

1/22/81

Forelaws on Board

Our conscience teaches us it is right,
our reason teaches us it is useful,
that men should live according to
the Golden Rule.

W. Winwood Reade

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Boring, Oregon 97009
(503) 637-3542

"THE FOUR LAWS OF ECOLOGY"

1. Everything is connected to everything else.
2. Everything must go somewhere.
3. Nature knows best.
4. There is no such thing as a free lunch.

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

PORTLAND GENERAL ELECTRIC)
COMPANY, ET AL.)

(Pebble Springs Nuclear Plant,)
Units 1 and 2))

Dockets Nos. 50-514
50-515

FORELAWS ON BOARD MOTION FOR SUSPENSION OF
FURTHER HEARINGS AND FINDINGS OF FACT AND
CONCLUSIONS OF LAW.

Comes now Forelaws On Board, pursuant to CFR 2.730, and petitions the Atomic Safety and Licensing Board for suspension of all further hearings and proposed findings of fact and conclusions of law in the Pebble Springs Licensing Proceeding. We do so for the following reasons:

1. On December 31, 1980, the Board and all parties to this proceeding received the "NRC Staff's Fourth Status Report" which stated in part "that the staff is now prepared to move ahead with completion of the environmental site-suitability portions of the record in this proceeding" and "At such time the staff establishes a proposed schedule for accomplishing this effort, staff council will advise the Board and parties." This paraphrases an attached letter to the NRC Staff's Fourth Status Report sent to William J. Lindblad, Vice President of Portland General Electric, by Harold R. Denton, Director, Office of Nuclear

A REVERENCE FOR ALL LIFE • THE GOLDEN RULE • THE FOUR LAWS OF ECOLOGY

GUIDELINES OF CREATIVE ENVIRONMENTALISM

FORELAWS ON BOARD

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Reactor Regulation.

2. On November 4, 1980, the people of Oregon, by majority vote in the general election, enacted into law Ballot Measure 7 entitled "Nuclear Plant Licensing Requires Voter Approval, Waste Disposal Facility Existence." A copy of this law is hereby offered as Attachment 1.

A review of this state law shows that before a nuclear plant can be licensed for construction and operation in Oregon "the Energy Facility Siting Council must find that an adequate repository for the disposal of the high-level radioactive waste produced by the plant has been licensed to operate by the appropriate agency of the Federal Government." In addition Section 7 requires that "a site certificate for a nuclear-fueled thermal power plant shall not be issued until the voters of this state have approved the issuance of the certificate at an election held pursuant to section 4 of this 1980 Act."

3. Portland General Electric and other applicants to this proceeding have not, as yet, seen fit to inform either the staff or the Board of this significant event or offer any subsequent explanation of how it affects the ultimate status of these proposed facilities.

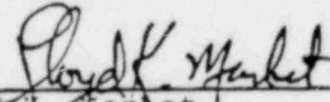
4. On January 6, 1981, the Oregon Energy Facility Siting Council adopted a new Need for Power Standard to use for the purpose of licensing major energy facilities in the state of Oregon. This standard represents a unique departure from the past design of standards addressing need for power. It outlines prospectively what energy facilities will be considered for licensing in order to meet a projected energy demand for the state of Oregon up to 1995. The Siting Council issued a "Statement in Explanation of the Need-For-Power Standard" which states in part that, in considering options and constraints for meeting demand beyond 1995, nuclear plants are "precluded by Ballot Measure 7" (See Attachment 2, page 20). No nuclear facilities are contemplated by the standard up to 1995 (See Attachment 2, page 2-3).

5. By the actions of the people of Oregon (subpart 2) and the subsequent actions of the Oregon Energy Facility Siting Council (subpart 4), Portland General Electric is "precluded" from licensing or constructing the Pebble Springs Nuclear Plants in Oregon.

Thus, Forelaws On Board petitions the Atomic Safety and Licensing Board to suspend all further hearings as well as proposed findings of fact and conclusions of law in this proceeding until it can be demonstrated, to the Board's satisfaction, that the Applicants are able to license and construct these facilities in Oregon at their proposed site. Otherwise the continuation of these proceedings is a drain upon the resources of all parties as well as that of the taxpayers of this country. We pray this motion be granted in full.

January 22, 1981

Respectfully submitted,
Yours in the earth,



Lloyd R. Jarrett
Forelaws On Board

A BILL FOR AN INITIATIVE

Relating to energy facility siting in Oregon.

Be It Enacted by the People of the State of Oregon:

SECTION 1. The people of this state find that if no permanent repository for high-level radioactive waste is provided by the Federal Government, the residents of the state may face the undue financial burden of paying for construction of a repository for such wastes. Therefore, the people of this state enact sections 1 to 8 of this 1980 Act.

SECTION 2. As used in sections 1 to 3 of this 1980 Act:

(1) "High-level radioactive waste" means spent nuclear fuel or the radioactive by-products from the reprocessing of spent nuclear fuel.

(2) "Spent nuclear fuel" means nuclear fuel rods or assemblies which have been irradiated in a power reactor and subsequently removed from that reactor.

SECTION 3. Before issuing a site certificate for a nuclear-fueled thermal power plant, the Energy Facility Siting Council must find that an adequate repository for the disposal of the high-level radioactive waste produced by the plant has been licensed to operate by the appropriate agency of the Federal Government. The repository must provide for the terminal disposition of such waste, with or without provision for retrieval for reprocessing.

SECTION 4. Notwithstanding the provisions of ORS 469.370, if the council finds that the requirements of section 3 of this 1980 Act have been satisfied and proposes to issue a site certificate for a nuclear-fueled thermal power plant, the proposal shall be submitted to the voters of this state for their approval or rejection at the next available state-wide general election. The procedures for submitting a proposal to the voters under this section shall conform, as nearly as possible to those for state measures, including but not limited to procedures for printing related material in the voters' pamphlet.

SECTION 5. A site certificate for a nuclear-fueled thermal power plant shall not be issued until the voters of this state have approved the issuance of the certificate at an election held pursuant to section 4 of this 1980 Act.

SECTION 6. The Public Utility Commissioner shall not authorize the issuance of stocks, bonds or other evidences of indebtedness to finance any nuclear-fueled thermal power plant pursuant to ORS 757.400 to 757.450 until the Energy Facility Siting Council has made the finding required under section 3 of this 1980 Act.

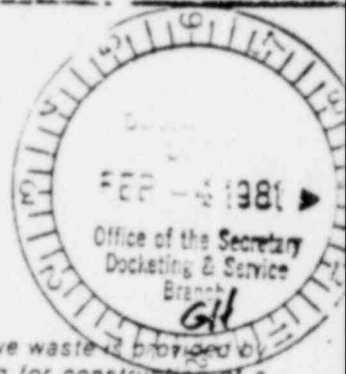
SECTION 7. The provisions of section 3 of this 1980 Act do not apply to any nuclear-fueled thermal power plant for which a site certificate was granted before November 15, 1980.

SECTION 8. Section 3 of this 1980 Act does not prohibit:

(1) The council from receiving and processing applications for site certificates for nuclear-fueled thermal power plants under ORS 469.300 to 469.570; or

(2) An applicant for a site certificate under ORS 469.300 to 469.570 from obtaining any other necessary licenses, permits or approvals for the planning or siting of a nuclear-fueled thermal power plant.

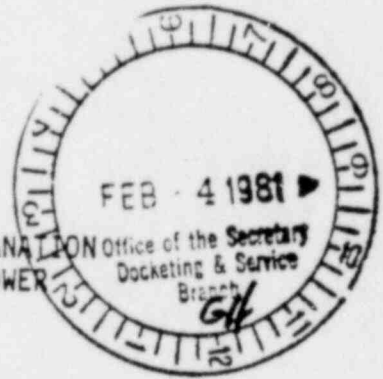
SECTION 9. Sections 1 to 8 of this Act are added to and made a part of ORS 469.300 to 469.570.



BEFORE THE ENERGY FACILITY SITING COUNCIL

In the Matter of the Adoption)
 of a "Need-for-Power" Siting)
 Standard)

STATEMENT IN EXPLANATION
 OF THE NEED-FOR-POWER
 STANDARD 1/6/81

Introduction

The Energy Facility Siting Council is charged with reviewing and approving or disapproving applications for energy facilities. The Council has set standards relating to environmental and public health and safety issues which must be met for an application to be approved. The Council has also decided to adopt a need-for-power siting standard which identifies whether and what type of energy facilities are needed. The standard will be used for siting electrical generating facilities. The purpose of this statement is to explain the Council's choice of a need-for-power standard.

The Council has decided that before approving a site certificate a demand-for-electricity should exist. This will prevent unnecessary impacts to the environment and public health and safety and minimize financial impacts to the ratepayers.

The Council has decided that its need-for-power standard should include an electrical supply forecast which encourages those conservation and renewable resources which are economically reasonable and environmentally acceptable. The Council has given first priority to conservation and renewable resources. Conventional resources (coal plants) were considered only if an unmet demand remained.

The need-for-power standard includes a prospective determination of the conservation, renewable resources and conventional resources which are expected to meet the projected demand for electricity. The Council believes that such a standard is important to direct energy development in Oregon. Direction will be provided by advising energy suppliers which projects are considered to be acceptable by the state. In the process of adopting a standard the Council has identified the constraints which preclude reliance on conservation and renewable resources beyond that assumed in this standard.

The Council proposes to monitor progress towards development of conservation and renewable resources by use of periodic Resources Plans developed by utilities. The formal requirement to submit the plans will be adopted by the Department of Energy through the authority in ORS 469.080. The plans should show progress towards 1) providing the

conservation and renewable resources identified in the standard and 2) addressing the constraints which preclude greater reliance on conservation and renewable resources. Based on the success of these plans and changing state, national and international developments, the need-for-power standard will be revised periodically. Additionally, by review of the plans the Council can identify the need for revised state programs to expedite development of conservation and renewable resources.

Authority

The Council's action is consistent with Oregon Revised Statutes 469.010, 469.310, 469.470(3) and 469.510, the Oregon Supreme Court decision in Marbet vs PGE and the Attorney General's Opinion No. 7985 dated December 18, 1980 (see attached).

Findings

1. Oregon Statutes, ORS 469.010 and 469.510, direct the Council to consider energy needs and encourage conservation and renewable resources.
2. Arriving at energy needs and providing direction for energy development can best be accomplished by a prospective need-for-power siting standard. The Attorney General has concluded that the Council has the authority to adopt a prospective standard.
3. Customers of Oregon utilities are projected to demand an additional 2,080 average megawatts of generation between 1980 and 1990 in the absence of electricity price increases and conservation measures. This is the equivalent of about six Boardman coal plants.
4. Customers of Oregon utilities are projected to save 540 average megawatts in 1990 due to specific conservation measures and in response to higher energy prices.
5. Oregon utilities are expected to construct renewable resources, principally co-generation and hydroelectric dams, which will produce 300 average megawatts in 1990.
6. Taken together, during the next ten years, these conservation and renewable resources will provide about 40 percent of the load growth projected to be experienced by Oregon utilities.
7. In the next ten years Oregon utilities anticipate receiving an additional 620 average megawatts for use in Oregon from plants licensed in other states.

8. Additional resources will be needed by Oregon utilities to provide 620 average megawatts in 1990. This is equivalent to nearly two Boardman coal plants. Between 1990 and 1995 an amount of energy equivalent to an additional Boardman coal plant would be needed, i.e., the total equivalent of three coal plants. Without paying more for power than would otherwise be required and in the absence of unanticipated conservation programs or resource discoveries this demand will probably be met by additional coal plants.

Procedural Background

In early 1980 the Council conducted several informal workshops to discuss the issues associated with a need-for-power standard and methods of addressing those issues. Participants were invited to propose concepts for a need-for-power standard. On June 1, 1980, the Council announced it would conduct a public hearing on several approaches to a need-for-power standard. The hearing was held on July 1, 1980.

The hearings officer presented a report to the participants in August 1980. Participants included Forelaws-on-Board, Pacific Power and Light, Central Lincoln PUD, Windfarms, W. H. Clagett, Portland General Electric, Public Utility Commissioner, Pacific Northwest Generating Company, Dan Solitz, Lloyd Marbet, League of Women Voters, Bonneville Power Administration, and the Oregon Department of Energy.

On September 12, 1980, the Council adopted, as a policy, the framework for a need-for-power standard.

On September 26, October 13, October 30, November 20, and December 17, 1980, public hearings were conducted to complete the details of the standard. The primary efforts of the hearings were development of energy demand forecasts and energy supply estimates. Testimony was received from Eugene Future Power Committee, Portland General Electric (PGE), Austin Collins, Pacific Power and Light (PP&L), Forelaws-on-Board, Lloyd Marbet, League of Women Voters, Central Lincoln PUD, Pacific Northwest Generating Company (PNGC), and the Oregon Department of Energy (ODOE).

A draft of this statement was made available to participants a week or more before the Council's deliberations. Action on the need-for-power standard and this statement was taken on January 6, 1981.

The Council throughout its efforts to adopt a need-for-power standard attempted to involve interested parties. The initiation of the hearings was announced in the Secretary of State's Bulletin and through press releases. Moreover, each of the six formal meetings was announced by mailing invitations to all those who expressed an interest in the proceeding and to all those who had requested to be placed on the Council's mailing list.

Role of the Council

Development of a need-for-power standard for Oregon is a weighty task for a Council which is a citizen body. However, the Council believes that it is an appropriate task. It is also a realistic task if the role of the Council is clearly understood.

Development of a standard requires knowledge of demand forecasting, the technical availability of energy resources, the costs of resources, environmental impacts of energy facilities and a sense of judgment as to what is consistent with broad legislative policy direction. This level of knowledge encompasses nearly every discipline of learning. No individual or group of less than several tens, whether elected, appointed, lay or professional can possess that level of first hand knowledge.

While the Council cannot possess all the requisite knowledge first hand to develop a standard, the capability exists in Oregon--in state government, utilities and public groups. The Council can rely on those individuals and groups to raise the appropriate issues and to frame the choices. Experts are needed for this task but individuals with a variety of backgrounds and areas of interests, such as the Council members, are well suited to the task of making policy decisions.

This hearing is an example. There was disagreement over the choice of policies. However, once the policy choices were made, arguments about energy demand forecasts and supply estimates were minimal. For example, experts in energy demand forecasting have agreed on a forecast result (or at least no dissenting view has been documented). In this case it is not necessary to resolve any issues associated with the forecast result after the policy choices were made.

Oregon traditionally has relied on citizen Boards and Commissions to make many of the policy choices for the state. These persons have no special interest in the outcome, in terms of their job or financial benefit, beyond that of any other Oregonian. Thus, they can be objective. This is not to say everyone will agree with the decision of the Board or Commission because policy differences will exist between individuals.

As a separate matter, the question has been raised as to whether this Council can be a "regulator" and a "promoter". ORS 469.010 and 469.310 require the Council to make decisions consistent with legislative policy to encourage conservation and renewables and to regulate the environmental and safety impacts of energy facilities; the Council is not a "promoter" of conventional resources. The proposed standard is consistent with the Council's statutory responsibilities.

Moreover, separation of "regulation" and "promotion" can be carried only so far. The responsibility for making a decision must lie somewhere. Someone ultimately must arbitrate the conflicting views of the regulator and promoter. Legislative policy to encourage conservation and renewable resources does not lessen the Council's regulatory responsibilities.

With regard to energy, the interests of the regulator are well represented in Oregon. In addition to public interest groups, many natural resources are protected by a state agency. Fish and Wildlife's purpose is to protect those resources, the Department of Environmental Quality protects air and water quality and other agencies have similar charters for other resources. Additionally, the Public Utility Commissioner is charged with representing the interests of ratepayers of investor-owned utilities.

Many resources also have their own advocates. Public interest groups and utilities have their preferences and some third parties, such as Pan Arco, advocate specific resources. Additionally, ODOE devotes a considerable amount of its resources to conservation and renewable resources.

The Council can act as a neutral third party. The views of the regulators and promoters can be presented; the Council can then make the choices necessary to arrive at a decision that weighs and balances competing concerns.

While the Council is in a position to arbitrate conflicts between regulatory interests and energy development, it has not had to do so in preparing the need-for-power standard. Energy demand in the next 15 years can be met without incurring additional adverse impacts on fish, exceeding air quality standards or the need to weaken other regulatory requirements.

In summary, the Council believes it has a responsibility to consider demand and conservation/renewable resources in its siting decisions. Moreover, the Council will rely heavily on those government agencies, public groups and individuals and energy suppliers who have developed the requisite knowledge to perform the detailed and technical work. Where policy decisions are needed, the Council will have available the various groups to frame the issues for its decision. The Council will document its decisions in statements such as this for public review.

Choice of a Prospective Need-for-Power Standard

The first effort of the Council in adopting a need-for-power standard was to determine the form of the standard. The hearings officer report of August 1980 presented the choices for a standard, the advantages of each and an explanation of the recommended approach.

The question was not whether but how the Council should forecast a need-for-power. The Council should forecast whether there will be a demand for electricity before a facility is sited and before any adverse environmental impacts are incurred. It was left to the discretion of the Council whether to decide that an energy facility was needed prospectively or at the time of an application. The Oregon Attorney General stated that the Council has the authority to develop a prospective standard and that such an approach was more consistent with direction provided by the Legislature (see Attachment 4).

The Council believes it can more adequately fulfill its statutory responsibilities by considering the need for an energy facility and the contribution of conservation and renewable resources before siting an energy facility. Thus, the same issues would be considered either in the context of a specific application or prospectively as part of an energy plan. The only question which remained was when the issues should be addressed.

Whether a need for power can be determined by inspection of demand forecasts and existing resources. The Council does not need an application to make a judgment about need. If the Council decided that a need did not exist, it would be better to announce that to potential applicants to prevent unnecessary expenditures of effort. Similarly, if a particular type of resource is preferred that should also be said before energy suppliers begin any expenditures.

There was disagreement by some participants as to whether the Council should adopt a prospective need-for-power standard. The arguments were discussed in the Hearing Officer's report of August 1980. These arguments notwithstanding, the Council decided on September 12, 1980 that if the state is to provide direction to Oregon's energy development the need for power standard should be determined prospectively.

A prospective determination of Oregon's energy needs will serve several purposes. First, a process for identifying the issues associated with Oregon's energy future has been established. Policy makers -- the Legislature, Oregonians, the Governor and the Council itself -- can use this information to evaluate the effectiveness of public and private programs in providing conservation, renewable resources and conventional resources and to recommend changes to the state's programs to meet the state's energy needs.

Additionally, the prospective determination of Oregon energy needs can be used to make specific decisions on the siting of new energy facilities.

Policy Statement

The approach to a need-for-power standard and the specific projections contained therein include several underlying policy decisions. This section is to explain those decisions.

1. The standard should encourage conservation and renewable resources. This is part of Oregon's energy policy (see ORS 469.010). The Council interprets this to mean that conservation and renewable resources should be pursued before conventional resources. However, the Council does not view this to mean that these resources should be pursued at any environmental or economic cost or to the exclusion of conventional resources.
2. The standard should provide sufficient resources to meet estimates of energy demand and those resources should have a high probability of meeting the energy demand. When making this policy choice the Council had the option of allowing for sufficient resources to meet a demand or a need. Further, the Council could make decisions that would have a high probability of meeting demand or alternatively it could make choices that created a risk that energy supplies would be insufficient. These issues are discussed below.

The Council's policy decision is to allow for sufficient resources to meet the forecasted demand. Demand is projected by observing the trends and expected behavior of many factors such as population levels, employment types and levels and personal wealth.

The alternate approach would be to make normative judgments to choose a "desirable" lifestyle. The Council would then approve sufficient facilities to provide the energy needed to sustain those choices. This later approach is called an energy "need" rather than "demand". Energy "needs" may be greater or smaller than the demand depending on the choice of lifestyles.

The issues associated with need could affect Oregonians in many ways and should be left to the Governor and the Legislature because only they have been elected by Oregonians to represent their interests. Nonetheless, the Council believes it has a responsibility to provide the Legislature and Governor with the information they need to consider the issues associated with need.

Similarly, the Legislature, not the Council, should make the policy choice to take a speculative course which may or may not provide the energy to be demanded by Oregonians. Therefore, the Council has decided to rely on those resources which have a high probability of meeting the forecasted demand.

This policy choice will influence the amount of conservation and renewable resources upon which the state can rely. A high probability of meeting energy demand results in reliance on energy from those resources which can be and are likely to be developed, i.e., that energy which can be forecasted. Stated in the alternative, the Council estimates are not goals selected because of preference for those resources. The Council concluded that a forecast of conservation and renewable

resources should rely on sources for which a resource has been identified, equipment will be commercially available in the foreseeable future and which will not be precluded by institutional or legal constraints.

3. The standard should rely on those resources which are at or near the avoided cost of the lowest cost alternative. ORS 469.010 requires consideration of cost effectiveness (which includes costs of mitigating environmental impacts and fuel cycle costs). Some resources can produce large quantities of energy but the cost would raise rates considerably. Where possible, rates should be minimized consistent with maintenance of Oregon's environment. A strict interpretation of cost effectiveness would require use of only the least cost alternative. However, the Council believes that some resources, which may cost more than the lowest cost alternative, should be pursued because of lesser environmental impacts, sustainability of the resource and social acceptability.

In the Council's hearings, cost estimates were provided by the participants. The most succinct presentation was a table from the Alternate Energy Development Commission's Future Renewables. That table is the basis for the Council's estimates of cost effectiveness. The table is not assumed to present accurate absolute estimates of cost, but the relative values are suitable for use.

Some testimony indicated that nuclear plants were the most cost-effective choice. Because of the passage of Ballot Measure 7, the Council did not consider nuclear-fueled power plants.

The table from the AEDC report indicates that coal plants, hydro, cogeneration, biomass, and geothermal direct use and heating districts are all indistinguishable vis-a-vis cost because of the uncertainties associated with non-site specific cost estimates. These resources are considered to be economically prudent. Wind, solar electric, and geothermal electric are considered to cost more than the others. The cost of geothermal electric in the absence of a confirmed resource is considered to be high because of the uncertain estimates associated with resource exploration. In strict terms, these latter resources would be considered as not being cost effective.

The Council did not disregard all non-cost effective resources. As mentioned above, these sources may have other advantages. The cost of development programs for these resources is relatively small. Therefore, some contribution is assumed for each of these resources.

Oregon Energy Demand

During the hearings only the Oregon Department of Energy presented a demand forecast. ODOE presented its methodologies and techniques and discussed them with the participants. Although some controversy may exist over the specific methods and assumptions, no one urged the Council to adopt another forecast result. The Council's review of the record has not identified issues which would indicate another result. Absent controversy over the forecast results, the Council will adopt the department's result for purposes of its standard. This action does not commit the Council to the department's assumptions or methodology for future standard setting.

Three important issues related to the demand forecast will be discussed in greater detail.

1. The amount of conservation included in the demand forecast - The demand forecast includes various conservation related actions and assumptions that reduce energy demand. The manner in which these factors are included are different for the various sectors. In the residential sector demand is forecast by an "end use" model. In this model the various uses of energy, such as water heating and space heating, are identified along with the amount of energy used in each application. The forecast is produced by making assumptions about how these energy uses will change.

In the residential sector it is assumed that some houses not now well insulated will be retrofitted with energy savings measures. Retrofitting is assumed to mean the equivalent of ceiling insulation to R-19, floor insulation to R-9 and 100 percent weatherstripping and caulking. It is assumed that houses built after 1975 meet these standards and in 1980 it is assumed 30 percent of the pre-1975 homes have been retrofitted. The demand forecast assumes that 45 percent more will be insulated by 1990 and by 2000 a total of 85 percent will be retrofitted to the above equivalent.

The demand for the residential sector also assumes that increasing amounts of solar and heat pumps will be used. It is assumed that in 1979, 20 percent of new electrically-heated single-family homes had heat pumps. This value is expected to increase to 30 percent by 2000. Further, 15 percent of homes built after 1990 will use solar heating and "super insulation". Finally, 20 percent of all single-family homes by 2000 will use solar or heat pumps for water heating.

The residential demand forecast also projects 1) increasing use of energy efficient appliances and 2) that 10 percent of all residential space-heating will be provided by wood stoves.

The net effect of these conservation measures is to reduce the residential demand forecast by 65 MW in 1990 less than what it otherwise would have been.

Energy use in the commercial and industrial sectors is projected by econometric models. These models use projections of certain parameters, such as employment, energy prices and value added, and relationships between these parameters and energy consumption in order to project energy demand. Projections of the various parameters into the future are based on past data. The demand forecast estimates that higher prices will result in 216 MW and 222 MW less energy demand in the commercial and industrial sectors, respectively, in 1990.

Counting all sectors, the demand forecast assumes that about 502 MW and 858 MW will be conserved in 1990 and 1995, respectively. These savings replace the need for 1.5 and 2.5 coal plants the size of Boardman, respectively.

A major difference between econometric and end-use models is that the econometric models predict reductions in energy use and switching between fuel types because of price changes. The residential end use model cannot project the impacts of energy prices. Conversely, the commercial and industrial sector econometric models cannot specify how the demand reduction by increased prices will actually occur. In order to effect the reduction in energy use, commercial establishments will have to make use of other energy sources such as conservation or geothermal heat. Similarly, industries will have to effect the reduction in energy use by efforts such as conservation or co-generation. There is no guarantee that the commercial and industrial sectors actually will take the steps needed to accomplish the conservation in the forecast.

The method used for forecasting energy use in the commercial and industrial sectors also creates the potential for double counting. In an oversimplified manner, what could happen is that the demand forecast assumes that price pressure will cause these sectors to use conservation or renewable resources. At the same time, supply estimates may project that a certain amount of conservation or renewable resources will be available. However, a portion of the resources may not be appropriately included in the supply side because they will be used to accomplish the conservation which is already assumed to reduce the demand.

Because of the potential problems with econometric forecasting in the commercial and industrial sectors the Council believes that ODOE should develop the capability to perform end-use analyses in these sectors.

The conclusion of this discussion of demand forecasting techniques is that the need for additional resources may be higher if conservation in response to price does not occur or if double counting occurs. However, other assumptions in the forecast are probably just as important as these factors. For example, the assumptions that determine energy prices may influence energy demand, either up or down, to a greater extent than any potential double counting.

2. Relationship Between the Demand Forecast and "Energy Needs"

The demand forecast, in simple terms, is the estimate of the amount of energy needed to sustain a society described by an interrelated and consistent set of population and employment levels, commercial and industrial activity and efficiency levels, and personal wealth described by living patterns, habits and recreational efforts. Each society described in these terms will require a different amount of energy.

Current demand forecasts are derived from projections of trends in the social parameters that affect energy use. As an alternative, policymakers could choose the reverse process, i.e., define a "desirable" society, then estimate how much energy is needed to sustain it. This is defined as an energy "need". The energy "need" may be higher or lower than the forecasted demand depending on what is defined as a "desirable" society.

Although the Council has opted to use the traditional demand forecast approach, it may be desirable to begin discussing the alternate approach. Continuing past practices will require increasing numbers of generating facilities -- renewable or conventional. Any facility will have some adverse impact as will the growth which is to be sustained by the new facilities. This is not new. Oregon has incurred increasingly greater adverse impacts since the early 1800s. Nonetheless, at some point continuing down the present path will be considered undesirable. It is just a matter of when.

The time to consider basing need-for-power on energy needs may be when existing constraints are reached. For example, consideration of energy needs may be appropriate when limits that protect air quality are reached or when remaining fisheries are adversely affected. Oregon is fast approaching these points. The supply estimates in the standard include 150 megawatts of hydro by 1990. This estimate is based on no further deterioration of fisheries. Further hydro development is available but might increase impacts. Similarly, preliminary estimates indicate only three additional coal plants could be sited in Oregon and cogeneration is also limited because of air quality constraints. Passage of Ballot Measure 7 precludes additional nuclear plants. Geothermal, wind and solar electric may introduce industrial type development in areas having wilderness characteristics.

The choice is always present -- either continue to incur adverse impacts or make siting decisions based on energy need. Use of energy need would mean developing policies which influence energy demand such as population and employment levels, types of industries and personal wealth (or standard of living). These policies would be very complex. For example, Oregon may wish to attract only industries with low-energy intensiveness and exclude others. Presumably, each state would want to do the same. If so, no one would want energy intensive industries in their backyard. Oregonians may not be willing to do without products from energy intensive industries.

For the present, the Council will base siting decisions on energy demands. Consequently, the staff should begin to frame the issues associated with energy "needs" and report to the Council periodically.

3. Service Area or State-Wide Demand Forecasts - Utilities now develop demand forecasts for their service areas. In any type of need-for-power forum the state has only ODOE's statewide forecast for comparison. The statewide forecast loses the distinction between growth rates in the different areas of the state. The Council believes that the state should work towards development of service area forecasts to support the statewide forecast in the standard.

In the meantime, fast-growing areas of the state will have their growth underestimated. For example, PNGC estimates that under the standard and using their forecast they will have a deficit of 78 MW in the early 1990s, while use of the state-wide forecast will show a surplus of 44 MW. Those differences result because the statewide forecast averages growth rates throughout the state and because of different forecasting techniques. It is not possible to tell now which is the predominant cause of the difference.

PNGC has proposed a mechanism for determining the reason for the discrepancy. PNGC suggests that the Council insert provisions into the standard which would allow any utility to submit its service area forecast to the Council for approval. If approved, that forecast would be used in lieu of the statewide forecast result.

The Council believes that PNGC has raised a valid issue. The standard allows this issue to be resolved in two ways. First, applicants' loads and resources are considered in the aggregate. Thus, overestimates for one applicant can be balanced by underestimates for other applicants. Second, any applicant is allowed by the "rebuttable presumption" to argue in the site certificate application proceedings that their service area is unique from the state average and misrepresented by the procedure of the standard.

Oregon Revised Statutes Chapter 183.410 states:

"On petition of any interested person, any agency may in its discretion issue a declaratory ruling with respect to the applicability to any person, property, or state of facts of any rule or statute enforceable by it. A declaratory ruling is binding between the agency and the petitioner on the state of facts alleged unless it is altered or set aside by a court."

This provision of the law allows a potential applicant, in advance of an application, to argue that the Council should adopt an energy demand or resource estimate for that applicant which is different from the standard. Such a declarative ruling would be at the Council's discretion. By not referencing ORS 183 in the standard the Council retains its discretion.

The provision of ORS 183.410 would be applied by the Council to both energy demand and resources in a declaratory ruling. Potential applicants who would make use of this provision should be prepared with estimates of conservation and renewable resources opportunities in their service area and be prepared to demonstrate why the Council should not rely on those sources to offset demand.

The declaratory ruling process can also be used by non-utility third-party applicants. For example, an industry wishing to cogenerate and sell electricity to a utility can petition for a declaratory ruling. The Council would apply the need-for-power standard to the purchasing utility. If a need exists in the utility's service area, the industrial applicant would be found to be in compliance with the need-for-power standard.

Any declaratory ruling will be considered as a starting point for any site certificate proceeding. Any party will continue to have the opportunity available to rebut this ruling in the context of the site certificate proceeding.

Supply Estimates

In the hearing, PGE, PP&L and ODOE provided comprehensive supply estimates for Oregon. PNGC provided supply estimates for its service area. Other participants entered into the discussions to resolve discrepancies.

1. Conservation -- Conservation estimates were not controversial. Conservation estimates which are in the demand forecast were discussed in an earlier section. Savings beyond those in the demand forecast were for programs that were generally acceptable to those who commented. The basis for the savings adopted in the standard is based on estimates provided in ODOE's testimony. The Council believes these estimates are reasonable.

- a. Fuel switching is an issue raised by the conservation estimates. Two programs, to varying degrees, encourage switching from electricity to natural gas. The prudence of such a policy needs to be assessed periodically. If supplies of natural gas at prices comparable to electricity are assured, the policy has the advantage of deferring electrical generating plants which would have greater environmental impacts. Additionally, gas could be used as a backup fuel to intermittent fuel sources such as solar, wind and some hydro. Gas could be used directly at the end use or in combustion turbines.

However, most of the Northwest's supply of natural gas is from Canada. Oregon will have no influence on Canadian supplies or prices. Canadian policy of pricing gas at the world oil price is not encouraging. Supply disruptions or unreasonable price escalations could create a need for liquified natural gas or coal gasification facilities. The policy of encouraging use of natural gas over electricity should consider the desirability of these types of facilities. Further, any impacts from indoor pollution resulting from increased residential use of natural gas should be reviewed.

Preliminary estimates by ODOE indicate that coal gasification facilities would make more efficient use of coal and may result in fewer emissions to the air than if the coal was burned in an electrical generating facility.

ODOE should assess the projected availability of natural gas in the Northwest and its price, and the comparative advantages of the various electrical and gas-related facilities. This information should be used to fashion a policy on fuel switching. The progress of this effort should be reported at the next review of the level-of-service standard. ODOE should include all interested parties but should also seek input from natural gas utilities, the Public Utility Commissioner and natural resource agencies.

- b. Residential Use of Wood and Coal -- Conservation is defined to include measures that offset the demand for electricity. ODOE has included use of wood stoves in its demand forecast. Some manufacturers of wood stoves are encouraging the conversion of these units for use of coal. ODOE's preliminary information indicates that use of wood and coal in home stoves may have adverse air quality impacts. ODOE should work with the Department of Environmental Quality and others to develop a policy on these fuels.

- c. Mandatory Conservation -- Mandatory conservation measures were not recommended by the AEDC absent conclusive experience with voluntary efforts. ODOE should propose a method of evaluating the effectiveness of voluntary conservation and propose criteria which could trigger a recommendation to the legislature for mandatory measures.
 - d. Building Codes -- Conservation measures included in the standard do not include improved building codes. ODOE should work with interested parties and the Department of Commerce to develop appropriate improvements to the codes and report back to the Council.
 - e. Northwest-Southwest Electrical Intertie -- The Northwest's need for generating facilities might be reduced by exchange of power with the Southwest. The Southwest's major use is in the summer while the Northwest's peaks are in winter. ODOE should report to the Council how it could take advantage of this exchange to reduce need for new facilities.
2. Renewable resource estimates did not vary greatly -- the range was from 250 to 300 megawatts in 1990. PGE was at the low end and PP&L and Department at the high end. The substantive difference was that PGE was about 15 percent lower for cogeneration and hydro. A promoter of wind systems also recommended higher levels of reliance on wind. The Council's estimates are included in the standard. The estimates are based on the policy choices discussed above. A more detailed explanation of the basis for these estimates follows.
- a. Wind -- 20 average MW is projected for 1990. Because these are average megawatts, this is about 60 megawatts of installed capacity.

In terms of the Council's policy statement, wind was included in the resource table to encourage its development, the costs of the scale of development envisioned is compatible with the policy of relying on resources near the avoided cost, and there is strong reason to believe wind resources are available, technology is currently available and institutional constraints are not preclusive. For example, PP&L is preparing to erect a test machine at its Whiskey Run site.

Pan Aero, a promoter of wind systems, recommended that the Council rely on about ten times the amount of wind generation included in the standard. Pan Aero did not include any cost estimates. Cost estimates relied on by the Council would indicate that reliance on wind to the extent suggested by Pan Aero would result in costs much greater than could be justified by a demonstration project. Greater reliance on wind, beyond that adopted in the standard, would not be consistent with the policy statement on cost effectiveness.

Wind development is most likely in the coastal zone and along the Columbia Gorge. Wind sites on the coast will raise competing land use issues. ODOE should explore the resources and report back to the Council on how these issues may affect development. LCDC should be consulted.

Wind and other intermittent resources need a backup source. The backup source may be the existing hydro system or new pump storage facilities or others. ODOE should work towards answering the question of how much backup and at what cost can be provided by the federal hydro system or possible load management. Additionally, the environmental issues associated with backup sources should be developed.

b. Solar Electric -- 2 MW peak projected for 1990

In terms of the Council's policy statement some solar electric was included to encourage its development. Greater amounts were not included because of its high cost.

As with wind, the question of backup sources and sites should be explored.

c. Geothermal Electric -- 20 average MW is projected for 1990. Because these are average megawatts this is equivalent to 30 MW of installed capacity.

In terms of the Council's policy statement, geothermal electric was included to encourage its development, the cost of the scale of development envisioned is compatible with the policy of relying on resources at or near the avoided cost, and there is some reason to believe a resource can be found, technology is being developed and institutional constraints are not preclusive. PGE, PP&L, and EWEB are participating in a demonstration project in northern Nevada.

Geothermal electrical development is expected to occur in the Alvord Desert, near Newberry Crater, and in the Cascades. These areas are wilderness-like and development will raise land use conflicts. Air quality impacts may exclude some areas around formal wilderness areas. ODOE should explore these issues and recommend appropriate revisions to the EFSC's site suitability study.

ODOE should develop a proposed policy which would decide whether utilities or oil companies should perform resource exploration.

- d. Cogeneration and Biomass -- 100 average MW is projected for 1990.

In terms of the Council's policy statement, cogeneration and biomass are included in the resource table to encourage their development. The costs are expected to be equivalent to the avoided cost and the resource and technology are well known.

The values selected in the table are based on the Rocket Research survey. Of the 548 MW potential, only 280 MW are expected to be available because of air quality constraints. Assuming a 70 percent capacity factor about 200 average MW of cogeneration is possible. However, some of this will not be available because of the cost of air pollution control equipment.

ODOE presented a list of cogeneration projects which it believes to be under serious consideration. The projects totalled nearly 100 MW.

ODOE's preliminary estimates indicate that the relative merits of cogeneration compared to a central coal plant depends on the fuel source. If forest slash is used cogeneration results in far less net air contaminants than a coal plant. Mill residues used for cogeneration produce about the same level of pollutants as a coal plant. If coal is used as a fuel in a central generating station the result is much less pollution than if the coal is used for cogeneration. The net efficiency gain of about seven percent probably would not warrant use of coal in a cogeneration facility. ODOE should try to characterize the likelihood of the various fuel uses.

In addition to cogeneration facilities, Northwest utilities are considering direct use of biomass for electrical generation using a steam condensing cycle. These are expected to compete for fuel with biomass-fired cogeneration facilities. The combined magnitude of the power anticipated to be available is on the order of 100 MW by 1990 and 150 MW by 1995. This is in general agreement with values proposed by utilities.

The Council concludes that 100 average MW for 1990 is a reasonable value given the available potential and uncertainties associated with the fuel supply.

- e. Hydroelectric -- 150 average MW is projected for 1990.

In terms of the Council's policy statement, hydro is included in the resource table to encourage its development where acceptable. The costs will be site specific. The resource availability and technology are well understood.

Oregon has many potential hydro sites. Most are small. The sites have a variety of owners, costs and environmental impacts. All these factors will affect development of the sites. Sufficient information is not available to name specific sites for development. Identification of specific sites should be a high priority of the state with particular involvement by Fish & Wildlife.

To estimate the amount of hydro which may be available, three approaches have been used. First, the utility-preferred sites were identified and halved to account for environmentally unsound sites. Second, all those sites without known environmental constraints were totalled. Third, all sites with federal permits granted or pending were totalled. In each case estimates from 150 MW to 250 MW were obtained. It is believed that some combination of sites from these categories will be developed.

The Council believes that selection of an estimate for hydro should be made in light of impacts which have occurred in the past. Existing dams have had a significant impact on Oregon fisheries. Mitigation of these losses is not yet complete. One approach would be to defer any additional hydro development until measures are complete.

The Council believes that hydro which does not have adverse impacts should be sited. It is more likely that the lower end of the range will be acceptable. Therefore, 150 MW is included in the table. Consistent with minimizing impacts to fisheries, the Council will give preference in numerical order to projects as follows:

1. Existing penstocks in existing structures,
2. Existing hydro facilities
3. Existing dams, canals or diversion without hydroelectric facilities
4. New facility above anadromous fish runs, and then,
5. New facilities.

The 150 MW value may change when the specific standards for hydro are set. The direction of the change will depend on the rigor of the standards. The Council has given ODOE authority to initiate a rulemaking, which it will do. Concurrently, the state's Hydro Planning Group and Fish & Wildlife should be encouraged to assist with the development of standards and identification of suitable sites.

- f. Geothermal Direct Use and Heating Districts -- 3 average MW was projected for 1990.

In terms of the Council's policy statement, these resources are included in the standard to encourage their use. The costs are compatible with the avoided costs. Resources are known in Lakeview and Klamath Falls, for example. The technology is well understood.

ODOE proposed 3 MW based on conversion of electrically heated homes in Lakeview and Klamath Falls to geothermal heat. Although 100 percent conversion is likely, there are other opportunities in Oregon which, taken together, may total 3 average MW.

Resource Plan

In the hearings, it was recommended that a procedure be developed for measuring progress towards achieving greater reliance on conservation and renewable resources. Based on the progress observed, appropriate changes can be made to the need-for-power standard or recommended to the Legislature. The Council believes that this is best accomplished by the resource plan recommended by ODOE. The AEDC recommended a similar approach.

A resource plan would document the steps to be taken by the utilities to achieve the resources identified in the need-for-power standard and their actions to overcome the constraints which preclude greater reliance on these sources. In developing its requirements for resource plans ODOE should consider the information included in the testimony of Forelaws-on-Board, PGE, PP&L and ODOE.

Utilities are not the only group which must take action to obtain greater reliance on conservation and renewable resources. The recommendations identify a number of issues which must be resolved by the state. ODOE should also prepare the equivalent to a resource plan for those actions which must be taken by state government.

Results of the Need-for-Power Standard

The demand forecast results adopted in the standard for each of the next 15 years are shown in Attachment 2, line 1. System losses will be different for each utility. PGE, PP&L and Idaho Power losses are 7.8, 9.5 and 11.5 percent, respectively, and public utilities average about 9.5 percent (including BPA's transmission losses). A suitable estimate for the state is 9.5 percent. Attachment 2, line 2 shows the estimate of system losses. Line 3 shows the total demand that should be met.

The demand will be met by resources dedicated to Oregon and Oregon's share of BPA resources. Resources dedicated to Oregon include each utility's resources, whether in Oregon or not, which are used to meet their loads in Oregon. BPA resources are that portion of federal hydropower and net-billed plants that serve Oregonians. Attachment 2, line 6 shows the total resources available to meet Oregon demand.

Attachment 2, line 7 shows the total deficit that must be met by conservation/renewable resources and conventional plants. Attachment 2, lines 8 and 9 show the contribution from each group. Conservation/renewable resource estimates are from the need-for-power standard.

The "bottom line" is that additional resources will be needed to meet Oregon's energy demand over the next 15 years. Applicants are encouraged to provide more conservation and renewable resources than included in the standard. However, absent changes in policy, these additional resources likely will be coal plants. By 1995, 1,080 average megawatts would be needed from coal plants. However, the Department's preliminary estimate indicates that air quality standards in Oregon could accommodate only enough coal plants to produce 1,000 MW. Therefore, if coal plants are used to meet demand up to 1995, then other means of meeting any further demand increases will have to be found.

The options and constraints for meeting demand beyond 1995 are as follows:

1. Wind -- technology development will have to continue and aggressive resource assessment will need to be pursued now. This may require increased development in the coastal zone.
2. Solar Electric -- costs will have to decrease substantially and suitable backup storage systems will be needed.
3. Geothermal Electric -- resources will have to be found. Development of areas having wilderness character may be needed.
4. Cogeneration/Biomass -- the lack of opportunities beyond that in the supply estimate will prevent significant development here without changes in air quality standards or acceptance of higher costs.
5. Hydropower -- increased fishery impacts would probably have to be incurred.
6. Geothermal and Other Heating Districts -- institutional changes will be needed to bring potential developers and end users together.
7. Home Use of Wood and Coal -- substantial air quality impacts may be incurred.
8. Mandatory Conservation and Direct Use of Solar -- examples include stiffer energy conservation and solar building codes. Action by the Legislature and/or Department of Commerce would be needed.
9. Nuclear Plants -- precluded by Ballot Measure 7.
10. Coal Plants -- reduced air quality.

Use of the Standard

The purpose of this section is to identify the provisions of the standard to demonstrate how it works.

Parts I.A and I.B, stated simply, require that the applicants show, for their collective service areas, that after matching their loads and resources the proposed facility will be needed. All else in the standard specifies how their loads and resources will be determined. Part I.C. provides a process to determine what portion of a plant is intended to serve Oregon customers. Part II.C. defines service areas.

Part IV states that the Council will assume an out-of-state need exists so long as Oregon continues to import electricity from other states and at least 50 percent of the proposed facility's output will be used by Oregon customers.

Part II.A specifies the demand to be assumed in each utility's Oregon service area. Demands are based on each utility's proportionate share of the average Oregon demand. Currently, PGE, PP&L, public utilities, and Idaho Power/CP National shares of Oregon loads are 38.7 percent, 33.0 percent, 25.5 percent and 2.8 percent, respectively. A provision is provided to allow utilities to argue for a growth rate in their service area different from the state-wide average. Intervenor's also have the opportunity to argue for different growth rates. Part II.B specifies how out-of-state demand will be considered.

Parts II.A. and B. require demand to be increased by historic system losses and decreased by the amount of conservation which is available. Part II.D. defines the amount conservation available in Oregon. Part II.B. requires non-Oregon service areas to be as effective in implementing conservation as Oregon service areas.

Parts III.A. and B. require applicants to quantify all their resources including those located out-of-Oregon. Part III.A. establishes a mechanism to assign part of out-of-Oregon resources to Oregon. Part III.C. requires consideration of contracts for energy. Part III.E. identifies the amount of energy available from renewable resources. Part III.B. requires non-Oregon service areas to pursue renewable resources to the same extent as Oregon is successful.

Part V establishes procedures for revising the need-for-power standard.

Attachment 3, by way of a hypothetical example, illustrates the mechanics of the standard.

Exception

The need-for-power standard requires the applicants to show that both their Oregon and non-Oregon service areas will need the output of the proposed facility. However, in certain circumstances applicants will not be required to show a need-for-power for their non-Oregon service areas.

The justifications for permitting an exemption are several. First, Oregon has in the past relied on other states to build energy facilities to serve Oregon needs. Oregon should be willing to reciprocate so long as Oregon's environmental standards are met. Further, Oregon performs an independent assessment of need. Some states (for example, Washington) in the Northwest have decided to rely on utility forecasts. If other states rely on utility forecasts to determine needs or if they prepare their own independent forecasts, Oregon should not second guess them. Moreover, Oregon has no independent means of assessing out-of-state needs. In the end, the Council would have to rely on data provided by the utilities with out-of-state service areas. Finally, the Council prefers to devote its efforts to Oregon issues, rather than to forecast energy demand in other states.

Nonetheless, if a large amount of a plant's output will be exported, the Council would want to scrutinize the utility's out-of-state projections. A provision has been included in the standard to specify that the Council will first rely on another state's estimate of demand for their service areas in that state. Otherwise, the applicant is to submit a documented demand forecast which can be rebutted by other participants.

The Council has the authority to provide such an exemption. In Marbet vs PGE the Oregon Supreme Court said that the Council has the discretion as to whether it wishes to consider demand.

The amount of energy which must be intended for Oregon customers before an exemption is granted is a policy matter. Fifty percent and 90 percent use by Oregonians have been proposed. As a practical matter, most new large generating facilities will be jointly owned by Northwest utilities. For example, Pebble Springs would have been owned 40 percent by PGE, 25 percent by PP&L, 25 percent by Puget Sound Power and Light and 10 percent by PNGC. Roughly, half of PP&L and PNGC service areas are in Oregon. This, in combination with PGE's share, would have resulted in about 57 percent of that plant's output being used by Oregonians. Presumably, future plants may have similar ownership shares. Therefore, as a practical matter, if an exemption is to be useful, 50 percent is a better choice.

The Council concludes that the exemptions should be based on 50 percent of the energy going to Oregonians and that if Oregon is not an importer of energy no exemption should be permitted.

The standard includes a requirement that utilities with out-of-state service areas rely on conservation and renewable resources to meet part of their demand. This requirement will be important when the out-of-state exemption is not allowed. The requirement is that utilities be as effective in providing conservation and renewable resources in their out-of-state service areas as in Oregon. The Council does not believe that there will be equal opportunities in-state and out-of-state but on balance the same percent of growth should be capable of being met by some combination of conservation and renewable resources.

Summary Statement

The Council has decided that it would adopt a prospective need-for-power standard as the best way of influencing the direction of Oregon's energy development. The Attorney General has affirmed this as a preferable means of performing the Council's responsibilities.

The Council does not offer the need-for-power standard as the "right" or "only" answer. Because of the uncertainties, the Council expects the standard may be incorrect in some respects. The standard is the Council's best estimate in light of the many uncertainties associated with demand forecasting and development of supply estimates.

Despite these shortcomings the Council has made the necessary judgments to arrive at a need-for-power standard. As the data change the Council will review its judgments and make the appropriate changes.

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ATTACHMENT 1

Rule 345-111-020 Need for Power

- I. In order to issue a site certificate for a biomass or fossil-fueled power plant the Council must find that:
 - A. All the energy from that portion of the facility designated to serve Oregon customers will be demanded by customers in the applicants' combined Oregon service areas during at least one of the five years following the date the proposed facility is to be placed in-service. Demand shall be demonstrated by comparing firm demands with firm resources; and
 - B. All the energy from that portion of the facility designated to serve non-Oregon customers will be demanded by customers in the applicants' combined non-Oregon service areas during at least one of the five years following the date the proposed facility is to be placed in-service. Demand shall be demonstrated by comparing firm demands with firm resources.
 - C. The proposed facility's output shall be designated first by ownership shares and then by the allocation process in Part III.A.
- II. Energy demand for the purposes of this standard will be calculated as follows:
 - A. Demand in Oregon Service Areas -- Applicants' firm demand in their Oregon service areas is rebuttably presumed to be their share of Oregon's energy demand (excluding Direct Service Industries served by the Bonneville Power Administration). The applicants' share of Oregon's energy demand is directly proportional to their share of Oregon loads averaged over the last 5 years for which data are available. Oregon's energy demand in 1979 is assumed to be 3904 average MW and will increase at an annual rate of 3.8 percent through 1985, 2.4 percent from 1985 to 1990, 1.8 percent from 1990 to 1995, and 1.6 percent from 1995 to 2000.

These Oregon energy demand values shall be increased by each applicant to include its historic system losses due to transmission, distribution and internal use. Applicants shall also reduce these demand values by the amount of conservation identified in Part II.D.

- B. Demand in Non-Oregon Service Areas -- Applicants' firm demand in their non-Oregon service areas is rebuttably presumed to be as provided in demand forecasts utilized by the state(s) in which the applicants' non-Oregon service areas are located. If state forecasts are not available, non-Oregon demand is rebuttably presumed to be as provided in demand forecasts utilized by the applicants. The applicants' demand forecast must be provided with documentation of its methodologies and assumptions.

These non-Oregon energy demand values shall be increased by each applicant to include its historic system losses due to transmission, distribution and internal use. Applicants shall also reduce these demand values by the amount of conservation resources projected for non-Oregon service areas.

Conservation resources available in non-Oregon service areas are rebuttably presumed to constitute in each state in each forecast year resources equal to the same percentage of applicants' firm loads in that state as the resources listed in Table 2, Line 4 are to Oregon's total load. This presumption may be rebutted by showing that in any specific state a conservation resource included in Table 2 is available to a greater or lesser extent than presumed for non-Oregon service areas or has been projected in the forecasts used by the applicants.

- C. Determination of Applicants' Service Areas -- In addition to the geographical territories which have historically constituted the services areas of the applicants, Oregon and non-Oregon services areas may include other distinct geographical areas continuously served by contract for firm energy for resale by applicants between 1975 and 1980 and as of January 1, 1981.

- D. Quantification of Conservation Resources -- Conservation resources as used in Part II.A means the applicants' proportionate share, based on their share of Oregon loads averaged over the last five years for which data are available, of the energy savings shown in Table 2, Line 4. (Conservation resources include those efforts to reduce the amount of electricity which a utility must supply whether the effort is by using less electricity or use of renewable resources at the point of use.)

III. Energy resources for the purpose of this standard will be calculated as follows:

- A. Resources for Applicants' Oregon Service Areas -- Applicants' with Oregon service areas shall include as firm resources their share of existing, licensed, contract (Part III.C) and renewable resources (Part III.E) less any retirements.

For applicants serving customers both inside and outside Oregon existing, licensed, contract (Part III.C) and renewable resources (Parts III.B and E) will be allocated to each state in each forecast year based on the state's share of the applicants' total forecasted demand (from Parts II.A and B) for that year.

- B. Resources for Applicants' Non-Oregon Service Areas --
Applicants' with non-Oregon service areas shall include as firm resources their share of existing, licensed, contract (III.C) and renewable resources less any retirements.

For applicants serving customers both inside and outside Oregon existing, licensed, contract and renewable resources will be allocated as in Part III.A.

Renewable resources available in non-Oregon service areas are rebuttably presumed to constitute in each state in each forecast year resources equal to the same percentage of applicants' firm loads in that state as the resources listed in Table 3 are to Oregon's total load. This presumption may be rebutted by showing that in any specific state a renewable resource included in Table 3 is available to a greater or lesser extent.

- C. Contract Resources for All Applicants -- Applicants' resources shall include their contracts for firm energy allocated per Parts III.A and B, including but not limited to any share of the total Bonneville Power Administration (BPA) allocation to Oregon. It will be rebuttably presumed that any contracts with BPA expiring during the forecast period will be renewed with the same terms.

- D. Basis for Estimating the Average Energy Available from Resources -- Applicants' firm resources will be evaluated as follows:

1. Hydroelectric Plants: at critical water, as defined in Section 2, Part 1, of the Agreement for Coordination of Operations Among Power Systems of the Pacific Northwest, Contract No. 14-02-9822.
2. Coal Plants: 70 percent annual capacity factor.
3. Nuclear Plants: 70 percent annual capacity factor.
4. Oil-fired and gas-fired plants existing as of September 1980: 25 percent annual capacity factor or as limited by permit.
5. Oil-fired and gas-fired plants proposed after September 1980: 17 percent annual capacity factor.
6. All others: as specified by contract or if not governed by a contract a documented estimate shall be used.

- E. Quantification of Renewable Resources -- Renewable resources as used in Part III.A means the applicants' proportionate share, based on their share of Oregon loads averaged over the last five years for which data are available, of the energy resources shown in Table 3. The magnitude of resources shown in Table 3 will be reduced by the amount of the proposed facility's output if that facility is of a type listed in Table 3.
- IV. Exemptions from Part I.B, Non-Oregon Needs -- The Council will exempt applicants from Part I.B of this standard if Oregon will continue to be a net importer of electricity after construction of the proposed facility and at least 50 percent of the facility's net energy output is designated (per Part I.C) to serve Oregon customers. Projected net imports are shown in Table 1.
- V. Revisions -- The projections made in this standard will be reviewed and brought up to date if necessary when the Council determines that new information warrants such change. Additionally, the EFSC will review these projections at least every two years and upon receipt of a Notice of Intent to file an application. The Council will also review numerical projections of this standard in a site certificate proceeding if a party proves that the projections or the data as applied to the applicants are incorrect.

Table 1

OREGON NET IMPORTS OF ELECTRICITY

Net Imports are defined as the difference between private and public utility resources dedicated to Oregon and the sum of the electrical energy producing resources wholly within Oregon's boundaries.

	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
Utility Resources Dedicated to Oregon	3,753	3,849	3,989	4,135	4,096	4,066	4,030	4,015	3,995	3,976	3,958
Resources Within Oregon	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>	<u>1,910</u>
Net Imports	1,843	1,939	2,079	2,225	2,186	2,156	2,120	2,105	2,085	2,066	2,048

Table 2

CONSERVATION PROGRAMS
(Average Megawatts)

1. <u>Residential</u> - Parts B through F are actions which will result in additional savings above that assumed in the Demand Forecast. Part A is the savings assumed in the Demand Forecast.	<u>85</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>
A. Savings Assumed in Demand Forecast	32.0	44.0	49.0	54.0	59.0	64.0	70.0	76.0	82.0	88.0	94.0
B. Increased Retrofit Standards for DVA	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5
C. Mandatory Weatherization in Portland	1.5	1.8	2.1	2.4	2.7	3	3.3	3.6	3.7	4.2	4.5
D. Expansion of Zero Percent Financing for Multi-Family Units	2.0	2.4	2.8	3.2	3.6	4	4.4	4.8	5.2	5.6	6
E. Hook-up Charge for New Electric Residences	0	0	0	0	0	0	0	0	0	0	0
F. Substitution of Gas Hot Water Heaters	14.0	17.0	20.0	22.0	25.0	28.0	29.0	31.0	32.0	34.0	35.0
2. <u>Commercial</u> . The following savings are assumed in the Demand Forecast.	123	135	148	162	187	216	245	276	307	339	372
3. <u>Industry</u> . The following savings are assumed in the Demand Forecast.	140.0	153.0	167.0	182.0	201.0	222.0	247.0	274.0	304.0	337.0	372.0
4. Total Conservation above that included in the Demand Forecast. (Parts 1B through F)	21.0	25.2	29.4	32.6	36.8	41.0	43.2	46.4	48.4	51.8	54.0
5. Total Conservation	316.0	357.2	393.4	435.6	483.8	544.0	605.2	672.4	741.4	815.8	892.0

Table 3

RENEWABLE RESOURCES
(Average Megawatts)

	<u>85</u>	<u>86</u>	<u>87</u>	<u>88</u>	<u>89</u>	<u>90</u>	<u>91</u>	<u>92</u>	<u>93</u>	<u>94</u>	<u>95</u>
1. Wind	4	6	8	10	15	20	25	30	35	40	45
2. Solar Electric*	0	0	1	1	1	1	1	1	1	1	1
3. Geothermal Electric	0	0	10	10	10	20	20	40	40	60	60
4. Co-generation and Biomass	50	60	70	80	90	100	110	120	130	140	150
5. Hydroelectrical	60	75	90	105	130	150	160	170	180	190	200
6. Geothermal Direct Use and Heating Districts	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Total	114	141	179	206	246	294	319	364	389	434	459

* Values have been rounded to the nearest 1 MW. It is anticipated that 1 peak MW will be available in 1987 and 2 peak MW in 1990.

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Attachment 3

DEMONSTRATION OF THE NEED-FOR-POWER STANDARD

Hypothetical Case -- Assume two companies each own half of a proposed 80 average MW renewable resource project which would be in service in 1990. Assume company X will have one-third of its service area within Oregon in 1990 and company Y's entire service area is in Oregon. Assume Company X serves 20 percent of Oregon loads and Company Y serves 40 percent. Assume both companies have system losses of 9.5 percent. Assume Company X and Y have 3,012 MW and 2,050 MW total resources licensed and existing, respectively. Assume neither company has any contracts for firm energy.

Mechanics of the Standard

1. In Oregon Service Areas

- A. Demand -- per Part II.A the demand is calculated based on a proportionate share of an average Oregon demand. The growth rates in Part II.A result in total Oregon demand of 5,490 MW in 1990. The combined loads served in Oregon by the two applicants are 60 percent of the total Oregon loads. Therefore, the applicants are permitted to develop resources equivalent to 3,295 MW ($60\% \times 5,490 \text{ MW}$).

System losses would add an additional 313 MW ($9.5\% \times 3,296 \text{ MW}$). Part II.A requires a reduction in the demand because of conservation. In 1990 41 MW of conservation is expected above that in the demand forecast (Part II.D). Because the applicants serve 60 percent of Oregon loads, they must develop 24 MW (60 percent of 41 MW) of conservation above that in the forecast. The total demand is about 3,584 MW.

- B. Resources -- Part III.A requires that Company X, which has service areas outside Oregon, allocate a portion of its resources to its Oregon service areas. The allocation is based on the share of loads in Oregon. Therefore, one-third of Company X's total existing and licensed resources are assigned to its Oregon service area. Thus, Company X must include 1,004 MW as a resource ($1/3 \times 3,012 \text{ MW}$).

Part III.A requires that for utilities with service areas wholly in Oregon, all existing and licensed resource shall be included. This amounts to 2050 MW for Company Y.

Part III.A also allocates Company X's share of renewable resources. In 1990 the total renewable resources are projected to be 294 MW (Part III.E). Because the proposed facility is a renewable resource, it can be subtracted from Table 3 ($294 - 80 \text{ MW} = 214 \text{ MW}$). Company X serves 20 percent of the Oregon loads so its share is 43 MW ($20\% \times 214 \text{ MW}$). Since one-third of Company X's service area is in Oregon, it must assign 14 MW ($1/3$ of 43) to its Oregon service areas.

Part III.A also requires Company Y to provide 40 percent of the renewable resources included in the standard (Part III.E) or 86 MW ($40\% \times 214 \text{ MW}$ from Part III.L). (The output of the proposed facility, 80 MW, has been subtracted from Part III.E.)

Part III.C requires that contracts be included as a resource. However, it has been assumed that no contracts exist in this case.

Part III.D was used to estimate the amount of the average energy to be expected from existing and licensed resources and the proposed facility.

- C. Balance -- From the above the combined Oregon demand after subtracting conservation measures) of the two utilities is 3,584 MW. The combined resources for Oregon service areas are as follows:

	<u>Company X</u>	<u>Company Y</u>
Existing and licensed	1,004	2,050
Renewable resources	<u>14</u>	<u>86</u>
Total	1,018	2,136
SUM		3,154

- D. Conclusion -- The applicant's demand exceeds its resources in their Oregon service areas ($3,584 \text{ MW} - 3,154 \text{ MW} + 80 \text{ MW} \times 1/2 + 80 \text{ MW} \times 1/2 \times 1/3$).

2. In Non-Oregon Service Areas

Table 1 of the standard shows that Oregon is a net importer of energy. Half of the plant's output will be used by Company Y in its Oregon service area. Company X will use one-third of its half share for its Oregon customers. Therefore, 57 percent of the plant's output would be used by Oregonians. Thus, the Council would exempt the owners from showing a need-for-power in the out-of-state service areas.

If a showing had been required, Company X would have to submit a demand forecast for its out-of-state service areas unless a state-wide forecast was available. It would also have to assume 0.7 and 4.9 percent of its total load would be met by conservation and renewable resources per Parts II.D and III.B respectively. These percentages were derived because in 1990 Oregon's total load is 6,020 MW (see Attachment 2) and because 41 MW of conservation and 294 MW of renewable resources would be available to meet this unmet demand (Tables 2 and 3). Thus, 5.6 percent of Oregonian's needs would be met by these sources and it would be presumed that utilities with non-Oregon service areas would be as successful. If out-of-Oregon demand (including system losses) for Company X was 5,000 MW, Company X would have to reduce its demand by 35 MW (0.7 percent x 5,000 MW) to account for additional conservation above that in its forecast. Company X would also have to assume 245 MW (4.9 percent x 5,000 MW) of renewable resources would be available.

3. Siting Decision -- In this case the applicants would have shown that the need-for-power standard had been met. If the environmental standards were also met a site certificate would be issued.

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