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REPORT ON
NUCLEAR PLANT LICENSING REQUIRES VOTER APPROVAL,
WASTE DISPOSAL FACILITY EXISTENCE
(STATE MEASURE NO. 7)

Purpose: "Measure would require finding of existence of federally licensed permanent disposal facility for spent nuclear fuel and high-level radioactive wastes, before site certificate for nuclear power plant is granted or Public Utility Commissioner approves plant financing. Voter approval of site certificate issuance at statewide election also required. Measure would not effect (sic) site certificate granted before November 15, 1980, and would not prevent site certificate applicant from obtaining other necessary plant license."

To the Board of Governors,
The City Club of Portland:

I. INTRODUCTION

Measure 7 is proposed legislation which has been placed on the November 1980 ballot by initiative petition.

In analysing the Measure, the Committee has attempted to consider the state, regional and national effects of such legislation and has made a studied effort to avoid the pro-nuclear, anti-nuclear battleground. Instead, the Committee has focused on the ballot measure question, itself:

Question: Shall existence of federally licensed permanent nuclear disposal facility, and voter approval, be required for nuclear plant certificate?

and, on the two major issues raised in sections three and four of the Measure's nine sections:

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. ...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 statewide general election...

II. BACKGROUND

National

In 1957 the first commercial nuclear electric power generator in the United States began operation in Shippingport, Pennsylvania. At that time nuclear power was viewed by most Americans as the "ideal" energy source of the future. There were few hints that it would become highly controversial and that early projections of 1,000 operating nuclear reactors by the year 2000 would be replaced in 20 years by the reality of an industry nearly stalled in its tracks.

Nuclear power plants produce dangerous radioactive waste materials, some of which pose long-term environmental and health hazards. The method of safe storage is the subject of continuing controversy. Present disposal technology allows for interim storage in on-site cooling pools.

Within a few months of the Shippingport reactor's startup, the National Academy of Sciences issued a report proposing terminal disposal of nuclear wastes in geologic formations, recommending deep salt beds as the most suitable candidates as sites for disposal. While alternative disposal methods have been proposed, geologic disposal remains the choice of nearly all experts. However, the projected length of time needed before an actual terminal nuclear waste holding facility can be operating has increased, not decreased, as time has passed, with 1995-2000 being the current estimate.

As the opposition to nuclear power grew, it focused on two issues: operational safety and nuclear waste disposal. Questions about geologic waste disposal were raised and publicly discussed, and experts and public alike recognized that some serious questions could not be answered because insufficient information was available. Nuclear power proponents have remained confident that these questions can be satisfactorily answered within a reasonable period of time; opponents have questioned this conclusion and insist that until the questions have been definitively answered the construction and operation of nuclear power plants should not continue.

In regard to federal waste management, policy-makers have vacillated during this period. At first underestimating the power of the opposition, nuclear experts did not give waste disposal priority, and resources were diverted to research on the next generation of nuclear power generating hardware. When nuclear scientists realized they were dealing with very serious technical and political problems regarding waste, there was disagreement about the thrust of the effort to resolve the problems. Emphasis shifted from terminal disposal in underground salt beds to long-term but non-terminal storage and back to terminal disposal in a number of possible media (salt, basalt, shale, or granite).

In 1973 the discovery that 115,000 gallons of highly radioactive nuclear waste had leaked from storage tanks at Hanford, Washington, struck a blow to public confidence in the government's ability to contain nuclear wastes. This was offset somewhat by what appears to be efficient retention of the wastes in the Hanford soil, without contamination of ground water, and by the discovery that the wastes of a natural fission reactor, which had been active two billion years ago in Oklo, Gabon, West Africa, had been contained in adjacent geologic strata without contamination of the biosphere.

In 1977 President Carter announced his policy of non-proliferation, which included a decision not to reprocess nuclear wastes to remove long-lived isotopes so they could be reintroduced into reactors for consumption as fuel. This decision meant that in addition to the fission products which decay to safe levels within 700 to 1,000 years, the terminal waste disposal facility would need to safely contain the actinides isotopes having activity above background for periods up to several hundred thousand years. Although long-lived, these actinides have low levels of radioactivity which are comparable to many natural radioactive ores.

While these events have led the United States to proceed slowly and cautiously on nuclear power development, much of the rest of the developed nations are more aggressive. France, the Soviet Union and Japan are committed to extensive nuclear programs, and following various levels of public debate, the governments of many West European nations are following suit. France is taking the lead in both reprocessing of nuclear wastes and development of the breeder reactor. No nation has begun terminal storage of nuclear wastes, but each is convinced that such facilities can be made available in the near future.

State

Ballot Measure No. 9, placed on the 1976 general election ballot by initiative petition, would have restricted the licensing of nuclear power plants in Oregon pending determination, by a two-thirds vote of each house of the Oregon legislature, that certain safety standards were met. This included a requirement that the legislature find that wastes from the proposed plant could be disposed of with "no reasonable chance" of escape or diversion. The City Club opposed the Measure and it was defeated at the polls.

In the 1979 Oregon legislature HB 2570 was a major battleground for prohibiting construction of any further nuclear power facilities in Oregon. The bill as finally approved established a moratorium until November 15, 1980 and directed the Oregon Department of Energy to conduct a study of the Three Mile Island accident and to prepare a "state of the art" assessment of the nuclear waste disposal issue.

In its resulting study of available scientific literature, the Oregon Department of Energy concluded that "repositories for spent fuel disposal will be available and adequate to protect people from injury", for the following reasons:

- migration of radioactivity from spent fuel can be prevented by the slowness of groundwater movement alone;
- spent fuel can be packaged such that the package alone will prevent migration of radioactivity;
- the stability of many geologic formations have been stable (sic) for periods of time ten thousand times greater than the period wastes are a hazard;

1. The series of radioactive elements that starts with actinium and ends with lawrencium.

--the Oklo radioactive isotopes identical to those from Trojan or Pebble Springs have been safely isolated for nearly 2,000 million years;

--when uncertainties associated with spent fuel disposal are considered, the radiation dose to the public is a small fraction of natural background levels;

--a geologic repository will be available for commercial operation in the late 1990s and in the interim spent fuel can be safely stored in water cooled basins.²

However, the Oregon Department of Energy report notes that "incomplete data exists that is important to both construction and operation of a waste repository and to its suitability for long term isolation". Like other recent sources, the report recognizes that more information is needed about the long-term integrity of geological formations -- particularly after they have been disturbed by digging required for placing the wastes in the disposal site -- and about specific candidate disposal sites, before it will be possible to establish and put into use a secure terminal nuclear waste disposal facility with complete confidence that no radiation will escape.

The supporters of an earlier version of HB 2570, which would have prohibited siting of nuclear power plants in Oregon until a permanent waste storage facility was operational, made some modifications to their measure. Those modifications, circulated in an initiative petition, became Ballot Measure 7.

Current Developments

In July 1980 the U.S. Senate approved a bill providing long-term waste storage until a terminal facility is established. This action was taken recognizing that on-site storage facilities at existing nuclear reactors will not be sufficient to handle wastes generated until permanent storage questions are resolved, and that some of the older commercial wastes have been in storage long enough that the ability of their "cladding" (the metal container that holds fuel pellets) could break down and release waste.

The Senate Bill (S. 2980) provides:

--establishment of "Away From Reactor" holding pools for short-term accommodation of spent fuel;

--establishment of a long-term storage facility for high-level waste that holds wastes within a lead container in a secure concrete vault, with active monitoring, until terminal storage can be provided.

The Bill also creates a special fund to pay for transportation, handling, and the construction and operation of these facilities, to be financed through a user fee to be paid by utilities with nuclear power plants.

Jurisdiction in the House is shared by three Committees which are actively considering the Bill at this writing. There is question, however, whether time remains in this Congress for the House to complete action and for differences in the two versions to be resolved in conference.

². Oregon Dept. of Energy. Reports on Disposal of Spent Fuel and Accident at Three Mile Island. 1979 .

III. ARGUMENTS ADVANCED IN FAVOR OF THE MEASURE

Your Committee heard the following arguments advanced in testimony:

A. Measure 7 would prevent the construction of new nuclear power plants in Oregon until the federal government finds a permanent solution to the problem of disposal of high-level radioactive wastes.

1. The record of the federal government action in addressing the disposal issue is questionable.

2. There are no existing sites for permanent, terminal disposal of high-level radioactive wastes. Pressure must be placed on the federal government to provide such sites.

3. There is already a need for new sites to handle spent nuclear fuel. Industry is redesigning some on-site storage pools to make them more compact and in doing so may violate the integrity of the pool design.

4. Terminal disposal is preferable to reprocessing nuclear wastes. Reprocessing adds significantly to the risks of exposure, proliferation and sabotage.

5. Some actinides in reprocessed wastes have half-lives of 24,000 years requiring a period of ten half-lives or 240,000 years before safe levels are reached.

6. High-level radioactive wastes are a potential source of cancer and genetic disease and must be disposed of in sites safe from accidents, sabotage and theft.

B. Because voters bear the financial, physical and moral burden of nuclear energy, they should be involved in the decision to site new nuclear power plants.

1. The existing glut of electrical generating capacity nationwide produced a capacity in 1978 which was 38 percent higher than the peak load for the year. Oregon can satisfy its energy need until the year 2000 through conservation and solar power.

2. The development of renewable energy sources such as solar power creates more jobs per dollar than nuclear.

3. Nuclear power should be banned because it is unsafe and unnecessary.

IV. ARGUMENTS ADVANCED AGAINST THE MEASURE

Your Committee heard the following arguments advanced in testimony:

A. Congress is now taking steps to solve the problem of nuclear waste disposal. The Oregon Department of Energy study on waste disposal finds that terminal storage will be available in the United States by the late 1990s and that, in the interim, spent fuel can be safely stored in water cooled pools.

1. Based on the federal government's schedule for preparing permanent nuclear waste disposal sites, the Measure will effectively preclude the operation of another nuclear power plant in Oregon for approximately 30 years.

2. State regulation of nuclear waste disposal is pre-empted by federal law.

3. The Measure would prevent an Oregon investor-owned utility from participating in the financing or construction of a nuclear power plant built outside the State of Oregon.

4. The terminal waste depositories mandated in the Measure do not allow for the economical reprocessing of fuel at a later date. The need for breeder reactor fuel outweighs the problems of nuclear proliferation.

5. Radioactive wastes should be processed prior to disposal to reduce the hazards of storage of the remaining waste materials.

B. The issues involved in evaluating the risks and benefits of all energy sources may be too complex for the public to decide.

1. Oregon and the Northwest face an energy shortage of 4,000 megawatts by 1990 and we must plan now for future generating capacity.

2. The Measure effectively bans nuclear power by requiring the industry to make a substantial investment of time and money prior to a statewide vote on siting a facility.

3. Requiring a vote in siting nuclear power plants will send new nuclear plants with their attendant jobs, tax revenues and commerce to adjacent states.

4. Decisions of such technological complexity should be made by regulatory agencies.

5. Even some opponents of nuclear power have reservations about the Measure because of its piecemeal approach.

V. DISCUSSION

Throughout the history of nuclear power plant construction in the United States, plants have been built before the question, "How safe is safe enough?" has been resolved. The experience has produced delays, equipment retrofits, uncertainties and cost increases. As a result, the public now argues for increased caution about designing and building a nuclear waste repository before siting a nuclear power facility.

Both State Measure 7 and its earlier version, HB 2570, are attempts to write legislation which asks the question, "How safe is safe enough?"

Measure 7, described as the petition initiated to complete the unfinished business arising out of the 1979 passage of HB 2570, requires the existence of a federally licensed storage facility before the Energy Facility Siting Council can issue a siting certificate. It, in effect, extends the moratorium on nuclear power plant construction in Oregon. It further provides for voter approval or rejection of all proposed siting certificates.

The extension of the moratorium is seen by some public interest groups simply as a means to delay the siting of nuclear plant facilities in Oregon until such time when the federal government can come to grips with the issue of terminal waste disposal. It is viewed by others as a device to ban nuclear power in Oregon until approximately 2010. While there is general agreement that the provision for voter approval or rejection of a proposed siting certificate brings direct citizen involvement into the issue of developing nuclear power in Oregon, proponents and opponents alike, candidly agree that voter approval on a site-by-site basis would

likely ban nuclear power in Oregon. Utility companies would be reluctant to invest the necessary time and expense in the face of the uncertainty and added delay imposed by the requirement of voter approval of a specific site.

How effectively State Measure 7 addresses the question of nuclear waste disposal lies in the discussion of two issues: federal action in solving the terminal waste storage problem, and public involvement in developing a national energy policy.

Proponents of the Measure believe that the burden to ensure safe disposal and management of high-level radioactive waste is on government and industry. Acknowledging the responsibility for that burden, representatives of government and industry report that Congress is now taking steps to solve the problem of nuclear waste disposal, that terminal storage would be available in the United States by the late 1990s and that interim storage can be provided. The issue places the government and industry in the position of demonstrating something which by definition would take centuries or longer.

To date, the efforts of federal and industry nuclear power promoters, attempting to reassure the public that nuclear waste management is technologically feasible, have left the public lacking in confidence. In the early 1970s, the Atomic Energy Commission announced that the salt deposits near Lyons, Kansas, had been tentatively selected for a disposal site for radioactive wastes. Later the public learned that a half-mile from the proposed waste facility, owners of a salt mine had experimentally pumped water into the salt formation. About 175,000 gallons of water was lost; no one knew exactly where it had gone. Other problems -- leakage at Hanford, low-level contamination in New York and Kentucky, the event at Three-Mile Island and the possibility of the occurrence of a major nuclear accident in the U.S.S.R. -- reinforce the public's concern about the existence of a safe site for permanent, terminal disposal of high-level radioactive waste.

The government's schedule for providing permanent nuclear waste disposal sites was originally based on the assumption that discharged fuel assemblies, after cooling in pools, would be shipped to a reprocessing facility. Now that the perceived risks of exposure, proliferation and sabotage have halted the efforts to proceed with reprocessing, the government is moving to develop interim storage by increasing the storage capacity of on-site pools and by constructing regional or national spent-fuel storage facilities away from the reactors. While the government believes this interim measure will allow the time required to meet its 1990s deadline for providing safe terminal storage, its critics believe that the increased load on pools will jeopardize the integrity of the storage racks as well as the overall design of the disposal system. Government and the utilities are concerned about the effect Measure 7 will have on the schedule for construction and operation of future nuclear power plants in Oregon. Current lead times of 9-12 years for plant start-up added to the 1990s target for developing terminal storage could preclude the operation of a new nuclear power plant in Oregon until about 2010.

The political considerations and emotional concerns generated by these past decisions and shifts in policy may well jeopardize even the latest U.S. target for solving the terminal waste storage problem during the 1990s.

Both proponents and opponents are concerned about the issue of federal pre-emption with respect to the nuclear waste management aspects of the ballot measure. Present case law indicates that state governments are pre-empted from regulating any matter concerning radioactive hazards associated with nuclear power plants. Matters not related to radioactivity may be regulated by the states.

Two recent federal district court cases from California dealt specifically with a state statutory requirement that no nuclear power plant be certified by the California Energy Commission until it finds that the authorized United States agency has approved a technology for the disposal of high-level nuclear wastes. The California statute was held unconstitutional because of federal pre-emption. Arguments have been made that the cases were not correctly decided.

In Oregon, Measure 7 goes beyond this by requiring that a repository for such wastes be licensed by the appropriate federal agency for terminal disposition of the waste.

The issue of federal pre-emption of state regulation of waste materials from nuclear power plants through plant licensing procedures has not been decided by the Federal Appeals Courts. Because of this there is an increased likelihood of federal pre-emption of this portion of Measure 7.

Another concern is the possibility that the Measure would prohibit the Oregon Public Utility Commissioner from authorizing a utility's issuance of stocks, bonds or other evidence of indebtedness to finance any nuclear power plant until the Siting Council has found that the appropriate Federal agency has licensed a terminal waste disposal facility. By connecting such financing to the waste disposal finding, Oregon utilities may be prohibited from participating in the construction of plants in or out of the state. This could affect the energy supply for the entire region and not just for Oregon. However, public utility districts are not subject to the same limitations and would be able to participate in the financing and construction of nuclear power plants outside of the state of Oregon.

Because voters will ultimately bear the financial, physical and moral burden of nuclear power, they are now demanding to be involved in making the decision, "How safe is safe enough?" Provoked by the "not in my backyard" syndrome, and the general concern related to leaving the issue of nuclear waste disposal management totally in the hands of the utilities and regulatory agencies, voters in Kansas, Michigan, South Dakota, New Mexico and California have approved legislation similar to that proposed in Measure 7. The prospects for passage of the Measure in Oregon are based on an attitude poll taken during the past legislative session. In that poll, a substantial majority responded in favor of the extended moratorium on nuclear plant siting rather than in favor of its option, a ban. The poll further indicates that Oregon voters want more time to solve the problem of terminal waste disposal and that perhaps proponents and opponents alike need more time to examine the possibilities for alternative sources of energy and differing lifestyles. For that reason, proponents of the Measure attack the waste disposal question rather than raise the nuclear ban issue.

Proponents and opponents, alike, urge looking ahead to the broader issues in developing a national energy policy. Early energy forecasts based on past consumption figures projected an annual rate of increase at

7 percent prior to the oil embargo. Those early projections came into question at the end of 1975. By the end of 1978, the annual rate had increased by about 3 percent. In 1979, national electrical generating capacity was estimated at more than 30 percent of peak demand, compared to a normal excess of 20 percent.

Analysts now project that present generating capacity will maintain the level of demand for a number of years but that during the 1990s, Oregon and the Northwest may reach an energy shortage of approximately 4,000 megawatts.

However, the Taskforce on Solar Power of the Governor's Commission on Alternative Energy forecasts that conservation, the development of solar power, and existing generating capacity may satisfy Oregon's energy needs until approximately 2000. They further predict that the development of renewable energy sources - solar, wind, tidal and geothermal - by the end of the century could create more jobs per dollar than nuclear energy. In turn, there is disagreement about the technical and social feasibility of alternative energy sources.

As opponents and proponents of the Measure advance these differing positions, forces appear to be gearing up to urge federal, state and local legislatures and agencies to look at impending energy shortages and the future of energy growth as part of a U.S. energy policy. Just out of the U.S. Senate and now before the House is S. 2980 providing long term storage until a terminal facility is established. Perhaps this is the interim step in developing that policy.

VI. CONCLUSIONS

The Committee concludes that Measure 7 is not a reasoned response to the difficult technical and political issues raised in the continuing debate over construction of additional nuclear-fueled thermal power plants.

The Committee found credible experts on both sides of the nuclear power controversy who dispute even basic facts: the period of time necessary for radioactive wastes to become safe; or which geologic formations, if any, are safe for storage of nuclear wastes. If there were general agreement on the basic factual questions raised in this debate, the resolution of policy questions would be greatly simplified.

If the Committee were considering separately the waste disposal issue presented by Measure 7, a 4 to 3 majority of the Committee would recommend a yes vote in favor of the cautious approach assured by such legislation. The entire Committee has serious reservations about the assurances of nuclear power proponents that all waste storage problems will be solved within the next twenty years.

However, the Committee is unanimous in its conclusion that the decision on a specific site for a nuclear-fueled power plant is not a proper decision for referral to the voters on a site-by-site basis. The decision process born in the sparsely populated environment of a town-hall democracy may have been appropriate to frontier New England, but it is no longer adequate in our complex society. Our form of government has evolved step-by-step from town hall to the use of elected and appointed officials, to regulatory agencies, boards, commissions, etc., all of which have a particular usefulness in today's society. The option of initiative

and referendum is valuable, but is best reserved for broad policy decisions. Moreover, citizen input is not foreclosed in the decision process currently in use for siting a nuclear power facility in Oregon. The Energy Facility Siting Council is appointed by the Governor with a requirement of approval by the Senate. Citizen input is then available through the facilities siting hearings process.

The Committee believes that passage of Measure 7 would effectively ban the licensing of nuclear power plants in Oregon for a period in excess of twenty years, absent additional legislation. If the petitioners intended this result, the Measure should have been presented in a more straightforward manner to the voters. The Committee has interviewed a number of experts and has read a vast amount of source material in considering the consequences of the proposed legislation -- advantages which the majority of the public will not have available. The Committee believes that the voters will be inclined to approve Measure 7 without realizing fully the consequences of their vote.

The lead time for the establishment of a nuclear power plant is substantial and involves considerable expense on the part of the utilities in advance of final approval and commencement of construction. Even if the problem of terminal waste disposal is solved within the next twenty years, it is extremely unlikely that utilities would be willing to expend the preliminary time and money required to license a nuclear plant, only then to be faced with the gamble of seeking voter approval of a specific site.

The Committee is also concerned that passage of Measure 7 may preclude an Oregon investor-owned utility from participating in development of nuclear plants in other states as well as Oregon if that utility found it necessary to seek approval for a bond issue to finance its participation.

These concerns lead the Committee to the conclusion that any specific issue in the energy options debate should not be isolated but evaluated and resolved in the larger context of political, economic and lifestyle implications.

VI. RECOMMENDATION

Your Committee recommends the City Club of Portland support a NO vote on Measure 7 at the November, 1980 general election.

Respectfully submitted,

Margery Abbott
Roger Eiss
Thomas A. Hansen
Frank V. Langfitt, III
Joan Swinney
D. Patricia Smith, Vice Chairman
D. Richard Hammersley, Chairman

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APPENDIX A PERSONS INTERVIEWED

John Bryson, Chairman, California State Public Utilities Commission;
former member, Oregon Energy Facility Siting Council
Howard M. Dupuy, Jr., author of Voters' Pamphlet statement in opposition
to Measure 7
Don Goddard, Administrator, Oregon Department of Energy
Steven Hickock, U. S. Senate Energy Committee staff.
Myron B. Katz, Planning Officer, Bonneville Power Administration
John Lobdell, Public Utility Commissioner, State of Oregon
Lloyd K. Marbet, Forelaws on Board
R. J. Okoneski, member, City Club Committee on 1976 State Measure 9
Tom Walt, Engineering Division, Portland General Electric
State Senator Jan Wyers, District No. 6, chief petitioner, State Measure 7
William Clements, Assistant to Commissioner Peter Bedford, Nuclear
Regulatory Commission.

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