested case" and notice and opportunity for a hearing are required.[36/]

The Oregon and Washington APA's, while not identical to the Revised Model State Act, embody many similarities. However, neither of these acts mention ratemaking and licensing within the meaning of "contested case". Both acts define contested case as a proceeding in which the legal rights, duties and

---

32/ Idaho Code Ann. (ICA) SS 67-5201 through 67-5218 (1969). For a discussion of the effects of the passage of the state APA on administrative practice in Idaho, see: Gary M. Haman & Robert P. Tunnicliff, "Idaho Administrative Agencies and the New Idaho Administrative Procedure Act." 3 Idaho L. Rev. 61 (1966).

33/ ICA S 67-5201(2).

34/ Ibid.

35/ ICA S67-5201(4) and Rev. Model State Act S 1(4).

36/ ICA 361-601.

privileges of a party are required by law to be determined after an agency hearing. The determination of whether ratemaking and licensing fall under the category of rulemaking or "contested case" depends to a great extent, upon traditional legal distinctions. While space does not allow for a thorough discussion of these distinctions, it is sufficient to note that past practice has consisted of a general inquiry into whether the activity to be considered was more like that performed by a legislative body (and thus rulemaking) or more like a judicial activity (and thus adjudication of a contested case). These distinctions are not always easy to make and the case law provides only general guidelines.

However, as a matter of general practice, ratemaking in both Oregon and Washington (at least where the rate has general applicability on a statewide basis or where there has been a complaint filed) is considered to come within the coverage of "contested case". It is also clear that the suspension, revocation or refusal to renew a license requires a hearing in both states and as such is considered to be a "contested case". It is <u>not</u> clear whether a refusal to make an initial or original grant of a license requires a hearing of the adjudicatory type. The most logical explanation is that the initial grant if construed as a "privilege" and thus not subject to adjudicatory hearing requirements, and that after operation under a license for a period of time one's rights tend to become vested and

thus deserve judicial protection.[37/]

(2) Rulemaking

The Revised Model State Act defines "rule" to mean "each agency statement of general applicability that implements, interprets, or prescribes law or policy, or describes the organization, procedure, or practice requirements of any agency."[38/] The procedures for the adoption of such rules requires a 20 day notice of the agency's intended action and the agency must also afford all interested persons "reasonable opportunity to submit data, views, or arguments, orally or in writing. In the case of substantive rules, opportunity for oral hearing must be granted if requested by 25 persons, by a governmental subdivision or agency, or by an association having not less than 25 members".[39/]

The Idaho, Oregon and Washington APA's all define "rule" to mean the same as that in the Revised Model State Act.[40/] The procedure for notice and hearing established by these statutes is also quite similar to that provided for in the Model Act, with minor variations in the time period for notice and the number of persons necessary in order for an oral hearing to be

---

37/ See e.g. Note "The Oregon Administrative Procedure Act," 1 Willamette L.J. 233, 240 (1960). For a brief treatment of the trend towards the erosion of the privilege doctrine, see Walter Gellhorn & Clark Byse, Administrative Law: Cases and Comments 600 (1974), Foundation Press, Inc., Mirecla, NY.

38/ Sec. 1(7).

39/ Ibid.

40/ ICA S 67-5201(7) ORS 183.310(7); and TCWA S 34.04.010(2).

granted. The important distinction to be made here is between the granting of oral hearing and what are generally referred to as "notice and comment" hearings.[41/] Initially, the agency exercises a great deal of discretion in determining whether to grant an oral hearing. In most instances of rulemaking only written comment on the published proposed rules or changes will be allowed.

Layered on top of the requirements of the state APA's are provisions tacked on to the public utility enabling legislation. These provisions also cover such areas as: rulemaking procedure,[42/] complaint and investigation procedure,[43/] and hearing procedures.[44/] This overlap between the state APA's and the agency enabling legislation is somewhat confusing. However, this confusion may be resolved by looking at the statutes themselves. The procedural requirement found in the enabling legislation and the state APA's should be interpreted as providing minimum guidelines for the setting of agency procedures. In addition, all of the three states' APA's (as well as the Revised Model State Act) contain provisions which make it mandatory on the agencies to "adopt rules of practice setting forth the nature, and requirements of all formal and informal procedures

---

41/ E.g. Federal APA, S USC S 553 (1967).

42/ ORS 756.400 et seq.; RCWA S 80.04.020.

43/ ORS 756.500 et seq.; RCWA S 80.04.110.

44/ ORS 756.518 et seq.; RCWA S 80.04.120. and for all three of the above procedures see generally ICA S 61-601 et seq.

available, including a description of all forms and instructions used by the agency".[45] Thus, the individual agency is required to establish its own set of procedures for rulemaking and contested cases. This the agencies do by establishing agency regulations which are meant to implement the state APA and the enabling legislation. It is in these regulations where the requirements and opportunity for public participation are found, and it is to these and the agencies' interpretations of them that we now turn.

b. State Patterns of Participation in the Northwest

Responses to the Questionnaire:

To determine the type of public participation programs state agencies were pursuing, a questionnaire was sent to nine state agencies.[46] The questionnaire identified three basic agency functions: ratemaking, licensing and rulemaking. The purpose of the questionnaire was twofold: (1) to discover what opportunities were available for public input into the agency decision making process in regard to each of the functions; and (2) to discover how the agency interpreted its role in fostering informed public input. The questions focused on three areas:

45/ Revised Model State Act S 2(a) (2).

46/ Those agencies were: The Oregon, Washington and Idaho Public Utility Commissions; the Idaho Office of Energy and the Water Resources Board; the Oregon Department of Energy and the Energy Facility Siting Council; and the Washington Office of Energy and the Energy Facility Site Evaluation Council. We received eight responses out of the nine requests. However, two of the agencies responded with only copies of their enabling statutes and information book.

(1) the procedural requirements for notice (what kind and to whom) and the type of hearing provided (formal adjudicatory, informal with written or oral comments); (2) what kind of information was usually received (opinion, attitude, technical, etc.), how was the information utilized, and its effectiveness; and (3) the effectiveness of the public participation programs and suggested alternatives.

For purposes of summarizing the responses, the PUC's and Energy agencies are considered separately, due to the differences in their functions and types of hearings.

(1) Public Utility Commissions. The Public Utility Commissions of the three states follow a very similar pattern. All ratemaking hearings of significance are of the formal adjudicatory type. Attorneys are usually present representing the utilities, intervenors, the complainants and to a lesser extent interested parties. Adversary and evidentiary procedures are followed (e.g., burdens of proof, decision on the record, oral testimony under oath, briefs, etc.). Actual notice of the hearing is given to all parties and interested parties that can be identified (through mailing lists and requests, etc.). Constructive notice is given to all others through the established news media. In some instances, actual notice is given to all affected customers of the utility. Notice normally contains the time, place and date of the hearing and is usually accompanied with a summary of the issues to be discussed or a copy of the agenda. In the context of rulemaking, the proposed rule is

published and circulated with a comment period which follows. The comment is normally written, with the exception of the Washington PUC which holds weekly open meetings where oral comment may be received concerning the proposed rule. Actual notice of the proposed rule is given to affected utilities and to identified interested parties, and constructive notice is given to all others. In limited instances, a formal hearing may be granted upon demand for such hearing (especially Washington PUC).

There are two noticeable departures from this traditional format. The first is an informal hearing held prior to the formal hearing which is provided for by the Oregon PUC. These informal hearings are held in the affected areas and are conducted by the Consumer Assistance Division. These are normally informational in nature with a member of the technical staff available to answer questions. The experience of the Consumer Assistance Division is that these hearings are very helpful in determining public opinion and attitudes. The information gathered at these hearings is summarized and presented at the formal hearing by way of testimony from a member of the Consumer Assistance Division. Thus the information becomes part of the official agency record upon which decision is based. The second departure is found in the procedures of the Washington PUC. In the public segment of a major rate case the Washington PUC provides the assistance of a Special Public Counsel provided by the Attorney General's office. Thus citizen participants have the assistance

of legal counsel to represent their interests. However, the Commission notes that it operates as a quasi-judicial body in an adversary process with burdens of proof requirements and it often cannot act as requested because of insufficient evidence.

All three of the PUC's indicated that in most instances the information received is helpful and responsive, although there is much testimony and comment that is duplicative and emotional. The Washington PUC has noted that it is seeing an increased sophistication of information received regarding specific economic groups (e.g., low income, handicapped and the elderly), while the Idaho PUC has indicated that environmental groups are usually the most effective in getting their cases before the Commission, but the consumer viewpoint is inadequately represented and the Commission staff is not always able to present that point of view.

Probably the most significant comment was received from the Washington Utilities and Transportation Commission which follows: "The single biggest problem preventing effective public participation in utility rate cases is the extremely technical nature of the investigation; most lay people will not try to participate actively in something that is basically incomprehensible to them. Our Special Public Counsel helps bridge this gap, but the public in the final analysis must have faith in the staff of the Commission, which always puts on a very agressive case on behalf of the general rate payer."

Most of the agencies involved in the regulation of public

utilities are relatively satisfied with their current public participation programs. They feel that they have experimented with a number of possible alternatives and that the present system works relatively well. This, however, must be qualified by the fact that major rate cases can take as long as a year and the decision by that time may be obsolete and another hearing for a rate change is quick to follow. However, as noted by one of the Commissions: "Given the emotional and economic importance of major rate cases, these problems are most likely unavoidable and the price we pay for our democratic system."

(2) Energy Departments and Siting Councils. The Energy Departments and Siting Councils differ somewhat from the PUC's in that these agencies' functions entail forecasting, the formation of PUD's (Public Utility Districts), hearings on site applications, site evaluations and monitoring, and certification and licensing of energy facilities. The Oregon and Washington Energy offices and their respective "siting councils" follow very closely the state APA's. The Idaho Office of Energy, however, is a nonregulatory agency and thus its procedures are primarily informal and informational.

The Oregon Department of Energy is primarily concerned with the holding of hearings for forecasting and the formation of Public Utility Districts. These hearings are primarily informal and informational (i.e., they are not adjudicative, contested cases). Notice of PUD hearings is required to be published in newspapers of general circulation, while notice for forecast

hearings are not required but the agency has used both letters and press releases. In both types of hearings mailing lists have been developed containing names and addresses of interested persons. The Department is mostly concerned with soliciting factual and technical information and has noted that most of the information received from the hearings does not meet the technical and factual requirements. This is primarily due to the technical and emotional nature of the subject matter. The information that is obtained is used to determine whether the assumptions made by the agency were reasonable, and they use appropriate ideas for further review and research. Generally the Department of Energy is not satisfied with its current public participation programs, but has not had the time to remodel their process. Alternatives suggested by the Department include the use of surveys, questionnaires, and establishing sponsors for the hearings in each local community.

The Oregon Energy Facility Siting Council is most notably concerned with holding hearings on site certificate applications, along with its ratemaking hearings pursuant to the APA and the Attorney General's "Model Rules of Procedure under the Administrative Procedures Act".[47/] The notice requirement for a rulemaking hearing consists of notice to persons on agency mailing lists and notice to others which "provides reasonable opportunity for interested persons to be notified".[48/] When a public hearing

---

47/ OAR 137-01-000 et. seq.

48/ Ibid.

is granted on the question of a proposed rule, the hearing is not held as an adjudicatory contested case. Rather, witnesses may give oral testimony and may be questioned by the presiding officer, but there are not provisions for cross-examination, burdens of proof, etc. In contested cases, which usually exist with regard to site certificate applications, the agency must give notice to all parties (actual notice) and to those interested parties on the Council's mailing lists. For the purposes of such hearings, any person may intervene "who appears to have an interest in the results of the hearing, or represent a public interest in such results."[49/] In a contested case full adjudicatory procedures are followed.

As the Council indicates, the information received from the public ranges from very helpful to useless. However, the agency does not attempt to control the type of testimony given. The agency has used a variety of methods of securing public input, but currently operates under the Attorney General's "Model Rules" which it has adopted. Suggestions included allowing greater "lead time" to give extremely busy people more time to get deeply involved in a particular issue.

49/ The Council noted in its response that "(I)n the Council's only site certification proceeding in which intervention was requested, that status was granted to two individuals who claimed that the safety aspects of the development of nuclear power posed a potential threat to themselves and to fellow Oregonians. The Council's exercise of its discretion in this regard was upheld by the Oregon Court of Appeals." ORS 469.380.

The experience in public participation of the Washington Energy Office and the Siting Council is quite similar to that of Oregon. When dealing with rulemaking, hearings are held pursuant to the state APA. When involved in site certification, the hearing is conducted as a contested case as defined by RCWA 34.04. Initially the Siting Council conducts a public hearing in the county of the proposed site to determine whether or not the proposed site is consistent and in compliance with county or regional land use plans or zoning ordinances. Prior to the issuance of a council recommendation to the governor, a public hearing (contested case type) is held. At such public hearing any person shall be entitled to be heard in support of or in opposition to the application for certification. The Council also provides for additional public hearings as deemed appropriate.

Washington has instituted a novel concept in siting proceedings similar to its Special Public Counsel in PUC Hearings. That is a provision for a "counsel for the environment". Such counsel is appointed by the attorney general and represents the public and its interest in protecting the quality of the environment for the duration of the certification proceedings.

The Idaho Office of Energy is primarily interested in the study of energy patterns and resources depletion and conducts hearings that are geared toward the free flow of information and education on a two-way basis. The hearings are informal and informational and are concerned with gaining insight into the

social-economic awareness of citizens as it pertains to their energy needs. Besides the above type of information, factual information is used to evaluate the level of energy consumption in the area and further "analyzed for idiosyncrasies that may affect their conservation program". Essentially, the agency is attempting to generate "individually tailored conservation programs by community".

c. Conclusions

Regulatory agencies are primarily concerned with obtaining factual/technical input. This type of information is essential to resolving any factual/technical ambiguities that may be presented by the differing view of the public utility, the technical staffs of the agency, and the public. However, it is not at all clear how much of the information gathered at public hearings is factually or technically useful for the agency's purposes. As one of the agencies has noted, the most significant obstacle confronting effective public participation is the public's lack of involvement when the issues are incomprehensible. Administrators seem to place little emphasis on making the issues comprehensible, not necessarily by simplifying those issues, but rather by performing an educative function. Although such an educative function might be initially costly and time consuming, in the long run it may in fact diminish the time and cost spent in lengthy hearings where the public input is emotional, duplicative and unenlightened.

One of the most often cited criticisms of administrative

procedure is that the decision making process has become over-judicialized. The criticisms generally look to the effects of this tendency to rely on adjudicatory procedures. One result, suggested by Gellhorn and Byse is that..."the judicialization of the administrative agencies is a factor tending rather strongly toward their becoming somewhat industry-minded. Agencies, unlike courts, were not in their inception expected to be sedentary...They themselves were to be vigilant watchmen, quick to act in the public's behalf. The glorification of the judge and of his methods has, however, encouraged administrative passivity that emulates the judge's detachment from the social fray."[50/]

The authors suggest that the adversary system does not work very well without active adversaries, that waiting for cases and complaints to arise is not an agressive course of regulation when one of the adversaries is "an amorphous cloud such as 'the public' or 'the consumer' or 'the poor'." Thus, when the agency process has become thoroughly judicialized, "it devotes its energies to cases that simply happen to come to it: it does not hunt for business by seeking out the unnoticed trouble spots".[51/]

One of the "Nader Reports",[52/] charges that the ICC's

50/ See e.g. Note "The Oregon Administrative Procedure Act," 1 Willamette L.J. 233, 240 (1960). For a brief treatment of the trend towards the erosion of the privilege doctrine, see Walter Gellhorn & Clark Byse, Administrative Law: Cases and Comments 600 (1974) at 1021.

51/ The President's Advisory Council on Executive Organization. A New Regulatory Framework: Report on Selected Independent Regulatory Agencies 38-39 (1971).

52/ Fellmath, R. The Interstate Commerce Commission 11-12 (1970).

reliance on adjudicatory proceedings "provides a legal arena for disputes among business interests...Two clear examples indicating whom the ICC almost exclusively serves are its failure to provide for a consumer or public interest representative in adjudications and its inadequate use of the ICC rulemaking function".

In all these criticims of the over-use of legalistic approaches to agency decision making the suggested solution is seen as stronger reliance on agency rulemaking and agency provisions for summary disposition of appropriate cases. Another suggestion looks to the use of what has become to be known as "hybridized" rulemaking.

Brice Clagett is one critic who has strongly endorsed the idea of hybrid procedures: "The most constructive way to eliminate many of the inequities and inadequacies which appear from time to time in administrative proceedings is to pay less attention to theoretical, conceptual, and largely artificial lines between adjudication and rulemaking, and to devote more attention to the task of fashioning, out of the available arsenal of procedural techniques, hybrid modes of procedure most appropriate to the issues and circumstances of particular cases or classes of cases. In general, when an agency decision must or should turn on disputed issues of fact susceptible to the receipt of evidence, those issues should be resolved in an evidentiary hearing even though the proceeding is labeled a rulemaking and the facts are allegedly "legislative". Conversely, when an agency

is considering adoption of a policy which could have a significant impact on unrepresented parties, means should be found to give notice and invite participation by non-parties even though the proceeding is labeled an adjudication."[53/]

The case for developing hybrid proceedings for the resolution of environmental issues involved in licensing is strong. While the need to deal with issues generally is great (and thus suggesting a form of rulemaking), the complex nature of many of the questions to be decided necessitates some restrictions on the procedural rights of parties even in a particular case. However, the public must be able to participate effectively in the process at the same time. To a great extent, the crisis in administrative proceedings in agencies dealing with environment can be attributed to a widespread feeling that these agencies have not been sufficiently sensitive to all affected interests.

In the most general terms, there is a need for exploring alternatives within the current public participation programs and alternatives to public hearings themselves. The formal adjudicatory hearings are weighted heavily to the reception of factual/technical information and to some extent the weight of public attitudes and opinions is not sufficient (nor do agencies weigh it sufficiently) to balance the economic and technical difficulties associated with regulating public business.

53/ Clagett, Brice (1971) "Informal Action--Adjudication-Rulemaking: Some Recent Developments in Federal Administrative Law." 1971 Duke Law Journal, p. 85.

4. Government Funded Participation: Some Options

There are numerous cases where citizens groups have attempted to participate in formal governmental proceedings but were forced to withdraw as their expenses grew beyond their financial resources. This has led to a failure of the administrative and judicial process to provide adequately for balanced adversary input. In recent years there have been attempts by various governmental entities to spend money to attempt to balance the input. This section briefly explores these proposals which fit into four general categories: providing the adversary input from within the agency, creation of special public counsels, government payments to organizations to participate in both administrative and judicial proceedings, and RUCAG (Residential Utility Consumer Action Group).

All of these programs are designed to provide for advocacy of the perceived interests of the public. What is meant by public interest? Agencies generally have a responsibility to serve the public interest in their activities. To the agency, the public interest is a decisional standard. They balance competing interests and come to a decision they perceive to further the common good. Another meaning for public interest is adversarial. It refers to those viewpoints generally unrepresented in the agency's decision making process. Looking at the second standard it is clear that no single point of view is "the public interest". It is possible, especially in energy issues, to have divergent public interests. Environmentalists may seek to limit develop-

ment for environmental quality reasons where consumers and poor may favor it for employment and price reasons.[54/]

a. Internal Representation

The first option offered to provide additional input is to provide for it to come from within the agency in the government. Even though an agency staff provides information to meet a decisional standard, an agency can provide for adversarial input within the agency. Additionally, some twenty states provide for some public interest representation by the State Attorney General's Office.[55/] This representation has occurred at the state administrative and court level, as well as before federal agencies. Michigan has a Special Litigation Division within the Attorney General's Office to intervene on behalf of the public in Public Service Commission (PSC) hearings. The North Carolina Attorney General has intervened before the Atomic Energy Commission to raise questions about a license application for nuclear plants in North Carolina.[56/]

On the federal level the Postal Rate Commission[57/] is set up to advise the postal service about rates, fees, etc. At required vote hearings an office of the Commission is required

---

54/ Schraub, J. (1976) "The Office of Public Counsel: Institutionalizing Public Interest Representation in Government." Georgetown Law Journal 64(4), pp. 895-896.

55/ Council for Public Interest Law (1976) Balancing the Scales of Justice, Financing Public Interest Law in America, p. 151; see National Association of Attorneys General (1975) Attorney's General Intervention Before Regulatory Agencies.

56/ Ibid., p. 152.

57/ Ibid., p. 152.

to represent the interest of the general public.

b. The Public Counsel Approach

Creation of an office of public counsel has occurred in several states to provide balanced adversarial input. Nine states and the District of Columbia have single purpose public counsels, operating in the utility regulation field. Two states, California and New Jersey, have multi-purpose public counsels, that is, they represent the public interest before a number of administrative bodies. States have placed public counsel offices within the relevant agency, established it as directly responsible to the legislature, or set it up as an independent agency.58/

The primary advantages of placing the office within the agency is to reduce some tension and hostility that can arise as well as increase access to relevant information. The disadvantage is that the counsel may work too closely with the agency and lose its independent status.

Placing the agency under a legislative committee can lead to increased financial support for the office as well as provide some independence from the agencies involved. This, however, can also subject the office to interference and turn it into a political football, especially if the office has taken on some controversial cases.

The possibility which may provide some autonomy is to set up the office outside the present administrative structure and

---

58/ See F.N. 54, p. 897.

fund it by assessments from the relevant regulated parties. If the office is set up for representation before the public utility commission or the state siting council, the regulated utilities could be assessed.

New Jersey,[59/] which has the most extensive program, places the public advocate in the Governor's cabinet. In addition to the advocate role, he is the head of the State public defender service. The agency, Department of the Public Advocate, has suffered some appropriation cuts in the last few years. This suggests that the independence and power of such an office can provoke legislative retaliation.

The powers of the public counsels vary from state to state. Offices can be set up to lobby, intervene in administrative proceedings, and seek judicial review of adverse agency determinations. It should be pointed out that the power of the office can be severely limited if the office cannot seek judicial review of administrative determinations in proceedings they were a party to.

The California Energy Resources Conservation and Development Commission has an office of the Public Advisor who serves as a neutral facilitator of public participation, acting as one who takes all reasonable steps; short of representing individual groups or the public at large, to reduce the transaction costs of participation in the Commission's proceedings.[60/]

59/ See F.N. 55, pp. 149-50.

60/ See F.N. 54, p. 899.

The public counsel concept can be an effective way of facilitating more adversarial input. There is, one trap such an office can fall into. Unless the legislative mandates are clear, the counsel may be choosing between several competing public interests in deciding which position to represent. Once that selection is made he is foreclosed from advocating other "public" interests.

c. Financial Support for Intervenors

Another form of government funding of public interest representation is direct grants to prospective participants for their participation in agency proceedings. This is a relatively new concept which is being seriously discussed on the federal level.

In 1975, Congress passed the Magnuson-Moss Warranty and FTC Improvement Act. The Act authorized the Federal Trade Commission to award direct compensation to public participants in trade regulation rulemaking proceedings. The Act allows the FTC to award attorney's fees, expert witness fees and other costs of participants to:

> "(a) any person who has or represents an interest which would not otherwise be adequately represented in a rule-making proceedings and representation of which is necessary for a fair determination of the rulemaking proceeding taken as a whole, and who is unable effectively to participate in such proceedings because such person cannot afford to pay costs of making oral presentations, conducting cross-

examination, and making rebuttal submissions in such proceeding."61/

Probably the most significant activity in this area has been Senator Kennedy's "Public Participation in Government Act of 1976," S.2715. While the bill did not pass the 94th Congress, it will most likely be reintroduced. The information assembled by the Subcommittee on Administrative Practices and Procedure of the Committee on the Judiciary in their hearing record is most useful to any governmental unit interested in expanding its programs in this area.62/

The bill authorizes compensation to eligible persons in agency proceedings whenever such participation promotes a full and fair determination of the issues involved in the proceeding. Eligible persons are those who represent an interest which, if represented at a proceeding, can lead to a fair determination of the proceeding, and the economic interest of the person in the proceeding must be small in comparison to the cost of the proceeding. The bill also sets up schedules for advance payments and provisions for judicial review of the determination of whether to compensate.

The direct compensation procedure, like the others, has some advantages and disadvantages. First of all, the concept

---

61/ 15 USC 58(h).

62/ Subcommittee on Administrative Practice and Procedure of the Committee on the Judiciary, U.S. Senate. (1976, Jan. 30 and Feb. 6) Hearings on "Public Participation in Federal Agency Proceedings."S.2715.

does not increase the participation of the ordinary citizen. Generally such citizens, even if supplied with the resources to do so, will probably not make the effort to participate in complicated agency proceedings. The approach does allow for the establishment of a solid public interest bar. This will, however, allow previously unadvanced adversarial positions a thorough hearing. The program also has the advantage of independence from the government. As long as the mandate for compensation is clear and judicial review is established, the threat of agency or legislative interference is small.

d. Residential Utility Consumer Action Groups (RUCAG)

Ralph Nader's Public Citizen organization is promoting a proposal to use a checkoff system linked to utility bills to finance statewide consumer advocacy organizations in the utility area.63/

Under the plan, utilities would be required to include with customer bills checkoff cards on which consumers could, if they chose, agree to support RUCAG. This process is similar to that employed on many university campuses to establish Public Interest Research Groups (PIRG).

Under the Nader plan, RUCAG would be run by a board of directors elected by the contributors. The board would hire staff to represent consumers in utility proceedings.

The program has the advantage of independence and in stable

63/ See F.N. 55, p. 328.

funding source. Possible disadvantages would be in selecting areas of focus and possible conflicts between consumer and environmental goals.

5. Litigation and Attorney's Fees

Most of the models discussed for securing public participation have dealt with participation in the formulation of policy and the implementation of it. The other obvious avenue for participation occurs once the decisions are made and the citizen still feels wronged by the action. At this point the available recourse is to seek judicial review of the agency action.

Under the Federal Administrative Procedure Act[64/] (which is a model for most state APA's), citizens "aggrieved by the agency action" have standing to seek review of that action. Even when the citizen has standing to challenge the action he still has the financial disadvantages that he faced at the administrative level. Rather than discuss the in's and out's of the judicial process, the option of court awarded attorney's fees as a means of overcoming this financial disability is reviewed.

The common law American Rule in this area is that attorney's fees cannot be awarded by a court unless provided for by statute. Exemption from this rule has been allowed where the management of a common fund is at issue, where a party displays bad faith, or a party willfully disobeys a court order. A fourth exception was being advanced in the federal courts until the Supreme Court

---

64/ 5 USC sec. 551 et seq.

issued its opinion in Alyeska Service Corp. v. Wilderness Society.[65/] In that case the D.C. Circuit Court of Appeals awarded attorney fees to the Wilderness Society under a "private attorney general theory." The Supreme Court reversed and reverted back to the American Rule with the three established exceptions.

This had led to much discussion about statutory authorization for the fees. S.2715, the Kennedy bill already discussed, provided for attorney's fees under a statutory private attorney general theory. Additionally, several pieces of federal legislation have been passed which allow for attorney's fees to citizen-plaintiffs.

This is an option states could consider in providing for enforcement of its energy and environmental laws. Otherwise, as the cases become more complex and expensive, citizen-plaintiffs will be denied the enforcement privileges.

6. Advisory Bodies

There are thousands of official advisory bodies attached to federal, state and local agencies. These have been created to benefit both the public and the decision makers. The latter receive information and advice based upon the experience, technical competence and unique perspective of the citizen advisors which may not be available from governmental sources. The public benefits from the additional opportunities to make inputs, to receive information and to learn more about the policy pro-

---

65/ 95 S. Ct. 1612 (1975).

cess. That there are so many advisory boards at all levels of government is testimony of their perceived value. There are those who criticize advisory boards, arguing that they serve little purpose other than to cloud who is responsible for decisions, mislead the public into thinking that there has been citizen participation and to give special privileges to some insiders.

Variations in the structure and purposes of advisory bodies can be found in:

a. Legal Bases - some are established by statutes which can vary from general mandates that they be "established" to laws which prescribe details of membership and scope of operations, others are established by executive orders of responsible officials and exist at their pleasure.

b. Permanence - many advisory bodies are summoned for one assignment only, although this can be a prolonged effort such as the Alternatives for Washington Committee or Seattle City Light's 1990 Citizens Committee, while others are to continue as long as the programs are in operations - there have been Forest Service and National Park Service committees for decades.

c. Membership can be left to the appointing officer or can be prescribed by law to include specific interest such as the Grazing Boards which were to have persons representing cattle, sheep, and wildlife interests. It is probably illegal for statutes to specify that a particular private organization be represented since if that organization refused to name a member,

expelled from membership a person appointed or ceased to exist, the advisory body could not function and the legislature would have unconstitutionally delegated its authority to a private group. There are also inter-agency advisory bodies with ex-officio members. The range of interests to be represented, the numbers of members, the duration of the appointments are additional factors to be considered. Should members be (1) "delegates" reflecting certain interests and perhaps even "instructed" by those interests how to participate, or (2) "representatives" who, though not instructed, will report back and be an important channel of two-way communication or are to be (3) "public" members selected to use their own judgement and to represent and communicate with everyone in general and no one in particular.

d. Frequency of meetings - infrequent meetings can result in the committee serving as window dressing with the names on letterheads and annual reports but accomplishing little else. Too frequent meeting schedules can preclude all but retired persons, the independently wealthy, or staff whose attendance is part of their paid duty, since the appointees are usually selected on the basis of other accomplishments and activities which must be maintained in addition to the advisory duties.

e. Preparation of appointees is a neglected concern. Persons representing a specific interest come prepared in a narrow sort of way. They need broader horizons. "Public" members may be wise and generally informed but they will need specific information if they are to participate/compete with agency staff and

interested group spokesmen. After all, not everyone is conversant with rates of return or wheeling or net billing. Orientation by experienced and objective third parties would pay dividends in the form of saved time and more informed participation. Brief "training courses" or orientation seminars at a university could provide this. This is a part of the larger question of the funding of these bodies.

f. Advice on what? Careful delineation of the advisory body's role is essential to protect the legally mandated decision makers from meddling or usurping by the advisors. The advisors need to know what is expected of them so they can dedicate the time for meetings and study, receive inputs from the contacts and evaluate whether the whole exercise is worth the trade-offs of their time and reputations. General advice, such as given by the Alternatives for Washington operation can be helpful in sketching the broad goals of the state. It can be so general, however, that no attention is given its product. That expensive effort was not even referred to in any of the equally voluminous and costly Seattle City Light 1990 Project. Advice on when to put snow tires on utility trucks is hardly worth obtaining. Somewhere in between lies the domain of an advisory body. At a timely point in the circumstances that call for decisions (see earlier section) advisors want to be consulted unless they are on the boards for the free trips to the dams and powerhouses, the free lunches, the status, and the comradery.

g. Advisory board procedures are being brought under the

laws and regulations governing other public bodies. Timely notice, a preannounced agenda, open meetings, selection of presiding officers, accurate minutes, fair hearing from those who want to participate, agreed upon voting or other decision making processes are among the important details that must be taken into account when establishing such a body.

At best, advisory boards can serve as one more avenue for some of the public to participate in more depth than is usually possible. It is one way to include a variety of viewpoints that might not be heard at other types of public meetings including hearings. This also gives the media another apportunity to cover a part of the decision making process. The preparation required by administrative staff to service such advisory efforts can be costly and must be weighed in terms of the benefits that accrue. Perhaps anticipating meetings of advisors so sensitized administrators of the various factors that must be considered that they therefore devise policies which are more reflective of what the public wants. Then the interests of economy and democracy can be well served.

An interesting challenge to the advocates of the advisory board system would be the structuring an appropriate one for energy policy in the Northwest. First, one would have to know what governing body or bodies is to be advised. A new regional PUC? A regional siting council? An interstate energy corporation? (Should advisory councils be required of private corporations as well? The United Auto Workers have experimented in this

direction.) The existing cluster of agencies?

This exercise could proceed down the list of items indicated above. For example, if a new energy agency is created, there would be an opportunity to provide a statutory base for an advisory body. The possible use of other state or local agencies as the basis for part of the membership should be explored and the experience of councils of government and other such bodies drawn upon.

7. Public Opinion Polling

When scientific public opinion sampling first appeared in the 1930's its more zealous advocates proclaimed a new era of direct democracy which would enable governments to be responsive without waiting for scheduled elections to give their verdicts, which were always confused and muddled by party labels and candidates' personalities. While things never went that far, polling remains controversial even including suggestions that polls influenced the outcome of the 1976 elections. British Columbia has outlawed polling immediately before elections in order to prevent poll results from creating "bandwagon effects", but the First Amendment precludes that in this country. Legislators are sometimes jealous of their roles as representatives of public opinion and prudent administrators should note the possible consequences of using public monies in this field. The taking of polls is often openly proclaimed as evidence of the "openness" of the policy developers. Surveys were taken for Alternatives for Washington and the Idaho State Water Plan was devised after

receiving inputs from many public meetings and from opinion surveys taken by telephone in October 1972, December 1973 and January 1975.

The intelligent use of public opinion polling, as distinguished from prudent political uses, requires a basic knowledge of the process and some of its limitations. A good survey is one which: (1) asks the questions that need to be answered of (2) an accurately drawn sample of the particular public whose opinions must be considered (3) by unobtrusive measures which don't bias the responses which are then (4) honestly interpreted claiming neither more nor less than the data support. Such surveys can be valuable to government decision makers. Evaluating polls taken by other organizations can be a useful adjunct to the sources of information an agency has. For example, the June 1976 edition of the Oregon Department of Energy's newsletter, "Energy to Date", cites a survey of the [University of] Oregon Research Institute reporting on citizens' attitudes toward the 55 m.p.h. speed limit.

First, then, agencies should know what they are trying to find out, that is, why they want a survey taken. Some agencies decide to take a poll because every modern agency does or because they are uncertain what to do. If the agency does not know what it wants to find out, neither will the pollsters, although private profit making businesses and university based researchers alike will gladly take the fees offered. The fees will vary with the size of the sample, the complexity of the questionnaire, the

variables in the questions and the population, the degree of accuracy required and whether or not the survey can be piggy-backed on another, thereby sharing expenses.

Sampling the "universe" (the public whose opinions are sought, e.g., voters in a public utility district, all of the voters in the state, sports fishermen, etc.) is a complex scientific process. The size depends upon the number of different factors that must be taken into account and the degree of accuracy sought. National presidential surveys can be quite accurate with a sample of only a few thousand out of tens of millions of potential voters.

Sample size can also relate to the techniques of the pollster. Some prefer to do in-depth interviews lasting an hour or two with a very small number of people while others may send post cards for replies from thousands. Another method establishes a carefully drawn panel of persons who are surveyed on many issues over a long period of time while others will use a random group from telephone directories for telephone interviews. On-the-street interviews and mailing ballots clipped from newspapers are notoriously unreliable. The traditional brief (5 to 10 minutes) interview of persons scientifically selected is the usual pattern. A few pollsters select bellwether precincts, sample opinion and look for changes and trends as they visit with the residents there.

The schedule of questions must have been pretested to eliminate bias and must be administered with a bias-free technique. The race, sex, age and demeanor of the interviews can become

obtrusive unless care is taken. Questions can be open-ended, which give in-depth insight into attitudes, but these are expensive and difficult to tabulate, or multiple choice, which can help measure direction and intensity of feeling, or can be simple preferences such as appear on ballots.

Many candidates have been misled by polls because they saw what they wanted to see in the responses rather than what could be honestly inferred from the data. Administrators must also guard against wishful thinking of this sort. Judgements on what the data suggest as a possible course of future action must still be made.

Alternatives for Washington had five surveys taken including use of one statewide sample, ten regional samples, responses to newspaper inserts and responses of conference participants. Their own analysis of these exercises indicate a responsible effort to avoid erroneous self-fulfilling conclusions. Their surveyors also recognized the limitations of this sort of input: "We believe that public opinion is only one of many factors that need to be considered in arriving at policy recommendations. To ignore others, e.g., economic efficiency, energy requirements, institutional adjustments, and national security to name just a few, is unthinkable. But it is equally unthinkable to ignore public opinion."66/ And the basic philosophical issue of what difference poll results should make remain. Suppose polls show

---

66/ Washington, State of, Office of Program Planning (1975) Alternatives for Washington, Vol. VI, p. 19.

most people are racially prejudiced? Then what? Basic constitutional and statutory provisions stand regardless of the whims of the public at the moment. Still, policy has to be somewhat in tune with what this public wants now. If not the public's judgement, then whose?

Few governmental units are well equipped to evaluate the proper use of polls and the qualifications of pollsters in the same way they can deal with accounting firms or engineering consultants. The above is meant to assist in this process. Even fewer will want to do their own surveying of public opinion. All should know what is involved and consider polling as one device for securing public inputs.

8. The Jury Model

Administrative processes have joined the legislative process in the march toward "judicialization". In the search for fairness to participants, and in an effort to examine evidence to achieve something akin to scientific certainty in public policy areas where uncertainty must abound, American government has increasingly adopted the judicial model. The prospect of a neutral judge and jury hearing learned and informed testimony from expert witnesses whose credentials and opinions are carefully cross-examined by trained advocates is an appealing contrast to closed rules committee meetings of legislatures or unchallenged falsehood cleverly presented in election campaigns. It is no wonder that "due process" is now required under federal and state administrative procedures acts.

A further extension of this judicialization of administrative and decision making processes could be the adaptation of the jury system to new situations. Some would contend that this is what often occurs in legislative processes now. A complex issue is presented by an administrative agency, a private group or legislative staff. The agendas are always crowded with urgent business so the matter is referred to committee which then usually hears a variety of voluntary and invited witnesses who are questioned by legislators and staff with varying degrees of competence and coherence. The legislators are not expert on all matters so must rely on witnesses and staff counsel to explain the options. The legislators then deliberate much in the manner of a jury and arrive at a decision. A similar decision making process occurs within the administrative branch. But it lacks the precision and thoroughness of fullblown judicial proceedings.

Are there not situations where questions of fact must be settled and some sort of collective public wisdom applied to achieve a result in the public interest? Perhaps an energy siting choice might be an example. A group of citizens is selected in the same way a jury is impaneled, that is, their names are randomly selected from lists of registered voters. Thus a cross section of the population reflecting the various age, sex, race, income, educational and other characteristics of the population are included. They are subpoenaed to serve, are given leave from their jobs and receive public compensation. Jurors are excused if the presiding "judge" finds they are biased.

What other method of securing public representation could compare with this proposal? Elections often have very low turnouts of select parts of the population. Active party membership is miniscule in the Pacific Northwest. Interest group memberships are small, often overlapping and often self-serving. Public meetings and hearings have problems in securing attendance and in encouraging effective participation. Advisory boards are often limited by statute to certain categories or are too time demanding for unpaid members.

After the jury is seated, the issues are presented by the counsel for the decision making agency, expert witnesses are brought in and examined and cross-examined by opposing counsel. Just which parties will be allowed to intervene and serve as opposing counsel to present and examine witnesses would have to be worked out in order to achieve balance and yet expedite the proceedings. The questions of whether the facts support the need for a generating facility and, if so, which location is preferred, etc., could be decided by the "jury" which then would be dismissed. This model holds the promise of both objectivity and representativeness in the decision makers and of imposing higher standards of argumentation and documentation than is customarily found in the present patterns. There are problems to be sure. Perhaps a beginning could be made by using the jury model to replace some citizen advisory boards in a less than final decision making process.

9. Other Opportunities

Many public officials are very skilled in the art of involving citizens in the policy making process. But others could use assistance in:

(1) understanding the total policy making process in order that they might see what their particular role is and to understand better how the various publics perceive their own interests and the public interest;

(2) identifying various publics and how to seek them out. Many publics identify themselves by initiating legal actions, participating in protests and public meetings and in corresponding with agencies. But identification of publics by agency staff is basic and can be developed over time as mailing lists and other records are accumulated. It is also useful to involve third parties, for example, citizens committees, in the identification effort;

(3) acquiring new techniques in conducting public meetings in an expeditious manner that is also open, relaxed, informative and impartial;

(4) developing:

(a) workshops for various publics including the media, opinion leaders, other agencies' personnel, legislators and staff, the general public. Perhaps the use of a neutral third party such as a university might be better received. Examples: Alternatives for Washington, LCDC, Idaho Water Plan, USFS, etc.

(b) mailback responses including questionnaires in utility bills (Seattle City Light). Newspaper inserts (LCDC, Alternatives

for Washington) or through required distribution such as the ICC mandated form that movers of household goods must give to customers although they need not mail back the card to the ICC.

(c) hotline, tollfree telephone service to receive inquiries and statements from the public. The Oregon and Washington legislatures and other agencies have made use of this. The costs are not only in the telephone charges but also must include staff time to receive and respond to the messages. Experience has been mixed and experimentation is needed.

(d) techniques for using other wire communications systems. Cable television holds enormous potential for two-way communication among various areas and groups. Computers and printout devices make it possible to retrieve massive banks of data. The Washington legislature could sort out the status of legislation and the financial implications of proposals by use of computers. The potentials here are almost beyond imagination.

(e) mediation of disputes by professional mediators (University of Washington, Midwest).

(5) improving existing contacts such as placing the required public notices of meetings where most people will see them (Portland City Council and Planning Commission agendas now appear on the sports and other pages of daily newspapers in paid advertisements instead of the obscure public notice sections of the classified ads), invite the specialized media as well as the commercial media to cover hearings, meetings and conferences. State legislatures are partially covered now by state-owned

radio and television, city council meetings are sometimes covered by nonprofit listener-supported stations. Agencies could monitor "letters to the editor" columns and "talk shows" on radio, and publish agency newsletters and magazines. All of these remain in permanent need of review;

(6) streamlining hearings procedures by:

(a) defining carefully the different roles of parties, protestants, etc., to provide for fair yet expeditious proceedings.

(b) eliminate unnecessary barriers to participation such as requiring ten copies of testimony in advance, or have it done by the agency.

(c) allow persons to put in the record in writing or by tape, comments on issues including rebutting previous materials presented. Keep the record open after the close of formal hearings for these purposes. Top officials need not be present at all of this but the citizen must be assured his input is received.

(d) begin sessions with an effective presentation of the context of proceedings and what is to be decided by whom, when and where.

IV. Summary

Public participation in policy making is a "given" in a democracy. Pacific Northwest citizens are almost overwhelmed by opportunities to participate by voting in elections to nominate and elect officials and to decide on state and local ballot

measures. Political parties, though declining in influence, are open to all. Interest groups are easily formed and provide avenues of influence in legislative, administrative and judicial proceedings. "Due process" is required of all public bodies.

The growth of government has been paralleled by the search for additional forms of participation. More public meetings and hearings, citizen advisory boards, and opinion polls are among the responses to this trend. Other options such as employing the jury system as model have been suggested.

State policy making institutions can view these as constraints on their ability to proceed responsibly or can take them as opportunities for securing public input, understanding and even support.

TASK 5

RATE-MAKING

Historically, the Pacific Northwest has enjoyed a plentiful supply of locally generated electric power, augmented in recent years by natural gas transmitted from outside the region. These two (plus a limited amount of steam power) are the principal forms of energy over which authorities in Idaho, Oregon, and Washington have had effective rate-making or rate-approving authority. Therefore, any discussion of how institutional aspects affect the rate-making or rate-authorizing functions of government agencies in the Pacific Northwest will naturally concentrate on the regulation of electric and natural gas rates.

The wholesale price of imported natural gas is beyond the scope of these authorities' influence; all they can do is to regulate the spread between wholesale and retail rates. With respect to determining electric rates, however, they have a great deal more discretion, as the following pages will explain. Most (but not all) of the discussion in this report will therefore focus on finding appropriate principles and institutions for rate-making in the electric power industry.

I. Current Practices, Patterns, and Problems

The current rate-making process in the electric power industry operates on three levels:

A. The Federal level, via the Federal Power Commission (FPC)

B. The State level, via the individual States' Public

Utility Commission (PUC's)

C. The local level, via Public Utility Districts (PUD's), municipally-owned power companies, and cooperatives

Rate-making is carried out at each level, though under different regulations and within different parameters. For a discussion of the structure and particular procedures of each of these actors, the reader is referred to specific literature.1/

A. The Federal Power Commission

The FPC might properly be thought of as the initial regulatory authority in the rate-making process. It concerns itself with all wholesale transactions, i.e., sales for resale, of any organization engaged in the generation or transmission of electric power. It is particularly concerned with the interstate aspects of power, including - importantly in the Pacific Northwest - transactions involving the Bonneville Power Administration (BPA).

Historically, the FPC made its first impact by enforcing a uniform system of accounts.2/ It has remained relatively inactive as rate-maker, often restricting itself to receiving the

---

1/ (a) Northwest Energy Policy Project (1977) Institutional Constraints and Opportunities, Study Module V, Tasks 1, 2 & 3, pp. 6-16 to 6-19.
(b) Davis, C. Laws Relating to the Public Utility Commissioner of Oregon 1976 (Ore. Sec. of State).
(c) Idaho Public Utility Laws: Title 61 and Ch. 3 and 12, Title 62, "Rules of Practice and Procedure of the Idaho Public Utilities Commission".

2/ Wilcox, Clair & Shephard, William (1975) Public Policy Toward Business, 5th Ed. Richard D. Irwin, Homewood, IL, pp. 404-5.

rate schedules that were being proposed by the individual electric companies, districts, and authorities. With respect to BPA, the FPC has in the past concentrated on insuring that BPA rates conform to federal law, recovering particular costs as stipulated. In recent years, however, the FPC has become more active, and it may in future years play an increasing role in formulating Northwest energy policy - especially since much of the electric power consumed in this region is "wheeled" by BPA or is otherwise involved in interstate transmission.3/

B. Public Utility Commissions

PUC's intervene in the rate-making process on the retail level: they examine and modify or approve retail rates suggested by investor-owned, private utilities, case by case. Their jurisdiction is limited to retail sales of power within their state; they have no control over wholesale rates.

In the Pacific Northwest, Oregon's Public Utilities Commission, Idaho's Public Utilities Commission, and Washington's Public Utilities and Transportation Commission, collectively to be referred to as PUC's, have very comparable functions and assignments. By statute, they are responsible for ensuring that customers receive adequate service while the suppiers receive

---

3/ (a) Breyer, Stephen G. & MacAvoy, Paul W. (1974) Energy Regulation by the Federal Power Commission. The Brookings Institution, Washington, D.C.
(b) Helms, R. (1974) Natural Gas Regulation: An Evaluation of FPC Price Controls. American Enterprise Institute for Public Policy Research, Washington, D.C.
(c) Curry, M. & Greene, M. (June 1976) "The Influence of Selected Federal Statutes on Energy Development". Battelle, Pacific Northwest Laboratories, Richland, Washington. (For additional information.)

a fair and reasonable return on their investment. Given these fairly uniform statutory responsibilities and the standard cost-based criteria for determining rates, the PUC's have operated in basically the same manner: they have attempted to ascertain how much it cost the utilities to provide the electric power they expected to sell (including a fair rate of return on investment), and have set the rates to cover these costs. This process is known as determining rates on the basis of "embedded costs". In recent years, however, Oregon's PUC has introduced several new principles into the rate-making process, including "modified long-run incremental costs" as a method for determining rates.

The effective impact of PUC determinations varies considerably between the three states of the Northwest. In Oregon and Idaho, private utilities deliver by far the largest part of total electric power sales, which means that the PUC's in those two states wield considerable influence over rates and rate structures, though they regulate only a small number of companies. In the State of Washington, however, most of the electric power retail sales are by PUD's, municipals, and cooperatives, none of which are regulated by their state's PUC. This difference has considerable impact.[4/]

C. Public Utilities

Public utilities - a collective term for Public Utility Districts, municipally-owned systems, and cooperatives - are not specifically classed as regulatory bodies. But they do exercise

---

4/ See F.N. 1(a).

rate-making authority because they determine independently the retail rates that they charge their customers. As public bodies, they are expected to have defined the public interest and to be active in furthering it, without need of regulatory supervision by any other public body. Like all BPA customers, they must submit their rate schedules to BPA for approval which has, however, never yet been withheld.[5/]

Public Utilities play a very important role in the state of Washington, where they predominate, and a lesser role in Oregon and Idaho. They are more numerous and, with some important exceptions (Seattle City Light Co., for example), smaller than the investor-owned utility companies in the Northwest. As public bodies, they enjoy special advantages not available to private power companies: their bonds, being tax exempt, can be floated at much lower cost; they are themselves legally tax-exempt, and they have no stockholders to whom dividends must be paid. Furthermore - and this is at the moment a most important factor - they receive, under the law, first preference in the distribution of power originating from federal hydroelectric generating facilities.[6/] While the Northwest used to have enough of this power to permit the Bonneville Power Administration to make contracts including

---

5/ Bonneville Project Act of 1937 established the Bonneville Power Administration, whose customer utility companies must file their rate schedules with it. BPA occasionally recommends changes and modifications in an advisory capacity. The only mandatory aspect of this examination concerns the distribution of net profits from energy sales. No publicly-owned electric utility can qualify for low-cost BPA power if its net revenues are used to finance projects not related to its principal business of providing energy.

6/ See F.N. 5.

firm commitments of delivery to private utilities and to industrial customers as well, the tightening of power supplies has kept BPA from renewing these contracts as they expired. Public utilities have first call on BPA's low-cost power; private utilities have had to arrange for their own reliable sources of energy, at higher cost, and industrial customers will have to do the same when their contracts run out in a few years.

D. The Lack of Uniform Rates, and the Consequences of Disparity

A sound energy policy requires that the institutions concerned with it be simple in structure, amenable to change in the desired direction, and responsive to the decisions of policy makers. The first of these requirements is critical, since the other two depend on it very heavily. If the institutions that govern the setting of electric power rates are complex, they are much more likely to be mutually contradictory, and the problem of making them all conform to each other - or to a change in policy - will be multiplied.

Because the price of electric power in Idaho, Oregon, and Washington is determined by three unconnected PUC's for nine private utilities, and (independently) by 62 municipalities, 53 cooperatives, and 25 public utility districts whose cost structure differs significantly from that of the private utilities, there are many different rate schedules in force in the Northwest. (See Table 1 for illustrations.)

Such price differentials may be less important in the elec-

TABLE 1

TYPICAL MONTHLY ELECTRIC BILLS
Residential Service
Autumn, 1976

	Type of Co.	200 Kwh.	500 Kwh.	1,000 Kwh.
Boise & Vicinity				
Burley, Idaho	Mun.	$ 4.95	$ 9.18	$15.25
Rupert, Idaho	Mun.	4.50	7.50	11.25
Idaho Power (in Idaho)	Priv.	8.57	13.42	19.56
Idaho Power (in Ore.)	Priv.	8.40	13.00	18.55
Portland & Vicinity				
Portland Gen. Elec. Co.	Priv.	7.23	13.95	25.15
Pacific Power & Light Co.	Priv.	5.75	10.10	17.35
Hood River, Ore.	Co-op	12.00	12.00	13.05
Canby, Ore.	Mun.	3.63	7.38	11.88
Forest Grove, Ore.	Mun.	3.44	6.08	10.48
Clatskanie, Ore.	PUD	2.90	5.60	10.10
Clark Co., Wash.	PUD	3.80	6.20	10.20
Seattle & Vicinity				
Seattle, Wash.	Mun.	3.06	5.42	9.72
Puget Sound P & L Co.	Priv.	5.75	10.10	17.35
Snohomish Co., Wash.	PUD	3.10	5.50	9.50
Tacoma, Wash.	Mun.	3.97	8.05	12.80

Source: Typical Monthly Electric Bills for Pacific Northwest Utilities, Bonneville Power Administration, Nov. 1, 1976.

tric power industry than in other industries, since each of the supplying companies has an exclusive territory in which it provides a perfectly standard commodity (or service) to virtually all households and businesses. Thus, these companies do not engage in price competition with each other; as power supplies tighten and rising output means higher unit costs of production, they simply become less aggressive in seeking new business. Some of them even talk of turning business away, e.g., by counseling potential immigrant industries against locating in their service area.7/

Yet there is competition among the retailers of energy. Electric utilities still vie with gas companies and with fuel oil suppliers for customers. Until recently, they occasionally even competed openly with each other: in The Dalles and in Eugene-Springfield, Oregon, for example, the Pacific Power and Light Company levied lower rates than in the rest of the state, apparently because a part of these communities was also served by a public utility. These particular situations no longer exist, but other elements of competition remain. "Providing the service the public demands" is not as passive a role as might first appear: none of the utility companies are really ready to discourage power consumption, and all of them have plans to build more generating capacity "as needed." It took PUC initiative to stop private utilities from offering promotional electric rates (e.g., lower rates for the "all-electric home") and to reduce

---

7/ Interview with W. Coryell, Director of Contracts and Rates, Idaho Power Company, Dec. 7, 1976.

promotional advertising and other sales and marketing policies intended to increase sales. And the public utilities in this region, whose rates (not subject to PUC scrutiny) are among the very lowest in the nation, are still attracting new businesses to their service territories, seeming to compete like any other low-cost producer.

Whether the electric power industry should, under current conditions, encourage or discourage the public to continue to rely on low-cost power is a matter for public policy to decide. But public policy must be specifically implemented. The industry, which consists of a collection of local monopolies that are heavily regulated, needs to be guided by public agencies into conforming with the public energy policy that was decided on. Are the existing institutions equipped to carry out the general policy, so that it can be implemented promptly and evenly throughout the Northwest? The following considerations are pertinent:

1. PUC's have no jurisdiction over public utilities at all.

2. Some electric utilities - especially those that can generate more hydroelectric power than their own retail customers need - are effectively insulated from the impact of any power shortage that might develop. Their retail rates can remain low while users of electricity in the rest of the region experience fast-increasing electric rates or even interruptions of power deliveries.

3. PUC's deal with the private utilities they regulate on

a case-by-case basis, examining each rate application as it comes in, with little reference to general principles or to what was decided for another company in another rate case. For example, of Oregon's two principal private utilities, only one was permitted to include any part of the costs relating to "construction in progress" in its rate base.[8/] Sometimes the rates approved for different private utilities in the same state by the same PUC at almost the same time vary considerably (cf. Table 1). Even the rates of return on investment allowed for the several private utilities in the same state may differ substantially, depending on their respective cost structures, their bond ratings, their capital requirements, etc.[9/]

4. PUC's have no authority over electric rates being charged outside of their own state, not even when one company sells power in two or all three Northwest states (as Pacific Power and Light Company does, for example). Nor is there agreement among the three PUC's regarding the appropriate rate of return on investment.

5. The greater the rate differential between private and public utilities, or between energy suppliers operating in different states, the less likely it is that public policy concerning the appropriate level of power consumption can be

---

8/ Interview with Frank Dillow, Deputy Public Utilities Commissioner for Oregon, July 24, 1976.

9/ Interview with Evan D. White, Administrator, Economic Research & Financial Analysis Division, Oregon Public Utilities Commission, November 1, 1976.

carried out effectively. Such diversity could mean that new customers, instead of being discouraged, merely decide to locate in the service territory of a low-priced energy supplier, e.g., that of a public utility.10/

6. Because public utilities happen to be spread very unevenly in the Northwest, being more prevalent in Washington than in either Idaho or Oregon, and because they are also distributed very irregularly within the individual states, a bias is introduced into the location decisions of new customers that has important geographic, economic, and even political implications.11/

7. Even if the entire electric power industry were to agree to abide by an agreed-on public policy, suppliers would be slow to conform to it. Much of the industry operates on the basis of unusually long-term contracts (often valid for decades) that must first be permitted to run their course.

8. The question is one of relative uniformity. Public and private utilities need not have identical rate schedules. However, the smaller the differentials in any of the above respects, the greater the likelihood that public policy can be implemented

---

10/ Huntington, S. (November 1975) "The Rapid Emergence of Marginal Cost Pricing in the Regulation of Electric Utility Rate Structures". Boston University Law Review, Vol. 55, No. 5.

11/ (a) Berlin, E., Cicchetti, C. & Gillen, W. (1974) Perspective on Power: The Regulation and Pricing of Electricity. Ballinger Publishing Co., Cambridge, Mass.
(b) Energy Policy Project of the Ford Foundation (1974) A Time to Choose: America's Energy Future. Ballinger Publishing Co., Cambridge, Mass.

evenly and effectively for the entire region.

II. Institutional Alternatives

Current authority over electric power rates could be realigned in the interests of greater uniformity. There are three ways of doing it: changing the institutional structures, altering the legal arrangements influencing the price and the supply of electric power, and insisting on better coordination of local and state policies to conform to regional objectives.

A. Changes in Institutional Structure

1. Converting private into public utilities, as proposed on several levels during the past year, would produce much greater uniformity of electric rates. Private utilities could gain access to low-cost hydroelectric power marketed by BPA; in this way (and in others) the rates charged by private utilities could approximate those of public utilities more closely.

a. One Portland City Commissioner proposed organizing a municipally-run power company, so that the city government could purchase the electricity it needs directly and at lower cost from BPA instead of from the Portland General Electric Company.

b. Two initiative petitions have appeared on local ballots in recent elections proposing that the City of Portland purchase and operate as a public agency the local facilities of the Pacific Power and Light Company. (Some proponents combined this proposal with a more ambitious one for having the City of Port-

land purchase the facilities of the Portland General Electric Company as well.) The purpose here again was to give Portland residents, currently supplied by private utilities, access to much lower cost energy supplied by BPA.

c. The Domestic and Rural Power Authority, a state-wide public utility, was proposed by Oregon's PUC in order to qualify all of the state's domestic and rural electric energy uses for lower-cost power from BPA. It would lease the necessary facilities and equipment from the private utilities now serving those same customers, and would leave to the private utilities the business of serving commercial and industrial users.12/

This proposal, which might well be emulated in Idaho and even Washington, is intended to give Oregon's domestic and rural customers of private utilities better access to low-cost hydroelectric energy under the BPA Act's "preference clause." As the demand for power has outrun the supply from federally-owned dams, the BPA has been unable to renew its commitment to supply private utilities after earlier contracts expired: it even put large industrial customers - who had enjoyed a certain degree of preference - on notice that they, too, should look elsewhere for their "firm" power supplies when current contracts run out. In mid-1976, BPA told its "public agency" customers not to count on "firm power," either.

The scramble for BPA's low-cost energy under the "preference

12/ "Domestic and Rural Power Authority," Draft Proposal, Office of the Governor, Salem, Oregon, December 27, 1976.

clause" will intensify if additional public utilities are formed to supply customers hitherto served by private utilities. The BPA's present intention is to commit itself to providing up to 25,000 k.w. - a relatively very small amount - to each qualifying customer, and to allocate the rest of its energy supplies in 1983 on the basis of the load pattern then existing. However, present legislation may well be amended by that time - a number of bills have already been introduced in Congress - which might alter the BPA's rules for distributing electric power, as well as (perhaps) the role it might play in developing Northwest energy policies. To speculate on BPA policy under current or changing federal legislation is beyond the scope of this paper.

2. An alternate idea, also occasionally proposed (though not as frequently in recent years not in the same detail) is to turn public into privately operated utilities. The transformation would be gradual: after the example of the Tennessee Valley Authority, bonds could be sold in private capital markets; after the example of Amtrak and the Postal Service, the governing bodies could be composed of private citizens. After the example of the disposal of manufacturing and training facilities originally built by the government (e.g., in World War II), public utilities might even be acquired by qualified buyers.

Presumably, these suggestions are founded in a general urge to promote private enterprise. The point is made, especially during political campaigns, that public bodies lack a profit motive and therefore have no logical role to play in the

retailing of energy. However, regardless of philosophical considerations, the electric power industry cannot be competitive in the usual sense: technological and economic factors argue for a very high degree of concentration - monopoly, on the local level - and close coordination of policies, even joint ventures undertaken by the "competitors." Notions of competitive free enterprise are therefore somewhat out of place in the electric energy industry.

The practical results from transforming public into private utilities would be to extend PUCs' regulatory authority and make it more pervasive and uniform throughout the industry. Many of the present distortions, brought on by the fact that only part of the industry is now regulated, would disappear.

3. Summary

Institutional changes are difficult to achieve under the best of circumstances. The two proposed above - the conversion of private into public utilities, or vice versa - are frought with strong ideological overtones. The political battles of the 1930's, 1940's, and 1950's, pitting private power against public power advocates have not been forgotten. In some minds, they are smoldering yet,[13/] and even slight provocations will make them break out again into heated disputes. Such a prospect could by itself be a persuasive argument for not attempting radical institutional changes if they can be avoided.

13/ Interview with D. Brazier, Chairman, Washington Utilities and Transportation Commission, October 26, 1976.

B. Legislative Changes to Achieve Greater Uniformity

An alternative to the proposals discussed in the preceding section would be less drastic changes in legislation that might produce more uniform rate-making.

1. At the federal level, the "preference clause" might be repealed, so that all utility companies would receive access to Bonneville's low-cost hydroelectric power. Although the present study does not concern itself with possible changes of federal legislation, this possibility deserves mention. If the preference clause were abandoned, private utilities could once more buy firm power from BPA, and the current distinctions between utilities eligible and ineligible for it would fall away. New problems would arise; Bonneville power would have to be rationed in some other way, or BPA would have to be authorized to purchase and resell, perhaps even generate power (which it is not now permitted to do). These possibilities are beyond the scope of this study.

2. Another proposal would be to expand the jurisdiction of PUC's to cover both private and public utilities, following the example of Wisconsin, to correct what has been called "a legislative oversight."[14/] This would, in effect, install the PUC as ultimate policy-maker with respect to retail sales of energy, and would permit a much higher degree of uniformity of rates and related matters within the individual states.

14/ See F.N. 7.

There is some precedent for granting PUC's jurisdiction over public utilities: in Washington and Oregon, PUC's already are responsible for supervising safety regulations relating to the transmission and distribution of natural gas by both private and publicly-owned gas companies. Admittedly, this is not rate regulation, and the number and scope of these PUC controls is very small. But the arrangement may be symbolic of what could be done under the law.

Except for possible complications arising from the provisions of home rule charters, it is hard to say why a PUC should not have authority over the policies, rates, and operation of local PUD's, municipalities, and cooperatives. However, the plan for setting up a Domestic and Rural Power Authority (see above) faces a different problem. It establishes a state agency to run what is in effect a PUD, headed by a director to be appointed by the Governor. It then subjects this agency's "proposed rates" to review by the PUC, another state agency whose head is appointed by the Governor, with instructions to accept, modify, or reject the "rate requests."[15/] Having one state agency pass in detail on policies and proposals of another state agency for which it has no administrative responsibility may create real difficulties.

C. Coordination of Regulatory Controls

The FPC regulates electric rates at the wholesale level.

15/ See F.N. 12, Sec. 12, sub (1).

In the past, it did not exert a very active control; most people think that, in practice, it merely recorded the rate schedules that the law required wholesalers to submit. Though it may now be taking a progressively more active interest in rates and in the process of setting them, it would be an over-statement to say that it sets them individually, or that it enforces any kind of uniformity of wholesale rates even within a particular region.

The regulatory function is generally ascribed to the PUC's that function in each individual state. In the Northwest, the impact of PUC regulation is very uneven:

State	Number of private utilities	Percent of total electric energy consumption accounted for by private utilities
Idaho	5	92%
Oregon	4	72%
Washington	3	23%

Actually only eight private utilities do business in the three Northwest states; two of them - Idaho Power Company and Washington Power Company - each supply customers in two states, and Pacific Power and Light Company operates in all three.[16/] However, each of the companies doing business in more than one state is regulated in each of them by a different PUC which itself is guided by varying state laws and sets different rates. As a result, the multi-state private utilities are to some extent hobbled by having to differentiate their policies by state.

16/ See F.N. 1(a), p. 6-5.

1. Integrating Rates

Narrowing the considerable disparity of rates would require two types of remedies. One concerns a rearrangement of regulatory functions at the retail level, to give PUC's jurisdiction over public as well as private utilities. This change would, in particular, subject electric rates in Washington - the Northwest's most populous state - to the kind of regulation already established for most retail electric power sales in Oregon and Idaho. Applying regulatory policies more uniformly and reducing institutionally imposed differences in production costs would help to narrow some of the substantial rate differentials between private and public utilities that prevail now.

The other change might be to relieve multi-state private utilities of the need to make separate applications and to adjust to dissimilar decisions by the different PUC's with which they have to deal. One would think that the Idaho Power Company, for example, can supply its customers in Eastern Oregon at the same (or perhaps slightly higher) price than its Idaho customers. Yet this company's receipts from selling 1,000 kwh to residential customers in Oregon was $18.55; the same volume of sales to Idaho residents brought $19.56.[17/] This difference, typical for the entire rate structure, is mostly the result of differential interpretations, regulations, and attitudes of PUC officials in the two states. It creates costly administrative prob-

---

17/ Typical Monthly Electric Bills for Pacific Northwest Utilities, BPA, November 1, 1976.

lems for the company, and it is bound to affect some of its basic policy decisions.

2. Coordinating PUC Policies

An alternative approach to more uniform rate structures in the Northwest is via the gradual assimilation among the Northwest states of methods, judgements, and decisions being developed in each PUC. Surprisingly, staff members in all three PUC's agree that they see their counterparts only rarely, that they do not consult on technical questions, and that they make no effort at all to coordinate their respective processes and procedures. Apparently, the several PUC's do not yet recognize the impact they have on each other as their respective decisions affect the economic climate, particularly the rate of economic growth, in adjacent communities.

In the interests of a regional energy policy, the several PUC's might at least establish a working relationship with each other, determine how they might bring the laws of their several states into closer conformity, exchange technical studies and information, and add to their policy objectives the one concerning "coordination of institutions and policies within the Northwest region."

3. Regional Energy Council

The suggestion recurs that, if the three Northwest states established a formal coordinating body, a more uniform energy policy could be developed. The PUC's of each state affect each other in a variety of ways: by adopting or rejecting new prin-

ciples or practices in regulation that could set a precedent in the region, by affecting (especially through their regulation of utilities in populated border areas) the economy of neighboring states, and by encouraging or discouraging energy conservation. Because the region has a history of plentiful energy supply, the coordination of energy policy has not been a priority item except with respect to transmission and long-range planning of new facilities. However, now that the cost of energy is rising rapidly, the wider technical and economic consequences of PUC action needs to be considered, preferably before it is taken. A Regional Energy Council could be the focus for these concerns.18/

The same arguments advanced here for a Regional Energy Council could, of course, also suggest establishment of a National Energy Council charged with the task of coordinating the policies of regional councils. Consideration of such a proposal would involve the pros and cons of centralizing energy policy formulation in the hands of a federal agency, and it is beyond the scope of this study.

III. Criteria for Rate-Making at the Retail Level

In contrast to ordinary business firms, private utilities have, for about 100 years, been subject to government regulation

---

18/ (a) See F.N. 11(a) and (b).
(b) Brewer, W., "State Energy Policies for the Northwest". Washington Public Policy Notes. Institute of Governmental Research, University of Washington, Seattle, WA.

because of an unusual technological factor prevailing in their particular industry: they have enjoyed substantial reductions in unit costs as their scale of operations increased. Consequently, the utility companies have grown and combined into ever larger enterprises that could operate progressively more efficiently. Because they could avoid the waste inherent in competing facilities - multiple sets of telephone wires or electric lines strung along individual streets, double sets of gas pipelines, parallel bands of railroad tracks connecting nearby communities, etc., etc. - these companies overcame the traditional American concern about monopoly and potential exploitation of customers. Public utilities by definition would not exploit the public. But even the privately-owned utility companies were given sanction to merge, to combine, and to grow substantially, as long as a public supervising authority prevented the exercise of monopoly power by setting minimum standards of service and maximum retail prices.19/

A. Determining Allowable Cost

The theory and practice of setting electric rates is well-established. PUC's are called on to establish what expenses customers can be charged for, and then to set rates to cover the costs that must be met, including a decent return on the

---

19/ (a) See F.N. 2.
(b) Fainsod, M., Gordon, L., Palamountain, J. (1959) Government and the American Economy. W.W. Norton & Co., Inc., NY.
(c) Dimuck, M. (1961) Business and Government. Holt, Rinehart, & Winston, Inc., NY.

capital that has been invested.

A few issues remain to be settled in order to minimize potential economic, political, and social misallocation of resources within the Northwest. Otherwise, the private utilities (especially those that operate in more than one state) might be forced to maintain complicated rate schedules, possibly even duplicate or triplicate accounting records, in an effort to abide by the decisions of different rate-setting authorities.

1. Who pays for a private utility's construction in progress? Oregon's PUC admits at least part of such costs into the category of "costs to be covered," which means that current energy users, when paying their monthly bills, pay in part for work on facilities that are actually not available to them. Idaho's and Washington's PUC's do not permit such expenses in the rate base; they admit only costs of currently operating facilities.20/

2. How should tax regulations - investment tax credits, for example - that postpone or reduce a public utility's tax bill be treated? Their purpose is to encourage investment in new plant and equipment; it would be frustrated if private utilities were, instead of being induced to increase their spending on new plant and equipment, forced to reduce the rates

---

20/ (a) Interview with F. Dillow, Oregon Public Utilities Commission, July 5, 1976.
(b) Interview with E. Shaw, Executive Officer, Washington Utilities and Transportation Commission, October 26, 1976.
(c) Interview with J. Willmorth, Utilities Engineer, Idaho Public Utilities Commission, December 7, 1976.

they charge their customers in step with the reduction of their current tax obligation. On the other hand, if power companies can continue to charge the rates prevailing in the absence of investment tax credits, etc., their customers are deprived of financial benefits from such tax measures, and all the benefits accrue to the private utility's stockholders.21/

3. What, if any, "automatic rate adjustments" can be permitted without specific PUC review and examination, to compensate private utilities for increases in costs over which they have no direct control? For example, should a particular private utility that fuels one of its generating plants with coal be permitted to raise its rates by an appropriate amount without specific PUC review when the price of the coal it must buy is raised? In the interests of promptness, and to avoid costly and troublesome administrative delays, some PUC's (including Oregon's, with regard to one company's steam power) permit such automatic rate adjustments. Other PUC's insist on holding full-scale hearings and carrying out examinations every time, believing that they might uncover possible savings as well as increased costs. A regional energy policy would require that this matter also be decided uniformly by the PUC's that have authority in this region, lest discrepancies arise that lead

---

21/ A recent study by the Environmental Action Foundation reports that utility customers paid $1.47 billion in 1975 to reimburse electric companies for federal income taxes the utilities never paid "because many states let utilities set rates without recognizing the tax benefits of fast depreciation write-offs and investment credits". Wall Street Journal, January 12, 1977, p. 1.

to wasteful distortions.

More general questions arise as well. Potential power shortages raise the prospect of fast-rising costs of production - particularly in the Pacific Northwest, where the opportunities for generating additional hydroelectric power at traditionally very low cost are now virtually exhausted, and where new generating facilities will have to be fueled mainly by much more costly nuclear fuel or coal. The public's principle problem therefore is no longer the threat of exploitation through excessive retail rates. The cost of producing energy, which must be covered by the retail price of energy, will rise considerably in any case. Now the problem is to assure an adequate supply of energy by employing available facilities in the most flexible and efficient manner possible, and by encouraging the timely construction of whatever additional generating capacity becomes necessary.

Not everyone in this region has yet recognized the impact of this change of conditions. Where there has been little economic growth and no shortage of electric energy, the public - including legislators and regulators - have not yet had to face the impending change of conditions and the need for fundamental shifts in regulatory policies. Elsewhere, the experts agree with the analysis of current trends as it is outlined to them, but they defer making the adjustments called for because they do not sense political or public support for the radically new directions that they are asked to take. Such shifts in policy,

if they are to be implemented promptly and smoothly, presuppose widespread public understanding. Many experts on political as well as regulatory matters agree that this has not yet been achieved in the Pacific Northwest.22/ Delayed public recognition of new conditions in the energy industry could be a major stumbling block on the way to a sound regional energy policy.

B. The Historical Basis for Electric Rates

The manner in which PUC's have in the past set allowable rates for private utilities reflects what has been their principal concern: the need to keep prices low. PUC's have wanted to make sure that, in an industry where larger output has meant declining unit costs, the economics of large-scale production are passed on to customers instead of benefitting only stockholders in the private utilities. Traditionally, electric rates were set only after the PUC examined very closely, company by company, what minimum level of operating costs really was necessary to assure an adequate output of electric power, and what rate of return was required by investors to make certain that the individual private utilities would have adequate funds to finance this scale of operations.

Preoccupied as the PUC's were with preventing public utilities from "goughing the public," their emphasis has been on determining and covering actual costs.23/ They have paid

---

22/ See F.N. 13.

23/ (a) Statement of Dr. William H. Melody, July 24, 1975, PUC hearing, PGE UF-3157.
(b) See F.N. 2.
(c) Sarikas, R. & Herz, H. (May 1976) Electric Rate Concepts and Structures: Report to BPA. Foster Associates, Inc., Washington, D.C.

scant attention to what economists call "opportunity costs" - the (possibly much higher) net income that private utilities might generate for their stockholders if, instead of continuing to produce and/or distribute electric power, they liquidated their facilities in this industry and engaged in some other line of business instead. PUC's have, in the past, resisted giving consideration to rate requests based on "What if..." lines of analysis; rather, they have restricted themselves to examining costs that were actually incurred and that had to be covered by customers of the private utilities if the individual company was to remain solvent.

But new circumstances call for new approaches. When energy shortages threaten, energy users should get a clear signal to reduce their energy demands if they want to avoid service interruptions.

C. "Average Cost Pricing" vs. "Incremental Cost Pricing"

Even the experts disagree on whether past criteria for setting rates - the principle of "average cost pricing" - is still appropriate under currently changing conditions. Though economists generally advocate pricing all units of a product at the level of cost of the last unit produced, such a policy clearly would not work when technological achievements permit unit costs of production to fall as a firm's output increases: production costs for the last unit sold would determine the price of all units, including the ones produced earlier and at a higher cost, and the utility would incur an operating loss.

To avoid such losses without resorting to governmental subsidies, PUC's have in the past permitted utility companies to set their rates not by reference to the cost of the last (or incremental) unit of output. As long as unit costs generally declined with increases in output, average costs of producing a particular number of kilowatt hours were higher than incremental costs, and utility companies accepted them gladly as the basis for rate-setting.[24/]

When output can expand only at progressively higher costs, utility rates based on average costs (i.e., including the cost of intra-marginal, lower-cost units) will be lower than rates based on the cost of producing the incremental unit of energy. At such a time, "average cost pricing" can be defended on the basis that it slows down the rapid changes in the rate structure that would otherwise occur, and that it dampens the volatility of rate changes. It diminishes the impact of newly changed circumstances on industrial and low-income residential customers who cannot adapt very promptly to fast-rising utility rates, and it reduces the danger of possibly resulting political and social turmoil.[25/]

On the other hand, continued reliance on "average cost pricing" under such conditions has corresponding drawbacks: energy users are not made aware of the real height of production

---

24/ See F.N. 23(c).

25/ See F.N. 23(a).

costs for marginal units of power production, therefore possible conservation efforts are delayed, the search for new sources of energy is not pressed as urgently, possible competitive pressures - however weak they are in the utilities industry - are discouraged from coming into play, and an adverse misallocation of resources could well result. Economic forces would not really be permitted to play their part in helping to determine the most efficient pattern of resource use.

Different PUC's in the Northwest have responded to changing circumstances - the exhaustion of damsites in the region where dams could be built to augment the supply of low-cost hydroelectric power, the very much higher cost of whatever thermal power is needed to meet growing demand for energy in this region, and the consequent prospect of fast-rising incremental costs for energy - in different ways. The PUC's of California, New York, and Wisconsin have all mandated Long-Run Incremental Cost Pricing. Oregon's PUC now uses a modified form of "incremental cost pricing." Washington's and Idaho's PUC's do not. This important question clearly needs to be settled; it is a matter of principle that must be resolved before a coherent regional policy could be established with respect to electric energy or, better yet, with respect to all forms of energy.

1. Reducing Peak Demand

The demand for energy fluctuates during individual days, as well as between different seasons of the year. If the individual utility companies operated in isolation, they would - as long as they are charged with providing enough energy to meet demand -

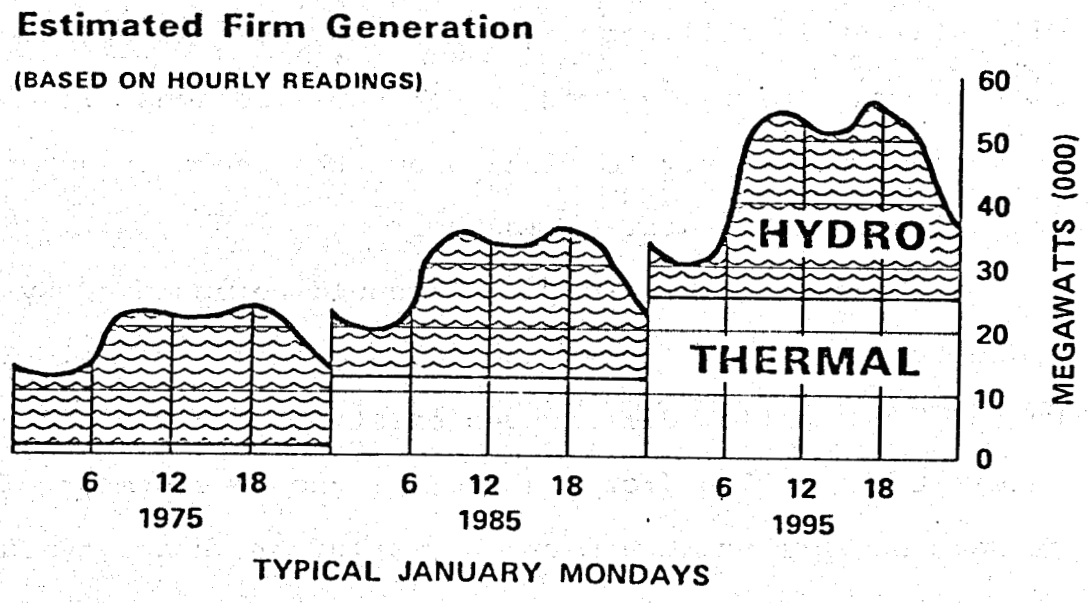
have to build enough facilities to satisfy the demand arising at peak periods. Under these conditions, they could achieve significant savings if they could somehow arrange to shave the peaks. When unit costs of production rise as total output expands, "peaking power" is in principle especially expensive to generate and to transmit; economizing on it leads to disproportionate savings.

Admittedly, the cost structure for electric energy production in the Pacific Northwest is not that simple. Economic textbooks suggest that, when costs of producing a commodity rise as output expands, suppliers operate their lowest-cost equipment to meet the steady demand, that they employ progressively higher-cost methods of production only if and as demand mounts, and that they idle their costliest facilities first when demand retreats from the peak. Under ordinary conditions, this is the prudent way to proceed - but not in the Northwest electric utility industry. The fact is that this region is reaching the limit for generating low-cost hydroelectric energy. According to traditional analysis, utility companies should now begin to build nuclear and coal-firing plants that can generate more expensive thermal power, but that they should produce such power only when needed at peak periods.

Unfortunately, turning these new facilities on and off around periods of peak demand is a particularly complex and prohibitively costly process which makes it inadvisable to use nuclear and other thermal power-generating plants in that way.

As a result, this new power, though relatively expensive, will be generated steadily as "base load"; low-cost hydroelectric power, though much cheaper to produce, will continue to be relied on for "peaking capacity" because it can be turned on and off with little effort and expense.

This technological quirk produces some paradoxical results. One is that energy costs in the Northwest will increase somewhat faster than one would ordinarily expect because costly thermal energy, being generated steadily around the clock, will serve as "base power" while hydroelectric power, though much cheaper to produce, will remain to provide energy on a standby basis.



Source: Bonneville Power Administration, The Electric Energy Picture (U. S. Dept. of Interior, May, 1976) p. 6.

Secondly, the urgency to reduce peak demand, which would ordinarily be a matter of high priority, will be much less. "Peaking power," generated at hydroelectric dams, will be relatively cheap, and the incentive to conserve on it will not be great. As the above diagram illustrates, the peaks in electric energy demand may even become higher in future years if the cost of shifting demand to off-peak hours turns out to be greater than the cost of hydroelectric power at peak periods.

Nevertheless, the matter of "shaving peak period demand" cannot be neglected even when peaking power can be provided at low cost. For one thing, the danger of environmental damage increases if the river flow fluctuates wildly as water is successively run through power-generating turbines and is then shut off again. For another thing, a pattern of rising peaks will ultimately call for more "base power," which will be high-cost thermal energy, as well. For these reasons, it will always be appropriate to try to flatten out the peaks in demand. The following ideas suggest themselves:

a. Reducing intra-day peaks could be achieved by charging higher rates for the power used during peak periods. In Western Europe, substantial differences exist between day and night rates; this has led (for example) to the development of electric storage heaters that warm up only at night when rates are low, but dispense heat during the day. Utility companies in other states are now experimenting with intra-day rate differentials. But the equipment required for this is expensive to install,

since each rate requires a separate meter in every household or business, and in addition some signaling device - ripple switches that automatically control water heaters, air-conditioners, etc., at peak periods, or warning lights that tell customers to conserve energy when the rates are high.

Several other alternatives suggest themselves. One concerns a major advertising campaign to impress customers with the need to reduce energy consumption during critical periods of the day. To remain effective, a media campaign would have to be an ongoing affair; scattered experience with such an effort indicates that the public both responds to and forgets such appeals quite promptly.[26/] Alternatively, load management might include efforts to seek more fundamental ways to save energy: redesigning houses, adding insulation, felling or planting shade trees, etc. More drastically yet, a utility company might get its customers used to the concept of interruptible power: if people were not led to expect "enough energy to meet demand" around the clock and throughout the year, important equipment savings could be achieved. In sum, ways must be found to conserve energy at critical periods. A rate schedule that encourages conservation is, in that sense, "efficient".[27/]

b. Seasonal variations in demand also play an important

26/ See F.N. 7.

27/ Northwest Energy Policy Project (1977) Energy Conservation Policy - Opportunities and Associated Impacts, Study Module I-A.

role in the timing and severity of peak power demands, and it behooves a regional energy policy to minimize such variations. Cooperative efforts among the Northwest states, or the suggested Regional Energy Council, would take quick advantage of the fact that, west of the Cascades, peak demand for power develops in the winter, while it occurs in the summer months east of the mountains. A systematic exchange of power between these two sections of the Northwest, or between Oregon and Washington on the one hand and California and Arizona on the other, appears to be an obvious move toward more efficient use of generating facilities all around.

In addition, seasonal variations of utility rates create no technical and hardly any administrative problems. The PUC for each state - or better yet, regionally - could determine high rates for the months of peak demand and lower rates for the rest of the year; the computer that sends out the monthly bills could easily apply different rates, depending on the month. Once public acceptance is achieved, the technical problems in this regard should be very small.

The BPA's wholesale rates now vary by season, which encourages electric energy consumers to shift their demand as much as possible to off-peak periods. As a result, the load factor (i.e., the average use of available facilities) increases, the need for additional generating capacity is reduced and the cause of efficiency in the industry is served.

c. It is unlikely that peaks and troughs in energy demand

could be eliminated completely. But if they were, i.e., if demand became steady at a particular level and remained there for an extended period, the difference between incremental costs and historical costs would be much less. Progress along these lines would be very desirable, in the interests of all concerned.

2. The Disposition of "Windfall Profits"

Current legislation directs the PUC's in each of the Northwest states to approve retail rates that meet the costs of a utility company's operations, including an appropriate rate of return on investment. The legislative intent clearly was to cover the expenses that had been incurred, but not to provide opportunities for extraordinary profits that might, for example, derive from a utility's special position as a local monopolist in the sale of electric energy. In that sense, the approved rates must be regarded as maximum prices that a utility can charge after showing that they do no more than to reimburse it for actual expenses and to provide for a return on investment that satisfied potential investors.

The criterion of historical - or "embedded" - costs satisfies this requirement. The notion of incremental costs, which concern themselves only with the cost of the last (or "marginal") unit of output, does not. Under conditions of declining costs, when unit costs of production fall as a utility's output increases, the company's total costs would not be recovered if its total output were priced by reference to the low cost of

producing the last, marginal units of output. Conversely, under conditions of increasing costs, when unit costs of production rise as output expands, pricing the entire output according to the high production costs of the last, marginal units of output would lead to a "windfall profit" for the utility: the intra-marginal units of output would be priced above the actual cost of producing them, and the utility would make profits that cannot be justified under noncompetitive conditions. State law does not sanction such profits for publicly regulated industries.

Two possibilities arise. One is to arrange utility rates in such a way that no regular "windfall profit" arises; the other is to seek a change in legislation to permit the accrual of "windfall profits" for particular, predetermined purposes. These alternatives will be considered in turn.

a. If the utility companies are to avoid extraordinary, "windfall profits", a number of alternative policies and criteria for establishing rate schedules can be considered. One of them, of course, is to continue the practice of "average cost pricing" employed in the past. It has the advantage of familiarity and continuity. However, under conditions of rising costs for energy production, as low-cost hydroelectric power generation reaches its limit and can be augmented only by high-cost thermal energy, the traditional system of "average cost pricing" understates the real cost of increasing energy production (or the real savings that can be achieved by energy

conservation). As a result, rates set on the basis of "average cost pricing" do not indicate correctly the burden to the economy of increasing energy demand, or the economic benefits of reducing energy demand.

An alternative might be to recognize "incremental costs" as a basis for rate-making while avoiding windfall profits. The State of Oregon has already shifted to this new criterion. Though full implementation of this switch would produce windfall profits, Oregon's Public Utilities Commissioner has only gone part way: he has approved rate schedules based on the calculation of long-run incremental costs, but has restricted the utility companies' total revenue to that portion of the theoretical total - at present about 82% - that is needed to cover actual approved outlays and the permissable return on investment. In other words, the principle of basing rates on long-run incremental costs has been accepted in Oregon, but its full impact has been softened by somewhat limited application.[28/]

Another alternative would be to have utility companies establish, with "windfall profits", a kind of "rainy day fund" - in the Northwest it should perhaps be called a "dry day fund" - that may be drawn on, by agreement between the utility and the PUC, if operating results don't come up to expectations.[29/]

28/ White, E. (April 26, 1975) "Incremental Costs and Electric Utility Rate Design". Ninth Annual Pacific Northwest Regional Economic Conference, Spokane, WA.

29/ (a) See F.N. 8.
(b) See F.N. 9.

Such funds have existed in the past by legislative sanction; they obviate rate changes every time a utility experiences less-than-expected and approved profits. The drawback of this policy is that windfall profits, expected to be recurring every year, would probably outrun the unprogrammed, unexpected, nonrecurring shortfalls in revenue that they are supposed to finance, and that this scheme would in time lead to a growing and ultimately substantial accumulation of resources not now sanctioned by the law. In that case, this particular alternative should be considered in the range of policy options for the disposition of "windfall profits". (See page 118.)

A further possibility is the establishment of what the experts now refer to as an "inverted rate structure": charging individual customers higher electric rates as their demand for electric power within a certain time period mounts.30/ Washington's Utilities and Transportation Commission has already put into effect a modified form for such a rate structure for residential customers. The rationale is that individual customers should feel the impact of what is a fact of life for the utility company; that costs rise as demands for energy increase. The very term for this policy, "inverted rate structure", indicates that a schedule of declining rate blocks, i.e., falling rates as a customer's volume of demand increases, has traditionally been regarded as the norm - as well it might have been

---

30/ See F.N. 23(c), pp. 146-151.

before the industry shifted from a decreasing to an increasing cost industry. Thus, an inversion of the historical rate structure is now suggested on the grounds of currently changing economic conditions in the industry. Besides, it would be helpful to low-income groups who are least able to afford fast-rising utility costs: assuming that they use less electric power per household, this proposal would permit them to purchase it at the lowest rates.

Unfortunately, it is not clear that low-income groups demand less electric power than higher-income groups; because they are most likely to live in uninsulated houses, and because they cannot afford to shift from electricity to other, potentially less expensive sources of heat, low-income families are said to use disproportionate amounts of electric energy. Furthermore, the installation of an inverted rate structure, which involves applying a number of different rates to individual customers (depending on the level of their individual demands) in such a way that the utility's total revenues just equal its expenses plus approved rate of return on investment, is itself a very tricky business. Though conceptually very appealing - revenues would mount, in step with rising costs of production, as the volume of demand increases, and there would be no "windfall profits" - it might be very difficult to implement in practice. In fact, revenue projections might become almost impossible: a 5% increase in energy demand on a utility would produce disproportionate extra revenue if it came from

one or a few customers; it might lead to a significant shortfall if all customers of the system each increased their demand by a little.

In answer to these concerns, it has been suggested that the PUC keep rate structures under continuing review, that it adjust more frequently rather than just when a utility applies for a change, and that it modify rates selectively. For example, if a utility that is short of generating capacity experiences an increase in demand that it cannot satisfy immediately, it might ask (or be told) to raise the rates especially on those customers (residential users?) whose energy consumption is relatively sensitive to the price being charged. On the other hand, if it experiences a change in the pattern of demand that brings in more revenue without raising the aggregate level of demand, it might ask (or be told) to lower the rates to those customers, e.g., industrial users, who are rather insensitive to price and who will not react to lower electric rates by immediately increasing their consumption of energy. In such ways, virtually every development can be countered by specific, selective changes in the rate structure - at least in theory. That utilities and PUC's can actually fine-tune the rate structure to such an extent in order to avoid windfall profits is yet to be demonstrated.

b. On the other hand, if the law is changed and the PUC is authorized to approve rate schedules that might produce "windfall profits" - because the principle of long-run incre-

mental cost pricing has been accepted, for example - policies need to be developed for the disposition of such profits. Presumably, investor-owners of a utility's bonds and shares of stock will already be compensated adequately for the risk they are taking in having bought these assets; windfall profits are not likely to be for their benefit. Windfall profits might, however, be applied to a number of alternative purposes.

Such funds could provide the resources for developing and enforcing energy conservation programs, much as some of the State of Oregon Liquor Control Commission's net income from liquor sales now finances treatment centers for alcoholics, and part of the state gasoline tax is used to support the State Highway Patrol. At present, PUC's in the Northwest prohibit or discourage promotional advertising, promotional rates, and other inducements to energy consumption; they have not forced the utilities under their jurisdiction to engage in positive measures designed to further the cause of energy conservation. Research laboratories to develop better insulation materials, engineering laboratories to develop more efficient ripple switches and other automatic cut-off devices, research centers to develop better studies of the factors that govern energy demand, inspection teams to investigate areas of notable heat or energy loss - these are only some of the projects, not currently undertaken in the Northwest, that windfall profits could finance.

Accumulating "windfall profits" could also be used to

provide capital for new ventures - perhaps owned and operated by the utility companies themselves - such as to conserve energy, or to promote new and more economical methods of producing it. Some oil companies are already diversifying into new industries, e.g., buying up leases that might eventually yield them rights to develop and market geothermal power. Similar projects could be pursued by utility companies: they could establish research centers concentrating on unconventional forms of energy, or they could construct needed new facilities, in line with their business interests. If the utility companies used "windfall profits" to establish subsidiaries, the PUC might see to it that the new firms' profits "flow through", either to benefit rate-payers in some direct way (though not by rate reductions), or to add to the "windfall profits" fund.

An alternative idea is to encourage utility companies to diversify into the energy conservation industry. Through subsidiaries, the Washington Natural Gas Company and the Intermountain Gas Company both sell and install insulation for homes and businesses. "Windfall profits" could be used to provide capital for more subsidiaries engaged in energy-saving activities.

Consumer subsidies for energy conservation might also be made possible by "windfall profits." A State Fund could make low-cost loans to insulate homes, install solar energy panels, finance subsidized bus tickets for public transportation systems, help to pave potential Park-and-Ride stations, develop recycling centers and methods that might yield combustible

materials useful in energy generation, support rapid transit between Portland and Salem, Seattle and Tacoma (or other heavily travelled routes), etc., etc. There are many projects that might save energy if financial resources could be found to develop them; "windfall profits" could finance a State (or regional) Fund to support them.

Another possible use for these monies might be the support of needy families that are particularly hard-hit by fast-increasing utility rates, which are becoming increasing burdens in family budgets. For families on welfare or on fixed incomes, this creates real problems. A fund to help them temporarily to adjust to the new, higher rates might be particularly useful. There is precedent for this kind of fund in the provision of federal funds to help retrain workers who are thrown out of employment because of a reduction of tariff barriers, or of supplementary unemployment benefits negotiated by unions and employers to give assistance to workers who lose their jobs because of some technological change. In all of these cases, funds are set aside to be used remedially when significant hardships develop. A fund to assist those most drastically affected by steeply rising utility rates appears to be a logical and feasible extension of that principle, especially when it is financed originally by the "windfall profits" of the utility companies themselves.

A recurring suggestion concerns the establishment of so-called lifeline rates that have the effect of providing

energy to some customers - the needy, or the retired - at particularly low rates. This idea differs from the preceding one in that it is not looked upon as a temporary, transitional measure. It differs from the notion of lifeline rates inherent in an inverted rate structure (see page 116) because it is not determined by costs of production. What is suggested here is a permanent subsidy to low-income groups with respect to utility costs. Intended to assist selected eligible customers, this proposal might well run into eventual difficulties if the privilege is not reviewed periodically on a case-by-base basis, lest some customers continue to benefit from it after their circumstances have changed and their need has passed. Personal subsidies built into the rate structure would probably be very difficult to remove at any time, and if they are not removed, they could in time well turn into substantial inequities.

Furthermore, this particular type of subsidy, if granted by the PUC's only in the form of lower gas and/or electric rates, introduces inequities of its own. For example, it favors those qualified recipients who depend on gas or electricity and discriminates against those who heat their homes with firewood, coal, or oil. It helps those qualified recipients whose energy consumption remains within the limits of the subsidized rate brackets - the first 1,000 kwh of energy use, for example - and provides less assistance to families who are equally or even more disadvantaged, but whose home is not insulated and who therefore require an exceptional amount of energy. If the

subsidy is uniform throughout the Northwest, it assists disadvantaged customers in the cold regions east of the Cascade Mountains more than those who live in more moderate temperatures on the Coast. Distributing closely circumscribed subsidies equitably to an entire population of needy people is a real challenge; welfare distributed in the form of lower-cost energy is no exception.

The basic question is one of "welfare policy", which is beyond the scope of the present discussion. A case can be made for helping the underprivileged by setting up special utility rates for them (within the framework of the general rate structure), following the principle of food stamps and rental subsidies, on the grounds that utilities are as much a necessity of life as is food and shelter. Administering welfare on an item-by-item basis may be advantageous in that the administrators can specify exactly what assistance shall be given, to what extent, and in what form: special utility rates represent a form of welfare that cannot be turned into "undesirable" forms of assistance, e.g., to encourage liquor consumption. Financial grants or special tax breaks for the underprivileged do not have this advantage.

On the other hand, providing welfare item-by-item, granting food and shelter and utility subsidies (but not clothes or transportation or personal care), and distributing each of these items through a different agency, can produce a costly, arbitrary, uncoordinated, and administratively very complex

welfare policy. It is this question that needs to be resolved before a decision on lifeline rates can be made.

Some have suggested that "windfall profits" be rebated to the customers who originally paid them in, according to some formula - which might well be revised fairly frequently - determined by an authorized body. In pursuing this idea, one must consider carefully the reasons why "windfall profits" arise in the first place. They are the result of incremental cost pricing, which is advocated because it provides the proper economic incentives to producers to produce (and to consumers to consume) that amount of energy for which the costs just equal the benefits. Rebates prorated on the basis of energy consumption are, in effect, a reduction in utility rates; they would dilute the beneficial effects of using incremental cost pricing as a basis for setting rates; for this reason, <u>any other</u> basis for rebates should be considered, as long as it preserves the economic impact of incremental cost pricing. Special support for disadvantaged households, incentives for appropriately selected industry, subsidies for particular tax-exempt organizations (perhaps with particular emphasis on those concerned with reducing energy consumption or improving energy production), educational or eleemosynary institutions - any or all of these, and others, might well qualify for rebates from the utility company at the suggestion of some public body.

Alternatively, a state or regional public board might be set up to determine, from time to time, the best application of

funds accumulated through "windfall profits." This body could consider any or all of the suggestions mentioned above and implement them temporarily until the next board meeting. It might even take under advisement other suggestions that are unrelated to energy production or consumption. Helping to meet special emergencies - the impact of a Columbus Day storm, or of critical water conditions, or of a substantial oil slick on the Columbia River, or of any other disaster affecting the Northwest - might well come within the purview of such a board. Each of the three states, or the Northwest Regional Commission, could become the vehicle for such an arrangement.

Finally, "windfall profits" might simply be taxed away and be added to the General Fund of each of the states involved, to be budgeted and applied, as are the proceeds of the cigarette tax, under formulas established by the respective legislatures.

IV. Institutional Rearrangements at the Wholesale Level

The discussion so far has concerned itself almost entirely with the regulation of rates to final consumers and the setting of policy concerning retail trade. This is where PUC's and public utilities, operating at the state or local level, have an impact; this also is where the governors of the respective states could most easily assume the responsibility for energy policy through their powers of appointment and their influence over legislative action. Furthermore, for utility companies that generate their own power and sell it directly to their

retail customers, rates and other regulatable matters can only be supervised at the point of sale to the final consumer. In this respect, the electric utility industry differs significantly from the natural gas industry, where wholesalers must import the product from outside of the region (under federal regulation of interstate rates) and leave retailers only very limited discretion over prices and policies at retail.

A. Utility Regulation on the Wholesale Level

The institutional background of energy policy on the wholesale level offers an enormous variety of possibilities. Electric power that moves across state borders or that emanates from generating facilities on navigable rivers is regulated, more or less actively, by the Federal Power Commission. Electric power generated at dams operated by the U.S. Army Corps of Engineers or the U.S. Bureau of Reclamation is - in the Northwest - marketed by the Bonneville Power Administration; its wholesale price is therefore set by one federal agency, the Bonneville Power Administration, and reviewed by another one, the Federal Power Commission.

Some public utilities, located at the mid-Columbia, generate much more electric power than they require for their own purposes and sell the rest, under long-term contracts, to other utility companies at rates that they alone determine. Being public utilities and therefore disqualified from making a profit, they cannot charge exorbitant rates even in times of energy shortage. But they can benefit by letting the revenues from

wholesale trade finance the bulk of the power that is consumed by their retail customers. These public utilities are, in practice, virtually independent under present circumstances, and - as long as they don't experience explosive economic growth within their own district - immune from any impact of the energy shortage and the price increases that it will bring to the rest of the region.

Some private utilities supply not only their retail customers, but other private utilities as well. If these transactions involve utilities of significant size, or an interstate movement of power, the rates are subject to review by the Federal Power Commission. They are published in the Federal Register, and anyone objecting to them may call for a hearing before the FPC, which will study the matter and issue a decision.31/ Thus there is regulatory machinery to deal with such transactions, though it has not seen much use in the Pacific Northwest.

A final element in the picture is the Bonneville Power Administration, which operates an extensive transmission system in addition to acting as marketing agent for power generated at 29 federally-owned dams in the Pacific Northwest. This is the low-cost power that plays such an important role in discussions of the "preference clause": according to the original legislation, publicly-owned utilities, municipal systems, and cooperatives have priority in buying it. As indicated above, the

---

31/ See F.N. 20(c).

uneven impact of the preference clause on the three states creates a number of problems in the formulation of a sound regional energy policy. But the BPA, for its part, also has certain regulatory functions: it can, for example, decline to serve municipal power companies that do not set "fair" rates. In that sense, BPA can exert influence over the retail rates of publicly-owned electric systems.

B. The Northwest Power Pool

If a regional policy-setting body were to be established, a potential vehicle for this role already exists. The Northwest Power Pool[32/] was organized in 1942 as the result of a War Production Board order that required utilities to make the most efficient use of available energy. It is an entirely voluntary organization - not even incorporated - that relies on the spontaneous contribution of funds, talent, and facilities by its 19 members (including BPA, which generates no power, and the Corps of Engineers, which does not transmit any). In the Northwest, the Power Pool has a dual function: to coordinate all technical and engineering aspects relating to the transmission of power from one member to another, and in addition to coordinate the flow of rivers, so that the actions of upriver dam keepers and power generators do not create problems for the downstream power producers.

Aside from BPA, the Northwest Power Pool might be consid-

32/ Agreement for Coordination of Operations Among Power Systems of the Pacific Northwest, September 1964.

ered as a regional coordinating body. Its membership already includes all the utility companies - public and private - that generate or transmit electric power and that could affect the industry in the Pacific Northwest. (Its membership actually reaches to B.C. Hydro and to Montana Power, both companies that, though not in the tri-state area under study here, can affect it by the policies they follow.) The Northwest Power Pool could not undertake the role of a regional policy-setting body without substantial changes in its institutional structure and the scope of its responsibilities. But it is perhaps the best-developed body to which to entrust the role of setting policy and supervising its execution.

C. Rate-Making: Opportunities and Problems

The preceding pages have indicated systematic PUC regulation of retail prices charged by private utilities, and they have discussed the feasibility of extending such regulation to publicly-owned utilities. The question arises whether the same agencies - or perhaps a closely coordinating regional regulatory body - should not be concerned equally intensively and equally directly with electric power generation, transmission, and other transactions at the wholesale level. In an industry characterized by a relatively small number of producers and a large number of retailers, regulating prices and other aspects of the business at an earlier stage of production and distribution might offer real advantages.

Instead of following the current practice of trying to

implement energy policy by regulating the industry mostly at the point of final distribution of electric energy, the several PUC's - aided by whatever cooperative arrangement or regional body might be established - might well concern themselves with the industry at all stages of production. In conjunction with the federal authorities who already have regulatory functions in the electric energy industry, state or regional agencies could monitor the practices and policies of utility companies more closely, and at an earlier stage of production.

The several PUC's might - given appropriate legislative authorization - concern themselves with the pricing and production policies of power-generating companies and divisions, to make sure that the energy produced in the Northwest is entered into the transmission system appropriately priced and appropriately timed. In the same vein, these same agencies could be authorized to monitor the policies of the transmitting companies, to ascertain that this stage of the industry's process also is priced and directed appropriately. Retail sales by utilities would of course be regulated as before.

Spreading the regulatory responsibilities of PUC's (or related regional agencies) backwards to earlier stages of the productive process would introduce more problems and new opportunities. The problems relate to an examination - closer than before - of the internal or inter-company transactions within and among energy-producing utilities. Whether the producing companies price their product on the basis of historical or

long-run incremental costs, whether they are integrated regionally, whether they accumulate excess profits, whether they pursue policies consistent with the policies that the regulatory authorities ask the retail-distributing utility companies to follow - these are questions that have not been vigorously pursued by regulatory agencies in the Northwest. Parallel information could be sought from the companies or divisions that engage in energy transmission. The answers would not be easy to come by.

However, if realistic answers can be obtained, the traditional task of PUC's - regulating the prices and policies of utility companies at the retail level - might be much lighter. The burden of regulating a large number of (private and public) retail distributors of electric energy would be less if only the retailing aspects of their operation must be examined, all other aspects of the business having received separate specific scrutiny beforehand. Earlier stages of production could be monitored more easily because fewer utilities engage in them. Efforts to coordinate the activities of several utilities would also be facilitated when there are fewer companies involved. In short, a regional energy policy might be implemented more effectively if it was applied at several stages of the production and distribution process, rather than by close regulation of the relationship between retail distributor and consumer alone. This possibility merits examination.

V. Rate-Making and Other Sources of Energy

A. Natural Gas

The regulators for natural gas are the same as those for electricity. On the federal level, the Federal Power Commission regulates the industry under the authority granted it by the Natural Gas Act. Regulation by the FPC takes place in two broad categories; the field market and the interstate pipeline companies. Field market regulation (i.e., sales of natural gas by independent producers to interstate pipelines) takes place at the wellhead. Such regulation is not needed in the Northwest because this region imports all of the natural gas it uses: 84% comes from Canada and the remaining 16% comes from the San Juan Basin.[33/] Through a series of complex guidelines and procedures, the Northwest Pipeline Company - the only interstate company handling the marketing of natural gas in this region - is regulated by the FPC on a rate base/rate of return basis. A schedule of rates is devised to cover yearly operating costs plus a specified rate of return on the rate base, which is an accounting estimate of the depreciated value of investment in plant and equipment. The cost of gas purchased from the field market or at the border from the Canadians, is the major item of expense used in the rate-making process, some 80% of operation and maintenance expenses.[34/] Thus, a change in field

---

33/ Northwest Energy Policy Project (1977) Energy Supply and Environmental Impacts - Conventional Sources, Study Module III-A, Tasks 1, 2 & 3.

34/ See F.N. 3(b).

market or Canadian price has a strong influence on Northwest Pipeline Company expenses as well as on the expenses of local retail distributors.

In the Northwest, only three of the retail distributors are publicly owned; the rest of the companies are classified as private utilities and are regulated by the individual PUC's in each state. Rates are determined on a rate base/rate of return basis in the same manner as electric rates in Oregon, Washington and Idaho: to cover costs and to provide a fair and reasonable return on property. Again, the purchase of gas from the Northwest Pipeline Company is the principal item of expense for the retailer. Thus, any increase coming "down the pipeline" has a strong effect on retail rates.

There are only three public utility districts, all in the State of Washington, which are actors in the rate-making process. All three are small, municipal utilities whose rates are primarily determined by the price at which they purchase gas.

State and local options for rate regulation in the natural gas industry are severely limited by the fact that no natural gas is produced in the Northwest. The price of natural gas imported from Canada is set at the border by the Canadians. The price of natural gas coming from the Southwest is regulated by the Federal Power Commission. Because the purchase price of gas is the principal item of expense in the retail cost of gas and the various PUC's have very little choice about accepting the wholesale prices given to them, they simply allow the distribu-

tors to pass those prices through to the retail customers. Furthermore, since most of the gas supplied to the Northwest - the 84% from Canada - is already priced incrementally or (in Canada) on a BTU-parity basis with OPEC oil, there is little room for the various states to move in this direction.

Thus, rate-making policy options per se are very limited on the state level, or even on a regional level via interstate cooperation or compact to regulation of retail rates. However, in a related fashion the states may find themselves in an ever-increasing role of "load managing". The need for allocation systems to meet shortages and the desire to promote "load management" in order to encourage conservation are increasingly realistic roles the PUC's may have to play. This role may range from allocation of new "hook-ups" to active intervention to phase out natural gas use in the Northwest. Another option may simply be to deregulate the retail portion of the business and let market competition with other forms of energy determine appropriate levels of supply and demand. PUC decisions and policies can have an impact only on the retail distribution of the natural gas industry; all other aspects of this industry's procedures and decisions are beyond the reach of state or regional authorities in the Northwest. The independent role of the Northwest's retail gas distributing companies may be too small to merit the effort and cost of detailed regulation that the several state PUC's now lavish on them. Conceivably, deregulation of this part of the gas industry might not have

much effect if natural gas is priced competitively with other forms of energy and if retail customers have the option of switching to the other forms of energy in response to a disproportionate rise of natural gas prices. This possibility merits investigation before it is dismissed.

In sum, the rate-making opportunities on the state or regional level are, with respect to the natural gas industry, limited. They may be too modest to justify the effort. Alternatively, the problems of conservation and load management may lend themselves well to policy-making on the state or regional level.35/

B. Other Energy Sources

To speculate on the institutional arrangements needed to control rate-making for unconventional energy sources is highly tentative. To date, no large scale development of unconventional energy has taken place in the Northwest, so no precedents have been developed. The policy options for such development are numerous. One such option would certainly be to structure rate-making authority in a manner similar to the present method used to determine conventional energy rates. For instance, rates could be ultimately determined by individual PUC's on the basis of historical costs (e.g., rate base/rate of return criteria). Likewise, rates could also be determined by the PUC's

---

35/ (a) Research Department, Oregon Public Utility Commission (February 1975) "The Public Utility Program".
(b) See F.N. 1(a), sec. 7.0.

on the basis of incremental costs. Analogous to a state-by-state approach would be a regional approach; whereby a regional organization would exercise rate-making authority based on either historical or marginal cost criteria.

Contrary to these concepts, no regulatory body of any kind need exist to regulate rates of unconventional energy sources. Developers of unconventional energy sources could compete with the regulated forms of conventional energy on the basis of cost and service. In a sense they would be forced to operate much like any other firm in the private sector, hoping to attract customers on the basis of price, service, or some other appealing attribute. Regulation is not automatically the best solution.

Another alternative may be to establish a rate-making authority (state-by-state or regional) which would encourage development and consumption of unconventional energy. This would be predicated upon public policy designed to encourage use of unconventional energy sources. At least initially, unconventional energy will be more expensive to produce than conventional energy.36/ If agreed upon public policy is to encourage development and use of unconventional energy, then the proper rate-making response would be to price such energy at a level competitive with conventional types of energy. A public

---

36/ Northwest Energy Policy Project (1977) Energy Supply and Environmental Impacts - Unconventional Sources. Study Module III-B.

institution could artificially maintain competitive rates by providing some form of subsidy (i.e., tax relief, direct payments via "windfall profits" - see Section III) to the suppliers.

VI. Conclusion

Current discussion of "rate-making" reflects the cross-currents of several institutional, technological, and theoretical changes that each have their separate financial impact. Basic to them all is the history of past developments in the Pacific Northwest's energy industry. Current conditions and current practices are the result of past decisions and past circumstances - the gradual development of institutions responding to the needs of the time, policy decisions reflecting contemporary political pressures and philosophical attitudes, and just plain coincidences and unplanned developments that have left a lasting impact. A systematic review of factors that influence the rate-making process brings out three predominant considerations:

A. Energy policy formulation, especially with regard to rate-making, has, in the past, been a piecemeal process that could be integrated in the future, so that it can be viewed as part of a comprehensive picture. The distinctions between federal, state, and local regulatory agencies are based on logic only to a rather small degree. The differences between private and public utilities are a matter of doctrine or of politics; in many ways, they interfere with the efficient

allocation of resources and with the efforts to integrate energy policy. The specific functions and responsibilities of the BPA or of the Northwest Power Pool - and, more particularly, the limitations under which they labor - are better explained by historical influences than by any particular rationale. In sum, there has been no integrated regional energy policy.

B. The experts disagree whether the electric utility industry is currently characterized by increasing or decreasing unit costs as its scale of output increases. This question is complicated by the fact that costs of generating electricity may well be increasing, while the costs of transmitting it may be falling. But surely a turning point has been or will soon be reached: the costs of constructing new, thermal energy-generating facilities are substantially higher than the costs of hydroelectric facilities for which the region can no longer offer appropriate sites. As a result, the costs of electric energy is sure to rise.

This change, which came upon the Northwest rather suddenly, has not yet been recognized very widely in the region. Substantial political and bureaucratic forces, still unaware of wholly new circumstances, continue to resist modifications and new directions for policy, as well as the needed remodeling of institutional structures.

C. Comprehensive regional policy must, if it is to have an impact throughout the region, be made by a regional body or by a conference of officials from all three Northwest states.

Consequently, the wider impact of a comprehensive policy would have to be considered much more carefully than in the past, when in most cases only the customers and the stockholders of a particular utility company, and (in recent years only) the immediately surrounding environment were considered. Regional policy governing all of the important energy-related industries would have much greater social, economic, political, and aesthetic impact; it therefore would be a matter of immediate concern to a much wider circle of government officials, and to the public at large. The task of integrating and reorienting current energy policy will elicit additional demands for new institutions, new criteria, and new concerns.

TASK 6

SITING ENERGY FACILITIES

I. Introduction

The task of this section is to assess the institutional constraints and opportunities surrounding energy facility siting in the Pacific Northwest. Staying abreast of changing state laws on siting resembles shooting at a moving target. In February of 1970 Washington State passed the first state thermal power plant siting legislation. By 1972, five states had enacted similar legislation. As of June, 1976, twenty-three states had passed specific legislation dealing with siting and more states anticipate action during the 1977 legislative sessions. As early as 1965 the U.S. Congress was presented a bill requiring states to enact siting laws. Since the original bill, many more have addressed this problem. The federal and state governments realize that the location of energy facilities may well determine the location of a great many other activities within and outside their borders. Each state must answer questions concerning who should manage coastal zones, who should decide the need for and the location of sites, who should review and monitor sites and who has final authority of regulation. The answers will vary between states and the process will be evolutionary.

Washington State's original law set up a "Thermal Power Plant Site Evaluation Council" to do exactly what the title

implies. In the 1975-76 Legislature the law was amended to read "Energy Facility Site Evaluation Council". The Council's duties now extend not only to plants but to all associated facilities dealing with transmission, handling and other related and supporting facilities that connect an energy plant with the existing supply, processing or distribution systems.[1/] This broadly defined law is the logical outcome of extensive shipping and pipeline systems and is likely to be adopted by other states. Oregon is currently facing a proposal to transfer crude oil from ships in the Lower Columbia to railroad cars for transfer across the state. The current confusion over review of this sort of proposal makes Oregon a likely candidate for extended siting legislation.[2/] Neither Oregon or Idaho now have specific legislation covering these extended facilities. While these extensions to siting legislation should greatly increase the number of cases under review, the research and review process will remain the same. Because of this, the siting organizations' primary duties should remain in the area of siting thermal facilities. The majority of this research will address the problems involved in siting power plants but the results may be directly applied to related facilities.

All of the twenty-three states with siting laws clearly recognize the trade-offs between environmental protection and

---

1/ State of Washington (1976) Second Extra Session 1975-76, Ch. 108, Sec. 30.

2/ The Oregonian (December 16, 1977) Vol. 126, p. 1.

low-cost energy. "It is the intent to seek courses of action that will balance the increasing demands for thermal power plant location and operation in conjunction with the broad interests of the public. Such action will be based on these premises. (1) To insure Washington State citizens that, where applicable, operational safeguards are at least as stringent as the criteria established by the federal government and are technically sufficient for their welfare and protection. (2) To preserve and protect the quality of the environment; to enhance the public's opportunity to enjoy the aesthetic and recreational benefits of the air, water and land resources; to promote air cleanliness, and to pursue beneficial changes in the environment. (3) To provide abundant low-cost electrical energy."[3/] Since facility siting is a highly complex and expensive process, involving numerous authorities, traditional laws have been held to be totally inadequate by many state representatives. The disputes have been well publicized. In the seven year period from 1969 through 1976, 138 fossil fuel steam electric facilities and 64 nuclear generating units of 300 megawatt capacity or more were scheduled to begin service in the U.S. The construction of 54 units is currently being delayed.[4/] The utilities' position is clear. Their role as an economic entity focuses their attention on the minimization of costs. They perform this task by

---

3/ State of Washington Code, 80.50.010.

4/ Statement of John Nassikas, Chairman, FPC, in Hearings on a Report covering the Principle Policy Questions now facing the FPC and the Environment of the Senate Committee on Commerce, 91st Congress, 1st Session, App B at 84 (1970). (Herafter Commerce Committee Hearings.)

manipulating resources so that "cheap" inputs are used in abundance and costly "inputs" are conserved. In the past the environment has been a free input. The economic response is to use that free good to its highest productivity level. Costs to society caused by this usage are evident around us. Nuclear and fossil fuel have been attacked for their misuse of water, land, and air. Water is required to deal with the problems of waste heat. Water requirements vary from minimal replacement amounts in closed cycle systems to enormous amounts in once-through systems. Water is such a vital component to nuclear systems that sites in the Pacific Northwest are practically limited to the Columbia Basin (Satsop and Skagit are exceptions). Returning heat effluents to surface water systems can evoke a host of biological and environmental problems. Imaginative solutions have been proposed but little used. One such suggestion involves using the heated effluents for space heating in buildings and residences. Some East Coast thermal plants built in the past with once-through cooling are very popular for year around, ice-free fishing. Water use problems have diminished considerably with closed cycle systems. Coal burning plants require large amounts of water to supply hydrogen which together with carbon creates methane. This water requirement is likely to bring coal plants into conflict with irrigation and hydro-users. Land use problems have been generated when nuclear plants conflict with existing use patterns. The size of an installation may run from 50 acres to several hundred, due to

the space needed for a buffer zone (NRC determination). The possibility of ponding heated effluence may add to the problems associated with local acceptance or may add to the aesthetic appeal of the plant as with Trojan. Ideally, plants should be located on sites having low utility for other uses to minimize land use barriers. Finally, we have tremendous conflict in the area of air quality standards. Coal plants have routine problems with the release of sulphur dioxide and nuclear plants emit radon gas which may or may not constitute a radiation hazard to the surrounding populace.[5/] Coal-fired plants' difficulties with sulfur dioxide are due to effects on man's respiratory system and on vegetations' growth potential. These effects can be witnessed at remote locations if the oxides combine with air moisture. All of these outputs impose a cost on the population surrounding energy facilities. The task at hand is not to punish the utilities, but to find practical ways of including these costs into the utilities' decisions. The legislation needed is that which will cause it to be in the utilities' interest to consider the external cost they are imposing upon the environment. The Northwest states are faced with siting coal as well as nuclear plants (Centralia, Pioneer). The differences in terms of air, water, and land pollution are fairly obvious. The institutional problems, however, should be

---

5/ Rose, Fred L., Biology Department, Idaho State University (1975) "Environmental Criteria in Siting Energy Facilities". Presented to Energy Symposium, Washington State University.

handled with similar guidelines. For this reason this paper will address comments to energy facilities in general, with specific references to coal or nuclear when necessary.

In May of 1970, the voters of Eugene, Oregon, approved a four year moratorium on a nuclear power facility planned for that area.6/ In 1976 Seattle's City Council voted not to participate in the proposed WPPS II Nuclear Plant. Nine families forced the Indiana and Michigan Electric Company to modify its design of a nuclear plant to prevent erosion damage to nearby property.7/ Citizen group intervenors were instrumental in securing a settlement from the Portland General Electric Company requiring the installation of cooling towers and waste treatment devices at the Trojan Nuclear Plantin Rainier, Washington. The water treatment system was changed from a once-through cooling system to a closed cycle system. The examples are numerous and present in much of the literature. The point remains that "opportunities in theory and fact for knocking out a utility or imposing new design obligations are many and varied."8/

Before specific siting legislation was passed, each of

6/ Gillette (1971) "Nuclear Reactor Safety: A New Dilemma for the AEC". 173 Science, pp. 126, 130.

7/ Hearings on Environmental Effects of Energy Generated on Lake Michigan before the Subcommittee on Energy, Natural Resources and the Environment of the Senate Committee on Commerce, 91st Congress, 2nd Session, 14-17, 16 (1970).

8/ Rodger, William (1971) "Siting Power Plants in Washington State". Washington Law Review, Vol. 47:1.

the numerous state, local and federal authorities involved applied its narrowly drawn criteria to its review and permit procedures. In the aggregate, this fragmented system constitutes a negative approach to siting, and produces a costly and time-consuming situation. This is not to say that these agencies should be eliminated from the proceedings. Most of the legislation recently passed provides for the input from all or most of the areas concerned.

The first section of this study will outline this fragmented approach along with two other generic alternatives. These three situations will then be evaluated in light of regional needs and goals. The second section contains a discussion of some alternatives to the current framework of the states and the possible institutional constraints associated with these alternatives.

II. Current Institutional Patterns

Nuclear power is a technological innovation. As a technology it may be seen in three facets: a procedure for doing something, a machine for obtaining proscribed ends, or a structure shaping a space in which the work is performed.[9/] It is this third facet of the technology which has brought all the attention to nuclear power. In performing its assigned tasks, a nuclear installation has the possibility of drastically

---

9/ Billington, David (1974) "Structure and Machines: The Two Sides of Technology". Soundings 57, pp. 275-288.

altering the space around it. The environmental characteristics of air, water and land are likely to suffer radical changes as the result of adopting this particular technology.

Conflicts are likely to arise on any or all of the effects caused by thermal power. Each of the three generic alternatives we are about to outline should be viewed in terms of their impact upon the social system of thermal power. This discussion of generic alternatives borrows from work done by Kai Lee for the Nuclear Regulatory Commission.[10/]

The first alternative discussed - state ownership of the site - places a major decision in the public's hands. With continued site management, the implementation process becomes the object of state regulation. The second alternative - state licensing - recognizes the interdependencies in the technology and creates a system of regulatory tradeoffs. The regulatory burden is political, with a siting agency empowered to make the tradeoffs. The third alternative - labeled traditional - simply constitutes a status quo distribution of responsibilities. The regulation falls to different agencies which existed before the possibility of large scale electrical power development. Technology in this case is viewed as a number of different capacities each one being reviewed separately. This process is probably the most potentially costly since it can be a negative-sum game.[11/] It is negative-sum because environmentalists can

---

10/ Lee, Kai N. (1975) "State Power Plant Siting and Nuclear Energy Centers". Submitted to Office of Special Studies, U.S. Nuclear Regulatory Commission.

11/ Ibid., p. 40.

guarantee losses to the utilities seeking to build plants without any parallel assurance of gain. This alternative generally focuses primarily on the implementation phase of the project.

Each of the three generic alternatives will be discussed in reference to the administrative structure, administrative and technical review, financing, public participation, time frames, and long-range planning. A current unresolved problem is the determination of need. Historically, forecasting needs was a utility problem. While state governments have become involved more and more in this process, there exists no single group which reliably estimates future energy demands. The long-range planning subsection outlines the states' present frameworks.

A. Public Ownership: The Maryland Model

1. Administrative Structure. The first generic alternative to be studied is the case of state ownership. This alternative currently exists only in the State of Maryland. William Goodman drafted the Maryland Power Plant Siting Act in 1971, as a variant of the one-stop siting legislation formulated in other states. The act created a powerful new state agency, the Power Plant Siting Program (PPSP), to administer the terms of the legislation. The legislation allows the state to make all determinations about site suitability, acquire the site, and then lease it to a utility. The terms of the act require the Secretary of Natural Resources to maintain an inventory of between four and eight sites suitable for constructing major

nuclear energy facilities.[12/] To date, only one site has actually been acquired and a second is being negotiated.

2. Administrative and Technical Review. It is terribly important to stress that PPSP is a research organization. The board prepares reports to be used in the site approval decision by the Public Services Commission. The actual siting procedure takes place within 90 days but it is preceded by years of research. This point is one of the strongest recommendations of this framework. The PPSP's duties include anticipating and answering opposition through exhaustive environmental research. This research approach has been successful so far. Opposition exists to specific sites, but the PPSP is highly regarded by utilities as well as environmentalists.

The separation of research and decision making in Maryland siting has much to recommend it. PPSP is able to conduct its research independently with little response to public or private pressures. Since the agency is funded by a tax on electricity, there is little possibility of it losing its political independence. After the research has been completed, the Public Services Commission decides on whether or not to issue a certificate of public convenience and necessity, such a certificate being necessary to start construction.

The research program to date has primarily involved traditional academic studies performed by university scientists.

12/ Article 66C, Annotated Code Maryland 763-76, Ch. 31 (1971).

The studies have been awarded in three categories: baseline studies, to evaluate the present environment of the site, predictive studies, to speculate on current and future suitability, and impact monitoring, to continue the site analysis, once construction and operation has started. A tremendous frustration has been the poor state of the art in environmental assessment. Funds have been diverted for methodological studies to improve this field of learning. This research should provide positive external benefits to the other states involved in siting programs.

PPSP officials are confident that a working understanding now exists of the immediate environmental effects of siting in their state. However, they feel these effects still need to be translated into economic and social values. Beyond this, the officials would like to isolate the more distant environmental effects of siting. The real benefit involved in the PPSP research program is that state officials now possess analytical ability and knowledge similar to the utilities. This advantage should not be underestimated.

3. Financing. The siting act in Maryland authorizes a tax on electricity ranging from .1 mill per kilowatt hour to .3 mill per kilowatt hour. Levied on all power produced by the state, the tax is set at .21 mills per kilowatt hour for the current fiscal year, and generated 7.3 million dollars for 1976. This authority expires in 1985 but may be extended by the legislature. The PPSP director, Levio Zeni, has estimated that the

first site acquisition, the Douglas Point Nuclear site, required 1.3 million dollars and 49 man years of staff time.[13/] Once the site is approved, follow-up monitoring programs will be required.

4. Public Participation. PPSP is a government agency with independent financing involved in research. In a sense it is immune from public participation. Strangely, this is one of its most favorable points, according to PPSP proponents. The research side of the siting issue takes place in an impartial atmosphere. Final decision on siting rests with the Public Service Commission and the Department of Natural Resources. These groups have formal authority and are the instruments for public participation. The two agencies have developed a single protocol to streamline the decision process. They hold a single public hearing from which the site decision is made. Prior to this hearing, the site has undergone an environment assessment and the utilities' reactions have been informally solicited.

5. Time Frames. While the time involved in site acquisition can vary considerably, this should have no adverse effects on energy development. The goal of maintaining an inventory of sites allows the state to set a 90 day limit on the approval or disapproval of the actual siting. The 90 day period is the shortest deliberation period specified in any of the siting legislation. This causes time and money savings to utilities while

---

13/ See F.N. 10, p. 25.

in no way limits the time period involved in researching any specific site.

6. Long-Range Planning. The siting act in Maryland requires the utilities to prepare annual forecasts of loads for the next 10 years. This information can be used to identify potential sites and siting needs well in advance of construction. This technique allows the utilities to do their locational work and saves the government the costs of guessing. Potomac Electric Company forecasted a growing demand of 8 to 9% a year. Due to recent one time conservation trends the Company revised these estimates to 3% for several years followed to 5% increases. These figures were lower demand projections than those of the Maryland Department of State Planning - an unusual phenomenon. The real long-range aspect to this siting act is the inventory of sites. This process allows for tremendous flexibility in the entire siting process.

7. Record to Date. The power plant siting program must receive very high marks for its performance thus far. The Douglas Point Nuclear Plant is likely to be the first case in which state and federal reviews are combined into one step. The Maryland Department of Natural Resources has designed a protocol in common with the United States Nuclear Regulation Commission, allowing the first federal/state one-stop system. This step indicates a needed streamlining of the system and an improved balancing of interests. PPSP has played a major role in the siting of two fossil fuel plants. In the first case, the

Public Service Commission would have rejected an application if PPSP had not interjected and produced a quantitative study showing insignificant environmental impact on the airshed. The second case resulted in a several million dollar cost decrease to the utilities.[14/] PPSP's technical comments resulted in the reduction of outlays for environmental equipment.

A real but unquantifiable benefit has been the favorable reaction of both environmental groups and utilities to PPSP. All parties involved seemed to have broadened their perspectives and produced a balanced wholistic siting process.

B. State Licensing: The Oregon/Washington Case

A second generic alternative is the one-stop licensing procedure. The procedure set forth in Washington State's Senate Bill 3172 will be used as a model case. While Oregon's current procedure is not technically one-stop, it falls closest to this generic framework, and will be paralleled to the Washington case. The two procedures will be analyzed from a generic point of view. Table 2 gives a summary comparison of the 23 states currently having specific siting legislation.

The standard system of state licensing involves the issuance of a preconstruction certificate of approval from the state government. This certificate is generally issued through a single administrative proceeding, hence the name one-stop. In Washington State, the administrative body is the Energy

---

14/ Article 66C, Annotated Code Maryland, S 763-76.

Facility Site Evaluation Council (EFSEC). As the name implies, the Council is responsible for the siting of energy facilities, other than just thermal electric plants. The Washington Council's charter was expanded to take account of the increased importance of petroleum facilities within the state. Oregon's administrative body is the Energy Facility Siting Council (EFSC). Their authority extends only to thermal power plants and transmission lines.

The one-stop states generally declare state supremacy in power plant siting. However, local government officials are often included in the process of evaluation. In contrast to the norm, Washington State requires prior local approval. Oregon does not have such a provision in its siting laws.

1. Administrative Structure. In the one-stop state licensing case, the issue of the Council's structure is of great importance. The alternatives are basically four: (1) a new agency created specifically to deal with siting; (2) an existing agency taking on the duties of siting; (3) an inner agency panel with representation from agencies responsible for various aspects of the procedure; (4) a hybrid agency panel, with representation both from the executive branch of the government as well as public members named by the governor or the legislature. Washington follows the third alternative. Its directives state, "The Council shall consist of the directors, administrators, or their designees, of the following departments, agencies, commissions and committees or their statutory successors: (a) Dept.

of Ecology, (b) Dept. of Fisheries, (c) Dept. of Game, (d) Dept. of Parks and Recreation, (e) Dept. of Social and Health Services, (f) Inter-Agency Committee for Outdoor Recreation, (g) Dept. of Commerce and Economic Development, (h) Utility and Transportation Commission, (i) Office of Program Planning and Fiscal Management, (j) Dept. of Natural Resources, (k) Planning and Community Affairs Agency, (l) Dept. of Emergency Services, (m) Dept. of Agriculture, (n) Dept. of Highways.[14/] The Director of Washington's Office of Energy serves as the EFSEC Chairman. The EFSEC has a staff of two professionals and two secretaries. In practice, this limited staff has caused overloads for busy departments and conflicts with regard to time allocation.[15/]

Oregon combines the first and last alternatives. The EFSC is composed of seven lay members appointed by the Governor. The Council receives technical support from the Office of Energy. The Office of Energy has a staff of 77 to coordinate the permit review process among agencies. This coordination takes place between eleven state agencies and any city or county affected by the decision. Both the EFSC and EFSEC are advisory boards whose reviews act as recommendations to the Governor.

An obvious issue concerning the two procedures is whether the Board should contain state agency members as in Washington

---

14/ Washington Code 80.50.020.

15/ Wengert & Lawrence (November 1976) "Regional Factors in Siting and Planning Energy Facilities in the Eleven Western States". P II-36, A Report to the Western Interstate Nuclear Board.

or private citizens as in Oregon. While much can be said in favor of both, choice has to do with the representative nature of the particular private citizens. Each state has and possibly should have reacted differently. The need for, concern about, and siting of energy facilities is a public policy issue and therefore it should not be regarded as uniform along all political bodies.

2. Administrative and Technical Review. The technical nature of the site application demands intensive review. The Washington Siting Council (EFSEC) makes use of agency staff as well as independent consulting firms. The cost of the outside analysis is defrayed by a $25,000 application fee. Oregon's review takes place within the Office of Energy, whose funding comes from legislative appropriation - filing fees. Most states complete the technical review in preconstruction stages, and monitoring and enforcement tend to be uneven within each state. The review process in Oregon continues after the EFSC has issued its certificate. The Attorney General has ruled that utilities must also gain approval from other state and local agencies. This is in direct contrast to Washington's one-stop system. This piecemeal review system in Oregon tends to be costly and redundant in light of the extensive review requirements placed on the EFSC. These requirements include consideration of local and state regulations as well as the appointment of the local governing body as a special advisory group.

3. Financing. The support of the siting process takes on four general forms. The most common is an application fee required of the utility seeking certification. Alternatively, when siting authority is delegated to an existing agency, that agency must often foot the bill. A third alternative ties the fee to the size of the facility to be sited. A fourth alternative exists in California and Maryland where electricity taxes finance the process.

Washington and Oregon follow the first and third alternatives respectively. Washington law requires a fee of $25,000 per application to be applied to any research and/or review cost. The applicant must approve any expenditures beyond the $25,000 limit. Oregon requires $5,000 for notice of intent to build with an additional 5 cents per kilowatt for each power plant or one thousand dollars per million dollar investment in nuclear installations. Again, the applicant must approve additional expenditures. The application fee for the Pebble Springs Nuclear Plant came to $125,000.[16/]

The American Bar Association Draft Study on nuclear power siting warns against the continued dependence on large filing fees.[17/] The character of electric companies and the size of their investment makes these fees possible. Continued reliance

---

16/ Pebble Springs will include two 1,2000,000 kw. reactors. Their fee therefore is 2 x 1,200,000 x .05 = 120,000 + 5,000.

17/ Special Committee on Environmental Law (1974) Report with Legislative Recommendations. American Bar Association House of Delegates, Chicago, IL.

on these fees, however, may eliminate possible options available from other industries. Small competitive firms with speculative alternatives could find the fee outside of their financial limitations. The elimination of these more speculative options would preclude comprehensive forecasting and planning.

4. Public Participation. State governments almost universally require one or more public hearings. The hearing rules are generally conceived and enforced by the siting agency. These hearings range from full dressed contested ones, to informal debates. Oregon and Washington currently employ the full-blown contested hearings. Washington appoints an Assistant Attorney General as counsel for the environment and he is charged with "representing the public and its interest in protecting the quality of the environment".[18/] The Council must hold a public hearing in the county of the proposed site within 60 days of the application. A further hearing must be held prior to Council recommendations at which time any person shall be entitled to be heard in support of or opposition to the siting. The Oregon law states, "The council shall hold public hearings in the affected area and elsewhere, as it deems necessary."[19/] The law allows any person to appear before the Council in any hearing.

5. Time Frames. A crucial issue to utility companies and

18/ Washington State Code 80.50.080.

19/ Oregon Code 467.370.

financial institutions is the length of time involved in the siting process. The time frames now in practice vary considerably. Washington's Council, the EFSEC, has 12 months for disposition. By that time, they must make a recommendation to the Governor who then has 60 days in which to act. Oregon law requires a year between the filing of a notice of intent and the filing of a site application. The Council then has two years in which it must act, but there must be the full 3 year period between certification and notice of intent. The certification is void if not signed by the Governor in 30 days. This 36 month period is the longest period of delay of any of the 18 states within this generic framework as shown in Table 2. The cost to the utilities could be considerable if financing was contingent on proper timing.

6. Planning - Long Range. The 23 states in this generic alternative have a variety of rules governing long-range planning. Long-range planning involves (1) forecasting the state's long-range demand for energy and the capacity needed to satisfy it and (2) the compilation of an inventory of sites to meet these needs. Of the Western states, only Montana has laws requiring both aspects. Oregon requires its Energy Department to produce long-range forecasts but has no provision for inventorying sites. The laws of Washington require neither. The Washington Council is authorized to conduct a study of any potential site upon request of an applicant. This feature could prove to be a simple and painless way for the Council to work

with utilities in their long-range planning. The costly delays involved in the siting process could be considerably alleviated by airing opposition to specific sites prior to the utilities' need for them. Oregon's Department of Energy is the Oregon agency primarily responsible for forecasting. However, it is not clear to what extent the siting council must rely on their estimates.

7. Record to Date for Oregon-Washington. Appendix I includes a diagramatic scheme of the agencies involved in siting the Trojan plant in Oregon and the Skagit plant in Washington. It must be noted that Trojan did not fall under the jurisdiction of the EFSC in Oregon. It was sited under the more traditional framework which existed prior to the EFSC.

Washington: Since the original legislation in 1970, the Washington Council has had a remarkable record. They have sited both nuclear and coal-fired plants and the sitings have been in both Eastern and Western Washington. The Eastern Washington sitings were Hanford Reactors 2, 3, and 5 and all involved significant water-cooling problems. Two of the Western plant sitings, Skagit 1 and 3, are documented in Appendix I. They offer a nice example of the siting procedure in Washington State.

Oregon: Oregon's Energy Facility Siting Council was created after initial construction stages of the Trojan Nuclear Plant, and therefore have been involved in no completed sitings. EFSC has recommended the Pebble Springs Project but the Governor's decision has been delayed by court action. The courts

have ordered the EFSC to further investigate the site. Evaluation here would be considerably premature.

C. Traditional Approach: Idaho

1. Administrative Structure and Review. Despite an effort in the last legislative session, Idaho has no specific siting laws. Piecemeal regulation varies from state to state, but Idaho will prove a good example of this generic alternative. As in many states, Idaho has regulated her utilities with an independent commission, the Public Utility Commission. This Commission consists of three members appointed by the Governor with Senate approval. These commissioners are vested with the power and jurisdiction to supervise and regulate every public utility and to do all things necessary to carry out the spirit and intent of provision of the act.[20/] The Idaho PUC act gives the Commission the charge of issuing certificates of convenience and necessity to utilities seeking expansion of the facilities. The certificate is needed for any street railroad, gas corporation, electric corporation, telephone corporation or water corporation wishing to begin construction of any line, plant, or system. This does allow a plant to increase its capital and possibly even build a new plant without a certificate if it is to be marketed over existing lines or to supply an increasing demand in an established market. The real problem involved in the current fragmented system is the wide range of discretionary

---

20/ Idaho Annotated Code 61-501.

power placed with the Commission. They have the discretionary power and authority to explore the entire realm of factors involved in power plant siting. However, they are neither required to do so nor are guidelines established by the present legislation that direct them in their investigation of the elements that go into proper decision making. The regulation of electric utility companies as performed by PUC's has traditionally been confined to the economics of the power industry and the determination of retail rates. In recent years, the institutional arrangements created by environmental protection legislation have increased the areas of intervention by requiring additional aspects of review, often outside the PUC's framework. These additional review requirements have burdened PUC's and added opportunities for politicizing nuclear plant siting. While the passage of this new legislation is a product of increasing political awareness, and public action, it can create a formidable maze of review stops for the utility trying to react to increased consumer demand. The Idaho maze forms a triangle of review procedures. Along with the certificate of public convenience and necessity, a utility must also qualify for and receive a water permit from the Department of Water Resources, and an air quality permit from the Division of the Environment of the Department of Public Health. Aside from these state agencies, local governments have a veto in the form of zoning regulations.

The Department of Water Resources in Idaho is charged with

formulating an integrated, coordinated program for conservation, development, and use of an unappropriated water.[21] The current water conflicts in Idaho are between water for hydroelectricity, recreational uses, and water for irrigation. The water permit procedure for a utility wanting a thermal plant is currently brief, since that use doesn't fall into the conflict area. However, potential for obstruction does exist and could become serious.

The Idaho Air Pollution Control Act created the Air Quality Control Commission as a division of the Department of Public Health. Among the commissioners' powers is the ability to initiate and receive complaints as to air pollution, hold hearings and issue orders diminishing or abating the causes of air pollution and to institute legal proceedings including suits for injunctions for the environment.[22]

This agency along with the other two mentioned, has the right to hold hearings and review the consequences of the siting of any energy facility. This piecemeal administrative regulation could lead to haphazard administrative review and a potential non-balanced judgement. Long-term interests are given little attention since each agency deals primarily with its own shortsighted duties. Narrow agency interests can delay and even abate any given plant regardless of whether it is in the public interest. The issues are complex and far-ranging, requiring

---

21/ Idaho Annotated Code 42-1734.

22/ Ibid., 34-2908.

detailed analysis and compromising deliberation. With this fragmented system, lapses of authority can and do arise when proper oversight has been assigned to no one and decisions are based on incomplete information.

2. Technical Review. Ongoing technical review of an energy facility is not a duty of the PUC members in Idaho. In many states, with a piecemeal system, considerable jurisdictional problems remain in the area of monitoring and controlling radiological effects. The jurisdiction in Idaho appears to be in the Department of Public Health. The Radiation Control Act gives a designated representative of that Department the right to enter and inspect any nuclear facility and upon written notice shut it down.[23/] This is of course a separate agency from those involved in siting the facility. Idaho Power Company's most recent investment was a coal-fired plant in Wyoming (Bridger). Where nuclear plants give rise to water and heat problems, coal plants face opposition on grounds of air pollution, as well as water and heat problems. For Idaho, this means increased scrutiny from the Division of the Environment. The recent rejection of the Pioneer Plant was partially due to threatened air pollution damage.

3. Financing. The present Idaho Public Utility Commission, as it is established, has no power to require that a utility itself pay for the preconstruction studies and investigations.

23/ See F.N. 21, 34-3003.

Thus the Public Utility Commission is currently required to finance investigation from its own funds to determine whether public utility projects would be in the interest and welfare of the public. Under this situation, the Commission could in its deliberations be hindered by the apprehension or fear of not having an adequate budget to cope with the complexity of the issues. This financial situation is potentially one of the most pressing problems arising from the piecemeal framework.

4. Public Participation. The Public Utility Legislation in Idaho requires formal hearings in the area of the siting prior to granting a certificate of public convenience and necessity. The framework currently in vogue for these formal hearings is a full dress session. To be heard, you must show yourself to be an interested party prior to the hearing, and be represented by legal counsel at the hearing. The label "interested party" is granted if you can show the construction of the facility will have a significant effect on your situation. The Commission uses its judgement in labeling interested parties. For the Pioneer Plant, the last plant under review, the PUC was holding informal discussions in addition to the required formal hearings.

5. Time Frames. There is no time frame specified for the siting procedure. The Commission, however, recognizes the costs involved in delays and has voiced a desire to keep the process reasonably short.[24/] Wes Coryell of the Idaho Power Company

---

24/ Interview with Art Hadley, Idaho Director of Utilities, in Boise, August 1976.

has suggested three years as a reasonable approximation of the time frame.[25/]

6. Long-Range Planning. Executive Order #76-4 created the Idaho Office of Energy. While their primary duties include the promotion of and education about energy conservation, they recognize the need to study and evaluate long-range goals of the state. The Agency and the PUC together have the power and the ability to engage in long-range planning. However, at present this is a secondary function of both agencies and somewhat neglected. Idaho Utilities remain the dominant force in the area of forecasting.

7. Record to Date. Idaho Power Company's first construction of a non-hydroelectric facility was the Jim Bridger plant in Wyoming. Since the Jim Bridger plant, they have attempted to site the Pioneer plant, a coal-fired facility, seventeen miles southeast of Boise. This project was recently rejected by the PUC after approximately two years of review. The rejection was made on the environmental grounds of air pollution potential. The Governor testified against the siting of the facility at this time and in that location. A public referendum against Pioneer helped convince the PUC to reject the siting.

III. Alternative Patterns: Regional Governance

The evolution of the energy system in the Northwest strongly

25/ A personal conversation with Wes Coryell on January 13, 1977.

reinforces the possibility of regional control. The Bonneville Power Administration (BPA) has been more than just the regional distributor of hydropower. The BPA led the region's utilities to the hydrothermal power program discussed earlier in this module. This program is crucially hinged on BPA which provides the regional transmission grid for the Northwest. Even more importantly, BPA provides the type of billing, "netbilling," which allowed the region's utilities to finance large thermal plants. In spite of this key role historically played by Bonneville, local utilities are still concerned about forfeiting control to them. This issue combined with the problems of economic and environmental pressures has the movement towards regional unity temporarily stymied. This section will review some of the issues facing regional control and a possible solution to the state's varied siting procedures.

A. Institutional Patterns and Problems

Who should be given authority for the Northwest energy future? Section 6.3.1 of this module discusses the problems involved in the Washington Public Power Supply System (WPPSS), a group of electric utilities dealing with power supply in Washington.[26/] The problem of this group mirrors potential interstate problems of regional control. The states are currently miles apart on their institutional arrangements for

---

26/ Northwest Energy Policy Project (1977) Institutional Constraints and Opportunities, Study Module V, Tasks 1, 2 & 3, sec. 6.3.1, pp. 6-56 to 6-59.

handling the siting issue. Their siting legislation's time frames alone vary between no time limit to 36 months. Even though Washington and Oregon have siting bills in the same generic framework, their specific institutional arrangements are vastly different. The demand for energy development varies drastically within and between the states. The issues of opposition are always the same - environmental deterioration versus economic development. Despite the intra-regional disagreements, there is a continuing need for a regional outlook.

The siting process has tremendous external effects both in terms of environmental effects and developmental effects. Uncocrdinated siting between the states could lead to tremendous regional problems. Many airsheds and waterways in the Northwest are commonly valued and used by the region as a whole. Decisions pertaining to these resources should be made commonly.

B. Some Solutions

Some persons call for a regional authority to handle all institutional aspects of power generation. Generally, an authority of a regional nature would be required to set institutional guidelines for siting. This would entail setting up goals, reviewing agencies, criteria for the agencies, financing, etc. Unless a veto power was granted, the individual state would no longer be intimately involved in its own land use or disuse. Even with the regional energy authority, however, the states could maintain differentiated standards with regard to siting if the proper framework were adopted. This option would require

the institution of Maryland's generic framework. If the three states were required to purchase and inventory sites to be leased to the utilities, the issues surrounding particular sites could be left under their control. Research organizations such as PPSP could be maintained in each state. Each research program could designate its own goals, criteria and parameters. A regional authority would then be faced with any number of sites to choose from in each state whenever the need arose for new facilities. Allowing states to choose individual sites while working with a regional framework is an appealing alternative. States should have the freedom to utilize whatever institutional process they desire. But each process should assure a timely decision with meaningful involvement of all affected parties. This decision should be binding upon all governmental agencies and should be final provided that circumstances do not reveal new significant adverse impacts.

IV. Nuclear Energy Centers

Existing nuclear energy facilities contain no more than four reactors at a site, and fuel fabrication and waste management are performed at separate locations.[27/] The definition of facility may be tremendously altered with the introduction of nuclear energy centers (NEC's). NEC's may comprise as many as 10 to 40 plants together with waste treatment and fuel fabri-

---

27/ See F.N. 10, p. 26.

cation all in an area as large as 75 square miles.[28/] A number of motives for NEC's exist. The primary motive is the increased security that is possible. Increased economies of scale and decreased environmental impacts may serve as practical incentives as well. There are currently some corresponding uncertainties about NEC's. Technically, there is uncertainty as to the environmental effect of the discharged heat from 40 plants grouped in a small area. The problem of a common mode failure also exists. This is a situation where all the plants in NEC's are simultaneously shut down, completely eliminating a tremendous block of power. Aside from these situations, NEC's are not technically or economically different from dispersed sitings.

The political and administrative problems that have plagued dispersed siting suggest another advantage of NEC's. The delays and opposition that each dispersed siting confronts could be greatly reduced by the aggregation of a number of plants into a single NEC.

A. Evolution

Siting is an evolving process. Twenty-three states have enacted siting legislation in the past six years and even more have proposed it. With the current problems involved in dispersed siting, and the increased use of nuclear power, it is

---

28/ U.S. Nuclear Regulatory Commission (1975) Nuclear Energy Center Site Survey - 1975. NUREG-75-018. National Technical Information Service, Springfield, Virginia.

quite possible that the current situation will not be the final one. Since the evolution of NEC's is possible, the evolution of a regulatory framework for them must be considered possible. The current maximum of four reactors to a site is founded in tradition, not law. Multiple plant developments of up to ten reactors are currently under consideration in Florida, Pennsylvania, and Washington.[29/] The natural pressure for NEC's will come from the utilities themselves. All of the advantages listed above point to possible cost decreases from multiple plant sitings. The natural combination of utilities is the regional power pool. In the Northwest, this group has been an informal structure for energy planning for a number of years.

The presence of the Hanford Reservation in Washington makes the Pacific Northwest a primary location for a NEC. The Hanford Reservation is a nuclear waste storage area and the region has an abundance of cooling water for nuclear plant operation. While the utilities are the prime mover in the evolution to energy parks, or nuclear energy centers, the concept is consistent with Eastern Washington's desire for development. The subcommittee on Finance and Industrial Development of the Washington Joint Committee on Highways published a report calling for greater use of non-metropolitan areas by industry.[30/] The

---

29/ Young, Frank (September 1976) private conversation.

30/ Weaver, Ned (1976) "Summary of Report on Industrial Dispersion and Diversification for Washington State." Submitted to Al Henry, Chairman, Joint Committee on Highways.

energy industry is a prime example of the type of development that is more suited to non-metropolitan than metropolitan location. A facility the size of a NEC can act as a positive development tool for a state or a region.

B. Constraints

1. Environmental. The environmental constraints of a NEC are simply large scale versions of single facility sites. The land use problems are not tremendous in most cases since we are dealing with relatively underutilized regions. In fact the area set aside for nuclear installations may even act as a conservation measure, since the significant portion of the area required is simply a buffer zone. Again the Hanford area in Washington faces few use problems since it has historically been an atomic facility. The water use problem is potentially large. One of the key environmental arguments deals with the distortion caused by the effluent results of cooling water. Numerous single site facilities have spent millions developing techniques to handle thermal effluents. In the Skagit installation in Washington, a fish culture facility was built alongside the nuclear site for the benefit of the public. This type of awareness concerning water usage could prove valuable in large scale developments. The largest technical uncertainty is with regard to thermal pollution. The possible climatic change due to the emission of heat from up to 40 plants is an unknown. This type of technical review is critical to the acceptance of NEC's.

2. Political. NEC's are likely to cause some changes in

state energy laws. New direct legislation could prohibit or encourage the development of these energy parks. The political battle being waged by environmentalists versus advocates of nuclear power will determine to what extent we approach a moratorium or a more speedy development.

The first expected change would affect siting indirectly. It would be in the area of tax revenues. The enormous capital investment involved in a NEC would cause such large increases in the property tax base that state governments would be tempted to preempt them. Local governments traditionally receive property taxes. The temptation to the states would be considerable. This could seriously alter siting plans, however, since it might cause state governments to encourage location within their state. "...(T)he potential size of a nuclear energy center could prove a significant influence on many smaller states and a profound influence on any localities in which it might be sited. ...(T)he impact should be sufficient to prompt specific tax legislation in most, if not all, states."[31/]

The second political change may be with regard to environmental legislation. While in some states concern has intensified, others are rolling back environmental review requirements for power plant development. An exemption or roll back of environmental review would certainly create an easier situation

---

31/ Bjornstad, D.J. (1976) State and Local Fiscal Impacts Associated with Nuclear Energy Centers: Some Initial Considerations. P. VII, Oak Ridge National Laboratory, Oak Ridge, Tenn.

for NEC's, but it also makes them less attractive relative to dispersed sites. The political climate surrounding the environment and the resulting legislation could have substantial indirect effects on NEC siting.

3. Economic. The number one financial concern over NEC's is the tremendous initial capital cost of a multiplant development. Single plant developments as large as Oregon's Trojan plant have required a number of utilities for financial arrangements. A multiplant operation may be out of the area's financial possibilities. BPA has provided the financial help in the past through its net billing procedure.[32/] While it was not authorized to own generating plants, BPA felt it could assume a utilities' share of the cost, and credit this cost against amounts owned by the utility to BPA for power purchases and services. Under this system, a regional agency, BPA, assumed responsibility for power production. With BPA as a guarantor, a utility could easily arrange to borrow money. With the increased costs for thermal plants, and BPA approaching its net billing limits, this technique will not be used for plants other than Trojan, WPPSS 1, 2 and 3 and Pebble Springs.[33/] BPA then announced Phase 2 of the Hydrothermal Power Program. Under this plan, power for thermal plants would be sold to participating

---

32/ For a discussion of the Hydrothermal Power Program, see F.N. 26, sec. 6.2, pp. 6-13 to 6-55.

33/ BPA Branch of Customer Service, pp. 6-30.

utilities via trust agreements. The idea would be to provide a situation where BPA would act on behalf of its customers without purchasing power itself. While this system has not been implemented, it does offer a guarantee of purchases which could facilitate the capital funding of large projects.

Another economic problem caused by this scale of development is the service demands placed on a local community. The infusion of thousands of families both in construction and operation phases requires an infa-structure of services previously unavailable. Schools, hospitals, roads, parks, and many other publicly provided service institutions must be made available in a short period of time. While property taxes will eventually cover the expense, the early financing is simply not available. This problem was rather easily handled for Washington's Skagit nuclear plant by a special agreement between Skagit County and Puget Sound Power and Light. The utility agreed to precon-struction tax payments in order to facilitate the development of an infa-structure of public services. While this type of agreement is beneficial in a single plant operation, it may become essential with projects the size of NEC's. "Taxable capacity additions resulting from either dispersed or concentrated sites will depend primarily on whether facilities are investor-owned (and therefore likely to make payments in lieu of taxes that are less than would occur through taxation)."[34/]

34/ See F.N. 31, p. 24.

Traditional budgets of local governments will be unable to handle the tremendous increases in revenue associated with a NEC. It is likely that new state tax legislation will precede the site. A report on fiscal impacts of NEC's submitted to the Nuclear Regulatory Commission gives rough estimates of the figures involved in siting a typical NEC. In Oregon, the revenue increase would be approximately two hundred and sixty-six million or 25.4% of the state's budget. Idaho's budget would increase by one hundred and thirty million or 41.7% of the state's total budget and Washington's estimated nineteen million increase would be 15.7% of their total state budget.[35/] These potential revenue increases offer powerful incentives for states to consider hosting NEC's.

A third financial and political issue of NEC's is interstate rate regulation. This problem would likely require a regional agency as was discussed in the rate-making section of this module.[36/] A tristate regional energy agency could be involved in rate-making, siting, and other energy considerations all at once.

C. Regional Control

The scale of NEC's lead naturally to considerations of regional control. A single one thousand megawatt plant pro-

---

35/ See F.N. 31, p. 16.

36/ See Task 5, p. 98.

duces enough energy to serve one million people.[37/] In the Northwest, even one center would need interstate demand to operate smoothly. The evolution of a NEC would absolutely require interstate cooperation in this region. The problems lie in the inability of the states to put a price tag on the risks of development. The feeling is that one state is absorbing costs in terms of risk and environmental decay and the other states are receiving the benefits of energy. Thus the scale of development may be constrained by political regionalism.

The technology, however, naturally gravitates toward regionalism. Washington Public Power Supply System is a good model. WPPSS is a joint operating agency of 21 utilities that acts as a regional bulk supplier. As outlined in the hydrothermal power program, thermal plants like those operated by WPPSS will eventually supply most of the baseload power in the Northwest. The idea of merging utilities into regional bulk suppliers was recently proposed.

"Serious consideration should be given to shifting the focus of the regulatory commission...regional regulatory commissions--enjoying supervisory responsibility over both siting and rate determination--could help to assure that power supply plants are developed and implemented according to the schedule and format that best services overall regional interests...

37/ See F.N. 10, p. 54.

serious consideration should be given to separating the generation and transmission of electricity from the distribution function...The establishment of a limited number of bulk power suppliers within each region could improve financing coordination and competition.38/

The need for a more regional system is recognized in the Northwest. In fact, Oregon's and Washington's siting agencies are currently jointly considering an energy park proposal on their common border, the Columbia River. Pacific Power and Light has been seeking reactions from the Oregon and Washington Siting Councils concerning the West Roosevelt site in Washington across the Columbia River from Arlington, Oregon. This site is being considered as a possible center holding up to six nuclear and coal-fired plants. Oregon's siting coordinator is interested and involved because the air discharges from coal plants could significantly alter this joint Oregon-Washington airshed. This type of dual consideration is essential to regional acceptance of energy centers. Further pressures for interstate or regional control will build as the federal government gets closer to federally mandated siting.39/ This form of technology requires a regional control body with the ability to face rate-making and siting issues from a balanced perspective.

38/ Berlin, Edward, Cicchetti, Charles & Gillen, W. (1974) Perspective on Power: The Regulation and Pricing of Electricity. Ballinger Publishing Co., Cambridge, Mass., pp. XXIII-XXIV.

39/ See F.N. 10, pp. 55-56.

V. Floating Nuclear Power Plants

"Pursued by environmentalists, and hounded by a demand for electricity that has doubled every ten years, the nuclear power industry is about to moor a chain of barge-mounted nuclear power plants to the sea floor, only a relative short distance offshore, in the regions of rapidly increasing electrical demand."[40/] Traditionally, the oceans have been used only for activities particular to the maritime environment. Recent environmental and space problems of densely populated coastal regions have caused scientists and planners to think of the ocean as a place to expand land based activity. Offshore structures such as deep-water ports, airports, and nuclear installations are viewed as real possibilities. In 1972, Westinghouse Electric Corporation and Tenneco, America's largest ship builder, formed a Florida based corporation named Offshore Power Systems Corporation (OPS). The sole purpose of OPS was the design, manufacture, and production of barge-mounted nuclear plants capable of being operated anywhere in the world. Manufacturing permits have not yet been granted.[41/]

The concept is not new. These ideas were discussed and investigated in the mid-60s, but the conclusions were that the idea was not technically nor economically feasible at that time.

40/ Selfridge, Gordon (Spring 1976) "Floating Nuclear Power Plants: A Fleet on the Horizon?" Environmental Law, Vol. 6, No. 3.

41/ Offshore Power Systems Corp. (May 1973) Environmental Report to Supplement to Manufacture License Application, Pt. I.

Current problems surrounding plant siting, cost escalation, and time delays have given new impetus to offshore siting. Technically, the concept has gained favor because of the future need for saline water for cooling and because of the increased technical know-how concerning huge barges and tankers. Saline water will be needed to help supply the demands of thermal plants. The economics of this issue are favorable. In order to build a facility on land, the Nuclear Regulatory Commission (NRC) requires a 400 to 500 acre site. These sites are becoming increasingly difficult to find particularly in densely populated coastal regions. The unique requirements of each land site have caused no two plants to look alike. Sea based operations on the other hand would allow for an assembly line model. A single NRC construction permit would cover each potential site.[42/] The NRC's evaluation report on floating nuclear power plants (FNPP) estimate their 1981 costs could range from $420 per kilowatt to $480 per kilowatt, while they estimate land based plants for 1981 to have costs in the $500-$550 per kilowatt range. The economics of the system is not clear at present but further research and evaluation is needed.

A. Structure

The structure would be anchored approximately three miles offshore, in water 45 to 70 feet deep, and would occupy approximately 90 acres of space. Surrounding the plant would be a massive breakwater, 300 feet wide at the bottom and 50 feet wide

---

42/ See F.N. 40, p. 796.

at the top.[43] This structure is supposed to withstand winds of 300 m.p.h., the largest estimated wave in the next ten thousand years and collision with any supervessel afloat.[44] Each barge will measure 378 by 400 feet, draw 32 feet in draft, and displace 160 thousand tons of water. Power will be carried to the grid by oil encased underground cables buried in the seabed.[45] The current transmission technology would allow power to be carried a distance of 200 miles underwater, which is distance enough to handle a significant portion of the Northwest demand.

A shore based system supporting the FNPP will be required. It should occupy a small amount of acreage and it will be used mainly for staging and transporting materials. The facility will not, however, store, handle or transmit nuclear fuel.[46] These activities would be subject to the host states' siting laws.

B. Environmental Constraints

Many environmental concerns will develop with this technology. Choice of the location must take into account the possible disruption to spawning, migration of fish, and destruction of shellfish areas. Since the life of a structure is only estimated

---

43/ U.S. Department of Commerce, NOAA (January 1975) Report to the Congress on Ocean Pollution, Overfishing, and Offshore Development, July 1973 - June 1974. p. 59.

44/ Ibid.

45/ Ibid., p. 177.

46/ Ibid., p. 187.

at 40 years, removal of the breakwater will be a future source of further disruption. The breakwater will form an artificial reef, thereby furnishing a possible habitat for reef organisms. The laying of power lines will require dredging and other activity which will disrupt the environment in a 960 feet wide path from shore to installation.47/

The plant will heat 2 million gallons of water per minute to 16 degrees above normal. However, the ocean will only be affected by 5 degrees for a five acre area.48/ This heating and eventual recooling of the ocean could adversely affect fish and shellfish populations.

The greatest danger environmentally is the least probable event, a reactor core meltdown. While low level radiation may continually be emitted, the possibility of high levels of radiation due to an accident is a serious consideration. An accident at sea is far more dangerous than one on land. Since the sea would not create its own glazed insulation chamber as a land mass would, an accident would contaminate thousands of cubic miles of ocean, and contaminate the food chain for hundreds of years. The changes occurring in the ocean would cause serious alteration on land, primarily in regard to oxygen and climate. While the probability of this scenario is small, the seriousness of the results warrant continuing investigation. Research is ongoing in these areas.49/

47/ See F.N. 43.

48/ Ibid.

49/ Ibid.

C. Legal Constraints

Construction of FNPP's would cause some legal problems if sited within coastal or territorial waters. However, the legal problems are complex outside of territorial waters. The laws in regard to the high seas allow for (1) freedom of navigation, (2) freedom of fishing, (3) freedom to lay submarine cables, and pipelines, and (4) freedom to fly over the high seas. Furthermore, it states, "These freedoms and others which are recognized by the general principles of international law, shall be exercised by all states with reasonable regard to the interests of other states in their exercise of the freedoms of the high seas."[50/] While the actual mooring of the barge cannot be considered as prejudicial to other states, the construction of breakwater must be construed as an interference with other states' freedoms. Since such construction interferes with the exercise of states' freedoms, it cannot be defended under the high seas convention even though the actual barge mooring causes no problems.[51/] International law has not really faced this issue as yet and thus it could be validly argued on both sides. A cautious approach has been advocated by Offshore Power Systems, Inc. (OPS). When their president testified before Congress, he stated, "The site must at present be located within the three mile continental limits of the United States to remain within

---

50/ See F.N. 40, p. 807

51/ Ibid.

the jurisdiction of federal and state government."[52/]

D. Political Constraints

The primary political constraint is the overlapping jurisdiction involved in using the area of ocean within three miles of shoreline. The Submerged Lands Act of 1953 conveyed to the states title to the seabed from high-water mark to three miles out. This control includes exploitation of the seabed and transit over and under the seabed.[53/] The federal government did retain a navigational easement in the superadjacent waters of the territorial sea.[54/] Due to this easement, jurisdiction over offshore facilities is shared by federal and state governments.[55/] Local governments maintain jurisdiction short of the high-water mark, thus local governments retain control over shore based facilities, cable landings, and transmission easements, but have no jurisdiction over the actual plant.

Opposition to FNPP's can occur at any of these levels. While it is not this paper's purpose to go deeply into the duties of all regulatory agencies, the following list of stopping points for a New Jersey facility can be informative.

The first and most important federal license is a permit

52/ U.S. Nuclear Regulatory Commission (1975) Safety Evaluation Report Related to Offshore Systems, Floating Nuclear Power Plants (1-8), NUREG-75-100. National Technical Information Service, Springfield, Virginia.

53/ See U.S. Constitution, Articles 1 & 8 Cl 3.

54/ Ibid.

55/ See United States vs. Appalachian Power Company, 311 U.S. 377 (1940).

to manufacture the floating plant. The Office of Nuclear Reactor Regulation has been studying this possibility since mid-1973. When these safety reviews are completed, an Atomic Safety and Licensing Board will recommend for or against licensing. This decision may be appealed to the Atomic Safety and Licensing Appeal Board. The Coast Guard must certify the barge as seaworthy and moveable before the NRC completes the first round of permits. A second round is required for the Public Service Electric and Gas Company to construct a breakwater and prepare the site. The NRC must then approve the specific site and the Army Corps of Engineers must approve dredging and filling operations of the project. An operating license is the third federal permit required. This involves more safety and environmental review and a hearing for area citizens is required upon request. This procedure is subject to the early appeal process also.

More than half the licenses and permits must be issued by state and local governments. In New Jersey, permits for construction of the breakwater must come from the Department of Environmental Protection which administers the state's Wetlands Act and the Coastal Area Facilities Review Act.[56/] This department must also issue permits for transmission lines and any construction taking place on shore. The New Jersey Department of Labor and Industry must issue a permit for construction of

---

56/ See F.N. 43, p. 81.

the breakwater and plant. The Department of Environmental Protection must grant riparian rights to PSE&G for the site and issue a permit for the loading of nuclear materials. Local governments must approve all onshore facilities and any onshore cable or pipeline installation.[57/]

For FNPP's to evolve as a possible solution to the siting dilemma, specific legislation is needed to govern the decision making process. The above listed piecemeal regulation is likely to cause the same type of fragmented, costly and unbalanced system that still exists in many states with respect to land based siting. A change like this would allow us the alternative of FNPP's while requiring the balanced and cautious type of review that is so necessary.

VI. Siting Other Facilities

A. Offshore

The possibility of widespread offshore oil and gas systems on the Atlantic Coast has in the past caused considerable concern among the affected coastal states. While this is not a major concern of the Northwest states, they do face the problems of deep-water ports and fuel transportation systems. On the Atlantic Coast plans for deep-water ports are presently shelved, but changes in environmental laws, new tax policies and changes in fuel prices could reverse the situation. Currently

---

57/ See F.N. 43, p. 81.

the oil industry is implementing plans for deep-water ports off Texas and Louisiana. Oregon and Washington are facing the prospects of tankers carrying oil and natural gas through their navigable waters.

Most of these offshore operations come under the jurisdiction of the Department of the Interior which leases ocean space from three miles to twelve miles out. The department also has a say in how the states allocate their three miles of jurisdiction. But the problems are likely to occur at the state and local level.

These potential energy facilities have placed considerable pressure on state officials, particularly from coastal residents interested in protecting the shoreline. This pressure has caused state officials to argue for a role as active participants, rather than observers in three general areas. "They are: (1) drafting of oil and gas regulations and enforcement plants which could affect the quantities of oil that may be spilled during offshore development; (2) selection of areas to be leased which will affect locations of such facilities as onshore staging areas, pipeline landfills, tank farms, and gas processing plants; and (3) approval of development plans which set a pattern of deployment of technology that would prevail during the life of an oil or gas system."[58/] While this quote is a statement of an East Coast phenomenon, the situation is

---

58/ See F.N. 43, p. 14.

similar for Western states concerned with oil and gas transportation, docking and loading.

B. Onshore

The Northern tier pipeline, trains carrying oil across Oregon, docking for oil and gas, and slurry pipelines bring with them considerable "siting" problems. Washington's recent amendment including these as "energy facilities" is the most likely solution to the problems. Once these distribution devices are included under the siting council's jurisdiction, the states have an extensive administration and technical review procedure to call upon. Unless Oregon takes a similar legal stance, the review of these operations would be left to various local and state organizations all operating independently and possibly contradictorily. Under the Washington legislation, any or all of these operations would undergo a complete examination before commencement. The institutional setup is the siting council which has been previously described. Oregon and Idaho currently have no single institutional device for monitoring these activities and are likely to bear the cost of these types of operations.

VII. Summary and Conclusions

Three generic alternatives currently exist for state energy facility siting. Twenty-seven states deal with the institutional aspects of siting in a traditional manner. Twenty-two states use a one-stop licensing system and one state purchases

sites and leases them to utilities. Within the near future many of the states following a traditional pattern will propose specific siting legislation of the one-stop licensing variety. The traditional framework allows the review and research task to fall on many existing agencies, all of whom have quite narrow perspectives. In Idaho a review is done by the Public Utilities Commission, the Water Board, and the Air Quality Control Commission. Each agency deals with the utilities proposal only as it affects their specific charges. This piecemeal approach could lead to fragmented and time-consuming decision making. The utilities can undergo time and money costs without the public receiving any corresponding benefits. While the one-stop licensing procedure is far from being perfected, it does offer a comprehensive and reasonable approach to a detailed and complicated problem. The utilities have a single form for presenting their case with a specified time limit placed on decision making. States vary tremendously within this framework, but in most situations the approval process has been considerably simplified. Maryland has taken this framework one step further. By separating the research and review procedures from the final decision making body, this state has reduced time delays to the shortest in the country without sacrificing research. The separate research agency performs in an impartial, unpoliticized arena, making recommendations for or against purchasing sites. A Public Services Commission uses their research in selection and purchase of

sites and inventories land for energy facilities. Utilities must wait only 90 days for approval or disapproval of a project.

A drawback of the Maryland situation is the fact that it can't be extended to "associated facilities". Purchasing and leasing all the land needed for transmission, handling and support of generation and distribution would be unfeasible. Most transmission of oil, gas and coal would never fall under the jurisdiction of such a siting agency. The extension of current siting laws to include associated facilities is a necessary and worthwhile step. Along with this extension, however, should be some further consideration of time frames. It may be unreasonable for Oregon to expect a coal supplier to wait 38 months for approval of rail shipments. States should be encouraged to take the necessary steps to provide adequate review of all potentially dangerous energy activities. But they must also be fully conscious of time and cost constraints they are imposing on energy suppliers.

The possibility of regional frameworks for dealing with the institutional aspects of energy must not be overlooked. The historical influences of Bonneville and the existing transmission grid should augment regional thinking. Any large scale development of energy is going to require a regional approach to siting, rate-making and distribution. Whether the authority comes from PUC's, energy offices or siting councils makes little difference as long as the three states cooperate in the task of providing energy services that are adequate both from

an environmental and economic point of view.

The agencies involved must be flexible, knowledgeable, and adaptable if they are to handle the new and varied energy siting problems which are already surfacing. An institutional arrangement designed with narrow interests focused on current issues alone will not be able to cope with deep-water ports, slurry pipelines, wind generators or the many other energy possibilities. The institutional situations are bound to change. In making the changes, the states should allow for the development and use of a variety of alternative energy systems.

TASK 7

UNCONVENTIONAL ENERGY SOURCES

I. Introduction

In addition to petroleum, natural gas and hydroelectricity, other Northwest Energy Policy Project Studies have also addressed the following as having potential for helping to supply this region's future energy needs: conservation, geothermal sources, solar energy, wind power, the use of biomass sources and miscellaneous possibilities including tidal and lowhead generators. Indeed, utilization of some of these options is already under way and do not await exotic technological breakthroughs. Also, their renewable character is of great importance, a quality shared with hydro-power.

Task 7 of Module V is to focus on institutional constraints and opportunities presented by the above. Policy options will first be considered in a general introduction as providing either "Negative Incentives" or "Positive Incentives" to citizens of the region. Then, several policy models will be developed under the classifications:

A. Economic Incentives

B. Indirect Government Efforts

C. Direct Government Action

While these models will be developed in some detail for biomass and wind, the more immediate prospects of utilizing

geothermal and solar energy require a less far-ranging but more legally oriented approach.

In general, state and local governmental actions can roughly be categorized as providing "Negative Incentives" and "Positive Incentives." The former are governmental actions that require involuntary compliance, prohibit certain behavior and/or penalize those who do not comply. For example, conservation of energy could be enhanced by requiring that all buildings must be designed to have insulation that meets state standards before building permits are issued. The entire range of state financial involvement could be employed to force retrofitting inadequately insulated structures, e.g., ruling out state loans, leases for state use, contracts with private colleges, schools, hospitals, or nursing homes, and even business licenses for other enterprises housed in such buildings. The sale or operation of vehicles or machinery could be conditioned on their energy-efficiency, to be determined like safety or emission control stands. Home heating units and household appliances could also be energy-rated; the state might require inspection and seals similar to those found on weighing scales and electric meters.1/

States could also force the removal and non-polluting disposal of wastes: forest slash, wood chips, straw, manure,

---

1/ Options for conservation policy are discussed at length in Northwest Energy Policy Project, Energy Conservation Policy - Opportunities and Associated Impacts, Study Module I-A.

garbage, etc. With a cost attached to their removal, converting these items to positive energy might become economically attractive. Environmental impact statements could be required to include plans for conserving waste materials for energy production wherever possible. To exploit all possible energy sources, states could tax, fine, or make available on a "finders-keepers" basis waste wood in private forests and wood lots, materials in derelict and abandoned buildings, even unused sites appropriate for windmills. These procedures might be modelled after the procedures for establishing mining claims.

By "Positive Inducements" - tax incentives, preferential licensing, or loan subsidies - the state could encourage many of the energy-saving or energy-producing policies and procedures indicated above. Present limitations on state agencies, units of local government, state chartered utilities and banks could be lifted. State and local governments could decide not to raise taxes on buildings that are improved by proper insulation or by installation of expensive but more efficient heating/cooling systems. State governments could mandate local government units to cooperate in order to achieve economies of scale in processing solid waste. Through their purchasing policies, state and local governments (including schools) could help to create markets for energy-efficient devices. They could themselves use mass-transit more extensively, and could offer bounties and prizes for inventions and policy proposals.

The states could also establish "County Conservation Agents"

similar to those employed by the Agricultural Extension Service. A competent, neutral public organization could establish public confidence, for example, by supplying objective data regarding oil burner settings, the value of insulation, the extent of heat loss through windows and the effective tuning of automobiles, etc.

None of these ideas are specifically advocated here; they may not be feasible. But they illustrate a wide range of negative and positive incentives, including some which are very coercive, and others only mildly so.

II. Policy Options for Unconventional Energy

Official actions concerning the development of unconventional energy sources group themselves into four categories:

1. State and local governments might choose to do nothing, on the grounds that the less governmental involvement, the better. If economic forces of the market place are left free to exert their influence undisturbed by disruptive official actions, they could conceivably provide the necessary energy at competitive low prices.

2. State and local governments might establish taxes and tax credits, fees and bounties, and other economic penalties or incentives to motivate private concerns to act in the public interest, at least in energy-related matters.

3. State and local governments might promote or join in efforts to provide more energy from unconventional energy

sources or help to remove barriers currently hindering such efforts.

4. State and local governments could, through legislative or administrative action, exert direct control over the institutional arrangements that affect unconventional sources of energy.

The first of these four categories requires no further discussion in a study dealing with alternative options for public policy. The other three categories are discussed below in general and without being categorized for residential, commercial, institutional or industrial applications, or for different energy use scenarios.

A. Direct Economic Incentives for Developing Unconventional Energy Sources

Governmental units of the Northwest - local, state, perhaps even regional - can provide economic incentives for the promotion of unconventional energy sources in three different ways. For one thing, they can reduce the financial obligations of entrepreneurs in this area to their government - providing special tax breaks, for example, if new energy sources are developed, or reducing standard licensing fees.

Alternatively, they can, through changes in regulations governing the conduct of business, encourage private businesses to expand and concentrate on activities concerned with developing new energy sources. For instance, if the individual Public Utilities Commissions have detailed jurisdiction over the pro-

duction and sale of energy from unconventional sources, they might help in several ways. They could permit a retail price structure that encourages entrepreneurs, e.g., by deciding that a relatively high rate of return is appropriate, or by blending energy from conventional and unconventional sources in order to assure the latter of a ready market. PUC's could mandate long-run incremental costs as the basis for price regulation in order both to encourage utilities to begin exploiting unconventional energy sources and to acquaint the public with how much it really costs to have to shift to such new sources. They could establish regulations that stretch out or delay the burden of licenses, fees, royalties, interest payments, and other expenses involved in so expensive an undertaking. They might even set "rate schedules" for such fees, to encourage small-scale developers. For example, the present siting fee, determined with nuclear installations in mind, is prohibitively high for a windmill builder. These examples are not exhaustive of the possibilities.

Thirdly, government units could provide active assistance to developers of unconventional energy sources. They might provide state guarantees for loans extended by private financial institutions, under a program analogous to federal guarantees for FHA-approved mortgage loans or HEW guarantees of educational loans. Perhaps a designated government agency could make such loans itself, just as Oregon's Department of Veterans' Affairs provides direct mortgage loans to qualified borrowers. Either

of these two programs would reduce the cost of interest on loans that must be floated; in that way, either program could provide important financial assistance to private industry.

Finally, a regional, state, or local Endowment for Energy Development might make direct grants to private citizens and firms for the study of unconventional energy sources, much as the National Endowment for the Humanities now gives financial support to selected endeavors. The volume of such grants need not be large to have an impact if they are carefully selected.

B. Indirect Government Efforts to Promote Developing Unconventional Energy Sources

Governments can affect the policies of private business firms by providing institutional assistance, or by establishing a climate conducive to entrepreneurial activity concerning unconventional energy sources. Such activity can be classed under four headings.

1. Promotional, informational, and educational efforts by government agencies could further the cause of unconventional energy sources. Citizens should know of available options, of possible new production methods (and their costs), and of specific installations that have proved themselves. Economists have long known that high "information costs" can significantly delay the introduction of new products and processes; it would behoove public policy to reduce them. Community colleges (and others) could be asked to disseminate this information, to offer relevant technical courses, and to act as resource centers

for students of unconventional energy sources. An "Unconventional Energy Extension Service" or an "Unconventional Energy Experiment Research Station" might prove to be very useful. Some experts believe many persons will prefer their own energy source - for example, a home solar heating system - because it could offer a degree of self-sufficiency in a period of uncertainty, even if at a higher price.

2. Government agencies might also assist developers of such energy sources more directly. Just as Departments of Economic Development engage actively in efforts to attract appropriate industry to a particular state, newly established Departments of Energy Development or expanded staffs of appropriate agencies already established could undertake analogous work. Informing technical experts elsewhere of the opportunities to develop unconventional energy sources in the Northwest, helping them to investigate the prospects, and facilitating their serious interest is potentially a major assignment for appropriate official agencies.

3. A regional government agency might well coordinate the various independent efforts that individual states, counties, and local governments will be anxious to undertake as they become aware of available sources of unconventional energy. Substantial duplication of effort - in research and in actual development - might be avoided if the various interested parties could be encouraged to plan jointly, in order to avoid uncoordinated competition for available experts, technical information,

and advantageous sites.

4. The various legislative bodies in the Northwest could examine state laws and local ordinances for their conformity to newly developing circumstances. Zoning regulations with respect to the storing of sawdust, or the right to cut (or not to cut) a tall tree, or building standards for structures using solar panels, etc., etc., will surely require a thorough review. Specific standards are needed for unconventional energy sources that might pollute, be noisy, or have other unexpected side-effects on neighboring properties. The rights of unconventional energy sources within both the institutional and the economic framework of the region needs to be clarified. If a property owner can occasionally generate excess electricity with a very efficient windmill, for example, will he be able to sell spare power to the utility company that serves him, possibly with a credit against future bills when he has to purchase energy? If a new geothermal source is discovered in a new location, will development rights be easily and quickly determined? If a river offers possibilities for a lowhead hydroelectric generating facility, will traditional water rights - "first come, first served" - continue to be observed? Questions like these are a challenge to the Northwest's legal and economic institutions; the region should prepare for them.

C. Direct Government Action Toward Producing Energy From Unconventional Sources

Tax incentives and other economic inducements may be too

slow to take effect; government policies to encourage and facilitate developing unconventional energy sources indirectly may be too subtle and too uncertain. The government, most likely on a regional or state level, may have to take direct action. It might be done at four different stages of production:

1. The government could assume responsibility for the required research and development of the new energy sources in the Northwest. Organizations like the Extension Service or a Field Experiment Station could - perhaps within the framework of a university - carry out research concerning unconventional energy sources, making the results available to potential developers and practitioners as an incentive to proceed. A precedent exists, albeit on the federal level, relating to the development of nuclear energy; the States of Oregon and Washington are currently operating research laboratories concerned with marine biology; state-run fish hatcheries also assist a private industry, both operationally and through applied research.

2. The siting of unconventional energy sources might well become an official function of a regional siting council or of state siting councils acting in consultation with each other. As indicated in an earlier discussion of siting (see Task 6, page 148), the State of Maryland has adopted a successful policy of siting nuclear energy plants at locations picked, acquired, and prepared by a state agency. This procedure

could serve as a model for the siting of unconventional energy sources; windmills and solar energy collectors in particular should present far fewer problems than a nuclear or an oil or coal-fired power plant generating energy from conventional sources.

3. Regional, state, or local government agencies might even take on the task of generating energy from unconventional sources. There is, of course, precedent for public agencies - federal, state, or local - that generate hydroelectric power and (in the State of Washington) nuclear power as well; installations that harness energy from unconventional sources might well be relatively less expensive and less ambitious than plants fueled by conventional energy sources.

4. Even the wholesale transmission and the retail distribution of energy from unconventional sources could be done under government auspices. A government agency might feed such energy into the existing regional grid and thereby effect not only a blending of power from different sources, but also a blending of costs, so that no particular small group of energy consumers is exposed to what may be above-average generating costs. The entire "unconventional energy source" industry could operate like a producing public utility district, feeding energy into the transmission network at appropriate wholesale prices.

In sum, many options for public policy concerning the development and exploitation of unconventional energy sources

present themselves. Choosing the right ones will be a challenging assignment. The following sections will discuss geothermal and solar energy in greater detail, while wind power and biomass are examined subsequently.

III. Geothermal

Geothermal energy is the thermal energy found beneath the earth's crust. A practical definition of the resource is that:

> Broadly considered, geothermal resources are the natural heat of the earth's crust. This natural energy is economically significant, however, only where it is concentrated into restricted volumes in a manner analogous to the concentration of valuable metals into ore deposits or of oil into commercial petroleum reservoirs. 2/

Geothermal energy, like other unconventional or new energy forms, is subject to a number of conditions hindering its development. All but a small quantity of the Northwest's presently known geothermal sources have temperatures of considerably less than the 300°F (150°C) normally needed for conversion to electrical energy. Thus the geothermal source will be used primarily for space heating and cooling rather than electrical production. Other uses are for agriculture (irrigation, greenhouses), acquaculture (fish and shrimp production), culinary water, medicinal uses, and industrial uses. The exact use will be determined by various economic considerations:3/

2/ Combs, Jim & Muffler, L.J.P. (1973) "Exploration for Geo-Thermal Resources". Geothermal Resources, Stanford University Press, Stanford, CA.

3/ Austin, Carl F. (1977) Technical Overview of Geothermal Resources. Geothermal Resources Development Institute, Paper 2, Rocky Mountain Mineral Law Foundation, p. 2.

1. Temperature
2. Presence of heat transfer medium (natural or injected)
   (a) Environmental acceptability of heat transfer medium per se
   (b) Environmental acceptability of materials transported concomitant with heat
3. Presence of producible by-products
4. Porosity of the zone of heat accumulation (the reservoir)
5. Permeability of the zone of heat accumulation
6. Depth to the zone of exploration
7. Response of heat transfer medium to changes in pressure and temperature
8. Technological state of the art of energy conversion
9. Net worth of a unit of heat at the surface

States have a wide variety of policies available to either restrict or assist in the development of their geothermal sources. Whether the climate for the use of geothermal energy sources will be positive or negative is often directly related not only to these policies, but also to the attitude of the governor and other elected state officials.

A. Definition of Geothermal Energy Source

The description of a geothermal resource is critical in its legal definition. The importance of this definition relates to its use to determine the source's ownership. Few if any groups will make the necessary large, long-term capital investments in an energy source if the source's ownership is disputed.

But the complex nature of a geothermal resource (water, dissolved minerals and gases, and heat) creates a problem in determining ownership. One or all of these factors may be decisive in the final definition of the resource and thus its ownership.

> Each known type of geothermal system, including magma, hot dry rock, geopressured and hydrothermal convection systems, should be identified as a geothermal resource with its properties and components accurately described. The statutory definition would provide a reference to clarify all other public policies affecting geothermal resources and development; these include leasing, field development regulations, property tax levies and assessment methods, income tax deductions and utility commission regulations. The definition would also guide legal and private determinations concerning geothermal resources.
>
> Geothermal resources should be clearly distinguished from other natural resources. Established water resources, in particular, should be separated from geothermal resources. The distinction can be made in a number of ways. Fluids and vapors found in geothermal formations may be defined as a component of the system. In this case, a minimum geothermal formation temperature (e.g., 80°C) may be specified to separate geothermal systems from water bodies. Ground fluids from lower temperature formations would not be considered a geothermal resource.
>
> Where fluids or vapors in geothermal formations are not defined as a component of the geothermal resource, they may still be distinguished from established water resources through appropriation procedures. The fluids produced from geothermal formations may be declared as developed waters or by some other method declared as distinct from established water resources; the developer's absolute right to such fluids could be rebutted only if interference with established water rights were demonstrated.
>
> Interference with existing water rights is a concern in geothermal development however the fluids may be legally treated. Any adequate definition of geothermal resources will recognize that geothermal fluids grade into standard groundwater under some circumstances, but that a rule is needed to separate them where no interference exists. Water rights must be protected. At the same time, con-

> jectured interference should not obstruct geothermal development. To satisfy both necessities, the states should provide by statute that regardless of their categorization, fluid or vapor production from geothermal formations is not restricted by established water rights unless substantial interference can be demonstrated. 4/

The ownership of land does not necessarily include ownership of its mineral resources or groundwater. Therefore, the definition of the resource will dictate in many instances just what impact the state will have on geothermal development. The following tables give an approximation of various types of ownership of the lands in the various Pacific Northwest states. The degree of state ownership will therefore be directly related to regulation of the resource.

Land ownership as shown in Table 3 indicates that the vast majority of land is owned by the federal government or private parties. Federally-owned land makes up 63.9% in Idaho, 51.8% in Oregon, and 29.4% in Washington.

State ownership accounts for but a small part of the total: Idaho holds 5.2%, Oregon 2.7%, and Washington 7.6%. If the resource is therefore defined as belonging to the owner of the surface property or estate, the state will have little impact on the exploration or development states.

The Pacific Northwest states have reserved the mineral ownership of land approximately as follows: Idaho - 245,000

4/ Sacarto, Douglas M. (November 1976) State Policies for Geothermal Development. National Conference of State Legislatures, Denver, CO, p. 4.

TABLE 3 - LAND OWNERSHIP (x 1,000 Acres)

STATE	Total Acreage	Federally Owned	Percent Federal	State Owned	Percent State	Private Other	Percent Private
Idaho	52,933	33,849	63.9	2,755	5.2	16,330	30.9
Oregon	61,599	32,180	52.2	1,652*	2.7	27,767	45.1
Washington	42,694	12,570	29.4	3,237*	7.6	26.887	63.0

* Excludes submerged and offshore lands.

TABLE 4 - ACREAGE WITH MINERALS RESERVED TO THE UNITED STATES

STATE	All Minerals	Oil and Gas	Oil, Gas Plus Other	Misc. Minerals
Idaho	1,291,163	4,940	216,060	--
Oregon	1,639,742	14,369	480	--
Washington	262,444	2,518	384	400

TABLE 5 - ACREAGE OF STATE AND FEDERAL GEOTHERMAL LEASES**

STATE	Federal Lease Competitive	Non-Competitive	Total	Percent of Federal Land	State Lease	Percent of State Land
Idaho	55,054[a]	118,116	173,170[a]	.0051	60,000[b]	.0218
Oregon	54,338	74,682	129,020[c]	.0040	8,780[d]	.0053
Washington	0	0	0[e]	--	0[f]	--

** a. Fed. Bureau of Land Mgmt., Boise Office. Figures are as of 12/31/76.
b. Idaho Dept. of Lands, Dr. Maley. Figures are as of 1/21/77.
c. Fed. Bureau of Land Mgmt., Portland Office. Figures are as of 1/21/77.
d. Ore. State Land Board, Virginia Williams. Figures are as of 1/21/77.
e. Wash. Dept. of Natural Resources. Figures are as of 1/20/77.
f. Wash. Dept. of Natural Resources. Figures are as of 1/21/77.

acres, Oregon - 100,000 acres, and Washington - 500,000 acres.[5/] This means that, if the geothermal resource is classified as a mineral, the state holds this acreage in addition to that shown in Table 3. The federal government has also disposed of land while reserving various mineral rights as shown in Table 4. Whether this land will be available for geothermal development depends on federal government policy. Whatever the policy, involvement with a government agency may be time-consuming and/or costly. An idea of the amount of government land that had been leased is shown in Table 5. A comparison of the total land owned by the state and federal government taken from Table 3 is shown as a comparison.

All groundwater ownership has been reserved by the Pacific Northwest states as a public resource. Therefore, the state policies for such resources described below in the section on leasing and development regulations become critical if the geothermal resource is classified as groundwater. In that case, policies will have to be written and interpreted to protect groundwater while encouraging geothermal development.

It is, therefore, of increasing importance to determine the definition of a geothermal resource. Even after an executive or legislative decision is made, the courts will have to hand down the final determination. Only after this determination is made will the state laws and regulations regarding

---

5/ See F.N. 4, p. 18.

geothermal resources (Appendix 3) be fully effective.

B. Leasing and Development Regulations

Whether state regulation applies in the leasing and development of geothermal resources depends not only on the ownership of the land, but the classification of the resource itself. The resource may be classified as water, mineral, gas or sui generis (a legal term meaning "unique" or "one of a kind"). There may be a problem in attaching the geothermal source to an existing resource category. The laws relating to that resource category were probably made without considering the unique properties of the geothermal source. Therefore, existing laws might be examined to determine possible areas of conflict. If conflicts are found, they could be resolved by the various state legislatures.

Both Idaho and Washington have elected to define the resource as sui generis. Both states have also retained the rights to geothermal sources in all sales and leases. They have, of course, released the right to this resource when the lease was for the geothermal source itself.

Since a geothermal resource is complex, each state has given it a definition either unique to its own interest or based on the California Geothermal Resource Act of 1967[6/] and/or on the Federal Geothermal Steam Act of 1970.[7/] The

---

6/ California Public Resource Code, Div. 6, Pt. 2, Ch. 3, Art. 5.5 (6903). (Added by Geothermal Resources Act of 1967, Ch. 1398. stats. 1-67.)

7/ Federal Geothermal Steam Act, P.L. 91-581, Section 2.

two definitions are set out below:

Definition 1:

"Geothermal resources" shall mean the natural heat of the earth, the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from, such natural heat, and all minerals in solution or other products obtained from naturally heated fluids, brines, associated gases, and steam, in whatever form, found below the surface of the earth, but excluding oil, hydrocarbon gas or other hycrocarbon substances.

Definition 2:

"Geothermal steam and associated geothermal resources" means (i) all products of geothermal processes, embracing indigenous steam, hot water and hot brines; (ii) steam and other gases, hot water and hot brines resulting from water, gas or other fluids artificially introduced into geothermal formations; (iii) heat or other associated energy found in geothermal formations; and (iv) any by-product derived from them.

"By-product" means any minerals (exclusive of oil, hydrocarbon gas, and helium) which are found in solution or in association with geothermal steam and which have a value of less than 75 per centum of the value of the geothermal steam or are not, because of quantity, quality, or technical difficulties in extraction and production, of sufficient value to warrant extraction and production by themselves.

Oregon has basically adopted the federal definition. The major difference is that when water is found at more than 2,000 feet in depth and at over 250°F, it is treated as a mineral. Idaho has accepted the California definition. Washington has defined the resource in terms of its use, as

"...only that natural heat energy of the earth from which it is technologically practical to produce electricity commercially and the medium by which such heat energy is extracted from the earth, including liquids or gases, as well as any minerals contained in any natural or injected fluids, brines and associated gases, but excluding oil,

hydrocarbon gas and other hydrocarbon substances.[8/]

The existing definitions are still not completely adequate to identify all types of geothermal resources. At the present time, these definitions do not segregate geothermal sources from other natural resources, especially water. Oregon, though, does use both a temperature and depth differential. The definitions also appear not to identify clearly types of physical occurrences held to be geothermal sources. The problem could possibly be eliminated by describing the physical properties of those physical occurrences such as: magma, hot dry rock, regional heat flow, geopressured and hydrothermal convection systems.

State leasing rules and regulations relating to state lands do not normally constitute a constraint upon geothermal development. Nevertheless, the various bidding procedures may, by the very time involved, cause undue delay. Bidding may be competitive or non-competitive, depending on the assessed value of the particular resource area. The type of bidding employed depends on whether the area is a known geothermal resource area (KGRA) or an area of unknown potential. Washington requires competitive bidding for access to any public lands, whether for exploration or for development purposes. Table 6 sets out the various leasing provisions used.

8/ Washington Geothermal Resources Act, Ch. 43, Sec. 4, Substitute HB 135, 1974 Legislature.

TABLE 6 - STATE GEOTHERMAL LEASE PROVISIONS

STATE	PRIMARY TERM	RENEWAL	ANNUAL RENTAL	ROYALTIES	ACREAGE LIMITS
Idaho	10 years	for duration of commercial production or drilling operations to at least 1000 feet, up to 40 years beyond primary term	first 5 years: $1/acre second 5 years: $2/acre thereafter: $3/acre	primary: 10% byproduct: 5%	min. lease: 40 acres max. lease: 640 acres max. State holdings: interest in 50 township-and-ranges
Oregon	10 years	10 years, if royalties in any year of preceding term equalled or exceeded annual rental due under lease; 5 years, if no production but discovery has been made or is deemed imminent; maximum of 50 years from lease date	years 1-3: $1/acre year 4: $3/acre years 5-10: $5/acre years renewed: $5/acre	primary: 10% byproduct: 1% demineralized water 5% other (rentals paid each year deducted from royalties due)	min. lease: 40 acres
Washington	5 years	so long as drilling with diligence; or upon commercial discovery, up to 20 years	at least $1/acre; at least $5/acre upon commercial production	primary: 10% byproduct: at least 4% (net proceeds) min: $5/acre/year	min. lease: 40 acres max. lease: 640 acres

Source: See F.N. 4, pp. 50-51.

Acreage and ownership limitations may define both maximum and minimum size. A minimum size insures that there will not be undue fragmentation. A maximum unit as to size and ownership insures that there will not be a monopoly created that might stifle competition. These limitations should be analyzed to determine whether they satisfy the policy goals they were set to meet.

Rents, royalties and cash bonuses are used to insure that some portion of the value of these public resources remains in the public treasure. Rents, if applied, are usually quite small, to compensate for administrative costs. Royalties may have both a positive or negative impact on the use of a geothermal resource. The positive aspect is that the public benefits in proportion to the amount of the resource used, while the developer incurs no liability until his wells are producing. Royalties can have a negative impact if the added cost eats up the profits of a marginal well and renders it uneconomical.

The length and provisions of leases have an impact on the flow of capital. While a shorter term lease may be desirable to limit losses on unproductive fields, the same lease would inhibit many major capital expenditures for on-site development and the adjacent transmission facilities.

Some bidding procedures require competitive bidding for exploration. This tends to inhibit the number of bidders on uncertain lands, as only groups with sufficient risk capital

can afford to compete. Thus these resources may not be fully explored.

If the states want bidding procedures to reflect state energy policy, they could examine their policies accordingly. Bidding procedures not reflecting the desired policies could be modified as suggested by the National Conference of State Legislatures:

1. Make geothermal leases secure contracts for geothermal developers by ensuring lease extensions necessary to amortize capital investments. This does not exclude adjustment of royalties or profit-shares. Contracts for sale of geothermal resources will themselves provide for price adjustments. Well-defined conditions for lease adjustments should not be objectionable if they are reasonable, in a business sense, and do not depend on the unlimited and possibly capricious discretion of a single officer or agency.

2. Make any lease acreage limitations consistent with the realities of geothermal exploration and development. The need for extensive exploration and, in particular, drilling is a major fact of geothermal development. To encourage this investment, some amount of acreage, say 640-2560 acres, could be excluded from computations of total holdings for every exploration well drilled.

3. Eliminate cash bonus bidding for geothermal resources where no strong geophysical evidence of commercial potential exists. In addition, where bidding is required, the benefits and limitations of other bid factors should be examined. California, for example, has prepared to lease property in The Geysers area by profit-shares bidding. 9/

States have given various state agencies the power to regulate drilling and production of state geothermal resources. In addition, performance bonds of various amounts are required by

---

9/ See F.N. 4, p. 52.

each state. The state may then measure the restrictions required by ecological and management considerations against the desirability of creating a positive atmosphere for exploring its resources.

C. Taxation

Taxes can be used both as a constraint and as an incentive to geothermal exploration and development. A variety of taxes can affect the resource extraction industries: state and federal corporate income taxes, personal and real property taxes, severance taxes, and conservation and other special taxes. The impact of each of these taxes depends on the stage of resource development.

The following catalogue of taxes indicates their applicability to the States of Idaho, Oregon and Washington.

1. Property Taxes

All property taxes are ad valorem (i.e., based on value). Three methods are used to establish market value of taxable property:

(a) Replacement costs (particularly applicable to improved realty and to special character).

(b) Comparable sales data, using actual open market sales of comparable taxable property to establish market value.

(c) Capitalized income, based on the rental income that a taxable property would generate (e.g., at an interest rate of 10%, farm land yielding an annual rental of $10,000 has a capitalized value of $100,000).

In lieu of property taxes, some jurisdictions subject certain natural resources to substitute taxes such as Oregon's Forest Fee and Yield Tax, severance taxes, depletion taxes, royalty payments, et al. Timber, iron ore and petroleum are examples of resources that are subject to "in lieu" taxes, e.g., in Oregon, Minnesota, Texas and elsewhere.

Such "severance" taxes have the advantage of postponing the levy of the tax until the time of harvest or extraction. They discourage premature resource depletion that the burden of annually recurring property taxes without associated income might promote.

2. State Tax on Gross Receipts

These taxes include occupation taxes, sales taxes, severance taxes and conservation or other taxes. For example, Idaho has a 2% severance tax on general mining.

3. State Income Taxes

Washington has no state income tax; Idaho applies its income tax levies to adjusted gross income as calculated for the federal income tax.

Oregon has both a corporate and individual income tax that differs from the federal law largely with respect to provisions concerning percer tage depletion for resource extraction industries.

> Natural resource extraction industries in Oregon pay a corporation excise tax on the net income of the company assignable to Oregon. Some businesses instead pay a corporation income tax; but the two taxes are figured on the same basis and at the same rate. For 1976, the rate will

be 5.6%. Each year until 1978 the rate is to increase by 0.5% reaching a maximum of 7.5%.

While Oregon law does not require it, the state Department of Revenue has established federal taxable income before special or net operating loss deductions as the base for the Oregon excise tax. Certain federal deductions not allowed for Oregon net income are added back into this figure.

Percentage depletion is not allowed except on metal mines. For other natural deposits, only cost depletion is permitted. State excise tax and federal income tax are not deductible.

Many deductions allowed for federal tax purposes also apply to state net income. Federal provisions concerning, for example, intangible exploration and drilling costs, rentals, royalties and cash bonus payments apply to Oregon net income. A tax credit for pollution control facilities is also available under Oregon statutes. 10/

D. Policy Options

The National Conference of State Legislatures has suggested certain policy options that could create a positive environment for the development of geothermal resources. These policy options typify what might be considered when promoting this kind of unconventional energy source. For example, it is suggested that the appropriate authorities adopt the following measures:

Provide by statute that where water appropriation is necessary for geothermal development, or for production of water for its heat content, only the consumptive use reasonably necessary for the intended application need secure an appropriation right.

Establish uniform state guidelines for assessment of geothermal properties. In particular, stipulate in state assessment standards for taxation of real property that no income value will be attributed to prospective geothermal production before geothermal resources are produced from the property in commercial quantities.

10/ See F.N. 4, p. 38.

Extend income tax deductions for intangible drilling costs and percentage depletion to geothermal development to maintain parity with other energy industries. The federal income tax code should be amended, and state income taxes independent of federal provisions should extend these deductions to geothermal operations.

Review state geothermal leasing policy to eliminate provisions unsuited to geothermal development; also promote similar review and revision of leasing policy by the federal government.

State public utility commissions should adopt policies which strengthen the geothermal market.

Promote non-electric applications of geothermal resources.[11/]

Each of these recommendations is followed by explanatory material that, because of its pertinence, is presented verbatim in Appendix 4.

IV. Solar Energy

The development of solar energy depends largely on the economics of this energy supply method compared with available alternatives. A major consideration in developing a new system or implementing an existing one is the availability of capital. Capital is borrowed from lenders only when the project has an acceptable return on investment and falls within an acceptable risk category. It is questionable whether, without legal protection, a solar project can achieve this acceptable level. Whether legal protection is available is as yet unanswered. There are few legal precedents within the United States.

11/ See F.N. 4, pp. 4-6.

At the present time, American law recognizes no vested right to sunlight, though legislation in California[12/] and Colorado[13/] permits the express grant or reservation of solar easements. The only possible body of applicable law is the English Common Law which has long recognized a right to light.[14/] This is the so-called doctrine of "Ancient Lights" which allows a landowner to acquire a negative easement to "sufficient" light for reasonable use and enjoyment of his own property if he had received that light for twenty-seven years. The definition of "sufficient" has proved extremely difficult. The latest development of this doctrine was codified in England in 1959.[15/] This English doctrine has not been accepted in this country, as pointed out in the Fontainebleau Case.[16/] The American courts have held that one's property must not injure the rights of others. In the Fontainebleau Case, where the court refused to recognize any right to light across the land of another, no rights of the complaining party were found to

---

12/ California Civ. Code S801(8) (West, 1954). See Appendix A.

13/ S.B. 95, Colorado Acts of 1975, Ch. 326 ("Colorado Sunshine Law").

14/ First recognized in William Aldred's Case, 77 Eng. Rep 816 (L.R. 1611).

15/ Codified in the Right to Light Act of 1959, 7 & 8 Eliz-II. c. 56 (1959).

16/ Fontainebleau Hotel Corp. v. Forty-Five Twenty-Five, Inc., 1145 2nd 357, 181 Fl. 74 (1959). Colonial decisions following the English common law doctrine were earlier reversed. Lynch v. Hill, 24 Del. ch. 86, 6A 2d 614 (1939). See also People ex rel. Hoogasion v. Sears Roebuck & Co., 52 Ill. 2d 301, 287 N.E. 2d 677 (1972), cert. denied 409 U.S. 1001 (no right to limit interference with television reception).

have been violated. Though a structure may have been erected partly for spite, it does not give rise to a cause of action for cutting off light, air or view if it serves a "useful and beneficial" purpose. As always in legal decisions, the definition of "useful and beneficial" will be subject to further judicial interpretation.

The legal alternatives available to protect solar rights are discussed below.[17/]

A. Solar Easements

As noted earlier, the express grant of light and air easements has been recognized in Colorado and California. There is also case law recognizing the express grant of negative easements in light, air and view which prohibits an individual property owner's doing something otherwise lawful on his property because it will affect the rights of another individual's property rights.[18/]

Economic factors play a large part in evaluating the usefulness of such easements. In densely populated urban areas, light and air easements might carry high price tags so high that they outweigh the benefits of a solar energy device.

Traditional negative easements are transferred as part of of the privileges of ownership of the dominant estate (i.e., one

---

17/ Churchill, Lavenia (1976) Legal Alternatives for the Protection of Access to Solar Energy. Lewis and Clark College, Northwestern School of Law, unpublished paper.

18/ Petersen v. Friedman, 328 p. 2d 164, 162 C.A. 2d 245 (1958) Tomboro v. Liberty Freehold Theater Corp., 25 A. 2d 909.131 N.J. Eq. 513 (1942).

to which the negative easement discussed above is owned).[19/] Thus, they exist for the benefit of the dominant estate. Further, they are only conveyed voluntarily. Without some system of transferability which would permit condemnation and compensation where there is a public need, development might be unduly hindered. Finally, it is unlikely that private negotiations between adjacent landowners would meet the conflicting demands of a high-density area.

Yet, solar easements may be the best intermediate step. They may be used successfully in conjunction with other means to protect solar rights. There is danger in moving too quickly to enact a solar zoning ordinance which might not adequately provide for the variety of topographical considerations that could arise. This has led to increased reliance, for the time being, on solar easements.

A report assessing residential solar heating systems and their application to the City of Colarado Springs includes a model zoning ordinance which provides that solar easements, once granted, shall be recorded with deeds and entered upon the city plats.[20/] The study concluded that an ordinance

---

19/ Defined according to the "ordinary notions of mankind" and taking into consideration the purpose of the dwelling, such as house as a house, a shop as a shop. Kelk v. Pearson, 6 Ch. App. 809, James L.J. at 811 (1817).

20/ Phillips, J.D. (July 10, 1975) "Assessment of a Single Family Residence Solar Heating System in a Suburban Development Setting". (NSF Grant No. G1-44210). Conducted in Colorado Springs, CO, pp. 131-134.

establishing solar easements was the most appropriate means to protect solar rights in that city at the present time.

B. Solar Easements by Necessity

In order to avoid rendering useless a piece of property which is landlocked and to which there is no means of access, courts have recognized an easement by necessity. This enables an individual to condemn an access road across neighboring property.

Some commentators have indicated that there is case law which supports an air space solar easement by necessity where adjacent property owners could not agree privately.21/

C. Nuisance Law

Presently, neither public nor private nuisance theory offers sufficient remedies for infringements of solar rights. An action for private nuisance is based on a showing of irreparable injury.22/ Since in this country no one has a property right to incident sunlight, private nuisance action seems futile unless someone has blocked an existing solar energy collector, thereby causing the owner higher heating and electric costs. On the other hand, this "existing collector" point might give rise to premature or inappropriate installation in order to prevent an adjoining property owner from building to an otherwise allowable height. Might that not be an illegal "taking" of a

---

21/ See F.N. 20, p. 129.

22/ 58 Am. Jur. 2d Nuisance S147 (1971).

property right? Another problem is the tendency of courts to apply a balancing approach which might allow an interference to continue where its "importance" outweighed that of the injury.[23/]

Public nuisance is even more limited in scope since an activity must affect some interest of the community as a whole in order to be actionable.[24/] Even if ordinances are enacted defining interference with solar energy as a "public nuisance", courts may require proof of injury to the general public before issuing injunctive relief. Finally, in nuisance actions, the courts tend to enjoin the interference rather than provide compensation for prior damage.[25/]

D. Transferable Development Rights

The concept of transferable development rights (TDR's) divides ownership into two categories: the physical land that is owned and the development potential associated with that land.[26/] Thus, an owner of property which is then designated by a comprehensive plan for low-density development can be

---

23/ Madison v. Ducktown Sulfur, Copper & Iron Company, 113 Tenn. 331, 83 S.W. 658 (1904).

24/ See F.N. 22, S7.

25/ "Alternates to Zoning: Covenants, Nuisances, Rules and Fines as Land Use Controls". 40 Chicago Law Review, 681-781 (1973).

26/ Address by John Costonis to the Workshop on Solar Energy and the Law (February 10, 1975) in the Interim Report submitted to National Science Foundation by the American Bar Foundation, pp. 19-21.

compensated for the development potential lost on that property by being granted permission to develop land he may own elsewhere rather more intensively. This not only compensates the owner who had lost development potential as the result of a land use scheme, but allows the sale to take place in the private market place, thereby eliminating the need for government funding. The government would act merely as the administrator of these private proceedings.

This device has been suggested as a very versatile tool to be used in conjunction with comprehensive land use planning. If a particular piece of property is adversely affected, say, by the construction of a skyscraper which blocks the sunlight, the affected property owner might be compensated by being granted guaranteed exposure to sunlight on another property he owns. The use of TDR's could, in this way, solve a number of local problems.

E. Zoning and Local Land Use Controls: Effect of Zoning on the Utilization of Solar Energy Devices

Zoning ordinances present the most substantial barriers to implementation of solar energy devices and possibly the greatest potential for encouraging its use. The establishment of legal rights to light, whether by easement or by statutory vesting, can be accomplished and regulated through zoning laws. Maximum exposure to the sun can be promoted through control of vegetation and building height. Minimum energy conservation standards can be included. Planned unit developments, view planes, and

mapped areas of critical environmental concern can be considered in plans to take full advantage of the sun.

Density bonuses could be provided as incentives to developers to use solar devices that have little impact on the environment. The bonus is given for grouping solar collectors in a way that maximizes their effectiveness while minimizing the open space used. The centralized solar collectors, especially those that require accessory structures, could then supply energy to the structures in that area. This alternative might well be preferable to mounting a solar collector on the roof of each individual building.

Zoning can, and does, frequently inhibit solar energy use.27/ Ordinances currently in force may prevent property which is zoned for a major use (i.e., residential, industrial) also to be the site of energy-producing equipment. If a solar collector functioned for the benefit of other pieces of property, additional problems might arise.

Secondly, do the limitations on size, height, density, location and aesthetics of a structure promote the use of solar energy systems? A north-south street requiring uniform setbacks of buildings would do little for efficient use of sunlight. In such cases, varying setbacks should be provided for.

27/ Address by Richard Robbins to the Workshop on Solar Energy and the Law (February 10, 1975) in the Interim Report submitted to National Science Foundation by the American Bar Foundation, pp. 15-19.

Although the courts have generally not approved purely aesthetic zoning,[28] some courts have allowed communities to regulate housing based on appearance and conformity with the neighborhood.[29] The efficient provision of solar energy might be a comparable criterion.

Building height limitations are a larger problem. Where buildings are barely within the limit, there may be no room to spare for twelve inches of rooftop solar collection. Side yard requirements can be as much as 20 percent of the total lot width,[30] leaving little room for placement of other than rooftop collectors. Some ordinances limit lots to only one accessory structure. A detached garage would preclude a detached collector or storage building. Therefore, solar collectors might be exempted as a matter of policy.

Accessory uses, carried out in accessory structures such as garages and greenhouses, are often required to contribute to the comfort and necessity of occupancy as well as to be subordinate to the primary use of the property. Similarly, "floor area ratios" - a zoning feature that limits the number of square feet in accessory structures - may create problems.

28/ DeMaria v. Enfield Planning & Zoning Commission, 159 Conn. 534, 271 A.2d 105 (1970). Kenyon Peck, Inc. v. Kennedy, 210 Va. 60, 168 S.E. 2d 117 (1968).

29/ Oregon City v. Hartke, 240 Or. 35, 400 Or. 2d 96 (1965). People v. Berlin, 62 Misc. 272, 307 N.Y. S.2d 96 (1970).

30/ See F.N. 27, p. 17.

If the purpose of such ratios is to limit population density, solar collectors should be exempted.

Usually, variance procedures permit exceptions to zoning regulations, though it establishes tedious litigation as the only alternative to an unfavorable ruling from the local administrative board. Perhaps a better, more efficient method of appeal could be devised.

Non-conforming uses, structures which are already in place at the time of zoning and do not comply with the enacted standards, are usually exempted from the application of those controls. Yet they are often burdened by a restriction precluding any structural change which would prolong their useful life. In solar terms, this means that retrofitting older non-conforming uses with solar devices might be prohibited. Again, a variance is available. But it would be easier and less costly to the homeowner if these problems were dealt with positively at the time when comprehensive land use controls are adopted. If too many uses are deemed non-conforming - for example, if 50% of the buildings exceed the height limitation imposed - the regulation may be struck down on constitutional grounds.31/

Transferable development rights might provide an answer to this problem. The Colorado Springs Solar Research Report found the problems of retrofitting existing structures to be

---

31/ O'Reilly (1934) "The Non-Conforming Use and Due Process of Law". 23 Georgetown Law Journal, p. 218.

so varied that they should only be resolved on an individualized ad hoc basis rather than through a generalized legislated protection.[32/]

Similar problems are present in subdivision regulations. Subdivisions, commercial developments, shopping centers, industrial parks are usually subject to requirements additional to those imposed by the basic zoning ordinance. These regulations insure that the subdivision meets specific safety and health requirements and provides for schools, garbage collection, utility service, etc. Where such utilities are required, solar collectors may become uneconomical if they are merely duplicating services.

Building codes often have special problems all their own. Current Uniform Codes cover, with exceptions, the installation of solar heating equipment. The Colorado Springs Study found the exceptions are significant enough to warrant the addition of a new chapter in the Uniform Mechanical Code covering solar heating and cooling devices.

V. Biomass

Biomass is one of the Northwest's renewable energy resources, much of which exists on federally-owned forest and range lands. It includes organic matter grown as a fuel source or as a residue that has value as a fuel source. These

---

32/ See F.N. 20, p. 92.

materials include (1) wood residues in the forest and at mills, (2) crop residues, (3) animal wastes, (4) municipal solid wastes, (5) sewage sludge, and (6) cellulosic fiber from fuel plantations. The basic energy potentials of these various biomass sources were calculated in Table 7 to be 472×10^{12} BTU. The majority of this potential energy comes from wood residues and crop residues.

The major problem with biomass is indicated in the following quotation:

> When public agency and private industry personnel are queried as to barriers that prevent the use of residues for energy purposes, there is general consensus that there are no major institutional difficulties. Rather, it is said, the difficulty stems from the costs of handling, transporting, and processing forest residues relative to the values that can be realized from their exploitation. 33/

The crop residue of straw grass can also serve as an example of the constraints and possibilities of biomass utilization as an energy source. Straw grass is a biomass residue left after grass seed is harvested. The original method of straw disposal was to burn it where it lay in the field. This burning procedure was also a way to sanitize the field in preparation for the next crop.

Burning as a method of disposal has been used extensively not only in the grass seed industry, but also in the forest

---

33/ Doubleday, Jay (1976) Institutional Barriers to the Use of Straw Residue and Forest Residues for Energy. National Science Foundation Project on Renewable Resources for Energy.

TABLE 7

RAW MATERIAL QUANTITIES, BTU POTENTIAL,

AND COLLECTION COSTS OF BIOMASS ALTERNATIVES

	Wood Residue	Crop Residue	Animal Waste	Municipal Waste	Sewage	Plantations
Total Quantity (drytons x 10^6)	131	8.8	3.4	4.9	0.2	253
Total BTU Potential (BTU x 10^{12})	2234	141	59	79	3	4292
Realistic Quantity (drytons x 10^6)	15	8.8	0.8	2.6	0.1	1.1
Realistic BTU Potential (BTU X 10^{12})	254 (53.8%)	141 (29.9%)	15 (3.2%)	41 (8.7%)	1.6 (0.3%)	19.4 (41.0%)
Collection Cost ($/$10^6$ BTU)	.66-2.02	.28-.50	.14	.11	--	.78

Source: Northwest Energy Policy Project (1977) Energy Supply and Environmental Impacts - Unconventional Sources. Study Module III-B, p. 96.

products industry. The environmental problems associated with this disposal method may be severe, especially in certain regions, for example, the Willamette Valley. The 1969 Oregon Legislature gave that state's Department of Environmental Quality authority to regulate field burning when required by meteorlogical conditions. The 1971 Legislature ordered the eventual elimination of field burning by yearly reduction of the allowable acreage that could be burned. This in turn led to the search for alternative uses of the crop residue. One was as an energy source.

Similar legislation responses to other waste disposal problems may create a favorable climate for the conversion of biomass residue to energy. However, before any energy resource can be developed by the necessary technological, engineering and marketing input, a long-term reliable source must be shown. Some of the questions that must be answered before industry will proceed in this area include:

1. What is the quantity available and for what time period?

2. Are there better, more profitable ways to use the resource other than as an energy source?

3. Will the suppliers switch to other crops if satisfactory alternatives to waste disposal cannot be found?

4. What impact will foreign competition have on the market?

Economics may represent the major barrier to the widespread use of biomass as an energy source. Nevertheless, this may be

the energy source representing the greatest immediate potential both as to quantity and availability. The following is a discussion of the viability of this energy source in light of policy options suggested in Part II of this section on Unconventional Sources.

A. No State Action

Under this policy the state would allow the cost of this energy source to be determined by the law of supply and demand. If the cost of transportation remains a significant factor, the energy source may be feasible only within a short distance of its point of collection. A secondary problem is then created, as a continuing supply of the resource at a predictable cost cannot be guaranteed.

B. Direct Economic Incentives

The financial impact of the state is an important policy area. If a biomass product is given a high priority as an energy source, then it may receive favorable tax treatment. If it is not a priority item or looked at negatively, its tax treatment will reflect this attitude. The following financial policy tools are indicative of those that may play a role in deciding the economic viability of a biomass energy source.

1. Weight-Mile Tax

The user of a highway may pay three basic taxes: (a) operator license and vehicle registration fee, (b) fuel tax, and (c) the weight-mile tax. The weight-mile tax is based on the weight of the vehicle, the maximum load it will normally

carry and the miles traveled.

These taxes are primarily aimed at taxing the users of the highways in some proportion to the costs they incur. When the legislatures choose these costs, responsibility can be breached as shown below:

a. Public vehicles can be exempt from the weight-mile tax.

b. Vehicles owned by farmers can be exempt from the weight-mile tax and from "economic regulation" when transporting farm products, or supplies, materials and equipment used on the farm, or when transportation is incidental to the operation of the farm. Farm vehicles may not be required to pay registration fees at the same rate as other heavy vehicles. With these examptions, farm vehicles would normally pay about one-half the taxes charged to other heavy vehicles.

c. Certain types of heavy vehicles may pay a flat monthly fee in lieu of the weight-mile tax.

The possible impact of the weight-mile tax is shown in Table 8 below from the Doubleday study.

TABLE 8

Type of Cargo	Round Trip Mileage	Value of Cargo	Weight-mile Tax as Percentage of Cargo Value
Hog fuel (used as example of straw grass cost)	20	$ 65	1.8
Hog fuel	70	65	4.36
Logs	360	850	1.97
Lumber	360	1620	1.03
Wheat	360	3140	0.65
Gasoline	360	3700	0.55
Potatoes	360	4575	0.44
Flour	360	9011	0.23

As can be seen, the hauler of a biomass product to be used as an energy source would pay a much higher percentage of his cargo as a weight-mile tax. The legislature may want to exempt hog fuel or similar products used as an energy source. The precedent already exists as the fee is waived for a farmer transporting his own commodities.

2. Personal Property Tax

In Oregon, the inventory tax is being phased out, with all inventories to be exempt by July 1, 1980. This exemption is only with reference to property taxation. Therefore its effect on ownership of biomass materials should be of no long-term concern in Oregon.

3. Tax Exemption for Agricultural Waste Facilities

At the present time, facilities used exclusively for agricultural waste storage can be exempted from property tax. The problem becomes one of economics: such a facility is often needed for the fairly short term, so that even a tax exemption may not prove enough of an incentive to encourage its construction.

4. Tax Relief for Pollution Control Facilities

The desire to reduce the polluting effects in disposing of biomass products such as grass straw and forest residues by burning has lead to the enactment of legislation permitting tax relief. The tax relief covers solid waste facilities as well as facilities to remove and dispose of straw. These can be considered examples of "pollution control facilities".

These laws are now in effect in Oregon.

The solid waste facilities could be required to meet conditions drawn up to implement state energy policies. These conditions could include any of the following:

a. The substantial purpose of the facility must be to utilize directly materials that would otherwise be solid waste.

b. The purpose must be to utilize material by burning or processing or through production, or use of material for energy or other purposes.

c. The end product must be competitive with an end product produced in another state.

d. The end product must be a source of energy or have other economic value.

5. Tax Incentives for Exploration, Research Development and Innovation

Tax incentives may be adopted to encourage the use of boilers that burn biomass products and discourage the use of alternative boilers. Rates could be flexible enough to provide for assistance in the early stages of research, development, and usage. These rates could then be applied more strictly once operations were underway.

6. PUC Pricing

The state governments could provide alternative financial assistance in the form of PUC pricing policies. Biomass products are already competitively priced, but the adoption of long run incremental pricing for other energy forms should

enhance their attractiveness. As conventional energy rates rise, investments in unconventional forms become economically feasible.

7. State Backed Loans

A policy of state loan guarantees for investments in biomass capital equipment or the pollution controls equipment associated with biomass products could speed the process of adoption. Without such assistance, the private investor and private financial institutions may be hesitant to finance capital expenditures in new untested energy sources.

C. Indirect Government Efforts

1. Citizen Education

Citizens should learn not only what types of energy are available, but also what uses they can be put to. Then the people might demand appropriate legislation to help lower costs and raise availability. At the same time, information might be disseminated about the possible uses of biomass as an energy source in home heating units, especially when buried in one of the new and extremely effective free-standing fireplaces and stoves. Wood scraps and other biomass products are often inexpensive or even free for the taking. The cost and energy efficiency of the various forms of biomass in various types of heat producing units could be compared, for public guidance.

2. Enlargement of Energy Departments

Each state's energy department could assist in the multitude of problems encountered in introducing a new energy source

into the mainstream of energy use. Assistance could include:

a. Developing legislation necessary to provide tax incentives, remove institutional constraints in codes, statutes and constitutions.

b. Develop educational programs promoting the use of unconventional sources by private individuals as well as commercial and municipal bodies.

c. Coordinate the research and planning efforts of both public and private organizations.

d. Develop in-house expertise and act as a resource center for unconventional resources.

e. Organize and promote joint ventures and pooling with respect to ownership, construction, and operation of biomass burning equipment. These joint ventures could be especially important to small municipalities which are capable of using wastes for fuel but lack sufficient quantities.

3. Removal of Institutional Barriers

To utilize biomass products as a fuel source, sufficient quantitites must be available. For example, many municipalities have charters, constitutions or special laws that hinder or prohibit their involvement with new energy sources. Possible areas of restrictions include:

a. Not being allowed to hold title to real property

b. Not being allowed to incur debt

c. Not being allowed to submit disputes to arbitration

d. Not being allowed to enter into long-term contracts

Sometimes, restrictions cannot be changed. But revenues could still be generated for different energy-related projects by issuance of voter approved general obligation bonds.

Environmental guidelines may have to be re-examined in relation to the energy source in use. If public policy dictates the use of certain unconventional fuels, then allowances for the associated pollution may have to be made. Alternatively, tax incentives may have to be provided to help reduce the additional costs of pollution control equipment.

D. Direct Governmental Action

1. Direct Institutional Requirements

Special mechanical codes could be instituted that require some or all new boilers in buildings to be convertible. This would allow the burning of biomass products when available, and of other materials when not. Codes could also address the pollution control devices necessary to meet environmental standards when biomass fuels are used.

Siting preference could be given to plants utilizing biomass products and plants producing biomass energy products (steam, electricity, direct drying, synthetic natural gas, biogas, pyrolytic gas, pyrolytic char). These siting considerations are of special importance because the cost of collection and transportation may run very high.

2. State Development

Since the cost of developing and operating plants utilizing new forms of unconventional energy may be quite high, the

state may want to play a major role, depending on available revenue. Also, as energy becomes of ever increasing importance, the states may want to insure a continuing supply of power at the lowest possible cost. Since the state is a major energy user in the running of numerous state buildings, institutions, educational facilities, it has a captive market for at least a portion of the energy that it may generate by unconventional methods.

The state may wish to require, based on federal mandate, that municipalities use energy-recover waste disposal systems: separating waste into combustible materials that might be used to fuel energy-producing heating plants and metal and glass that can be recycled. The state could promote this energy system by setting appropriate landfill requirements and/or easements of certain pollution standards. Using municipal waste has the advantage that it is: (1) readily available, (2) in predictable quantities depending on population, (3) already collected, (4) economical (because the disposal problem is largely solved), (5) profitable if the process allows segregation and separation of metals and glass that might be recycled, (6) helpful in solving pollution problems that burning raw sewage had created (if a pyrolysis product - gas, oil, or char - is used).

The major constraints to the development of biomass energy are the costs of handling, transporting and processing the materials. The above list of policy options addresses these

problems in a variety of ways. Current constraints are few; numerous opportunities exist to encourage biomass usage. If they increase the public's awareness of the problem or lower the supplier's cost of using waste materials, the above policy options deserve careful study.

VI. Wind Energy

Wind energy can be used in a variety of ways. There are non-electrical applications such as pumping water, powering machinery, ventilating buildings, drying crops, etc., which do not require the conversion of wind into electrical energy. They might be much less costly than the electric power that can be displaced, and they merit serious study on those grounds alone. Most people, overlooking this, focus their attention on the possibility of turning wind into electric power. Both possibilities need to be considered in detail.

Installations could range from small, individual units supplying a particular household or plant to intermediate units used by a group of consumers (e.g., an apartment house or a subdivision, an industrial park or a manufacturing facility) to a large, utility-operated energy installation, built on land or water, tied into the energy grid. The size and shape of the towers, blades, and related mechanisms will thus vary greatly.

The governments' institutional responses will, of course, vary according to the type, location, scope, and ownership of the installation. There are physical factors to be concerned

with: danger to workmen and others who come into the vicinity, as well as to animals and even to the flora that may be affected by the operation of windmills. There are complex questions of land use that must be considered as well.

State and local governments can control the construction of windmills through:

1. Restrictive convenants limiting land use
2. The legal status of upwind rights to prevent interference with the wind resource
3. Zoning regulations concerning height, bulk, aesthetic qualities, use, noise, and historic preservation
4. Safety, building, and housing codes
5. Hazards to wildlife (birds, insects) and to navigation
6. Siting procedures for energy facilities
7. Utilities' powers of eminent domain

Not all of these categories will be relevant to each type of wind energy installation. But each could conceivably be applied so narrowly and restrictively that wind energy projects would be repressed into nothing more than local, unintegrated, small-scale operations. Also, conflicting social goals - e.g., preserving a beautiful vista, protecting the integrity of a wildlife refuge, or maintaining a historically or archaeologically important area - may encourage public policy to favor objectives other than the harnessing of wind energy for purposes of power production. These various factors would have to be weighed against each other with care.

If wind power is to be used to generate electricity, a new set of policy questions arises. On-site power generation, without interconnection to a larger grid, may be possible without reference to the Public Utility Commission, though other regulations and standards concerning public safety and health must be observed. However, because wind energy is not constantly and reliably available, windmill owners will want both access to the utilities' energy supplies and the right to feed energy into the larger systems. This raises complex service and rate issues.

For one thing, PUC's might well decide that each connecting wind power source is itself a utility that requires a franchise, license, or permit and that must meet the full range of criteria established for utilities. In that case, the development of wind power might be set back significantly. Few independent developers will be willing to expose themselves to the requirements that PUC's might impose on them.

It has been suggested that a mechanism will have to be found for assuring that windmills contribute electric energy at peak rather than at slack periods, lest they aggravate the peak-load problems of existing utility companies and add to instead of reducing energy costs. Especially if some form of peak-load pricing is adopted, it is argued, windmill owners will be encouraged by receiving higher rates at peak periods for the electric energy that they deliver, and by having to pay only relatively lower rates at off-peak hours, when they

draw on the utilities' supplies.

Actually, such refinements are not necessary in the Pacific Northwest, where - increasingly - the steadily supplied nuclear or coal-generated base load will be expensive while the hydroelectric peaking power will continue to be available at relatively very low cost. Wind-generated energy, however unreliably it is timed, will be welcome at any time, especially because of the possibility of pumped storage in the Pacific Northwest.

Nevertheless, the availability of wind-generated energy will complicate the task of any PUC. Care must be taken in arranging the interconnections and rates to ensure that maximum benefits to all are derived. It will not be enough to compare the original costs of wind energy systems with the cost of other energy sources. The location of the windmills, the timing of their deliveries of energy, the rates at which this energy will be purchased, and many other factors must be taken into account.

The economic viability of wind energy depends, of course, primarily on the actual wind resource in a particular area. But the cost of harnessing it can be importantly influenced by a public policy in a variety of ways.

A. Special Tax Incentives to Use Wind Power

To foster the development of new energy sources, public policy might develop direct incentives. These could include specific tax breaks, or deliberately favorable regulations, or

other special arrangements that encourage the generation of energy through windmills.

With respect to tax breaks: investment tax credits are by now a widely used tool of economic policy. Regulations to reduce a firm's tax burden to the extent that it engages in the construction of windmills would fit easily into the pattern of other regulations (e.g., depletion allowances) that give preferential treatment to investments, furthering public policy. Accelerated depreciation of windmills and associated equipment has the effect of reducing (for the short run) a firm's indicated net income and, therefore, its immediate income tax obligation. All these measures constitute specific tax incentives to the energy producer.

Another possibility is special encouragement to investors to purchase bonds whose proceeds are used to build windmills. Interest costs on such bonds could be reduced substantially if they are actually issued by appropriate state or local agencies, so that they become tax-exempt; or if such agencies guarantee them in case of default. A variety of incentives could be used in order to reduce the cost of raising capital for projects involving wind-generated energy.

Further, the developers of such projects might receive special treatment with respect to property taxes. Several states have already passed legislation which, upon application, essentially freezes the property tax on particular pieces of land that are retained as "open spaces" and not used for further

development. Granting such preferential tax treatment to land used for windmills would aid their development further.

Finally, state and local governments could make available land that they already own, or that they may be willing to acquire as windmill sites. This possibility calls to mind the problems and opportunities relating to the siting of nuclear energy plants which are discussed in detail in Task 6 of this Report (see page 140). Corresponding institutional and procedural factors would need to be considered.

B. Special Regulatory Incentives for the Development of Wind Power

Most likely, if wind-generated energy were made available to the public, it would come under the jurisdiction of the state PUC. While this agency has not in the past been called on to provide special incentives to a particular source of energy, it might be asked to do so in the future if the public interest suggests it. Any number of steps could be taken.

For example, the PUC might encourage the development of wind energy by allowing a relatively high rate of return on sales to utility companies. Alternatively, it could direct these companies to purchase wind-generated electricity whenever offered, and to adjust their retail rates to reflect the relatively higher cost of this energy, even if lower-cost hydroelectric energy is available at the same time. It could even allow incentive payments by utilities to developers of wind energy to be included in the rate base, or for development

costs to be covered. A number of administrative decisions by the PUC could encourage generating more energy by wind power.

Furthermore, the rate structure relating to wind-powered energy generation might well be shaped to provide strong incentives. An "inverted rate structure" might - particularly if it has steep steps - provide a powerful incentive for private developers of wind energy to sell as much as possible to utility companies. Preferential prices for what obviously is interruptible power might well be considered.

C. Indirect Incentives for the Development of Wind Power

Public policy could support the development of wind power in many indirect ways: by encouraging research, by providing all available information to the public, by helping in the selection and preparation of appropriate sites for windmills, and by establishing an appropriate legal framework with respect to zoning, property rights, etc.

The institutional responses to the demand for wind power development are in principle the same as for energy from other unconventional sources. The Northwest may, because of its historic connection with the aircraft industry, already have developed a high degree of expertise relating to aerodynamics. The particular geography of the Northwest, especially the presence of sea coasts, high mountains, long mountain ranges, and deep gorges, also suggests that this region could derive special advantages from developing wind power. Additional stimulation of research and experimentation on generating wind

energy may be particularly rewarding in the Pacific Northwest.

Wind energy will require particular attention with regard to zoning regulations. Theoretically, large windmills could be located in cities, among tall buildings which create substantial aerodynamic effects of their own. But this is unlikely. The determination of where windmills may be placed - from a functional as well as an aesthetic point of view - may create some problems for zoning authorities. The environmental impact of a windmill is not the same as that of a dam or of a nuclear power station, but it is significant nevertheless, in different ways.

This question assumes larger importance if one considers that, given the necessary technological advances, individual home owners may find it advantageous to build small-scale windmills on their properties. This would make problems - perhaps disputes - far beyond those created by the placing of T.V. antenna or of solar panels on a home owner's roof. The building and zoning codes should be prepared to deal with such questions. The question of competing legal claims should one wind generator adversely affect another will also have to be dealt with.

If energy generation by windmills were found to be economical on a small scale, individual windmill owners not principally in the business of generating energy might want to sell any temporarily available surplus power to a utility. Current institutional arrangements generally do not permit

unlicensed energy suppliers to deliver power to the existing utility companies; considerations of public policy might make it advisable for them to do so. The legal questions that would arise should be considered carefully in advance.

VII. Conclusion

Because the costs of generating energy by conventional methods are soaring, new sources merit closer inspection. With intensified research and development, some of these sources may provide new and potentially inexhaustible supplies of energy at competitive cost.

The four unconventional sources of energy discussed in these pages each have some unique characteristics which call for individual examination. But they also have some problems in common. One conclusion is that location is a very important consideration, especially in the case of geothermal energy, where the cost of collecting the raw material and transporting it to the generating plant is a major factor. Another conclusion is that generating facilities might, particularly in the cases of solar and wind energy, be constructed in large numbers and on such a small scale that they serve only individual households. The institutional adjustments required to deal with such developments are not yet well understood; they require careful study.

Thus the major questions for the future are not only technical, but also legal and economic. Institutions must be

designed to cope with the particular needs arising from the exploitation of unconventional energy sources. In this vein, new research could help to determine how current laws and institutions should be modified to accommodate changing needs and requirements of the future. Public policy could lend material assistance to both the research and to the construction of the institutional framework itself.

APPENDIX 1

ENERGY DECISION MAKERS

I. IDAHO

A. Agencies & Functions

1. Public Utilities Commission (I.C.A. § 61-501 et seq.)
   a. Commission consists of 3 members appointed by G ov. with Senate approavel (I.C.A. §61-201)
   b. Vested with power & jurisdiction to supervise & regulate every public utility and to do all things necessary to carry out spirit and intent of provision of the Act (ICA §61-501)
   c. Upon a finding by the Commission "after a hearing, had on its own motion or upon compliant" that rates, tolls, fares etc., or rules, regulations, etc. are unjust, unreasonable, discriminatory, or insufficient, the commission shall determine reasonable, just or sufficient rates, regulations and shall fix the reasonable rate or regulation (ICA §61-502)
   d. Power to investigate and fix rates and regulations, "After hearing, had upon its own motion or upon complaint." (ICA §61-503)
   e. Power to establish through routes and establish and fix a joint rate when remanded by public convenience and necessity and "after hearing had upon its own motion or upon complaint." (ICA §61-504)
   f. Power to investigate interstate rates, rules and regulations to ensure compliance with Interstate Commerce Act (ICA §61-506)
   g. Commission shall have power "after hearing. . ." to fix just and reasonable standards, classifications, regs., practices or service to be furnished and followed by all electrical and water corporations (I.C.A. §61-520)
   h. Curtailment of electric or gas consumption:
      (1) Recognized by Legis. that electric power and energy or natural or manufactured gas within Pacific NW may become inadequate to meet requirements of consumers in Idaho and therefore an emergency may arise. (I.C.A. §§ 61-531 through 61-537)
      (2) Utilities are to adopt and submit plans to meet inadequate supply (I.C.A. §61-531)
      (3) Commission, after notice and hearing pursuant to its rules and regs., may adopt or reject such plans (I.C.A. §61-532).
      (4) PUC has authority to declare an emergency with or without notice, upon a finding that an insufficient of electric power and energy or natural or manufactured gas threatens public health, safety and welfare (I.C.A. §61-533)

2. Procedure Before Commission and in Courts (I.C.A. §61-601 et seq.)
   a. all hearing and investigations before Commission are governed by this act
   b. Hearings - on complaint
      Complainant and the Corp. or person complained of, and such corporations or persons as the Commission may allow to intervene, shall be entitled to be heard and to introduce evidence. (I.C.A. §61-617)
   c. Formal hearings required full and complete record of all proceedings and parties are entitled to be heard and to introduce evidence. (I.C.A. §61-619)
   d. Siting PUC issues certificate of convenience and necessity after information meetings and formal proceeding.

3. Department of Water Resources --Water Resources Board (I.C.A. §42-1701 et seq.)
   a. Water Resources Board §42-1733
   b. Powers and Duties (I.C.A. §42-1734)
      (1) to formulate an integrated, coordinated program for conservation, development and use of all unappropriated water, Based upon studies and public hearings in affected areas at which all interested parties shall be given opportunity to appear.
      (2) Conflict in state is over water for hydro v. irrigation. See Snake River Plan for their planning effort.

4. Office of Energy (Exec. Order No. 76-4)
   a. Responsibility to
      (1) Promote energy conservation
      (3) Educate all levels of society to benefits of appropriate technology which uses renewable energy resource systems, through programs of demonstration and involvement of all Idaho's citizens.
      (4) Make known to all citizens results of all promising energy conservation programs.
      (8) Coordinate energy policy and related activities of all state agencies and insure understanding of impacts of energy policy decisions made at all levels of Gov't

   "nothing in this executive order shall be interpreted to give the Office of Energy any regulatory authority."

B. Requirements or Provisions for Public Participation

1. Rule-making Procedures
   a. After at least 20 days notice, afford "all interested reasonable opportunity to submit data, views, or arguments, orally or in writing."
   b. in case of substantial rules, opportunity for oral hearing must be granted if requested (I.C.A. §67-5203 State APA)

2. In contested cases, all parties shall be afforded an opportunity for hearing [§67-5209(a)]
   a. parties may respond and present evidence and argument in all issues involved [§67-5209(c)]
   b. "Party" means any person or agency named or admitted as a party or properly seeking and entitled as of right to be admitted as a party [§67-5201(5)]
   c. "contested case" means a proceeding, including but not limited to ratemaking and licensing, in which legal rights, duties or privileges of a party are to be determined by an agency after opportunity for hearing [§67-5201(2)]
   d. Power Plant Siting - 3 permits
      (1) Water permit (cooling)
      (2) Air Quality - Dept. of Public Health and Welfare
      (3) Certificate of Convenience and Necessity

II. WASHINGTON

A. Agencies and Functions

1. Utilities and Transportation Commission (RCWA §80.01.010 et seq.)
   a. Power to regulate in public interest rates, services and facilities of all persons engaging in transportation, supplying any utlity service or commodity to the public for consumption (RCWA §80.28.040)
   b. Power to fix just, reasonable and compensatory rates upon findings "after a hearing had upon its own motion, or upon complaint" (RCWA §80.28.020)
   c. Power to order improved quality of commodity on findings "after such hearing" (RCWA §80.28.030)
   d. Power to order improved service on findings "after hearing" (RCWA §80.28.040)
   e. Regulations - General (RCWA §80.04.010 et seq.)
      (1) Complaint may be made by Commission on its own motion or by any person and upon such complaint Commission shall give notice and opportunity for hearing (RCWA §80.04.110)
      (2) Hearings - as provided for in §80.04.110 -
         (a) complainant and corporation or person complained of shall be entitled to be heard and introduce evidence (RCWA §80.04.120
         (b) Formal Hearings require full and complete record of all proceedings (Id.)
      (3) Rules and Reg.: A hearing is required, if requested, for adoption and promulgation of all rules and regulations "No person desiring to be present at such hearing shall be denied permission." (RCWA §80.04.160)

2. State Radiation Control Agency
   Dept. of Social and Health Services is designated as such Agency and "shall be State Agency having sole responsibility for administration of the regulatory, licensing and radiation control provision of this chapter."
   (RCWA §70.98.050)
   a. The Agency shall:
      (1) Develop Programs for evaluation of hazards associated with use of ionizing radiation;
      (2) formulate, adopt promulgate & repeal codes, rules regs., relating to control of sources of ionizing radiation
      (3) collect and disseminate info. relating to control of sources of ionizing radiation (RCWA §70.98.050)
   b. The agency shall provide by rule or regulation for general or specific licensing of "byproduct source, special nuclear materials, . . . or other radioactive material. . ." (RCWA §70.98.080)

3. Office of Energy 2nd Session 1975-76 Chapter 108
   a. Duties of Energy Office: Ch. 108, §5
      (1) to establish and maintain central repository for correction of data on energy resources
      (2) to prepare analyses of such data
      (4) to develop and disseminate guidelines for development of conservation plans for use by gov't, industry and citizens
      (5) to prepare (with energy advisory council) contingency plans for implementation by state gov't for energy shortages or emergencies
      (9) to present state's interests in field of nuclear energy to Fed., regional and local authorities and to private interests.
   b. creation of "energy facility site evaluation council" Sec. 31, Ch. 108 Law of 1976
      Duties of the "Council," Sec. 32.
      (4) Develop and apply environmental and ecological guidelines in relation to type, design and location of energy facilities
      (5) to establish rules of practice for conduct of public hearings pursuant to APA (RCWA 34.04. et seq.)
      (9) to conduct hearings on proposed location of sites
      (11) establish means of monitoring of effects arising from construction and operation of energy facilities
   c. The "council" shall:
      (1) Receive all applications for energy facilities site certification
      (2) Commission its own independent consultant study to measure consequences of proposed energy facility on the environment of each site application [Sec 35, Ch. 108 Laws of 1976]
   d. Makeup of council - Agency heads or designates 1 stop permit process

B. Requirements or Provisions for Public Participation

1. Prior to adoption of any agency rule, "so far as practicable, the adopting agency shall publish notice and afford interested person opportunity to submit data or views either orally or in writing (RCWA §34.04.020)
   a. "Rule" includes every reg., standard, or statement of policy or interpretation of general application & future effect, whether w/ or w/out prior hearing (RCWA §24.04.010)
2. In any contested case all parities shall be afforded opportunity for hearing after reasonable notice (RCWA §24.04.090)

a. "Contested case" means a proceeding before an agency in which legal rights, duties or privileges or specific parties are to be determined after an agency hearing. (RCWA §34.04.010)

III. OREGON

A. Agencies & Functions

1. Public Utilities Commissioner duties
   a. Shall represent customers of any public utility (ORS §756.040) & protect such customers & the public generally, from unjust & unreasonable exactions & shall obtain for them adequate service at fair & reasonable rates (Id.)
   b. Power to supervise & regulate every public utility, RR., air carriers, etc. (ORS 756.040(2))
   c. Authority to adopt rules & regulations relative to the statutes the administers & to govern proceedings before him (ORS §756.400)
   d. Rulemaking Procedure
      (1) "Rule" means any directive, reg., or statment that implements, interprets or prescribes law or policy (ORS §756.400)
      (2) Prior to adoption, amendment or repeal of any rule, the commissioner shall:
         (a) give notice &
         (b) afford all interested persons reasonable opportunity to submit data, views or arguments either orally or in writing (ORS §756.410)
   e. All hearings shall be open to the public & a full record shall be kept (ORS §756.521)
   f. Commissioner may permit any person to become a party who might have been such a party (ORS §756.525 (1))
      - Any person may make application to be a party & commissioner shall determine the interest of the applicant & shall grant the application if such appearance & participation will not unreasonably broaden the issues or burden the record (ORS §756.525(2))

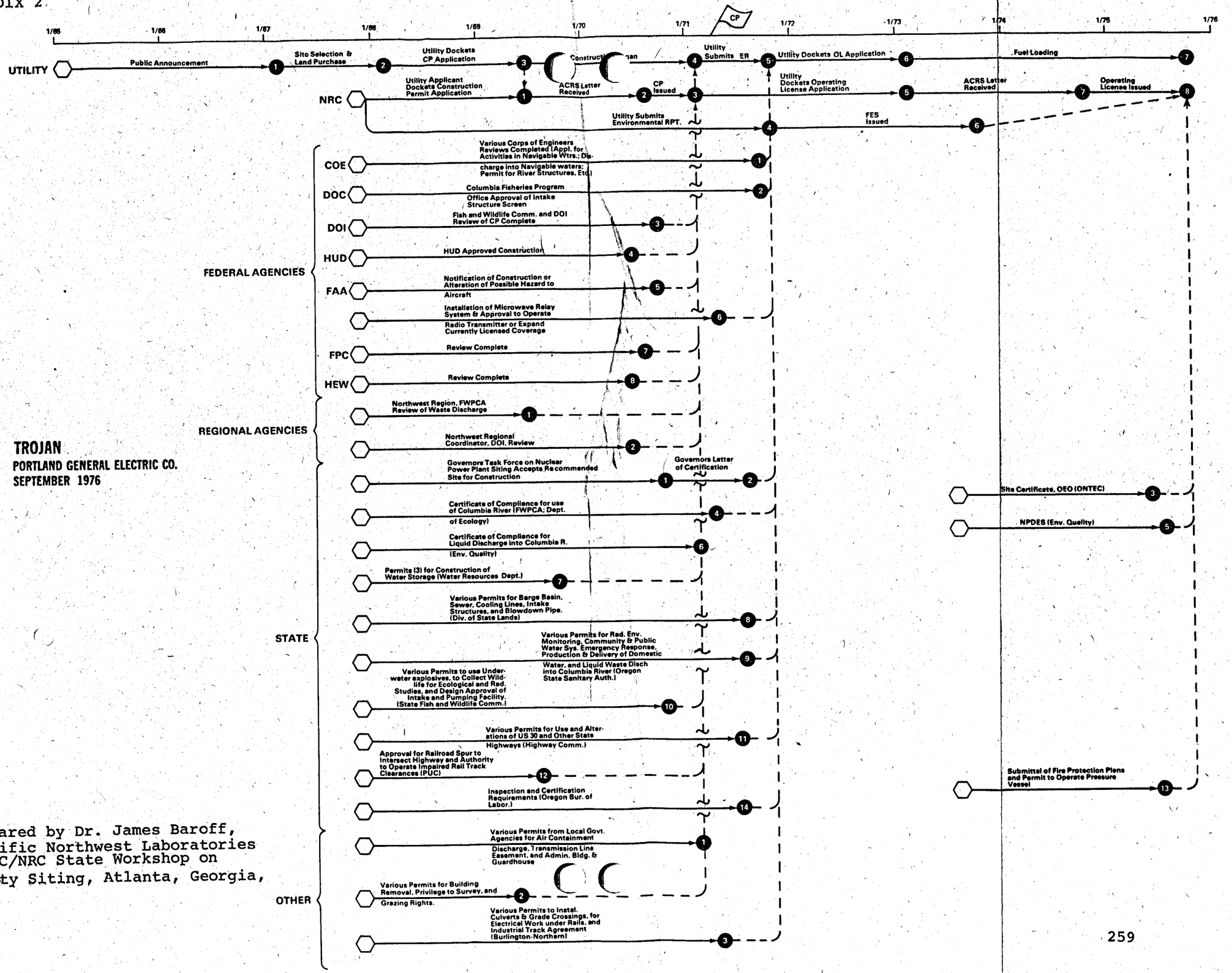
2. Department of Energy (ORS §469.030 et. seq.)
   - The Department shall
   b. endeavor to utilize all public & private sources to inform & educate the public about energy problems & conservation §469.030(3)(b)
   c. engage in research §469.030(2)(c)
   e. administer fed & state energy allocations & conservation programs & R&D programs §469.030(2)(2)
   f. clearing house for energy research §469.030(2)(f)
   g. prepare contingent energy programs §469.030(2)(g)
- Information supplied to Dept. by producers, suppliers & consumers or energy resources shall be confidential (ORS §469.090(1))
- Energy Policy Review Committee
  - created ORS §469.130(1)

- Duties:
- Shall represent to Director fo Dept. of Energy public concerns or contingency or curtailment planning §469.130(3)(a)
- Review conservation programs & recommend public info policy (Id. (3)(b)
- Review statutes & rules for consistency with state's policy set out in ORS 469.010 (ORS §469.130(3)(e).

- Energy Facility Siting Council (ORS §469.330)
  a. Site certificate acquire through application with council for certification (ORS §469.330)
     - Council shall give public notice of application (Id.)
  b. Council shall hold public hearings in affected areas, "as it deems necessary" on application
  c. Any person may appear personally or by counsel to represent testimony in any hearing before the council on any application for site certification (ORS §469.380(1)
     - Council may permit nay person to become a party by intervention "who appears to have an interest in the results . . . or who represents a public interest in such results." (§469.380(2))
  d. Powers & duties of EFSC: (ORS §469.470)
     (1) Conduct & prepare studies, investigations, research & programs relating to all aspects of site selection
     (2) After public hearings, designate areas suitable or unsuitable for use of sites for following types of energy facilities:
        (a) nuclear-fueled & fossil-fueled thermal power plants;
        (b) Geothermal power plants

     (4) Conduct public hearing on proposed location of any site after application is filed
     (5) Encourage voluntary cooperation by the people, municipalities, counties, industries, agricultures in establishing standards for site selection

- The council shall set standards & rules for safety, construction & operation of thermal plants & nuclear installation which shall take into account the following: (ORS §469.510)
  (1) Health, safety, & welfare of the public
  (4) Land & water use characteristics of any site; including aesthetics & the environment & impact on present & future use of adjacent areas.



TROJAN
PORTLAND GENERAL ELECTRIC CO.
SEPTEMBER 1976

Source: Prepared by Dr. James Baroff, Battelle, Pacific Northwest Laboratories for use at NGC/NRC State Workshop on Energy Facility Siting, Atlanta, Georgia, Dec. 15, 1976

Plant - Trojan

Owner - Pacific Gas & Electric Co.

UTILITY TRACK

Date	Code	Event
2/67	PGE-1	Public Announcement
2/68	PGE-2	Site Selection & Land Purchase
6/69	PGE-3	Utility Dockets CP Application
2/71	PGE-4	Construction Began
11/71	PGE-5	Utility Submits ER
2/73	PGE-6	Utility Dockets OL Application
11/75	PGE-7	Fuel Loading

NRC TRACK

6/69	NRC-1	Utility Applicant Dockets Construction Permit Application
7/70	NRC-2	ACRS Letter Received
2/71	NRC-3	CP Issued
11/71	NRC-4	Utility Submits Environmental Rpt.
2/73	NRC-5	Utility Dockets Operating License Application
8/73	NRC-6	FES Issued
11/74	NRC-7	ACRS Letter Received
11/75	NRC-8	Operating License Issued

FEDERAL AGENCIES TRACK

10/71	COE-1	Various Corps of Engineers Reviews Completed (Appl. for Activities in Navigable Wtrs.; Discharge into Navigable waters; Permit for River Structures, Etc.)
10/71	DOC-2	Columbia Fisheries Program Office Approval of Intake Structure Screen
8/70	DOI-3	Fish and Wildlife Comm. and DOI Review of CP Complete
8/70	HUD-4	HUD Approved Construction

FEDERAL AGENCIES TRACK (Continued)

11/70	FAA-5	Notification of Construction or Alteration of Possible Hazard to Aircraft
5/71	FAA-6	Installation of Microwave Relay System & Approval to Operate Radio Transmitter or Expand Currently Licensed Coverage
10/70	FPC-7	Review Complete
8/70	HEW-8	Review Complete

REGIONAL AGENCIES TRACK

6/69	REG-1	Northwest Region, FWPCA Review of Waste Discharge
6/70	REG-2	Northwest Regional Coordinator, DOI, Review

STATE TRACK

11/70	S-1	Governors Task Force on Nuclear Power Plant Siting Accepts Recommended Site for Construction
7/71	S-2	Governors Letter of Certification
5/75	S-3	Site Certificate, OEO (ONTEC)
3/71	S-4	Certificate of Compliance for use of Columbia River (FWPCA; Dept. of Ecology)
6/75	S-5	NPDES (Env. Quality)
2/71	S-6	Certificate of Compliance for Liquid Discharge into Columbia R. (Env. Quality)
10/69	S-7	Permits (3) for Construction of Water Storage (Water Resources Dept.)
7/71	S-8	Various Permits for Barge Basin, Sewer, Cooling Lines, Intake Structures, and Blowdown Pipe. (Div. of State Lands)
7/71	S-9	Various Permits for Rad. Env. Monitoring, Community & Public Water Sys. Emergency Response, Production & Delivery of Domestic Water, and Liquid Waste Disch into Columbia River (Oregon State Sanitary Auth.)
10/70	S-10	Various Permits to use Underwater explosives, to Collect Wildlife for Ecological and Rad. Studies, and Design Approval of Intake and Pumping Facility. (State Fish and Wildlife Comm.)

STATE TRACK (Continued)

6/71	S-11	Various Permits for Use and Alterations of US 30 and Other State Highways (Highway Comm.)
8/69	S-12	Approval for Railroad Spur to Intersect Highway and Authority to Operate Impaired Rail Track Clearances (PUC)
6/75	S-13	Submittal of Fire Protection Plans and Permit to Operate Pressure Vessel
1/71	S-14	Inspection and Certification Requirements (Oregon Bur. of Labor.)

OTHER TRACK

2/71	O-1	Various Permits from Local Govt. Agencies for Air Containment Discharge, Transmission Line Easement, and Admin. Bldg. & Guardhouse
5/69	O-2	Various Permits for Building Removal, Privilege to Survey, and Grazing Rights
4/71	O-3	Various Permits to Install Culverts & Grade Crossings, for Electrical Work under Rails, and Industrial Track Agreement (Burlington-Northern)

TROJAN NUCLEAR PLANT LICENSING ACTIONS

The major licensing actions for the Trojan Nuclear Plant of Portland General Electric Company (PGE) are shown on the Network. The Trojan plant fed power to the Pacific Northwest (PNW) grid in December 1975 and achieved full power in May 1976.

At the top of Network is a generalized schedule for siting nuclear power plants in the Pacific Northwest (PNW). This series of major milestones was developed by the Pacific Northwest Utilities Conference Committee (PNUCC) based on analysis of experience in the PNW. It is used in scheduling resources in the PNW. Actual plant progress can be compared to the standard.

PGE had retained Bechtel to make nuclear plant siting studies in about 1962. The study was updated in 1966, and on the basis of it and PGE's need for power, options were taken on two sites in the Columbia County area. Test borings were made and the Trojan site was selected.

At that time there was no single Oregon entity charged with siting of nuclear plants, so PGE applied for typical thermal plant licenses, and at the same time applied for a construction permit from AEC.
In December 1969 the Governor appointed a Task Force on Nuclear Plant Siting, which in November 1970 accepted the Trojan site for construction. In February 1971 the AEC issued a construction permit.

ASLB hearings were held three months prior to issuance of the construction permit.

Construction was sufficiently complete by late 1975 that the plant was able to produce power for the PNW grid in December 1975 Construction forces continued at the site until about May 1976, however.

Because Trojan is sited on the Columbia River that borders both Washington and Oregon, licenses on use of the Columbia River and discharges to it were required from the State of Washington.

At the time of NEPA, PGE submitted an initial environmental report. With subsequent guidelines an Environmental Report (ER) was prepared and the Final Environmental Statement (FES) was issued in March 1973.

There are a number of NRC reviews which precede issuance of a construction permit (e.g., quality assurance program) or an operating license (e.g., physical security plan, radiological emergency response plan).

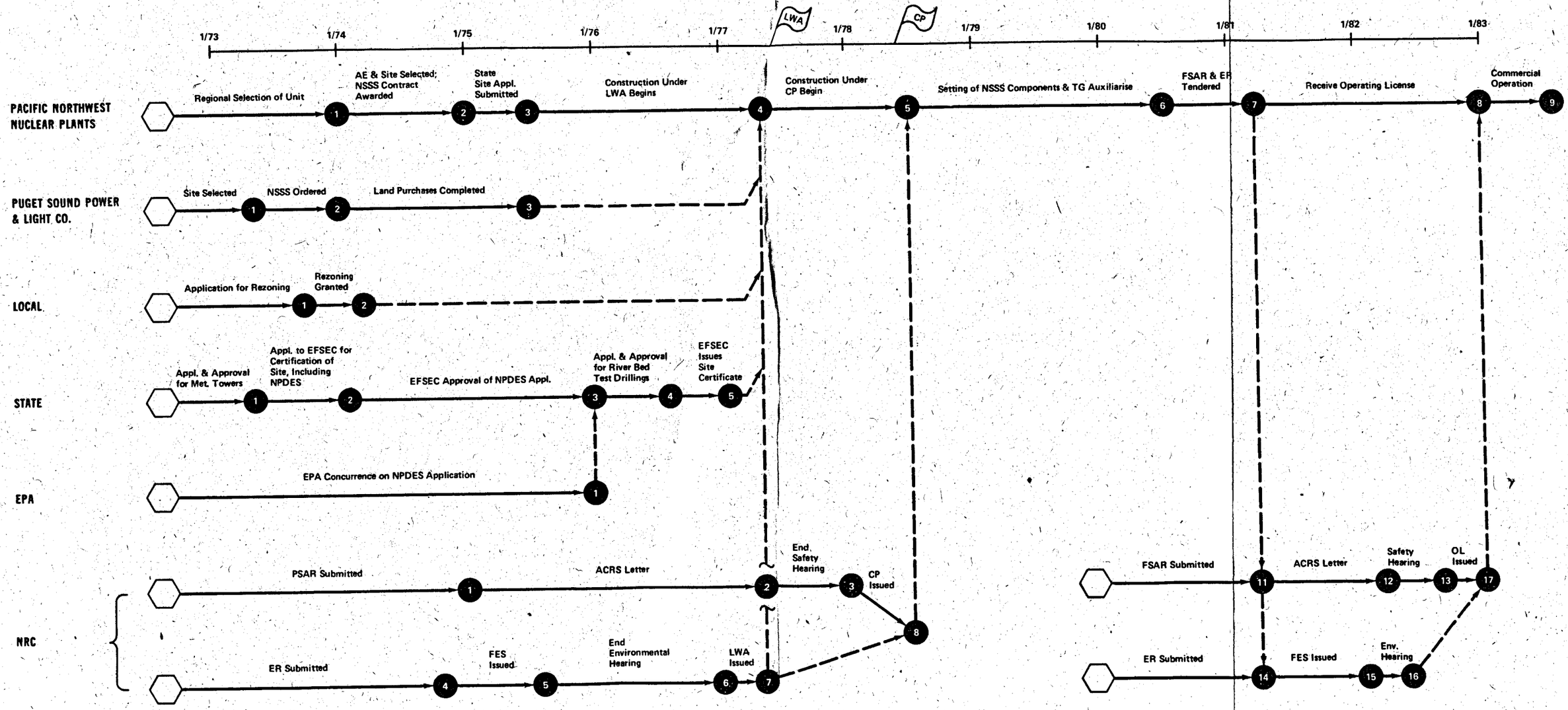
The many state and regional permits required for Trojan are shown on the Network. Application for these permits did not appear to be on the critical path for constructing Trojan.

For Trojan the critical path is PGE's activities through selection of an architect-engineer, and the AE's preparation of the construction permit materials. With the creation of the Governor's Task Force On Nuclear Plant Siting, their review became the critical path. Then for a three-month period the AEC-ASLB deliberations were on the critical path. Upon granting the construction permit, the construction and startup of the plant was on the critical path.

SKAGIT 1 & 2

PUGET SOUND POWER & LIGHT CO.

OCTOBER 1976



Plant - Skagit 1 & 2

Owner - Puget Sound Power & Light Co.

REGIONAL TRACK

Date	Code	Event
1/73	PNP-1	Regional Selection of Unit
3/74	PNP-2	AE & Site Selected; NSSS Contract Awarded
3/74	PNP-3	State Site Appl. Submitted
3/77	PNP-4	Construction Under LWA Begins
3/78	PNP-5	Construction Under CP Begin
6/80	PNP-6	Setting of NSSS Components & TG Auxiliarise
3/81	PNP-7	FSAR & ER Tendered
1/83	PNP-8	Receive Operating License
6/83	PNP-9	Commercial Operation
UTILITY TRACK		
1/73	PSP-1	Site Selected
12/73	PSP-2	NSSS Ordered
5/75	PSP-3	Land Purchases Completed
LOCAL TRACK		
10/73	L-1	Application for Rezoning
2/74	L-2	Rezoning Granted
STATE TRACK		
5/73	S-1	Appl. & Approval for Met. Towers
1/74	S-2	Appl. to EFSEC for Certification of Site, Including NPDES
1/76	S-3	EFSEC Approval of NPDES Appl.
6/76	S-4	Appl. & Approval for River Bed Test Drillings
1/77	S-5	EFSEC Issues Site Certificate

EPA TRACK		
1/76	EPA-1	EPA Concurrence on NPDES Application
NRC TRACK		
8/74	NRC-1	PSAR Submitted
4/77	NRC-2	ACRS Letter
1/78	NRC-3	End Safety Hearing
8/74	NRC-4	ER Submitted
5/75	NRC-5	FES Issued
1/77	NRC-6	End Environmental Hearing
3/77	NRC-7	LWA Issued
3/78	NRC-8	CP Issued
3/81	NRC-11	FSAR Submitted
3/82	NRC-12	ACRS Letter
12/82	NRC-13	Safety Hearing
3/81	NRC-14	ER Submitted
2/82	NRC-15	FES Issues
4/82	NRC-16	Env. Hearing
1/83	NRC-17	OL Issued

SKAGIT NUCLEAR STATION LICENSING ACTIONS

The major licensing actions for the Skagit Nuclear Station of Puget Sound Power and Light Company (PSP&L) are shown on the Network. PSP&L has not received a construction permit for the station to the present. At the top of the Network is a generalized schedule for siting nuclear power plants in the Pacific Northwest (PNW). This series of major milestones was developed by the Pacific Northwest Utilities Conference Committee (PNUCC) based on analysis of experience in the PNW. It is used in scheduling resources in the PNW. Actual plant progress can be compared to the standard.

The initial actions for the Skagit station were taken somewhat earlier than suggested by the generalized schedule. An important early action in the siting activity was a request to Skagit County for rezoning of the site. The approval was granted in October 1973 (before commercial operation).

At this time, in the State of Washington, there is a "one-stop" energy plant certification process, presided over by the Energy Facility Site Evaluation Council (EFSEC). The initial hearing by this body on an application determines whether a proposed plant is in accord with the land management plan of that area. If it is, and the documentation accompanying the application for site certification is adequate, EFSEC accepts the application.

Prior to certification of the site, a utility may invest up to a quarter million dollars in site improvements.

In theory the EFSEC recommendation for site certification followed by the Governor's approval is the only license required from state and local agencies. In practice there are exceptions. For instance, the utility may apply to the county for a building permit for construction of standard buildings (e.g., offices or warehouses); installation of the interim meteorological tower precedes EFSEC review; and the ownership of river bottoms has been vested with the Department of Natural Resources. But these types of licenses are minor.

In the case of Skagit Station EFSEC has recommended to the Governor that the site be certified. The Governor has not approved the recommendation as of this date. The council approved the NPDES application in January 1976. EPA concurred in the action three months later.

Several months after submitting the documentation for the application for site certification with EFSEC, PSP&L filed with NRC its application for a construction permit. An environmental report and portions of the preliminary safety analysis report were submitted with the application. ASLB hearings have been convened several times, and are presently in recess until early 1977 awaiting further testimony on need for power. Antitrust hearings—not shown on the Network—have also been held for the Skagit Station.

The relatively late completion of land purchase--May 1975 occurred because two small parcels of land were involved in legal complications.

The critical path for licensing Skagit starts with PSP&L site and architect-engineer selection, then to Skagit County Commissioners for the rezoning change, and to EFSEC for recommendation for certification of the site. The Governor's approval is presently on the critical path. Should that be granted shortly, the NRC construction permit hearings could become the critical path. Following granting of the construction permit the critical path appears to be the construction and startup of the plant.

Battelle
Pacific Northwest Laboratories
Battelle Boulevard
Richland, Washington 99352
Telephone (509) 946-2209
Telex 32-6345

November 5, 1976

Mr. Andrew Robart
Office of State Programs
Nuclear Regulatory Commission
Mail Stop MD 7713
Washington, DC 20555

Dear Mr. Robart:

INTERIM REPORT ON LICENSING PROCESS
FOR TROJAN AND SKAGIT NUCLEAR POWER PLANTS

As part of the U.S. Nuclear Regulatory Commission (NRC) program investigating efficiency in federal/state siting actions, Battelle Pacific Northwest Laboratories (PNL) has examined the detailed licensing process for the Trojan and Skagit nuclear power plants. The data obtained are summarized in two tables and three flow charts enclosed.

From examination of these two cases it appears that the critical path for licensing begins with the utility's activities in deciding on a nuclear plant and site, and continues through selection of an architect-engineer. The critical path then passes through the utility's action in obtaining local (county) approval of the site, which may involve rezoning and local land use hearings. Two activities then proceed in parallel--obtaining site certification from the state, and a construction permit (or limited work authorization) from the NRC. Possibly the architect-engineer's (or the utility's) preparation of the Preliminary Safety Analysis Report (PSAR), the Environmental Report (ER) and related documentation which accompanies the site certification and construction permit applications, may be on the critical path for a period of time.

It is difficult to discern the actual critical path because the scheduling of activities is often arrived at by estimating when some other critical decision is likely to be made. For instance, the architect-engineer may schedule the completion of the PSAR/ER to coincide with a county's expected action. If that approval is early, the architect-engineer's activity may be on the critical path, otherwise it may not be. This same type of consideration may determine whether state or federal actions are on the critical path, and for how long.

In the case of Trojan, the critical path appears to be the state's activity in certifying the site. The NRC granting of the construction permit was on the critical path for a brief period. The same appears likely for Skagit.

With the issuance of the construction permit the critical path appears to be the utility's construction and startup of the plant.

In the case of Trojan, and to a lesser extent Skagit, many special permits and licenses were obtained, as shown in the attached tables and charts. None of these were, or need be, on the critical path. One-stop licensing, as practiced in Washington, for instance, eliminates many of them. For early nuclear plants the problem arising from obtaining these permits and licenses may have been in knowing that they were needed and what was required for the application. There are now companies that specialize in detailing the needs and timing for nuclear plant permits and licenses.

Of course, a major factor in determining the critical path for nuclear plants is the timing and degree of intervention in hearings. This factor lead several utility/regulatory personnel to speak of the need to combine hearings, such as conducted by federal/state agencies, to reduce duplication.

This, in turn, lead to the suggestion that responsibilities be assigned to qualified states with federal review, and vice versa. For instance, the responsibility for environmental approval, within federal guidelines, would rest with the state. All hearings would be conducted by the state. Safety-related approvals and hearings would be a federal responsibility. From the utility's point of view they would like to prepare a single ER and safety-related document, whether or not responsibilities were assigned to single agencies.

The need-for-power issue was cited by personnel in the regulatory chain as one source of delay in the licensing process. What they would apparently like is a regional forecast that all the participating entities could stand behind. There is some hope on their part that the PNW Regional Commission study on energy requirments for the PNW will meet that need. They see the need-for-power issue becoming more of a regional consideration with increased participation by review agencies and other governmental bodies in formulation of the projected energy needs.

Puget Sound Power & Light Company and Portland General Electric Company personnel have reviewed the enclosed charts and tables and have made some additions and/or corrections to them. If you wish them to provide additional specific data, please let me know. My intention is to await your further needs before I contact them again.

Sincerely,

Harold Harty

Harold Harty, Manager
Electric Power Programs

HH:nb

cc: James Baroff, NGC
R. T. Jaske, NRC
D. Merwin, HARC
J. W. Litchfield, PNL
S. Salomon, NRC

APPENDIX 3

STATE LAWS AND REGULATIONS REGARDING GEOTHERMAL RESOURCES

IDAHO

State Law: "Idaho Geothermal Resources Act (1972)," Idaho Code Sections 42-4001 to 42-4015 (amended 1974); Sections 47-1601 to 47-1611 (1972)
Leasing Regulations: "Rules and Regulations Governing the Issuance of Geothermal Resources Leases," Board of Land Commissioners, 1974
Drilling Regulations: "Drilling for Geothermal Resources: Rules and Regulations and Minimum Well Construction Standards," Department of Water Resources, 1975

OREGON

State Law: H.B. 2040; 1975 (amending 1971 "Geothermal Resources Act"); H.B. 3185; 1975 (geothermal heating districts)
Leasing Regulations: "Geothermal Lease Regulations," 75-010 to 75-605, Division of State Lands (Revised 1975)
Drilling Regulations: "Geothermal Regulations," Ch. 632, Div. 2 (20-005 through 20-170), Oregon Administrative Rules Compilation, 1972. (Department of Geology and Mineral Industries)

WASHINGTON

State Law: Title 41, Ch. 2, Art. 9 - "Underground Water" - Sec. 41-121 amended in 1973 to include "hot water and geothermal steam" as underground waters.
Leasing Regulations: "Rules and Regulations Governing the Issuance of Geothermal Resource Permits and Leases," State Board of Land Commissioners, 1975
Drilling Regulations: (pending) Oil and Gas Conservation Commission
State Law: Title 79 RCW, Ch. 43 - "Geothermal Resource Act," 1974 Legislature (Third Extra Session)

APPENDIX 4

SUGGESTED POLICIES FOR THE DEVELOPMENT OF GEOTHERMAL ENERGY

from

State Policies for Geothermal Development
by Douglas M. Sacarto
National Conference of State Legislatures, Pages 4-6

Provide by statute that where water appropriation is necessary for geothermal development, or for production of water for its heat content, only the consumptive use reasonably necessary for the intended application need secure an appropriation right.

In production, large volumes of fluid are drawn from geothermal formations. Over 98,000 acre-feet (31.6 billion gallons) per year of hot water may be required to supply a 200 MW powerplant. But in most cases less than 20% of the fluid is consumed, mostly in evaporation cooling. If groundwater at 85-100^{0}F is used with heat pumps for heating and cooling, virtually all of the water is available for subsequent use.

In some states (for example, Utah and Nevada), water rights are necessary for the entire water volume diverted for use. In others, water appropriation requirements may be limited by administrative practice to consumptive use. In all cases, however, geothermal power development, or other applications of ground fluid for its heat value, need statutory assurance that required permits for water appropriation will be restricted to consumptive use. If production of fluid depends on water rights for the entire volume, geothermal development may suffer severely from a legal water shortage.

Establish uniform state guidelines for assessment of geothermal properties. In particular, stipulate in state assessment standards for taxation of real property that no income value will be attributed to prospective geothermal production before geothermal resources are produced from the property in commercial quantities.

The geothermal market suffers now from the uncertainty of electric utilities about resource supply. Only deep drilling can prove the commercial potential of a geothermal reservoir, and few areas have been drilled. Reportedly, about one exploratory geothermal well has been drilled monthly, compared to 600 for oil and gas.

A large base of geothermal reservoirs defined through drilling would therefore strengthen the market for geothermal resources. But if anticipated income value for the property is assessed before income accrues, such a base would also be a large tax liability providing no income for several years. Long delays occur between the discovery of geothermal resources and their commercial use. The resource must be employed on-site, so that delays for siting permits and the construction of electric generating facilities are added to the time required for field development. Development is in fact uncertain even after the resource is proven, since there is no assurance that the resource will have a market. In contrast, petroleum development can generate revenue from the first producing well.

Ad valorem assessment of anticipated income from undeveloped geothermal properties for this reason creates a deterrent to widespread development. Property tax on a 200 MW field could be over $2 million annually.

In summary, difficulties with ad valorem assessment of geothermal resources before commercial production include the following: 1) it forces local assessors to make judgements for which there is insufficient knowledge and experience; 2) it taxes property long before the assessed income value can possibly be realized; 3) it imposes pressure for development irrespective of actual economic, environmental and social values of the development; 4) it militates against investment to prove the capacity of geothermal reservoirs; and 5) it is ineffective in preventing land speculation.

To remove this tax obstacle, the states should assess geothermal income value only upon commercial production. Within the ad valorem structure, one approach is suggested by Arizona's provision concerning property speculation. The state code provides that where market data are used, the amount of property value due to speculation on future income is to be excluded from the appraisal. Because estimates of future income from undeveloped geothermal properties are quite speculative, commercial production should be required as proof that anticipated income from geothermal properties is non-speculative.

Extend income tax deductions for intangible drilling costs and percentage depletion to geothermal development to maintain parity with other energy industries. The federal income tax code should be amended, and state income taxes independent of federal provisions should extend these deductions to geothermal operations.

Federal income tax is the largest levy faced by geothermal developers and investors alike. Tax benefits for investment in petroleum drilling funds, or percentage depletion deductions for income from coal or uranium properties, strongly affect the flow of capital to these investments. They reduce investment risk and enhance its return. The depletion deduction also provides developers with equity to expand operations.

To finance significant development of geothermal resources, the industry must go to the capital markets. An investor faced with a decision between two drilling prospects, one for geothermal resources and one for oil and gas, will not need to hesitate if tax benefits are only associated with petroleum investments. Geothermal development is the unknown, and without tax benefits to ameliorate investment risk at least comparable to the other energy sectors, the geothermal industry will not command its share of investment capital.

Review state geothermal leasing policy to eliminate provisions unsuited to geothermal development; also promote similar review and revision of leasing policy by the federal government.

Lease terms and renewal arrangements, minimum acreage limitations and lease adjustment clauses should provide the scope and security necessary for widespread employment of geothermal resources.

A hot-water geothermal reservoir may typically be expected to underlie 10-15 acres of land for every megawatt of electric generation capacity. Dozens of prospective fields will generally be explored before discovering a reservoir with commercial capacity. Large amounts of acreage must therefore be leased for exploration, and several tracts (7000-20,000 acres each) will need to be examined simultaneously to offset the high exploration risk.

Conformance with limits on maximum leas[e] holdings per state, like the federal limit of 20,480 acres/state, prevents adequate holdings. Evasion through dummy operators, etc., is thereby encouraged. And to the extent that proven or productive acreage is not excluded from acreage limitations, successful geothermal developers are blocked from further exploration. Such overly restrictive acreage limitations should be revised upward to correspond with the practical needs of geothermal development.

Because geothermal resources are employed on-site, lease terms must provide long-range security necessary to amortize the facilities. Thirty to forty years are needed for geothermal powerplants. And since geothermal fields will be developed in stages - this is one of their attractions - lease arrangements also need to allow for amortization of facilities installed ten

or more years after the lease begins. Ambituity in renewal and adjustment clauses will simply block large capital investments in powerplant or industrial facilities.

The federal government is a dominant landholder in most geothermal states. It is important, therefore, that the states also work to establish federal lease provisions suited to geothermal development.

State public utility commissions should adopt policies which strengthen the geothermal market.

Policies should be examined which require access to established transmission lines for geothermal power producers, exempt commercial power producers from utility status, provide financial incentives for utility investments in geothermal powerplants, grant facility siting priority to geothermal applications, or otherwise encourage production of geothermal power.

Utilities plan and make construction commitments for installed capacity ten years in advance. A geothermal reservoir developed in the service area of a utility fully committed must therefore wait a decade for income if access to transmission lines is obstructed. If that particular utility is unusually conservative, or has special commitments to other power sources, marketing the resource may be impossible for the geothermal developer. At $150,000 to $200,000 per mile, construction of new transmission lines is not feasible for the incremental, small module (55-110 MW) development characteristic of geothermal power. Access to established transmission lines may therefore be critical to widespread development of geothermal resources.

Utilities can be directly encouraged to invest in geothermal projects through various financial incentives, and also indirectly by private or governmental demonstration projects for geothermal powerplants. Private demonstration can be stimulated by exempting commercial geothermal power suppliers from "utility" status, provided they generate electricity for sale to utilities. Regulatory control of electric power would in this way be maintained. Wheeling rights would still be necessary to expand the market for geothermal power.

Promote non-electric applications of geothermal resources.

State and local governments should appraise opportunities for direct use of the earth's heat in agriculture, industrial processes, or the heating and cooling of buildings, and these

uses should be encouraged through public information, zoning laws, building codes and financial incentives.

Heat applications at temperatures less than 250°C (typical of geothermal formations) account for 40% of total U.S. energy consumption. This heat is now supplied by natural gas, fuel oil, coal and electricity. The work potential of these high-grade fuels is largely wasted when consumed for such low-temperature purposes. This inefficient use may be unavoidable when no other adequate heat source is available. In the gulf and western states, however, heat from the earth may be used directly for agricultural and industrial processes and for heating and cooling of buildings. The drain on petroleum supplies can thereby be lessened and new electric demand reduced. Direct use of the earth's heat is also its most efficient use. In general, no more than 20% of the heat's energy at these temperatures can be converted to electricity.

BIBLIOGRAPHY

ANDERSON, F.R. (1973). NEPA and the Courts. Published for Resources for the Future, Inc., by the Johns Hopkins University Press, Baltimore, Maryland, p. 234.

AUSTIN, Carl F. (1977). Technical Overview of Geothermal Resources. Geothermal Resources Development Institute, Paper 2, Rocky Mountain Mineral Law Foundation, p. 2.

AXWORTHY, Lloyd and others (1971). A Public Communications System. The Queen's Printer, Toronto, Ontario, Canada.

BACKSTROM, Charles H. and HURSH, Gerald D. (1963). Survey Research. Northwestern University Press, Evanston, Illinois.

BAROFF, James (December 15, 1976). NGC/NRC State Workshop on Energy Facility Siting, Atlanta, Georgia.

BERLIN, Edward, CICCHETTI, Charles and GILLEN, William (1974). Perspective on Power: The Regulation and Pricing of Electricity. Ballinger Publishing Co., Cambridge, Massachusetts.

BILLINGTON, David (1974). "Structure and Machines: The Two Sides of Technology". Soundings 57, pp. 275-288.

BJORNSTAD, D.J. (1976). State and Local Fiscal Impacts Associated with Nuclear Energy Centers: Some Initial Considerations. P VII, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

BONE, Hugh A. (1971). American Politics and the Party System, 5th ed. McGraw Hill, New York.

BREWER, William (1975). "State Energy Policies for the Northwest". Washington Public Policy Notes. Institute of Governmental Research, University of Washington, Seattle, Washington.

BREYER, Stephen G. and MacAVOY, Paul W. (1974). Energy Regulation by the Federal Power Commission. The Brookings Institution, Washington, D.C.

CHURCHILL, Lavenia (1976). Legal Alternatives for the Protection of Access to Solar Energy. Lewis and Clark College, Northwestern School of Law, unpublished paper.

CLAGETT, Brice (1971). "Informal Action--Adjudication-Rule-making: Some Recent Developments in Federal Administrative Law". 1971 Duke Law Journal 51, p. 85.

COBB, Roger W. and ELDER, Charles D. (1972). Participation in American Politics: The Dynamics of Agenda-Building. Allyn and Bacon, Inc., Boston, Massachusetts.

COMBS, Jim and MUFFLER, L.J.P. (1973). "Exploration for Geothermal Resources". Geothermal Resources by Paul Kruger and Carel Otte, Stanford University Press, Stanford, California.

COMMON CAUSE (1976). Money, Secrecy, and State Utility Regulation. Common Cause, Washington, D.C.

COMMON CAUSE (1976). Serving Two Masters. Common Cause, Washington, D.C.

COMPTROLLER GENERAL OF THE UNITED STATES (1974). Public Involvement in Planning Public Works Projects Should Be Increased. B-153449 General Accounting Office, Washington, D.C.

COOPER, Frank E. (1965). State Administrative Law. Bobbs Merrill, Indianapolis, Indiana, p. 135.

COUNCIL FOR PUBLIC INTEREST LAW (1976). Balancing the Scales of Justice, Financing Public Interest Law in America. p. 151.

CUPPS, D. Stephen (August 1976). "The Impact of Public Interest Groups and Citizen Organizations on Bureaucratic Behavior: Lessons from the Experience of the Federal Trade Commission". For International Political Science Association Congress, Edinburgh, Scotland.

CURRY, M. and GREEN, M. (June 1976). "The Influence of Selected Federal Statutes on Energy Development". Battelle, Pacific Northwest Laboratories, Richland, Washington.

DAVID, C. (1976). Laws Relating to the Public Utility Commissioner of Oregon. Secretary of State, Salem, Oregon.

DAWES, Daniel (1974). "Urban Sun Rights, A Brief Discussion". Environmental Quality Laboratory, California Institute of Technology, Pasadena, California.

DIMUCK, M. (1961). Business and Government. Holt, Rinehart and Winston, Inc., New York.

DOERKSEN, Harvey R. and PIERCE, John C. (1975). "Citizen Participation in Water Policy Formation". For Western Political Science Association Annual Meeting, Seattle, Washington.

DOUBLEDAY, Jay (1976). Institutional Barriers to the Use of Straw Residue and Forest Residues for Energy. National Science Foundation Project on Renewable Resources for Energy.

DYE, Thomas (1975). Understanding Public Policy, second edition. Prentice Hall, Englewood Cliffs, New Jersey.

ENERGY POLICY PROJECT, FORD FOUNDATION (1974). A Time to Choose: America's Energy Future. Ballinger Publishing Co., Cambridge, Massachusetts.

FAINSOD, M., GORDON, L., and PALAMOUNTAIN, J. (1959). Government and the American Economy. W.W. Norton & Co., Inc., New York.

FELLMATH, R. (1970). The Interstate Commerce Commission 11-12.

GELLHORN, Walter and BYSE, Clark (1974). Administrative Law: Cases and Comments 600. Foundation Press, Inc., Mirecla, New York.

GILLETTE (1971). "Nuclear Reactor Safety: A New Dilemma for the AEC". Science 173, pp. 126, 130.

GILMORE, Robert S. (1975). "Political Barriers to a National Policy". Proceedings of the Academy of Political Science 31, p. 186.

HARRIS, William (1975). "Is the Right to Light a California Necessity?" Statement submitted before the California State Association on the Judiciary, Rand Corporation, Santa Monica, California.

HELMS, R. (1974). Natural Gas Regulation: An Evaluation of FPC Price Controls. American Enterprise Institute for Public Policy Research, Washington, D.C.

HENNESSY, Bernard C. (1970). Public Opinion, second edition. Wadsworth, Belmont, California.

HIGGINS, G.M. and RICHARDSON, J.J. (1976). Political Participation. The Politics Association, London, United Kingdom.

HUNTINGTON, S. (November 1975). "The Rapid Emergence of Marginal Cost Pricing in the Regulation of Electric Utility Rate Structures". Boston University Law Review, Vol. 55, No. 5.

IDAHO CONSERVATION LEAGUE (June 1976). "Voters Say NO to Pioneer". ICL Newsletter, Boise, Idaho.

IDAHO DEPARTMENT OF WATER RESOURCES (March 1976). State Water Plan - Part II, Snake River Basin. Idaho Department of Water Resources, Boise, Idaho.

IDAHO PUBLIC UTILITIES COMMISSION. Idaho Public Utility Laws, Boise, Idaho.

KEEFE, William J. (1976). Parties, Politics, and Public Policy in America, second edition. Holt, Rinehart and Winston, Inc., Hinsdale, Illinois.

KEY, V.O., Jr. (1961). Public Opinion and American Democracy. Knopf, New York.

LaRUSSO, D.A. (1971). "Mind the Shadows, An Essay on Non-Verbal Communication". p. 5.

LEAGUE OF WOMEN VOTERS OF WASHINGTON (1975). Overview of Citizen Participation. League of Women Voters of Washington, Seattle, Washington.

LEE, Kai N. (1975). "State Power Plant Siting and Nuclear Energy Centers". Submitted to Office of Special Studies, U.S. Nuclear Regulatory Commission.

LINDBLOM, Charles E. (1976). "Toward a Theory of Economic and Political Decision Making". For International Political Science Association Congress, Edinburgh, Scotland.

LUCAS, J.R. (1976). Democracy and Participation. Penguin Books, Baltimore, Maryland.

MELODY, William H. (1975). Statement made at PUC Hearing PGE UF-3157, July 24, 1975.

MONROE, Alan D. (1975). Public Opinion in America. Dodd, Mead and Co., New York.

MUNICIPALITY OF METROPOLITAN SEATTLE (1975). "Citizen Involvement in Transit Decision Making". Annual Report of Municipality of Metropolitan Seattle, Seattle, Washington.

NATIONAL ACADEMY OF SCIENCES (1973). Citizen Participation in Transportation Planning. Special Report 142, Highway Research Board, National Academy of Sciences, Washington, D.C.

NATIONAL ASSOCIATION OF ATTORNEYS GENERAL (1975). Attorney's General Intervention Before Regulatory Agencies.

NORTHWEST ENERGY POLICY PROJECT (1977). Energy Conservation Policy - Opportunities and Associated Impacts. Study Module I-A, Washington State University, Dr. Walter R. Bucher.

NORTHWEST ENERGY POLICY PROJECT (1977). Energy Supply and Environmental Impacts - Conventional Sources. Study Module III-A, Energy Inc., Dr. Jim McFadden.

NORTHWEST ENERGY POLICY PROJECT (1977). Energy Supply and Environmental Impacts - Unconventional Sources. Study Module III-B, University of Idaho, Leonard R. Johnson.

NORTHWEST ENERGY POLICY PROJECT (1977). Institutional Constraints and Opportunities. Study Module V-A, University of Washington, Energy Research Center, William Brewer and Kai Lee.

OFFSHORE POWER SYSTEMS CORPORATION (May 1973). Environmental Report to Supplement to Manufacture License Application, Pt. I. Offshore Power Systems Corp.

ONIBOKUN, Adepoju and CURRY, Martha (1976). "Ideology of Citizen Participation: The MetropolitanSeattle Transit Case Study". Public Administration Review 269-277.

ONTARIO COMMITTEE ON GOVERNMENT PRODUCTIVITY (1972). Citizen Involvement, pp. 17-29.

OREGON DEPARTMENT OF ENERGY (June 1976). "Oregonians Favor 55 MPH Limit". Reported in newsletter, Energy to Date, Department of Energy, Salem, Oregon.

OREGON LAND CONSERVATION AND DEVELOPMENT COMMISSION (July 1974). "People and the Land" Public Workshops. Oregon Department of Land Conservation and Development, Salem, Oregon.

OREGON - OFFICE OF THE GOVERNOR (December 27, 1976). "Domestic and Rural Power Authority". Draft Proposal, Office of the Governor, Salem, Oregon.

OREGON PUBLIC UTILITY COMMISSION (February 1975). "The Public Utility Program". Oregon Public Utility Commission, Salem, Oregon.

O'REILLY, John D., Jr. (1934). "The Non-Conforming Use and Due Process of Law". 23 Georgetown Law Journal, p. 218.

PHILLIPS, J.D. (July 10, 1975). "Assessment of a Single Family Residence Solar Heating System in a Suburban Development Setting". For the National Science Foundation, conducted in Colorado Springs, Colorado.

RODGER, William (1971). "Siting Power Plants in Washington State". Washington Law Review, Vol. 47:1.

ROSE, Fred L. (1975). "Environmental Criteria in Siting Energy Facilities". Presented to Energy Symposium, Washington State University.

SACARTO, Douglas M. (November 1976). State Policies for Geothermal Development. National Conference of State Legislatures, Denver, Colorado.

SAKRIKAS, R. and HERZ, H. (May 1976). Electric Rate Concepts and Structures: Report to BPA. Foster Associates, Inc., Washington, D.C.

SCHRAUB, J. (1976). "The Office of Public Counsel: Institutionalizing Public Interest Representation in Government". Georgetown Law Journal 64(4), pp. 895-896.

SEATTLE CITY LIGHT (1976). Energy 1990. Seattle, Washington.

SELFRIDGE, Gordon (Spring 1976). "Floating Nuclear Power Plants: A Fleet on the Horizon?" Environmental Law, Vol. 6, No. 3.

SMITH, Michael P. and BORGHORST, Hermann (1976). "Toward a Theory of Citizen Participation in Urban Renewal in Two Federal Systems". For International Political Science Association Congress, Edinburgh, Scotland.

SPECIAL COMMITTEE ON ENVIRONMENTAL LAW (1974). Report with Legislative Recommendations. American Bar Association House of Delegates, Chicago, Illinois.

SUBCOMMITTEE ON ADMINISTRATIVE PRACTICE AND PROCEDURE OF THE COMMITTEE ON THE JUDICIARY, U.S. SENATE (January 30 and February 6, 1976). Hearings on "Public Participation in Federal Agency Proccedings", S. 2715.

U.S. CONGRESS (1937). 16 U.S. Code Chapter 12B, "Bonneville Project Act".

U.S. CONGRESS, OFFICE OF TECHNOLOGICAL ASSESSMENT (November 1976). Coastal Effects of Offshore Energy Systems. U.S. Government Printing Office, Washington, D.C.

U.S. CONGRESS, SENATE COMMITTEE ON COMMERCE (1971). Hearings on Environmental Effects of Energy Generated on Lake Michigan before the Subcommittee on Energy, Natural Resources and the Environment. 91st Congress, 2nd Session. U.S. Government Printing Office, Washington, D.C.

U.S. CONGRESS, SENATE COMMITTEE ON COMMERCE (1970). Hearings on a Report Covering the Principle Policy Questions Now Facing the FPC and the Environment. 91st Congress, 1st Session. U.S. Government Printing Office, Washington, D.C.

U.S. DEPARTMENT OF COMMERCE, NOAA (January 1975). Report to the Congress on Ocean Pollution, Overfishing, and Offshore Development, July 1973-June 1974. U.S. Government Printing Office, Washington, D.C.

U.S. DEPARTMENT OF THE INTERIOR, BONNEVILLE POWER ADMINISTRATION (1976). The Electric Energy Picture in the Pacific Northwest. Bonneville Power Administration, Portland, Oregon.

U.S. DEPARTMENT OF THE INTERIOR, BONNEVILLE POWER ADMINISTRATION (1976). Typical Monthly Electric Bills for Pacific Northwest Utilities. Bonneville Power Administration, Portland, Oregon.

U.S. ENVIRONMENTAL PROTECTION AGENCY (1972). Don't Leave it All to the Experts. U.S. Government Printing Office, Washington, D.C.

U.S. INTERSTATE COMMERCE COMMISSION (1976). "Florida Consumer 'hotline' Installed in Miami Office". Consumer Bulletin Vol. III, No. 3, Washington, D.C.

U.S. NUCLEAR REGULATORY COMMISSION (1975). Safety Evaluation Report Related to Offshore Systems, Floating Nuclear Power Plants. (1-8), NUREG-75-100. National Technical Information Service, Springfield, Virginia.

U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF SPECIAL STUDIES (1975). Conceptualized Description of Nuclear Energy Centers. National Technical Information Service, Springfield, Virginia.

U.S. NUCLEAR REGULATORY COMMISSION (1975). Nuclear Energy Center Site Survey - 1975. NUREG-75-018. National Technical Information Service, Springfield, Virginia.

WASHINGTON OFFICE OF PROGRAM PLANNING AND FISCAL MANAGEMENT (1975). Alternatives for Washington. Vol. VI, Olympia, Washington.

WEAVER, Ned (1976). "Summary of Report on Industrial Dispersion and Diversification for Washington State". Submitted to Al Henry, Chairman, Joint Committee on Highways.

WEBB, E.J., CAMPBELL, D.T. and SCHWARTZ, R.D. (1966). Unobtrusive Measures: Nonreactive Research in the Social Sciences. Rand McNally and Co., Chicago, Illinois.

WENGERT, Norman and LAWRENCE, Robert M. (November 1976) "Regional Factors in Siting and Planning Energy Facilities in the Eleven Western States". P II-36, A Report to the Western Interstate Nuclear Board.

WHITE, E. (April 1976). "Incremental Costs and Electric Utility Rate Design". Address at Ninth Annual Pacific Northwest Regional Economic Conference, Spokane, Washington.

WILCOX, clair and SHEPHARD, William (1975). Public Policy Toward Business, 5th edition. Richard D. Irwin, Homewood, Illinois.

WILLEKE, Gene E. (1974). Identification of Publics in Water Resources Planning. Department of City Planning, Georgia Institute of Technology, Atlanta, Georgia.

"Workshop in Solar Energy and the Law" (February 10, 1975). Interim Report submitted to National Science Foundation. American Bar Foundation, Chicago, Illinois.

ZEIGLER, L. Harmon and PEAK, G. Wayne (1972). Interest Groups in American Society, second edition. Prentice Hall, Englewood Cliffs, New Jersey.